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Explaining the Logics of Japanese Space Policy Evolution
1969-2016, Combining Macro- and Microtheories,
Notably The Strategic Action Field Framework

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Abstract

In April 2016, in *Basic Plan 2016*, Japan produced what amounted to Japan's first timetabled implementation of a series of space programs that are specifically designed to support a more proactive U.S.-Japan alliance role in maintaining a favorable balance of power with China and to more robustly defend Japan against North Korean ballistic missile threats. This policy represents a significant departure from a near 50-year history during which Japanese space activities were prevented from any involvement in national security. The policy is also the result of a long drawn out process of navigating complex interrelationships between external security threats, the U.S.-Japan alliance, and internal policymaking, involving intensive coordination between with Japanese political, bureaucratic, and industrial constituencies.

The workings of these interrelationships have largely remained unexamined and unexplained, especially in the most critical period 2008-2016 leading up to *Basic Plan 2016*. Debate on Japanese space policy so far has been mainly based on top-down models involving traditional macrotheoretical analytical frameworks used mainly to demonstrate how policy change evinces more fundamental continuity in Japan's security strategy. Traditional microanalytical approaches have focused on how institutions resist change and challenges.

Yet the evidence gathered in this dissertation shows that in the period 2008-16 there were demonstrable and dynamic changes not only in the expression and objectives of Japanese space policy, but also in the institutional arrangements required to enact them. This dissertation seeks to demonstrate and delineate those changes and interrelationships. To accomplish those goals, this investigation employs the first use of Strategic Action Field theory (the SAF framework) to study and explain the transformation of Japanese space policy. The SAF framework is used to comprehensively analyze the logics of Japanese space policy and institutional change. It achieves this by analyzing how groups of stakeholders in both the sphere of international relationships and domestic players (politicians, ministries, institutions, etc.) dynamically interacted to produce Japan's new policy and institutional arrangements. While uncovering the logics behind Japan's policy, it also notes how progress in policymaking and implementation was forged by a group of experts who have helped push more policy coordination power into the Prime Minister's Cabinet Office.

Key Words: Japanese Space Policy, International Relations Theory, Strategic Action Field Framework

要旨

戦略的行動理論を導入した 1969～2016 年の日本の宇宙政策進化における論理の究明

宇宙基本計画（平成 28 年 4 月 1 日閣議決定）は、この政策は前の政策とは大きく違い、初めて、具体的なスケジュールを設定し計画したというところに特徴が見られる。またその内容は、一つは日米同盟の強化という点、そして中国を制約するため、また北朝鮮の弾道ミサイル脅威から日本を防衛するという 3 つの重要な役割をもっている。

この政策は、日本の宇宙活動が国家安全保障に関与していない 50 年近くの歴史からみても飛躍的に違いがある。そしてこの政策が決定する過程で、外部の安全保障上の脅威と、日米同盟の維持、内政における政権と官僚との複雑な相互関係のバランスを考慮することは困難であった。

現在に至るまで、この政策が決定されるにあたっての複雑な内部における相互関係について学術的に具体的な枠組みを検証し説明されることがなかった。

これにおいて、一般的に 2 つのアプローチが考えられる。

一つは国際関係論によるアプローチであり、もう一つはミクロ理論である。双方ともに、なぜ日本政策を根本的に変えることが困難なのかということ部分を論点として説明がなされるという傾向が見られる

この論文は、Strategic Action Field (戦略的活動フィールド) 理論を導入した最初の試みとなっている。SAF 理論の特筆する点は、国際機関、内閣、省庁、民間、市民、といった様々なレベルにおいて枠組みをもち同時にそれら全てを包括できるロジックを持っていることである。

最終的に、この論文では内閣府内部において少数の有識者と共に、関与する中央政府省庁との強い対立を避けて、政策を打ち立てたことを結論づけている。

キーワード：日本の宇宙開発政策、国際関係論、Strategic Action Field（戦略的活動フィールド）理論

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LIST OF ABBREVIATIONS

| | |
|--------|---|
| ADEOS | Advanced Earth Observing Satellite |
| A2/AD | Anti-access/anti-denial |
| ARC | Administrative Reform Councils |
| ALOS | Advanced Land Observing Satellite |
| ASAT | Anti-Satellite (weapon or system) |
| ASBC | Advanced Space Business Corporation |
| ASDF | Air Self-Defense Force |
| ASEAN | Association of Southeast Asian Nations |
| ASNARO | Advanced Satellite with New System Architecture for Observation |
| AUGI | Basic Act on the Advancement of Utilizing Geospatial Information |
| AVSA | Avionics and Supersonic Aerodynamics Research Group |
| BMD | Ballistic Missile Defense |
| C3ISR | Command, Control, Communications, Intelligence, Surveillance, and Reconnaissance |
| C4ISR | Command, Control, Communications, Computers, Intelligence, Surveillance, Reconnaissance |
| CCS | Chief Cabinet Secretary |
| CEFP | Council on Economic and Fiscal Policy |
| CD | Conference on Disarmament |
| CIRO | Cabinet Intelligence and Research Office |
| CO | Cabinet Office (Prime Minister) |
| COMETS | Communications and Broadcasting Engineering Test Satellite |
| CPSDU | Committee for the Promotion of Outer Space Development and Utilization |
| CRL | Communications Research Laboratory |
| CSIS | Center for Strategic and International Studies |
| CSIC | Cabinet Satellite Intelligence Center |
| CSD | Collective Self-Defense |
| CSTI | Council for Science, Technology and Innovation |
| CSTP | Council for Science and Technology Policy |
| DARPA | Defense Advanced Research Projects Agency (U.S.) |
| DDF | Dynamic Defense Force |
| DIH | Defense Intelligence Headquarters |
| DPJ | Democratic Party of Japan |
| DOD | Department of Defense (U.S.) |
| DRTS | Data Relay Test Satellite |
| DS2000 | Melco (Mitsubishi Electric) standard satellite bus (chassis) for GEO |
| ELINT | Electronic intelligence (covert intelligence-gathering by electronic means) |
| EO | Earth Observation |
| ETS | Engineering Test Satellite (series developed by NASDA and JAXA) |

| | |
|-----------|---|
| EW | Early warning |
| EXPRESS | Experiment Re-entry Space System |
| FSC | Fundamental Strategy Committee |
| GEO | Geostationary Earth Orbit |
| GEOS | Global Earth Observation System |
| GNP | Gross National Product |
| GPS | Global Positioning System (U.S.) |
| GSDF | Ground Self-Defense Force |
| GX | Galaxy Express |
| HYFLEX | Hypersonic Flight Experiment |
| IADC | Inter-Agency Space Debris Coordination Committee |
| ICoC | International Code of Conduct for Outer Space Activities |
| IDOJ | <i>In Defense of Japan: From the Market to the Military in Space Policy</i> |
| IGS | Information Gathering Satellite |
| ICBM | Intercontinental ballistic missile |
| INTELSAT | Intergovernmental International Telecommunications Satellite Consortium |
| IRBM | Intermediate-Range Ballistic Missile |
| ISAS | Institute for Space and Astronautical Science |
| ISR | Intelligence, Surveillance, and Reconnaissance |
| ISS | International Space Station |
| JAXA | Japan Aerospace Exploration Agency |
| JDA | Japan Defense Agency |
| JDAM | Joint Direct Attack Munitions |
| JRANS | Japanese Regional Advanced Navigation Satellite |
| JspOC | Joint Space Operations Center |
| Keidanren | Japan Business Federation |
| LDP | Liberal Democratic Party |
| LEO | Low Earth Orbit |
| Melco | Mitsubishi Electric Corporation |
| MEO | Medium Earth Orbit |
| MEXT | Ministry of Education, Culture, Sports, Science and Technology |
| MDA | Maritime Domain Awareness |
| METI | Ministry of Economy, Trade and Industry |
| MHI | Mitsubishi Heavy Industries |
| MIC | Ministry of Internal Affairs and Communications (formerly MPHPT) |
| MITI | Ministry of International Trade and Industry (now METI) |
| MOD | Ministry of Defense |
| MOE | Ministry of Education |
| MPHPT | Ministry of Public Management, Home Affairs, Posts and Telecommunications |
| MOS | Maritime Observation Satellite |
| MPTD | Mid-Term Defense Program |
| MSDF | Maritime Self-Defense Force |
| MTS | Mid-Term Statement |
| NASDA | National Space Development Agency |
| NEC | Nippon Electric Corporation |
| NAL | National Aerospace Laboratory |
| NDPG | National Defense Program Guidelines |
| NHK | Nippon Hōsō Kyōkai |
| NSAC | National Space Activities Council |
| NSB | National Strategy Bureau |
| NSC | National Security Council |
| NSDC | (National Space Development Center) |
| NSS | National Security Strategy |
| NSSPG | National Space Strategy Planning Group |
| NSSS | (Japanese) National Security Space Strategy |
| NTT | Nippon Telegraph and Telephone |
| ODA | Official Development Assistance |
| OICETS | Optical Inter-orbit Communications Engineering Test Satellite |

| | |
|----------|---|
| ONSP | Office of National Space Policy |
| OST | Outer Space Treaty |
| ORS | Operationally Responsive Space |
| PAC-3 | Patriot Advanced Capability-3 |
| PAROS | Prevention of an Arms Race in Outer Space |
| PARC | Policy Affairs Research Council (later renamed Policy Research Council) |
| PKO | Peacekeeping Operations |
| PFI | Private Finance Initiative |
| PLA | Chinese People's Liberation Army |
| PLAN | Chinese People's Liberation Army Navy |
| PNT | Positioning, Navigation, and Timing |
| PPR | Peaceful Purposes Resolution |
| PPP | Public-private partnership |
| PPWT | Treaty on Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects |
| PRC | People's Republic of China |
| PRISM | Picosatellite for Remote-sensing and Innovative Space Missions |
| QZSS | Quasi-Zenith Satellite System |
| RMA | Revolution in Military Affairs |
| RSS | Responsive Small Satellites |
| SAC | Space Activities Commission |
| SAF | Strategic Action Field |
| SAR | Synthetic Aperture Radar |
| SCC | Security Consultative Committee (or) Space Communications Corporation |
| SERVIS | Space Environment Reliability Verification Integrated System |
| SDF | (Japanese) Self-Defense Forces |
| SDSS | Special Committee for Space and Ocean Development |
| SHSP | Strategic Headquarters for Space Policy |
| SIGINT | Signals intelligence |
| SJAC | Society of Japanese Aerospace Companies |
| SLBM | Submarine Launched Ballistic Missile |
| SM-3 | Standard Missile-3 |
| SOD | Space on Demand |
| SLATS | Super Low Altitude Test Satellite (<i>Tsubame</i>) |
| SPAC | Space Activities Promotion Council |
| SPC | Space Policy Commission |
| SSA | Space Situational Awareness |
| STA | Science and Technology Agency |
| TCBM | Transparency and Confidence-Building Measures |
| TRDI | Technical Research and Defense Institute |
| UAV | Unmanned Aerial Vehicle |
| Uchūchō | (Japanese) Space Agency (as proposed by the DPJ) |
| UNGA | United Nations General Assembly |
| UN | United Nations |
| USCESRC | U.S.-China Economic and Security Review Commission |
| UNCOPUOS | UN Committee on the Peaceful Uses of Outer Space |
| USEF | Institute for Unmanned Space Experiment Free Flyer |
| WMD | Weapons of mass destruction |

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Chapter 1

Introduction: Japan's Latest Space Policy and Analytical Implications

Overview of Japan's Basic Space Plan of 2016

On April 1, 2016, the Office of National Space Policy (ONSP), released its Space Basic Plan (hereafter, *Basic Plan 2016*), which had been painstakingly designed to finally precipitate in what is, arguably, Japan's ever first fully-timetabled national security-oriented space program.¹ *Basic Plan 2016* focused and concentrated space policy as an important component of Japanese national security planning. It is possible to argue that it has been designed to be a comprehensive implementation of policies and programs adjusted for the challenges Japan faces in the 21st century – in a multipolar world in which Japan has been forced to tackle increasingly challenging regional security issues. Regarding alliance management and external balancing, *Basic Plan 2016* explicitly supports the goal of advancing operational integration of space technologies and programs in the service of the U.S.-Japan security alliance. In terms of internal balancing, *Basic Plan 2016* is backed by a Cabinet resolution, and thus supported by the full political weight of the second administration of Prime Minister Shinzō Abe.

Overall, *Basic Plan 2016* reflected the goals of Japan's first National Security Strategy (NSS) published by the National Security Council (NSC) established in 2013 that sought to recognize outer space as a strategic domain, folding it into an essential component of the foreign policy and security doctrine of the second Abe administration.² *Basic Plan 2016* also openly stated that Japan must actively develop a national security space program with the utilization of outer space in tune with the new NSS, including use of space technologies and their development by the Japanese Self-Defense Forces (SDF under the Ministry of Defense, or MOD) for national security purposes.

Basic Plan 2016 focused on security components that reflect the new and openly acknowledged role of space technologies in national security. Briefly, the plan focused on: a commitment to gradually doubling the number of satellites in Japan's Information Gathering Satellite (IGS) reconnaissance satellite constellation; developing a space-based component for maritime surveillance to play a role in a joint Japanese-U.S. Maritime Domain Awareness (MDA) capability; boosting Japan's communications, Positioning, Navigation and Timing (PNT) capabilities for national security purposes; bolstering Space Situational Awareness (SSA) capabilities, and; linking Japan's space assets in the service of U.S. security strategy to support the allies' deterrence capabilities.³

¹ See Uchū Kihon Keikaku (Heisei 28 Shigatsu 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, 3 March 2016.

² National Security Strategy, 17 December 2013.

³ MDA is defined by the International Maritime Organization as the effective understanding of anything associated with the maritime domain that could impact 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. MDA is therefore the effective understanding of anything associated with the maritime domain that could impact security, safety, economy, or environment. Space capabilities are an important element of MDA, including space-based radar imaging and surveillance, to track and or/identify maritime objects. 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. ISR is the coordinated and integrated acquisition, processing and provision of timely, accurate, relevant, coherent and assured information and intelligence to support military activities involving land, sea, air and orbital-based sensors. ISR

Basic Plan 2016 can also be seen as part of an explicit effort to support the U.S. “rebalance” through the revision of the U.S.-Japan Guidelines for Defense Cooperation, which, explicitly emphasize the promotion of integration of national security-related space projects.⁴ According to the Guidelines, the SDF and the U.S. are able to cooperate and to contribute to whole-of-government efforts in utilizing outer space as outlined above in such areas as MDA; space-based ballistic missile defense (BMD) early warning (EW); intelligence, surveillance, and reconnaissance (ISR); PNT; 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.”⁵ Additionally, 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 regional security strategy.⁶

Major Programs

Under *Basic Plan 2016*, Japan’s space program began actively advancing a series of strategically important programs in pursuit of this new paradigm. First, regarding PNT services, Japan will deploy its “full” seven-satellite Quasi-Zenith Satellite System (QZSS) constellation to serve as a regional PNT system specifically to complement the Global Positioning System (GPS) of the U.S. Department of Defense (DOD). Second, Japan committed to delivering an operational SSA system by mid-2018 involving cooperation between the Japan Aerospace Exploration Agency (JAXA, Japan’s rough equivalent of NASA) and the MOD, with support from the Cabinet Office and the Ministry of Foreign Affairs (MOFA).⁷

encompasses multiple activities related to the planning and operation of systems that collect, process, and disseminate data in support of current and future military operations. (See Maritime Domain Awareness (MDA) in the Department of Defense, Department of Defense DIRECTIVE NUMBER 2005.02E, 31 March 2015; “Space Situational Awareness” Space Security Foundation; Report to the Subcommittee on Air and Land Forces, Committee on Armed Services, House of Representatives — General Accounting Office, 2008-03-15, 23 April 2008.

⁴ 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, 27 April 2015, p. 4.

⁵ Ministry of Foreign Affairs Japan, The Guidelines for Japan-US Defense Cooperation, 27 April 2015, p. 21.

⁶ These include the NSS and 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 poses a clear danger to overturning 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 SDF dispatch in order to provide logistical support to multinational forces; and revisions to the International Peace Cooperation Law, enabling the SDF during UN Peacekeeping Operations (PKO) to use force in pursuing certain duties rather than solely for the defense of SDF personnel.

⁷ 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 Word Foundation, 2014).

The MOD's involvement is significant because for the first time the SDF has become directly involved with SSA, which for decades had been controlled by civilian authorities.⁸ Indeed, SSA has become strategically important for the U.S., which is anxious to monitor Chinese space activities, particularly the potential development of anti-satellite (ASAT) technologies. Behind this, improving SSA is an important plank in the environmental monitoring of orbital debris, a major global commons issue that will be discussed in Chapter 4. Then, in order to monitor Chinese and North Korean military activities, particularly North Korean missile bases, and its Punggye-ri Nuclear Test Site, Japan is to considerably increase the number of satellites in its IGS fleet, long restricted to a nominal constellation of two optical and two radar satellites (and spares).

To support the doubling of the IGS fleet, JAXA has been tasked with building data relay satellites needed to cope with new data handling requirements. Also, the MOD is to fly an experimental BMD EW sensor on a dual-use Earth observation (EO)/ reconnaissance satellite developed by JAXA.⁹ Japan is now seriously considering developing this technology, which would, if deployed, represent a major advance in Japan's BMD capabilities, and perhaps could even be used as a deterrent or forward shield for the U.S. to counter trans-Pacific medium-range ballistic missiles (MRBMs) and ICBMs.¹⁰

Not least, JAXA has also engaged in developing a series of dual-use space programs. One, for example, is the SLATS (Super Low Altitude Test Satellite, subsequently named *Tsubame*) program, in which maneuverable reconnaissance satellites can "dip" deeper into lower orbits to capture higher resolution images. A second is the development of small satellites that can be built and launched quickly by plane or by the *Epsilon* rocket for tactical reconnaissance purposes.¹¹ By November 2016, the Cabinet Satellite Information Center (CSIC) in the Prime Minister's Cabinet Secretariat, which is in charge of the IGS constellation, announced that it planned research into the capability to quick-launch sub-100 kg, reconnaissance satellites to supplement the IGS constellation in times of emergency or crisis, as it put it.¹²

It should be noted that all these dual-use or direct-use national security space programs are to be funded on top of a range of long-established civil-use and scientific missions, including EO, oceanography and climate change observation and monitoring programs, communications and broadcasting satellites, ongoing participation in the International Space Station (ISS), continued development of the *Epsilon* solid-fueled launch vehicle, the powerful new H-III launch vehicle (the successor to today's H-IIA), and a plethora of extant programs that have preoccupied Japan's space development subgovernment implementation agencies to date.

⁸ The MOD requested ¥1.4 billion for the fiscal year beginning April 2017 to start preparations; see Bōeishō Heisei 29 Nendo Yosan Yōkyū no Gaiyō [Outline of the Ministry of Defense Budget Request for 2017] p. 11.

⁹ For the purpose of this dissertation, dual-use space technology, in the case of Japan, is technology that can be used for both peaceful and defensive military purposes, and for the latter, includes the use of space for military purposes in the pursuit of limited collective self-defense (CSD).

¹⁰ Paul Kallender-Umezu, "Profile: Hiroshi Imazu, former Chairman, Space Policy Committee, Liberal Democratic Party of Japan," *Space News*, 27 October 2014.

¹¹ SLATS was successfully launched on 23 December 2017, see Kendall Russell, "JAXA Experiments with New Satellite in Super Low Earth Orbit," *Satellite Today*, 29 December 2017, <http://www.satellitetoday.com/launch/2017/12/29/jaxa-successfully-launches-two-earth-observation-satellites/>.

¹² 「短期打上型小型衛星システムの実証研究について 平成28年11月7日 内閣衛星情報センタ」 [Tanki Uchiage Kogata Satellite System no Jisshō Kenkyū ni Tsuite, Heisei 28 Nen 11 Gatsu, Nanoka Naikaku Eisei ō Senta] [Regarding Empirical Research into the Use of Temporary Use Small Satellites, November 7, 2016, Cabinet Satellite Intelligence Center.] The tiny satellites are to be capable of one meter resolution or better, i.e. mount sensors (cameras) with the ability to determine shapes that have a cross-section of about a meter.

Dual-Use Means Paramilitary or National Security Use

Japan's commitment to delivering the new space capabilities outlined in *Basic Plan 2016* is demonstrated by its ability to devote growing budgetary resources to these dual-use and direct-use national security-related programs. This fundamental change 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.

The dual-use nature of so many of the individual assets means that the more direct national security-use space program outlined in *Basic Plan 2016* is inherently disaggregated among a series of players, programs and technologies. Under Japan's budgeting and program structure, a basket of ministries control development programs that, while not formally for exclusively military use, can be used for national security purposes. In other words, a substantial part of Japan's space program could be described as paramilitary, or in the term commonly used for the employment of space technologies for both non-military and military use, dual-use.

To support this framework, 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 non-BMD space general space activities budget. If all the projects that can be used for national security purposes either directly (as in the case of IGS), or indirectly (such as with QZSS and a basket of EO satellite programs for example) are included, it is possible to say that the combined total national security-use (direct military use/involvement) and dual-use portion of Japan's space program accounts for between 35-40 percent of the national space development budget.

Further, following pressure from the Liberal Democratic Party (LDP), Japan may – although this is possible rather than probable – eventually be able to raise its national space development budget from the current ¥350 billion level to around ¥500 billion annually to accommodate the development of these and future programs. Further, in the wings, Japan now considering the development of space-based EW, and potentially, space-based electronic intelligence (ELINT) and space-based signals intelligence (SIGINT) capabilities.¹³

Space Policy and Internal & External Balancing

To use the terminology of international relations paradigms, in terms of internal balancing, the major programs highlighted in *Basic Plan 2016* represented the conclusion of a long series of bureaucratic coordination issues over ministerial roles, budgets, policy and leadership initiatives that rumbled on for the best part of fifteen years. These activities have involved, broadly speaking, the gradual assumption of power of the Prime Minister's Cabinet Office (*Kantei*) 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 was anxious to preserve its independence in policymaking and budgeting.

In terms of external balancing, Japan has now formulated a new multilateral approach that at the

¹³ Naikakufu Uchū Senryakushitsu, Uchū Kankei Yosan ni Tsuite, Heisei 26 Nendo Hosei Oyobi Heisei 27 Nendo Uchū Kankei Yosan an ni Tsuite, January 2015 [Prime Minister's Office, Strategic Headquarters for Space Policy, Regarding the Space Development Budget for 2015 and 2016]; Senryakushitsu, Uchū Kankei Yosan ni Tsuite Heisei 27 Nendo Gaisan Yōkyū ni Tsuite, September 2014 [Strategic Headquarters for Space Policy, Regarding the Space Development Budget Request for 2016]; Ministry of Defense, Defense Programs and Budget of Japan Overview of FY2015 Budget, p.14.

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 of the U.S. in particular of China's motives, *Basic Plan 2016* can be said to have anchored Japanese space policy as an important subset in the U.S.-Japan alliance partnership.

However, the term "balancing" is a shortcut that already makes a series of assumptions about not only Japan's behavior and perception of the security threats it faces, but also the behavior of its neighbors. According to Balance of Power Theory, balancing usually refers to the use or adoption by the State of so-called hard military capabilities to defend itself, or to deter or to constrain actions by a more powerful state. By adopting the concept of balancing, the assumption can be made that Japan has adopted, to some level, realist logic in its national security strategy.¹⁴

With this in mind, then, the policies and programs outlined in *Basic Plan 2016* can be characterized as *qualitatively and quantitatively different* from recent practice. Until 2008, uniquely in the world, Japanese space policy was wedded to a 1969 Peaceful Purposes Resolution (PPR) that appeared to strictly limit use of space by the SDF.¹⁵ In this respect, *Basic Plan 2016* seems to be in rather stark contrast with Japan's historical stance and a range of concomitant deep-seated legal and normative constraints.

Indeed, from 1969 until 2008, the PPR was the founding principal of Japanese space development and policy. It articulated an unequivocal commitment to "peaceful only, nonmilitary development" that was far beyond the provisions of the 1967 Outer Space Treaty (OST), which generally allows for the "peaceful" use of space, defined as the "nonaggressive" use of military technologies.¹⁶

Against this, it is also equally possible using a constructivist or liberal-type framework, for example, to argue and show how *minimalist*, or at least *gradualist* Japan's change in space policy and technological development has been. For example, many programs that could have been taken over for direct military

¹⁴ For the classic discussion of balancing, see Kenneth N. Waltz, *Realism and International Politics* (New York: Routledge, 2008), p. 137. Balancing encompasses the actions that a particular state or group of states take in order to equalize the odds against more powerful states; that is to make it more difficult and hence less likely for powerful states to exert their military advantage over the weaker ones.

¹⁵ See Waga Kuni ni okeru Uchū no Kaihatsu Oyobi Riyō no Kihon ni kan suru Ketsugi [Resolution Concerning Japan's Basic Development and Utilization of Space, (Plenary Session of the House of Representatives, 5 May 1969); and also Heiwa' to iu Go no Imi ni kan suru Nihonkoku no Kokumu Daijin no Genmei (1968 Nen Dai 61 Kokkai Kagaku Gijutsū Shinkjō Taisaku Tokubetsu Iinkai Giroku) [Declaration of Japan's Minister of State Concerning the Term 'Peace,' (Minutes of the Special Committee on Science and Technology Promotion Policy, 61st Diet, 1968. For background, see Setsuko Aoki, "Tekihō na Uchū Gunji Riyō Kettei Kijūn toshite no Kokkai Ketsugi no Yūyōsei" [The Significance of the Diet Resolution in the Legitimate Standards for the Weaponization of Outer Space], *Sōgō Seisakugaku Working Paper Series*, No. 68, Keio University, April 2005, esp. pp. 5–6, 16–22; and also, Setsuko Aoki, "Military Uses of Outer Space: Law and Policy in Japan," *International Symposium on Space Technology and Science Paper 2004-r-32, 2004*, pp. 1-6.

¹⁶ Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Office for Outer Space Affairs, Treaties and Principles. The treaty was opened for signature in the United States, the United Kingdom, and the Soviet Union on 27 January 1967, and entered into force on 10 October 1967. As of September 2015, 104 countries are parties to the treaty, while another 24 have signed the treaty but have not completed ratification. The Republic of China (Taiwan), which is currently only recognized by 21 UN member states, ratified the treaty prior to the United Nations General Assembly's vote to transfer China's seat to the People's Republic of China (PRC) in 1971. The OST prohibits states party to the treaty from placing weapons of mass destruction in orbit of Earth, installing them on the Moon or any other celestial body, or otherwise stationing them in outer space (i.e. in orbit). It also exclusively limits the use of the Moon and other celestial bodies to peaceful purposes and prohibits their use for testing weapons of any kind, conducting military maneuvers, or establishing military bases, installations, and fortifications (Article IV). United Nations, *United Nations Treaties and Principles on Outer Space, ST/SPACE/11* (New York: United Nations, 2002); and for the status of those treaties and agreements across countries, see also United Nations, *United Nations Treaties and Principles on Outer Space and Other Related General Assembly Resolutions—Addendum—Status of International Agreements Relating to Activities in Outer Space as of 1 January 2007, ST/SPACE/11/Rev.1/Add.1/Rev.1*. For general information, see the official website of the UN Office for Outer Space Affairs.

use by the SDF are in fact buried in dual-use paramilitary programs. And the vast majority of those dual-use programs remain under the control of MEXT, a ministry that until very recently was avowedly culturally, institutionally and legally expressly against promoting any military use of space.

The analytical frameworks that emphasise this type of argument stem from a recognition of the extreme pacifism and idealism evinced in the PPR that governed Japanese space policy for nearly forty years.¹⁷ It is possible, especially reading the somewhat florid and vague language of the *1996 Fundamental Plan*, for example, to point to the essential idealism of Japanese space policy at the time, as noted above.¹⁸

Less altruistically, but nonetheless stressing how reluctant Japan has been, overall, to forge a national security role for space technologies, others have cast the growing role of a national security element in Japan's space program as a deeply modulated response that cautiously folds its space technologies into Japan's traditional broad and multilayered security strategy.¹⁹ For now, however, simply speaking, in *Basic Plan 2016*, the use of outer space as a national security program can be seen as designed to contribute to the defense of Japan facing increasingly troublesome regional security issues.

Problems of Interpretation- Analytical Implications

As has been sketched in outline above, forming an understanding of *Basic Plan 2016* both the context of space policy transition, institutional roles, and the use of outer space's relationship with national security immediately opens up the possibility of discussion of a whole range of interpretations. Establishing the historical, normative and institutional context for examining or measuring the extent or significance of space policy change is also, then, therefore a basic prerequisite in making sense of the significance of the changes.

As a prelude to more complex and contextual discussions, it is important here, however, to note the following. As will be shown in Chapter 5, the PPR was self-consciously and publicly held up as a demonstration of Japan's commitment to Article 9 of the 1946 Constitution not to rearm. Further, the non-participation of the SDF in space activities was supported by a complex institutional framework designed to ensure this – either directly, through policy instruments – or indirectly, through disaggregation and the competitive division of responsibilities between civilian ministries and subgovernment implementation organizations. And it is from this context that prior discussions of Japanese space policy change have been analyzed. But, in turn, those studies have also failed to account

¹⁷ Oros (2008), pp. 122-148; Oros (2007), pp. 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), pp. 135-143; Johnson-Freese and Gatling (2004), pp. 538-552; Suzuki (2007); Aoki (2009); Moltz (2012), pp. 43, 63. For views arguing for Japanese military intent, see Hughes (2009), pp. 48-50; Pekkanen & Kallender-Umezu (2010); Kallender-Umezu (2013), pp. 28-34; Christopher W. Hughes, "Japan, Ballistic Missile Defence and Remilitarisation," *Space Policy*, Vol. 29, No. 2 (May 2013), pp. 128-134; Satoru Ikeuchi, *Uchū Kaihatsu wa Heiwa no Tame: Uchū no Gunjika ni Noridashita Nihon* (Tokyo: Kamogawa Shuppan, 2015), pp. 79-134.

¹⁸ See Space Activities Commission (SAC), *Fundamental Policy of Japan's Space Activities (Provisional Translation)*, revised 24 January 1996, available online at www.mext.go.jp, pp. 1-17. For a discussion of these policies, see Pekkanen & Kallender-Umezu (2010), pp. 34-5.

¹⁹ Kallender-Umezu (2013), pp. 28-34; Peoples (2013), pp.135-143. This builds on similar work emphasizing continuity in other scholarship, for example, Johnson-Freese & Gatling (2004), pp. 538-552, p. 542. The IGS were actually categorized as "crisis management satellites" with both civilian and military purposes so as not to fall foul of the PPP; see Kazuto Suzuki (2007); Setsuko Aoki, "Japanese Perspectives on Space Security" in John M. Lodgson and James Clay Moltz (eds.) *Collective Security in Space: Asian Perspectives* (Washington, DC: The George Washington University Space Policy Institute, 2008); Aoki (2009), pp. 363-438; Moltz (2012), pp. 43, 63.

for the qualitative and quantitative paramilitarization of space technologies and the very neorealist language of *Basic Plan 2016*.

Some Neorealist Perspectives

Is Japan docking with its destiny of becoming a “normal” power? A neorealist approach may well proceed with an analysis along the lines that Japan, facing increasingly worrying security challenges from North Korea and China, would be expected to take measures to strengthen its national security capabilities directly through increasing its military power, and indirectly through various elements of diplomatic engagement, alliance building, and soft power.

In this context, space policy change, the abandonment of the PPR and *Basic Plan 2016* seem entirely logical. From such a perspective, the PPR had effectively disabled the generation of meaningful space-based policy responses to meet Japan’s increasing security dilemma primarily, perhaps, caused by the emergence, first, of North Korea’s ballistic missile program, then its growing nuclear weapons capabilities, and, more recently, the growing assertiveness of China. *Basic Plan 2016* now demonstrates that Japan is behaving “normally” ...and that *the brakes are off*.

Before going into this debate into a little more detail, it is useful first to touch a little more on some of the accepted prior scholarship and debates on discussions of Japanese space policy to date. It is generally accepted by most domestic policy analysts, and spelled out in a series of *Fundamental Plans* from the late 1960s until 1996, that under the PPR, Japanese space development and policy was positioned as *status enhancing* – an industrial “catch-up” strategy that allowed Japan to join the small club of advanced spacefaring nations in a unique way, because of the PPR.²⁰

In short, following this type of analytical narrative, *Basic Plan 2016* can be seen as one logical product of the *Basic Law*, which scrapped the PPR and provided Japan with a legal basis to pursue the use of defensive military space, and put the Cabinet Office in the position to coordinate space policy goals under the approval of the prime minister.

Again, context is important. *Basic Plan 2016* is not the first attempt to achieve such goals. Various attempts to better coordinate space policy and control interministerial competition were then attempted by the Cabinet Office, resulting in *Basic Plan 1* (2009) and *Basic Plan 2* (2013), both of which met with mixed success in terms of building an administrative and budgeting framework to implement the objectives of the *Basic Law*. But then again, it is possible to see new players coming in in a “rush” in recent years.

For example, under the NSC’s directive, the MOD, long institutionally reluctant to participate in space development, quickly released its own revised *Fundamental Plan*, which began the task of integrating its space policy with MEXT – with which the MOD shared almost no experience in terms of developing space programs.²¹ Also, in assessing *Basic Plan 2016*, it is important to note that JAXA was legally committed to “peaceful only” space development all the way up until 2012, and that the MOD

²⁰ This view of the PPR is generally accepted both by mainstream scholars and specialists, both in Japan and abroad. The foundational English language texts commenting on the PPR include Setsuko 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* 35, No. 1 (2009), pp. 363-438; Paul Kallender-Umezū “Enacting Japan’s Basic Law for space activities: Revolution or evolution?” *Space Policy*, Vol. 29, No. 1, (February 2013), pp. 28-34; Kazuto Suzuki, “Administrative Reforms and the Policy Logics of Japanese Space Policy,” *Space Policy*, Vol. 21, No.1 (2005), pp. 11-19.

²¹ Uchū Kaihatsu Riyō ni kan suru Kihon Hōshin ni tsuite (An) [Basic Policy Regarding Space Policy Budget (Provisional)] Ministry of Defense.

only released its first military space policy document in 2009. So, specifically, under the NSC and under the Abe administration, it is possible to construct a narrative on how space policy transformation has accelerated since 2013. The specific actions of JAXA and MOD for example, require context and explanation. So do, as will be explained, the direct interventions of conservative politicians, pressure from industry, and – not least – the U.S.

As noted, the developments in space policy since 2012 come hand-in-hand with a new security architecture and policies being implemented by the second Abe administration. From being totally excluded from national security or military involvement as late as 2008, space policy and technology is moving to become a major plank of defense and alliance security policy. Concomitantly, since December 2013 and the first NSS, Japan appears to have made some rapid strides in reestablishing a new security posture for the coming decade, most recently with the legislation to allow Japan some limited rights of collective self-defense (CSD), although this has proven contested and unpopular with much of the Japanese public, which does not (fully) understand the need for it.²²

A brief summary of different approaches by international relations experts and security scholars on what could be called the “Abe Doctrine” (roughly defined as a set of principles to adjust Japan’s security policy to balance against the feeling of growing regional insecurity and to accommodate the U.S. “pivot” to Asia) show that analysts, using through their particular models and paradigms, can come to quite or very different conclusions even though, in assessing how qualitatively different Japanese space policy is compared to even recent prior practice, they are dealing with the same sets of facts.²³

For example, according to one recent study, Japanese space policy change, especially as announced in *Basic Plan 3* and *Basic Plan 2016* may represent the latest slash at the Yoshida Doctrine, whose impending death has been painstakingly achieved through a gradualist, multi-decade process of “salami slicing” away at prior military constraints.

According to this line of argument, since 2013, Japan has entered a new paradigm under the revisionist policies of the Abe government, which amounts to a new shift that seeks to assert Japan’s normal role as regional and global power. One text sees the Abe government as driven by a policy of “resentful realism.” While this analysis may be appropriate to the internal logic of the framework used, it is difficult to see how *Basic Plan 2016* is “resentfully realist,” a term which lacks meaning in the context of space policy objectives.²⁴

²² Paul Kallender-Umezu, “Japan Pursues Rearmament, Despite Opposition,” *Defense News*, 14 June 2015.

²³ Christopher Hughes, *Japan’s Foreign Policy and Security Policy under the ‘Abe Doctrine: New Dynamism of Dead End?’* (New York: Palgrave Macmillan, 2015). Hughes believes that the Abe Doctrine is a radical departure from the Yoshida Doctrine, which Hughes says was based on three components: a “low” military posture; a security treaty, and later alliance, with the U.S., with the caveat that Japan would heavily hedge so as to extricate itself when possible from commitments to the U.S., while focusing on economic revival and growth, and a gentle, quiet reintegration of Japan into the East Asia region, including engagement with China. By contrast, Abe, in line with the objectives of Nobusuke Kishi (former Prime Minister and grandfather of Abe) wants, in the opinion of Hughes, to restore Japan to great power status, including a leadership role in Asia, and is pushing to allow Japan to use military power for national security interests. For Hughes, further, a key element of the Abe Doctrine is the notion of breaking free from the postwar regime, both domestically and internationally, which Abe believes is rooted in Japan’s defeat in World War II. In this view (the view of Abe), the Yoshida doctrine is a regime of defeat. Until the postwar regime is cast off, Japan cannot be an autonomous great power; and until the Yoshida doctrine is shaken off, Japan cannot take its rightful place alongside the U.S. and other advanced democracies.

²⁴ Christopher W. Hughes, *Japan’s Reemergence as a “Normal” Military Power* (Oxford: Oxford University Press, 2004); *Japan’s Remilitarization* (New York: Routledge, 2009); Hughes (2015).

Dealing with Dual-Use

It is also important to understand the analytical importance of space technology's inherent dual-use nature. On top of this, it is also important to understand the attitude of policymakers and institutions to dual-use applications. Of course, much of space technology has very potent tactical and strategic military applications.²⁵ Rockets, particularly solid-fueled versions such as the *Epsilon*, can be repurposed into ballistic missiles. EO satellites used for crop monitoring or land measurement can be used for reconnaissance, as is currently proposed with the use of the JAXA's Advanced Land Observing Satellite-2 (ALOS-2/*Daichi*) as part of a new space-based reconnaissance architecture where many of Japan's EO satellites will play indirect, and in more and more cases, direct national security-related roles, as outlined in *Basic Plan 2016*.²⁶

From a neorealist point of view, the inclusion of space technologies in national security issues can be stretched to have special significance for Japan because space technologies can provide a potentially potent mix of force multiplying and strategic capabilities for nations that wield them.

Following this line of argument, taking into account the influence of, for example, powerful domestic industrial and commercial lobbying, exogenous security pressures (such as missile and nuclear tests by North Korea, or, since 2010, paramilitarized mass incursions by Chinese fishing fleets into Japanese territorial waters), and elite decision-making models, in 2010 I argued that, measured in terms of military potential, Japanese space technologies were already reaching the point where Japan could become a potent strategic space power.

Rather similar to Japan's status as a virtual nuclear weapons state, where Japan has had the technological means to weaponize its civilian nuclear power technologies, should a scenario develop in which Japan chose, or felt compelled to do so, it would be able to relatively quickly (within a few years, not within a decade) deploy a range of military space technologies. Behind that, I suggested that Japan's space program could be viewed as a strategic hedge.²⁷

Taking this argument further, it is possible to argue that the pace and importance of the changes of Japan's space policy transformation over the past twenty years, culminating in *Basic Plan 2016*, challenges the view of the essential continuity in Japanese security policy, or at least demonstrates greater Japanese resolve to overcome previous obstacles to adopting a more muscular security trajectory. In this, examining certain trends evident in *Basic Plan 2016* is particularly analytically powerful to explaining the existence of a new security direction for Japan, because space-based capabilities provide the means to

²⁵ See especially Johnson-Freese, *Space as a Strategic Asset* (New York: Columbia University Press, 2007), pp. 2-6, 27-50, 82-140; Michael E. O'Hanlon, *Neither Star Wars Nor Sanctuary: Constraining the Military Uses of Space* (Washington, DC: Brookings Institution Press, 2004), pp. 1-28; and for the controversies over defining space weapons, see James Clay Moltz, *The Politics of Space Security: Strategic Restraint and the Pursuit of National Interests* (Stanford, CA: Stanford University Press, 2008), esp. p. 43. For fundamentals of military space operations and identification of general mission areas, as well as clear and practical explanations of military space concepts, see United States Joint Chiefs of Staff, Space Operations, Joint Publication 3-14, 6 January 2009, pp. ix-xi, II.1-II.10; and also U.S. Air Force Space Command (AFSPC), Strategic Master Plan FY06 and Beyond (Peterson AFB, CO: Air Force Space Command, 1 October 2003), pp. 2, 17-33.

²⁶ See 'Epsilon Launch Vehicle' <http://global.jaxa.jp/projects/rockets/epsilon/>. The Epsilon's payload capabilities, its ability to be prepped for launch and controlled by minimal staff, and overall design and performance philosophy arguably make it a ballistic missile prototype hiding in plain sight. However, the series of solid rockets developed by the Institute of Space and Astronautical Research (ISAS) from the 1960s onwards are commonly recognized as prototype ballistic missiles or at least have characteristics and capabilities that readily lend themselves to conversion, notably the M-3S-II, the J-1 and the M-V, the *Epsilon*'s predecessor. See Saadia Pekkanen & Paul Kallender-Umezu, *From the Market to the Military in Space Policy* (Stanford, CA: Stanford University Press 2010), pp. 97-9, 108-113.

²⁷ This is the critical argument of Pekkanen & Kallender-Umezu (2010).

leverage advanced Revolution in Military Affairs (RMA)/defense transformation-type technologies for qualitative advantage even within a constrained quantitative resource base.²⁸

It is quite possible to extend this argument yet further. From what could be termed as rather an extremist neorealist point of view, with the advent of *Basic Plan 2016*, Japan might even have begun to procure a plethora of advanced military space capabilities, or even that it has, or is, or will “boil off” the foam of hitherto masked strategic intent or hedge, so that space technologies will become overtly militarized if and when necessary, fulfilling the deeper strategic purpose that was always part of (if left unstated), decisions taken forty five years ago to embark on a national space program.

Following this line of argument, a basket of programs promoted in *Basic Plan 2016* can be seen as logical outcomes of previous technologies developed for inherently dual-use applications should the need arise. One example of this could be the IGS satellite fleet, consisting of electro-optical and synthetic aperture radar (SAR) technology originated in EO satellites developed for JAXA’s predecessor, the National Space Development Agency of Japan (NASDA). This program started out as a “multi-purpose” EO program, but is now a core part of Japan’s space-based ISR network whose central purpose is military reconnaissance.²⁹

In terms of viewing Japan’s space program as a disguised strategic hedge, the MDA functions are being developed from a series of JAXA developed civilian-scientific ALOS satellites. Among these ALOS-3, for example with already military-effective 80-cm resolution sensors, will also to host an experimental EW sensor developed by MOD. Can such developments be characterized as merely the logical extension of a long and carefully laid out plan? To deal with the burgeoning ISR data demands of building out Japan’s ISR infrastructure, JAXA is developing a satellite laser communications system based on the OICETS/*Kirari* test satellite and an advanced data relay satellite based on the Data Relay Test Satellite (DRTS/*Kodama*), both originally conceived as technology demonstration satellites for NASDA for “peaceful purposes-only” communications technologies research and development.³⁰ Further, as noted, Japan is considering both space-based SIGINT and/or ELINT capabilities derived from prior civilian satellite technologies such as ETS-VIII program, despite already possessing an advanced land-based capability.³¹

All of these systems can significantly support the SDF’s ability to respond to conventional threats. The QZSS system, supporting the Air Self-Defense Force’s (ASDF’s) use of Joint Direct Attack Munitions (JDAMs) to strike with pinpoint accuracy against an adversary’s missile bases, also opens up a

²⁸ Barry R. Posen, “Command of the Commons: The Military Foundations of US Hegemony,” *International Security*, Vol. 28, No. 1 (Summer 2003), pp. 12-14.

²⁹ For IGS development, see Pekkanen & Kallender-Umezu (2010), pp. 50, 63, 130-131, especially 136-138, 143-150, 139-142, 147, 202-203, 240, 242. Also for a constructivist view on why the IGS constellation development fit into a norm of ‘reach, reconcile and reassure’ see Andrew Oros, *Normalizing Japan: Politics, Identity and the Evolution of Security Practice* (Stanford, CA: Stanford University Press, 2008), pp. 122-148; Andrew L. Oros, “Explaining Japan’s Tortured Course to Surveillance Satellites,” *Review of Policy Research*, Vol. 24, No. 1 (January 2007), pp. 29-48, 35, 40; Joan Johnson-Freese and Lance Gatling, “Security Implications of Japan’s Information Gathering Satellite (IGS) System,” *Intelligence and National Security*, Vol. 19, No. 3 (Autumn 2004), pp. 538-552, in particular p. 542. The IGS were actually categorized as “crisis management satellites” with both civilian and military purposes so as not to fall foul of the PPP; see Kazuto Suzuki, “Space: Japan’s New Security Agenda,” *RIPS Policy Perspectives* No. 5, October 2007.

³⁰ For OICETS/*Hikari*, see Pekkanen & Kallender-Umezu (2010), pp. 87, 125-126, 153-155, 171, 241. For DRTS, see JAXA web page “Satellites and Spacecraft Data Relay Test Satellite “KODAMA” (DRTS)”;

Pekkanen & Kallender-Umezu (2010), p. 105.

³¹ Engineering Test Satellite (series developed by NASDA and JAXA). For ETS-VII, see JAXA, “Engineering Test Satellite VII “KIKU-7” (ETS-VII),” http://www.jaxa.jp/projects/sat/ets7/index_e.html.

range of means for Japan individually, but particularly in combination with the U.S., to look to negate many of China's deterrent capabilities.

Deeper still, through the ETS-VII/*Orihime-Hikoboshi* ("star-crossed lovers") orbital maneuvering and space robotics program, Japan has already experimented with remote and computer-controlled technologies that convertible to co-orbital ASAT applications. It is notable that such technologies were conceived over twenty five years ago and tested, on orbit, in 1997, far in advance of the U.S., Russia or China. Thanks to ETS-VII, arguably, Japan possesses a range of technologies that can be repurposed for fighting an orbital space battle through applying to a wide range of small and microsatellite platforms through its tested ability to conduct approach and close proximity maneuvering and docking.³²

Yet further, the development of small "temporary" IGS-support optical satellites closely resembles in function the U.S. Air Force's TacSat series, which will be capable of providing quickly available tactical ISR and communications capabilities. The *Epsilon*, if required, can play its own role as a fast-access multipurpose launch vehicle for this range of small satellites. Japan has also experimented with technologies (although currently mothballed) such as the robotic space plane Hypersonic Flight Experiment (HYFLEX), which, while only a testbed, has given Japan invaluable data on the performance characteristics needed to construct a vehicle similar to the USAF's X-37B.³³

I argued in 2010 that it is useful to understand the *reality* of the range of technologies that Japan's space program had developed *prior* to the *Basic Law* under the constraints of the PPR that had primed Japan for the capability of fairly rapid deployment of militarily useful technologies, should decisions be made to that end. It is also possible to assert that Japan's already advanced status in launch vehicles augments its position as a recessed nuclear power, providing it with the ultimate potential for internal balancing. Japan's political unwillingness to breach the Three Non-Nuclear Principles and to produce and possess nuclear weapons remains, but it is indisputable that the technological barriers in regard to the use outer space for a range of strategic military technologies certainly continue to lower.

It is commonly recognized that Japan has had the technology to produce nuclear weapons from at least the 1970s. The U.S.'s *Rumsfeld Commission* concluded in 1998 that Japan's J-I and M-V rocket programs, based on technologies designed in the 1980s, were readily convertible to ballistic missiles. The *Commission* compared the M-V rocket to the U.S. MX Peacekeeper ICBM. The *Epsilon*, as the M-V's successor and one of the world's most advanced solid fuel rockets, is an even more directly convertible ICBM that would be capable of mobile launch-on-demand, and reconfigurable to submarine launched ballistic missiles (SLBM).³⁴

³² In fact, Japan had a second potentially much more utility dual-use co-orbital program called *SmartSat*. See Pekkanen & Kallender-Umezu (2010), pp. 163, 167, 172, 210, 241.

³³ Formed in 2007, the Operationally Responsive Space (ORS) program is a joint initiative of several agencies within the U.S. DOD. The ORS Office's development goals are "to rapidly deploy capabilities that are "good enough" to satisfy warfighter needs across the entire spectrum of operations, from peacetime though conflict," according to the ORS website. Prosaically, this means ORS is tasked to provide quick-response tactical space-based capabilities to the military utilizing small satellites, such as the TacSat program and smaller launch vehicles, such as the Minotaur and the Raptor and SPARK, or Spaceborne Payload Assist Rocket (*Super Strypi*) air-launch rockets. Japan's dual-use space programs share some similarities with these efforts. For the Minotaur and Raptor launch vehicles. See for 'Agile Space Launch' in www.aerospace.org at <http://www.aerospace.org/2014/07/31/agile-space-launch/>.

For the ORS webpage, please see: <http://ors.csd.disa.mil/>. For information about TacSats, information about individual satellites is dispersed among organizations. For an overview go to 'Tactical Satellite Program', Wikipedia, http://en.wikipedia.org/wiki/Tactical_Satellite_Program. For the Hypersonic Flight Experiment (HYFLEX), mounted on the J-1, see Pekkanen & Kallender-Umezu (2010), pp. 125, 195, 204-205.

³⁴ Commission to Assess the Ballistic Missile Threat to the United States, 15 July 1998, http://fas.org/irp/threat/missile/rumsfeld/pt1_china.htm.

For those looking at forward-thinking strategic intent, a policy initiative by the Ministry of Economy Trade and Industry (METI) in 2007 is instructive. METI's Space On Demand (SOD) program of that year was couched in the objective of investing in technologies to achieve shorter development times and promote improved functionality for all space systems, lowering development schedules for highly functional satellites in two-to three years for \$30 million, a tenth of the price of their JAXA-developed antecedents. The SOD concept included, for example, quick-reaction launch vehicles (such as *Epsilon* and derivatives), or others that could launch from aircraft or submarines, as well as satellites that are reprogrammable on orbit. The overall similarity of SOD to the USAF's Operationally Responsive Space (ORS) space program, including for example the USAF's TacSat program, is striking – a fact noted by METI itself.³⁵

From an extremist neorealist viewpoint that assumes Japan's space program was always a strategic recessed hedge, *Basic Plan 2016* could be seen a big step forward toward Japan's unfurling of its long held back and hidden full capability for using space technologies for traditional hard balancing.

Reading history backwards, it is possible to construct a narrative that supports this line of argument. For example, Japan has conducted a series of dual-use technology tests that could serve for nuclear warhead reentry vehicles. One test used a Russian-built ICBM re-entry vehicle and service module derived from the OGCh Fractional Orbital Bombardment System and launched on the missile-convertible M-3SII. Fast forward to 2021 or so, and the credibility of any Japanese nuclear launch system would further be augmented by the meter-level accuracy of the QZSS system, assuming its survivability to cyber or kinetic ASAT attack. While admittedly far-fetched, Japan might then even look to deploy these recessed missile and warhead technologies as SLBMs on the *Sōryū* submarines of the Maritime Self-Defense Force (MSDF) that appear adaptable for mounting sea-launched missiles.³⁶

In totality, Japan's advancement in space technologies could, in theory at least, enable it to edge toward all the key components of a latent nuclear delivery system for a second-strike *force de frappe* or tactical nuclear force. Such a capability would serve as a useful deterrent against North Korean and Chinese assets and fit with recent Japanese debates on the need for an autonomous strike capability, whether conventional or nuclear, to augment deterrence and U.S.-Japan cooperation.³⁷

Taking a more subtle view on things, it is possible to argue that *Basic Plan 2016* might represent a utilitarian way for Japan to increase its external balancing power while avoiding a more traditional arms buildup. Even “low-key” paramilitary space assets built by JAXA flying dual-use EO missions can contribute to the force multiplier effect in battle and as a conflict-winning or warfighting ISR infrastructure.

Behind this argument is the proposition that, due to the advantages of space technologies, military power perhaps should no longer be measured merely in terms of the classic “comprehensive national power” indicators of the size and numbers of military expenditure, armed forces and key weapons

³⁵ On Japan's SOD initiative, see Norihiko Saeki, “COTS Policy & ‘Space on Demand’ in Japan,” Tokyo: METI, 29 October 2007. The Operationally Responsive Space Office (ORS Office) is a joint initiative of several agencies within the U.S DoD from 2007. The ORS Office focuses on providing quick-response tactical space-based capabilities to the warfighting utilizing smaller satellites, such as TacSats and smaller launch vehicles.

³⁶ Franz-Stefan Gady, “Japan Launches 10th Advanced High-Tech Attack Sub,” *The Diplomat*, 09 November 2017, <https://thediplomat.com/2017/11/japan-launches-10th-advanced-high-tech-attack-sub/>.

³⁷ Toshi Yoshihara and James R. Jones, “Thinking the Unthinkable: Tokyo's Nuclear Option,” *Naval War College Review*, Vol. 62, No. 3 (Summer 2009), pp. 69-74.

platforms, national population and Gross National Product (GNP).³⁸ These traditional indicators remain important in determining defense choices and especially with regard to equipment procurement – and are now being addressed by the Abe administration’s increased defense expenditures.

However, arguably, this concentration on the raw indicators of military power fails to fully consider how Japan *might* (or has the technological capacity to) radically shift its security stance by building a qualitative edge through space technologies.³⁹ This technology-strategic approach, with space and its latent qualitative importance as a force multiplier, is pertinent in Japan’s case, given its well-known historical maxim of “rich nation, strong army,” recognizing that Japanese military capabilities may be vested in less readily overt but nevertheless highly transferable and potent dual-use civilian and paramilitary technologies and forces.⁴⁰

Thus, for an analyst looking for evidence that Japan beginning a stealthy rearmament process, Japanese space technology could be said to be “hiding” the military potential of recently established dual-use military space programs that are developed “in plain sight”. Following this logic, it is possible, perhaps, to say that Japan in the case of space has increasingly conformed to the full logic of realism and superseded the constrained stance of the Yoshida Doctrine: perceiving clearly North Korean and Chinese threats and even an emerging Sino-Japanese arms race in space; and is proactively responding through the build-up of its own array of space capabilities.

Thus, Japan’s ISR, QZSS (GPS backup), SSA, MDA, BMD, and EW programs, and the augmentation of its recessed nuclear option and potential orbital warfare capabilities can be seen as internal balancing strategies for this “stealthy” rearmament, and through the close integration of these programs into U.S.-Japan alliance strategy, they can be cast in terms of representing external balancing that amounts to embracing U.S. containment of China.

³⁸ Robert Dujarric, “Shinzō Abe: Investing in the Past, Ignoring the Future,” *The Diplomat*, 25 July 2014. For specific trends in Japan’s defense expenditure and procurement, see Hughes (2015), pp. 36-37; Eric Heginbotham, “Japan’s Military Choices in a Resource Constrained Environment,” *MIT Center for International Studies Working Paper* (March 2015), pp. 1-3. The MOD for fiscal 2015-2016 requested a 2.2 percent increase in the defense budget, which would bring it back to the levels of the late 1990s and mark the largest defense budget in the post-war period. See Bōeishō, *Waga Kuni no Bōei to Yosan: Heisei 28 Nendo Gaisan Yōkyū no Gaiyō* [Ministry of Defense, Defense Budget for 2016], August 2015.

³⁹ The NDPG will increase the destroyer fleet of the Maritime Self-Defense Force (MSDF) from forty-eight to fifty-four, including the addition of two further *Aegis* BMD-equipped destroyers to the existing four *Kongō*-class and two *Atago*-class vessels. The MSDF will further continue to procure four new 25DD *Akizuki*-class multi-mission destroyers, and two 27,000 ton 22/24DDH *Izumo*-class helicopter carriers embarking up to 14 helicopters, providing a very strong anti-submarine warfare (ASW) capability and highly versatile naval assets. MSDF submarine capabilities are significantly increased, with the revised NDPG and MTDP continuing the 2010 NDPG’s build-up of the MSDF submarine fleet from sixteen to twenty-two boats, and the introduction of the *Sōryū*-class submarine platform that provides leading-edge technologies in air-independent and fuel-cell propulsion. The MSDF’s air fleet strengthened through the procurement of the P-1 with an 8,000-kilometre range capable of patrolling and ASW operations deep into the South China Sea. The revised NDPG and MTDP maintain the acquisition of forty-two F-35A fifth-generation fighters for the Air Self-Defense Force (ASDF). The ASDF continues to procure the 6,500-kilometer range C-2 transport; Patriot Advanced Capability (PAC)-3 batteries for BMD; and is set to procure unmanned aerial vehicles (UAV) to patrol Japan’s extensive coastline and remote islands. The Ground Self-Defense Force will create a 3,000-personnel unit akin to a marine corps for the retaking of remote islands, equipped with 52 amphibious armored personnel carriers and 17 MV-22 Osprey aircraft. Japan Ministry of Defense, National Defense Program Guidelines for FY2014 and Beyond, 17 December 2013.

⁴⁰ For the classic formulations of Japanese dual-use civilian-military technology, see Richard J. Samuels, *Rich Nation, Strong Army: National Security and the Technological Transformation of Japan* (Ithaca, NY: Cornell University Press, 1994); and Michael E. Chinworth, *Inside Japan’s Defense: Technology, Economics and Strategy* (Washington, D.C.: Brassey’s US, 1992). On Japan’s use of “paramilitary” force to bolster Japan’s armed forces, see Richard J. Samuels, “New Fighting Power!?: Japan’s Growing Maritime Capabilities and East Asian Security,” *International Security*, Vol. 32, No. 3 (Winter 2007/2008), pp. 84-112.

To push such neorealist-type analysis to an extreme end-point, it can also be argued that Japan's incorporation of space policy into national security policy could even signify the beginnings of, or a possible step towards a broader Asia-Pacific arms race.

However, these kind of narratives also immediately throw up quite obvious problems. Overall, it has taken Japan some twenty years to conclude a comprehensive and actionable policy and institutional framework to construct a national security space program since the first move in this direction in 1998 with the inauguration of the IGS program. Second, as will be discussed in later chapters in detail, *Basic Plan 2016* ultimately represents what might be called only a best-effort compromise and partial implementation of the *Basic Law*. A close analysis of the intent of the *Basic Law* shows that at least its drafters envisaged, or were aiming at an administrative leadership structure in the Cabinet Office with more policy and budgeting power over Japan's space programs. In the event, the Cabinet Office took full control of – and gain direct budgeting power – of *only* one new strategic program, the QZSS development.

Then, one of the primary goals of *Basic Plans 1-3* was to try to fund and develop a dual-use global EO monitoring program; this initiative received increasing amounts of direct and indirect support from U.S. planners, who wished to deputize more Japanese space assets in the service of a wider MDA network to monitor Chinese People's Liberation Army Navy (PLAN) activities. Such attempts to launch a major new EO program were stymied and eventually, arguably, failed, with the current dual-use MDA-related satellites announced in *Basic Plan 2016* very much the rump of previous more ambitious plans.

Then again, as will be shown, *Basic Plan 2016* and its predecessor *Basic Plan 3* turned out to be far less militarily ambitious than a much more radical proposal floated by very LDP senior politicians with close connections with space policy, who envisaged (and envisage) a much more comprehensive range of military space assets more quickly, including development funding for space-based EW, and even, institutionally, fundamentally changing the institutional orientation of JAXA into something approaching the Defense Advanced Research Projects Agency (DARPA).

All these points will be discussed in more detail in Chapter 2 and, again, in the second half of this dissertation. In sum, however, these final points hardly show Japan as pushing towards rearmament or more significant change even when several important constituencies (Japanese defense hawks, the U.S., METI and industry) want Japan to do more, and more quickly.

The logical endpoint of neorealist-type analysis is to look for evidence of Japan rearming. In space technologies, there are lots of hints that this may happen, and certainly the technological capacity for this has indeed been put in place. But there are, as yet at least, very few concrete programmatical steps in this direction.

A Constructivist-Liberal-Institutional Logics Viewpoint

Against neorealist approaches, constructivism-based analyses argue for the essential continuities of security policy. Such arguments seek to demonstrate how, fundamentally still, Japan's stable, deep-rooted and embedded domestic politics and norms of anti-militarism continue to trump any international structural pressures.

So, current security reforms are seen moderate, or even positive for the U.S.-Japan alliance and the international community, and fully in line with previous national and bilateral strategic postures.

According to such an argument, changes remain tempered by, and are the product of the same past domestic political and international constraints.⁴¹

...And there is plenty of evidence to support claims that Japan is maintaining, overall, a cautious, gradualist approach in adapting its security strategy to meet the uncertainties of a multipolar world. For example, “Japan’s Legislation for Peace and Security” faced lengthy opposition scrutiny forcing the Abe Cabinet to extend the Diet session by 95 days from June into September, making it the longest in the post-war era.⁴²

While the bills passed the House of Representatives in July with the support of the majority LDP-Kōmeitō coalition, the bills were also passed in the face of widespread public opposition. The legislation is attributed to causing Mr. Abe’s approval ratings to fall into negative figures for the first time since he returned to power in 2012, with 50 percent disapproving of the Cabinet and 38 percent approving, according to one authoritative Japanese media survey conducted in August 2015. Not least, Diet members from opposition Democratic, Innovation, Communist and Social Democratic parties walked out of the vote in protest and in the face of widespread public opposition.⁴³

So it is also possible to argue that neorealist viewpoints, the product of the distortions of paradigms that make over-simplistic assumptions about behavior that is the result of many inputs, ignore the context of the many compromises (internal balancing) that were required to achieve, after years of struggles, the drawing up of *Basic Plan 2016*.

Following this line of argument, consequently, while *Basic Plan 2016* may be dressed up in overtly *realpolitik* language in Japanese space policy documents, the deeply embedded institutional and normative frameworks that stood for nearly four decades have, overall, acted as significant *hadome* (brakes) on policy transition. Further, considering the security dilemma Japan faces, it can be argued quite reasonably and logically that its response is extremely moderate.

⁴¹ For a sample of views arguing for the essential *status quo* in Japan’s security policy under Abe, see Kenichi Matsumoto, “(Right Tilt?) Is ‘Japan’s Move to the Right’ True? Second Abe Administration Faces Test of Realism,” *Discuss Japan: Japan Foreign Policy Forum*, 5 March 2013; Aida Hiro, “(Right Tilt?) Does Shinzō Abe’s Election Really Herald a More Militarist Japan?” *Discuss Japan: Japan Foreign Policy Forum*, 5 March 2013; Tadashi Karube, “The Illusion of ‘Rising Nationalism’: Internationalism and Xenophobia in today’s Japan,” 7 July 2014; Yuichi Hosoya, “Bringing ‘Internationalism’ Back,” 23 June 2014; Shinichi Kitaoka, “The Turnabout of Japan’s Security Policy: Toward ‘Proactive Pacifism,’” 2 April 2014, all on nippon.com; Gerald L. Curtis, “Japan’s Cautious Hawks: Why Tokyo is Unlikely to Pursue an Aggressive Foreign Policy,” *Foreign Affairs*, Vol. 92, No. 2 (March/April 2013), pp. 78-86; Brad Glosserman, “Abe’s Dilemmas,” *PacNet*, No. 37, 30 May 2014; Michael Green, and Jeffrey Hornung, “Ten Myths About Japan’s Collective Self-Defense Change: What the Critics Don’t Understand About Japan’s Constitutional Reinterpretation,” *The Diplomat*, 19 July 2014.

⁴² The blanket legislation is usually referred to as 平和安全法制整備法案 [Heiwa Anzen Hō Seibel Hōan], see 平和安全法制等の整備について 内閣官房 (2015年5月14日), 平和安全法制」の概要 内閣官房 (2015年5月15日).

⁴³ Organizers of the protests legislation outside the Diet buildings estimated that up to 100,000 protesters marched against the bills’ passage of the lower house in July. During Diet committee hearings on the bills, constitutional scholars and a former supreme court justice argued that the legislation was unconstitutional. Abe was also publicly criticized by atomic bomb survivor Sumiteru Taniguchi in his speech at the Nagasaki memorial ceremony on August 9, when he stated that the defense reforms would take Japan “back to the wartime period.” The security bills were finally approved 148 votes to 90 by the House of Councillors and became law on September 19, following opposition attempts at delaying tactics and even some brawls in which some Diet members attempted to stop the vote to move the bill out of committee and to a general vote. See “Abe’s future uncertain as public support dives,” *Nikkei*, 3 August 2015; “Japan Moves to Allow Military Combat for First Time in 70 Years,” *New York Times*, 16 July 2015; “Experts’ ‘unconstitutional’ verdict on security bills highlights contradictions,” *Mainichi Shimbun*, 6 June 2015; “Former justice brands security bills as unconstitutional, slams Abe for sophistry,” *Japan Times*, 16 September 2015; “Nagasaki survivor warns Abe reforms ‘will lead to war,’” *The Daily Telegraph*, 9 August 2015; “Japan to allow military role overseas in historic move,” *BBC News*, 18 September 2015; “Diet session extended through September as Abe aims to pass contentious security bills,” *Japan Times*, 22 June 2015.

Even when Japan's space policy has been examined from the benchmark of a hard or soft (quantifiable or qualified) contribution to national security, the tendency has been to interpret policy outcomes as reinforcing *how little* Japan's security strategy has changed.⁴⁴ Thus, one major line of interpretation has been that Japan stands as an exception – even a culturalist exception – to regional and global trends for the militarization of space; that Japanese space policy has largely stood as a non-security driven and normative exception to regional and global trends for the militarization of space, seeking space technology for its own sake and civilian “soft power” ends.⁴⁵

For those looking to test Japan's intent on a unitary State actor level, the story of the QZSS program can be used as a valuable counterpoint to METI's SOD program. The utility of PNT services for both economic infrastructure and geostrategic security has been well known ever since the first Gulf War, when GPS-guided weapons decimated Iraqi forces, providing the force multiplier effect that gives militaries capable of wielding space technologies and integrating them into military campaigns a major advantage over adversaries without such capabilities.

There is evidence that Japan sought PNT technology, or at least became aware of its potential implications, as early as the mid 1970s. By the late 1990s, development of an independent or regional GPS capability became a strategic priority. Yet, a narrative history of the QZSS program, only now being realized at the end of this decade, twenty five years after first concrete plans to develop the system, is a tale of false starts, failures, and bureaucratic battles, despite strong pressures from industry, and then from within the government itself, to develop the system.⁴⁶

Thus, it is possible to see both *Basic Plan 2016* as the thin edge of a wedge of a process leading to rearmament, with Japan barely disguising the development of strategically potent capabilities made much more so through integration with U.S. technological and material superiority, or, indeed, to frame Japan's latest policy as a fairly minimalist approach, considering the increasingly worrying security threats on its doorstep. A closer examination of space policy transition following the 2008 *Basic Law* shown in Table 1 below, summarizing the precursor plans to *Basic Plan 2016*, highlights some of the difficulties involved when applying current analytical models.

A neorealist-type analytical model, using the *Basic Law* as a benchmark to examine how far *Basic Plan 2016* has implemented the *Basic Law* would seek to show that Japan has responded rationally to both growing international security pressure, and the need to service the U.S.-Japan security alliance, the cornerstone of Japan's military defense policy. A focus on a simplified model that focuses on the relationship between the U.S. and Japan shows implied successive intervention was required by the LDP to force administrative institutions to take a more assertive implementation.

Table 1 does indeed, on a simplistic level, show an action-reaction framework between domestic policy evolution and external security concerns. On the other hand, the number of steps and the level of coordination required both externally and internally shows how complex and difficult it has been to implement elements of the *Basic Law*. At the very least, the number of attempts to enact the *Basic Law* suggests the need for considerable domestic debate and adjustment.

⁴⁴ Oros (2008) is the classic statement of this.

⁴⁵ Kazuto Suzuki, *Uchū Kaihatsu to Kokusai Seiji* (Tokyo: Iwanami Shoten, 2013), pp. 179, 182-183.

⁴⁶ For a narrative history of the QZSS saga and its contested integration first into national, then international security policy 1974-2009, see Pekkanen & Kallender-Umezu (2010), pp. 198-201.

Table 1: Comparative Dimensions of Key Policy Benchmarks
(Simplified: Japan-U.S. Interaction 2009-16)

| Policy | <i>Basic Law</i> | <i>Basic Plan 1</i> | <i>Basic Plan 2</i> | LDP Strategy | Mid-Term Plan | <i>Basic Plan 3</i> |
|---------|---|--|--|---|--|--|
| | Foundational | Implement <i>Basic Law</i> | Revise <i>Basic Plan 1</i> following failure to secure budget | Root-and-branch reorientation after failure of MDA constellation | Reorientation of <i>Basic Plan</i> to confirm national security direction | Implementation of NSS reflecting LDP Strategy |
| Date | August 2008 | June 2009 | January 2013 | August 2014 | August 2014 | January 2015 |
| Details | 1] End PPR; normalize defensive military space use in line with OST. 2] Make a <i>Basic Plan</i> within 1 year. Focus on industry & security rather than R&D. 3] Review JAXA role in 1 year. Establish a new policy & administrative executive to effect <i>Basic Plan</i> . 4] Draft a Space Activities Act in 2 years. 5] Formulate a pathway to increase budget from ¥300B to ¥500B over the course of 5-10 years. 6] Space development as a strategic policy tool to counter China in Asia. | 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. | Focus on: 1] a regional QZSS system 2] a continuous global monitoring system 3] integrate new satellite systems into national security 4] more flexible space access 5] downgrade 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. | 1] Integrate space policy with NSS & create NSSS 2] Integrate NSSS with U.S. NSSS 3] Investigate establishment of Uchūchō with a single budget line 4] Increase budget by up to ¥200B/year (to ¥500B) for military space 5] Double IGS constellation 6] Create MDA constellation 7] Deploy space-based EW & ELINT satellites 8] Create space infrastructure at the service of MOD 9] evolve JAXA to take DARPA-type role 10] Set up an independent think tank. | Space's primary purpose is to strengthen national security; boost cooperation with the U.S; create a long-term plan to strengthen industrial base. 1] Specific policies: 7 satellite QZSS /boost IGS, EO satellite systems/ new data relay and optical data relay satellites /H-3/ harden launch centers. 2] Utilization: (a) SSA, MDA, coms, EW, fast flexible launch, high flexibility satellites (b) pico- and nanosats. 3] Strategic: (a) improve planning and policy (b) finish Space Activities Act. | Policy guided by NSS; National security top priority along with U.S. 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 to be worked out in 2-year studies. QZSS officially a backup for GPS. JAXA to work closely with MOD; ALOS satellite to host MOD EW sensor; JAXA dual-use tacsats and SLATs funded. |
| Outcome | Ongoing | Failed | Overtaken | Partial failure necessitating (<i>Basic Plan 3</i>) | Ongoing | Mediated Solution |
| | About to be implemented with a pronounced national security focus as a result of <i>Basic Plan 2016</i> . Uchūchō delayed 3 years; compromises expected over MDA, etc. | MOF rejected budget rise & took advantage of DPJ confusion and ministerial infighting. Policy moves on autopilot until <i>Basic Plan 2</i> . | CO partial control via QZSS; failed to tackle infighting; lost credibility over wide area observation program. METI withdraws; JAXA moves in. More military emphasis. | Established to end infighting. In MTP, ONSP actively worked on coordination with NSS with MOD and dual-use actors. But critical decision on ar Uchūchō shelved. | 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. | Uchūchō shelved; delayed increase in IGS constellation numbers; ONSP's MDA plans shelved in favor and multi-year negotiation to deal with continued inter-ministerial discussions. |

| U.S. Government Stance or Role | 2+2 June 2011 | 1 st Dialogue on Space March 2013 | 2+2 Oct. 2013 | 2 nd Dialogue on Space May 2014 | Defense Cooperation Guidelines | |
|--------------------------------|---|---|---|---|---|--|
| | Bolster cooperation on ISR, BMD, outer space and cyberspace; specifically, in space in 4 areas: SSA, QZSS, MDA, dual-use sensors. | Collaborate with GPS/QZSS, SSA, MDA, TCBMS for International Code of Conduct; May 2013 Exchange of Notes concerning SSA Services. | BMD: Deploy SM-3 Block IIA, 2 nd second AN/TPY-2 radar: SSA, MDA, cooperate on International Code of Conduct; establish bilateral Defense ISR Working Group. | Space assets indispensable for U.S.- Japan security; provision of SSA data from JAXA to U.S. Strategic Command. | First update since 1997: promoted “seamless” cooperation in space and cyberspace focused on SSA and MDA | |

Sources: Author’s own research

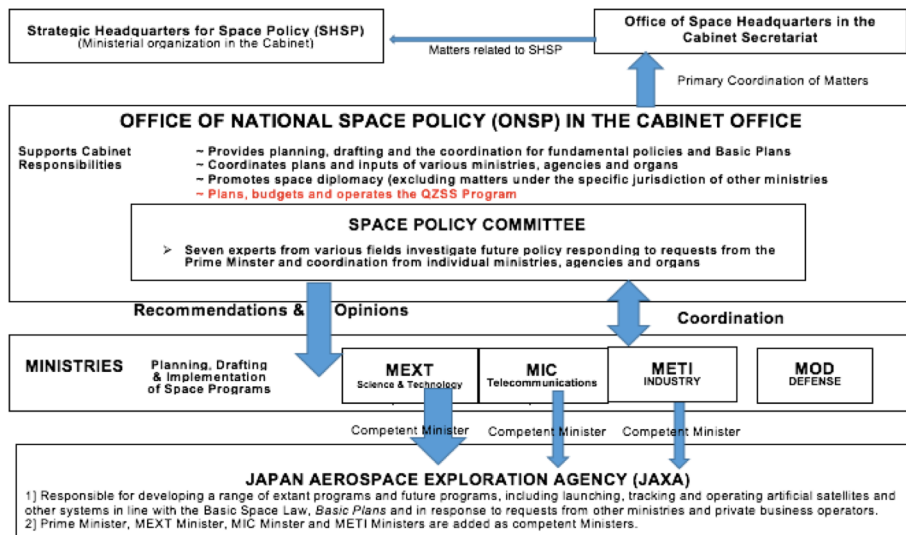
Institutional Realities

On the other hand, the complexity and internal balancing required to formulate Japan’s post-*Basic Law* space policy can be illustrated through the brand-new policymaking structure that was implemented in 2012 after the *Basic Law*, which sought to set up Cabinet Office control, or at least coordination of policymaking, as encompassed in the establishment of the ONSP. The chart below shows how the ONSP coordinates a range of implementing bureaucratic institutions, with policymaking guidance controlled through the Space Policy Commission (SPC).

While the position of the ONSP, situated within the Cabinet Office, shows the connection it has with political power (in fact in 2012 the Prime Minister took a dual role as a competent minister for JAXA in terms of space policy), the chart also shows the potential of tangled lines of purpose, in that JAXA has three ministers overseeing it. This begs the question: Why does JAXA need to have three ministers with input on its role? And how, or how well do they work together?

Framing a detailed and systematic explanation of this policymaking structure will be a major task of this dissertation. But for the moment, a quick glance at this framework shows the number of stakeholders and suggests the complexities of coordination involved in policymaking, especially considering that the establishment of the ONSP was supposed to represent a *simplification* and *rationalization* of space policymaking, putting the Cabinet Office in greater control of policymaking above the parochial interests of individual ministries, so as to soothe the implementation of the *Basic Law*.

Figure 1. Japan’s Administrative and Intuitional Framework for Space Policy in 2012



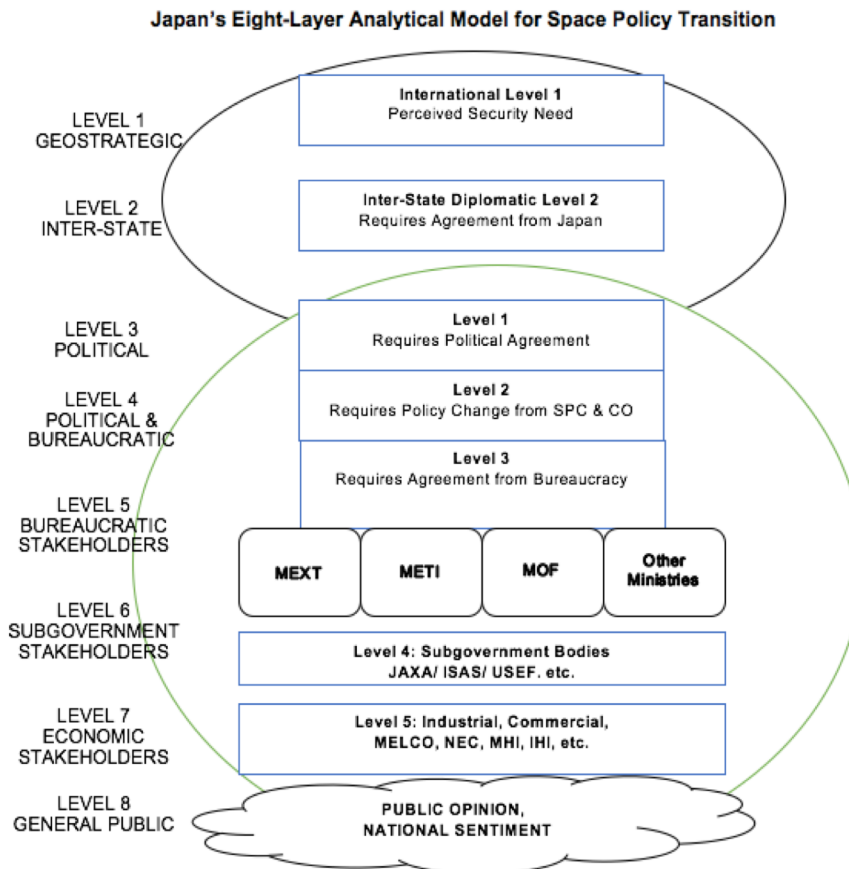
Some Preliminary Thoughts on the Complexity of Stakeholder and Institutional Arrangements

Thus, a close analytical look at the normative, political, administrative and industrial players and the many complex agreements (particularly between ministries) that combined to form *Basic Plan 2016* shows it to be very much the evolved product of sets of legal and constitutional limitations, policy norms, and administrative structures. Clearly then, to account for all these factors requires a multi-stakeholder and multi-level approach to understanding the processes behind Japanese space policymaking.

I argue that such an approach is critical to understanding the “hows” and “whys” of *Basic Plan 2016*. If we take into account both the external and internal processes that combined and interconnected, it might be helpful to combine them all into a schema showing the main levels of decision-making as in, for example, Figure 2.

As will be shown extensively in this dissertation, all these layers of decision-making were active at different points, and in different ways, over extended periods. For example, in this schema, in Level 2, the U.S. can be seen as either acting as a break or an accelerator for policy and institutional change at critical points in the history of Japanese space development. Much the same can be said for Level 8. For example, in the wake of the Taepodong overflight of 1998 there was a public outcry of concern (arguably media created) about potential Japanese vulnerability to ballistic missile attack, which rippled through Level 3, for example.

Figure 2: Japan’s Eight-Layer Analytical Model for Space Policy Transition



Research Questions

For the purposes of clarity, this dissertation assumes that Japan is now indeed using space technologies and space policy as part of a regional (external) security balancing strategy. As will be seen in Chapter 2, various arguments have, and can be made, as to how and in what way Japan has been externally balancing; for example whether Japan has been bandwagoning on the U.S. security guarantee, and is now moving to hugging the U.S. and hedging against the potential of a rising regional power, China, or perhaps is soft balancing against China.⁴⁷ In this respect, this dissertation acknowledges a realist framework of analysis at some level to explain Japan's external policymaking.

But another fundamental point is that Japan is doing so in a particular and nuanced way, based on the specificities of the foundations of its traditional defense strategy, and, extremely importantly – and in terms of space policy specifically – on the delimitations on the capacity for and speed of change when working through a complex institutional and administrative framework. Thus, in this dissertation, a new definition of “internal balancing” is used, which refers to the recalibration of domestic institutional frameworks to achieve the “external balancing” function.

In provisionally accepting the concept of external balancing as applicable to Japan's evolving space policy, the logical question becomes “how” or “how much” is Japan balancing. In many ways, *Basic Plan 2016* can be characterized from a neorealist perspective as fulfilling some of its potential for national security applications. However, as pointed out above, it is equally possible to look at elements of *Basic Plan 2016* to argue how little and cautiously Japan has responded to increasingly alarming regional security threats and pressures, including pressures exerted by the U.S. Thus, juxtaposing Japan's latest space policy with national security policy using standard international relations paradigms, the same empirical data can be used to justify distinctly different conclusions.

As outlined above, if a framework is adopted that incorporates all the stakeholders and their interactions that seeks to account for interpreting *why* and *how fast* or *slowly* and *to what objectives* Japan has transitioned its space policy, then, by comparison, a simple international relations-based paradigm looks at least a blunt instrument. In fact, it is the contention of this dissertation that conventional approaches, when adapted to study Japan's space policy transition, are unable to fully account for all the actors and processes involved, especially in terms of their interconnections and relationships.

Bearing all this in mind, after setting up the context and accounting for the complexities involved that traditional frameworks do not seem to adequately cover, I propose the following research questions to provide analytical clarity to tackling the issues involved:

⁴⁷ According to the Balance of Power Theory, States, motivated primarily by their desire for survival and security, will use internal balancing, i.e. develop and implement military capabilities and hard power mechanisms to constrain the most powerful and rising state that can prove a potential threat. At the same time, states will conduct external balancing in which they will ally with other states to balance and gain more leverage over a dominant or rising power. In recent years, soft-balancing has emerged as a new concept of illustrating how states balance powerful actors, which advocates the use of economic and diplomatic tools to constrain the most powerful state and inhibit their exertion of power and dominance. As opposed to traditional balancing, soft balancing is undertaken not to physically shift the balance of power but to undermine, frustrate, and increase the cost of unilateral action for the stronger state. Soft balancing is not undertaken via military effort, but via a combination of economic, diplomatic and institutional methods. See Waltz (2008), pp. 137, 168; Stephen G. Brooks and William C. Wohlforth, *World out of Balance* (Princeton: Princeton University Press, 2008), p. 22; William C. Wohlforth, Stuart J. Kaufman and Richard Little, “Introduction: Balance and Hierarchy in International System,” in William C. Wohlforth, Stuart J. Kaufman and Richard Little (eds.) *The Balance of Power in World History*, (New York, NY: Palgrave Macmillan, 2007), pp. 9-10. On soft balancing, in particular, see Robert A. Pape, “Soft Balancing against the United States,” *International Security*, Vol. 30, No. 1 (Summer 2005), p 36.

1. *Why did it take so long to enact the Basic Space Law of 2008?*

Subsidiary Questions:

2. *Why is enactment of the Basic Law still only partial in Basic Plan 2016?*

3. *What we infer anything from this about Japan's ability to make strategically important decisions in the 21st century?*

The primary and the first secondary question demand analytical clarity in order to account for the issues and problems associated with understanding the *hows*, *whys*, and *whens* (and *why not!*) of space policy and institutional change. The remaining question contextualizes another critical question: what does all this mean?

Reflecting on the complexity of the above framework, and in tackling these research questions, this dissertation seeks to demonstrate two major findings. The first is that, through *Basic Plan 2016*, Japan has effectively managed to achieve a working compromise that deals with both internal and external issues.

The second is that this has been achieved with a new style of policymaking by using neutral experts operating in the Cabinet Office, who were able to surmount at least some of the narrower interests of particular stakeholders, particularly the specific aims of individual ministries, so as to make possible the implementation of many (but not all of the) key changes intended by the initiators of the *Basic Law*; and that this was achieved, inevitably, through many struggles and compromises, by adapting tactics developed and refined during the administration of Prime Minister Junichirō Koizumi and recalibrated through many twists and turns through 2008-2016, so that by 2016 the Cabinet Office had established the principal of more political control of important policy framing over and above the narrow sectionalist institutional objectives of MEXT.⁴⁸

While this is a simplistic summary, one of the main themes of this dissertation is the focus on understanding the *logics* of Japanese policymaking, noting what is new, how things changed, and when and why, while fully acknowledging the interconnectedness of both external and system-level threats, and internal political-bureaucratic-institutional dynamics. Conversely, another major assertion of this dissertation is that understanding the logics of policymaking in the field of space policymaking, and proximate fields such as national security strategy and grand strategy as they evolved, sheds deeper insight into the frameworks governing and contextualizing Japan's decisions. It's easy to attach a label and ascribe a motive to a particular decision by selecting an analytical lens that ascribes motives to those decisions. It's more interesting, demanding, and revealing to examine policymaking both "from the inside out" and "the outside in." So understanding both external (international, geostrategic, alliance, security) factors and internal (domestic politics, bureaucratic actors, industrial stakeholders, even public opinion) factors is important.

As pointed out, it is quite possible to use empirical evidence provided by *Basic Plan 2016*, when applying a particular analytical lens, to conclude that Japan is rearming stealthily through militarizing its space program. It is equally possible, using a different analytical lens, to say that Japan is doing virtually the opposite; that it is refraining from rearming and doing the bare minimum it needs using defensive

⁴⁸ For a survey of these initiatives, though not considering space policy specifically, see Tomohito Shinoda, *Contemporary Japanese Politics, Institutional Changes and Power Shifts* (New York: Columbia University Press, 2013).

space technologies, to secure itself and shelter under the U.S. security umbrella, despite a plethora of pressures to do more.

Thus, the basic research questions of this dissertation reflect, then, a need to move beyond conventional analytical paradigms, debating whether Japan is “hugging or hedging,” or stealthily rearming, or reluctantly balancing, etc.

In trying to address these questions and themes, this dissertation also attempts to:

1. Explore the rationality of the decision-making of the Japanese state as expressed through policy transformation and institutional arrangements that accompanied (or enabled, or stalled) that change.
2. Demonstrate the importance and relevance of space policy as a national security issue, and as a global governance issue.

The SAF Framework

To answer my research questions, I have adopted a fresh approach. One of the key issues with my decision-making layer analysis is that it inherently seems to suggest a vertical hierarchy of decision making layers. But, reviewing all the actors and their interrelationships, I felt such an approach did not fully explain the dense and multidirectional interconnections and interactions between different stakeholders, constituencies and institutions that were connected in more complex ways than simply “up” and “down” the layers.

To account for these problems, and to overcome the rigidities of the eight-layer decision-making framework, this dissertation will use what I call the Strategic Action Field (SAF) framework (the SAF framework). First published in 2011 as the *Theory of Fields*, the SAF framework was designed specifically to model groups of stakeholders involved in dynamic changes over time. This approach was also specifically developed to create an analytical framework to deal with those groups in the context of *interdependent* linkages. The utility of this can be demonstrated by the fact that it is immediately apparent that connections between the seven or eight decision-making layers are both bi- and multi-directional.⁴⁹

The SAF framework’s major utility comes in its recognition of the dynamic interplay of such links, modulated through matrices of actors in groupings called Strategic Action Fields (SAFs), in which the actions of one field or the players in it may affect others, but do so in logically explained and rational patterns of behavior. Moving beyond the idea of vertically-integrated decision layers, the SAF framework seeks to put players, motives, behaviors and actions into interdependently linked fields of action that have their own dynamics, but whose behavior is bidirectionally interlinked and made logical and understandable according to certain rules governing position and behavior.

By applying an SAF-based approach to space policy and institutional change, it is possible to create an analytical framework that accounts for the internal logic of all the decision layers and their interconnections. This is achieved by putting the players/actors/competitors into SAFs in which internal and external behavioral dynamics can be understood through simple sets of rules. While the SAF

⁴⁹ The primary sources are Neil Fligstein and Doug McAdam, “Toward a General Theory of Strategic Action Fields,” *Sociological Theory*, Vol. 29, No. 1 (March 2011); Neil Fligstein and Doug McAdam, *A Theory of Fields* (New York, NY: Oxford University Press, 2012). The work builds on earlier research from Fligstein in particular, for example, Neil Fligstein, *The Transformation of Corporate Control* (Cambridge, MA: Harvard University Press, 1990); Paul DiMaggio and Walter W. Powell, ‘Introduction,’ pp. 1-40, in *The New Institutionalism in Organization Analysis*, Paul J. DiMaggio and Walter W. Powell (eds.) (Chicago: University of Chicago Press, 1991); Neil Fligstein, “Social Skill and Institutional Theory,” *American Behavioral Scientist*, Vol. 40, No. 4 (February 1997), pp. 397-405.

framework borrows, for example, from rational actor scenarios to understand institutional behavior, in essence, the SAF framework also, crucially, provides an analytical framework that spans both macrotheory (international relations paradigms) and microtheory (institutional dynamics), and their interplay.

Outline to the Remainder of this Dissertation

Chapter 2 looks at how macrotheory and microtheory has been applied to studies of Japan, focusing on security policy when possible, but also taking into account parallel fields when applicable, for example when Japan has had a contested or evolving relationship in terms of trade or economics, which has led to internal and external balancing. An extensive summary survey of main microtheories, for example, various stripes of institutionalism, is also conducted, to see how analysts explain the institutional and political frameworks for making policy. Hybrid theories are also looked at. Finally, a review is made of how space policy transition has been analyzed to date. Chapter 3 looks in detail at the SAF framework and outlines how will be applied to Japan's space policy transition. To answer the basic question, "is space policy important, and if so why?" Chapter 4 establishes the importance of outer space as both a global governance issue and a global security issue.

The second half of the dissertation starts a detailed analysis of how, when and why space policy changed from the 1960s through to 2016. Chapter 5 uses a rather conventional narrative of space policy transition to form *Basic Plan 2016* by splitting policy evolution into five phases.⁵⁰ Chapters 6-9 then focus on explaining how we can understand *why* Japan did *what* and *when* in space policy transition by exploring the behaviors of different SAFs (actors) in terms of the SAF framework. Chapter 10 draws some conclusions.

⁵⁰ The analysis in this chapter is largely based on work done in Paul Kallender, "Japan's New Dual-Use Space Policy: The Long Road to the 21st Century," *Asie.Visions*, No. 88, November 2016.

Chapter 2

Theoretical Considerations: Conventional Macro- and Microtheoretical Approaches

Macrotheoretical Approaches

Neorealist-based Security Studies of Japan

Continuing on from Chapter 1, Chapter 2 tests the utility of using various commonly-adopted international relations and institutional frameworks to answer the research questions in terms of the eight layer decision-making model.

Mainstream international relations theory-based academic scholarship on Japanese security policy is mainly based on general surveys of Japan's overall security policies. Because of this, assessment of space policy as a subset of national security strategy could then be interpreted in terms of how it can be used to fit into ready-made conclusions – for example evidence that Japan is conducting expected behavior as predicted by the frameworks applied. As outlined in Chapter 1, neorealist points of view on Japan might look at Japan's security trajectory and potential for attaining greater assertiveness, “normal” status, and remilitarization of defense policy.¹

The critical issue with such an approach when dealing with space policy is that neorealist frameworks tend to place focus on Levels 1 and 2 and possibly Level 3 of the eight layer decision-making hierarchy. In this respect, in focusing on just the security aspects of *Basic Plan 2016*, a neorealist approach might place the plan as part of a recent process of rebalancing against China to contain it. As a rational actor, Japan must logically become increasingly concerned about China; that Japan will at some point to a lesser or greater degree, rearm; and that militarizing space is one step in a process of building the capacity to do so.² For neorealists, the basic assumptions never change. Ultimately, there are never absolute guarantees of security for any state, even from allies or alliances. In a fluid geostrategic environment, following the collapse of the bipolar confrontation between the U.S. and the Soviet Union, and facing uncertainties in the post-Cold War jigsaw of emergent security dilemmas in East Asia, particularly provoked by the rise of China, it is rational for Japan to strengthen its military. Space technology can be seen as another step toward eventual rearmament, be it moderate (or recessed). For neorealists, at least the partial rearmament that allows the military use of space is explained by the fact that Japan is assessed as being entangled in a regional security dilemma.³

¹ Remilitarization here is defined as increasing acceptance by Japan's policy makers and its citizenry of the efficacy and centrality of military power for national security ends. Japan has thus moved from a demilitarized state early post-war, to now adopt an expanded military role in terms of function, geographical scope, and external partnerships, and a new preparedness to exercise armed force for security purposes not only individually but through CSD.

² John J. Mearsheimer, *The Tragedy of Great Power Politics* (New York, NY: Norton, 2001), pp. 140-143, 156-157; Kenneth N. Waltz, “The Emerging Structure of International Politics,” *International Security*, Vol. 18, No. 2. (Autumn, 1993), pp. 63, 68-69; Kenneth N. Waltz, “Structural Realism after the Cold War,” *International Security*, Vol. 25, No. 1, (Summer 2000), p. 33.

³ Adam P. Liff, “Racing toward Tragedy?: China's Rise, Military Competition in the Asia Pacific, and the Security Dilemma,” *International Security*, Vol. 39, No. 2 (Fall 2014), pp. 52-91.

⁴ Beyond Lind's buck-passing, others have characterized Japan's security strategy towards China, until at least recently, as bandwagoning: Japan has sought to profit from a relationship with China, a rising power. Some observers have explained mounting tensions as a result of Japan “resisting” China. Another neorealist lens held to Japan holds that Japan is “hedging,” which can be defined as a strategy that gives equal weight to economic and military security, against China, so that Japan is hedging with the U.S. to counter potential security threats and with other countries against economic dangers. Hedging signifies a more ambivalent strategy than balancing in that it implies Japan does not more openly ally with one particular country than another.

Dealing with China has become major preoccupation of both Japanese and U.S. strategy. Until recently, Japan's relationship with China had been characterized mainly by growing trade and economic interactions, although, as will be

Neorealist-type analysis can easily find much empirical evidence to show how, and how much Japan as a power does react directly to security threats. In both national security and space policy documents, China is now openly stated as a major security issue. China's behavior in space has, as has been pointed out, been cited by Japan as direct drivers for security policy transition. And yet there are glaring deficiencies. Japan has no nuclear weapons or offensive strike capabilities (although these are regularly posited), and it has only just recently marginally raised its defense spending after a decade of decline. Perhaps, then, the answer is the U.S. security guarantee? Until there is what is perceived a real need or urgent need, for example, a tipping point in Chinese behavior, and/or, for example U.S. alarm and pressure for Japan to rearm further, Japan will refrain from investing more in military space technologies. But the possibility or, for some, the probability of this is always present.⁴

However, the fact that Japan hasn't rearmed to the extent that some neorealists in the early 1990s predicted, or seems perpetually "on the way," means that neorealism has traditionally struggled to gain analytical traction and identify significant change. Japan's "failure" or "reluctance" to rearm more has been seen as a "structural anomaly" in the international system.⁵ In the midst of a changing regional balance of power, Offensive Realism, Defensive Realism, and other more Japan-specific derivatives of neorealism have been given some impetus with China's rise and Japan's search for a more proactive

seen on the chapter, the U.S. has been growing increasingly suspicious about China's motives in its space and cyberspace development since at least the turn of the century. Overall it is fair to comment that the trading relationship between the U.S. and China and Japan and China has been transforming from one of foreign direct investment to China to a relationship of interdependent trading partners. Therefore, at the core of realist views about how Japan is coping with the rise of power is the analytical framework of Balance of Power Theory (see also Chapter 1 for this).

Many analysts have explained Japan's policy to China since 1978 and the advent of the growth of China as balancing or containment, and increasingly so over the last decade. For example, Ross and Zhu see Japan as "resisting" a growing China. Japan has also been assessed as "containing" China by "balancing" or "constraining" China either by strengthening Japan's defenses (internal balancing) or by reinforcing the U.S.-Japan alliance, a case of external balancing, starting perhaps more obviously with the tensions that surfaced during the premiership of Prime Minister Junichirō Koizumi (2001-6). More directly, for example, Hsiung and others, have argued that Japan is, in fact, already rearming.

Regarding external balancing, realists predicted that concern about China has, is, or will drive it into becoming a closer alliance partner with the U.S. In this case, Japan is bound to contain and balance China, and recent security policy transitions should be seen in this light. Jerdén and Hagström view Japan's security strategy towards China as a combination of containment and balancing. Some neorealist scholars contend that Japan has neither pursued a policy of containment toward China, but neither has it simply followed a policy of engagement either.

For more detail, see Jörn Jerdén and Linus Hagström, "Rethinking Japan's China Policy: Japan as an Accommodator in the Rise of China, 1978–2011," *Journal of East Asian Studies*, Vol. 12 (May 2012), pp. 215-250; Robert S. Ross and Zhu Feng, (eds.) *China's Ascent: Power, Security and the Future of International Politics*, (Ithaca, NY: Cornell University Press, 2008), p. 7; James C. Hsiung, *China and Japan at Odds: Deciphering the Perpetual Conflict* (New York, NY: Palgrave Macmillan, 2007), pp. 16-17; Richard Samuels, *Securing Japan: Tokyo's Grand Strategy and the Future of East Asia* (Ithaca, NY: Cornell University Press, 2007), p. 114; Kenneth B. Pyle, *Japan Rising: The Resurgence of Japanese Power and Purpose*, (New York, NY: Public Affairs, 2007), p. 2; Christopher C. Hughes and Ellis S. Kraus, "Japan's New Security Agenda," *Survival: The IISS Quarterly*, Vol. 49, No. 2 (Spring 2007), p. 168; Christopher C. Hughes, *Japan's Remilitarization* (New York, NY: Routledge, 2009), p. 87; David Arase, "Japan, the Active State?: Security Policy after 9/11," *Asian Survey*, Vol. 47, No. 4 (July/ August 2007), p. 578; Andrew Oros, *Normalizing Japan: Politics, Identity and the Evolution of Security Practice* (Stanford, CA: Stanford University Press, 2008), p. 43; John Mearsheimer, "China's Unpeaceful Rise," *Current History*, Vol. 105, No. 690 (April 2006), pp. 160-162; Tomohito Shinoda, "Becoming More Realistic in the Post-Cold War: Japan's Changing Media and Public Opinion on National Security," *Japanese Journal of Political Science*, Vol. 8, No. 1 (July 2007), pp. 171-190; Liselotte Odgaard, "A New Cold War?" *International Studies Review*, Vol. 10, No. 1 (March 2008), pp. 193-4; Mike Mochizuki, "Japan: Between Alliance and Autonomy," in *Strategic Asia 2004-5*, Ashley Tellis and Michael Wills (eds.) (Seattle: National Bureau of Asian Research 2004), pp. 103-38; Mike Mochizuki, "Japan's shifting strategy toward the rise of China," *Journal of Strategic Studies*, Vol. 30, Nos. 4-5 (July 2007), pp. 739-776; Mike Mochizuki, "Terms of Engagement: The U.S.- Japan Alliance and the Rise of China," in *Beyond Bilateralism: U.S.- Japan Relations in the New Asia-Pacific*, (eds.) Ellis S. Krauss and T. J. Pempel, (Stanford, CA: Stanford University Press, 2004), pp. 87-115.

⁵ Kenneth N. Waltz, "The Emerging Structure of International Politics," *International Security*, Vol. 18, No. 2 (Fall 1993), pp. 55-70; Kenneth N. Waltz, "Structural Realism After the Cold War," *International Security*, Vol. 25, No. 1 (Summer 2000), pp. 33-36.

foreign and security policy.⁶ Among these, Defensive Realism-type analysis has noted modifications in Japanese strategy, but has still not identified fundamental shifts manifested in internal and external balancing.⁷ Put bluntly, Japanese security strategy refuses to “play ball” and fully conform with many of the predictions of neorealism.

Neorealist scholars of Japan have increasingly recognized the complexity of Japan’s nuanced and multifaceted view of security. In terms of such an approach to the eight-layer decision model, this type of approach implies acknowledgement of the importance of decision-making and compromises through Levels 3, 4 and 5 at least. Thus, through a neorealist approach, Japanese security policy can surely be viewed a mix of pragmatism, financial constraints, bureaucratic politics, and public opposition to radical change. Perhaps it would be possible to see Japan is seen as an opportunist power (a view also expressed by some neoliberal institutionalists – see below), and perhaps, narratively, it is possible to describe space policy transition as the result of all these factors.⁸

Plugging *Basic Plan 2016* into a neorealist framework, some analysts have characterized Japan’s security policy changes as primarily responses to external security changes through the prism of external drivers that have pushed Japan to “normalize” its security strategy. Japan has been seen conducting various forms of balancing priorities in maintaining both the U.S.-Japan Security Alliance with more friendly and profitable relations with Japan’s Asian neighbors.⁹ In this light Japan’s new bilateral emphasis with the

⁶ John J. Mearsheimer, “The Gathering Storm: China’s Challenge to U.S. Power in Asia,” *The Chinese Journal of International Politics*, Vol. 3, No. 4 (December 2010), pp. 390-391; Green (2001); Tsuyoshi Kawasaki, “Postclassical Realism and Japanese Security Policy,” *The Pacific Review*, Vol. 14, No. 2 (June 2001), pp. 221-240; Pyle (2007); Hughes (2009); Bjørn Elias Mikalsen Grønning, “Japan’s Shifting Military Priorities: Counterbalancing China’s Rise,” *Asian Security*, Vol. 10, No. 1 (March 2014), pp. 1-21; Jeffrey W. Hornung, “Japan’s Growing Hard Hedge Against China,” *Asian Security*, Vol. 10, No. 2 (June 2014), pp. 97-122; Darren J. Lim and Zack Cooper, “Reassessing Hedging: The Logic of Alignment in East Asia,” *Security Studies*, Vol. 24, No. 4 (November 2015), pp. 713-716; Sebastian Maslow, “A Blueprint for a Strong Japan? Abe Shinzō and Japan’s Evolving Security System,” *Asian Survey*, Vol. 55, No. 4 (July/August 2015), pp. 739-765; Christopher W. Hughes, “Japan’s Resentful Realism and Balancing China’s Rise,” *Chinese Journal of International Politics*, Vol. 9, No. 2 (Summer 2016), pp. 109-150; Christopher P. Twomey, “Japan, a Circumscribed Balancer: Building on Defensive Realism to Make Predictions About East Asian Security,” *Security Studies*, Vol. 9, No. 4 (December 2007), pp. 167-205.

⁷ For neorealist-oriented assessments, mainly defensive realist in nature, seeing as yet limited change, see: Eric Heginbotham and Richard J. Samuels, “Mercantile Realism and Japanese Foreign Policy,” *International Security*, Vol. 22, No. 4 (Spring 1998), pp. 171-203; Victor D. Cha, “Defensive Realism and Japan’s Approach toward Korean Reunification,” *NBR Analysis* 14, No. 1 (June 2003), pp. 5-32; Jennifer Lind, “Pacifism or Passing the Buck? Testing Theories of Japanese Security Policy,” *International Security*, Vol. 29, No. 1 (Summer 2004), pp. 92-121; Samuels (2007); Paul Midford, *Rethinking Japanese Public Opinion and Security: From Pacifism to Realism?* (Stanford CA: Stanford University Press, 2011); Paul Midford, “Japan’s Approach to Maritime Security in the South China Sea,” *Asian Survey*, Vol. 55, No. 3 (May/June 2015), pp. 525-547.

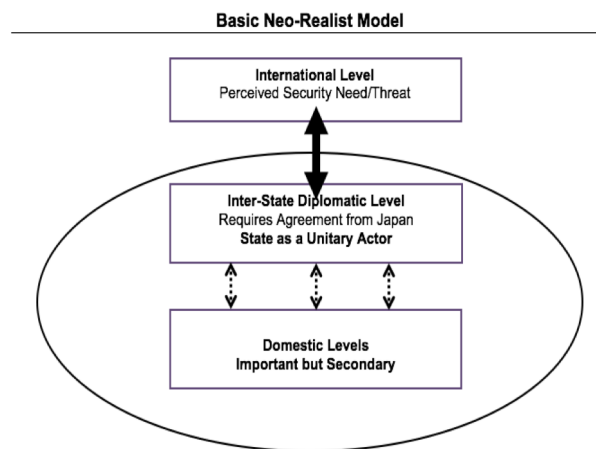
⁸ For example, based on the fact that politicians, in the end, have input on and have to agree to security policy, Samuels believes that are perhaps four kinds of elite policy opinion regarding Japan’s security stance, which he calls “neo-autonomists,” “normal nationalists,” “pacifists,” and “middle-power internationalists. See Samuels (2007), p.128. Pyle’s classic study, *Japan Rising*, refuting constructivist arguments (see below, for example those of Thomas Berger and Peter Katzenstein that Japan represents a “major anomaly” to realism) concludes that Japan is a “rational-materialist” state that is abandoning its Cold War strategy based on the Yoshida Doctrine, and is “preparing to become a major player in the strategic struggles of the twenty-first century. Pyle asserts that when Japan faces new challenges, it is fundamentally an opportunist power that ultimately seeks to pursue a form of autonomy and regional hegemony and re-establish itself as at least a major Asian power. See Pyle (2007), esp. p. 41. See also Robert Gilpin, *War and Change in World Politics* (Cambridge: Cambridge University Press, 1981), p. 17.

⁹ Glenn D. Hook and Gavan McCormack, *Japan’s Contested Constitution: Documents and Analysis* (London: Routledge, 2001), pp. 3-17; J. Patrick Boyd and Richard J. Samuels, “Nine Lives? The Politics of Constitutional Reform in Japan,” *Policy Studies*, Vol. 19 (Washington, DC: East-West Center, 2005), pp. 1-77.

U.S. can indeed be seen as balancing. But of what kind? Has Japan been “Passing the Buck?” Or is it “reluctantly realist?” Or is *Basic Plan 2016* part of further “hugging and/or hedging?”¹⁰

Other explanations for the policy and contents of *Basic Plan 2016* can come in combinations of neorealist and constructivist frameworks, accepting that domestic factors, institutions, norms, and politics are important. Some analysts have applied a multilevel and cautious analytical approach combining ‘domestic and structural factors’ to examine Japan’s security policy, for example the idea of ‘identity theory’ as an alternative constructivist approach. Others argued that Japan’s pacifism, or culture of anti-militarism, was a constructivist norm, but that Japan’s buck-passing policy actually represents a realist strategy.¹¹ Figure 3 illustrates this approach.

Figure 3: Basic Neorealist Model



However, given that Japan has a considerable array of dual-use space technologies that could be deployed for much more direct military use, it seems extremely reluctant to do so. We are faced, then, with the question of why hasn’t Japan done more? Given that the *Basic Law* gives Japan plenty of leeway to develop a host of military space technologies short of placing weapons in space, Japan’s stance, as evidenced in *Basic Plan 2016*, seems remarkably *unopportunistic*. So, logically, at this level of analysis, it seems reasonable to look at the institutional and cultural factors behind Japan’s lack of opportunism.

Thus neorealist-based studies of Japan’s security policy may be used to account for Japan’s reaction to what most analysts agree is its increasing complex security situation, mainly caused by problems

¹⁰ See, for example Aaron L. Friedberg, “Ripe for Rivalry: Prospects for Peace in a Multipolar Asia,” *International Security*, Vol. 18, No. 3 (Winter 1993), pp. 5-33; Lind (2004), pp. 92-12; Green (2003); Lind, “Japan’s Security Evolution,” *Policy Analysis* 788, Cato Institute, 25 February 2016; Thomas J. Christensen, “China, the U.S.-Japan Alliance, and the Security Dilemma in East Asia,” *International Security*, Vol. 23, No. 4 (Spring, 1999), pp. 49-80; Thomas J. Christensen, “China, the U.S.-Japan Alliance, and the Security Dilemma in East Asia,” chapter in (eds.) G. John Ikenberrv. Michael Mastanduno, *International Relations Theory and the Asia-Pacific*, (New York: Columbia University Press, 2003), p. 30; Eric Heginbotham and Richard J. Samuels, “Japan’s Dual Hedge,” *Foreign Affairs*, 1 March, 2003; Heginbotham & Samuels (1998), pp. 171-203; Samuels (2007); Samuels, “Japan’s goldilocks strategy,” *The Washington Quarterly*, Vol. 29, No. 4 (Autumn 2006), pp. 111-127; Pyle (2007).

¹¹ For example, Catalinac advocated an ‘identity theory’ as an alternative constructivist approach. Lind argued that Japan’s pacifism, or culture of anti-militarism, was a constructivist norm, but that Japan’s buck-passing policy was a realist strategy. See Amy L. Catalinac, “Identity Theory and Foreign Policy: Explaining Japan’s Responses to the 1991 Gulf War and the 2003 U.S. War in Iraq,” *Politics and Policy*, Vol. 35, No. 1 (February 2007), pp. 58-100.

associated with the rise of China and the unpredictability of behavior by a nuclear armed North Korea. But such studies fail to account clearly for the *pace* of policy transition and the grinding series of coordination battles between ministerial stakeholders through *Basic Plans 1-3 and Basic Plan 2016*. Such approaches brush over Levels 4 and 5 of the decision-making framework, levels that are demonstrably essential to providing an analytical framework that accounts for when decisions were made, and their contents.

The empirical facts show that it took Japan ten years to overturn the PPR and best part of *fifteen years* to develop a fully-funded policy allowing for the military use of space. Japan's response can be characterized as *underwhelming* from a neorealist expectation of change. For example, developing a much more capable MDA system is perceived by most defense policy analysts as potentially beneficial on a number of levels, is technologically non-difficult, and is highly desired by Japan's key alliance partner, the U.S. Yet, as a case in point, we can see that in *Basic Plan 2016*, instead of investing in new global EO monitoring constellation as a net add to the IGS system, a fundamental aim expressed in *Basic Plan 1*, Japan has rather chosen the path of least resistance and taken a paramilitary or dual-use approach to MDA by deputizing the capabilities of several JAXA EO satellites.

In broader context, excepting the domain of space, Japan has yet to have developed dedicated aircraft carriers (although at the time of finalizing this dissertation, there was talk of limited carrier-type capabilities in terms of flying F-35Bs from Japan's helicopter carriers), nuclear weapons, or to have significantly raised its defense budget, as mentioned above. Even taking into account the assumption that Japan may choose to exercise at some point limited rights of CSD, seen through the prism of neorealism, Japan has certainly continued to place many restrictions on its future military role, even under a "revisionist" Abe administration. In terms of space technologies, seen from the Level 1 and Level 2 State actor-result framework, Japan has a vast array of dual-use technologies that could be more assertively and openly used in Japan's defense and in support of the U.S.-Japan alliance, but has indeed "failed" to do so.

Constructivist & Neoliberal Approaches

Japan's "reluctance" to militarize its space program can also be explained through a number of frameworks. For example, Punctuated Equilibrium Theory suggests that most social systems exist in an extended period of stasis, which are later punctuated by sudden shifts in radical change and that policy change usually only occurs incrementally due to a large number of brakes, such as the inertia of institutional cultures, vested interests, and the bounded rationality of individual decision makers.¹² As applied to Japan, however, most non-neorealist international relations paradigms applied to Japanese security policy come via various schools of constructivism and (neo)liberalism.

In contrast to neorealists, the core research question is *why hasn't Japan done more to rearm itself?* To explain security policy transition, as briefly mentioned in Chapter 1, constructivists focus on *hadome*, embodied in norms and patterns that show Japan to be a country with a strong culture of anti-militarism, expressed on a number of levels and in different ways, especially in institutional arrangements. It is held that Japan will remain disinclined toward militarism based on a deeply held skepticism of Japan's military, which is seen as unpopular and undesirable, having led Japan to the disaster of near national annihilation

¹² Frank Baumgartner and Bryan D. Jones, *Agendas and Instability in American Politics* (Chicago: University of Chicago Press 1993); Claudio Cioffi-Revilla, "The political uncertainty of interstate rivalries: A punctuated equilibrium model," in Paul Diehl, *The Dynamics of Enduring Rivalries* (Chicago: University of Illinois Press 1998), pp. 64-97; Paul Pierson, *Politics in Time: History, Institutions, and Social Analysis* (Princeton: Princeton University Press, 2004).

in 1945. Connected with this, it is held that there is a widespread disinclination by the Japanese public (as demonstrated in the popular protest against Mr. Abe's latest security legislation) to become embroiled/entrapped in overseas conflicts in which Japan has no direct stake. To illustrate the constructivist approach, see Figure 4.

So, for constructivists, Japan is, and will remain disinclined toward militarism based on ideological, ideational, and social processes. Because Japan's definition of national security goes far beyond traditional military notions, national security is viewed in comprehensive economic and political terms. Then, culturalist based studies focus on domestic norms, institutions, and anti-war sentiments. Analysts look in detail at internal factors as to why Japan has placed many *hadome* on what realists would expect, that is to say, a twenty-year military buildup. Some constructivists on the other hand, recognizing that Japan is evolving its security strategy and carefully building up its defense forces now argue that Japan is becoming a more "normal" country *because* of the influence of extant *hadome*.¹³

In view of the series of changes in security legislation that have occurred since the noughties and, arguably, accelerated in (or because of) the second Abe administration, constructivists have therefore been forced to accommodate a growing "normalization" of the role of the military. Some have recognized that Japan may now be engaged in the strategic social reconstruction of a new defense paradigm

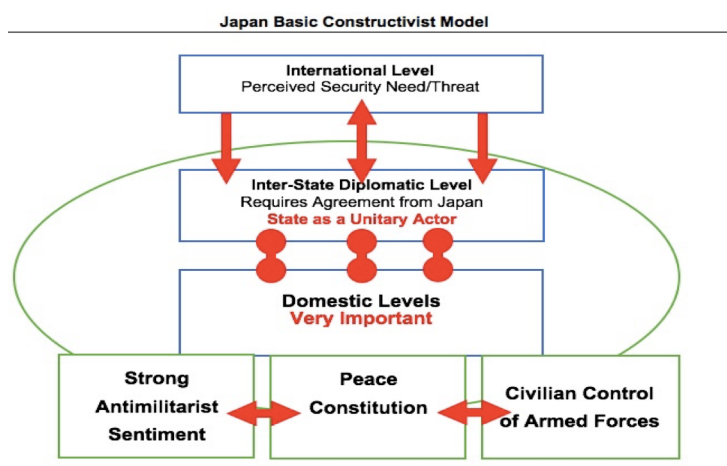
¹³ For norms-oriented constructivism, see Thomas U. Berger, "From Sword to Chrysanthemum: Japan's Culture of Anti-militarism," *International Security*, Vol. 17, No. 4 (Spring 1993); Berger, *Cultures of Antimilitarism: National Security in Germany and Japan* (Baltimore, Maryland: Johns Hopkins University Press, 1998); Peter J. Katzenstein, *Cultural Norms and National Security: Police and Military in Postwar Japan* (Ithaca, NY: Cornell University Press, 1998); Katzenstein, "Japan's National Security: Structure, Norms, and Policies," *International Security*, Vol. 17, No. 4 (Spring 1993), pp. 84-118; Katzenstein, "Japan and Asian-Pacific security: regionalization, entrenched bilateralism and incipient multilateralism," *The Pacific Review*, Vol. 14, No. 2 (June 2001), pp. 165-194; Oros (2008); see also Oros, "The Domestic and International Politics of Constitutional Change in Japan," *Education About Asia*, Vol. 12, No. 3 (Winter 2007), pp. 39-44; Oros, "The Pragmatic Liberalism of An Adaptive State," in Thomas U. Berger, Mike M. Mochizuki and Jitsuo Tsuchiyama (eds.) *Japan in International Politics; The Foreign Policies of an Adaptive State* (Boulder, CO: Lynne Rienner Publishers, 2007); Alexander Wendt, "Anarchy is What States Make of It: the Social Construction of Power Politics," *International Organization*, Vol. 46, No. 2 (Spring 1992), pp. 391-425; Yoshihide Soeya, "Japan's Middle-Power Diplomacy," *The Tokyo Foundation*, 13 February 2009; Soeya, "A 'Normal Middle Power: Interpreting Changes in Japanese Security Policy in the 1990s and After,'" in Soeya, et.al., (eds.) *Japan as a 'Normal Country?': A Country in Search of its Place in the World* (Toronto: University of Toronto Press, 2009); Soeya, "Japan: Normative Constraints versus Structural Imperatives," in *Asian Security Practice: Material and Ideational Influences*, (ed.) Muthiah Alagappa (Stanford, CA: Stanford University Press, 1998); Williams, Michael C. and Keith Krause, "Preface: Toward Critical Security Studies," in Keith Krause and Michael C. Williams (eds.) *Critical Security Studies: Concepts and Cases* (London: UCL Press Limited, 1997); Alexander Bukh, *Japan's National Identity and Foreign Policy: Russia as Japan's 'Other'* (London and New York: Routledge, 2010).

According to Katzenstein, when discussing national security, it is essential to define a state identity that implies definitions of threat and interest that have strong effects; see "Introduction: Alternative Perspectives on National Security," in Katzenstein (1996), pp. 1-32; Berger (1993), p. 120; Berger (1996), pp. 317-356; Katzenstein (1998), pp. 33-58, 115-130, 191-209; Katzenstein and Nobuo Okawara, *Japan's National Security: Structures, Norms and Policy Responses in a Changing World* (Ithaca, New York: East Asia Program, Cornell University, 1993), pp. 84-118; Soeya (1998), pp. 198-233; Paul Midford, "Japan, Germany, and the 'War on Terrorism': Culturalism, Defensive and Offensive Realism," paper presented at the annual meeting of the International Studies Association, Honolulu, Hawaii, 1-5 March 2005, pp. 1-26; Akitoshi Miyashita, "Where Do Norms Come From? Foundations of Japan's Postwar Pacifism," *International Relations of the Asia-Pacific*, Vol. 7, No. 1 (2007), pp. 99-120.

Katzenstein mounted the first major challenge to the neorealist-based Japan as a rational actor model, building on the work of Onuf, Wendt and Kratochwil, who showed that anarchy does not necessarily mean that states must adopt egotistical self-help behavior. Katzenstein questioned the validity of realist approaches based on their inability to account for the collapse of the bipolar order and the rise of nationalism (and perhaps the same arguments could equally be applied to today's nonstate terrorist actors). Wendt's key argument states that neorealism's "structure" "...does not predict whether two states will be friends or foes, will recognize each other's sovereignty, will have dynastic ties, will be revisionist or status quo powers, and so on." For Wendt, anarchy creates neither conflict nor cooperation in his classic statement: "There is no "logic" of anarchy apart from the practices that create and instantiate one structure of identities and interests rather than another; structure has no existence or causal powers apart from process...Anarchy is what states make of it." See Wendt (1992), pp. 294-5, 396.

eschewing deliberately or otherwise a more muscular rearmament. From a constructivist point of view, such a course of action is still quite understandable and logical, and can be used to explain, for example, why the SDF (or the MOD) is not playing a bigger role in space policy.¹⁴

Figure 4: Japan Basic Constructivist Model



So what of space technologies? Over the course of twenty years of discussions with MOD sources about the SDF’s attitude to space technologies, in fieldwork, interviewees have constantly emphasized that apart from the PPR, the SDF has been and remains traditionally reluctant to invest in space technologies beyond ISR. Most importantly, for the SDF, space technologies are first and foremost seen as expensive. Without concomitant budget increases to accommodate investment, the MOD will not cannibalize resources from other programs that are better understood. Tanks are easy. Space technologies are “difficult.”

And because U.S. military space technologies are at least usually a generation or more advanced than their Japanese versions (originally developed for “peaceful purposes only” applications), if the MOD were interested in investing in space technologies, it would normally prefer to buy tested, advanced U.S. hardware. But that, again, is expensive, and puts the MOD potentially in the position of *rentier*, with little control over the technology. Then, the more expensive space capabilities the SDF maintains, the more costly and complex it becomes to create doctrine for their use, non-use, role, and their protection. Maintaining a fleet of space assets requires new doctrine and new cooperation modes with the U.S. and new diplomatic strategies to justify such resources. (Some of the implications, risks and responsibilities of becoming a military space power are discussed in Chapter 4).

In short, the MOD still rather lacks the technological, budgetary, institutional, technical and policy mechanisms, and the personnel and doctrinal maturity to consider complex space development programs. Given that for nearly half a century the SDF was expressly forbidden from employing all but the most basic

¹⁴ Eugene A. Matthews, “Japan’s New Nationalism,” *Foreign Affairs*, Vol. 82, No. 6 (November/ December 2003), p. 79. For earlier views along the same vein, see Richard K. Betts, “Wealth, Power and Instability: East Asia and the United States After the Cold War,” *International Security*, Vol. 18, No. 3 (Winter 1993/1994), p. 60; Denny Roy, “Hegemon on the Horizon? China’s Threat to East Asian Security,” *International Security*, Vol. 19, No. 1 (Summer 1994), pp. 149-168; Friedberg (1993), pp. 5-33; Berger et. al (2007), esp. pp. 259-260.

use of space technologies, it is not surprising that it did not build up institutional or intellectual resources regarding the use of space technologies and the MOD seems reluctant to play a larger role.

However, in international relations scholarship, this logic appears somewhat distorted. The MOD's institutional reluctance is, instead, seen in terms of its non-participation as a societal norm, of pacifism, or a result of civilian control, etc. A narrative along the lines of the impact of years of civilian control leaving the SDF institutionally incapable of quickly assembling the technological and doctrinal heft to conceive, launch and manage a complicated space program deploying, for example, orbital EW is not wrong. But it is a very shallow and broad perspective dismissive of the deeper realities, particularly when dealing with space technologies and policy.

Then, Japan's unwillingness to "do more" is also painted by constructivists in terms of a deep-rooted distaste of Japan's military, responsible for the disasters that befell Japan in the Pacific War. So the SDF's reluctance is based on civilian control which constrains the SDF's perception of its needs and security policy in general. The SDF's position, further, is constrained by competition between ministries in controlling the former Japan Defense Agency (JDA) and Japan's "peace" constitution.¹⁵

If all this is correct then, the analyst is still faced with Japan's steady rearmament in gradual stages from the 1970s, with nationalist politicians sometimes in the vanguard, and various low-key but strategically important behind-the-scenes actions. On the broadest level, in the 1970s, as Hook notes, following the revaluation the yen in 1985, Japan became the third largest economy in the world in dollar terms and was able to develop an increasingly potent SDF as the most highly advanced nonnuclear force in the Asia Pacific.¹⁶ Constructivists have also seen Japan's "nuclear allergy," enshrined in the Three Non-Nuclear Principles established by the cabinet of Prime Minister Eisaku Satō in 1967 as a major pillar of Japan's antimilitarism.¹⁷ These remain important national commitments, and are often cited by Japan as critical evidence proving its fundamental strategy of becoming a trading, not a military power. But the Principles failed to constrain Japanese elites from agreeing to secretly allow nuclear weapons to be stationed offshore from Yokosuka Naval Base, and a secret agreement made by Satō himself to allow the import of such weapons to Okinawa in times of crisis.

¹⁵ A classic statement of this comes from Yasuhiro Izumikawa, "Explaining Japanese Antimilitarism: Normative and Realist Constraints on Japan's Security Policy," *International Security*, Vol. 35, No. 2 (Fall 2010), pp. 123-160. It is argued that Japan at least until 2000 had a "national cultural identity" that focused (or focuses) on protecting its internal political culture and society, and relies on the U.S. to solve its security problems. It is argued that Japan doesn't have a fully independent foreign policy in that there isn't an important decision made that isn't tunneled through Washington D.C. first. Further, Grimes, for example argues that Japan is institutionally incapable of changing much due to institutional stovepiping (*tatewari gyōsei*). So, attempts by the Cabinet Office to take more control of policy have degenerated into it dealing with a merry-go-round of extraministerial bodies. See also Masaru Tamamoto, "Ambiguous Japan: Japanese National Identity at Century's End," chapter in *International Relations Theory and the Asia Pacific*, (eds.) G. John Ikenberry and Michael Mastanduno (New York: Columbia University Press, 2003), pp. 195-196, 206-208; William W. Grimes, "Institutionalized Inertia: Japanese Foreign Policy in *ibid.*, pp. 353-86.

Bukh has asked how constructivists can account for the large swings in public sentiment regarding their attitudes to the role of the military and found empirical evidence that defense posture and security discourse through the Cold War was not as antimilitaristic as often argued. Bukh however asserted that the proclamations of peaceful policies that formed a framework for much of Japan's official postwar political ideology show that public sentiment "cannot be simply categorized as antimilitarist," as evidenced by the success of Koizumi in changing Japan's security posture during his 2001-6 prime ministership. Bukh noted that Japan lurched from a condition of democracy, liberalism, and debate through the early 20th century, partially accepted militarism of the 1930s, swung towards antimilitarism in the late 1940s, and beyond, then at least gave some support for the popular nationalism of Koizumi a little more than a decade ago. Bukh reassembles anti-militarist sentiment as a form of *disengagement* among Japanese people from fear of U.S. entanglement and involvement by Japan in bloodshed in U.S. wars. Such sentiments, mixed with a degree of distaste, may even contain a strong degree of repurposed nationalism. See, Bukh (2010), pp. 7, 453-73.

¹⁶ Glenn Hook, *Militarization and Demilitarization in Contemporary Japan* (London: Routledge, 1996), pp. 50-6.

¹⁷ Katzenstein (1997), p. 128.

In addition, the supposed (or often cited) range of “cultural” and institutional wellsprings toward inertia mentioned above did not stop Japan conducting three secret studies into the utility of developing nuclear weapons. Their development was rejected in terms of their lack military utility and the strategic risks they posed (for example igniting a regional nuclear arms race) *not* perhaps, primarily, because of pacifist sentiments.¹⁸

Arguably, then, looking at the decade to 2010 in particular, it can be said that constructivists have indeed had to work harder to take into account the significant strides taken through the 2000s towards a form of “normalization” of Japan’s security posture. Further, since 2011 in particular, the SDF has recently undergone what may be construed as somewhat of a public rehabilitation because it is increasingly accepted as a necessary evil or even as a valuable part of Japanese society, particularly following the Great East Japan Earthquake and the success of *Operation Tomodachi*.¹⁹

All this has led Bukh to observe that Japan, from a unitary actor or realist-type point of view, has become something close to a state practicing defensive realism! Taking into account all of the brakes that are exerted, it is debatable whether studies that focus on Levels 4, 5 and 6 without seriously assessing the pressures exerted at the “upper” levels, can provide a really adequate framework.

Neoliberal Institutional Approaches

Neoliberal institutionalist approaches focus on Japan’s growing multilateralism and multilayered security strategy, and how Japan works hard to forge ties with its Asian neighbors as part of a comprehensive approach to security involving increasing trade and economic ties. This obviously reasonable and commonsense approach is particularly stressed by Japanese analysts.²⁰ For many neoliberal internationalists, Japan’s security strategy is constrained by its status as a “middle power,” prosecuting policy where and when it can in areas such as multilateralism and human security.²¹ Kier suggests that Japanese policymakers’ concerns about the power of the military within a state have had a decisive effect on security policy to the extent that military doctrine is rarely a carefully calculated response to the external environment.²²

For example, Soeya, a major proponent of the “middle power” theory, states that Japan’s postwar Constitution and the U.S.-Japan alliance have “fundamentally constrained Japan’s freedom of action in

¹⁸ Hughes (2009); Kase (2001).

¹⁹ H. Richard Friman, Peter J. Katzenstein, David Leheny, and Nobuo Okawara, “Immovable Object? Japan’s Security Policy in East Asia,” in *Beyond Japan: The Dynamics of East Asian Regionalism* (eds.) Peter J. Katzenstein and Takashi Shiraishi (Ithaca, NY: Cornell University Press, 2006), pp. 85-107; Oros (2008).

²⁰ Yoichiro Sato, Keiko Hirata, (eds.) *Norms, Interests, and Power in Japanese Foreign Policy* (New York: Palgrave MacMillan, 2008).

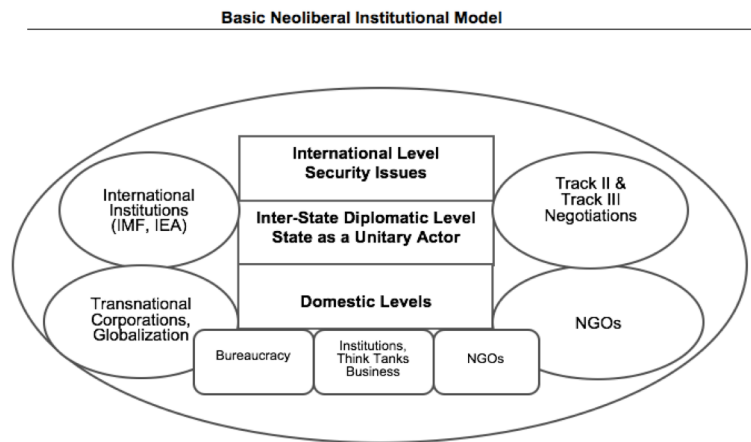
²¹ Kent E. Calder, “Japanese Foreign Economic Policy Formation: Explaining the Reactive State,” *World Politics*, Vol. 40, No. 4 (July 1988), pp. 517-541. For Japan’s discourse of liberalism utilized for justifying gradualist rearmament, see Jeremy Moses and Tadashi Iwami, “From Pacifism to Militarisation: Liberal-Democratic Discourse and Japan’s Global Role,” *Global Change, Peace and Security*, Vol. 21, No. 1 (February 2009), pp. 69-84; Robert Cox, “Middlepowermanship, Japan, and Future World Order,” *International Journal*, Vol. 44, No. 4 (Autumn 1989), pp. 823-862; Cranford Pratt, (ed.) *Middle Power Internationalism: The North-South Dimension* (Kingston and Montreal: McGill-Queen’s University Press, 1990); Yoshihide Soeya, *Nihon No ‘Midoru Pawaa’ Gaikō: Sengo Nihon No Sentaku to Kousou [Japan’s ‘Middle Power’ Diplomacy: Postwar Japan’s Choices and Conceptions]* (Tokyo: Chikuma Shinsho, 2005); John Ravenhill, “Cycles of Middle Power Activism: Constraint and Choice in Australian and Canadian Foreign Policy,” *Australian Journal of International Affairs*, Vol. 52, No. 3 (November 1998), pp. 309-327; Key-Yong Son, “Middle Powers and the Rise of China: ‘Identity Norms’ of Dependency and Activism and the Outlook for Japan-South Korea Relations vis-à-vis the Great Powers,” *Japanese Journal of Political Science*, Vol. 15 (March 2014), pp. 91-112.

²² Elizabeth Kier, “Culture and military doctrine,” *International Security*, Vol. 19, No. 4 (Spring 1995), pp. 65-93; Soeya (2003).

international security and limited Japan’s foreign policy options to those of a middle power.” According to Soeya, Japan must now work through the Association of Southeast Asian Nations (ASEAN), treating other Asian countries as equal partners to cultivate “value-oriented” diplomacy.

Such ties are rather more complex and nuanced relationships than the mere security alliances. For analysts following the neoliberal school, while the U.S. will remain Japan’s security guarantor, Japan should find ways to co-exist with China so as to “balance and integrate the hedging and engaging policies toward China as a coherent and shared strategy among middle powers in the region” by “forming an epistemic community among Asian civil societies” under the rubric of middle-power cooperation.”²³

Figure 5: Basic Neoliberal Institutional Model



Some have argued that Japan’s security policy has been driven by an “ambivalent multilateralism” that is in fact a “disguised bilateralism.” From this perspective, Japan’s view of international relations is fundamentally hierarchical, based on long historic roots with its relationship with China. Japan’s pre-war policy of bandwagoning for profit with its alliance with Great Britain is cited, along with, for example, Japan’s poor diplomatic punching power, leading Japan to explore a sub-tier of multilateral security relationships following the 1994 Higuchi report. Such a backdrop helps explain Japan’s actions (or lack of them).²⁴

For others, Japan has become a powerful (albeit non-nuclear) middle power – a “Great Britain of Asia.” This view takes into account the changes of the 2000s, arguing that the depth and breadth of defense cooperation between Washington and Tokyo since 11 September 2001 have been “unprecedented,” built on the 1997 Revised Guidelines for Defense Cooperation; since 2001, Japan has evolved a modern national security bureaucracy with the changes prosecuted by an evangelical and unabashed nationalist in the person of Junichirō Koizumi. Thus, the publication of the 2000 Nye-Armitage Report, the 2004 Araki Report, and subsequent National Defense Program Guidelines have

²³ Soeya (2003).

²⁴ G. John Ikenberry and Jitsuyō Tsuchiyama, “Between Balance of Power and Community: the Future of Multilateral Security Co-operation in the Asia Pacific,” *International Relations of the Asia-Pacific*, Vol. 2, No. 1 (February 2002), pp. 69-94.

gone a long way to already “normalizing” Japan, which now, under the Abe administration, is becoming rather like a non-nuclear Great Britain of Asia.²⁵

Another point of view, taking into account a neorealist-type perspective, holds that Japan’s perception of China as a threat has led Japan to incorporate a ‘hedging’ strategy into its policy of engagement with China by strengthening the U.S.-Japan alliance and building a multilayered security framework that gives China incentives to conform its external behavior to ‘international standards.’²⁶

The need for a multilayered strategy has been highlighted in a report written for The Tokyo Foundation that attempted a neutral consensus attained through a range of scholars and experts, advocating a four-level approach to enhancing Japan’s security.²⁷ One 2011 report by a team of leading academics and security experts tasked with formulating national security policy toward China recommended that Japan should focus on “integration” “balancing,” and “deterrence” to address specific issue areas. The authors contended that, under, the Yoshida Doctrine, Japan did not have an advanced strategy toward Asia other than the “leading goose” development model, and needed a new policy. The rise of China and the challenges to moral credibility of the U.S. as a result of its overtly unilateral foreign policy under President George W. Bush, together with the loss of economic power of Japan in Asia relative to China, have necessitated a new strategy of bandwagoning with the U.S. and balancing with Asia through improving relations with other nation-states in the Asia-Pacific region against U.S. unilateralism (and perhaps against China).

For these pragmatists, Japan’s military strategy should be based around “enhancing the operational domain of the Self-Defense Forces around the *Nansei Shotō* islands (southeastern island chain stretching beyond Okinawa) by promoting...ISR activities.” Most significantly perhaps, the report also notes: “The new operational concept of the Joint Air-Sea Battle should be explored in the alliance agenda.” The basic rationale of this approach was to make China’s noncompliance with international rules and norms expensive and deter China from attempting to change the *status quo* by force.²⁸ At this point, the

²⁵ Ralph A. Cossa and Brad Glosserman, “U.S.-Japan Defense Cooperation: Has Japan Become the Great Britain of Asia?” *Issues & Insights*, Vol. 5, No. 3 (March 2005).

²⁶ Yasuhiro Matsuda, “Engagement and Hedging: Japan’s Strategy toward China,” *SAIS Review of International Affairs*, Vol. 32, No. 2 (Summer-Fall 2012), p. 109, cited in Lim & Cooper (2015), pp. 696-727.

²⁷ Shinichi Kitaoka, Akihiko Tanaka, Chikako Ueki (Kawakatsu), Mataka Kamiya, Ken Jimbo, Tsuneo Watanabe, “Policy Proposal: Japan’s New Security Strategy: Multilayered and Cooperative Security Strategy,” Policy Research Division, *The Tokyo Foundation*, October 8, 2008. The four levels were: 1. Pursuing a defense buildup to create a multi-functional, flexible defense capability. 2. Proposing collective self-defense. 3. The creation of a National Security Council. 4. Boosting ties with ASEAN countries through ODA. Many of the proposals, originally aimed at the Taro Asō administration, are mainstays of the current Abe administration.

²⁸ The report loosely agrees with the findings of Gilbert Rozman, Kazuhiko Togo, and Joseph P. Ferguson (eds.) *Japanese Strategic Thought toward Asia* (New York: Palgrave Macmillan, 2007), in which the Yoshida Doctrine is not seen in terms of diplomatic strategy, not military policy; a collective effort and capacity to “counterbalance” (not contain) China through the application of diplomatic competition that punishes non-cooperation, prosecuted in a “comprehensive manner,” including “hard balancing, soft balancing, and institutional balancing to shape China’s strategic choices.” This all focused on ultimately promoting the harmonious integration of China into the international order. Military strategy as a third layer that is woven in, to deter China’s creeping expansion of its military activities in disputed areas, or if it decides to resolve conflicts by force. See Ken Jimbo, Ryo Sahashi, Sugio Takahashi, Yasuyo Sakata, Masayuki Masuda, Takeshi Yuzawa, “Japan’s Security Strategy Toward China: Integration, Balancing, and Deterrence in the Era of Power Shift,” *The Tokyo Foundation*, October 2011, pp. 5-8.

In more detail, the report offered 15 specific policy proposals. In terms of “Integration”, Japan should: 1. Form a resilient habit of cooperation capable of withstanding the power shift. 2. Explore new frontiers in Japan-China security cooperation. 3. Reinforce the crisis management mechanisms in place at the Japan-China summit level and between their national defense authorities. 4. Gain access to Chinese-led frameworks and take steps toward two-way integration. 5. In terms of “Balancing,” Japan should inaugurate a Japan-US-China strategic security dialogue. 6. Strengthen security cooperation with Australia, South Korea, India, and Southeast Asia. 7. Promote functional and ad-hoc regional

similarities of the consensus in the Tokyo Foundation report and Japan's current national security strategy can be noted.

Analytical Eclecticism and Hybrid Approaches

Bearing in mind the merry-go-round of debates outlined above, others argue that Japanese security strategy can only be adequately explained both through combining elements of neorealist and/ or constructivist and/or neoliberal paradigms.²⁹ Katzenstein has noted that research on Japan's security policy has differed from analyst to analyst (in general, meaning (neo)realists, (neo)liberals and constructivists) and needs to sidestep "metatheoretical debates," and that a more inclusive and complete understanding of Japan's security orientation could be developed by drawing from different styles of analysis.³⁰ Within this, some scholars have argued that the Japanese State and its people do not fit conveniently into the standard categories of international relations paradigms.³¹ Kang has emphasized that balancing should not be "the default hypothesis in international relations," especially when it comes to analyzing relations in Asia.³²

Others have challenged the entire relevance of Western international relations paradigms as problematic for Asia. For example, Kang concluded: "The paradigm wars have grown stale: Pitting realism, constructivism, and liberalism against one another and then attempting to prove one right while dismissing the others has created a body of soul-crushingly boring research."³³ To adequately explain Japan's changes in security policy in the 1990s, Shibata combined an historical institutionalist approach with a two-level analysis (see next sections) along the lines of Allison to look at U.S.-Japan security policy transition in four periods, in four institutions, and in three policy areas during the period 1993-7.³⁴

cooperation. 8. In terms of "Deterrence," Japan should promote dynamic deterrence with respect to opportunistic expansion by China. 9. Promote a Japan-US joint air-sea battle (JASB) concept. 10. In terms of "Integration and Balancing", Japan should utilize Japan-South Korea strategic cooperation wisely. 11. Promote regional cooperation with China through the six-party talks and Japan-China-South Korea cooperation. 12. Prepare for a North Korean destabilization scenario. 13. Bring China into the extensive array of regional security cooperation arrangements. 14. Build "a coalition of the willing" within regional institutions. 15. Promote the reform of regional institutions.

²⁹ Peter J. Katzenstein, Nobuo Okawara, "Japan, Asian-Pacific Security and the Case for Analytical Eclecticism," *International Security*, Vol. 26, No. 3 (Winter 2001), pp. 153-85; Tsuyoshi Kawasaki, "Between Realism and Idealism in Japanese Security Policy: The Case of the ASEAN Regional Forum," *The Pacific Review*, Vol. 10, No. 4 (January 1997), pp. 480-503; Paul Midford, "The Logic of Reassurance and Japan's Grand Strategy," *Security Studies*, Vol. 11, No. 3 (Spring 2002), pp. 1-43; Midford (2011); Yazuhiro Izumikawa, "Explaining Japanese Antimilitarism: Normative and Realist Constraints on Japan's Security Policy," *International Security*, Vol. 35, No. 2 (Fall 2010), pp. 123-160. See also Oros (2008); Oros (2007), pp. 39-44; Berger *et al.* (2007).

³⁰ Peter J. Katzenstein, *Rethinking Japanese Security: International and External Dimensions* (New York: Routledge, 2008), p. 3.

³¹ Or, for example, that Japan's actions be seen as those of a pacifist state, a normal country, a normal military power, a global civilian power, and even a global ordinary power. See, for example, Yōichi Funabashi, "Japan as Global Civilian Power," *Asahi.com*, 21 December 2004; James Llewelyn, David Walton and Gen Kikkawa, *A Pacifist State in a Hostile Region: Japan and Post-War Conflict in Southeast Asia* (New York: Nova Science Publishers, 2009); Yukiko Miyagi, "Japan's Middle East policy: 'still mercantile realism,'" *International Relations of the Asia-Pacific*, Vol. 12, Issue 2 (March 2012), pp. 287-315; Glenn D. Hook, Julie Gilson, Christopher W. Hughes, Hugo Dobson, *Japan's International Relations: Politics, Economics and Security* (London: Routledge, 2001), pp. 24, 37-9, 41.

³² David Kang, "Getting Asia Wrong: The Need for New Analytical Frameworks," *International Security*, Vol. 27, No. 4 (Spring 2003), p. 166.

³³ *Ibid.*, p. 83. Kang argued that realism is inadequate because it failed to explain why arms racing had not occurred and that Asian states did not appear to be balancing against rising powers such as China. Rather they seem to be bandwagoning.

³⁴ Teruyoshi Shibata, *Reisengo Nihon no Bōei Seisaku: Nichibei Dōmei Shinka no Kigen [Japan's Post-Cold War Defence Policy: The Origins of the Strengthened Japan-US Alliance]* (Sapporo-Shi: Hokkaido Daigaku Shuppankai, 2011). Shibata argues that external pressure altered Japan's internal policy in the form of the 1994 Higuchi Report that proposed strengthening the security treaty. The report recommended that the SDF be allowed to participate in UN PKOs, and promoted both U.S.-centered bilateralism and UN centered multilateralism, thus setting basic parameters for critical changes in defense and security policy following the end of the bipolar order. Looking that the Nye Report in 1995 and

But again, it can be said that the purpose of such approaches, seems, arguably, to win arguments about how to label policy changes rather than to explain those policies on their own terms. At least, perhaps, an analytically eclectic approach to assessing *Basic Plan 2016* might conclude that it is the product of balancing parsed through institutional brakes by a State (Japan) recognizing it will be a middle power and is unwilling or unable to engage in conflicts; that wants to hedge and maintain technologies for more strategic weapons, but lacks cash and diplomatic clout; and that is reluctant and unable to deal with the strong potential of an antagonistic diplomatic and media-driven backlash against more overt defensive strengthening.

All this is entirely reasonable and resonates well with the empirical facts and my fieldwork. But this type of approach does little to explain, why the latest policy allows for the development of TacSats and contemplates the highly advanced and strategically provocative development of space-based EW, for example.³⁵

Microtheoretical Approaches

Bureaucratic Institutionalism

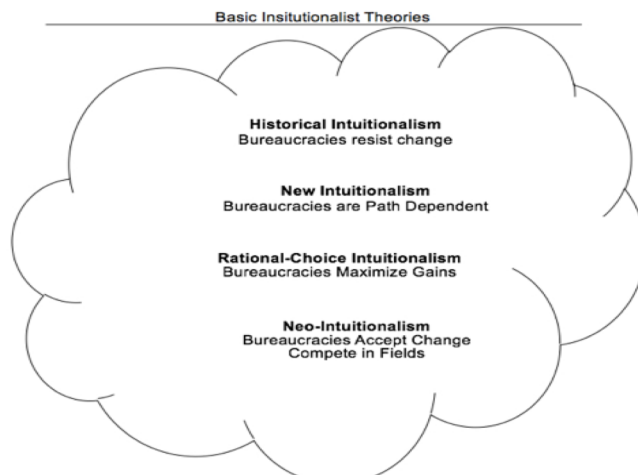
As Shibata's approach implies, system-level analyses fail to address the complexities of policymaking in Japan that exist through all the seven or eight levels of inputs that form the decision-making calculus that feeds into and forms the foundation of space policy formulation. As has been pointed out, Japan's space policy transition cannot be understood without an analysis of Levels 4, 5 and 6. Against this, there is a vast literature on Japanese policymaking that emphasizes the power of the central bureaucracy and, post-war, the growth of an enormous layer of subgovernmental institutions with enormous budgetary needs. Such analyses are built on a similarly large literature on organizational theory and institutionalism, and the peculiarities of the construction of the Meiji State and modern Japan following the Pacific War. Figure 6 outlines the basic forms of institutionalism.

the National Defense Program Outline, then the 1996 Japan-U.S. Joint Declaration, and the review of the 1978 Guidelines for U.S.–Japan Defense Cooperation in 1997, Shibata notes how Japan's defense policy establishment (institutions) and elites began to embrace the alliance in the 1990s based on a combination of rational cost calculations of political actors and bureaucratic dynamics, referring back to the traditional debate over agency (politicians or the bureaucracy) as the primary force of change, also noting that the growing power of the JDA in the Higuchi report. At the time of the Nye report, the Pentagon was the primary actor, which then, in turn, consolidated the power of the JDA, working with a growing consensus of mainstream political security politics supporting the 1997 guidelines.

As such it is possible to call Shibata's analysis a typical version of historical institutionalist theory based on a path-dependency hypothesis leading to cumulative and incremental change based on the gradual increase in power and credibility of the JDA and its uniformed bureaucrats, who pushed for ever closer bilateral ties during the period. Institutional change was therefore driven by the impact of a series of policy ideas, including bilateralism with the U.S., the rise of the idea of comprehensive security, and the need for deeper U.S. policy coordination with the primary actors being the Prime Minister's Advisory Group on Defence, Japan's Security Council, and the Security Subcommittee (SSC).

³⁵ One can equally argue that Japan's inability to coordinate an MDA system when Japanese territorial waters appear to be sometimes swamped by Chinese paramilitary fishing fleets shows just how minimalist Japan's response is. And do the argument can go round in circles. See Dan Southerland, "Japan May Face a New Chinese Onslaught in Dispute Over East China Sea Islets," *Radio Free Asia*, 25 October 2017; Grant Newsham, "Shinzo Abe's Japan: A Threat to Nobody," *Japan Forward*, 1 November 2017; Newsham, "Defending Japan's southern islands from Chinese osmosis," *Asia Times*, 13 October 2017.

Figure 6: Basic Institutional Theories



This section is rather longer than the other surveys of international relations paradigms because, as the introduction section of this dissertation suggests, understanding the role (motivations) of bureaucratic players in space policy is indispensable to understanding the hows, whens and whys of policy implementation and its struggles, particularly in the 2009-16 period.

That said, beyond space policy, the importance of the role of bureaucracy in Japan is well accepted by many international relations scholars – except, perhaps, the most recalcitrant realists. In fact, much of critical analysis of space policy transition between 2009-14 occurs between Levels 3, 4 and 5. Thus, an understanding bureaucratic institutionalism, which looks at analytical models of motivations and behavior of institutions, and then, with hybrid models discussing their relationships with politicians, is helpful.

Pluralism and Allison's Second and Third Models

The role and importance of bureaucratic politics in decision-making scenarios in Japan stems from pluralistic theories that assume politics consists of competing organized interests, with Japan's central ministries playing a predominant role.³⁶

Allison's basic premise for making sense of complex government decisions rested on the fact that the rational actor model used by neorealists and various stripes of neoliberal approaches could be supplemented by an organizational process model and a bureaucratic politics model. Allison's second model defined government actions as outputs of large organizations whose behavior is determined by standard routines and operating procedures, which government leaders can disturb, but not substantially control. In Allison's third model, bureaucratic politics hypothesizes intensive bargaining among decision-making entities. Thus, government policy is not solely made by calculating decision-makers but is rather a conglomeration of the inputs of large organizations and political actors, as he put it.³⁷

Clearly such an approach could provide an analytically useful framework when applied to space policy transition. In bureaucratic models, organizations and political actors compete against each other in

³⁶ Stephen D. Krasner, *Defending the National Interest* (Princeton: Princeton University Press, 1978), p. 26.

³⁷ Graham T. Allison, *Essence of Decision: Explaining the Cuban Missile Crisis* (New York: Addison-Wesley Longman, 1999), p. 67.

attempting to forge governmental policies. Thus, decisions are formed among internally generated alternatives, with choices that are forged in the bureaucratic system. This seems especially pertinent to Japan, when, as with space policy, decisions have to be made by several bureaucratic participants and other actors, and where jurisdictional lines are either unclear, or contested. Often, the focus of attention is on Level 5, and inter-bureaucratic battles, which are seen as the cauldron of policy decision-making processes, into which inputs from Levels 4 and 6 also feature.

When applied to international negotiations, Levels 1 and 2 become more important, but again the cauldron of action centers on Levels 4 and 5. This has led to the use of mixing bureaucratic models with hybrid theories such as two-level games, which will be discussed below. In order to understand the complexities of the roles of bureaucratic actors in policymaking, it is important to understand their basic behavioral modes and *modus operandi*. Such issues are conventionally analyzed and explained through institutional behavioral models. The next section therefore first deals with institutionalism generally; then institutional frameworks as applied to Japanese policymaking. Following that, some specific examples are briefly examined.

Classical Institutionalism, New-, and Neoinstitutionalism

Classical institutionalism has examined the role of bureaucracies in policymaking. International institutionalism, closely associated with Regime Theory, assumed that the existence of structured interactions between State-level and international organizations has a profound impact on State policy and that policy is related to (neo)liberal internationalism.³⁸ New institutionalism-based approaches provide a partial framework for analyzing the behavior of bureaucracies in competitive areas. Such approaches emphasise how *path dependent* bureaucracies are, in that their historical origin and role makes their decision-making heavily constrained by past choices, and that they seek to avoid change, unless they perceive change is in their interest.³⁹

Behavioral science-based approaches view institutions as conglomerations of norms and normative values built on the choices of individuals. Structural functionalist-based analysis focuses on how

³⁸ Institutions can be defined as a structural feature of society in which groups of individuals engage in patterned interactions that are partly predictable and that transcend the actions of the individuals involved. Of the six main traditional Institutionalism schools, Empirical Institutionalism emphasized how the structure of government affects in the way policies are processed and choices made. Derived from neoliberal internationalism, Regime Theory argues that international institutions or regimes affect the behavior of states or other international actors, based on the assumption that cooperation is possible in the anarchic system of states, as regimes are, by definition, instances of international cooperation. See Guy Peters, *Institutional Theory in Political Science: The 'New Institutionalism'* (New York: Continuum, 1999), pp. 18-19. As noted, Peters defines six major branches. Normative Institutionalism focuses on norms of institutions and how they function and determine behavior. This can in fact be broken down further into Classical (Historical) Institutionalism. As the formal study of institutions and their roles, Classical Institutionalism began as a discipline over 100 years ago, perhaps best represented in 1887 on the U.S. government and his 1898 monograph, in Woodrow Wilson's *The State: Elements of Historical and Practical Politics. A Sketch of Institutional History and Administration*. In this school, the behavior of an institution was determined in law by its position in the government and the history of its development and its culture. Studies were historical rather than analytical. Classical Institutionalism was preoccupied with formal structures and legal systems, involved detailed accounts of particular political systems and intricate accounts of interlinked rules, rights and procedures that institutions operated, and focused on origins of power and action but not how institutions adapted to challenges.

³⁹ Neoinstitutionalism is a hybrid of Normative Institutionalism, which comprises Classical Institutionalism and Rational Choice Institutionalism. Rational Choice Theory examined how individuals maximize their utility in any given situation, using the principal-agent model. This, applied to institutions, focused on how institutions accrue stability through dealing with collective action problems. Institutional decisions are seen as the aggregation of individual behaviors and decisions based on utility maximization with a set of institutional rules and norms, usually based upon the perception of the ideology of the institution.

conformity stymies change.⁴⁰ Structural functionalists argue that organizations form identities that are enduring and distinctive and that those values are the primary factors in determining policy, less so rational choice incentives. Organizations congeal into collections of rules and roles that become preoccupied with preserving their own powers and prerogatives, that the operating software of bureaucratic organizations leads their behavior and actions towards maintaining continuity and tamping change; or even that power as it becomes invested and entrenched in established institutions becomes merely a function of self-preservation.⁴¹

A classic study of the institutionalist school proposed that decision-making in organizations is bounded by the *logic of appropriateness* (as opposed to the *logic of consequences*), a framework of routinized responses to problems; a constrained or bounded rationality that governs decisions that places the maintenance of stability as the primary goal of institutions. Ultimately, this logic holds that organizations are more interested in preserving their own roles than accepting change, unless they *have to*, or that change can be in the interest of the organization, for example, when the change is considered legitimate because it can be fit into the logic of the institution's preservation or goals, or that more simply because the change actually delivers stability. But, saying that, according to the logic of appropriateness, the first choice of organizations is generally to maintain the *status quo*. Thus, the logic of appropriateness is often associated with inefficiency and rigidity. Many other formulations also focus on why institutions tend to favor stability in decision-making, etc.⁴²

⁴⁰ Talcott Parsons, *The Social System* (New York: The Free Press, 1951). Early post-war work at the Columbia School under Robert K. Merton focused on bureaucracies. Merton depicted multiple forces within a bureaucracy orientating officials to conform to a normative order, with the strength of the pressures being so strong that Merton argued that officials are prone to follow rules to the point of rigidity, formalism, and even ritualism. Merton's main finding was that processes within organizations lead officials to orientate their actions around rules even "to the point where primary concern with conformity to the rules interferes with the achievement of the purposes of the organization." See Gabriel A. Almond and James S. Coleman, (eds.) *The Politics of the Developing Areas* (Princeton: Princeton University Press, 1960); Robert K. Merton, "Bureaucratic structure and personality," in *Social Theory and Social Structure*, 2nd edition, (Gencoe, IL: Free Press, 1940), pp. 195-206.

⁴¹ Selznick was a major proponent of the neo-classical organizational theory. In particular, in *Leadership in Administration* (New York: Harper & Row, 1957) Selznick basically asserted that institutions are "imbued" with goals and procedures that gradually accrete so that institutions develop inherent values and rationales built on distinctive histories, and that these lead organizations to create a distinctive identities and unique values and to defend their vested interests to the point where official goals can even mask the organization's real objectives. See, for example, Philip Selznick, "Foundations of the Theory of Organization," *American Sociological Review*, Vol. 13, Issue 1 (February 1948), pp. 25-35. Selznick also argued that organizations constantly monitor threats to their stability and function reinforce their internal stability and focus on the continuity of policy against change or external pressures and retain their homogeneity of outlook based on survival and the maintenance of prestige. See also Arthur L. Stinchcombe, *Constructing Social Theories* (Chicago: University of Chicago Press, 1968), pp. 107-111.

⁴² James G. March and Johan P. Olsen, "The new institutionalism: organizational factors in political life," *American Political Science Review* 78, Vol. 25, No. 1 (September 1984), pp. 738-49. This summary of March and Olsen is from Peters (1999), p. 17. The logic of appropriateness is a view of action that defines a basis for decision-making biased toward what social norms deem correct rather than what cost-benefit calculations consider to have the most utility or advantage. Motives in specific situations follow from rules that have been institutionalized in social practices and sustained over time through learning and that govern the appropriate courses of action for a given role or identity. Thus, the logic of appropriateness yields for organizations institutional order, stability, and predictability.

At the same time, this logic may run counter to democratic principles by implying the substitution of tacit understanding for collective deliberation. The logic of appropriateness differs from the logic of consequences, which holds that self-interested rational actors with fixed preferences and identities behave according to calculations of expected returns from alternative choices.

The logic of appropriateness presumes that organizations will follow rules because they are perceived as natural, valid, and legitimate, and that those rules may be replaced or modified over time. However, the logic of appropriateness is often associated with inefficiency, rigidity, and incrementalism.

Thus some argue that institutions are wedded to persistent patterns of behavior that are created when the institutions are formed. See Kathleen Thelen and Sven Steinmo, (eds.) *Structuring Politics: Historical Institutionalism in Comparative Analysis* (Cambridge: Cambridge University Press, 1992). Others assert that that institutions are

All these analytical models can explain the motivations of bureaucratic actors, and account for a certain set of behaviors and actions. But such models tend to focus on the actors themselves rather than the wider network or networks of interdependent relationships with other actors, (institutions) or the broader environment in which institutions act. Also, the frameworks of these approaches focus on the behavior or institutions on the assumption that they are *relatively stable* because they need to be consistent in the roles they play, and because they have evolved to solve collective action problems and hunt for gains from trade. Therefore, in a competitive environment, institutions involved in politics, for example, are interested in maintaining their own powers and budgets first and foremost, but that they may also seek power to gain control of rule-making systems.⁴³

To emphasise how institutionalism sees bureaucratic decision-making as almost truculently obstinate in the preservation of budgets and power first and acceptance of change if only sublimated to the benefit or non-harm of a particular organization, Niskanen's classic Rational Choice Theory-based study of bureaucracy sees institutions compete as self-interested actors attempting to maximize their own gains and lower their transaction costs, in which leaders use their positions to usually only boost budget allocations and accrue more personnel, powers and prerogatives.⁴⁴ These views of bureaucratic institutions, then, basically hold them as essentially "selfish" in that institutions will place their own preferences above other considerations.

All these approaches are obviously useful in understanding, for example, the motivation of MEXT in blocking institutional reform from 2009-12. Yet, the transition of space policy through *Basic Plans 1-2016* involves a long series of dynamic interactions and negotiations between ministries and the Cabinet Office. Negotiations involved positions that shifted in action-reaction scenarios, changes in comparative power between several institutions, and successive recalibrations in the relative stances of institutions in relationships that were evolving sometimes by the month, with all these spinning cogs and action-reaction cycles occurring over a number of years. In other words, to understand the behavior of Japan's bureaucratic actors in accounting for space policy transition and changes in the balance of institutional policymaking power, the analyst needs to take into account a multi-stakeholder competition of shifting stances and competition and cooperation over a period of phases and years.

Neoinstitutionalism

More helpful, perhaps, is neoinstitutionalism, which was specifically developed to explain more completely why organizations make decisions and *change*, and how institutions react strategically to pressures. In this approach, organizations are evaluated as a collection of actors not so much following

path-dependent, where path dependence is explained through positive feedback that codes the role of the institution. See Paul Pierson, "Increasing Returns, Path Dependence, and the Study of Politics," *The American Political Science Review*, Vol. 94, No. 2 (June 2000), pp. 251-267. Others explain change in institutional behavior in terms 'punctuated equilibria,' in which organizations can undergo rapid periods of change followed by long periods of stasis. For yet others, change happens through 'critical junctures,' in which institutions are forced to change at the risk of incurring huge penalties, but that institutions can but also admit gradual and incremental adjustments. Finally, another argument is that the stable mindset of an institution means it will only support a limited range of possibilities. See, again, Peters (1999), pp. 77-82.

⁴³ Terry M. Moe, "The politics of bureaucratic structure," In *Can the Government Govern?*, (eds.) John Chubb and Paul Peterson (Washington, DC: Brookings, 1990), pp. 267-329.

⁴⁴ According to Niskanen's famous model of bureaucracy, bureaucracies necessarily play an important role in policymaking in modern societies that are characterized by a sophisticated division of labor. Niskanen proposed that the head of any public administration unit seeks to maximize his (or her) unit's budget, increase the number of employees, and hence, increase his or her power and importance, a process fortified by the fact that bureaucrats are not bound by re-election constraints. See William A. Niskanen Jr., *Bureaucracy and Representative Government* (Transaction Publishers, 1971).

their own scripts as constrained by *competition* within their fields. This might be characterized in terms of something like actors competing in internal market.⁴⁵

Organizations can be seen as dynamic even when they are well established because powerful actors continually work to maintain their legitimacy to outside threats.⁴⁶ DiMaggio and Powell, in their study of institutional isomorphism, examined how institutions defended themselves from change, outside interference, or attempts to reform them, for example, but will accept change if change reinforces the organization's legitimacy, as those institutions construct or perceive it.⁴⁷

Neoinstitutionalists also recognized that "organizational fields" of action, i.e. complex interactions with other organizations and stakeholders, including regulatory agencies, form frameworks that also influence decisions. Responses become shaped by a narrowly defined set of legitimate options, which are, in turn, informed by competition, and the institutions' awareness of their interdependence with competitors, where the actions of institutions are bounded by both accumulated internal and internalized norms, regulatory considerations, and the network(s) of relationships in which they were embedded. Such norms then create templates for action, which create unified or monolithic responses to uncertainty.⁴⁸

Because of its emphasis on how institutions change and react to pressures around them, i.e. focusing on institutions as potentially dynamic and capable of change, and relating that change to a broader environment, neoinstitutionalist approaches are analytically useful for examining Levels 4 and 5, for example. As is recognized by Fligstein and McAdam, the SAF framework draws heavily on neoinstitutionalist approaches. However, fundamentally, neoinstitutionalist approaches do not examine, or rather, are unconcerned with Levels 1 and 2. Outside factors may kick off change, but the dynamic interactions between outside and external events are not analyzed systematically in a framework designed to explain this interaction. This lack makes them only partially useful to examining space policy transition.

Institutional Theory in Japan

Bureaucratic institutionalism in Japan traditionally focuses on the role of the central bureaucracy and political power in postwar Japan. Because studies can tend to focus on the inner complexities of *tatewari-gyōsei* (institutional stovepiping) and inter-bureaucratic competition, they are also helpful in explaining the mechanisms of policymaking in Japan. But, as with other bureaucratic models, their primary focus may often be on Level 5. That is to say, such approaches are insufficient to explain (or take

⁴⁵ Christine Olivier, "Strategic Responses to Institutional Processes," *Academy of Management Review*, Vol. 16, No. 1 (January 1991), pp. 145-179.

⁴⁶ Paul J. DiMaggio, "Interest and Agency in Institutional Theory," pp. 3-12, in *Institutional Patterns and Organizations* (ed.) Lynne Zucker (Cambridge, MA: Ballinger, 1988); Michael Lounsbury, and Mary Anne Glynn, "Cultural Entrepreneurship Stories: Legitimacy, and the Acquisitions of Resources," *Strategic Management Journal*, Vol. 22, No. 2 (June 2001), pp. 545-564.

⁴⁷ DiMaggio and Powell divided their concept of "isomorphism" into "coercive," "mimetic" and "normative isomorphism." In coercive isomorphism, the implication is that bureaucracies fight change through emphasizing their legitimacy to political threats. In mimetic isomorphism, bureaucracies fight any uncertainty by emphasizing their *status quo* functions. In normative isomorphism, bureaucracies fight change through emphasizing their professionalism and competency. See also DiMaggio & Powell (1983). For more on isomorphism, see Marco Orru, Nicole Woolsey Biggart, and Gary C. Hamilton, "Organizational Isomorphism in East Asia," in Powell & Di Maggio (1991), pp. 361-369.

⁴⁸ Richard W. Scott, "Unpacking Institutional Arguments," in *The New Institutionalism in Organizational Analysis*, (eds.) Paul J. DiMaggio and Walter W. Powell (Chicago: University of Chicago Press, 1991), pp. 164-192); Richard W. Scott, *Institutions and Organizations, Ideas, Interests and Identities* (London: Sage, 2014), p. 56; Fligstein (1990); DiMaggio and Powell (1991).

into account) the broader context of decision-making and the importance of relationships and interactions with other decision-making levels (called in the SAF framework the “greater field environment.”)

Bureaucratic institutionalists can be divided between those who see the central bureaucracy as fundamentally controlling Japan’s government; those who see politicians as playing an important role when strong individuals arise; and those who see fundamental cooperation between the bureaucracy and politicians as a *modus operandi* forged (sometimes/often cynically and uncomfortably) in the mutual pursuit of self-interest. Frameworks that study the role of politicians and the bureaucracy are looked at more fully in the *Political-Bureaucratic Models* section, discussed below. Such frameworks are built on a deeper foundation of historical- and new institutionalist-based studies that look at the origins of bureaucratic power in Japan. Such studies emphasise that modern Japan is founded on a “developmental state” model. This describes the deeply embedded and powerful role of today’s central ministries as entrenched repositories (and the heirs of) elite technocrats that first built the Meiji State, and then post-war, that rebuilt the modern Japanese State, accruing vast reservoirs of power, lawmaking ability, accumulated rights, prerogatives, and jurisdictions (to which they jealously cling) in the process.⁴⁹

Sasada summarized three main models to explain changes and continuity in institutions, emphasizing “critical juncture,” “path dependency,” and “ideational reinforcement” to explain how and why Japanese bureaucracies resist any interference to their extant, evolved roles, so that Japan’s central bureaucracies are institutionally and culturally resistant to any policy changes that may alter the distribution of power, rights, competencies, jurisdictions, budgets and objectives accrued and entrenched when individual ministries, or the central bureaucracy as a whole is faced with pressure to change policies or roles (or lose budget, or staff, for example).⁵⁰ The basic standpoint in discussing the role of Japan’s central bureaucracy, then, is based on a recognition of its enormous, but not indefatigable power. The second point has been explaining the *modus operandi* of ministries and how they usually block change unless it is in their advantage, or they cannot avoid it. Within this, it is possible to discern several schools of analysis of Japan’s central bureaucracy, all attempting to frame answers to the basic research question: “*Who governs?*”

⁴⁹ In his classic study, Pempel cites the central role that the Japanese bureaucracy has played in implementing so many of the major changes in Japan “as a planner and agent of change” and traces this evolution and roles back to the to the Nara period (710-794), through to the establishment of a proto-national bureaucracy in the centralized feudalism of the Tokugawa family in the early 1600s, and then the adoption of Bismarck’s Prussian model to effect industrialization during the Meiji restoration, creating a cadre of highly competent and entitled technocrats hired through rigorous examinations that stressed their general competence to govern as most important, rather than specialist knowledge.

As well as stressing the cultural and political dynamics of independence and power built into and accreted by the antecedents of today’s central bureaucracy, Muramatsu and Pempel emphasized that the basic forms of control – formal and informal – over Japan’s postwar economy exercised by Japan’s central bureaucracy that still exists today. The foundation of this, invested in the postwar priority production system were themselves founded in the controls instituted after 1941 to meet the exigencies of total war. These, in turn, were preceded by foundational implementative legal rights, such as the Emergency Measures Law concerning Exports and Imports in 1937 that forced strategic industries into cartels controlled indirectly through subservient trade bodies.

Muramatsu and Pempel assert that during the invasion of Manchuria, a class of dynamic bureaucrats who formed their own elite cadre came to control vast productive swaths of the Japanese economy and that is princely cadre looked down on parliament and political control, joined forces with the military, and formed a core of privileged expectations that set the stage for postwar bureaucratic dominance of the economy.

Leading these young guns were Nobusuke Kishi (Ministry of Commerce and Industry), Shiro Tabata, and Hiroo Wada, of the Ministry of Agriculture and Forestry. Kishi masterminded a policy of rationalization of industries and the military to advance into Manchuria to secure national resources to sustain future war efforts. See T. J Pempel, “Bureaucracy in Japan,” *Political Science and Politics*, Vol. 25, No. 1 (March 1992), pp. 19-24.

⁵⁰ Much has been written about the pre-war managed economy model, as cited extensively in Hironori Sasada, *The Evolution of the Japanese Developmental State: Institutions locked in by ideas*, (Abingdon, Oxon; NY: Routledge, 2013); see also Gao Bai, *Economic Ideology and Japanese Industrial Policy* (New York: Cambridge University Press, 1997).

Debate is divided into the “Dominant Bureaucracy School” and the “Pluralist School.” The former describes Japan’s central bureaucracy as a state within a state, exercising pervasive leadership over the recovery and development of post-war Japan, even having dictatorial powers. The latter analyzes power distribution between politicians and the central bureaucracy and found a more nuanced picture.⁵¹

In particular, the “Pluralist School” analyzes power distribution between politicians and the central bureaucracy and finds more nuanced pictures variously depicting dual-competitive control, dual-states, or a flux between the bureaucracy and politicians, particularly ambitious or intellectually engaged individuals, and “reciprocal consent” models, in which the LDP’s Policy Affairs Research Council (PARC) is ultimately able to control policy and regulate the bureaucratic response. An approach based on this understanding obviously has utility for analyzing Level 4 and Level 5 interactions.⁵²

Political and Constitutional Approaches

Understanding the role of politicians and their interactions up and down the decision-making levels and with various actors forms another important part of the jigsaw in understanding Japanese space policy transition. While political relationships in general in the bureaucratic model sections argue over the relative power or powerlessness of politicians compared to the established policymaking power of the bureaucracy, the empirical evidence shows that key certain politicians played major roles in space policy transition at decisive points.

Analysts of Japanese security strategy transition have taken into account political and constitutional factors, and the role of political leadership. Research has uncovered examples of the intricate and deeply interconnected relationships key politicians have forged with Japan’s central ministries. On a general level, most analysis of security strategy and politics is based on Article 9 of the 1947 Japanese

⁵¹ The foundational texts for this are Chalmers Johnson, *MITI and the Japanese Miracle: The Growth of Industrial Policy 1925-1975* (Stanford, CA: Stanford University Press, 1982); Daniel Okimoto, *Between MITI and the Market: Japanese Industrial Policy for High Technology* (Stanford, CA: Stanford University Press, 1989); Marie Anchordoguy, *Computers Inc.: Japan’s Challenge to IBM* (Cambridge Council on East Asian Studies, Harvard University, 1989.)

⁵² Many agree that policy *zoku* developed as more competent LDP politicians worked with and paid off more interest groups; competition and/or cooperation grew between politicians and the bureaucracy, particularly from the 1970s, during and after the prime ministership of Kakuei Tanaka, who turned the LDP into a major power nexus.

A pluralist model or a principal-agent (politicians as principals and the bureaucracy as agents) model grew, involving for some, necessitating “reciprocal consent” between politicians, bureaucracies and markets, while the series of scandals visited upon the bureaucracy in 1990s in particular lowered public trust in the bureaucracy and powered reforms. Sometimes *zoku* politicians even cooperated with the bureaucracy against reforms and attempts to lower government deficits and cut spending and bureaucracy.

See Kent E. Calder, “Linking Welfare and the Developmental State; Postal Savings in Japan,” *Journal of Japanese Studies*, Vol. 16, No. 1 (Winter 1990), pp. 31-59; J. Mark Ramseyer, and Frances McCall Rosenbluth, *Japan’s Political Marketplace* (Cambridge, MA: Harvard University Press, 1993), p. 20.; Michio Muramatsu and Ellis S. Krauss, “The Conservative Party Line and the Development of Pattered Pluralism,” in Kozo Yamamura and Yasukichi Yasuba (eds.) *The Political Economy of Japan, Volume 1: The Domestic Transformation* (Stanford, CA: Stanford University Press, 1987), p. 540; Curtis (1999), p. 53; Muramatsu and Krauss (1987), p. 517; Leonard J. Schoppa, “Zoku Power and LDP Power: A Case Study of the Zoku Role in Education Policy,” *Journal of Japanese Studies*, Vol. 17, No. 1 (Winter 1999), pp. 79-106; Gary D. Allison, “Tanaka Kakuei, Structural Corruption, and the Advent of Machine Politics in Japan,” pp. 123-144, in Andrew Gordon (ed.) *Postwar Japan as History* (Berkeley, CA: University of California Press, 1993); Muramatsu and Kraus (1987), pp. 516-34; Richard Samuels, *The Business of the Japanese State: Energy Markets in Comparative and Historical Perspective* (Ithaca, NY: Cornell University Press, 1987), pp. 8-9; Okimoto (1989); Eiji Kawabata, “Reforming the Bureaucracy,” chapter in *Democratic Reform in Japan: Assessing the Impact*, (eds.) Sherry L. Martin and Gill Steel (Boulder, CO: Lynne Rienner Publishers, 2008), p. 102; Kawabata, “The Japanese Civil Service and Economic Development, Catalysts of Change,” (eds.) Hyung-Ki Kim, Michio Muramatsu, T.J. Pempel, Kozo Yamamua (New York: Oxford University Press, 1995); pp. 7-10, 58-64; T.J. Pempel, “The Bureaucratization of Policymaking in Postwar Japan,” *American Journal of Political Science*, Vol. 18, No 4. (November 1974), pp. 647-64.

Constitution, in which the Japanese people not only forever renounce war as a sovereign right but also the threat or use of force to settle international disputes.⁵¹

Against this, constitutional revision has been a fundamental goal of some conservative politicians since 1947. Since 1991, however, successive LDP governments have engaged in what has been called “constitutional bypassing,” where successive legislation gradually pushing back limits to the use of the armed forces, most noticeably now under the second Abe administration.⁵² The “chipping away” at Article 9 is said to have accelerated after the 1990 Persian Gulf Crisis, spurred by the belief, among some conservative policy elites at least, that Japan should play a more active role its own security agenda, especially its policy on overseas dispatch of the SDF, to “normalize” itself as a middle-power State.⁵³

Some argue that powerful prime ministers can play a major role in policy change and they are key actors, at least in the short periods they yield sufficient political popularity and/or political clout to achieve specific agenda. Sometimes strong (or popular) prime ministers can effectively deal with subgovernments, particularly the bureaucracy, puppet-masters and *habatsu* (intra-LDP sectionalism). Clausen and others argue that because the prime minister wields power through the Cabinet, the prime minister’s control over the Cabinet also delimits or enables the exercise of power. Prime ministers who have successfully prosecuted particular agendas have also pursued leadership and presidential-style premierships, manipulated the media, and bypassed or harnessed bureaucratic resources.⁵⁴ Ryūtarō

⁵¹ 1947 Japanese Constitution, Chapter II (Renunciation of War), Article 9.

⁵² These stories are covered in length in mainstream realist articles and monographs. For constitutional bypassing, see in particular, Hook and McCormack (2001), pp. 3, 13-17; and see also generally, Boyd & Samuels (2005), pp. 1-77.

⁵³ This led, not without great difficulty and opposition, to new legal frameworks to allow the SDF to participate in Peacekeeping Operations (PKOs), the passing of the International Peace Cooperation Law, (the so-called PKO Law), which in 1992 enabled the dispatch of the SDF to Cambodia. Japan also gradually adjusted its ODA to become more active in the realm of UN-supported human security initiatives. In the mid-1990s, the government also reconfirmed its commitment to the U.S.-Japan alliance through a joint declaration between the U.S. president and Hashimoto, then, under Koizumi, the dispatch of the SDF to the Indian Ocean and Iraq, and the enactment of laws in 2004 and 2006 to help the SDF deal with attacks from outside of Japan. Other changes ensued, including the elevation of the JDA to the MOD, greater activity by the SDF in peacekeeping, disaster relief, and other gradualist profile-raising developments, including the acquisition of a BMD system; see Hughes (2009); Tatsumi and Oros (2007).

These changes could be described in terms of the emergency of an unofficial “dual identity” for Japan’s security posture that has emerged since the mid-2000s that sees Japan as a nearly normal military power, but still restrained by its 1947 Constitution. While some analysts have traced the security policy changes that have emerged since 1998 through the power of activist prime ministers, following 2000, a steadily broader consensus many of the old taboos at least in policy elites have broken down in the face of a pragmatic need to react to North Korean and, latterly Chinese security concerns.

So much so, that differences in security issues are now to be found within party lines, rather than between left-right ideological differences. For arguments along these lines, see Pekkanen & Kallender-Umezu (2010), p. 14-18; Green (2003), pp. 25-26. For an overview of the various political party proposals, see Hughes, “Why Japan Could Revise Its Constitution and What It Would Mean for Japanese Security Policy,” *Orbis*, Vol. 50, No. 4 (Autumn 2006), pp. 736-741; Robert Pekkanen and Ellis S. Krauss, “Japan’s ‘Coalition of the Willing’ on Security Policies,” pp. 431-439; Samuels (2007), pp. 135-137; Jacob Brown, “Catalysts, Choices and Cooperation: Japanese Military Normalization and the U.S.-Japan Alliance,” *Stanford Journal of East Asian Affairs*, Vol. 5, No. 2 (Summer 2005), pp. 41-42.

⁵⁴ Clausen, in his study of the prime ministerships of Hashimoto (1996-1998), Koizumi (2001-2006) and Hatoyama (2009-2010) has argued that Japanese prime ministers played an important role in the realm of defense policy and politics by empowering different actors, and that strong or competent prime ministers have enabled Japan to advance policies that may usually be generated on autopilot by the bureaucracy. Then, because the prime minister relies on the Cabinet to wield power, the prime minister’s control over the Cabinet determines his influence over government.

Clausen notes that while prime ministers are technically free to choose their own cabinet ministers, in reality prime ministers have often been beholden to party elders in their choices. For a long time, intraparty competition and a weak support staff also limited the effectiveness of the prime minister. Though political and administrative reforms during the late 1990s and early 2000s increased the support staff of the prime minister and consolidated the number of Cabinet ministers, thus making Cabinet consensus easier, the problem of intraparty competition still remains.

The same can be said of Japanese politics. The timing of prime ministerial interventions in the affairs of subgovernments, their choice of political allies, their use of institutional resources, as well as the public framing of their initiatives has made significant differences in the outcomes of their policy initiatives. Though no one approach is superior

Hashimoto and Shinichiro Koizumi are cited, for example, as having been able to execute tough security policy and alliance management issues, and take on Japan's centralized bureaucracy (with mixed results), to achieve (again with mixed results) "reforms", for example, to rationalize the bureaucracy (in Hashimoto's case) and push through partial postal privatization (in Koizumi's case).⁵⁵

In the context of neorealist arguments, Koizumi can be cast as therefore specifically advancing the process of shaving down, or salami-slicing Japan's restraints on military involvement in direct response to external drivers, using threats such as the Taepodong overflight to begin operation of BMD.⁵⁶

On the other hand, in terms of institutional impact, Koizumi's ability to partially reform Japan's postal service, one of the bureaucracy's most closely held subgovernment domains, in which he faced down not only the *yusei zoku* (the postal services-related group of Diet members) in the LDP and significant opposition in the bureaucracy, showed just how powerful a skilled (and/or well advised) and activist prime minister can be.⁵⁷ In fact, the "Hashimoto model" and the "Koizumi model" were to provide major impetus and a framework for action that was to be adapted in the formulation of the ONSP in 2012.

Indeed, Level 4-Level 5 interactions form a core part of later analysis in this dissertation. Obviously, then, in the jigsaw of stakeholder relationships that need to be fitted together, the role of the relationships, alliances and battles between activist politicians and the bureaucracy and/or individual elements of it is

in and of itself, when the right approaches are combined, they can create a powerful political punch. See Daniel Clausen, "Leadership, Strategy, and Policy Entrepreneurship," in "Japanese Security Politics: A Comparison of Three Prime Ministerships." *Florida International University*. Vol. 13. Issue 1 (Article 11 in 2013). 24 May 2013; Robert Angel, "Prime Ministerial Leadership in Japan: Recent Changes in Personal Style and Administrative Organization," *Pacific Affairs*, Vol. 61, No. 4 (Winter 1989), pp. 583-602; Tomohito Shinoda, *Leading Japan: The Role of the Prime Minister* (Westport, CT: Praeger Publishers, 2000).

⁵⁵ Shinoda cites Ryūtarō Hashimoto, who was able to deal with tough trade negotiations with his counterpart Mickey Cantor, and who signed the U.S.-Japan Joint Declaration on Security (Joint Declaration), and the 1997 U.S.-Japan Guidelines for Defense Cooperation, turning around the feeling that the alliance was adrift.

Extremely pertinent to this dissertation later, which will be approached in a detailed analysis of space policy administration change, Hashimoto also set up a major advisory committee as part of his six-area attempted reforms of the administration. Hashimoto's basic competency led to other positive impacts felt in both domestic and foreign policy, including a successful visit to China and thaw in relations with PRC (following his endorsement of the Murayama Statement) and personal advocacy of BMD cooperation. See Shinoda (2000) pp. 50-51, 201.

Koizumi aggressively used the Cabinet Office, strengthened by Hashimoto, to create bureaucracy-bypassing action committees (while courting political allies from all spheres and the general public) to advance policy, particularly postal reform, détente with North Korea (while annually visiting Yasukuni Shrine), and embrace of the U.S., pushing forward Japan's support of the U.S. in the wake of 9/11. This was achieved through lightning fast and bold public political pledges that outpaced bureaucratic resistance, and through Cabinet Office through populating it with outside experts and talented bureaucrats from line ministries, and the use of his own "hit squads" of activist committees, enabling him to push through both the Anti-Terror Legislation of 2001 and Iraq Dispatch Legislation of 2003, that led to dispatches of the SDF to the Indian Ocean and Iraq, moves that strained the limits of constitutional pacifism and that bordered on the *de facto* initiation of collective self-defense, according to some scholars.

See Tomohito Shinoda, "Koizumi's Top-Down Leadership in the Anti-Terrorism Legislation: The Impact of Political Institutional Changes," *SAIS Review*, Vol. 23, No. 1 (Winter-Spring 2003), pp. 19-34; "Japan's Cabinet Secretariat and Its Emergence as Core Executive," *Asian Survey*, Vol. 45, No. 5 (September/October 2005), pp. 800-821; "Japan's Top-Down Policy Process to Dispatch the SDF to Iraq," *Japanese Journal of Political Science*, Vol. 7, Issue 1, (April 2006), pp. 71-91; *Koizumi Diplomacy: Japan's Kantei Approach to Foreign and Defense Affairs* (Seattle, WA: University of Washington Press, 2007); Daniel M. Kliman, "Japan's Security Strategy in the Post-9/11 World: Embracing a New Realpolitik," *CSIS: Washington Papers* 2006, p. 83.

⁵⁶ David Envall, "Transforming Security Politics: Koizumi Junichirō and the Gaullist Tradition in Japan," *Electronic Journal of Contemporary Japanese Studies*, July 20, 2008; Samuels (2007), pp. 178-9; Gavin McCormack, *Client State: Japan in the American Embrace* (London, UK: Verso, 2007).

⁵⁷ According to Gerald Curtis, a *zoku* is composed of "Diet members who have a considerable amount of expertise and practical experience about a particular area of government policy and enough seniority in the party to have influence on a continuing basis with the ministry responsible for that policy area." This quote from Curtis (1988), p. 114. See also Schoppa (1991), pp. 79-106.

important. And this type of analysis looks to have utility for explaining, for example, decisive political interventions by LDP politicians during various phases of space policy and administrative change.

Political-Bureaucratic Conflict Models and the Shinoda Veto Power Model

Much empirical work in Japan has discussed the evolving relationships between political and bureaucratic actors. Looking at Levels 4 and 5 underscores the importance of studying this relationship in analyzing space policy change. Taken in conjunction with studies showing how attempts to regulate or reform particular sectors, impinging on the rights, prerogatives, and/or budgets of individual ministries, and how ministries reacted, many case studies on such conflicts are also instructive in delineating modes of institutional behavior in Japan, emphasizing how difficult it can be to effect major changes in policy without bureaucratic consent. Such difficulties also have obvious analytical importance to discussing national policy, and can be seen as detailed studies of the domestic level games involved in reaching consensus in inter-State negotiations as studied by two-level game theory, which is discussed below.

There is also a vast range of empirical evidence studying *tatewari-gyōsei* in Japan, both in terms of the contested relationship of the civil service with politicians, and, even deeper, contested relationships between ministries. For example, Ito surveyed successive attempts by politicians between 1949 and 1990 in three waves (1949-1954, the 1960s and the 1980s) to, variously: control public spending; exert political control over the bureaucratic subgovernment; curb or cut personnel numbers; and/or consolidate ministries and agencies – all with mixed results. Ultimately, however, each time political pressure was brought to bear on the bureaucracy, it typically responded by sublimating the pressure to consolidate its own power.⁵⁸

⁵⁸ Mitsutoshi Ito, “Administrative Reform,” in Pempel and Muramatsu (1995), pp. 234-248. Ito identified three patterns of behavior by the bureaucracy to retain its power and prerogatives: positive responses, resistance, and avoidance to pressures to limit the size (curb personnel numbers) budgets, and to defenestrate and simplify regulations, i.e. reduce informal ministerial oversight.

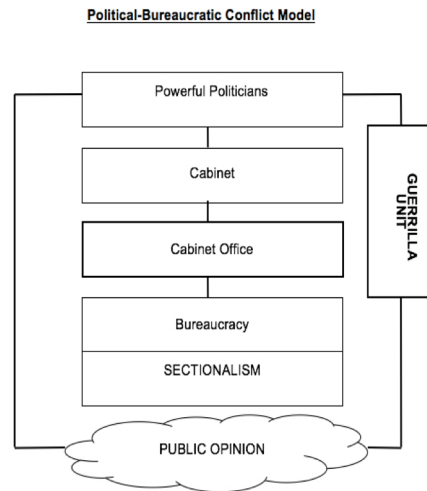
For example, in 1949, the central bureaucracy sublimated the demand for a 30 percent (160,000 personnel) staff cut to create today’s vast subgovernmental system; work was redistributed to new institutions and agencies such as the Agency of Science and Technology, the Pension Bureau, the Prime Minister’s Office, and the Atomic Energy Commission. Prime Minister Hayato Ikeda’s establishment of the First Provisional Administrative Reform Council (FPARC) in 1961 to exert more political control resulted in the foundation of the bureaucratically-controlled Prime Minister’s Cabinet Office. Later FPARC attempts under Prime Minister Eisaku Sato in 1968 to abolish one bureau in each ministry did manage to cut 18 of 120 bureaus; but the establishment of the ‘scrap and build’ system to limit the number of ministries did not prevent the establishment of the Environmental Agency in 1971 and the National Land Agency in 1974. Further, the 1969 Law Concerning the Number of Personnel in Administrative Agencies fixed the total number set absolute ceilings for ministerial staffing was not applied to the vast subgovernment system.

Nakasone’s attempt to control the bureaucracy in the 1980s through the Second Provisional Administrative Reform Committee (SPARC) was partially successful in cutting the General Account Budget, but attempts to cut informal powers exercised through permissions boomeranged, and personnel cuts were resisted. SPARC, designed to bypass bureaucratic interference as an independent committee of nine members, had only one central bureaucrat sitting at the top table, arming the committee with 21 experts, 50 councilors and 70 executive staff, and appointed Toshio Doko, former Toshiba CEO and chairman of Japan Federation of Economic Organizations, as chair. Proposal 1 of July 1981 recommended the reduction of subsidies and numbers for public corporations. Proposal 2 of February 1982 recommended the rationalization of permits and authorizations. Proposal 3 recommended the reinforcement of the Cabinet Office and the establishment of a Comprehensive Administrative Agency, as well as drastic privatization. These moves were followed by the First, Second and Third Provisional Councils for the Promotion of Administrative Reform in 1983, 1987 and 1990.

While the General Account Budget was reduced and the budget deficit lowered from 32.6 percent in 1980 to 15.6 percent in 1982, the number of permissions granted by ministries and public corporations increased from 7,000 to 10,045 in 1981. Attempts to consolidate the Economic Planning Agency, the National Land Agency, the Hokkaido Development Agency and the Okinawa Development Agency were stymied. The Management and Coordination Agency set up 1984 as a watchdog to cut waste was staffed with bureaucrats and led to the redirection of resources rather than an absolute cut in personnel.

Attempts by Prime Minister Hashimoto in the late 1990s through the Administrative Reform Council (ARC, *Gyōsei Kaikaku Kaigi*) in 1996 to rationalize the bureaucracy were also mixed, and were to have unfortunate and direct impacts on Japan’s space program, as is discussed in detail below.⁵⁹

Figure 7: Political-Bureaucratic Conflict Model



As outlined above, the four-year battle by Koizumi aided by Heizō Takenaka to privatize the Japan Post Office has been analyzed because of the insights it gives in answering the basic question of “Who governs?” Koizumi’s attempt at privatization brought him into highly public and open conflict – deliberately so in Koizumi’s case as part of his public relations strategy to win popular support – in a bid to garner public opinion (with much success, it might be added) in support of “reform” put him in conflict with not only the Ministry of Posts and Telecommunications (MPT) and bureaucratic control of the Fiscal Investment and Loan Program (FLIP), but also his own party’s *yusei zoku*, including future prime minister and present Deputy Prime Minister and Minister of Finance, Tarō Asō.

Echoing prior attempts to sidestep the bureaucracy, Koizumi not only created independent committees, including the famous “guerilla unit” of inner-circle aids to try to ram through his policies, but new political posts to oversee the reforms, led by Takenaka, as Minister of State for Economic and Fiscal Policy in 2001, Minister of State for Financial Services in 2002, then Minister of Internal Affairs and

⁵⁹ On paper, the Hashimoto reforms were supposed to be the biggest in postwar history, merging 22 ministries into 12, doubling the number of political appointees in ministries and agencies, collapsing overlaps, and empowering the prime minister and the Cabinet Office. The critical point about the reforms was that they enabled the prime minister to appoint ministers at his own discretion and directly control four important policymaking councils. Second, the reforms attempted to enhance political control over the merged ministries by increasing the number of political vice-ministers (appointed from among Diet members) and parliamentary undersecretaries to twice the previous number. By attempting to increase the staff of the Cabinet Office to strengthen the political control of policy (i.e. more independent of the central ministries) was also an important new attempt to assert more political control over the bureaucracy.

See Junko Kato, “Reforming the Japanese bureaucracy: Perceptions, potential and pitfalls, Japanese political reform: Progress is process,” *Woodrow Wilson International Center for Scholars, Asia Program Special Report*, No. 117 (January 2004), pp. 34-7; Susan Carpenter, *Japan’s Nuclear Crisis: The Routes to Responsibility* (New York: Palgrave MacMillan, 2012), pp. 33-156.

Communications, and then as Minister of State for Privatization of the Postal Services.⁶⁰ Koizumi's struggles with not only the bureaucracy, the embedded subgovernment behind it, and his own politicians, were to be echoed by the battles of the Democratic Party of Japan (DPJ) with MEXT five years later during a vital period when the DPJ fought the bureaucracy to implement the DPJ's vision of the *Basic Law*.

At levels 4 and 5 (mainly Level 5), case studies have focused on the inner mechanics of institutional behavior modes in Japan. For example, Nobel found that attempts to deregulate sectors of the economy over the past two decades have also often been sublimated into opportunities to actually extend bureaucratic power.⁶¹ Case studies, again, tend to reinforce the notion of bureaucratic intransigence to change, unless that change is sublimated to a compromise in which key actors do not lose power and budgets.

For example, studying Japan's response to the country's financial crisis in the 1990s, Scheiner and Muramatsu found that the reliance of politicians upon the MOF's expertise, that is to say the incumbent power of the MOF, acted as a brake that delayed financial reforms until the end of the decade.⁶² This situation was exacerbated by the fact that the banking sector hid information from the MOF and that the MOF later colluded with the banking sector to hide the scale of the issue until at least the mid-1990s.⁶³

⁶⁰ The battle between Koizumi and the MPT and the Ministry of Public Management, Home Affairs, Post, and Telecommunications (MPHPT, later the MIC) remains instructive because of the dynamics of competition between bureaucratic power, the players and what they represented, and the tactics involved. Attempting to wrest control from the MPT over the then ¥250 trillion Postal Savings Fund (PSF) postal life insurance and control of postal services, which the MPT controlled through a national network of 19,000 *tokutei* postal offices, brought Koizumi into direct confrontation with not only the MPT and *yusei zoku* politicians. The move also threatened the MPT's major leverage over the Fiscal Investment and Loan Program (FLIP), which sustained the vast subgovernment of around 100 *amakudari*-run operations and provided vast sums of money for infrastructure projects in constituencies and for favored contractors. That is to say the reforms proposed by Koizumi amounted to an attack on the whole postwar bureaucratic system.

A four-year battle ensued, with Koizumi attempting to take control of policymaking through the Cabinet Office, bypassing the MPT, fighting of a civil war with *yusei zoku* led by Tarō Asō, and employing Heizō Takenaka to lead a specially convened Cabinet Office-based conference, and then the formation of a "guerilla unit" of inner-circle aids as both an outflanking agent and battering to hammer out a comprehensive postal privatization plan, and, then *in extremis*, the calling of a snap election in 2005 to force the issue. Having won the election, Koizumi was to see his reforms subsequently watered down and repurposed.

See Patricia L. Maclachlan, "Two Steps Forward, One Step Back: Japanese Postal Privatization as a Window on Political and Policymaking Change," pp. 157- 18, in *Political Change in Japan: Electoral Behavior, Party Realignment, and the Koizumi Reforms*, (eds.) Steven R. Reed, Kenneth Mori McElwain, and Kay Shimizu (Stanford CA: Stanford University Press, 2009); Heizō Takenaka, *Kōzō kaikaku no shinjitsu: Takenaka Heizō daijin nikki [A Testimony about Structural Reform: The Diary of Minister Takenaka Heizō]* (Tokyo: Nihon Keizai Shinbunsha, 2006), pp. 216-18.

⁶¹ Noble found that general politicians and ministries have actively deployed regulation as a means to extend their bases of power and that ministries see any form of change either as an opportunity to expand their power or a threat. When the principal agent model has been applied to Japan as with Ramseyer and Rosenbluth, politicians behave as "fire alarms," but that most policy areas fail to attract strong political reforms due to the lack of direct reward and the complexity and time demands. Even when politicians are interested and undeterred, bureaucrats may be able to play multiple principal agents against one another.

For Noble, in Japan, the dynamic is based on a crucial managerial issue – the degree to which party leaders can centralize oversight over a myriad of interests behind ministries, including their supporters in industry for example, and the backbenches of the legislature. See Gregory W. Noble. "Trends in Economic and Social Regulation and Implications for Japan," *Journal of Social Science*, Vol. 54, No. 2 (March 2003), pp. 45-75.

⁶² Ethan Scheiner and Michio Muramatsu, "The Slow Government Response to Japan's Bank Crisis: A New Interpretation," in Steven R. Reed, Kenneth Mori McElwain, Kay Shimizu Walter H. Shorenstein, (eds.) *Political Change: Electoral Behavior, Party Realignment and the Koizumi Reforms* (Asia-Pacific Research Center, 2009), pp. 181-191.

⁶³ Jennifer A Amyx, *Japan's financial crisis: Institutional rigidity and reluctant change* (Princeton: Princeton University Press, 2004); Steven K Vogel, *Japan Remodeled: How government and industry are reforming Japanese capitalism* (Ithaca, NY: Cornell University Press, 1996); Frances Rosenbluth and Ross Schapp, "The domestic politics of banking regulation," *International Organization*, Vol. 57, Issue 2 (Spring 2003), pp. 307-36; Terry M. Moe, "The Politics of Bureaucratic Structure," in *Can the Government Govern?* (Eds.) John E. Chubb and Paul E. Peterson (Washington, D.C.:

Similarly, studying telecommunications reform, Kawabata found that the supposed liberalization of the telecom market in the 1990s with the privatization of NTT actually led to an explosion of *amakudari* appointments, and also that MPT could play a dual role as an old-guard ministry protecting its role controlling the postal sector against reform attempts, while at the same time positioning itself as a vanguard agency in promoting telecommunications technology advancement, particularly promoting the use of the Internet so as to gain *more control* of the process.⁶⁴

Pertinent to discussing the position of MEXT, Kawabata also theorized that a particular ministry's "sanction power," defined as how much exclusivity of jurisdiction a ministry has in a particular field, plays a major role in deciding how the ministry interacts with all other players, what its policy choices are, and what outcomes are possible. According to Kawabata, "exclusivity of jurisdiction" is thus the main factor in interministerial relations. The major factor pertinent to the exclusivity of jurisdiction are a ministry's share of resources.⁶⁵ Then, for policy areas for which jurisdiction is not clearly defined by a law or laws, "ministries typically develop unwritten rules about the division of labor between ministries, resulting in division of jurisdiction and equilibrium relationships between ministries."⁶⁶ Kawabata theorized that when a ministry breaks this equilibrium by trying to expand its role, "issue salience" increases for other ministries, and, as a result, jurisdiction becomes nonexclusive. The jurisdiction of a newly created policy area can also be nonexclusive when two or more ministries may claim jurisdiction.

Against this, nonexclusive jurisdiction over an issue often forces a ministry to deal with other ministries and get influential politicians to mediate if interministerial negotiations break down. Once invited to participate, politicians then advance their own policy preferences. "This fluid situation makes it easier for business leaders and other societal actors to insert their preferences into policy."⁶⁷

Such frameworks can also give insight into Japanese space policy change, because activist politicians *have* put strong efforts in changing space policy, to varying degrees, in a number of contexts, and with mixed results. In fact, as mentioned previously, political intervention in the formulation and execution of Japanese space policy change forms an important part of this dissertation's analysis. Powerful politicians *did* play an important role in space policy transition, interlinking through Levels 1-5, but especially between Levels 3-5. The dramas that played out, particularly between 2009-16 in space policy and institutional transition, reflect the larger narrative of political-bureaucratic contentions following the Hashimoto reforms of the late 1990s in which activist politicians pushed to assert more political control over the bureaucracy. However, while very useful, the political-bureaucratic layer level and the phases of contention within it only make up one part of the story; a critical piece of the jigsaw for sure, but not the whole picture.

The Brookings Institution, 1990); Moe, "The politics of structural choice; Toward a theory of public bureaucracy," in *Organizational theory: From Chester Barnard to the present and beyond*, (ed.) Oliver E. Williamson (New York: Oxford University Press, 1990), pp. 116-53; Moe and Michael Caldwell, "The institutional foundation of democratic government: A comparison of president and parliamentary systems," *Journal of Institutional and Theoretical Economics*, Vol. 150, No. 1, Symposium on The New Institutional Economics Bounded Rationality and the Analysis of State and Society (March 1994), pp. 171-195.

⁶⁴ Eiji Kawabata, "Sanction Power, Jurisdiction, and Economic Policy-making: Explaining Contemporary Telecommunications Policy in Japan," *Governance: An International Journal of Policy and Administration*, Vol. 14, No. 4 (October 2001), pp. 399-427.

⁶⁵ *Ibid.*, pp. 406-407.

⁶⁶ *Ibid.*, pp. 406-407.

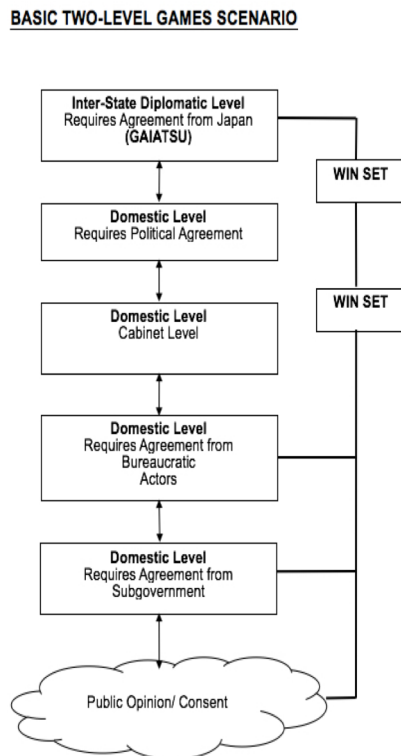
⁶⁷ *Ibid.*, pp. 406-407.

Two-Level Games

A two-level games-based analysis of Japan's space policy transition may also be analytically useful because such approaches, building on the work of Rosenau and Putnam, provide a framework for understanding how countries have to balance internally before they can reach international agreements.⁶⁸

Two-level theory applied to explain Japanese international negotiation strategies and results provides insights into inter-ministerial bargaining and its relationship with political and international influences that can be applied to examining space policy change, in particular because the approach to Japanese two-level games emphasizes the power held by individual ministries and their orientation towards international agreements. Such approaches usefully delve deep into Level 4 bargaining, but also explain the direct relationship to international bargaining, and could be more useful than the more purely domestic-focused case studies based on the simple bureaucratic models mentioned above.

Figure 8: Basic Two-Level Games Scenario



In terms of studying whether or how Japan will or will not adopt international rules, for example, two-level games models show that this may depend on the attitude of the most powerful ministry involved. For example, a study on Japan's approach to carbon trading showed that while the Ministry of the Environment (MOE) strongly supported ambitious greenhouse gas reduction targets through

⁶⁸ The 1960s and 1970s saw the growth of studies on the relationships between domestic and international affairs, with James Rosenau first observing that national and international affairs are sometimes linked. See "Toward the Study of National-International Linkages," in James Rosenau, *Linkage Politics: Essays on the Convergence of National and International Systems* (New York: Free Press, 1969); "Theorizing Across Systems: Linkage Politics Revisited," in Jonathan Wilkenfeld (ed.), *Conflict Behavior and Linkage Politics* (New York: David McKay, 1973), especially p. 49.

international carbon trading, it could not fight the power of METI, which controls energy policy, has a far bigger staff and budget, and strong connections to business, which felt targets suggested by MOE to be unfair. Further, METI was strongly opposed to accepting the scheme because it reasoned that acceding to the MOE's initiative might be the thin end of the wedge in setting a precedent for yielding more policymaking power to the MOE.⁶⁹

Against this, there are examples of ministries skillfully using external pressures in order to reinforce their domestic power. For example, in examining Japanese participation in the negotiation process leading up to the 1988 Basle Capital Accord, Tamura found that the MOF simultaneously pursued the international goal of preserving the international competitiveness of Japanese banks, but used the talks to impose statutory capital adequacy rules on the sector against domestic opposition.⁷⁰

In his study regarding trade liberalization issues, Ishiguro found that Japan's central bureaucracy forms the main framework for decision-making, and that decisions are made based on the balance of bargaining power between ministries. Pressure by international negotiators on powerful Japanese bureaucratic players varied depending on the goals of the ministries involved, their jurisdictional role, their political connections, and the behavior of business lobbies behind them. Japan's negotiating position was the sum of the balance of power of interministerial coordination.⁷¹

Studies of Japan's ODA strategy also provide interesting similarities with space policy.⁷² In comparing rational actor models (for example the "*commercial instrument*" interpretation referring to ODA as a means to expand trade by creating markets and the "*mercantile realist*" interpretation of ODA as one arm of Japan's foreign policy of advancing its technological and economic position) and the bureaucratic model that states that government decisions are the result of bargaining by bureaucratic actors, Oguchi found that the influence of diplomatic and strategic pursuits and their impact on the

⁶⁹ Sven Rudolph and Friedrich Schneider, "Political barriers of implementing carbon markets in Japan: A Public Choice analysis and the empirical evidence before and after the Fukushima nuclear disaster," *Environmental Economic Policy Studies*, Vol. 15, Issue 2, (April 2013), pp. 211-235, esp. 227-29

⁷⁰ Kentaro Tamura, "A Regulator's Dilemma and Two-level Games: Japan in the Politics of International Banking Regulation," *Social Science Japan Journal*, Vol. 6, No. 2 (October 2003), pp 221-240.

⁷¹ Kaoru Ishiguro, "Trade liberalization and bureau-pluralism in japan: Two-level game analysis," *Kobe University Economic Review* 53 (2007): 9, esp. p. 10. In his analysis, Ishiguro also stated that the critical factor to understanding Japan's position in negotiations requires an understanding bureaucratic behavior and the balance of bargaining power between the ministries: MITI, MOFA, MAFF and the MOF, and the influences and preference of lobbies, industrial centers and politicians within them, particularly MAFF. Specifically, MITI, with jurisdiction over the negotiations was pro-liberalization. MOFA was also in favor, but had no jurisdictional role. MAFF also had jurisdiction, but was anti-liberalization. MOF had limited jurisdiction, but nothing much to gain or lose in the negotiations. Ishiguro found that Japan's negotiating position changed when either MITI or MAFF exerted influence on negotiators, and that overcoming MAFF's opposition was the main issue.

Further, MAFF's position was complicated by the influence of various stakeholders, including the powerful Central Union of Agricultural Co-operatives (*JA Zenchu*), the National Federation of Fisheries Co-operative Associations (*Zengyoren*), the Japan Forestry Association, and the Japan Plywood Manufacturers Association, anti-liberalization norin-zoku politicians who were members of powerful Special Committee on Agricultural Trade, The Agricultural and Forestry Division, and the Fisheries Division of the LDP's PARC.

⁷² These included: overlap with security interests and the desire for international prestige; access to multiple budgets, (the general government account, FLIP, and interest payments on previous loans) overseen by a "Four-Ministry System" (*Yon Shocho Taisei*), which included MOFA, MITI, MOF and the Economic Planning Agency (EPA); a fragmented budgetary process loosely and competitive coordinated between different ministries and actors (MOFA and METI) overseen by powerful subgovernment arms (the Japan International Cooperation Agency (JICA) and the Japan Bank for International Cooperation [JBIC]); jurisdictional rivalry between MITI and MOFA; a focal point of Japan's diplomacy to recipient developing countries; burden-sharing among and public relations efforts toward developed countries; and where the Diet and top-level political involvement establishes the framework for policy, and the bureaucracy fills in the specifics. See Hikaru Oguchi, "The Bureaucratic Sectionalism of Japan's Technical Cooperation in the Legal and Judicial Field: The Case of Legal Assistance in Laos," *Master Thesis*, Stanford Law School (2004).

internal bargaining calculus to affect policy could not be ignored.⁷³ The formation of government policy saw intense inter-ministerial bargaining but, above this, the prime minister, key figures within LDP and the government, and the business community all played important roles and made rational choices, and individual ministries tried to align with external pressure to argue against other bureaucratic units and strengthen their own positions.

In studying why *gaiatsu* (foreign pressure) succeeded and failed in the 1989-1990 Structural Impediments Initiative negotiations with the U.S., Schoppa found that extremely complex and nuanced interconnections, which he called “synergistic linkage” between negotiators, elite decision makers, ministries, stakeholders and even the general public affected not only Japan’s initial bargaining position, but what concessions were and were not made, and the processes of how these results unfolded. Understanding these complex relationships, Schoppa argued, is necessary to understand how “win-sets” are formulated.⁷⁴

Schoppa’s analysis seems particularly pertinent because it exposes both a deep interconnectedness between all the eight levels of decision-making, from the intergovernmental level all the way down to the level of public opinion, while also shedding light on the complexities of domestic bargaining. As Schoppa puts it, games scenarios “have not developed a systematic hypotheses about how domestic politics produce a nation’s “national interest” and the strategies to be pursued at the international level.”⁷⁵ Schoppa found that changes in U.S. tactics did matter, especially when they altered (increased) the number of domestic Japanese participants to previously uninvolved bureaucratic agencies, new or different or senior politicians, interest groups and even the general public, and also by internationalizing what had been previously dealt with as purely domestic issues. Such tactics, and the complex but rational interactions on multiple levels between various stakeholders, as will be seen later, clearly came into play with Japanese space policy change.

Views to Date on Japanese Space Policy Transition

As noted in Chapter 1, debates have surfaced in recent years about Japan’s space policy transition and what it means and what it says about Japan and its security policies. As also noted, such debates have led to a range of conclusions that are at odds with each other, or only focus on certain aspects, or are (arguably) outdated or outmoded by *Basic Plan 2016*. This section looks at some of these debates, analyzing their utility.

The first major mainstream publication to surface on Japanese space policy and analyze (indeed recognize) its role in Japan’s evolving security strategy was by Oros, who initially focused on the rapid decision taken in the weeks after the 1988 Taepodong flyover to develop the IGS system. In his earliest

⁷³ Oguchi (2004). For surveys on Japanese ODA, see Robert M. Orr, Jr., *The Emergence of Japan’s Foreign Aid Power*, (New York: Columbia University Press, 1990), p.41; Ian Rix, *Japan’s Foreign Aid Challenge: Policy Reform and Aid Leadership* (London: Routledge, 1993); Margee M. Ensign, *Doing good or Doing Well: Japan’s Foreign Aid Program*, (New York: Columbia University Press, 1992). For the commercial instrument track, see Ensign (1992), p.174. For the mercantile realist interpretation (following Waltz generally) see Heginbotham and Samuels (1998), pp.172-203. Tuman Strand found that Japan’s national economic interests shaped Japanese aid decisions in Asia, at least. See John P. Tuman and Jonathan R. Strand, “The role of mercantilism, humanitarianism, and *gaiatsu* in Japan’s ODA programme in Asia,” *International Relations of the Asia-Pacific*, Vol. 6, Issue 1 (February 2006), pp. 61-80.

⁷⁴ Leonard J. Schoppa, “Two-level games and bargaining outcomes: why *gaiatsu* succeeds in Japan in some cases but not others,” *International Organization*, Vol. 47, Issue 3 (July 1993), pp. 353-386. For a more detailed and general survey of Schoppa’s ideas, see *Bargaining with Japan: What American pressure can and cannot do* (New York: Columbia University Press, 1997).

⁷⁵ Schoppa (1993), p. 365.

paper on the subject, Oros looked at realist, *gaiatsu*, domestic politics and culturalist arguments, and found them all inadequate.

Oros' initial basic conclusion as to why Japan quickly decided to budget and deploy the IGS system, but not place the satellites/the program under the control of the SDF, was that this response represented the outcome of an important new political and leadership awareness of Japan's security issues. Oros established that competing bureaucracies saw the IGS system as a chance to appropriate new budget. For their parts, both the SDF and industry had begun pressing since 1993 for Japan to have a space-based reconnaissance system independent from and complementary to other intelligence sources, while telling the public that the SDF felt it was too reliant on the U.S. Then, regarding Japan's domestic commercial constituency, Japanese industry, meanwhile, wanted the work. However, for Oros, it was political leadership that kick started and enabled the relatively fast and smooth decision-making and budgetary process that led to the IGS program.⁷⁶ Behind this, Oros clearly demonstrated the role of interactions between Levels 1-4.

In his follow-on study, *Normalizing Japan*, Oros asserted that Japanese space policy is governed by international relations issues best explained through internal political struggles, moderated by Japan's culture of antimilitarism. While acknowledging the idea of a rational actor, multi-stakeholder, multi-level analysis model, compared to his earlier paper, *Normalizing Japan's* approach was somewhat subordinated into a constructivist framework. In it, Oros referred to Japan's domestic culture of antimilitarism, which has prohibited a "full role for military actors" as being decisive in Japan not more openly militarizing space. Following his "reach, reconcile and reassure" analysis, Oros stressed how moderate Japan's reaction to the Taepodong incident was. Despite the extent that the Taepodong provocation produced political outrage and public alarm, Oros stressed how much Japan failed to push back against growing external threats more strongly: Japan did not overturn the PPR, and deliberately placed the IGS program under civilian control by creating the Cabinet Satellite Intelligence Center (CISC), and not under the JDA.⁷⁷

Thus, for Oros, Japan chose *not* use a worrying security threat in the form of the Taepodong incident to begin discard its post-World War II pacifist identity in order to become a muscle-flexing military giant more commensurate with its international status and the changing (or worsening) external security environment. For Oros, because of the resilience of Japan's antimilitaristic culture, Japan took the Taepodong incident in its stride. Japan's reaction was cushioned by from being harsher by the enveloping blanket of its antimilitaristic characteristics. In framing such arguments, Oros' own start-point begins with stating that... "Japanese space policy stands out from the other world space powers due to the nearly complete separation of space policy from military planning" ... that was gained without substantial

⁷⁶ Oros (2007), pp. 31-34. Pressure to loft the satellites came from the subgovernment, including the JDA, the Cabinet Intelligence Research Office (CIRO), MOFA, and MITI, which had all been alarmed by North Korean activities since a 1993 Nodong missile test. Oros also disputed the role of *gaiatsu*, because the U.S. had consistently expressed its opposition to Japanese indigenous satellite development, as the U.S. did not want Japan to develop its own capabilities see budget be taken away for military satellites from other military cooperation areas. For Oros, a domestic political, bureaucratic power and industry pressure approach was also an inadequate explanation because the government had consistently resisted pressure from industry to build spy satellites for at least five years. Finally, culturalist-type arguments were inadequate because the decision overturned the culturally or norms-rooted explanation for why Japan did not use outer space for military surveillance satellites proved plausible for the many years that Japan refrained from such use.

⁷⁷ (Oros 2008), pp. 122-148; Oros (2007), pp. 29-48, p. 35, 40; Johnson-Freese and Gatling (2004), pp. 538-552, 542. The IGS were actually categorized as "crisis management satellites" for both civilian and military purposes, so as not to fall foul of the PPP; see Suzuki (2007).

military funds devoted to outer space research, concluding that, "...the best explanation for this remarkable departure is rooted in Japan's security identity of domestic antimilitarism."⁷⁸

Oros extended this logic to future Japanese security policies, and concluded that it was unlikely that Japan remilitarize unless major shocks compelled the Japanese political system to break from past practice and crystalize the adoption a new, *alternative identity that had had not yet materialized*.⁷⁹ However, Oros did hint that the sudden (or rapid) development of the IGS might represent the thin edge of a future wedge:

"Though certainly the decision calls into question the staying power of Japan's postwar security identity of domestic antimilitarism in the twenty first century, as with nearly all security decisions in recent years, political leaders worked hard to fit a new policy objective within the contours of the security identity, sacrificing some efficiency and broader objectives of the satellite program in the process."⁸⁰

Oros' original paper looking at how LDP politicians played a key role in pushing forward the domestic procurement of IGS is, however, particularly useful for examining Levels 3, 4 and 5. Some of the empirical research from his paper will be useful in the following SAF-based analysis. Arguably, however, *Normalizing Japan* is now out of date following the incorporation of space policy into national security policy, and the increasingly national security-first priorities of *Basic Plan 2016*, not least with the involvement of the MOD.

U.S. Think-Tanks Turn their Eyes on Japanese Space Policy

Against this, a number of think tanks and reports published during the noughties examined the potential for U.S.-Japan security cooperation in space from the point of view of looking for ways to deputize Japan to aid U.S. space supremacy. U.S. think-tank views of Japan's space program in the 2000s looked at policy transition in terms of alliance security issues, foreshadowing the reorientation of U.S. policy under President Barack Obama to harness Japanese space technologies to the U.S. "pivot" strategy after 2010. In 2003, a report funded by U.S. and Japanese aerospace companies and written by the Center for Strategic and International Studies (CSIS) noted that the first launch of IGS satellites represented an "inflection point" in that Japan was now using space for military purposes.

The CSIS report looked forward to increased U.S.-Japan cooperation based on future policy and administrative reforms, primarily to advance U.S. geostrategic aims, encouraging Japan to move further and faster both in policy and administrative change, in particular for GPS-QZSS interoperability, and the scrapping of the PPR to advance Japanese-U.S. space-based intelligence sharing.⁸¹

Following this, a 2005 RAND military think-tank report noted that, facing increased security instability, and that as far back as 1993 a defense advisory panel had recommended that Japan should

⁷⁸ Oros (2008), p. 122.

⁷⁹ Ibid, pp.172, 189-193.

⁸⁰ Ibid, p. 139.

⁸¹ Kurt M. Campbell, Christian Beckner, and Yuki Tatsumi, "U.S.-Japan Space Policy: A Framework for 21st Century Cooperation," *Washington, DC: Center for Strategic and International Studies* (July 2003), pp. 3-4. Towards this, the report noted a number of factors that should compel closer cooperation. First, Japan faced the prospect of increased regional security challenges from North Korea and China. The report noted that following the mid-1990s, Taiwan Straights crisis, China had already deployed 18 reconnaissance satellites. Second, the report implied Japan's response in the form of the IGS constellation was preliminary and insufficient over the longer term. Third, the report stated that militarizing Japanese space programs could bring technological and commercial spinoffs. Fourth, the report stated that Japan's steps toward reforming space policy under the CSTP were necessary in pulling away from the PPR, which the report condemned as outmoded.

develop its own satellite reconnaissance system, Japanese space policy had reached a “fork in the road.” In its fourth option for future U.S.-Japan collaboration, the report suggested that a focus on national security programs would be beneficial to bilateral relations, bringing forth the chance of more cost sharing and technological integration with the U.S.⁸²

Also, an academic think-tank speculated that, following the lofting of Japan’s first IGS satellites, Japan might consider enlisting dual-use space technologies if “faced with a major conflict,” and pointed to the utility of Japanese technological capabilities that could be harnessed by the SDF, including improving EO satellites, launch vehicle technologies, Japanese prowess in electronic warfare, and BMD. Interestingly, despite the PPR, the author noted that NASDA, as a repository of expertise and technologies, and the proximity of establishments to SDF facilities, could already be considered as a virtual but unused repository of defense technology, and that the agreement between the U.S. and Japan to research BMD was already seen as threatening by China.⁸³

Domestic Views of Japanese Space Policy Transition

On the other hand, domestic scholars of Japanese space policy have focused on constructivist and institutionalist-type approaches to explain space policy transition until 2008. While recognizing that security pressures have played a role in spurring policy change, thus acknowledging realist pressures, Suzuki described the drafting of the *Basic Law* through a political-bureaucratic model based on rational actor scenarios. Suzuki’s analysis took into account Levels 1 and 2, but an analysis of Levels 3, 4 and 5 form the crux of his framework in which “policy logics” contend with political relationships to explain policy change.⁸⁴

Anan took a traditional bureaucratic insitutionalist-rational actor approach to explain why it was so difficult for Japan to implement the *Basic Law* after 2008, with his analysis focusing on political-bureaucratic conflicts between 2009-12, but stopping there. In these, between MEXT and the Cabinet Office, according to Anan, MEXT was so fixedly wedded to protecting its administrative power and budgets against the Cabinet Office that MEXT opposed any change in policy or administration because such changes almost automatically threatened its central role in space development.⁸⁵

Both these approaches are analytically coherent, and this dissertation will draw on these authors’ frameworks to analyze Japanese space policy and its relationships with institutions. But the main issue is these studies don’t deal with the critical period 2012-16 which saw the apparent acceleration of policy change, strong pressure applied by LDP, the conversion of semantic descriptions of policy goals to the overtly realist language of *Basic Plan 2016*, the proposed doubling of the IGS fleet, the *direct* participation of the MOD with MEXT in strategically important new space military technologies, and the integration of Japan’s space program into the U.S.-Japan security alliance; events which were, arguably, not expected by Suzuki, Anan and Oros.

⁸² Steven Berner, “Japans Space Program: A Fork in the Road?” *RAND National Security Research Division*, Santa Monica, CA, 2005, pp. 1-37.

⁸³ Joshua M. Arnestad, “Japan: Dual-Use Technologies and National Security,” *George Washington University Elliot School of International Affairs, Space Policy Institute*, 2005.

⁸⁴ Suzuki (2005, 2007).

⁸⁵ Keiichi Anan, “Administrative reform of Japanese Space Policy Structures in 2012,” *Space Policy*, Vol. 29, No. 3 (August 2013), pp. 210-218.

Recent (Post-Basic Law) Non-Japanese Views

Non-Japanese analysts by-and-large look at the implications of the *Basic Law* beyond being an administrative and legal solution to domestic inefficiencies (resolution of these being the main focus and goal of the *Basic Law*, according to Suzuki and Anan). For example, Moltz sees fear of Japan falling behind China and a “space race” with China as a major exogenous pressure behind the *Basic Law*.⁸⁶ Peoples has recently argued that Japan’s space policy is following a general trend of ‘securitization’ of space policy that is a world-wide trend. ‘Securitization’ for Peoples is a process through which non-military issues come to be seen as issues of national security so that it is justifiable to use exceptional political measures to deal with them. By being ‘securitized,’ formerly nonmilitary issues are increasingly seen as, and dealt with, in terms of military threats that pose real national security challenges.⁸⁷

For Peoples, then, the *Basic Law* invoked a ‘broadened’ conception of security in an attempt by Japan to offset the apparent potential for military applications by emphasizing defensive purposes and by articulating a ‘comprehensive’ understanding of security. He concluded that Japan has constructed a new conception of security that encompasses “non-military security functions” such as crisis management, disaster response, and environmental monitoring, that is not only in line with ‘global norms’ of other space powers but also in tune with the comprehensive security notions that Japan has built up since the 1990s in particular.⁸⁸ Again, this analysis, is, arguably, outdated or challenged by *Basic Plan 2016*.

In 2010, my previous research in *In Defense of Japan: from the Market to the Military in Space Policy* (IDOJ) adopted an analytically eclectic approach that hypothesized that the *Basic Law* would open the door for a dual-use domestic space market providing a wide swath of national security space projects, all achieved in a way that would provide a range of internal and external balancing required to resolve structural and domestic inefficiencies.⁸⁹ Taking a detailed empirical approach, IDOJ combined traditional frameworks to conclude that the *Basic Law* was designed to resolve a series of pressures built up on both on Japan’s normative policy (i.e. the PPR) and its administrative arrangements since the late 1990s. Understanding space policy change, IDOJ asserted, required taking into account a wide range of influences, from the strategic international relations level all the down to prosaic industrial and commercial concerns.

Borrowing heavily from Samuels’ neorealist approach, IDOJ adopted a “market to the military” hypothesis. This asserted that, from its inception, Japan’s space program was a strategic technological hedge to make sure that Japan was technologically and industrially capable of maintaining its status as an advanced sovereign power. Thus, when exogenous security pressures appeared, Japan reacted rationally because the *Basic Law* removed the over-strict PPR and allowed Japan to create a defensive-only military space policy. At the subgovernment level of policy implementation, the *Basic Law* also overcame inefficiencies that had built up in implementation through ministries competing with each other in zero-sum games.

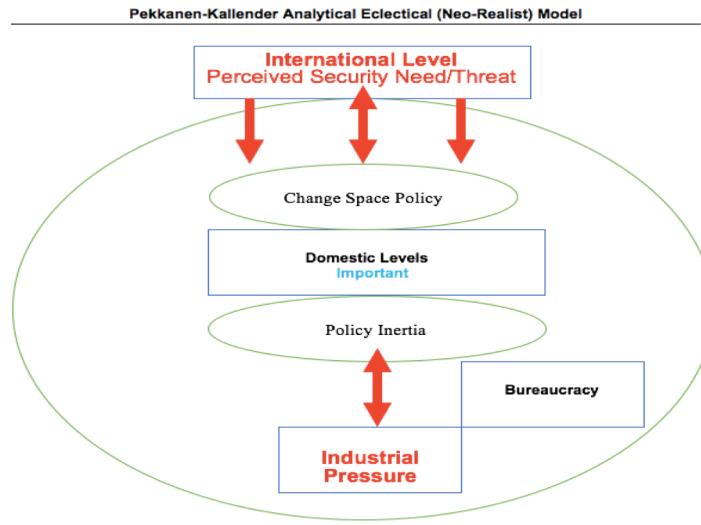
⁸⁶ Moltz (2012), p. 43, 63.

⁸⁷ Columba Peoples, “The growing ‘securitization’ of outer space,” *Space Policy*, Vol. 26, No. 4 (November 2010), pp. 205-208.

⁸⁸ Peoples (2013), pp.135-143.

⁸⁹ Pekkanen & Kallender-Umezu (2010), pp. 1-24, “The Market to the Military Trend,” esp. pp. 10-16.

Figure 9: Pekkanen-Kallender Analytical Eclectical (Neorealist) Model



Following the stated wishes of the *Basic Law* by placing space development under Cabinet Office control, and as part of a broad national security strategy, IDOJ stated that narrow sectional conflicts between competing ministries could be resolved and budget opened for ministries and contractors. By doing this, and creating a protected national security market for space activities that were closed to international competition on national security grounds, contractors unable to compete in the international commercial space development market could be protected, subsidized and nurtured.⁹⁰

In other words, a series of “win sets” were created. At the same time, domestic considerations deeply colored the framework of each change. Because of the institutional complexities of the implementation of Japan’s space program, where budgets were divided between competing ministries, a reordering was required, achieved through strong political initiatives, to implement Cabinet Office control over policy, programs and budgeting.⁹¹ This at least provided a rational explanation to account for the motives behind the *Basic Law*.

So, IDOJ combined the prior work of neorealists such as Samuels and Green to show Japan’s behavior as a rational actor at the international level, and Oros’ constructivist approach, to show how domestic bureaucratic and normative frameworks deeply affected how Japan militarized its space development. While broadly helpful in understanding many of the interconnected and interlinked international and domestic pressures behind the *Basic Law*, including for example, examining the role of industrial interests in pushing for the abandonment of the PPR, in retrospect, by 2012 it was becoming increasingly apparent that IDOJ had rather overlooked an institutional behavioral approach, which has been amply proven important to understand national policy making.

This led IDOJ to fail to fully predict the long-drawn out bureaucratic battles that have delayed full implementation of the *Basic Law* as late as 2017. IDOJ’s failure to see this was a major impetus for the author’s PhD research and the search for an adequate framework to analyze and contextualize space

⁹⁰ Ibid., pp. 18-20.

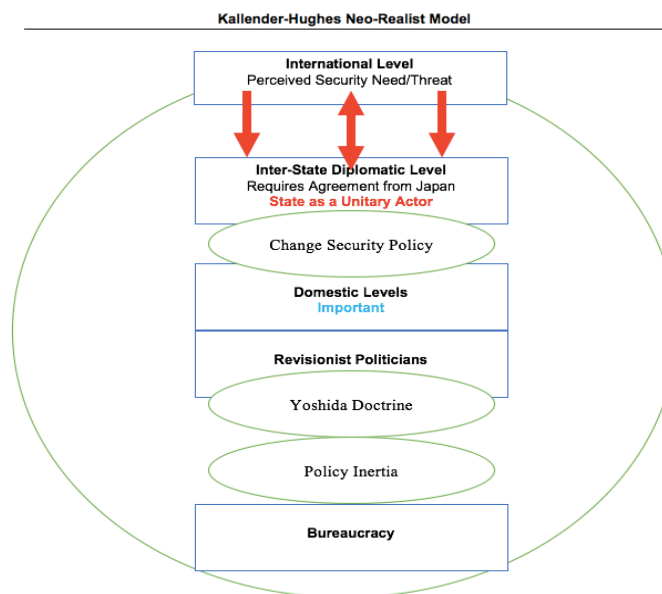
⁹¹ Ibid., pp. 245-50.

policy transition. IDOJ did, then, make sense of many of the factors leading to the *Basic Law* and even the realist language and integration of space policy and assets into a wider national security strategy, but at the price of ignoring the role of the bureaucracy as a brake on the ambitions of politicians and industry.

One of the author’s recent studies, “Hiding in Plain Sight: Japan’s Militarization of Space and Demise of the Yoshida Doctrine,” labels the most recent policy changes under the second Abe administration as “revisionist.”⁹² How the authors tackled space policy transition using an analytically eclectic, but fundamentally neorealist approach can be seen in Figure 10 below.

“Hiding in Plain Sight” argues that the combination of *Basic Plan 2016* and the revised Security Guidelines could herald a fundamental change in Japan’s security that represents the vanguard of a broader transformational process of Japan’s strategic defense posture. According to this analysis, Japan may indeed be moving toward a policy of increasingly open deterrence and containment of North Korea and China. This also involves cessation of hedging and making game-changing contributions to U.S.-Japan military cooperation and strategy. Last but not least, this analysis asserts that the through the militarization of space, it is possible to say that Japan may finally be at a departure point from the Yoshida Doctrine.⁹³

Figure 10: Kallender-Hughes Neorealist Model



To prove these claims, the paper tests neorealist, liberal and constructivist approaches and combines them into a framework that set out the expected drivers and proxy indicators of change and continuity in security trajectory and how these are in turn manifested in Japan’s Yoshida Doctrine. This framework is summarized in Table 2, below.

“Hiding in Plain Sight” argued that, because for over forty years since 1969 and the PPR, space policy was paraded as a paragon of self-imposed restraints on remilitarization, Japan’s space programs can be seen

⁹² Paul Kallender and Christopher W. Hughes, “Hiding in Plain Sight: Japan’s Militarization of Space and Demise of the Yoshida Doctrine,” under editing at *Asian Security*; Peoples (2013), pp.135-143; Johnson-Freese and Gatling (2004), pp. 538-552; Suzuki (2007); Aoki (2008); Aoki (2009), pp. 363-438; Moltz (2012), pp. 43, 63; Hughes (2009), pp. 48-50; Pekkanen & Kallender-Umezu (2010); Kallender-Umezu (2013), pp. 28-34; Hughes (2013), pp. 128-134.

⁹³ Samuels (2006), p. 118.

as a “hard test” case for assessing shifts in security policy; that the pace and importance of the changes during the past two decades, accelerating the last seven years and culminating in Japan’s recently published explicit military space strategy in *Basic Plan 2016* overturns the view of essential continuity in Japanese security policy.⁹⁴

Table 2: Central Tenets and Baselines of Change for the Yoshida Doctrine and the Impact of Japan’s Space Militarization

| YOSHIDA DOCTRINE’S CENTRAL TENETS | JAPAN’S MILITARIZATION OF SPACE AND IMPACT ON CENTRAL TENETS OF THE YOSHIDA DOCTRINE |
|--|---|
| Assessment of international security environment | |
| <ul style="list-style-type: none"> USSR capabilities and intent primary security concern; China’s capabilities secondary concerns Regional security dilemmas stable Confidence in non-abandonment by U.S. Concerns primarily over entrapment by U.S Japanese minimalist military commitment to U.S. feasible | <ul style="list-style-type: none"> China’s space capabilities and intent primary concern (“ASAT shock”, A2/AD in space), North Korea’s ballistic missile capability (“Taepodong-shock”) and intentions secondary Japan-China upward security dilemma/arms race in outer space Concerns of abandonment by U.S. due to alliance capability asymmetries in outer space Reduced concerns over entrapment by U.S. Japanese strong military commitment to U.S. essential in space |
| Japan’s national military capabilities | |
| <ul style="list-style-type: none"> Exclusively defense-oriented defense Limited capabilities for deterrence by denial; no power projection/offensive capabilities for deterrence by punishment Highly limited militarization of outer space Non-nuclear defense posture Defense budget limited to 1% GNP | <ul style="list-style-type: none"> Proactive defense posture in space (Basic Space Law 2008, Basic Space Plans 2009, 2013, 2015, 2016; JMOD Basic Space Plans 2009, 2014; NSS 2013; NDPG 2010 & 2013) Power projection/offensive capabilities acquired in space (GPS/QZSS; JDAM targeting; ASAT counterspace; global strike) Comprehensive militarization and triad of space capabilities (space-based ISR, MDA SIGINT, ELINT, GPS, SSA, ASAT, BMD) Space solid-fuel delivery, re-entry vehicles and targeting systems enhance recessed nuclear option Defense budget increased outside one percent GNP by expanding dual-use space budget |
| Degree of Japan’s security commitments to U.S. | |
| <ul style="list-style-type: none"> Restricted bilateral strategic cooperation with U.S.; avoidance of entanglement Defensive responsibilities restricted to Japan Non-integration of JSDF and U.S. military capabilities No transfer/sharing of military technologies Non-exercise of collective self defense Obfuscation of military commitments and hedging tactics | <ul style="list-style-type: none"> Enhanced bilateral cooperation and conjoining of strategy in space (U.S.-Japan Comprehensive Space Dialogue, revised U.S.-Japan Defense Guidelines 2015) U.S.-Japan space cooperation enhances bilateral alliance deterrence perimeter in East China Sea and South China Sea “Seamless” integration of U.S.-Japan capabilities in space (BMD, QZSS, MDA, SSA) Transfer and sharing of space technologies (BMD) Exercise of collective self-defense facilitated and obliged by bilateral space capabilities and cooperation, especially precipitated by BMD Space capabilities and alliance commitments on frontline of deterrence against China and cessation of hedging |
| Degree of alignment of policy-makers in security policy | |
| <ul style="list-style-type: none"> Fragmentation of central control over security policy Party political contestation over security policy, especially LDP versus opposition parties Political-bureaucratic contestation over security policy Civilian control dominates over defense bureaucracy and strong bureaucratic inter-jurisdictional rivalries Defense-industrial interests restricted influence on security policy | <ul style="list-style-type: none"> Centralization of security policy-making for space under Cabinet Office, SHSP, ONSP, SPC, NSC. JAXA moved from MEXT to ONSP control Party policy convergence over security policy and space; LDP-DPJ consensus on militarization of space Political influence increases vis-à-vis bureaucratic interests in security policy-making for space. LDP exerts dominance over bureaucrats Civilian control reduced over defense bureaucracy and weaker inter-ministerial rivalries. MEXT-METI-JMOD enhanced cooperation under Cabinet Office direction Defense-industrial interests converge to influence security policy-making for space. Keidanren prioritizes militarization of space; MHI, Melco, KHI strong proponents of military space policy |
| Degree of durability of security policy norms | |
| <ul style="list-style-type: none"> Anti-militaristic principles Restrictions on the export of arms and military technology (1967 and 1976) Three Non-Nuclear Principles (1967) PPR space (1969) Civilian control Ban on the exercise of collective self-defense 1% GNP defense expenditure | <ul style="list-style-type: none"> PPR abandoned as anti-militaristic principle/norm. National Diet consensus on Basic Space Law 2008 PPR abandoned as anti-militaristic principle/norm Public support of JSDF military activities in space, including BMD and other activities |

The key evidence for this is was placed in an argument stressing how the commitments instituted in *Basic Plan 2016* constitute, through the latent force multiplier potency of space technologies, combined with new SDF capabilities, to constitute the fruition of the “rich nation, strong army” technology-centric strategy (proposed by Samuels) that will give Japan far more military potential than is commonly realized. Thus, space technologies, “hiding in plain sight,” give Japan the ability to break out from its previous

⁹⁴ Uchū Kaihatsu Senryaku Honbu, Uchū Kihon Keikaku, 9 January 2015.

security paradigm should it feel the need to, for example in the face of a major security shock, and/or a major deterioration in relations with China, and/or the beginning of an arms race, or even, for example, deeply held concerns of a future partial abandonment by the U.S.⁹⁵

The article does not, however, address Levels 4, 5 and 6 in detail. By not examining internal decision-making structures and processes inherent in space policy transition, “Hiding in Plain Sight” chooses to ignore the fact that *Basic Plan 2016* makes small advances in terms of SSA but almost minimal advanced in MDA, and is heavily watered down compared to demands made by LDP defense hawks.

In conclusion, then, it can be said that each and every one of the approaches discussed in this chapter can give frameworks of varying utility to interpret *some* important facets of Japanese space policy transition, but *none* of the approaches encompass a framework that takes into account *all* the major actors and inputs, motivations, goals and relationships, and connections between the international political and security situation with all the multiple players and their objectives. The task ahead, then, becomes, how do we fit all the pieces of the jigsaw together, and into what sort of frame?

⁹⁵ For example, space technologies can be used as force multipliers to help what are already qualitatively significant improvements to conventional forces as outlined in Chapter 1. For the classic formulations of Japanese dual-use civilian-military technology, see Samuels (1994); Chinworth (1992). On Japan’s use of “paramilitary” force to perhaps disguise a bolstering of Japan’s armed force, see Samuels (2007/2008), pp. 84-112. For an analysis of RMA’s importance, see Posen (2003), pp. 12-14.

Chapter 3

The Strategic Action Field Framework Model

As the issues with the various approaches examined in Chapter 2 indicated, the essential argument of this dissertation is that it is analytically unhelpful to try to make sense of the transition of Japanese space policy between 1969 and 2016 without taking into account the influence of decisions of actors and stakeholders taken at six, seven, or even at eight levels. The utility of the SAF framework is that it holistically seeks to understand the motives and behaviors of actors and stakeholders within a framework that accounts for interconnected decision-making, *and*, simultaneously, logically examines how decisions within the layers set up subsequent reactions up and down (or through) interconnected decision layers.

To analyze and contextualize space policy transition over time, an adapted version of the recent Theory of Fields framework developed by Fligstein and McAdam, the SAF framework, is proposed.¹ At its simplest, the SAF framework used in this dissertation puts each decision-making level into a matrix of interconnected SAFs, each with their own players and behavioral logics. This framework is utilized to deal with all the inputs and conflicts between stakeholders that account for *when*, *why*, and *what* was decided in policy and institutional change. Because the SAF framework inherently accounts for changes happening in a series of phases, the roles of each player, and their behavior in each SAF, and the behavior of that SAF, and its relationships with other SAFs, all become logically explainable and understandable. See Figure 11 for a visual representation of an SAF.

Figure 11: Basic Strategic Action Field



Why SAFs?

Perhaps figure 11 looks rather woolly at first sight. Put simply, an SAF is community in which actors, which, in the framework are called *players*, interact with knowledge of one another under a set of common understandings about the purposes of the field, the relationships in the field (including who has power and why), and the field's rules. SAFs therefore draw attention to the ways in which organizations (which can include institutions, lobbies, trade associations, ministries, corporations, political pressure

¹ Fligstein & McAdam (2011, 2012).

groups, powerful leaders, labor unions, political parties, etc.) intersect with other players, thereby creating a field or context (an SAF field) for explaining stability and change in society.²

Overall, the SAF framework holds that all collective actors, including organizations, clans, supply chains, social movements, and governmental systems, etc., are made up of SAFs. The basic construct is the SAF itself. SAFs are frameworks that can be analyzed to study the competitive behavior of actors in arenas. SAFs can comprise of interlinked and hierarchical SAFs, with some SAFs embedded in others, resulting in what can be simple or dense, or multilayered, and *interlinked* arenas.

A simple example of an SAF might be a department in a global enterprise. This department is located in a division in the company, but it is also linked independently or interdependently with government regulatory bodies, trade associations, suppliers, etc. The department interacts in a larger field with its competitors and challengers (bodies or organizations that might help or impede or stimulate its functions in some manner) which are themselves embedded in an international division of labor, each constituting SAFs of their own.³

Antecedents to the SAF Framework

The SAF framework and the conception of SAFs build on the work of economic sociologists, institutional theorists, and social movement scholars. In looking at the sources and motivation for Fligstein and McAdam's drawing up of the SAF framework, we can say that it is, broadly speaking, an attempt by social scientists of the institutionalist and organization behaviorist schools to explain how and why players behave in a certain manner in a group or groups.

Antecedents to the SAF Framework

The SAF framework builds on various organizational and institutional theories looking at the behavior of players. However, the SAF framework's first point of departure from prior theories is in placing players in groups or fields (rather than just institutions or organizations) in which they related to other players. In this framework, the position in the field of a particular stakeholder (player) indicates the potential for a force exerted on the player, which is given motivation to act, affecting that structure and impacting or causing reactions from other players in the SAF, or in other SAFs. An understanding of motivation and a framework for understanding different actions and behaviors is therefore important to understand how SAFs work and how (and when, and why) changes occur.⁴

Neoinstitutionalism in the 1990s forms a major precursor to the SAF framework, although antecedents using sociological ontology stretch back to the late 1970s with the work of Giddens. In Giddens' theory of structuration, agents (people, institutions) regulate their actions drawing on preexisting structures and systems of power, and seek social stability. But when trust breaks down between actors or organizations, changes occur through the agency of actors. While very useful in starting to explain changes in stakeholder behavior, the theory was deemed insufficient by Fligstein and McAdam

² Fligstein & McAdam (2011), p. 3.

³ Fligstein & McAdam (2012), pp. 3-7.

⁴ John Levi Martin, "What Is Field Theory?" *American Journal of Sociology*, Vol. 109, No. 1 (July 2003), pp. 1-49.

because Giddens' approach did not deal with the issues of collective action and the motives and the role of relationships between players or groups or stakeholders.⁵

In another antecedent of the SAF framework, Bourdieu proposed a theory of fields and combined it with a theory of action that explained how networks, structures, or sets of relationships affected the behavior of actors. But in his theory, actor behavior was not codependent and tended to be maximizing within narrow constraints. In Bourdieu's world, actors with varying resource endowments vie for advantage, but there was no discussion on relationships with related fields and, again, little discussion of collective action.⁶

The SAF framework also heavily borrows from neoinstitutionalists such as DiMaggio and Powell, Meyer and Rowan, Scott and Meyer and Zucker. These authors have all proposed that organizational behavior is deeply embedded in a wide array of social and political environments, and such groupings, as described in various studies have some similarities to SAFs. For example, Scott and Meyer used the term "sector" to describe collections of interconnected actors that could affect the behavior of a particular organization or organizations. DiMaggio and Powell argued that organizations facing uncertain problems will be affected by different external forces and behave differently depending on the sets of circumstances and opportunities.⁷

Others have researched how networks functioned to shape the relations between organizations embedded in them, for example leading to interdependence, trust and collusion. On the other hand, Social Movement Theory, which seeks to understand why changes occur in society, does succeed in explaining the dynamics of how conflicts emerge and how organizations change, but fails to account for how and why conflicts settle.⁸ Table 4 below shows some of the major antecedents to the SAF framework.

Some neoinstitutionalist approaches seem to be useful in examining multi-stakeholder bureaucratic behavior. For example some approaches have stressed how some organizations can be *entrepreneurial* within the internal market of their organizational fields. Within this "market logic," within a competitive organizational field, institutions are constantly to try to shape the rules of the contest. In this, certain more powerful organizations are liable to want to influence the field and change the rules of the game to enhance or preserve their advantage(s). But, while such "entrepreneurial" organizations need to lobby and build consensus within their organizational fields to create new policy logics, even the most powerful

⁵ Anthony Giddens, *Central problems in social theory: Action, structure, and contradiction in social analysis* (Berkeley and Los Angeles, CA: University of California Press, 1979); Giddens, *The constitution of society: Outline of the theory of structuration* (Los Angeles, CA: University of California Press, 1984).

⁶ Pierre Bourdieu and Loic J. D. Wacquant, *An Invitation to Reflexive Sociology* (Chicago: University of Chicago Press 1992); Ronald L. Jepperson, "Institutions, institutional effects, and institutionalization," pp. 143-63, in (eds.) Walter W. Powell and Paul J. DiMaggio, *The New Institutionalism in Organizational Analysis* (Chicago: University of Chicago Press, 1991).

⁷ Paul J. DiMaggio and Walter W. Powell, "The iron cage revisited: Institutional isomorphism and collective rationality in organizational fields," *American Sociological Review*, Vol. 48, No. 2 (April 1983), pp. 147-160; John W. Meyer and Brian Rowan, "Institutionalized Organizations: Formal Structure as Myth and Ceremony," *American Journal of Sociology* Vol. 83, No. 2 (September 1977), pp. 340-363; John W. Meyer, and W. Richard Scott, *Organizational Environments: Ritual and Rationality* (London: Sage, 1983); Lynne G. Zucker, "The Role of Institutionalization in Cultural Persistence," *American Sociological Review*, Vol. 42, No. 5 (October 1977), pp. 726-743. See also, Edward O. Laumann, David Knoke, *The Organizational State: Social Choice in National Policy Domains* (Maddison: University of Wisconsin Press, 1987).

⁸ John D. McCarthy and Mayer N. Zald, "The Trend of Social Movements in America: Professionalization and Resource Mobilization (Morristown, NJ: General Learning Press, 1973); John D. McCarthy and Mayer N. Zald, "Resource Mobilization and Social Movements: A Partial Theory," *American Journal of Sociology*, Vol. 82, No. 6 (May 1977), pp. 1212-1241; Doug McAdam and Hilary Boudet, *Putting Social Movements in Their Place: Explaining Opposition to Energy Projects in the United States, 2000-2005* (New York: Cambridge University Press, 2012).

actors in the field in cannot easily impose new norms and logics on a field unless such new norms are accepted by other important actors.⁹

As pointed out in Chapter 2, neoinstitutionalist-based approaches assert that organizations follow rules, and these rules form the critical governing logic controlling motivation and behavior. The SAF framework also recognizes this. But the SAF framework also asserts that the behaviors of institutions can be nailed into an overall framework that explains and predicts actions that can be applied across different sectors of activities.¹⁰ But while conventional institutional logics-based analysis focused on shared understandings between institutions and organizations in fields, Fligstein and McAdam maintain that prior studies of institutions and organizations have tended to ignore the *dynamism* (or instability) lurking, or hidden, or *inherent* in any arena (i.e. SAF). While institutional theory has focused on explaining order and reproduction, the SAF framework sees SAFs as always *ripe for contestation* and *dynamic*.

In the SAF framework, SAFs contain actors and institutions (players) that, if not constantly jockeying for position, will do if given the chance. Players (stakeholders, etc.) make moves to secure advantage or protect their positions and other players have to interpret them, consider their options, and react in response. Players are constantly monitoring each other and considering their own position and advantage. Less and more powerful players make constant adjustments given their position and the actions of others. Less powerful players may take any number of actions to try to even marginally improve their positions in the field.¹¹

Also, in SAFs, as Fligstein and McAdam stress (see below), understanding the *origins* and *emergence* of the formation of the field is critical to understanding the role of agency in the field, of power, and conflict, interests and resources, or positions relative to each other. Fligstein and McAdam argue that *understanding field formation* is crucial to understanding how fields might change, or react to stresses placed on them, or how stresses emerge within them. To Fligstein and McAdam, because earlier studies often do not thoroughly analyze how a field emerged, such approaches are inadequate and they “cannot even account for the piecemeal changes that we expect in the constant playing of the game as conditions change within a field or between fields.”¹²

Further, for Fligstein and McAdam, while organizations (players) in fields do follow scripts, every single aspect of their behavior cannot not determined by, and cannot be entirely accounted for, by those scripts. Player behavior is not solely path-dependent, but is dynamic. Crucially, behavior is conditioned by the impact of new challenges that can cause the formation of new behavior, all contextualized by a *broader field environment* (see below). “If a field is really an arena in which individuals, groups, or organizations face off to capture some gain as our view suggests, then the underlying logic of fields is not

⁹ Paul J. DiMaggio and Walter W. Powell, “Interest and Agency in Institutional Theory,” in *Institutional Patterns and Organizations*, (ed.) Lynne G. Zucker (Cambridge, MA: Ballinger, 1988), pp. 3-12; Neil Fligstein, “Social Skill and Institutional Theory,” *American Behavioral Scientist*, Vol. 40, Issue 4 (February 1997), pp. 397-405; Olivier (1991), pp. 145-179.

¹⁰ Policy logics are defined in Roger Friedland and Robert Alford, “Bringing Society Back In: Symbols, Practices, and Institutional Contradictions,” in Powell & DiMaggio (1991), pp. 232-63.

¹¹ Friedland and Alford (1991), pp. 232-266; Scott (2014), p. 56; Neil Fligstein, *The Transformation of Corporate Control* (Cambridge, MA: Harvard University Press, 1990); Paul DiMaggio and Walter W. Powell, “Introduction,” pp. 1-40, in DiMaggio & Powell (1991); Bourdieu and Loïc (1992); Jepperson (1991), pp. 143-63; Mustafa Emirbayer and Victoria Johnson, “Bourdieu and Organizational Analysis,” *Theory and Society*, Vol. 37, No. 1 (February 2008), pp. 1-44; Martin, (2003); Paul Sabatier, (ed.), *Theories of the Policy Process* (Boulder, CO: Westview Press, Second Edition, 2007); Edward O. Lauman and David Knoke, *The Organizational State: Social Choice in National Policy Domains* (Madison WI: The University of Wisconsin Press, 1987).

¹² Fligstein and McAdam (2012), p. 29; DiMaggio (1988), pp. 143-163.

encoded in the structure of the network but in the conceptions of power...resources, rules, and so on that shape action within the strategic action field.”¹³

Table 3: Some Direct Antecedents to Strategic Action Theory

| Theory | Focus | Proponents | Insufficiencies |
|-----------------------|--|--|--|
| Sectors | Organizations | Scott and Meyer 1983 | Static: Sectors are fields containing all of the organizations that might affect a particular organization, |
| Institutional logics | Intuitions | Friedland and Alford (1991) Scott (2001) | Static: Focus on how consensus forms and is upheld, fails to account for actors’ positions, the creation of rules in the field that favor the more powerful over the less powerful, and the general use of power in strategic action fields. Fails to account for potentially oppositional positions of actors and ways in which different actors in different positions will vary in their interpretation of events and respond to them from their own point of view. |
| Organizational fields | Organizations | DiMaggio and Powell | Identifies three kinds of forces driving organizations in fields toward similar outcomes, what they call mimetic, coercive, and normative isomorphism. Organizations respond to change by trying to suppress uncertainty: explains conformity and stability but does not question how fields emerge or change |
| Institutional Theory | Organizations | Jepperson (1991) | Static: Constructivist view that actors are dominated by shared understandings to reinforce stasis; does not deal with change |
| Fields | Sociology of actors & individuals competing for power | Bourdieu and Wacquant (1992) Emirbayer and Johnson (2008) | Fields, which might be networks, structure or set of relationships which may be intellectual, religious, educational, cultural, in which various social and institutional arenas in which actors compete for the distribution of different kinds of capital. Actors with varying resource endowments vie for advantage: no discussion on relationships with related fields; focus on relationship of individual actors, little discussion of collective action, etc. |
| Field Theory | Sociology of actors in groups, motivation behind actions in those groups. | Martin (2003) | Individual behavior exists in the context of a field and the position of the individual in the field indicates the potential for a force exerted on the individual, who is given motivation to act, affecting that structure; motivation is therefore important as opposed to chance. Static, based on individuals not organizations. |
| Networks | Groups of related companies or organizations | Powell et al. (2005) | Models relationships between actors within a field; networks shape the relations between, organizations embedded in them but fails to analyze the shared (or contested) understandings that inform and shape their actions. |
| Policy domains | Governmental institutions | Laumann and Knoke (1987) | A national policy domain’s power structures are composed of multiplex networks among formal organizations, not elite persons. These connections enable opposing coalitions to mobilize political resources in collective fights for influence over specific public policy decisions. |
| Structuration | Sociological study of actors seeking security in rules and resources (power and capital) | Giddens (1979, 1984) | Focus on individuals, change occurs when trust breaks down, no theory of collective action |

Source: Author’s own interpretation

¹³ Ibid., p. 29.

With this in mind, in general, the SAF framework seems to have utility for explaining transformation of policy that requires argument and conflict on several levels of decision-making, because the framework inherently recognizes the potential for change within each layer of decision-making, between the layers, and up and down the layers. For example, the SAF framework allows for the fact that decisions in one layer of the decision tree may affect other layers, and that they also cause reactions in the other layers, which then cause further reactions.

But rather than creating a mess of inputs and outputs, rather like a cascade of reactions that appear tangled and difficult to interpret, the SAF approach provides a framework where it is possible to see the rationality and logic of decisions (outputs). Those outputs then become inputs for following actions, and so on. Thus, the SAF framework contains and connects all the decision-making levels and deals with changes (perhaps best described as rolling series of changes) over extended periods of time and in a series of scenarios, each rolling on from the next, all of which can be examined and explained holistically.

Simple characteristics of SAFs

In a nutshell, an SAF could be compared to an arena for recurring games. As an analytical tool, SAFs are defined as fundamental units of collective action in society. SAFs are constructed as analytical arenas within which stakeholders (players) with varying resource endowments vie for advantage. SAFs may have fixed or shifting boundaries depending on the definition of the situation and the issues at stake. SAFs are constructed (or emerge or change to a greater or lesser degree) as shifting collections of players within them and in related SAFs. The behavior of players, and changes in their behaviors, turn on sets of understandings fashioned over time by members of the field. Thus, SAFs contain groups of players that are related to and interact with one another on the basis of shared, sometimes conflicted, and sometimes consensual relationships within the SAF.

This principle can be extended to other SAFs so that SAFs are linked, with some SAFs more intricately connected to others. The key variable is the dynamics of the power struggles between players, which are inherent in SAFs, and between SAFs. The importance of interdependence between players in a SAF, and between SAFs, cannot be overstated. Further, the nature of the interdependency, or lack of it, and the nature of the ties between SAFs constitute one of the main sources of change and stability in all fields.¹⁴

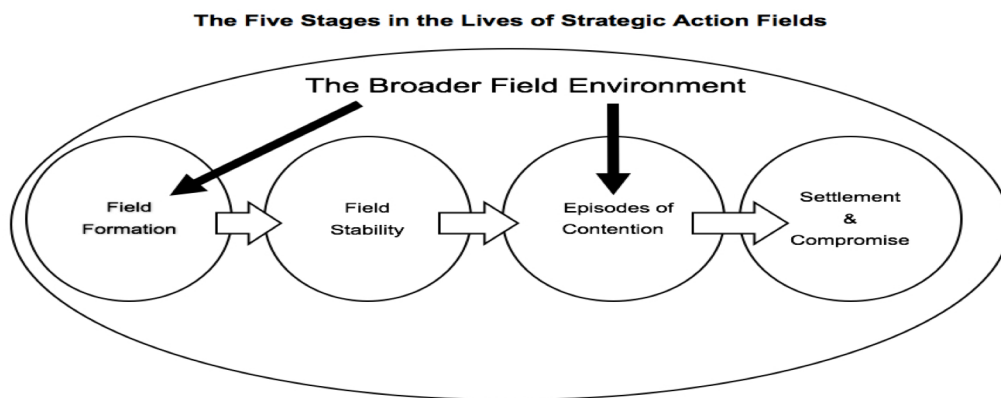
In the wider framework, which Fligstein and McAdam call their Theory of Fields, the theory is composed of seven elements that serve as a framework for understanding how players behave and respond

¹⁴ The description of the construction and characteristics of SAFs in the following paragraphs is adapted from Fligstein & McAdam (2012), pp. 8-23.

to changes and challenges to any given *status quo* position within a SAF, and then between SAFs. Those elements are:

1. The SAFs themselves, which act as the arenas in which power struggles take place (or don't).
 2. The players (actors/stakeholders).
 3. The "social skill" or parameters for action, motivations and abilities of the stakeholders to act.
 4. The "broader field environment" and broader externalities that may affect the behavior of stakeholders in a particular SAF or SAFs.
 5. The role of exogenous shocks, and what the authors call "the onset of contention," or changes external (or, indeed, internal) to a SAF or SAFs that can cause change within it and in other related SAFs.
 6. "Episodes of contention," in other words, power struggles set off by shocks.
 7. "Settlement," or the reshuffling of power arrangements within a particular SAF and/or related SAFs.
- Figure 12 shows the "lives" of SAFs.

Figure 12: The Lives of SAFs



General Rational Actor Rules for SAFs

Fligstein and McAdam applied a rational actor behavioral analysis model to the motivations of players within SAFs to construct the following general rules, so that in SAFs for players:

1. There is a general, shared understanding of what is going on in the field, that is, what is at stake. Thus, there is a broad interpretive frame that players bring to make sense of what other players within the SAF are doing. When a field is settled, there is a consensus about the parameters of actions among players, but those players may not view the division of spoils in the field as legitimate.
2. There is a set or sets of players in the field that can be generally viewed as possessing more or less power, and that players know who their friends, their enemies, and their competitors are because they know who occupies those roles in the field.
3. That there is a set of shared understandings about the nature of the "rules" in the field so that players understand what tactics are possible, legitimate, and interpretable for each of the roles in the field. Players therefore agree on the rules that govern their interaction and these rules can be both formal and informal.
4. Regarding agency, each player has different interpretative frames reflecting the relative positions of players within the SAFs. Players will tend to see the moves of others from their own perspective in the

field. This implies that players may come into a field with different, perhaps conflicting, ways of understanding goals and objectives of a particular policy.

5. In most fields, dominant and or incumbent players will embrace a frame of reference that encapsulates their self-serving view of the field, while dominated or challenger players will adopt/fashion an “oppositional” perspective. The reactions of more and less powerful players to the actions of others thus reflect their position in the field.

The SAF framework therefore looks at the organizational dynamics of, and the agency of fields, or, more specifically, the process of competitive engagement in which collective actors/stakeholders vie and jostle for advantage within SAFs. Players are embedded in a division of labor within their fields and they share a collective understanding of their positions and objectives. SAFs, then, are also arenas in which external shocks or new entrants cause incumbent players to reconfigure their roles, which can produce a gradual merging of interests to new goals amid a concurrent change in the structure of SAF itself.

Agency

In terms of discussing agency, the SAF framework looks at the motivations of institutional actors as players based on the following aspects:

1. What is at stake; which players are powerful and what position they occupy in terms of the understood rules of the field.
2. What are the tactics available in competition
3. The frame in which players tend to interpret the motivations of competitors from their own perspectives.¹⁵

In this construct, the dynamics of players are characterized in terms of *incumbents*, *challengers*, and *governance* players. Incumbents rule the roost, and dominate the frame of competition. Challengers wield little influence, but, recognizing the dominant logic of incumbent players, articulate an alternative vision, while outwardly at least conforming to the prevailing order. Governance units tend to uphold the prevailing order. We will discuss this in more detail below. Overall, the prevailing norms of the system within the field competing organizations operate in govern the parameters of both incumbents and challengers.¹⁶

The utility of this model when studying the behavior of institutions (for example MEXT or METI, etc.) is that the SAF framework holistically takes into account the expected behaviors of clusters of interrelated players to given inputs, but that it also sees these relationships as dynamic over time, rather than static or one-shot deals (see the *Formation, Stability, Contestation and Settlement* section below). As noted, there is often jockeying for position between players in a field as a result of their *contested* nature. Under certain circumstances, then, there is, then, jockeying *between* fields.

Further, SAFs can be arrayed along a continuum between SAFs that may *appear* settled, but may contain widespread dissent and conflict, or the potential for such, within them. Because of this, even apparently stable fields or clusters of fields contain the potential for change if some sort of disruption occurs. Disruption in (even one part of) one SAF can then disrupt proximate or even more distant SAFs.

¹⁵ Fligstein & McAdam (2011), p. 4.

¹⁶ Ibid. pp. 7-8.

If there are outside disruptions to the field, or if the relative power of players is equalized, for example, there may be a good deal of jockeying for advantage if the shared meaning of the field is challenged. Conflict can break out, and the very structure of the SAF may be up for grabs, so that it is possible for a whole new order to appear with a redefinition of the positions of the players, the rules of the game, and the overriding ends of the SAF. The SAF framework, then, seeks to understand how order was established, and how stability is contested; and how SAFs journey from formation to stability, through contention, and onto (partial/contested/temporary) settlement. Thus, SAFs are expected to exist in a state of flux, as the process of contention is often (usually) ongoing and threats to the current order are always present to some degree. To summarize, in terms of placing behavior of actors in SAFs, those behaviors can be characterized along the following general rules:

1. SAFs are dynamic; there are always contests or potential contests bubbling underneath the most stable field that can be set off by disruption to one or more players in a SAF or in a proximate SAF.
2. SAFs are embedded in a broader network of proximate fields, as themselves organized as intricate systems of SAFs.
3. Both the stability of and the propensity for change, and the dynamics of change, lay both in the internal dynamics of a SAF or SAFs and their relationships with other SAFs and the broader environment.
4. Changes in SAFs often or even normally occur as a result a result of destabilizing change that develop within proximate SAFs.

2. *The Players (Actors/Stakeholders)*

The key internal dynamics of SAFs are mediated through players. As noted, Fligstein and McAdam define players in SAFs into three categories: *Incumbents*, *challengers*, and *governance units*.¹⁷ Positions in SAFs are defined by the relative power of players based on the power distribution within the SAF. Incumbents wield disproportionate influence. Often the purpose and structure the SAF are adapted to the interests of the incumbents. The parameters for sets of actions and behaviors of players within SAFs, the rules, tend to favor incumbents. Challengers occupy less privileged positions and usually wield little influence over the SAF's operation. While they recognize the nature of the field and the dominant logic of incumbent players, challengers also can usually articulate an alternative vision of the field and their position in it. Most of the time, challengers can be expected to conform to the prevailing order, although they often do so grudgingly, taking what the system gives them and awaiting new opportunities to challenge the structure and logic of the system.

Governance units can be seen as either neutral players, or overseeing compliance with the field's rules and, in general, facilitating the overall smooth functioning and reproduction of the field. These governance units can be *internal* in the SAF and distinct from *external* structures that hold jurisdiction over all, or some aspect of, the SAF. In an industrial sector, these many be, for example, trade associations. In a very simple and important way, the various attempts by politicians and some civil servants to bolster the power of the Cabinet Office in space policy and budgeting over the power of over ministries could be called an attempt to introduce a more effective governance unit.

Further, in the SAF framework, the position of governance units is more nuanced and not neutral. Governance units tend to reflect the influence of the most powerful incumbents in the field. A little bit counterintuitively, Fligstein and McAdam assert that the function of governance units often is *not* to serve

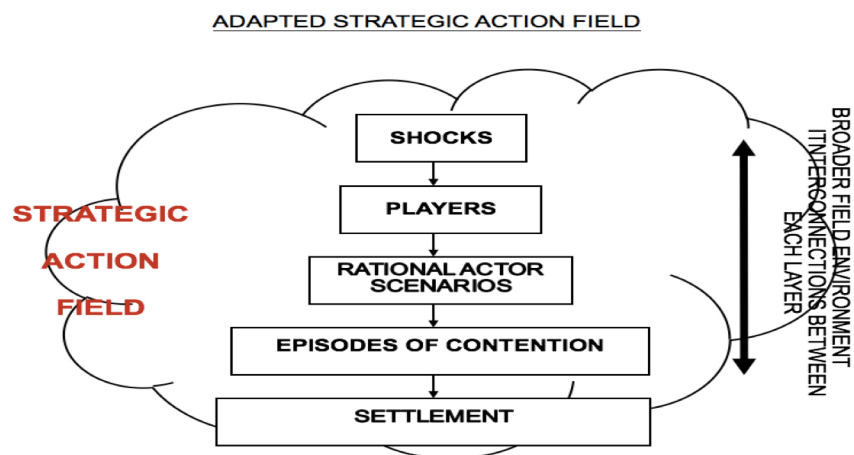
¹⁷ Fligstein & McAdam (2012), pp. 13-14.

as neutral arbiters of conflicts between incumbents and challengers. Rather, their function is, often, to reinforce the dominant perspective and guard the interests of the incumbents. Governance units generally do this in three ways:

1. By overseeing the smooth functioning of the system, freeing incumbents from management and leadership that they may have exercised during the emergence of SAF.
2. By legitimizing the *status quo*, and the extant prevailing behavioral logic, positions of actors and their relationships, and the prevailing rules of the field.
3. By, for example, serving as a liaison between the SAF and proximate SAFs, with the implication that such behaviors or actions are to prevent, forestall or sublimate conflict.

Thus, typically, in the SAF framework, governance units serve as defenders of the *status quo* and are a generally conservative force during periods of conflict. Fligstein and McAdam assert that internal governance units are a unique element that the SAF framework brings to institutional conflict models based on rational actor frameworks. Taking all these new points into account and summarizing them for clarity, Figure 13 shows how we can order some of the relationships of the players.

Figure 13: Adapted SAF for Japan Space Policy and Institutional Change



Source: Author's own schema of an operational SAF, adapted from Fligstein & McAdam (2012).

3. Social Skill & Strategic Acton – Motivational Matrix

In their original theory, Fligstein and McAdam took a sociological ontological approach to explaining the role of players in social life, resting on cultural factors, and focusing on motivations, winners and losers. However, in space policy and institutional change, we will see that (and how) certain individuals (particularly politicians and activist civil servants) played identifiably important empirical roles in space policy transition and in critical decisions, actions and policies. Therefore the positions, motivations, logics and scope and parameters for actions (limits on the impact of their agency) of players, (also in the case of activist challenger politicians), are inextricably linked to how well or how much they can force ministries to modify their behavior. That is to say, the crux or crucible of analysis will often be in SAFs that describe bureaucratic and political interaction.

The SAF framework squarely contextualizes the constraints on the behaviors of players as embedded in a larger matrix, i.e. relationships with other fields. For analytical simplicity, the adapted SAF framework used in this dissertation calls concerted (impactful) behavior, or a series of actions by a particular player or players to affect changes in the SAF as *innovative* and/or *strategic action*. Strategic action can take many forms. It might be a bid by one player to change the behavior of other players in a particular SAF, or; to try to take control of an SAF; or to forestall the loss of control against a threat, and so on.

Innovative action is generally understood in this dissertation as an attempted precursor to attempted strategic action. In more conventional terms, innovative action could be something close to *nemawashi* (preparing the groundwork, setting out the stall, gathering allies and developing the means) to try to exert more profound or impactful change, i.e. leading to or preparing for strategic action. Both innovative and strategic action involve players, that, given a chance, try to change the rules of the game or act in some way to maximize their gains. In this way, viewed from a more traditional neoinstitutionalist approach, we can say that the logics of appropriateness and consequences are embedded in the function of interactions with other actors and other fields. Within a competitive organizational field or SAF, players – be they politicians or institutions or lobbies (or, as is often the case in space policy transition, the U.S. government) – try to shape the rules of the game. Challengers need to lobby and build consensus within their SAFs to create new policy logics.

Yet, crucially, Fligstein and McAdam assert that even the most powerful players cannot easily impose new norms and logics on a field unless they are accepted by other important players.¹⁸ Thus innovative action of some kind is usually required as a prerequisite to strategic action that will be attempted by players to create and sustain new forms of collective action by securing the cooperation of others.

Further, within SAFs, there is another important tendency that borrows from neoinstitutionalism. In the SAF framework, more powerful (incumbent) players in incumbent groups help to produce and reproduce a *status quo*, aided by the *status quo*. In emergent or unsettled SAFs, the task for skilled strategic players is to gain advantage over others, for example help them build coalitions able to organize the field, or to use their superior resources to produce (or reproduce) a hierarchical field. The most important point is that players that undertake strategic action must be able to use whatever tactics they have developed in an intersubjective enough fashion to secure the cooperation of other players. This kind of skill enables players to transcend their own individual and narrow group interests as a prerequisite for shaping a broader conception of the collective.¹⁹

4. The Broader Field Environment- The State as a Collection of Interdependent SAFs

The SAF framework has utility over two-level games or institutional logics-constructivist frameworks because virtually all of the previous work on fields focuses mainly on the internal functions of these orders, often depicting them as largely self-contained, autonomous worlds. As outlined earlier, the next distinctive central analytic feature of the SAF framework is the importance of linking, or embodying the SAF or SAFs in broader matrices of relationships with other SAFs, in other words, the *broader environment* within which any given SAF is embedded. SAFs are embedded in complex webs of other

¹⁸ DiMaggio, “Interest and Agency,” pp. 3-12. Fligstein (1997), pp. 397-405; Olivier (1991), pp. 145-179.

¹⁹ Fligstein & McAdam (2012), pp. 16-18.

SAFs, about which Fligstein and McAdam make distinctions. The first distinction they make is between *distant* and *proximate* fields. This distinction holds that proximate SAFs are those with recurring ties to, and whose actions routinely affect their “neighbors.” The most distant SAFs have the fewest ties and may have only occasional effects on more distant SAFs.

However, the second distinction, between dependent and interdependent SAFs, may be even more important, because this distinction captures the extent and direction of influence that characterizes the relationship between any two fields. A SAF that is largely subject to the influence of another is said to be *dependent* on it. This dependence can be via formal legal or bureaucratic authority. Then, third, when two linked SAFs exercise more or less equal influence over each other, we can say that they have *interdependent* relationships to one another. Also, some SAFs can be independent with some and dependent on others, depending on the situation.²⁰

States and Governments as Collections of SAFs

This framework is especially useful for looking at domestic relationships between decision layers within unit-level States when working with different actors. In the SAF framework, States (or, more particularly the governing apparatus of a country or State) can be characterized as dense collections of interdependent SAFs whose relations can be distant or proximate and, if proximate, can be nestled in *horizontal* or *vertical* relationships to one another. Thus the decision of a State in international negotiations is only the signature on a document put together by a myriad of interlinked SAFs in a dense system or systems of interdependent fields. This construction has obvious utility to discussing the framework of interlinked behaviors of actors and SAFs when attempting to understand the timing and content of particular agreements (and the negotiations that led to them) between Japan and the U.S.

The fundamental construction of a State, according to Fligstein and McAdam, is a collection of SAFs that govern action and make possible new forms of action (political SAFs) and bureaucratic and legal apparatus that enforce and adjudicate claims (bureaucratic SAFs). As States developed and expanded over a relatively long historical period involving the pacification of an area or region, or steps toward the political or administrative centralization of a territory, the growth of cities, the creation of bureaucracies, markets, etc., all involved (and continue to evolve) an ever-expanding network of SAFs. All these innovations will produce incumbents and challengers and will inevitably face internal governance issues, which could be called growing pains. This can be clearly seen, for example, in the growth of a vast subgovernance structure in Japan after the Second World War through the proliferation of agencies and organizations under the control of Japan’s central ministries and civil service.

In the SAF framework, the State, as conceived as a body that concludes binding agreements with other States, is internally supported, or at times undermined, by events in internal SAFs and nonstate SAFs. So, States, according to Fligstein and McAdam, are really just sets of SAFs in which players (politicians, bureaucratic actors, ministries, subgovernment implementation agencies and organizations, etc.) engage in political (or bureaucratic) strategic action towards defining new balances of power within SAFs and between SAFs. Thus, State SAFs will contain internal SAFs in which there will be struggles over the conferral of power, or conflicts over who controls new legal rights or protections, which will lead to the potential of more contention and conflict. As a State SAF adjusts to new circumstances, for example a major threat or challenge, there will be the possibility of the creation of new SAFs by groups

²⁰ Ibid., pp. 18-19.

or interests (new players, for example) seeking power or advantage in the new situation. Major challenges can be anything from an economic crisis, significant social unrest, or the pressure of a mass social or political movement (an extreme case would be a general strike or even a revolution), or a security pressure, a military emergency, an attempted coup, or the contested outcome of an election. Such challenges force State-level SAFs to fashion new governance systems, or regulatory or compliance systems to deal with them.

Therefore, just like any other SAF, State SAFs are also dynamic and contested. They may appear stable and settled, but in some cases a certain trigger can send a cascade of actions and reactions that can challenge, undermine, threaten, or destabilize the field. Also, generally speaking, when a pressure is exerted on a field, for example, or when a new SAF is forming, there is contestation about the new rules and balance of power within the SAF, and in turn, the relationship and role of that SAF within the state SAF. As a State develops new roles and faces new political, economic and social problems, the State evolves, leading to the further accretion of new and contested, interconnected SAFs as new groups make demands of it, resulting in the historical layering of the State as it seeks to create new forms of governance in response to particular crises, shocks or needs. Further, in the modern era, as economic, political and social complexities arise, the State SAF may be periodically or regularly challenged by multiple SAFs.

Thus, in the SAF framework, the State is definitely much more than unified actor. Rather, the State is a complex accretion of sometimes competing and sometimes cooperating SAFs which change, or accommodate new SAFs. Further, the SAFs within the State are dependent on their links to SAFs outside of the State. Further yet, not requiring war or revolution necessarily, State SAFs are always being challenged, particularly by non-state SAFs, whether they be social movements or economic interests, which will challenge political and bureaucratic SAFs to act to adjudicate, for example, in disputes. And, for example, non-State SAFs may challenge the legitimacy of state SAFs to exert authority or to govern in a particular way, resulting in the onset of contestation.

Implications for Bureaucratic Institutionalism

Viewing the State as a construction of myriad, often densely connected SAFs obviously has implications for the role of the bureaucratic levels of decision-making in our original scenario. In the SAF framework, as a whole, the bureaucracy can have a number of roles depending on the situation and the interaction of SAFs. Generally, for example, at the unit level of the State, the State's central bureaucracy can act as the State's internal governance unit, supporting the State against challenges by new SAFs. As a major SAF itself, the bureaucracy (in the form of Japan's central ministries in this dissertation) can act as an internal governance unit that provides routine administrative services, and as an information clearing house between outside SAFs and the political SAF layer, enforce or construct regulations and rules for the State, and monitor and control non-State SAFs, etc. Of course, under different circumstances, SAFs *within* the bureaucracy can act as incumbents, challengers or internal governance units, depending on the situation, especially, for example, when there is contestation within the bureaucratic SAF between incumbents, challengers and internal governance units.

5. Exogenous Shocks, Mobilization, and the Onset of Contention

The interdependence of SAFs implies that they are liable to be buffeted by actions both within them, and from proximate or even distant SAFs. Earlier, I alluded to the idea of a shock by one SAF on another as causing a cascade of reactions in other SAFs. The same applies within a particular SAF. A change in one SAF, then, can be the cause of changes rippling into (on, through?) other interconnected SAFs. Depending on the type and proximity (the relationships) between SAFs, those ripples may affect some SAFs and not others, setting up interference patterns.

Changes come in all sizes, and only rather large shocks are apt to send ripples of sufficient intensity to pose a real threat to the stability of proximate SAFs. Shocks can offer challengers opportunities to change their own power or position in an SAF, or even change the rules of the game within a SAF. However, as stated above, in settled SAFs, incumbents, generally speaking, will usually be well positioned to absorb, deflect, or subsume changes and challenges.

Saying that, an external shock to an SAF may also not necessarily lead to destabilization because challengers may have the perception that they cannot act because they feel the incumbents are too secure, for example. Also, incumbents, for example, can generally count on the support of loyal allies within internal governance units both internal to the SAF and also have allies embedded in proximate State and nonstate fields to support them. As noted and implied earlier, generally speaking, incumbents are positioned to survive and maintain the *status quo*.²¹

In the collection of SAFs that form a State, sometimes the considerable incumbent advantages possessed by the State may not be enough to prevent “episodes of contention.” In relatively rare cases, such pressures have the magnitude to virtually impose a crisis or a change on a SAF or a series of SAFs, especially those that stand in a vertically dependent relationship to the SAF in question. According to the SAF framework, exactly how much of a destabilization is possible within an SAF or proximate SAFs can be determined by a highly contingent mobilization process.

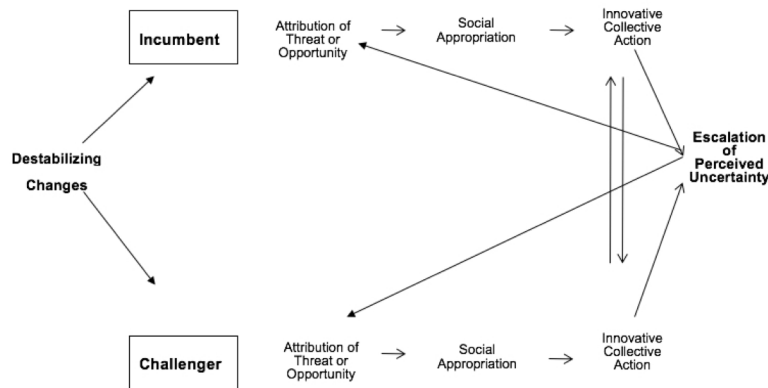
Here there are three linked mechanisms; *collective attribution of threat or opportunity*; *social appropriation*; and *innovative action*. For the first, the question is how do incumbents and challengers see the change? Is it destabilizing? Does it present opportunities for challengers to change something? Is it considered serious enough for incumbents to react to it? If enough players feel compelled to react, it is more likely that contention will arise. The *collective attribution of threat or/opportunity* is not, however, enough in and of itself always sufficient to ensure the onset of contention. For contention to arise, those perceiving the threat/opportunity must command the organizational resources, (termed *social appropriation* in the SAF framework) and prosecute effective innovative action needed to mobilize and sustain action. See Figure 14 below for a schema of this.

Then, for contention to take place that can potentially change the balance of power within the SAF (the power relationships between players), there needs to be sufficient heightened interaction involving the use of innovative (or perhaps even previously prohibited) forms of collective action, which is referred to as *innovative action* (as mentioned above). In this dissertation’s adaptation of the SAF framework, innovative action is combined with strategic action, because inter-ministerial bargaining, or trying to gain advantage over a rival ministry, (or, for example, METI trying to “hijack” the ONSP, etc. as we will see in 2012) may well require many micro-steps of innovative action. These may include, for example, dozens and dozens of informal meetings, talks, unofficial conferences, “town hall” meetings to set or

²¹ Fligstein & McAdam (2012), pp. 19-21.

manipulate agendas, telephone chats, private lunches and dinners (again a form of *nemawashi* in the Japanese context) and all the instruments of informal relationships between individuals that are impossible to quantify.

Figure 14: Basic Schema of SAF Actor Behavior



Source: Author's own adaption from Fligstein & McAdam (2012), p. 20.

However this impenetrability need not be a major problem. First, this lack, as it were, can be at least partially covered by fieldwork and interviewing. Secondly, of course, the motivations and behaviors of individual players or the groups or constituencies they promote or defend, while important, are inevitably bounded to a greater degree by the boundaries of agency, and the logics of appropriateness and consequences enmeshed in the responsibilities of the individuals within their SAFs, for example, their duties. In fact, this dissertation uses several dozens of interviews with key protagonists and representatives of key institutions at critical phases in the periods 1998-9, 2003, 2005-15.²² However, if challengers, for example, decide not to engage in innovative action that disrupts the mechanism or rules of the SAF, or find that they cannot gain traction, but press their claims using standard procedures for more marginal gains, according to Fligstein and McAdam, it is likely that the contention will not result in changes in the field.

6. Episodes of Contention

Often in the SAF framework, external shocks or pressure occur that are of sufficient magnitude to provoke or force strategic action by players in a SAF, leading to innovative and then strategic action. In the SAF framework, contention can be defined as “a period of emergent, sustained contentious interaction between ... [field] actors utilizing new and innovative forms of action vis-à-vis one another.”²³ Besides innovative action, episodes of contention occur when players share a sense of uncertainty/crisis regarding the rules and power relations governing the SAF. In stable SAFs, with well-established incumbents and

²² This section on dealing with individuals is adapted from Fligstein & McAdam (2012), pp. 19-22. Many of the critical interviews conducted by the author appear in the footnotes of this dissertation, although more dozens of background interviews do not.

²³ Doug McAdam, “Legacies of Anti-Americanism: A Sociological Perspective,” pp. 251-272, in Peter Katzenstein and Robert Keohane (eds.) *Anti-Americanism* (Ithaca, NY: Cornell University Press, 2007), p. 253.

challengers, the mobilization of both groups can be intense and sustained, and an episode of contention can last as long as the shared sense of uncertainty regarding the structure and dominant order of the SAF persists.

The internal dynamics of an episode of contention can contain within them mechanisms that intensify or sustain the contention as the motivations of players, or their behavioral calculus changes and adapts in an air of uncertainty about what the rules of the game are, what is up for grabs, what is possible and impossible. One example of such behavior is called framing. In this, different players try to seize the high ground, mobilize consensus around their particular conception of the SAF, and try to reconstitute it in this image. Incumbents on the other hand will try to maintain the current order, often calling on internal governance units to support them. However, of course challengers may also attempt the same action.²⁴

7. Settlement

In line with classic institutional theories that assert that bureaucracies and organizations tend toward stasis and the reinstitution or reestablishment of familiar or old patterns of interactions and relationships, the SAF framework also states that SAFs in episodes of contention also contain the elements, or that SAFs always have internal mechanisms, that will eventually restore order or allow actors to come to a new equilibrium. Even the most violently boiled liquid will cool and settle once the heat energy supplied to it is stopped.

For example, incumbents will try to sublimate or absorb the shocks of the episodes of contention. Or successful challengers, executing a change, will then try to re-impose order on the SAF. Often, according to the SAF framework, the advantage enjoyed by incumbents may be enough to overcome crisis and restore order. But, also, in rarer instances, challengers successfully sustain mobilization and slowly begin to institutionalize new practices and rules, or new structures. In fact, most players have a stake in restoring the shared sense of order that will eventually lead to compromises and the reassertion of order, or a new *status quo*. No player wants to risk systemic breakdown or inefficiencies that make governance more difficult, affecting the status or ability to act or govern in the system as a whole. In the SAF framework this reestablishment of order (however impermanent it turns out to be in some cases) is called *settlement*. However, as noted, settlement, if it creates a newly constituted SAF, or a changed or newly configured SAF, may often contain the seeds of future contention within it or within other related SAFs, which will be tested when pressures (changes or shocks) are applied, again, either from within an SAF, or from other SAFs.

Formation, Stability, Contestation and Settlement

In reviewing the SAF framework, out of the main premises noted above, it is possible to split the SAF framework into two further frameworks; between the internal behavioral dynamics of SAFs, and three main phases of operations. This section focuses on the importance of the behavior of SAFs in relationship to other SAFs. That is to say, it is the dynamic behavior of SAFs that is also analytically useful for studying space policy transition over an extended period, because the SAF framework contains a built-in *temporal* dynamic (a narrative of events over time, containing phases or episodes) that can explain how the states of SAFs roil and change over a period of time, leading to a series of actions and reactions. On a

²⁴ Fligstein & McAdam (2012), pp. 21-22.

linear two-dimensional schema, this might be rather similar to a domino effect. But, in the SAF framework, as we have seen, the interlinkages of SAF fields means that decisions taken by players in one field may well impact proximate fields.

At this point, the SAF framework focuses its attention on the potential for stability and change in a particular SAF field. Rather like Punctuated Equilibrium Theory, in massive systems, for example political economies, SAFs are likely to be stable until a massive enough challenge occurs. However, many of the changes that occur in SAFs come from proximate SAFs. Changes however, can just as often reinforce the positions of incumbents as challengers.

Within the phases of the life of a particular SAF, Fligstein and McAdam determined three main states for SAFs: *stable*, *contested* and *settled*. Given that SAFs can be viewed as dynamic, each of the states contains sub-elements of change that can be further divided. For example, when a SAF is formed, it may well be the result of contention between different players, so that the seeds of future contention are always present. The next phase is called the *onset of contention*. This is by no means an inevitability, but possible if a shock or a pressure is forceful enough, which will then lead to successive waves or bouts innovative action, strategic action and contention, all eventually steering to some sort of (temporary/[in]stable, etc.) settlement. So, then again, that settlement will also well contain the seeds of future contention. In this way, settlement might even be called a *pre-contention* phase.²⁵

As outlined earlier, in the SAF framework, the formation or emergence of a SAF is critical to understanding subsequent behavior. The SAF may arise through the imposition of a hierarchical power distribution by the assertion of another power (which can be a new law, for example), competition between stronger or weaker players, or cooperation, and, often, through a combination of all three, leading to a distribution of resources and a hierarchy and motivational matrix leading to the formation of a different or changed set of incumbents and challengers and internal or external governance units. Importantly, in the SAF framework, *SAFs are often shaped originally by events (or SAFs) outside the emergent SAF*.

An emerging SAF, therefore, is a constructed arena occupied by two or more groups (or players) whose actions are orientated to each other. SAFs, then, are often the products of actions of proximate SAFs. If we view the State as an accumulation of interrelated SAFs, then state action at the higher levels of the state, for example, international relations (from negotiations that force changes in policies, organizations, etc., to wars), political decisions, new laws, economic crises, social movements, etc., all have massive potential to impact SAFs, or even, *in extremis*, to create new ones. When forming new SAFs, Fligstein and McAdam trace what they call *emergent mobilization*, which precedes innovative action, as a key factor in SAF emergence. In this construct, field emergence is often caused by some exogenous change that is perceived by at least two actors as having the potential to pose a significant opportunity (or threat) to them, and leads to rational behavior (attribution of threat/opportunity, leading to collective [strategic] action) that becomes the dynamic to construct the SAF.

Usefully, Fligstein and McAdam also see the onset of contention in SAFs as primarily precipitated, again, by *exogenous shocks to the field*, for example major events that cause a sense of crisis, or changes in related, (often, but not always) proximate SAFs. For example, a national security crisis (in our case, for example, the Taepodong overflight) can have an effect that ripples down and through multiple decision

²⁵ Ibid., p. 22.

layers and through their related interconnected SAFs, so that in a particular SAF, the pressure applied to it may have cascaded down from, or through, a more distant event.

During contention, the SAF framework generally concedes ground to conventional rational actor scenarios, but with the added analytical input that both challengers and incumbents will play games with internal and external governance units to seek advantage or forestall a loss. Within this dynamic however, incumbents are essentially motivated to try to seek settlement that will preserve as many of their previous privileges as possible, or accept changes that they can sublimate, for example. Challengers, meanwhile, will need to try to form winning coalitions, seek allies, use the existing resources and rules and, often, using power from other SAFs, try to fashion change or a new order. Challengers need often to cooperate with other players or other SAFs to succeed. Many of these themes have been examined in case studies by Kawabata and others, and referred to in case studies mentioned above. In fact, such tactics and games will form a critical part of this dissertation's analysis. Such themes are introduced in the next section and then looked at in more detail later in the dissertation.

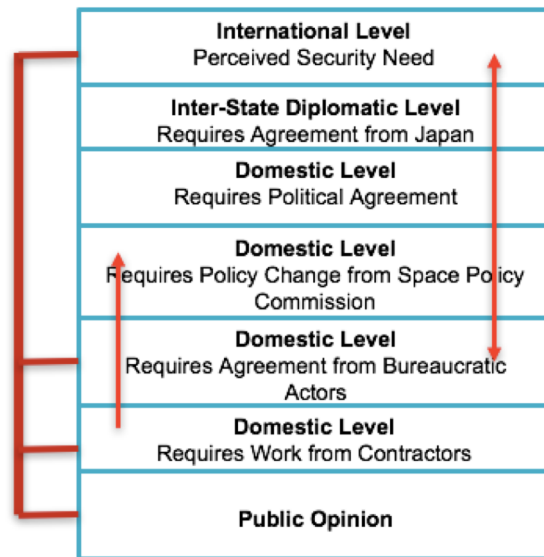
In conclusion, however, the critical points about the SAF framework is the message of *dynamism* and *interconnection* of families of SAFs. The SAF framework in general, through the analytical framework of SAFs, accounts for changes in large systems that can be sporadic or piecemeal, or radical and profound. The SAF framework, in its bundling of players into SAFs, provides a way to understand the interdependent roles of many players up and down more formal decision trees. The SAF framework also suggests how actors within SAFs and SAFs themselves and interactions between SAFs can be expected to behave in different circumstances.

Applying the SAF Framework to Space Policy

Using an adapted form of the SAF framework, this dissertation traces the interdependent linkages that connect the seven (or eight, when public opinion is important) levels of relationships ranging from the international situation down to the grass roots (jobs, contracts, cash) that factor into Japan's process of changing its space policy and institutional frameworks. Simply speaking, this can involve a process in which exogenous pressures such as international relationships or security pressures create reactions and behaviors that feed through the political levels of decision-making to the managing institutions (policy and budgeting ministries) and implementation through subgovernment agencies and contractors. There is bidirectional feedback at many of these levels. These levels can be seen in terms of decision-making levels. Take for example the following seven-layer model (Figure 15, below).

In a real example that will be analyzed in detail in Chapters 5 and 7, in 1998, Japanese policy makers faced a decision about how Japan was to react to the 1998 Taepodong overflight, which catalyzed widespread concerns about the growing ballistic missile threat to Japan, so that there was a general sense of alarm that pervaded much of Japanese society, including the general public, which needed to be reassured. Politicians had to be seen to cater to public opinion, while addressing a worrying security concern. The overflight provoked public discussion, or brought into public debate topic that had already been thrashing around in parts of Japan's intelligence, military policy and national security circles for at least several years about the need to reinforce and integrate Japan's intelligence gathering abilities. In fact, the question over whether or not to procure or develop space-based reconnaissance ability was already on the table before the missile overflight, and it was immediately brought much more into the open subsequently.

Figure 15: Seven-Layer Analysis of Decision Making: Taepodong Shock



Then, since security matters in Japan are dealt with in the context of the U.S.-Japan alliance, the U.S. would need to be consulted. As a junior partner in the alliance, the question would be whether Japan would purchase a U.S. system or develop its own. A cost-benefit analysis would show that buying from the U.S. would provide a much better system and the potential for new integrated capabilities, but this would infringe on the PPR and subject (or cede) that whole sphere of action and technology to the control of the U.S. with Japan as, once more, junior partner.

Of course, in the weeks following the overflight, U.S. was anxious for Japan to buy superior U.S.-made satellites rather than domestic purchases, and made this clear, because the U.S. wanted to tightly control Japanese technology development in this highly strategic area. However, there was also another a greater cooperative diplomatic and strategic logic between the partners: provided that Japan's ISR program could be harnessed by the U.S., then it would be to the benefit of both partners.

On the other hand, if such a system of sufficient utility to provide good enough intelligence could be developed indigenously, then a made-in-Japan satellite-based capability would provide a big win for many domestic players, particularly in terms of budgets and investment and technology gains. In particular, and specifically, a domestically-built system would likely fall to the Science and Technology Agency (STA) and its implementation subgovernment organization NASDA, which was suffering from budget shortfalls and a loss of confidence. At the same time, industry was urgently requiring added government investment because it was cash-strapped.

So, what should Japan do? Clearly the political decision whether or not to increase Japan's surveillance capabilities is closely tied to meeting both internal and external considerations. While it might be possible to analyze Japan's response using a two-level game scenario, this has its limitations, because the rocket overflight also impinged on Japan's fundamental security policy and the normative

stance of the PPR. The overflight, in fact, set in train a series of arguments in Japan over how to manage its institutional and policy arrangements over a period of years.

In the end, as we have seen, policy makers compromised between all the competing factors and decided to build a domestically-developed system seeded with U.S. technologies, and put the system into an office of the Prime Minister's office so as not to infringe on the PPR. However, this compromise was to prove unstable, because the "shock" butted against an institutional and policy framework already under pressure.

Putting these layers of analysis into interrelated and interdependent fields, each with their own characteristics, players and behaviors, and then putting those into a general SAF which we could call the General Space Activities SAF helps make sense of answering *who did what, when, and why*.

If we think about the overall SAF, we can see that the Taepodong overflight was a major exogenous threat or pressure that disrupted the General Space Activities SAF and caused certain players to behave logically and opportunistically to the disruption. The Taepodong overflight can be seen as a major shock that set off a series of episodes of contention in the field as a whole, the General Space Activities SAF, and which fundamentally changed it through time through the strategic actions of challengers, incumbents and governance units.

So, when setting up SAFs to create a framework to discuss and analyze the field of Japanese space activities, its players, the proximate and distant fields, the major task is one of identification of players and delineation of SAF relationships; of definition of each field and identification of its relationship with other fields; of identification of the incumbents, challengers and governance units. Then, an examination of how major shocks caused disruption, episodes of contention, strategic action and then partial settlement will follow. Put simply, following 1969, with the initiation of a formal national space program led by the SAC, it is possible to set up a General Space Activities SAF and then see how it behaved, and each of its subfields behaved (executed rational behavior according the motivational matrix explained above) through a series of episodes of contention and strategic action, to form today's more-or-less settled new General Space Activities SAF. This will be the work of Chapter 6.

Chapter 4

Outer Space as Governance and Security Issues

This chapter establishes the importance of outer space activities and space policy as a global commons and a global governance issue, and as a security issue. Establishing the importance of space activities and technologies is necessary to this dissertation because, until recently, Japanese space policy and activities have been largely ignored by mainstream international relations and security scholarship, largely because of the PPR. A closer examination of space activities, however, shows that outer space activities have become an important and difficult new global governance issue, at least requiring some attention from Japan as a responsible leading liberal democratic state facing some very real national security challenges. In order to demonstrate these points, this chapter discusses some of the most pertinent issues involved with global governance, global environmental concerns, and global security issues.

Outer Space as a Global Commons Issue

The use of space facilitates the smooth operation of the international economic and political system built on telecommunications, PNT, and remote sensing services that increase the frequency, speed, and the reliability of cross-border transactions. Technologies and industries associated the use of space serve as a global infrastructure. The GPS system, for example, not only helps navigate but also precisely time financial transactions. Data from remote sensing satellites is routinely utilized in weather forecasting, disaster monitoring and recovery, and global climate change research, to name but a few general applications.

According to the Satellite Industry Association, there were about 1,000 working satellites in Earth orbit in 2012, producing revenues of US\$168 billion. With a 6.7 percent annual growth rate, as of that estimate, the global space industry including government spending and commercial revenue had grown to over US\$300 billion, with space activities providing a huge swath of economic, social and environmental benefits and uses, including communications, weather prediction environmental monitoring and navigation.¹

Outer Space and International Law and Governance

Quite early in the history of space activities, the domain of space joined the high seas, the atmosphere, and Antarctica as being considered as *res communis*, that is to say, the common heritage of all humankind, not subject to the appropriation of sovereignty of any State, and thus subject to the Charter of the United Nations in terms of assessing the legality or otherwise of any activities in space.² The domain of outer space is primarily governed by the 1967 OST, which grew out of a mix of treaties and customs, and whose articles are the result of early compromises between the first two space powers, the U.S. and Soviet Russia, at the dawn of the space race in 1957, when discussions began in the United Nations General Assembly (UNGA) to ascertain the relationship of the uses of space with international law.³

¹ Barry Kellman, "Space: The Fouled Frontier – Adjudicating Space Debris as An International Environmental Nuisance," *Journal of Space Law*, Vol. 39, No. 2 (Spring/Summer 2014), pp. 233-35.

² GA Res 1721A (XVI), International co-operation in the peaceful uses of outer space, UN Doc A/RES/1721A (20 December 1961).

³ An example of customary space law is the principle of free passage in space established in 1957 when Sputnik crossed over territories other than its own without protest from those countries. This principle dates back to 1955 in a decision memo forwarded to U.S. President Dwight Eisenhower noted, "A small scientific satellite will provide a test of the

Early disagreements between the U.S. and Soviet Russia focused on the definition of what constituted the “peaceful” use of space, with the U.S. favoring defining “peaceful” as “non-aggressive” so that military activities in space are permitted so long as they are not expressly forbidden by international law. Soviet Russia initially sought to have the term “peaceful” interpreted as eschewing the use of all military activities in space. The need to debate these issues led to the establishment of the Ad Hoc and Permanent Committee on the Peaceful Uses of Outer Space (UNCOPUOS) where the study of the peaceful uses of outer space was included as one of its tasks.⁴ Through several twists and turns, the OST was born through the eventual dropping of Soviet Russia’s opposition to the use of military hardware in orbit. This was made possible after it had succeeded in developing its own usable reconnaissance satellites. Thus, GA Res 1721A (XVI), adopted in 1961, became a key provision of the OST.⁵

The fundamental tenets of the OST are that no State can make territorial claims to outer space and the celestial bodies within it; that nations have free access to space; that all nations are free to conduct scientific investigation in space; that national rights to space objects launched by States are preserved; and that nations will cooperate in rendering assistance to crews of spaceships in emergencies.⁶ In the OST, Art. I paragraph 1 includes the phrase that outer space is the “...the province of all mankind.” It leaves this phrase undefined and unexplained, but it has been interpreted to mean “for the benefit of all mankind.” Paragraph 2 states that the territory in outer space, on the moon or other celestial bodies cannot be claimed by any nation. This prohibition does not extend to private individuals or legal entities. Art. III denotes that activities and must be “in accordance with international law...and in the interests of maintaining international peace and security.”

In Art. IV paragraph 2, the OST requires that space be used for peaceful purposes, and it is generally accepted that this means that the placing military installations, fortifications, maneuvers or the testing of

principle of ‘Freedom of Space.’ ... Preliminary studies indicate that there is no obstacle under international law to the launching of such a satellite.” See NSC 5520, Draft Statement of Policy on U.S. Scientific Satellite Program, General Considerations, (20 May 1955), contained in Presidential Decisions: NSC Documents, (Washington, DC: George C. Marshall Institute, n.d.), p.10.

⁴ As a result of these discussions, in 1958, the U.S. and the Soviet Union started considering the question of the peaceful use of outer space. This led to the passing of UNGA Res1348 (XIII) and UNGA Res1472 (XIV). See *Question of the peaceful use of outer space*, UN Doc A/RES/1348 (XIII) (13 December 1958), preface, para 1 (a) (b) & para 2; *International co-operation in the peaceful uses of outer space*, UN Doc A/RES/1472 (XIV) (12 December 1959), preface, para 1 (a).

⁵ A/RES/1884 (XVIII) (17 Oct. 1963), para 2 (a); GA Res 1884 (XVIII) was adopted which calls on all States “[t]o refrain from placing in orbit around the Earth any objects carrying nuclear weapons or any other kinds of weapons of mass destruction, installing such weapons on celestial bodies, or stationing such weapons in outer space in any other manner”.

⁶ The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies, Jan. 27, 1967, 610 U.N.T.S. 205 [hereinafter the Outer Space Treaty] (ratified in 1967, the Outer Space Treaty was the first international space law treaty). See also, Michael J. Listner, “International Space Law: An Overview of Law and Issues,” *New Hampshire Bar Journal* (Spring 2011), pp. 62-71.

The OST is built on a series of other treaties: 1. Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies. 2. Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Space Objects Launched into Outer Space. 3. Convention on International Liability for Damage Caused by Space Objects. 4. Convention of Registration of Objects Launched into Outer Space. 5. Agreement Governing the Activities of States on the Moon and Other Celestial Bodies. See Agreement on the Rescue of Astronauts, the Return of Astronauts and the Return of Space Objects Launched into Outer Space, Apr. 22, 1968, 672 U.N.T.S.119 [hereinafter the Rescue Agreement] (outlines the duties of States towards the rescue and return of astronauts); Convention on International Liability for Damage Caused by Space Objects, Nov. 29, 1971, 961 U.N.T.S. 187 [hereinafter the Liability Convention] (imposes a strict liability standard for damage caused by space objects); Convention on Registration of Objects Launched into Outer Space, November 12, 1974, 1023 U.N.T.S. 15 [hereinafter the Registration Convention] (requires members to register a list of all spacecraft launched and the nature of the spacecraft with the U.N. Secretary General); Agreement Governing the Activities of States on the Moon and Other Celestial Bodies, Dec. 18, 1979, 1363 U.N.T.S. 3 [hereinafter the Moon Treaty] (governs the use of the moon and other celestial bodies).

weapons in outer space are forbidden. While the OST does prohibit the placement of nuclear weapons or any other weapon of mass destruction in the orbit of Earth or on any celestial body, it fails to specifically address the placement of non-nuclear weapons or those that are not capable of causing mass destruction.⁷ Art. VI requires that a State or a nation be responsible for its activities in space or for the activities of NGOs under its jurisdiction, as well as detailing the nature of objects launched into space and the nature of any activities performed in space. Art. VII paragraph 1 imposes liability for any damages caused by a space object on Earth or to another State's property. Art. VII paragraph 1 states that any space object launched continues to be the property of the State that launched it regardless of whether that object lands in sovereignless territory or the territory of another State. Art. IX specifies that States shall conduct space activities with due regard to the corresponding interests of all other States Parties and that they shall consult each other before doing anything that might cause harmful interference for other space users. The avoidance of harmful contamination of outer space and adverse changes in the environment of the Earth is generally accepted as a customary rule of International law.⁸

Against these provisions, the lack of specific definitions of many of the terms in the OST has made them difficult to enforce and subject to prolonged and intense argument and debate. Further, the question of whether international environmental obligations extend to space law as well is also debatable, causing legal scholars to argue that States' assertion of individual sovereignty and the vagueness of the OST *de facto* mean that space law exists in a lacuna "where responsibility does not lie."⁹

The Space Debris Issue

Facing this, specifically, the proliferation of space debris, now amounting to hundreds of thousands of objects circling the Earth, is understood to be a clear and present danger to both the space community and the global telecommunications infrastructure. Without a more robust governance regime, this situation is likely to worsen. Yet, while the OST obligates launching States to preserve the environment of outer space in the course of the prosecution of space activities, there is no follow-on treaty to further define that responsibility or the role that orbital space debris plays.⁹⁶ Further, the openness and stability of the space commons are challenged by the inherent fragility of satellites and space systems. Debris the size of a pea hitting a satellite's optics or solar arrays can prove disastrous.¹⁰

Five decades following Sputnik-1, the orbit around the Earth is cluttered, congested & competitive.¹¹ Currently there are now more than 700,000 items circling the Earth, of which only about 21,000 larger than 10 cm in diameter are tracked, with another estimated 100 million particles smaller than 1 cm. The space environment up to the Geostationary Earth Orbit (GEO) that runs 36,000 km around the Earth now contains about 6,000 tons of materials alone. Low Earth Orbit (LEO- 200 km to 2,000 km) is congested with more than 14,000 objects (including more than 2,600 dead satellites) larger than 5-10 cm in diameter. In 2010,

⁷ Art. IV paragraph 1 prohibits the placement of WMD in orbit.

⁸ Article IX, OST; See Draft Articles provisionally adopted on Second Reading by the Drafting Committee (1998-2000), ad. Art. 19, par. 15; Legality of Nuclear Weapons, Dissenting Opinion.

⁹ Kellman (2014) pp. 227-266; p. 231; see also, Li Juqian, "Legality and Legitimacy: China's ASAT Test," *China Security*, Vol. 5, No. 1 (Winter 2009), pp. 43-52.

⁹⁶ But see Liability Convention supra note 43 arts. 2-4 (where a State is liable when "... a space object causes damage someplace other than the surface of the Earth, i.e. outer space or another celestial body.")

¹⁰ Timon Singh, "Space: The Final Junkyard," *EU Infrastructure*, 24 August 2008.

¹¹ Gregory L. Schulte, Deputy Assistant Secretary of Defense for Space Policy for the U.S. Department of Defense, "Schulte: Space is Congested, Contested, Competitive," *27th National Space Symposium*, Colorado Springs, June 2011.

about 43 percent of these objects were attributed to the Peoples Republic of China (PRC), 27.5 percent to the U.S. and 25.5 percent to Russia.¹²

NASA states that deliberate explosions account for much of the debris.¹³ As noted above, untracked 1 cm or bigger particles that comprise 98 percent of objects in orbit are all potentially lethal. A 1 cm object moving at 7.78 km/second has the kinetic energy to debilitate or destroy a satellite. Worse, when large objects collide, they produce huge quantities of smaller debris. Current estimates of microparticulates are that they number between ten billion and one quadrillion pieces.¹⁴ There are now 30-50 untracked fragments for each one tracked.¹⁵ To understand how pressing the issue of orbital debris has become since 2007, Figure 16 shows the alarming growth in debris 1962-2010, highlighting the impact of the 2007 ASAT test by the PRC (see below).

Figure 16: Orbital debris growth 1962-2010

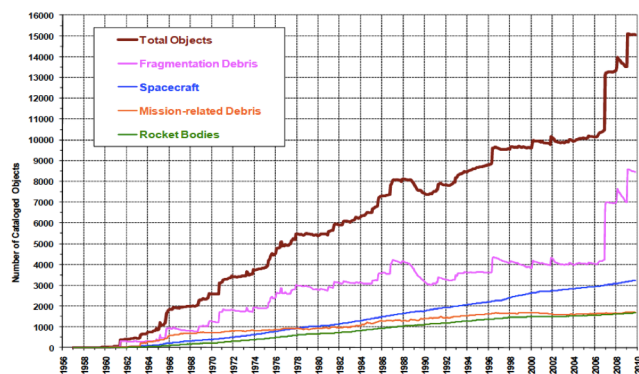


Figure 16: The cataloged population growth, minus analyst satellites, has had three major phases: A. 1960-1996 during which the growth was fairly linear at a rate of 260/year; B. 1996-2006 during which time the cataloged population remained fairly constant largely due to implementation of debris mitigation guidelines and a hiatus in significant breakup events; and C. 2006-2010 during which two major events created a ~1250/year growth rate. You could also lump the entire space age together (1960-2010) resulting in about a 280/object per year catalog growth rate. Source: NASA/JSC, *Orbital Debris Quarterly News*, January 2010.

The orbital situation became measurably worse following the PRC’s January 2007 ASAT missile test on the Fengyun-1C weather satellite, which caused a debris “cloud” of more than 3,000 trackable and 150,000 particles larger than 1 cm, many of which will remain a danger for over 100 years. This single event increased the number orbital debris particles in LEO by 15 percent.¹⁶ In 2009, a collision between the Iridium 33 satellite and Russian Cosmos 2252 satellite produced 1.5 tons and 2,000 tracked/100,000 untracked debris objects. Combined, the two incidents increased debris in LEO by 60 percent. A next

¹² Megan Ansdell, “Active Space Debris Removal: Needs, Implications and Recommendations for Today’s Geopolitical Environment,” 2 June 2010, Princeton University.

¹³ NASA Orbital Debris, *Orbital Debris Frequently Asked Questions*, http://www.nasa.gov/news/debris_faq.html

¹⁴ Agatha Askers, “To Infinity and Beyond: Orbital Space Debris and How to Clean it Up,” *University of La Verne Law Review*, Vol. 33, Issue 2 (May 2012), p. 294.

¹⁵ Heiner Klinkrad, “Space Debris Mitigation Activities at ESA,” Feb 2011; Donald J. Kessler, Nicholas L. Johnson, J.-C. Liou, Mark Matney, “The Kessler Syndrome: Implications to Future Space Operations,” *AAS 10-016, Advances in the Astronautical Sciences, American Astronautical Society*, Vol. 137 (2010), pp. 47-62.

¹⁶ Frank Rose, Deputy Assistant Secretary, Bureau of Arms Control, Verification and Compliance, “Space Sustainability Through International Cooperation,” *International Symposium on Sustainable Space Development and Utilization for Humankind*, Tokyo, 1 March 2012; “Limiting Future Collision Risk to Spacecraft: An Assessment of NASA’s Meteoroid and Orbital Debris Programs,” 1 September 2011, National Research Council, p. 11.

catastrophic collision is likely to yield as many fragments as the Iridium-Cosmos collision and the Fengyun-1C breakup combined.¹⁷

Each year 30-40 launches inject 60-70 new objects into orbit. In a 182-page landmark report in 2010, the National Research Council reported that the orbital environment has already caused concern that the situation will reach a “tipping point” over the next few decades; the threshold of the so-called “Kessler Syndrome” in which there would be sufficient debris and junk to begin a cascade of collisions that will make LEO unusable.¹⁸

In LEO, trackable objects are likely to collide with each other every three to six years. One analyst predicts the doubling of the lethal hazard at the LEO 850 km orbital height, and the annual probability of collisions in the 650-1,000 km region may both occur as early as 2035.¹⁹ To cope with this, operational satellites are increasingly forced to maneuver around debris to avoid collision. Collision avoidance maneuvers by satellite operators have become commonplace in certain orbits.

Space Debris and Global Governance

UNCOPUOS cites orbital debris as perhaps the committee’s single most pressing governance challenge.²⁰ Efforts to deal with the issue of space debris date back to the 1970s. In 1979, NASA first set up an office to look into the issue.²¹ In 1980, the American Institute of Aeronautics and Astronautics (AIAA) became the first body to publish a comprehensive technical and policy assessment of debris issues. Through the 1990s, strides were made to set rules to limit debris creation, including setting up of the Inter-Agency Space Debris Coordination Committee (IADC) and the formation of mitigation guidelines. In 2002, the IADC set international guidelines to minimize debris, which were adopted by the UNCOPUOS. For example, the “25-year rule” states that all spacecraft missions in orbits of 2,000 km or lower reaching the end of their service lives should be put into a position where they deorbit (fall to Earth) in less than 25 years, and that GEO satellites reaching the end of their service lives have enough fuel to hoist themselves into “graveyard” disposal orbits 2-300 km above the geostationary belt. The Federal Communications Commission passed a similar regulation in 2004.²²

UNCOPUOS also asked the IADC to develop international guidelines that were adopted by COPUOS in 2007 and endorsed by the UN General Assembly. However, the vagueness of the language has enabled space actors to make their own codes, and compliance with the guidelines is voluntary – so

¹⁷ Alex Soons, International Association for the Advancement of Space Safety, “Active Debris Removal: An Essential Mechanism for Ensuring the Safety and Sustainability of Outer Space,” presentation at the *International Symposium on Sustainable Space Development and Utilization for Mankind*, 1 March 2012, Tokyo.

¹⁸ Clara Moskowitz, “Orbital Debris Has Reached Tipping Point, Report Warns,” *Space News*, 5 September 2010, p. 13; Irene Klotz, “Space junk reaching “tipping point,” report warns,” *Reuters*, 1 September 2011; no author, “Limiting Future Collision Risk to Spacecraft: An Assessment of NASA’s Meteoroid and Orbital Debris Programs,” National Research Council, 1 September 2011.

¹⁹ In addition, the geostationary orbital region also faces difficult issues. As of February 2010, there were 1,238 known objects in the GEO belt, of which only 391 were under some level of control; of these 594 were drifting; of the 21 GEO satellites reaching End of Life in 2009, only eleven were disposed of properly. Darren McKnight, “Pay Me Now or Pay Me More Later: Start the Development of Active Orbital Debris Removal Now,” *Proceedings of the Advanced Maui Optical and Space Surveillance Technologies Conference*, held in Wailea, Maui, Hawaii, 14-17 September 2010.

²⁰ Yasushi Horikawa, Former Chair of UNCOPUOS, Technical Counselor of JAXA, “Development of UNCOPUOS Guidelines for the Long-Term Sustainability of Outer Space activities (Current Status),” presentation to the *International Symposium on Ensuring Stable Use of Outer Space*, Tokyo, 4 March 2016.

²¹ No author, “AIAA Position Paper on Space Debris: 30 Years On,” *Orbital Debris Quarterly News*, January 2012, pp. 2-3.

²² Federal Communications Commission, *Mitigation of Orbital Debris, Second Report and Order*, 19 FCC Rcd 11567 (2004).

much so that only 11 of 21 GEO spacecraft that ended their service life in 2009 were disposed of properly.²³ However, standards, even non-binding, developed by international organizations and public commitments by political leaders continue to be stalled by parochial self-interest.

Since existing frameworks, including the OST, do not have provisions on avoiding the destruction of space objects and actions triggering debris, international efforts have been under way recently for the creation of the International Code of Conduct for Outer Space Activities (ICoC) proposed by the European Union (EU).²⁴ Recently, guidelines for the Long-term Sustainability of Outer Space Activities of the Scientific and Technical Subcommittee of UNCOPUOS have attempted to address such matters.²⁵ Because of the need to track debris, SSA, in addition to threats posed by ASATs and space debris on space assets, has become a priority for the U.S. and Japan (as already mentioned in Chapter 1 and further explored in the second half of this chapter). Clearly, the range of security issues posed by the space commons has become a critical environmental and security challenge.

In 2009, UNCOPUOS put long-term sustainability of outer space activities onto its agenda and has been trying in recent years to prepare a consolidated set of current practices, operating procedures, technical standards, guidelines, and policies dealing with debris to be applied on a voluntary basis.²⁶ In 2010, the EU set out the ICoC, which was designed to be a comprehensive set of guidelines to minimize debris generation, in which it proposed as a basis of an international soft law regime.²⁷ The language of the ICoC showed the tremendous difficulties involved in building consensus because it indirectly stigmatized the PRC's 2007 ASAT test. But at the same time, for example, the ICoC allowed for the U.S. use of a sea-based ballistic missile interceptor to destroy the malfunctioning USA 193 spy satellite on the grounds, claimed by the U.S., that the stricken satellite's fuel tank might present a human health hazard should it fall to Earth.²⁸ The ICoC was rejected by both China and Russia, probably because they reserve the right to continue to retain the possibility to further develop and deploy various ASAT technologies (see below).

Space policy as a governance issue is, then, also subject of political and bureaucratic bickering. For example, the March 2014 ICoC update was intended to be the subject of negotiations at the UN in July 2015, but this meeting was reduced from a negotiation to a consultation in which any number of nations could propose alternative texts, making the meeting useless.²⁹

²³ Brian Weeden, "Dealing with Galaxy 15: Zombiesats and on-orbit servicing," *The Space Review*, 24 May 2010, Part I, p. 8.

²⁴ International Code of Conduct for Outer Space Activities - Version 31 March 2014, European Union External Action website, https://eeas.europa.eu/sites/eeas/files/space_code_conduct_draft_vers_31-march-2014_en.pdf

²⁵ In 2007, the chairperson for UNCOPUOS proposed the discussion of the long-term sustainability of outer space activities in relation to civil space activities, so as to start the work of defining risk reduction strategies for the promotion of long-term sustainable activities and equal access to outer space. This enabled the Scientific and Technical Subcommittee of UNCOPUOS to set up a working group, which currently continues discussions for defining guidelines.

²⁶ Yasushi Horikawa, "Long-term Sustainability of Outer Space Activities," presentation at the *International Symposium on Sustainable Space Development and Utilization for Mankind*, 1 & 2 Mar 2012, Tokyo; United Nations Committee on the Peaceful Uses of Outer Space: Scientific and Technical Subcommittee. See also Terms of Reference and Methods of Work of the Working Group on the Long-term Sustainability of Outer Space Activities of the Scientific and Technical Subcommittee, Vienna from 7-19 February 2011; UN Doc. A/AC.105/C.1/L.307 of 24 January 2011.

²⁷ Council Conclusions concerning the revised draft Code of Conduct for Outer Space Activities, Council of The European Union Brussels, 11 October 2010.

²⁸ While commonly seen as a tit-for-tat ASAT test to demonstrate U.S. technology, the U.S. claimed the destruction of USA 193 to be legitimate on a public health rationale; that it destroyed the satellite at a lower altitude to minimize persistent space debris, and announced its plans in advance.

²⁹ Michael J. Listner, "The International Code of Conduct: Comments on changes in the latest draft and post-mortem thoughts," *The Space Frontier*, October 26, 2015.

Thus, various updates have been including sets of standard processes but talks on even setting common guidelines by Sates have been stalled in UNCOPUOUS, with the earliest date for resolution set for 2018.³⁰ However, the opposition to the standards-setting approach can only be understood through examining the issue space as a security issue, in particular attempts by China and Russia to introduce binding legal agreements. Many of the difficulties experienced with coordinating issues to deal with the debris issue are replicated in governance issues dealing with space weapons and arms control in space. These points are discussed in the following section.

Space as a Security Issue

“Outer space has become a commanding height in international strategic competition. Countries concerned are developing their space forces and instruments, and the first signs of weaponization of outer space have appeared... China will keep abreast of the dynamics of outer space, deal with security threats and challenges in that domain, and secure its space assets to serve its national economic and social development, and maintain outer space security.”³¹

While the debris issue constitutes a major global environmental and governance issue, it is also a subset of a range of other issues that can interfere with the use of space. In fact, the development and the proliferation of space technologies has created a moving target of issues for spacefaring nations and those that benefit from the use of space technologies. Space security, in terms of trying to assure the use of space, can encompass ensuring the viability of space systems from physical damage such as collision between satellites and other man-made objects (debris) and securing sufficient space in orbital slots between satellites, for example, or physical attacks by kinetic ASATs (missiles launched from the Earth) or co-orbital ASATs (hunter-killer satellites lurking in orbit), explosions, etc., and unguided objects such as meteorites, micrometeorites and Near-Earth Objects.

Space security also encompasses the assurance of functionality of space systems against non-kinetic externalities such as radio frequency interference, jamming, laser blinding, and cyberattacks, either of assets in space, or ground control, radar and tracking facilities, and communications systems and networks.³² Within this broad definition, however, for the purposes of analytical clarity, space security is used in this study as it relates to national security in the sense of preservation of space assets and their concomitant systems from intentional interference by actors, mainly but not exclusively States, in pursuit of national security or military objectives. Outer space has joined the air and maritime domains as global commons and global infrastructure but also as a military domain.³³

³⁰ Horikawa (2011).

³¹ China Information Office of the State Council, China's Military Strategy, May 2015.

³² This broad definition does not include, for example, the impact of severe weather conditions or natural disasters on ground systems. To see the wide range of issues associated with space security, see for example, *The Space Security Index*, which has been tracking seventeen indicators of space security since 2003: <http://spacesecurityindex.org/>.

³³ Abraham M. Denmark, James Mulvenon, Frank Hoffman, Lt Col Kelly Martin (USAF), Oliver Fritz, Eric Sterner, Dr. Greg Rattray, Chris Evans, Jason Healey, Robert D. Kaplan, (eds.) “Contested Commons: The Future of American Power in a Multipolar World,” Center for a New American Security (CNAS), January 2010, p.11.

Space Power

Space technologies can produce a tremendous force multiplier in military action. The U.S. Joint Chiefs of Staff define “space power” as “the total strength of a nation’s capabilities to conduct and influence activities to, in, through and from space to achieve its objectives.”³⁴ Space provides the “strategic high ground” from which global communications and remote sensing can be quickly transmitted to militaries around the world. A military that can effectively use outer space has a tremendous advantage in terms of in command, control, communications, intelligence, surveillance, and reconnaissance (C3ISR), maneuverability, and firepower.

Today, advanced militaries are increasingly or largely dependent on satellites for long-distance communications and ISR, ranging from detailed intelligence collection, to detection of ballistic missile launches (EW) to real-time support of war operations.³⁵ The U.S. regularly uses space ISR assets for targeting and battle damage assessment. In *Operation Iraqi Freedom*, the U.S. integrated space capabilities with its daily operations.³⁶ Space assets help military commanders plan for operations and maneuvers to a far greater degree of specificity and confidence.³⁷ GPS signals offer military commanders and warfighters an unprecedented level of accurate information, vastly improving situational awareness.³⁸

According to U.S. strategic planners, the global commons form “the connective tissue of the international system and of our global society” that is built on the right, assumed by the U.S., of its unfettered access and freedom to these domains, primarily because, command of sea, air and space provides the U.S. with more useful military potential for foreign policy than offshore power.³⁹

It’s capability to use a wide range of space technologies has enhanced U.S. security and has been a key element of warfighting for more than 30 years, to the point that U.S. national security is now dependent on it. The joint DOD-Intelligence Community National Security Space Strategy, published in 2011, cited space capabilities as providing the U.S. and its allies unprecedented advantages in national decision-making, military operations, and homeland security, providing national security policy leaders and military commanders with global access and creating advantages in decision-making. Space systems are seen as essential in monitoring strategic and military situations as well as supporting treaty monitoring and arms control verification.⁴⁰ Former Secretary of Defense Robert Gates described the U.S. approach toward the global commons as follows:

“Opening doors, protecting and preserving common spaces on the high seas, in space, and more and more in the cyber world. This presence has offered other nations the

³⁴ U.S. Department of Defense, Joint Publication 3-14, *Space Operations*, (6 January 2009): GL-9.

³⁵ See, for example, Lt Gen Gary L. North and Col. John Riordan, “The Role of Space in Military Operations: Integrating and Synchronizing Space in Today’s Fight,” *High Frontier*, Vol. 4, No. 2 (February 2008), pp. 3-6

³⁶ Maj. John Thomas and Maj Richard Operhall, “Space, the ACCE, and the Joint Fight,” *High Frontier*, Vol. 4, No. 2 (February 2008), pp. 29-33.

³⁷ Sir Peter Anson and Dennis Cummings, “The First Space War: The Contribution of Satellites to the Gulf War,” in Alan D. Campen, (ed.), *The First Information War* (Fairfax, VA: AFCEA International Press, 1992), pp. 121-135.

³⁸ Michael Wynne, “Space: The Ultimate High Ground Creating Strategic and Tactical Conditions for Victory,” *High Frontier*, Vol. 3, No. 4 (August 2007), p. 4.

³⁹ Michele Flournoy, “Stability Operations: A Comprehensive Approach to the 21st Century,” Comments at the Brookings Institution, (27 March 2009); Posen (2003) pp. 5-46, which quotes, “The United States enjoys the same command of the sea that Britain once did, and it can also move large and heavy forces around the globe. But command of space allows the United States to see across the surface of the world’s landmasses and to gather vast amounts of information. ... Air power, ashore and afloat, can reach targets deep inland; and with modern precision-guided weaponry, it can often hit and destroy those targets.”

⁴⁰ U.S. Department of Defense and Office of the Director of National Intelligence, *Space Security National Strategy*, January 2011, p. 1.

crucial element of choice and enabled their entry into a globalized international society. ...We stand for openness, and against exclusivity, and in favor of common use of common spaces in responsible ways that sustain and drive forward our mutual prosperity.”⁴¹

As mentioned earlier, at the hard, practical end of business, outer space in particular has grown not only as a military infrastructure, but a major force multiplier in U.S. military superiority, as demonstrated in the 1991 Persian Gulf War, in 1994 in Yugoslavia, in 2001 in the invasion of Afghanistan, and the 2003 invasion of Iraq. As former Secretary of the Air Force Michael Wynne once explained:

“In World War II, it took 1,500 B-17s dropping 9,000 bombs to destroy a given target. Today, one B-2 can strike and destroy 80 different targets on a single mission using weapons guided by space-based USAF global positioning system signals.”⁴²

As noted above, while the military use of outer space is recognized as a legitimate activity so long as it is conducted in accordance with international law, definitions of military activities remain vague, leading to a proliferation of technologies subject to disputes further regulate military space activities. Generally speaking, however, while space has been militarized in terms of its use as a medium to support military operations, for than four decades, as far as is known publicly, outer space has yet to be weaponized, meaning that it is not yet a theater for warfare or for the placement of arms. The realm or domain of orbital space therefore remains, from a security perspective, a competitive global common.⁴³

Challenges

Since currently no nation has announced that it has fielded a weapon in space, the debris issue might be the most serious obvious security issue. However, three recent developments, the successful flight test of the A-235 Nudol direct-ascent ASAT, China’s launch of a ‘quantum satellite’ designed to transmit hack-proof keys from space, and China’s loss of control of its *Tiangong-1* space station demonstrate the varieties and complexities of security challenges outer space presents.⁴⁴

On top of the debris issue, space is also becoming more accessible with the projected proliferation of smaller and smaller satellites, which as well as being used for conventional military roles, also posing the risk of becoming space debris, or even being weaponized as orbital ASATs.⁴⁵ In addition, satellites can be extremely vulnerable to Electromagnetic Pulse attack.⁴⁶ Further, evidence is accumulating that at least some military systems, and less hardened communications and navigation systems, are vulnerable to

⁴¹ Robert M. Gates, Speech to the International Institute for Strategic Studies, 31 May 2008.

⁴² Michael Wynne, “Space: The Ultimate High Ground Creating Strategic and Tactical Conditions for Victory,” *High Frontier*, Vol. 3, No. 4 (August 2007), p. 4.

⁴³ Michael E. O’Hanlon, *Neither Star Wars nor Sanctuary*, (Washington DC: Brookings Institutional Press, 2004).

⁴⁴ For the A-235 Nudol direct-ascent ASAT, see Nicholai Litovkin, “Russia successfully tests new missile for defense system near Moscow,” *Russia Behind the Headlines*, 23 June 2016; Edward Wong, “China Launches Quantum Satellite in Bid to Pioneer Secure Communications,” *New York Times*, 16 August 2016; Josh Chin, “China’s Latest Leap Forward Isn’t Just Great—It’s Quantum,” *Wall Street Journal*, 16 August 2016; no author, “In Case You Missed It: China Loses Control of Its Tiangong 1 Space Station,” *Scientific American*, 15 November 2016,

⁴⁵ Small satellites can be classed as those that weigh around 500 kg; microsatellites as those that weigh 10-100 kg; nanosatellites as those that weigh around 1-10 kg; picosatellites as those that weigh around 0.1 and 1 kg; and even femtosatellites, ranging between 10 and 100 g. See, for example, Elizabeth Buchen, Dominic DePasquale, “2014 Nano / Microsatellite Market Assessment,” Space Works Enterprises, Inc.

⁴⁶ Report of the Commission to Assess the Threat to the United Chapter from Electromagnetic Pulse (EMP) Attack: Critical National Infrastructures, (April 2008), Chapter 10.

cyberattacks. A number of satellites have been interfered with through cyberoperations, which can not only disable space assets, but even take physical control of them, such as maneuvering them into collisions, degrading orbits, or deliberately overexposing solar panels. NASA has openly acknowledged that some of its satellites have been temporary cyber-highjacked.⁴⁷

However, amongst all these challenges, it is generally acknowledged that the most pressing issue in terms of military technologies is that of ASATs. Just as space systems are vulnerable to debris, they are vulnerable to kinetic attack, with the likely costs of an escalating war in space involving kinetic anti-satellite weapons “analogous to fighting World War II in an environment where all the stray bullets, mortars and bombs do not simply fall to Earth, but continue to fly around the world for decades, rendering much of the surface of the Earth uninhabitable.”⁴⁸ Conversely, U.S. reliance on space militarily, but also commercially, is commonly cited by U.S. defense sources as its potential Achilles heel. This has led to fears enounced publicly by senior U.S. officials warning of the necessity to maintain U.S. space superiority (or supremacy) and in order to prevent a U.S. “Space Pearl Harbor.”⁴⁹

Therefore, because the U.S. is the preeminent global space power, with the most to lose from a deteriorating outer space environment, it is analytically useful to understand space security issues first from the U.S. point of view. It is also important to understand that the vagueness of the OST is actually a result of strategic military competition between the U.S. and its former rival, the Soviet Union.

The U.S. approach to global governance and space security issues has traditionally been to protect its space dominance built up through the end of the Cold War and cemented in the 1990s with the downscaling of capabilities of the space assets of the former Soviet Russia. However, given the alacrity of the debris issue, for example, the behavior of the PRC in space activities, and the evolving of and rapid development and deployment of a range of military and dual-use technologies and systems, the U.S. has become more flexible of late, primarily because of the need to address the increase in number and difficulty of space global governance and security issues. All this has caused DOD officials to argue that space has become a realm that is “congested,” “competitive,” and “contested.”⁵⁰

Realist-focused U.S. space policy allows for limited cooperation, provided such cooperation does not impede military strength and avoid conflict in space. As we have seen, initially, the U.S. designated outer space as a global common to allow for the U.S. and the Soviet Union to conduct space-based reconnaissance for both EW and confidence building measures. As noted above, the foundational GA Res 1884 leading to Art. IV of the OST prevented the placing of weapons of mass destruction (WMD) in space, or on any celestial objects, but it did not ban ICBMs from flying through space as long as any nuclear weapons placed on such ICBMS did not become stationed in orbit.⁵¹

⁴⁷ Paul Kyle Kallender, “Waking Up to a New Threat: Cyber Threats and Space,” *Transactions of the Japan Society for Aeronautical and Space Sciences, Aerospace Technology of Japan*, Vol. 12, (2014); Andrew Griffin, “Cyber-attacks on satellites could spark global catastrophe, experts warn,” *Independent*, 22 September 2016; David Livingstone, “Cyberattacks in Space: We Must Defend the Final Frontier,” *Newsweek*, 26 November 2014.

⁴⁸ Denmark et al. (2010), pp. 27-28.

⁴⁹ Report of the Commission to Assess United States National Security, Space management and Organization, (11 January 2001): viii; J. Michael McConnell, “Annual Threat Assessment of the Intelligence Community for the House Permanent Select Committee on Intelligence,” 7 February 2008, p. 33.

⁵⁰ Nancy Gallagher, “Space Governance and International Cooperation,” *Astropolitics*, Vol. 8, Issue 2 (May 2010), pp. 256-279.

⁵¹ WMDs are defined UN Commission for Conventional Armaments as atomic weapons, radioactive material weapons, lethal chemical and biological weapons, and future weapons that have comparable destructive effect to such existent weapons. See *Prohibition of the development and manufacture of new types of weapons of mass destruction and new systems of such weapons* Report of the Conference on Disarmament, UN Doc S/C.3/32/Rev.1 (18 August 1948). See also,

The OST, therefore, was drafted to explicitly prohibit very few national security activities except for the placement WMD in orbit. The accepted permissible military use of outer space also involved the implicit understanding that neither the U.S. nor the Soviet Union would vigorously pursue ASAT technologies, nor place pre-emptive strategic strike capabilities in orbit. The U.S., for its part, as far as publicly known and publicly stated, has, after stop-start research, restrained itself from pursuing ASAT technological development in the light of evidence of increased Soviet Russian capabilities, out of U.S. concern not to create an ASAT arms race, although this restraint declined during the Reagan administration, which led to the development of modern U.S. space dominance and use of space as military infrastructure and as a force multiplier.⁵²

As with dealing with debris issues, the vagueness and difficulties in defining what constitutes the “peaceful” “non-aggressive” use of space, or indeed what constitutes “weaponization” of space have led to contestation between various groups of stakeholders as they formulate their own approaches to space security. Thus, the current U.S. perspective is to maintain its military preeminence through a policy of space deterrence to persuade potential aggressors that any benefits from attacking or interfering with U.S. space assets risks disproportionate costs. U.S. space dominance has brought its own problems as both Russia and China share concerns that it gives the U.S. too much of a free hand to involve itself in their respective spheres of influence.

Broadly speaking, the U.S. position led Russia and China to start from the 1990s pressing for a “Prevention of an Arms Race in Outer Space” (PAROS) in the Conference on Disarmament (CD). In 2002, Russia and China jointly proposed such a treaty at the UN Conference on Disarmament. In PAROS, Art. III of the draft text proposed obligating signatories “not to place in orbit around the Earth any objects carrying any kinds of weapons, not to install such weapons on celestial bodies, or not to station such weapons in outer space in any other manner,” and, also, “not to resort to the threat or use of force against outer space objects.”⁵³

The proposal would ban space-based systems but would have left signatories free to develop ground-based systems useful for attacking space-based elements, *de facto* enabling both Russia and China to preserve their own capabilities to engage in space warfare. In 2008, there was an attempt to introduce the “Treaty on Prevention of the Placement of Weapons in Outer Space and of the Threat or Use of Force against Outer Space Objects” (PPWT) as an international legally binding treaty that would outlaw the weaponization of space, or more specifically, that would extend the OST’s ban on WMD in space to prohibit placing all types of orbiting weapons there, and ban the threat or use of all types of force against space objects. However, these moves were rejected by the U.S. because the U.S. argued that there was no actual arms race in space, and that the PPWT, in particular, would outlaw U.S. space-based missile defense interceptors, but not debris-generating ASAT tests. Also in the opinion of the U.S. government, the PPWT would fail prevent the proliferation of ASAT capabilities, so the U.S. also rejected the initiative over additional concerns that verification would be difficult.⁵⁴

U.S. Senate Committee on Aeronautical and Space Science [UN Senate], *Outer Space Treaty Analysis and Background Data Staff Report* (1967). The resolution allowed for the Soviet Union to continue to develop a Fractional Orbital Bombardment System (FOBS) since such a system would only orbit the Earth for a short time.

⁵² Gallagher (2010).

⁵³ Working Paper Presented by The Delegations of China, The Russian Federation, Vietnam, Indonesia, Belarus, Zimbabwe And Syrian Arab Republic, United Nations Conference on Disarmament, CD/1679, 28 June 2002.

⁵⁴ Gregory Kulacki, “Chinese Intentions in Space,” *Space and Defense*, Vol. 4, No. 1 (Winter 2010), pp.101-113; Roger Harrison, et al., “Space Deterrence,” *Space and Defense*, Vol. 3, No. 1 (Summer 2009), pp. 1-30.

In June 2014, just after EU completed consultations toward advancing the ICoC, the Russian and Chinese governments proposed a major (and the first major) update to the PPWT with an explanatory note stating that China and Russia regarded a legally binding ban on placement of weapons in outer space as one of the most important instruments of strengthening global stability. However, the updated version still did not mention direct-ascent (kinetic, ground launched), laser or co-orbital ASAT systems, despite the continued suspicion that China has performed a series of disguised ASAT tests. The PPWT also failed to mention the issue of space debris.

Further, the PPWT has been criticized for the rights it would give a State Party that seeks to protest activities of another to remediate space debris by claiming that it was a disguised “space weapon,” thereby perhaps potentially stifling debris mitigation efforts using satellites.⁵⁵ Continuing today, the U.S. opposes *any* restrictions that seek to limit U.S. access to, or use of, space, and this largely explains the U.S.’s early reluctance to fully endorse the ICoC.⁵⁶ The U.S. approach has therefore been primarily focused on voluntary measures proposed by allies, including dialogue and transparency and confidence-building measures (TCBMs), thereby allowing the U.S. to maintain its freedom of action in space.⁵⁷

China’s Space Program

Both the U.S. and Russia both possess an array of tested ASAT technologies. Russia has access to a wide range of ASAT and dual-related technologies that it inherited from the Soviet era. However, it is the space program of the PRC that represents the major potential destabilizing factor in space security, as comprehensively delineated in annual reports by the U.S.-China Economic and Security Review Commission.⁵⁸ As the 2015 report bluntly stated, the U.S. viewed China’s space program as a means to: “...allow it to challenge U.S. information superiority during a conflict...China has asserted sovereignty over much of the East and South China seas, as well as Taiwan, and is engaged in a course of aggressive conduct to enforce those claims against its neighbors. Among other purposes, China’s space and counterspace programs are designed to support its conduct as part of its antiaccess/area denial strategy to prevent or impede U.S. intervention in a potential conflict.”⁵⁹

In assessing the PRC’s space program, the review commission notes that the People’s Liberation Army (PLA) exerts deep and broad control over the program directly and indirectly, that space use is designed not only to enable China to win local wars via battlefield information superiority (defined as battlefield communication, battlefield surveillance and reconnaissance, meteorology, and precision guidance functions) but also to attain “space dominance,” achieved through developing ISR, ballistic

⁵⁵ “Draft Treaty on the Prevention of the Placement of Weapons in Outer Space, the Threat or Use of Force against Outer Space Objects,” United Nations Office for Disarmament Affairs, Conference on Disarmament, CD/1985, 12 June 2014.

⁵⁶ U.S. National Space Policy,” Fact sheet released 6 October 2006; Statement by the United States Delegation to the 64th Session of the United National General Assembly’s First Committee, 19 October 2009, p. 5.

⁵⁷ The Obama Administration for example let the Conference on Disarmament (CD) establish an ad-hoc working group to discuss, but not negotiate, cooperative steps to enhance space security because it was against starting negotiations about additional legal measures to protect satellites and prevent space weaponization.

⁵⁸ Since 2002, the commission has published comprehensive annual reports on China-U.S. relations covering economics and trade, foreign investment, cyber espionage and barriers to trade, security relations, and China’s policies toward global and regional security issues. In particular, the reports devote major sections to China’s space and counterspace and missile programs, indicating the seriousness with which the U.S. regards China’s progress. The 2015 Annual Report to Congress, 17 November 2015 devotes 66 pages alone to China’s space program in Section 2: China’s Space and Counterspace Programs.

⁵⁹ 2015 Annual Report, p. 272.

missile EW, space launch detection and characterization, environmental monitoring, satellite communication, and PNT capabilities, in addition to jamming technologies, direct ascent and co-orbital ASAT technologies, computer network operations, directed energy (laser blinding), and electromagnetic pulse weapons.⁶⁰

As a backdrop to this toxic soup, U.S. concern about the PRC's motives has been steadily mounting for twenty years. Alarm began initially over suspected successful espionage of U.S. nuclear and other strategic data in the mid-1990s, which increased in 1998 when it was feared that the PRC had purloined data missile from a commercial U.S. space company, and then stoked considerably by the January 2001 *Rumsfeld Commission* report, which postulated that the PRC had started an arms buildup to fight a space war, so that the U.S. might risk, in the future, risk a "Space Pearl Harbor," as mentioned above.⁶¹ Since then, many analysts have looked at the PRC's space program with differing opinions about its capabilities and intentions.⁶²

Against this, Chinese analysts accuse the U.S. of paranoia; it is argued by some that U.S. has fundamentally misunderstood the intention of China's space program. For example, that concern is unfounded because it is based on questionable information from a limited set of Chinese sources, many of them mass media, which are for propaganda purposes, often misquoting the intent of the PRC's military leadership.⁶³

It can be argued that that the PRC's rationale for military space development, beginning in 1986 following a personal appeal by a caucus of scientists to Deng Xiaoping to invest in seven key areas of advanced technology, was at least originally provoked by fear about of U.S. Strategic Defense Initiative (*Star Wars*), which, if developed, would easily make the PRC's relatively small strategic nuclear force obsolete and redundant, growing U.S. and former Soviet Union ASAT capabilities through the 1970s, and then, through the 1980s, about U.S. prowess in using space technologies as a force multiplier, even before

⁶⁰ China had approximately 142 operational satellites in orbit as of September 1, 2015, compared to about 10 in 2000 and 35 in 2008. As many as 95 of these satellites are owned and operated by Chinese defense organizations, including the PLA, the Ministry of Defense, and military related organizations. The Ministry of Science and Technology (MOST) for objectives established in the State High-Technology Development Plan of 1986 (also known as the 863 Program) through 2020 that are opaque and include undisclosed strategic military programs including advanced lasers and global strike capabilities.

⁶¹ Originally concerns grew about the theft of nuclear warhead designs, then missile secrets following the disappearance of encryption microchips that control satellites in 1996, with these incidents and others detailed in the long-running Report of the Select Committee on U.S. National Security and Military/Commercial Concerns with the People's Republic of China. See Report of the Commission to Assess U.S. National Security Space Management and Organization, 11 January 2001, p. xiv and p. 22

⁶² Recent studies in academic literature assessing Chinese space programs and policy include Kevin Pollpeter, "Upward and Onward: Technological Innovation and Organizational Change in China's Space Industry," *The Journal of Strategic Studies*, Vol. 34, No. 3 (June 2011), pp. 405-423, which asserts that China is transforming from being a major space power to a strong space power on a par with the United States and Russia (p. 421). Another view sees the PLA's objectives as to use space technologies as part of a more limited strategy to deter or, if necessary, defeat a technologically advanced adversary in a future informatized local war, whether over Taiwan or the Senkaku Islands, maritime territorial disputes in the South China Sea, or elsewhere. See Michael S. Chace, Jeffrey Engstrom, Tai Ming Cheung, Kristen Gunness, Scott Warren Harold, Susan Puska and Samuel K. Berkowitz, "China's Incomplete Military Transformation: Assessing the Weaknesses of the People's Liberation Army (PLA)," *RAND Corporation*, Santa Monica, CA (2015), p. 114-16. See also, Tai Ming Cheung, "The Chinese Defense Economy's Long March from Imitation to Innovation," *Journal of Strategic Studies*, Vol. 34, No. 3 (June 2011), pp. 325-354, which asserts that China's plan for military space capabilities is to reach parity with the U.S. and the Russian Federation by 2020.

⁶³ Concern started building in 1999, when the Select Committee of the U.S. House of Representatives chaired by Representative Christopher Cox issued its Report on U.S. National Security and Military/Commercial Concerns with the People's Republic of China (PRC) (the Cox Report), which claimed that the PRC had stolen or otherwise illegally obtained U.S. missile and space technology that had, or would, improve the PRC's military capabilities. Gregory Kulacki, "Chinese Intentions in Space," *Space and Defense*, Vol. 4, No. 1 (Winter 2010), pp. 101-113.

the outbreak of the first Gulf War. The U.S.'s relatively trouble-free decimation of the Soviet-armed Iraqi army and air force, in which space played a decisive (and highly public and propagandized role to demonstrate U.S. military superiority), is often cited as having its own decisive role in compelling the PRC to begin a radical rethink of its military and defense strategy and doctrine, spurring modernization, and inciting the PRC's huge investment in space development.⁶⁴

Also, along a slightly different tack, some Chinese academics have argued that the U.S. and other countries continue to misunderstand Chinese intentions, even intentionally, because of prejudice arising out of suspicion of the PRC as a socialist country, and to magnify concern about Chinese intentions in order to justify continued U.S. policy not to permit any challenge to its freedom of action and superiority in space.⁶⁵

Nonetheless, the U.S. believes the PRC's development of counterspace capabilities, particularly direct-ascent and co-orbital ASATs, computer network operations, ground-based satellite jammers, and directed energy weapons are not only designed primarily to deter U.S. strikes against China's space assets and deny space superiority to the U.S., but also potentially to attack U.S. satellites. These developments suggest to U.S. eyes that China may be prepared to prosecute space warfare because China's military strategists perceive the threshold for the use of counterspace capabilities to be lower than the use of nuclear or conventional capabilities, and – given the U.S. reliance on space – a more credible and flexible deterrent.⁶⁶

⁶⁴ China's focus on building a space reconnaissance system can be traced back to the 1986 'State High-tech Development Plan' (863 Program) as a response to Ronald Reagan's 1983 "Star Wars" speech. Fear of growing U.S. power in space led China as early as the mid-1980s to push for a ban on all military use of space, but as an intermediary step to ban on the development, testing, production, deployment and use of any space weapons, and ASATs, leading to its later positions. Kulacki (2010).

⁶⁵ Xiaodan Wu, "China and space security: How to bridge the gap between its stated and perceived intentions," *Space Policy*, Vol. 33, Part 1 (August 2015), pp. 20-28. Wu asserts that although China is exploring military space capabilities, the primary goal of the PRC's space activities is not to gain asymmetric military advantages. So, although China is expanding its space-based surveillance, reconnaissance, navigation and meteorological and communications satellite constellations, the focus is on navigation and communication satellites rather than reconnaissance and signals intelligence satellites and microsatellites.

Further, according to Wu, Beijing consistently emphasizes the peaceful intention of its space program and claims to honor its obligations under the OST as shown through its White Papers on Space Activities, which repeatedly declares that one of the purposes and principles of its space activities is to utilize outer space for peaceful purposes. See First Section of the 2000, 2006 and 2011 White Papers on China's Space Activities issued by the State Council Information Office of the People's Republic of China. Xu also asserts that: 1. Because of prejudice, China must be seen to comply with international law to a higher standard than Western nations. 2. China's violation of its international obligations (an oblique reference to the 2007 ASAT test) means that China is seen to threaten space security and that the U.S., which has more advanced counterspace capabilities uses these to stoke concern. 3. That the U.S. magnifies the climate of mutual suspicion. 4. That the U.S. fundamentally and perhaps purposely misattributes the fundamental Chinese philosophy of "active defense" and "hide our capabilities and bide our time," which really mean that China will not attack unless it is attacked and that China is trying to be deliberately modest about its capabilities out of Confucian culture of humbleness as China being increasing assertive while hiding its real intentions.

⁶⁶ Kulacki (2010), pp. 284-285, 292-294. The greatest threat seen by the U.S. are China's direct-ascent and co-orbital ASAT programs. The SC-19 missile test in 2007 followed two non-destructive tests in 2005 and 2006, additional SC-19 tests in 2010, 2013, and 2014 demonstrating the ability to strike LEO, where the majority of the 549 U.S. satellites reside (including 30 military intelligence satellites), with the new DN-2, probably available in the 2020-25 timeframe technically capable of striking GPS and ISR satellites in higher medium Earth orbit. China's suspected development of co-orbital ASATs (satellites armed with explosive charges, and/or fragmentation devices, kinetic energy weapons, lasers, radio frequency weapons, jammer, robotic arms and so on) since 2008 with the BX-1, the SJ-12, CX-3, SY-7, and SJ-15 satellites is seen as another major threat to space security, since they provide several advantages over direct-ascent ASAT, including their ability to target satellites in all orbital regimes, conduct attacks without geographical limitations, and their stealth. In addition, since 2000, China has launched at least 28 microsatellites which have lower observable signatures than larger satellites, making them harder to track.

Concerns also exist about China's space-based command, control, communications, computers, intelligence, surveillance and reconnaissance (C4ISR) modernization, which has seen the launch of increasingly sophisticated feature electro-optical, SAR, and ELINT sensors on the *Yaogan*, *Shijian*, *Gaofen*, and *Haiyang* satellites, along with data fusion capacity, which when used in combination are crucial for locating, targeting and tracking targets. The *Yaogan* series, for example, can be used for MDA capabilities support of the PLA's efforts to detect, track, and target foreign ships, such as U.S. carrier strike groups. The *Shijian* series is suspected of providing the building blocks for a space-based EW system, potentially enabling China to switch its military doctrine from "no first use" to "launch on warning." The *Gaofen* series of sub-one-meter resolution reconnaissance satellites may be capable of supporting battlefield operations.⁶⁷

Further, some U.S. analysts argue C4ISR capabilities are being supported by a growing fleet of secure, dedicated military communications satellites (*Chinasat-1A*, *Chinasat-2A*, *Chinasat-20A*, and *Chinasat-22A*) and a growing disaggregated fleet of commercial satellites that can be deputized in times of conflict. As noted at the beginning of this chapter, China launched the world's first experimental quantum communications satellite in 2016. This may eventually enable the PLA to instantaneously send, receive, and decipher messages around the world using a virtually unbreakable encryption key to provide secure electronic transmission of sensitive information. China's network of military communication satellites will be assisted by its *Tianlian* data relay satellite constellation, which will reduce the time the PLA must wait to receive data from its ISR satellites and thus enhance its ability to provide near-real-time ISR data to locate, track, and target adversary ships in the Pacific.⁶⁸ Lastly, the 35-satellite Beidou regional satellite navigation system, when fully operational (the target year is 2020), will be able to provide the PLA with sub-10-meter accuracy targeting capability, friendly force tracking, and secure communications. The constellation's accuracy will be further supplemented by an extensive network of ground stations throughout Asia and elsewhere.⁶⁹

U.S. Reponses

The U.S. has since 2010 put forth efforts improve its own SSA capabilities, share more information with other space actors, notably Japan, and adding new capabilities, such a space-based surveillance satellite launched in September 2010 into a polar orbit from which it can scan all of GEO once a day. This section however, focuses on how the orbital debris problem and concerns about the PRC's motives, behavior, and lack of transparency in its space program have become a major rationale for closer U.S.-Japan defense cooperation, especially in outer space – cooperation which has been increasingly and emphatically emphasized since 2010. In later chapters, this relationship will be analyzed in terms of the SAF framework, but for now, it is important to establish the fact that actions by China have caused a major evolution in the U.S.-Japan security relationship.

⁶⁷ Eric Hagt and Matthew Durnin "Space, China's Tactical Frontier," *The Journal of Strategic Studies*, Vol. 34, Issue 5 (October 2011), pp. 733-761, in which they see China's burgeoning electro-optical, SAR, and ELINT capabilities for MDA and C4ISR. They note that since 2001 China has launched 32 reconnaissance satellites that can be used directly or indirectly for military targeting and tactical support, 15-17 of which may be currently operational, including the *Yaogan-2*, *Huangjing-1B*, *Shijian*, *Tianhui-1*, *Beijing-1* and *Haiyang-2A* satellites. Further, they assert that these capabilities may be able to enable the PRC to offer a "counter punch" to enable China to prosecute its (A2/AD) capability around its perimeter, particularly in a contingency involving Taiwan, or even possibly over the Senkaku Islands.

⁶⁸ Commission, 2015, pp. 299-301, 316-7.

⁶⁹ *Ibid*, pp. 301-302.

In fact, in the field of concerns about space security, increasingly since 2007, SSA has become a major plank of U.S.-Japan security cooperation.⁷⁰ The U.S. Joint Space Operations Center (JspOC), which coordinates most of the U.S.'s SSA assets has, over the last decade, significantly and deliberately increased not only its technical tracking and collision avoidance role, but also its cooperative engagement and diplomatic footprint. Technically, it has increased its capabilities so as to provide regular conjunction analyses for all active satellites against all objects in its catalogue. As a tool of U.S. diplomacy, the center, as of 2016, had forged legal agreements to facilitate data sharing with 16 commercial entities, and has been targeting sharing space surveillance data and costs with friends and allies, starting with Europe and more recently Japan. By 2017, JspOC had provided over 1,100 notifications to nations around the world, including Russia and PRC in 2011 alone, and in 2014 JspOC tracked more than 16,000 objects, only about 5 percent of which were functioning payloads or satellites, 8 percent rocket bodies, and about 87 percent space debris, including inactive satellites.⁷¹

The 2007 ASAT shock must also be contextualized in the framework of the more conservative and unilateralist stance in the U.S. National Space Policy of 2006 that was adopted by the George W. Bush administration towards any proposals for new legal regimes on outer space or restrictions on military research and development. However, continued and growing U.S. concern about the PRC's space program and motives meant that under the Presidency of Barack Obama, which pursued a less unilateral stance than his predecessor, and which was more focused on looking for areas of cooperation with allies on areas that do not impede with U.S. space supremacy, the U.S. has been working to more closely tie in and coordinate SSA efforts with allies.⁷²

In this context, U.S. coordination with Japan to boost its SSA systems has become much stronger. In the first U.S.-Japan Space Security Dialogue in 2010 and following summits between President Obama and Prime Minister Noda in 2012, and with Prime Minister Abe in 2014, the U.S. made it increasingly clear that it expected increasingly integrated military space cooperation with Japan.⁷³ For example, the June 2011 Security Consultative Committee (SCC), or the "two-plus-two" (2+2), consisting of both countries' foreign and security ministers stated that the partners strengthen cooperation on "other evolving threats, such as to outer space" and specifically in SSA, MDA, QZSS, and dual-use sensors for ISR purposes.

This was followed by an SSA information sharing agreement in 2012. Then, an October 2013 SCC meeting called for the partners to more concretely promote SSA and MDA and cooperate on supporting the ICoC. The allies also established a bilateral Defense ISR Working Group to start the major step of involving the MOD in SSA activities.

⁷⁰ For a discussion on the growing importance of SSA, see Stefan A. Kaiser, "Legal and Policy Aspects of Space Situational Awareness," *Space Policy*, Vol. 31, No. 5 (February 2015), pp. 5-12.

⁷¹ Brian Weeden, "The Numbers Game: What's in Earth's Orbit and How do We Know?" *The Space Review*, 13 July 2009; Jessica West (ed.) *Space Security 2009*, pp. 33-35; Jeff Foust, "A new eye in the sky to keep an eye on the sky," *The Space Review*, 10 May 2010; Frank Rose, "Laying the Groundwork for a Stable and Sustainable Space Environment," *United Nations Institute for Disarmament Research, Space Security Conference*, Geneva, Switzerland, 29 March 2012.

⁷² National Space Policy of the United States of America, June 28, 2010, Office of the President of the United States.

⁷³ Hiroshi 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, 3 March 2016.

A following U.S.-Japan Comprehensive Dialogue on Space in March 2013 saw the partners agree that the QZSS system would backup GPS in the event of a conflict.⁷⁴ Further, in the Second Comprehensive Dialogue on Space of May 2014, Japan's space assets were declared "indispensable" for U.S.-Japan security and it was agreed that JAXA would provide SSA data to U.S. Strategic Command. Subsequently, the Third Comprehensive Dialogue of September 2015 stressed SSA and MDA bilateral cooperation, leading to the present revised Defense Guidelines.⁷⁵

Japanese-U.S. Cooperation

As shown in Chapter 2, space development and policy in Japan was relatively ignored by mainstream international relations scholars because of the lack of a perceived connection to national security. However, as for Japan, the 2007 ASAT test provided another stark demonstration of Japan's vulnerabilities to space-based capabilities. To the U.S., it signified the potential of the PRC to offer a broader challenge to the U.S.'s control of the global commons in space.⁷⁶ Japanese policymakers are also concerned about the increasing integration of the PLA's conventional and space capabilities to exercise military force and anti-access/anti-denial (A2/AD) across four domains of warfare.⁷⁷

In terms of a temporal empirical narrative, it is easily possible to see how space-related concerns have provoked changes and responses in Japan's security stance. Aside from the IGS issue, in response to perceived security threats from North Korean ballistic missiles, the SDF quickly decided that the traveling of interceptor missiles through space was allowable and responded through the adoption of BMD as a defensive counterspace system. Such a system had, in fact, already been under study since the mid-1980s, as was discussed in detail in IDOJ. In 1998, Japan's Security Council and the Cabinet agreed to joint technical research with the U.S. for components of a sea-based upper-tier system, the current *Aegis* BMD System. The 2001 MTDP declared Japan would continue to research BMD and the Security Council and the Cabinet on December 19, 2003 approved its introduction.⁷⁸ Japan's BMD capabilities have subsequently developed to consist of the completed deployment by 2010 of the ASDF's *Patriot* Advanced Capability-3 (PAC-3) system, and the upgrading and testing with the U.S. from 2007 of the MSDF's *Aegis* destroyer Standard Missile-3 (SM-3) BLK-IIA system, and plans for the augmentation of the MSDF's *Aegis* destroyer fleet to number eight in total. Each year new enhancements are announced, but facing concern about the rapid advancement of North Korea ballistic missile capabilities and the possibility that North Korea may soon be able to launch a nuclear strike even on the U.S., Japan has decided to considerably bolster its BMD architecture with a third layer based on the *Aegis Ashore* system.

Japan's response in terms of using space technologies was, as we have seen, however, much more cautious. The evidence presented in the following empirical and analytical chapters will show that the 2007 ASAT launch only played an indirect role, if any, in the drawing up of the 2008 *Basic Law*. The

⁷⁴ 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, 21 June 2011, pp. 7, 9.

⁷⁵ 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*, 12 September 2015.

⁷⁶ Japan Ministry of Defense, *Defense of Japan 2008*, p.50.

⁷⁷ U.S.-China Economic and Security Review Commission, 2014 Report to Congress of the US-China Economic and Security Review Commission, Washington D.C., November 2014, pp. 322-328; Bōeishōhen, Bōei Hakusho 2014, pp. 40, 107-108.

⁷⁸ Hideaki Kaneda, Kazumasa Kobayashi, Hiroshi Tajima, and Hirofumi Tosaki, *Nihon no Misairu Bōei: Henyō Senryaku Kankyō Shita no Gaikō Anzen Hoshō Seisaku* (Tokyo: Nihon Kokusai Mondai Kenkyūjo, 2006), pp. 91-104.

MOD became concerned – as in the aftermath of the 1990-1991 Gulf War and North Korean missile launches from the mid-1990s onwards – that it was effectively strategically blind without dependence on satellite reconnaissance, EW intelligence, and GPS provided by the U.S., so spelling risks of entrapment.⁷⁹ However, after 2007, it becomes apparent from MOD policy statements that Japan had started to feel increasingly strategically vulnerable in terms of its limited access to space-based ISR and SSA – disadvantages that deprive policymakers of tactical and strategic autonomy over SDF deployments and commitments to support the U.S. in conflict situations.⁸⁰

In this context, it can be said that Japan took note of the 2010 U.S. National Security Strategy and the 2014 Quadrennial Review that asserted the U.S.’s need to maintain superiority in space through more resilient systems, including diversified ISR, SSA, MDA, and space-based precision strike; and that the U.S. can in part achieve this through partnering with Japan, so the expansion of access to allied ISR systems and collaborative development of space capabilities suits both sides.⁸¹

Thus, in discussing *Basic Plan 2016*, it is important to note that Japan precipitated a major defense enhancement through deciding to adopt BMD, which has close connections to military space. *Basic Plan 2016* fully endorses this bilateral balancing approach, devoting its crucial opening statements to how Japan must boost independent military space capabilities (*jiritsusei kakuho*) in order to fully support the U.S.⁸²

⁷⁹ Tsuyoshi Sunohara, *Tanjō Kokusan Supai Eisei: Dokuji Jōhōmo to Nichibei Dōmei* (Tokyo: Nihon Keizai Shimbunsha, 2005), pp. 15-46; Kallender-Umezu, *Space News*, October 2014.

⁸⁰ Sugio Takahashi, “Japanese Perceptions of the Information Technology-Revolution in Military Affairs: Toward a Defensive Information-Based Transformation,” in *The Information Revolution in Military Affairs in Asia*, (eds.) Emily O. Goldman and Thomas G Mahnken (New York: Palgrave Macmillan, 2004), pp. 90-92.

⁸¹ Department of Defense, National Security Space Strategy; Department of Defense, *Quadrennial Defense Review 2014*, Washington D.C., Department of Defense, 2014, pp. 20, 33, 37.

⁸² Uchū Kaihatsu Senryaku Honbu, Uchū Kihon Keikaku, 9 January 2015.

Chapter 5

Five-Phase Analytical Approach to Policy and Administrative Transition 1969-2016

Introduction

Japanese space policy transition is a product of both exogenous pressures and a blend of complex and particular domestic institutional, political and economic frameworks. Exogenous pressures include security concerns, which were initially focused on North Korea, and more recently over the past decade increasingly from the PRC. Other significant pressures include the U.S.-Japan alliance. Initially, U.S. concerns were to manage the direction of Japan's space program. Latterly U.S. has wanted Japan to rebalance its security strategy to meet that of the U.S.'s "pivot." In terms of internal balancing, an examination of domestic institutional, political and economic frameworks is also vital, as Chapters 1 and 2 explain. The task from here on, then, is to identify and explain the relationships between the external and internal factors involved in updating space policy to meet these various needs, that eventually resulted in *Basic Plan 2016*.

This chapter examines empirical evidence addressing Japan's space policy change from the late 1960s to the present using a five-phase process. Now that we have identified and confirmed that Japan faces serious security threats (exogenous threats), this chapter uses a conventional approach to explain Japan's reaction to those exogenous factors and combine them with a brief explanation of the role of domestic factors.

Policy Transition: A Conventional Five-Phase Narrative

A comparison of *Basic Plan 2016* against previous benchmarks can be used to discuss in what ways space policy has changed in terms of goals in a simple narrative. It is possible to trace the path toward today's policy in terms of five distinct phases adjusting between domestic arrangements and exogenous pressures.¹ In the first phase, from around 1969-1998, Japan was committed to a completely non-military space development policy, focused mainly on technological catchup with other space powers. The principal of civilian control was reinforced by deliberately divided and competitive institutional arrangements. At least until the mid-1990s, it can be said that Japan perceived few perceived urgent or serious security threats that required it to consider establishing a military space program, or to question the PPR. Policy makers, program managers and development agencies were largely happy to play the junior partner to the U.S., meanwhile steadily building up Japanese technologies and capacities.

A second phase, 1998-2005, saw tentative reforms and internal balancing to deal with increasing regional security threats and concomitant strains and tensions with domestic policy (the suitability of the PPR) and creaking institutional arrangements. The third phase, from 2005-9, saw a series of internal adjustments that led to the attempt to re-orientate space policy away from the PPR to one in line with the OST, while attempting to also re-orientate the administrative structure to achieve these goals, resulting in the *Basic Law*. A fourth phase from 2009-12 saw a period of on-off political pressure to implement the *Basic Law*, confusion, and bureaucratic resistance to change, which boiled down to a struggle for power between the politically-led attempt to assert Cabinet Office control over policy and budgeting from the incumbent power of MEXT in order to implement the *Basic Law*. This led in 2012 to the establishment of

¹ Paul Kallender, "Japan's New Dual-Use Space Policy: The Long Road to the 21st Century," *Asie.Visions*, No 88, Institut Français des Relations Internationales, November 2016.

the ONSP and the SPC. This structure was eventually able to achieve a working compromise between itself and other bureaucratic actors, when the Cabinet Office finally managed to take control of the budgeting of the QZSS system. Finally, in the fifth phase, from 2013-15, another political intervention, U.S. pressure, and more assertive prime ministerial leadership were required to push to a more definitive policy and the best-effort compromise settlement between all the players that led to the timetabled implementation of many, but not all of the shopping list of programs and capabilities suggested as desirable in the *Basic Law* with the publication of *Basic Plan 2016*.

The Phases in More Detail: Phase 1, 1969-1998

In a more conventional narrative based on recognizing how Japan's space policy transition can be seen in terms of balancing (with the analysis not beholden to a particular international relations framework), this phase can be split into (a) bureaucratic arrangements; (b) policy orientation, and; (c) the international situation. Regarding bureaucratic arrangements, Japan's space program as designed in 1969 was deliberately enveloped in multiple layers of legal, diplomatic and institutional arrangements that hermetically sealed space development from security strategy, based on the PPR.² Further, these arrangements also deliberately segmented implementation of space activities into a competitive institutional framework. JAXA's precursor, NASDA, under the STA was tasked with applied research that would spur the growth of a domestic space industry, while the much smaller Institute for Space and Astronautical Science (ISAS) under the Ministry of Education (MOE) dealt with space science. The Ministry of International Trade and Industry (MITI, later METI) was deliberately excluded a major role. This normative framework was reinforced by the principal of civilian control; the SDF was strictly prohibited from any involvement in space activities.³

In terms of 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. Conventional interpretations see policy at this stage (the 1970s) in terms of broader status-enhancing industrial and technological strategy to enable Japan to "catch-up" with the U.S. and allow Japan to join the small club of advanced spacefaring nations.⁴ Also, during this period, 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.⁵

Meanwhile, Japan comfortably sheltered under the U.S. security guarantee and faced no strong pressure to think about applying its space technologies to dual-use applications – although it did conduct

² Setsuko 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; Aoki (2004), pp. 1-6; Oros, p. 129. For details on PPR see: Waga Kuni ni okeru Uchū no Kaihatsu Oyobi Riyō no Kihon ni Kansuru Ketsugi, May 9, 1969; Setsuko Aoki, *Nihon no Uchū Senryaku* (Tokyo: Keio Gijuku Daigaku Shuppankai, 2006), pp. 174-177.

³ Pekkanen & Kallender-Umezu (2010), pp. 21-34; Berner (2005); Pekkanen, *Picking Winners? From Technology Catch-up to the Space Race in Japan* (Stanford, CA: Stanford University Press, 2003), pp. 161-190; Suzuki (2005), pp. 11-19; Sato (2001).

⁴ By and large, the *Fundamental Policies* were concerned with generalities, mentioning the essential nature of satellites in daily lives and on how space development involves sophisticated generic technology, and propel 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/library/space_law/chapter_4/4-1-1-4/index_e.html.

⁵ Aoki (2004), pp. 1-6.

extensive dual-use experimentation nonetheless, as was noted in Chapter 1.⁶ In general, the U.S. played the role as supervisor and focused on constraining as much of Japanese resources to support U.S. goals as possible by entrapping Japanese budget and manpower in the ISS program. Japan, for its part, pursued a gradualist approach to developing autonomous capabilities by building up its expertise in launch vehicles and broadcasting and communications satellites.⁷

Phase II: Challenges to the 1969 Framework and Attempted Reforms (1998-2001)

In Phase II, it is possible to trace a significant transition in space policy through considering the interplay of (a) domestic challenges; (b) attempted bureaucratic reforms developing into (c) irreconcilable issues that led to the formulation of the *Basic Law*.

In terms of domestic challenges, from the mid-1990s, Japan's policy and institutional framework came under increasing strain, both internally and externally. Such pressures combined, almost feeding off each other, in way that 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 (~ US\$3 billion).

Then, serious external security pressures emerged. In 1998, following the Taepodong "shock," Japan quickly decided to develop the IGS program. As outlined earlier, deferring to the PPR, the satellites, presented as a "multi-purpose information gathering program," were put under the control of CSIC in the Prime Minister's Cabinet Secretariat – although the main customer was the SDF.⁸

As this occurred, attempted bureaucratic reforms came to have a major impact on space policymaking and the administration of Japan's space program. In an attempt to rationalize the central bureaucracy and increase the power of the Cabinet Office and assert political control over spending, Prime Minister Hashimoto instituted his series of institutional reforms. Applied to space activities administration, SAC's role was superseded by the Council for Science and Technology Policy (CSTP,

⁶ Grønning (2014); Hornung (2014); Layne (2000); Lind (2004); Samuels (2007); Hagström & Williamson (2009); Midford (2011); Berger (1998); Katzenstein (1998); Oros (2008); Katzenstein & Nobuo Okawara (2001/2002); Izumikawa (2010).

⁷ Brian Harvey, Henk Smid, and Theo Pirard, *Emerging Space Powers: The New Space Programs of Asia, the Middle East, and South America* (Chichester, UK: Praxis Publishing, 2010), pp. 24-35, 68-74; Hirotaka Watanabe, "Japanese Space Policy during the 1970s: A Road to Autonomy by Modifying the Japan-U.S. Space Cooperation Agreements," *History of Rocketry and Astronautics, American Astronautical Society (AAS) History Series*, Vol. 42 (December 2014), pp. 153-180; Hirotaka Watanabe, "Japanese Space Policy during the 1980s: A Balance between Autonomy and International Cooperation," *History of Rocketry and Astronautics, American Astronautical Society (AAS) History Series*, Vol. 40 (October 2013), pp. 65-80; Hirotaka Watanabe *Japan's Space Strategy: Diplomatic and Security Challenges, Space Strategy in the 21st Century: Theory and Policy* (Taylor and Francis, Routledge, 2012), pp. 278-302; Hirotaka Watanabe, "The Evolution of Japanese Space Policy: Autonomy and International Cooperation," *History of Rocketry and Astronautics, American Astronautical Society (AAS) History Series*, Vol. 36 (January 2012), pp. 271-296; Hirotaka Watanabe, "Japan-U.S. Space Relations during the 1970s: After the Exchange of Notes," *History of Rocketry and Astronautics, American Astronautical Society (AAS) History Series*, Vol. 35 (June 2011), pp. 175-192; Hirotaka Watanabe, "Japan-U.S. Space Relations during the 1960s: Dependence or Autonomy?" *History of Rocketry and Astronautics, American Astronautical Society (AAS) History Series*, Vol. 34 (May 2011), pp. 261-278.

⁸ Pekkanen & Kallender-Umezumi (2010), pp. 130-131, 136-143, 155; Johnson-Freese & Lance Gatling (2004); Oros (2007, 2008); Hughes (2004), pp. 85-8; Hughes (2009), p. 198; Aoki (2009), pp. 381-2; Sunohara (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 U.S. 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.

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 2003.⁹

Following this period, then, Japan attempted to make its first post-Cold War adjustment to space policy. 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 fold Japan's space program into a dual-use national security architecture. Reflecting this trend, policies published by the CSTP successively placed security and crisis management as first in the list of priorities, which also emphasized national autonomy, the development of the IGS constellation, maintenance of solid-propellant rocket technology, and the establishment of what was to become the QZSS system.¹⁰

The emergence of the CSTP, however, created new problems. The CSTP had no power to make budgets and served only in an advisory capacity. Yet SAC retained its authority to request budget. But, crucially, SAC's authority extended to its role only as a committee in MEXT. However, MEXT, absorbing both ISAS and NAL, accreted enormous new budgeting and programmatic control amounting to over 60 percent of the annual space activities budget. But, against this, JAXA and MEXT lacked authority to execute a national or strategic strategy, while JAXA remained legally committed to peaceful purposes-only space activities.¹¹

In other words, the attempted ministerial reforms of the late 1990s led to irreconcilable issues. Following 2003, successive problems arose that proved the new administrative framework inadequate, and policy reorientation outdated in the face of several competing pressures. First, in November 2003, JAXA's new highly-advanced H-IIA 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 in advance of US\$1 billion. Then, interministerial and public-private sector disputes erupted over both the QZSS program and the Galaxy Express (GX) medium rocket program, both of which were designed to be partially funded by the commercial sector.

Regarding the QZSS, under the 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 extant programs, amounting to a zero-sum game.¹² The GX suffered a similar problem when METI tried to take on the project, partnering with the private sector, because the MEXT-dominated SAC was unwilling to use taxpayer money to subsidize METI-backed commercial demands for funds, among other issues.¹³

⁹ Pekkanen & Kallender-Umezu (2010), p. 62.

¹⁰ 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), *Kongō 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, 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.

¹¹ Pekkanen & Kallender-Umezu (2010), pp. 41-42.

¹² For the QZSS program, see Pekkanen & Kallender-Umezu (2010) pp. 198-201, 228-231. First investigated in the mid-1970s by the CRL and Melco, what become the QZSS system surfaced as a strategically important space-based infrastructure for Japan by the mid 1990s. Questions about access to space-based positioning rose initially out of Japan's concern about access to GPS signals.

¹³ For historical details on the GX program, see Pekkanen & Kallender-Umezu (2010), pp. 78-79, 175-77. For the QZSS program, see pp. 198-201, 228-231.

Phase III: The Basic Law 2005-2008

To untangle these issues, Takeo Kawamura, MEXT Minister in 2003 during the H-IIA/IGS failure, established an internal National Space Strategy Planning Group (NSSPG) within the LDP. The NSSPG subsequently recommended the Cabinet Office take control of space policy, conduct an audit of the institutional framework, and recommended that Japan consider revising or scrapping the PPR to pave the way for a more flexible use of space for national security purposes and to create a new domestic procurement market (or as IDOJ put it, to create a domestic military market.)¹⁴

At the same time, from the late 1990s, the U.S. worked further to ease Japan into a more cooperative and active partnership. As we saw in Chapter 2, the Japanese space program had come the subject of various think-tank reports. The U.S. did not oppose indigenous IGS development, and allowed the use of key U.S. technologies on the Japanese-made satellites. Concomitant with IGS development, the U.S. first began to actively involve securing Japanese cooperation on joint BMD development. Through the 2000s, the U.S. swung around to support development of QZSS system to supplement and complement the GPS system. Initial steps toward today's integration of the QZSS into a broader alliance dual-use strategy kicked off at the first U.S.-Japan Plenary Meeting on GPS Cooperation in 2001 and ten subsequent coordination meetings.

Then, the 2007 direct-ascent ASAT test precipitated international concern. Uncertainty surrounding Chinese intentions and the apparent burgeoning of Chinese counterspace capabilities such as laser-blinding and co-orbital ASAT technologies, but also the increasing integration of the PLA's conventional and space capabilities to exercise military force and A2/AD across all four domains of warfare became a serious concern to the U.S., as noted in Chapter 3, drawing the allies together.¹⁵

Building on this narrative and interpretative framework, it is possible to understand much of the context of *Basic Plan 2016* by tracing Japan's response to a series of domestic initiatives, difficulties, and exogenous pressures, beginning with the *Basic Law*, which was designed to find a way to cope with external security pressures. As was noted in Chapter 1, 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. However, more importantly, the *Basic Law* also mandated a revision of policymaking structures and the administrative framework in order to ensure implementation of the new direction.

Specifically, the *Basic Law* 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

¹⁴ Kawamura was MEXT minister during the H-2A failure of 2003 and incensed by it. For the NSSPG's report, see Pekkanen & Kallender-Umezu (2010), pp. 83-40. See [国家宇宙戦略立案話会] 報告書 — 新たな宇宙開発利用制度の構築に向けて — 2005年8月 国家宇宙戦略立案話会 [Report by the National Space Strategy Planning Group "— Toward establishment (sic) of new space development and utilization system —" Report by the National Space Strategy Planning Group, August 2005], esp. pp. 5-13, 25-30, 61-66; Suzuki (2007), pp. 76-80.

¹⁵ 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, U.S.-China Economic and Security Review Commission, *2014 Report to Congress of the US-China Economic and Security Review Commission*, Washington D.C., November 2014, pp. 322-328; Bōeishōhen, Bōei Hakusho 2014 (Tokyo: Zaimushō Insatsukyoku, 2015), pp. 40, 107-108.

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.¹⁶

The SHSP was supposed to construct a framework to give the Cabinet Office sufficient control to fund the QZSS program and GX rocket, and any new national security-connected budget lines. In an attempt 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 MIC but with significant input and program jurisdictional rights from the Cabinet Office and METI. The *Basic Law* effectively, then, fundamentally pitted the SHSP against embedded ministerial domains and budgets. Thus, it is very easy in terms of a conventional narrative approach to characterize subsequent attempts to implement the *Basic Law* as a series of battles between different bureaucratic interests, notably intra-ministerial competition, resulting in successive failures to coordinate, that, in turn, resulted in the necessity to produce a series of reformulated *Basic Plans*.¹⁷

Phase IV Contested Implementation (2009-12)

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 2016* 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 would not 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.¹⁸

However, the plans were shelved with the impending election of the Democratic Party of Japan (DPJ), which had supported the *Basic Law*, but which also wanted to exert more political control over the bureaucracy and cut what it identified as public waste. The DPJ's radical agenda favored the Uchūchō option, pitting it squarely against MEXT.¹⁹ The result was the subsequent 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 ten-year targets for developing a dual-use land and ocean observing satellite system, (which was for a time to become an MDA system proposal), advanced telecommunication satellites, QZSS, and further reconnaissance systems. To fund the proposed observation system, and to

¹⁶ Kazuto 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, No. 4 (November 2008), pp. 171-174; Kallender (2013).

¹⁷ Suzuki (2008); Kallender (2013).

¹⁸ Waga Kuni no Uchū 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]; Uchū Kaihatsu Riyō Taisei no Arigata ni tsuite Ikken (Monbukagakushō Teishutsu Shiryō) [Opinion on Concerning 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 it should retain control of JAXA and that JAXA be the main pillar of Japanese space development.

¹⁹ Suzuki (2008); Kallender-Umezū (2013). The following paragraphs draw on these two papers and fieldwork conducted by the author at the time.

advance the QZSS system to a three-satellite configuration, *Basic Plan 1* required increasing the overall space activities budget stepwise to around ¥500 billion annually.

Meanwhile, the MOD in 2009 released its own *Fundamental Plan*. Citing the need to respond to China's ASAT test and other emergent space technologies, the plan recommended Japan research the necessity of a wide range of technologies, including: 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).²⁰

However, in December 2009, the MOF rejected funding for *Basic Plan 1* because of the inability of the SHSP to coordinate the programs with ministerial actors, which had refused to cooperate while they awaited the new policy implementation proposals by the incoming DPJ administration of September 2009.²¹

Under the DPJ, relations with the bureaucracy proved difficult. First, in December 2009 the DPJ scrapped the GX, and targeted JAXA, arousing opposition from the bureaucracy.²² The following spring, in order to establish the Uchūchō – the least desirable option for MEXT – activist State Minister for Space Development Seiji Maehara attempted to bypass the SHSP by establishing a private committee of politically appointed reform-minded experts.²³ A subsequent April 2009 report's recommendation to establish an Uchūchō further deepened the resistance of MEXT and the LDP-appointed SHSP, which felt it had been sidelined.²⁴

Phase V: Domestic and International Balancing (2012-15)

Subsequently, five years of coordination issues (or power struggles, to put it more bluntly) 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 programmatical, policy and budgetary authority for the QZSS program. And then, 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.

²⁰ Strategic Headquarters for Space Policy, Bōeishō Uchū Kaihatsu Riyō Inkaï, Uchū Kaihatsu Riyō ni Kansuru Kihon Hōshin ni Tsuite, January 15, 2009. TacSat programs are designed to utilize microsattellites, and affordable and quick-response launch vehicles to rapidly deploy capabilities to satisfy tactical imagery and data to military commanders. The U.S. ORS initiative since 2007 has employed the Minotaur and the Raptor and SPARK, or Spaceborne Payload Assist Rocket (*Super Strypi*) air-launch rockets. As noted in Chapter 1, Japan's dual-use space programs directly mirror these efforts, with the *Epsilon*, as one of the world's most highly advanced solid-fueled rockets, serving as a potential fast-access multipurpose launch vehicle for a range of military-use satellites.

²¹ Strategic Headquarters for Space Policy, Basic Plan for Space Policy: Wisdom of Japan Moves Space, 2 June 2009, pp. 7, 26; Kazuto Suzuki, "The first step of the new space policy - Assessment of the Space Basic Plan, July 2009," *Science Links Japan*; Aoki (2009).

²² Paul Kallender-Umezu, "Japan's GX Rocket Targeted for Cancellation in 2010," *Space News*, 20 November 2009; Aurelia George Mulgan, "Round two of Japan's government revitalisation," *East Asia Forum*, 3 June 2010.

²³ Moltz (2012), 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, pp. 28, 31; Setsuko Aoki, "The Impact of the General Election on Japan's Space Program," *Res Communis*, 1 September 2009.

²⁴ Kongō no Uchū 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*, 3 May 2010, p. 10; Paul Kallender-Umezu, "Profile Seiji Maehara, Foreign Minister, Japan: Building on Success," *Space News*, 18 October 2010; See also, Ministry of Education, Culture, Sports, Science and Technology (MEXT). Tatsuo, Kawabata, Monbukagakushō Daijin Kisha Kaiken Roku [Record of MEXT Minister Tatsuo Kawabata's press briefing on 23 April of 2010]; Anan (2013), pp. 210-218, esp. p. 211.

The ONSP was established in June 2012, when the Diet passed the “Partial Revision of the Cabinet Office Establishment Act.” Crucially, the Act also 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 *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 the SPC reporting directly to the prime minister to provide policy, program prioritization and budgeting recommendations within the Cabinet Office.²⁵ The new arrangements can be seen in Figure 1, Chapter 1.

The subsequent *Basic Plan 2* of January 2013 drawn up by the ONSP reformulated *Basic Plan 1* and newly attempted to prioritize the global (now restyled as a “wide-area”) EO monitoring constellation which was to could be used for maritime surveillance (MDA) purposes. But this initiative, again, 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 substitute its ideas for the “wide-area” EO/MDA constellation.

Crucially, however, the METI-backed wide-area proposal bypassed the SPC, abrogating the SPC’s coordination skills, expertise, and both personal and professional relationships necessary to smooth the way.²⁶ Insufficient consultation also provoked the CSIC, the MOD and the MOF in December 2013 to reject the proposed wide-area EO program as unsuitable.²⁷ *Basic Plan 2* did, however, succeed in getting the QZSS development funded under the budgetary control of the Cabinet Office.²⁸ But the failure to coordinate the wide-area EO constellation came at a critical time, just after the LDP returned to power, after a three-year hiatus, under Prime Minister Abe, who had established the NSC and NSS. The NSS put enormous policy pressure on the ONSP, and can be seen as the midwife of *Basic Plan 2016*.

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 Takeo Kawamura (again), and his deputy Hiroshi Imazu, newly elected chair of the LDP’s Special Committee for Space and Ocean Development, (SDSS), and a former Vice-Minister for Defense (and a former member of the SSSPG). 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.

At this stage, U.S. coordination with Japan to implement the *Basic Law* became important. Following the first U.S.-Japan Space Security Dialogue in 2010 and subsequent summits between President Obama and Prime Minister Noda in 2012, and Prime Minister Abe in 2014, the U.S. made it increasingly clear that it desired increasingly integrated military space cooperation with Japan, as noted in Chapter 4 and above. The important new twist to this was the fact that the Abe administration was fully supportive and focused on the same, with Abe willing to take personal interest in the topics as a matter of priority.

²⁵ Naikakufu Sechi Ho Nado No Ichibu wo Kaisei Suru Hōritsu Dai- Sanju Go Go, [Partial Revision of the Cabinet Office Establishment Act Law 35].

²⁶ For details on the Advanced Satellite with New system Architecture for Observation (ASNARO) program, see, for example, the Japan Space Systems (JSS) website.

²⁷ 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 SPC, Hiroshi Imazu, Chairman of the LDP’s Special Committee on Space and Maritime Development, all in Tokyo.

²⁸ Strategic Headquarters for Space Policy, Basic Plan on Space Policy, January 25, 2013; Naikakufu Uchū Senryakushitsu, Uchū Kihon Keikaku.

Reflecting all these pressures, Imazu (now Chairman of the LDP's Space Policy Committee), published a report that urged the ONSP to establish a National Security Space Strategy (NSSS) directly linked to the NSS and suggested the founding of 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 U.S. Defense Advanced Research Projects-type role.²⁹ This report acted as a political lever that pushed the ONSP to produce its August 2014 Mid-Term Statement (MTS), and subsequent *Basic Plan 3*.³⁰ The MTS subsequently stated for the first time that Japan must indeed develop a NSSS. The MTS itself was significant as Japan's first statement to explicitly place military space development as top priority.³¹

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 extant and future dual-use technologies, including all EO-use satellites, IGS, SSA, and MDA. The MOD also stated it would use the QZSS for military purposes and it requested its own high bandwidth communications infrastructure. Last but not least the MOD proposed developing a missile detection sensor to be mounted on a dual-use JAXA reconnaissance satellite.³²

The MTS provided the framework for *Basic Plan 3* of January 2015, which was designed to be a fuller and complete (and implementable) version of the MTS with a five-year timetable and ten-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 and prioritized the need for Japan to fortify Japan's ISR, MDA, and SSA capabilities, and develop QZSS into a regional GPS system.³³

However, yet again, due to further internal struggles, despite a range of pressures placed on the ONSP, *Basic Plan 3* failed to achieve approval of the MOF 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 U.S. “rebalance” through the revision of the U.S.-Japan Guidelines for Defense Cooperation put further pressure on the bureaucracy to produce a fully-timetabled plan. Backed by the SCC Joint Statement of April 2015 that 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 necessitated further coordination to secure budget, resulting in *Basic Plan 2016*, which provided clearer timetables for the development of critical programs, particularly the

²⁹ 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 kilograms 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 Seta) working in close cooperation with U.S. 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.

³⁰ Uchū Seisaku Inikai, Kihon Keikaku Chūkan Matome (An), August 20, 2014.

³¹ Ibid. Uchū Seisaku Inikai 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 Inikai, Heisei 26 Nen 8 Gatsu 28 Nichi; Paul Kallender-Umezu, ‘A New Direction For Japan's Space Program?’ *Aviation Week & Space Technology* (hereafter *AWST*), May 6 2013, p. 36.

³² Bōeishō Uchū Kaihatsu Riyō Suishin Inikai, Uchū Kaihatsu Riyō ni Kansuru Kihon Hōshin ni Tsuite (Kaiseiban), 28 August 2014.

³³ Uchū Kaihatsu Senryaku Honbu, Uchū Kihon Keikaku, January 9, 2015.

doubling of the IGS constellation. This latest plan, then, represents a renegotiated version of *Basic Plan 3* that provides more concrete funding pathways for today's basket of dual-use national security space programs.³⁴

³⁴ 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," 27 April 2015, p. 4.

Chapter 6

Application of the SAF Framework to Space Policy and Administrative Transition

The conventional analysis outlined in Chapter 5 represents a synthesis of current scholarship that seeks to steer a middle course between various interpretive frameworks and my own research to account for internal and external balancing, while taking into account at least some of the layers (and players) involved in decision-making. In this conventional account, we can see security pressures and an action-reaction cycle developing in terms of Japan's response to security pressures, modulated through the interplay between various players, particularly between politicians and the bureaucracy, and within the bureaucracy. To create a coherent picture that takes into account all the elements that combined to produce the particular features of *Basic Plan 2016*, this dissertation now applies an SAF framework that replaces the decision levels outlined in Chapters 1 and 3 with SAFs.

Formulation of the General Space Activities SAF

Phase I of the conventional narrative can be transposed into seven or eight sub-SAFs comprising most of the characteristics and elements required to understand the establishment of the overall General Space Activities SAF comprising both Japanese space policy and administration issues. I will call this SAF the Initial General Space Activities SAF. Within this SAF, there are precursor SAFs, which I will call SAFs numbers 1 through 7. Within these, SAF 1 composes the international situation (which could also be called the wider field environment); SAF 2 composes the U.S.-Japan security relationship; SAF 3 delineates the internal political players; SAF 4 composes the bureaucratic players; SAF 5 composes the subgovernment players; SAF 6 composes industrial stakeholders, and; SAF 7 represents public opinion.

The description of the interplay between these SAFs will compose the Initial General Space Activities SAF. Following the SAF framework approach, the analysis of the Initial General Space Activities SAF, then, is a study of the composition of an SAF born out of tensions and catalyzed by a major externality pressure (an episode or episodes of contention). As implied, the task of this section looking at field formation is to establish the *players*, their *motivational matrices*, *incumbents and challengers*, and internal governance units, and identify *sources of contention* as well as the shock(s) or externalities that force change.

SAF 1: International Security Situation

Characteristics and contentions: During the formation of the Initial General Space Activities SAF, SAF 1 played an indirect role in the orientation of the other SAFs. Against Soviet Russian and Chinese nuclear threats amplified by the militarization of space technologies, Japanese policymakers remained largely confident in the U.S.'s superiority and ability to moderate security dilemmas in the conventional, nuclear and spaced domains. Japan pursued minimalist external balancing through strengthening its conventional capabilities and commitments to the emerging U.S.-Japan alliance, obviating the need for internal balancing through the build-up of its own nuclear and space capabilities.

However, China's rapid acquisition of nuclear weapons, from a basic multi-kiloton level fission implosion bomb in 1964, to a deliverable multi-megaton fusion weapon in 1967, started to pose concerns

for Japan.¹ Against this, international negotiations were proceeding through the UN towards the establishment of the OST with the emphasis shared by both space powers, the U.S. and Soviet Russia that the peaceful use of space would be interpreted along the lines of non-aggressive use, as explained in Chapter 4.

Figure 17: Initial SAF 1



SAF 2: The U.S.-Japan Security Relationship

Characteristics and contentions: SAF 2 played a major role in the orientation of the other SAFs and the formation of the General Space Activities SAF. By the mid-to-late 1960s, the U.S. was becoming concerned about the military potential of Japanese space development, in particular, the potential for the convertibility of early Japanese solid-fueled rockets into ballistic missiles. U.S. documents declassified in March 1996 show that around September 1965 the U.S. assessed the growing technical competency of Japan's solid fueled rockets and concluded that Japan would have the technology to develop ballistic missiles within three years following the January success of the *Lambda L-3-2* rocket launch by the University of Tokyo to reach a 1,000-kilometer orbit. Its successor in July 1966, the *L-3H-2*, actually reached 1,800 kilometers.² National security and U.S. State Department memoranda of the period emphasized the need to steer Japan away from the development of more capable ballistic missile capability by offering superior U.S. liquid-fuel technology. In 1965, U.S. President Lyndon Johnson sent Vice-President Hubert Humphrey and NASA Administrator James Webb to Japan with an offer extend space cooperation with this technology transfer as a primary goal.³

In terms of the SAF framework, the U.S.'s primary function in the U.S.-Japan relationship during this period especially can be characterized as acting as an external governance unit in which the U.S. saw (and to a greater or lesser degree still sees) its role in space activities as mentor (or at the least, senior alliance partner) to Japan. Given that the U.S. space program was born out of geostrategic rivalry with Soviet Russia and prosecuted for its strategic military value, the U.S.'s expected role in space cooperation would be to guide any emergent Japanese space program away from military potential (unless circumstances changed when it might need Japanese technologies or capabilities, as it indeed transpired). This governance relationship has persisted, arguably, to the present.

¹ For an overview of China's nuclear weapons development see William Burr, Jeffrey T. Richelson, "Whether to 'Strangle the Baby in the Cradle': The United States and the Chinese Nuclear Program, 1960-64," *International Security*, Volume 25, Issue 3 (Winter 2000/01), pp. 54-99; Kallender and Hughes (2016).

² Brian Harvey et. al, *Emerging Space Powers: The New Space Programs of Asia, the Middle East, and South America* (Chichester, UK: Praxis Publishing, 2010), pp. 10, 15, 22; Ward W. Vuillemot, "Japan's Space Development: Past, Present and Future," Graduate thesis for the University of Washington, Department of Aeronautics and Astronautics and Technical Japanese Program, 2001, p. 9; Confirmed in an interview with Tsuzukibashi, 18 April 18, 2006.

³ Pekkanen & Kallender Umezu (2010), p. 108.

The U.S., by trying to establish a global monopoly in space communications wanted to fold Japan and other allies within its strategic space technology sphere to act as a counterpoint to the Soviet and communist bloc. In 1964, the intergovernmental International Telecommunications Satellite Consortium (INTELSAT) was created, and in talks establishing INTELSAT, the U.S. insisted that not only any cooperation be for peaceful purposes, but that no technology was to be exported to other countries, and that Japanese technology be compatible with INTELSAT.⁴

Figure 18: Initial SAF 2



The second growing concern of the U.S. during the late 1960s was the increasing stresses experienced by the U.S.-Japan relationship over the Vietnam War, as the U.S. was becoming increasingly embroiled in the conflict and wary of widespread Japanese reluctance to be seen to play any role in the war. In Japan, opposition to the war was led by the Japan Socialist Party (JSP) and backed by huge popular protests. In addition, discussions were underway during the late 1960s about the return of Okinawa to Japan, complicated by the fact that, despite widespread public opposition, U.S. bases on the island were being used to by the U.S. to prosecute the war.⁵

SAF 3: Internal Political Stakeholders

Characteristics and contentions: During the late 1960s, for the purposes of this dissertation, political stakeholders can be divided into two major camps: the LDP and the left. In terms of motivations of the actors, Prime Minister Eisaku Sato saw his main task regarding alliance management so as to create as little friction as possible with a view to negotiating a return of Okinawa to Japan. As far as conservatives were concerned, trade-related issues also bubbled along with the question of how, in the face of widespread public opposition to the Vietnam War, Japan could support the U.S. while maintaining the basic Yoshida Doctrine. Internally, however, concern about the PRC's nuclear program and the future of the alliance led the JDA to quietly investigate the feasibility of Japan acquiring nuclear weapons, which was already technically feasible. A two-year internal study concluded that acquiring nuclear weapons was counterproductive, *but that the capabilities to do so should be retained*.⁶

The socialist and communist opposition, on the other hand, especially the pro-Soviet left, had an entirely different motivational matrix in that the hard left pressed against any support for the U.S. and

⁴ Harvey (2010), p 24.

⁵ Oros (2008), pp. 103-104, 119, 123, 129: Japan began to supply the U.S. in the Vietnam war; for example, Sony cameras used to guide missiles, but when the public found out, Akio Morita was forced to apologize publicly.

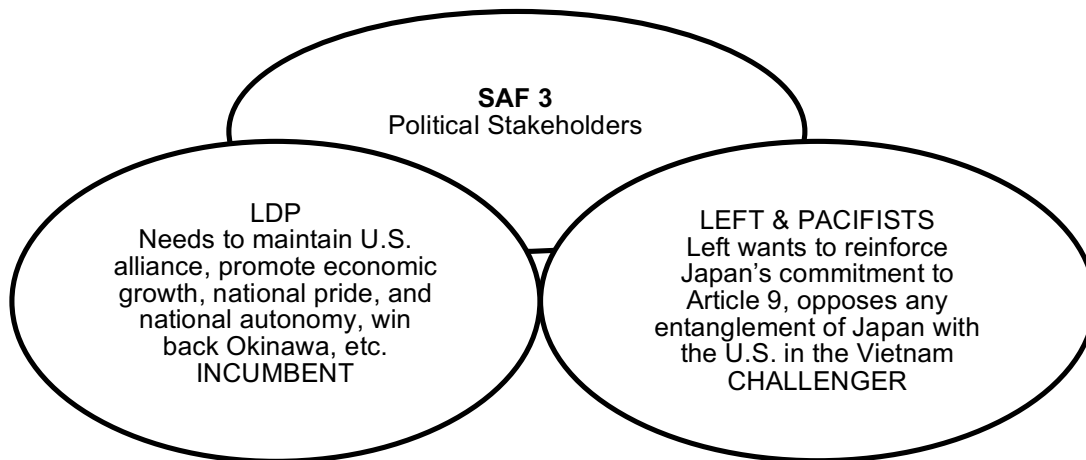
⁶ Yuri Kase, "The Costs and Benefits of Japan's Nuclearization: An Insight into the 1968/70 Internal Report," *The Nonproliferation Review* (Summer 2001), pp. 55-68; Llewellyn Hughes, "Why Japan Will Not Go Nuclear (Yet): International and Domestic Constraints on the Nuclearization of Japan," *International Security*, Vol. 31, No. 4 (Spring 2007), pp. 76-77.

against the use of U.S. bases in the prosecution of the Vietnam War. Aware of Japan’s growing technological capabilities, and with an eye on both the potential to develop nuclear warheads and military-use space technologies, the left was anxious for Japan not to stray from its commitments to Article 9. Concerns were also raised domestically by the left (ironically mirroring similar concerns by the U.S.) after Japan exported solid-fuel launch technology to Indonesia and Yugoslavia, arousing fears about Japan being involved in possible missile technology proliferation, and raising awareness of the growing requirement to put strong legal restrictions on technology exports.⁷

The LDP was also balanced between the need to service the U.S.-Japan Security Alliance and the domestic need to stay in power, while facing restrictions on military spending. In the Lower House election of January 1967, the percentage of the LDP vote dropped below 50 percent for the first time since 1955, necessitating more careful consideration of any policy that could be turned into a vote winner or loser. At the same time, the election also saw the rise in the power of the Kōmeitō party, which advocated a graduated negotiated withdrawal from the U.S.-Japan Security Treaty.

Amid the popular mood, the *Asahi Shimbun* started a popular campaign against Hideo Itokawa (see below) and his insistence, against public criticism aired by NASA’s Webb, that Japan halt its solid-fueled rocket program. It was in this atmosphere that the adoption of the *Three Principles on Arms Exports* and *Three Nonnuclear Principles* were set in December 1967.⁸ In this setup, SAF 3 can be seen in terms of a governance unit as forming state policy and national security policy resting in the Cabinet.

Figure 19: Initial SAF 3



⁷ For a brief history of Itokawa and early Todai rockets, see Pekkanen & Kallender-Umezu (2010) pp. 103-8; Suzuki (2005), p. 14.

⁸ Harvey (2010), p. 15; Oros (2008), p. 129. For the details of the Three Principles, see the Ministry of Foreign Affairs Japan website Japan's Policies on the Control of Arms Exports. For the Three Non-Nuclear Principles, see the Statement by Prime Minister Eisaku Sato at the Budget Committee in the House of Representative (December 11th, 1967): “My responsibility is to achieve and maintain safety in Japan under the Three Non-Nuclear Principles of not possessing, not producing and not permitting the introduction of nuclear weapons, in line with Japan's Peace Constitution,” available at the Ministry of Foreign Affairs Japan.

SAF 4: Bureaucratic Stakeholders

Characteristics and contentions: During this stage, there was also the prospect of significant contention between bureaucratic stakeholders and their related subgovernment groupings, which can be divided for analytical clarity, quite simply into one incumbent and one challenger.

First, the initial incumbent was the MOE, under which the University of Tokyo (UT) had led Japan's space program since the mid-1950s, beginning with Hideo Itokawa's *Pencil* Rocket. Because of the power of the UT group, this player is discussed in SAF 5. As the incumbent, the MOE's motivational matrix contained actions designed to retain its budget, autonomy and role for space development under a strong rubric of advancing space science for peaceful and scientific purposes, but also stressing autonomy.

Within this, another factor that must be included: the personal relationship of Hideo Itokawa, Japan's leading rocket scientist and leader of the UT camp, and Prime Minister Sato. They were both friends, but disagreed on key elements of space policy and development issues. Itokawa strongly wanted Japan to retain an autonomous space capability founded on indigenous rocket research and looked to forestall U.S. interference on Japanese technology development at its formative stage.

Given the speed with which Japan had advanced with solid rocket technologies, research was already by the mid-1960s turning to the much more complex task of developing payload-friendly and powerful liquid engine technology that would be needed if Japan wished to launch increasingly capable (and heavier) satellites beyond LEO. Further, the UT's motives for developing a space capability are commonly attributed as solely scientific and peaceful, but they also followed a logic of autonomy. Itokawa believed that Japan as a major scientifically-advanced nation should retain its own capability to launch and develop satellites, and behind that, maintain solid-fueled rocket technologies. (Thirty years, and generations of engineers later, ISAS managers often cited the maintenance of solid rocket technology and scientific autonomy as the primary reasons for the continued independence of ISAS within JAXA.)⁹

However, against the MOE was a growing framework of institutions gradually established through the 1960s that were motivated to establish a coherent national space policy beyond the narrow confines of the UT's scientific priorities. First, through the 1960s, it became gradually clearer that the STA was increasingly positioned as the main challenger. The STA had been set up in 1956 with the primary mission of advancing Japan's nuclear electrical power generation program and was hungry for high-profile complementary new technical programs. From the point of view of the STA, space development looked the perfect fit.

In terms of deep background, at the beginning of the 1960s, Japan had sent several high-level missions to the United States to meet with Eisenhower-era U.S. space authorities, concluding that research and investment into the area should become a national priority. However, following early pressure from Itokawa's group, the National Space Activities Council in 1965 gave the go-ahead for an ingenious rocket program based on Itokawa's ideas with the objective to launch a satellite using a solid rocket to be called the *Mu*, to succeed the *Lambda*.¹⁰

In conjunction with this came the growing institutional power of a new framework that was developed to consider how Japan should gear up for a major national space program *not* under the aegis

⁹ Oros (2008); p. 12. In 1962, Itokawa presented a Tentative Plan for a Satellite Launcher to the Science Council of Japan, which in 1963 started considering whether or not Japan should pursue indigenous or imported technologies. See Harvey (2010); pp. 15, 22.

¹⁰ Oros (2008), p. 130.

of the MOE (or, more exactly, Itokawa). This is jumping the gun a little, but when Japan was to reconsider its space policy objectives and the distribution of power among players to fulfil those very objectives, the STA, as will be seen, was ideally positioned to benefit from change. One element of this in SAF 2 was the presence of activist STA Minister Shirō Kiuchi, who personally looked towards space development as an opportunity to pursue the STA's mission of advancing Japan as a first-ranked science and technology power.¹¹

Thus the STA was positioned, or positioned itself, to be the most logical choice to receive budgets and programs accrued to a less parochially-based research and development program that could lead to spin-on benefits for society and industry as a whole. Put more simply, after Itokawa had delivered the scientific and technological platform for Japan to begin a space program, it would be logical for those technologies, when ready, to be diverted into a broader technological and/or industrial strategy. The STA's mission was fundamentally different from that of another obvious candidate ministry, MITI, whose job it was to promote new industries, because the STA's mission was fundamentally based on technology development, not industrial strategy.

But, unfortunately for MITI, the timing of this period, just when decisions could be taken whether to focus on space development from a technological or industrial strategy point of view, came when MITI was in crisis. In fact, in the late 1960s, MITI found itself overstretched and divided, simultaneously focused on a multitude of complex trade and exchange international issues, domestic industrial policy and management problems, and preoccupied by internal faction fighting. Last but not least MITI bore public unpopularity over devastating pollution issues that surfaced in this period after the dash to industrialize from the 1950s.

Instead of seizing the initiative when it could have played a challenger role, MITI was completely unprepared to assert innovative action to try to take control of any future funding for a broader space development program. As it turned out, MITI did not establish its own space office until 1979, but, following that, it did quite rapidly become another challenger player in SAFs 4 and 5, as will be analyzed in following chapters.¹²

By the late 1960s, Japan was facing a crossroads as to its next steps in policy. MOE's relatively narrow focus was gradually brought in relief. In fact the origins of competitors to the MOE can be found sprouting through the early 1960s, with the success of Itokawa's sounding rockets and the growing scientific interest in space development and science causing Japan to set up the National Space Activities Council (NSAC) in 1960.

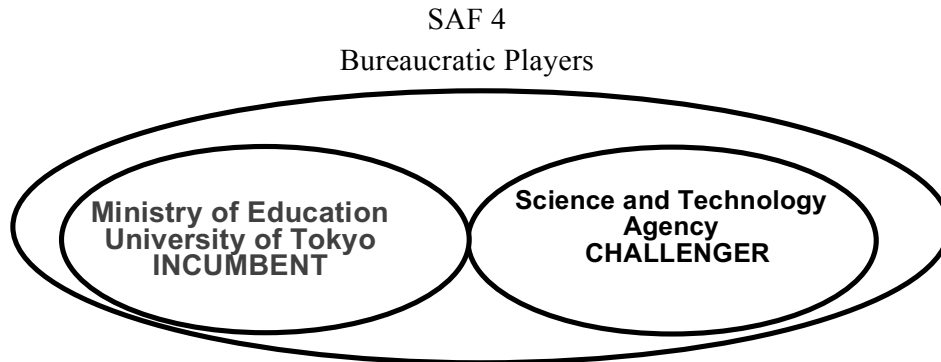
The significance of the composition and reporting framework of NSAC is significant. Institutionally, it was composed of a broad array of individuals, and of the NSAC's 29 members, eight were bureau chiefs from central ministries. The rankings of members later improved to feature representatives of vice-ministers and six new members from Keidanren (the Japan Business Federation, later to play a major, almost direct role through a series of episodes of contention). Further, NSAC reported to the prime minister, not a particular ministry, pre-installing the administrative principal that no matter what the

¹¹ The STA in particular, regarded having a space program as something of a "necktie" worn by members of the gentlemen's club of most advanced industrial nations, Suzuki (2005).

¹² Ibid., p. 13; According to Johnson (1982), pp. 274-295: The year 1969-69 was the worst year in MITI's history as it battled on from the "Pollution Diet" of 1967, contested mergers and industrial scandals, trade frictions with the Nixon administration and a general lack of confidence both internally and in terms of reputational competence for its industrial policy.

institutional implications employing subgovernment agencies represented by a particular ministry or ministries, that any future space program should be, in the final say, under a level of control up and above the ministerial level.

Figure 20: Initial SAF 4



SAF 5: Subgovernment Stakeholders

Characteristics and contentions: In the buildup to the Initial General Activities Space SAF, we can also see a replication of SAF 4 in terms of one major incumbent and one major challenger. During this period, ISAS, as incumbent, was opposed to any interference of its prerogatives to develop an autonomous space capability, while the STA, as challenger, was in a better position to institute a broader research and development strategy not exclusively tied to autonomous launcher development and space science. Under Itokawa, the Avionics and Supersonic Aerodynamics (AVSA) research group at the Institute of Industrial Science at UT was the driving force of rocket development from the mid-1950s through the following decade.

Itokawa's group initially was able to use its pioneering role to secure increasing budgets, leading to the setting up of a dedicated launch site in 1962 in Uchinoura, Kagoshima, and to the establishment of ISAS in 1964. The fundamental orientation of ISAS can be, perhaps, typified as the pursuit of scientific excellence and highly advanced engineering solutions. In this respect, the successful launch of Sputnik in 1957 may have had a totally different impact on Japan's scientific community, with its rationality bounded to non-military and peaceful purposes, but also in the pursuit of scientific autonomy.¹³

AVSA scientists and rocketeers developed the engine systems that powered the earliest series of Japanese rockets, named the *Pencil* and *Kappa* and later the *Lambda*, and *Mu*, series of solid vehicles that delivered Japan's early satellite launches through the early 1970s, until liquid-fueled alternatives by NASDA using technology licensed from the U.S. took over. Within this, ISAS's motives for developing a space capability are commonly attributed as solely scientific and peaceful, but (as earlier hinted at) they also followed a deeply embedded logic of autonomy so that Japan as a major scientifically-advanced nation retain its own capability to launch and develop satellites. In the event, at the end of the 1960s,

¹³ This was certainly the impression the author received through dozens of interviews with leading ISAS scientists in the 1990s. Typical was the attitude of Atushiro Nishida, then ISAS Director General, who said that he, like many ISAS scientists, was directly inspired to enter space science following the launch of Sputnik. See Paul Kallender, "Newsmaker Forum: ISAS Director General Atsuhiro Nishida," *Space News*, 13 September 1997, p. 34.

ISAS failed to deliver the required demonstrable competence in the new highly-desired liquid-fuel technologies. Multiple failures of the relatively advanced four-stage *Lambda* came at a critical juncture, despite fact that ISAS was investing in new liquid technologies.¹⁴

Against this, the STA's interest in space development grew momentum through the early 1960s as it began to fund and organizational framework to pursue research with increasing support from Keidanren (see SAF 7), which itself was looking for larger and longer term investment in space technology. Particularly contractors, primarily from the former Mitsubishi *zaibatsu* companies led by MHI. for rocket systems, and Melco for satellite and applications technologies, were starting to look beyond merely extending their limited licenses to copy and redevelop U.S. technology.

NAL was established in July 1955 as an auxiliary body to the Prime Minister's Office, giving it access to and feedback from the political center. NAL opened an aerospace division in 1963 and developed large-scale test facilities, including the Kakuda Research Center in 1966 to allow it to conduct a wide scope of aerospace and space-related research. Since the late 1960s, most of NAL's divisions have been focused on the research of key technologies for winged space transportation systems, which NAL considered essential to autonomous Japanese space activities.¹⁵

The STA also began internal preparations to start developing its role as leading what it felt should new space-oriented research and development sector. Beginning in April 1962, the STA set up the Research and Coordination Bureau Aerospace Division; in April 1963, a Space Development Department was set up in the STA's Aerospace Department; then in 1964 the STA established the Headquarters for Space Development Promotion (HSDP), the precursor to NASDA, in the STA's Center for Research and Development Strategy. The HSDP included 23 engineers, including Tomifumi Godai, who was later to become the godfather of the (subsequently ill-fated) H-II launch vehicle, and later Executive Director of NASDA, and, still later, a member of SAC.¹⁶

With respect to launch vehicles, the focus in the early stages was the development of small-scale, solid fuel rockets that could launch scientific satellites, for example the four-stage *Q* rocket. It was the general emphasis on getting into space as a whole, and strong pressure from industry to find a platform to invest more heavily in a broader and more strategic space program, that led to the creation of NASDA on October 1, 1969.¹⁷

To signal NASDA's new culture, it was headed by Hideo Shima, a big-project, high profile technocrat who was a direct counterpoint to Itokawa, and who was the primary planner and designer of the initial Tokyo-Osaka Shinkansen system in the early 1960s (before being forced to resign for the huge debt burden caused to Japanese National Railways). Following the international acclaim and credit

¹⁴ Pekkanen & Kallender-Umezu (2010), p. 105. In 1971 ISAS set up its own cryogenic (liquid hydrogen/ oxygen) engine research in rivalry to NASDA, with ISAS developing a series of more powerful engines through 1973-1975. But it was too late. In the event, 1976 SAC, was forced to intervene between ISAS and NASDA to merge two different approaches to start the development of the LE-6 engine for NASDA's H-I project, which was eventually implemented as a trilateral project in cooperation with NAL.

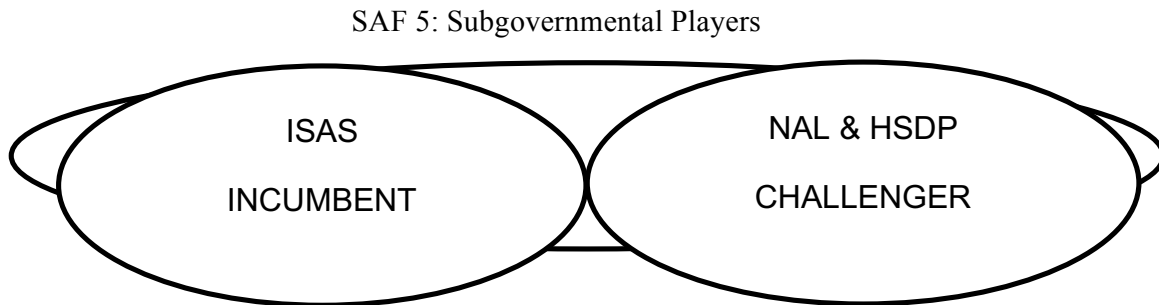
¹⁵ Pekkanen & Kallender-Umezu (2010), p. 61

¹⁶ 佐藤靖、「NASAを築いた人と技術」東京大学出版会 [Yasushi Sato, *The People and the Technologies that Built NASA* (Tokyo: University of Tokyo Press, 2007)]

¹⁷ 五代富文『国産ロケット「H-II」宇宙への挑戦』徳間書店, 1994年 [Tomifumi Godai, *Domestic Rocket: "H-II" Challenge to Outer Space* (Tokyo: Tokuma Shoten Publishing Ltd., 1994).

accruing to Japan from the success of the Tokaido Shinkansen, the appointment to NASDA of the suddenly reputationally rehabilitated Shima symbolized the scale and direction of NASDA's ambitions.¹⁸

Figure 21: Initial SAF 5



SAF 6: Industrial Stakeholders

The origins of the early founders of Japan's rocket program in AVSA were major wartime military contractors, including Fuji Seimitsu Company, which had evolved from Nakajima Aircraft, and which subsequently became Nissan Motors, and still later, part of the IHI group, which is a major propulsions systems provider and features heavily as an influential player. As already noted, Keidanren members signaled interest in space activities very early. As it became apparent that Japan was going to invest public money in building a space program, the business lobby became increasingly more active.

Keidanren had already established an initial committee in 1960 to look into and promote business and investment in space technologies. The Special Committee on the Peaceful uses of Outer Space was founded in 1961 to start lobbying for funds and investment. Members from industry accompanied fact-finding missions to the U.S., and from the second half the 1960s this interest grew and is attributed to adding pressure to form a subsidy and development framework to kick-start a research and development path toward building a future space industry.¹⁹ This means that corporate interests specifically, and more generally through the lens of the Keidanren, make it possible to characterize SAF 6 as consistently an (or persistently) opportunist and an active (challenger) SAF.

Experienced and able major companies such as MHI realized that Japan needed liquid-fueled engine technology in order to be able to launch larger payloads, to accommodate future communications satellites into geosynchronous orbits, rather than solid-fueled rockets, which are unsuitable for such missions. Thus, for SAF 6, it would be logical to support any pathway, institution or policy leaning towards sustained investment. Also, MHI, for example, was working with NAL, and the HSDP (then, subsequently, NASDA) to develop what was to become the small second-stage liquid LE-3 engine to be

¹⁸ After a background of being a leading steam locomotive engineer at Japanese National Railways (JNR), Shima, had spearheaded the design and development of the all-electric megaproject Shinkansen system in the early 1960s, but had been forced to resign due to the enormous costs and debt burden accrued to JNR in building the initial Tokyo-Osaka link, which had required the building of 3,000 bridges and 67 tunnels.

¹⁹ Interview, Ichiro Taniguchi, "Nihon no Uchū Kaihatsu Riyō to Bijinesu" [Business and Japan's Space Development and Industrialization], 11 July 2007.

used on the N-I rocket in the 1970s, and had a direct stake in promoting advances (and investment) in launch vehicle technology.

Figure 22: Initial SAF 6

SAF 6 Industrial and Commercial Interests



SAF 7: Public Opinion

Characteristics and contentions: As in other liberal democracies, the mid-late 1960s saw the rise of what has now become the old Left. In Japan, especially from 1966, anti-war, anti-American, and anti-militarist sentiment in Japan began to mount with waves of protests against a basket of issues, including environmental and industrial pollution and concerns about the direction of the country in general. The same year saw the Cultural Revolution begin in China and the start of the use of transport of U.S. military personnel from U.S. bases in Japan to Vietnam. In 1967, more mass demonstrations against the U.S. featured particular outrage by the left of the visit of the nuclear-powered U.S. aircraft carrier and consummate symbol of American power projection, the USS Enterprise (CVN-65), to Japan.²⁰ Thus, given the demonstrable power of public opinion and political opposition to military activities of the time, it is possible to regard public sentiment as another governance unit acting at State level.

Figure 23: Initial SAF 7

SAF 7
Public Opinion

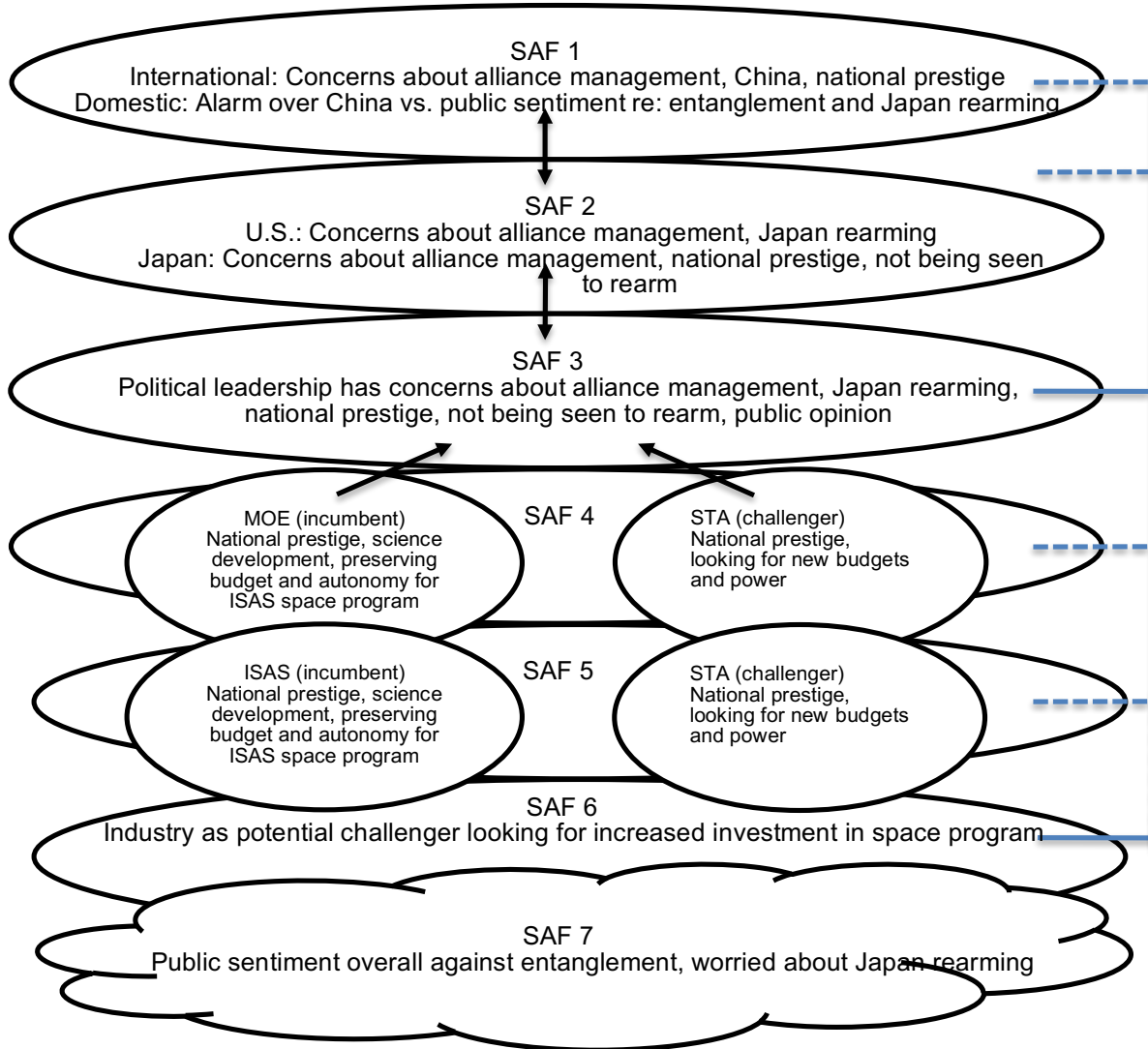


Putting the Fields Together

A look at the connections and interrelationships between the SAFs that went to form the Initial General Space Activities SAF might, then, look something like this.

²⁰ Vuillemot (2001), p. 8

Figure 24: Pre-Initial General Space Activities SAF Relationships Summary



Episodes of Contention

According to the SAF framework, an essential element of SAFs are their inherent dynamism; instead of looking at the origins of groups of organizations through a historical narrative, or leaving the origins of a particular field of organizations as a given, a critical element of the SAF framework looks at how SAFs were established, usually out of a period of contention cause by a “shock” or “shocks” big enough to either change an extant SAF or provoke the formulation of a new SAF, which in turn, has its own internal dynamics that will make it unstable and prone to change if an shock or other pressures applied are sufficiently enough.

In the case of the formation of the General Space Activities SAF, I have ignored constructing a previous SAF in favor of showing how external shocks specifically acted in formation of the SAF which corresponds the initial post-shock and post-episodes of contention that led to the establishment of a “stable” General Space Activities SAF that lasted as a policy-administrative framework from 1969 until

2001, although under increasingly severe domestic and international pressures building from the mid-1990s.

The one absolutely definable shock that provoked a response, i.e. strategic action that cascaded through the interrelated SAFs 3, 4, and 7 was the January 1968 offer from the Johnson Administration of institutionalized cooperation in the field of space. While it might seem semantically extreme to describe the offer of Thor-Delta technology, with its dual-use nature (in terms of its ICBM-heritage) and its technical promise of transforming Japan's ability to loft much heavier and capable payloads into GEO orbits, to Japan as a "shock," the offer fully fulfills the criteria of being an external pressure great enough to cause a major impact on Japan's space program and policymaking. Further, characterizing this externality in terms of the SAF framework shows the actions and reactions of the players to be logical and rational. The U.S. offer of cooperation in fact caused a major Diet debate as to how to react, with the LDP broadly supporting the idea and the leftists denouncing it.²¹

First, in SAF 2, the Johnson proposal seemed to offer win-win-win solutions through the matrix of problems posed by Japan's space program. By offering the technology, the U.S. could directly involve itself in Japan's space development and exercise a degree of guidance, monitoring and control, while offering Japan a managed pathway to becoming an advanced spacefaring nation. In the offer, critical technologies were black-boxed and, specifically re-entry technologies, a dual-use pathway to warhead re-entry technologies, were eschewed in a blunt statement that the launch vehicles were not designed for the transfer of dual-use technologies. The offer also fit into the paternalistic U.S. self-image and public propaganda image as altruistic mentor and guide to Japan, while fostering Japanese dependence on U.S. technology.

For SAF 3, the proposed cooperation was strongly opposed by the left, particularly the Japan Socialist Part, which denounced any idea of increasing Japan's "war potential." The subsequent debate in the Diet provoked by the Johnson offer was also significant for its discussion on the concept of civilian control. On the one hand, the LDP in general and Sato and Kiuchi in particular were highly positive about the offer. From the point of view of Japanese conservatives, the transfer offered the promise of fast-tracking Japanese science and technology development in a new frontier, leading to the creation of new a new industry.

Then, if cast in the light of Japan coming of age as a growing space power, the growing prowess of Japan would bolster its self-image and global brand. Accepting the offer could also be used to ameliorate frictions with the U.S., and help smooth negotiations about the return of Okinawa. And not least, with the technology, which provided the opportunity to launch much larger satellites at lower ballistic speeds (gentler rides for increasingly sensitive and delicate payloads) than solid-fueled rockets, Japan could both advance its space science in new areas and work on applications, for example, towards functional communications and EO satellites. Coming after the LDP's recent election struggles, and the weight of

²¹ Selig S. Harrison, "Japan and Nuclear Weapons," in (ed.) Harrison S.S. *Japan's Nuclear Future*. Washington D.C., Carnegie Endowment for International Peace, 1996), p. 23; Michael D. Swaine with Loren H. Runyon, "Ballistic Missiles and Missile Defense in Asia," *NBR Analysis*, Vol. 13, No. 3 (June 2002), p. 9. For the original bilateral agreement, see: United States of America and Japan, "Exchange of Notes Constituting an Agreement Concerning Cooperation in Space Activities for Peaceful Purposes (with attachment)," Tokyo, 31 July 1969. Registered by the United States of America, March 4, 1970. As printed in United Nations, United Nations Treaty System 1970, no. 10342, pp. 86-87. The details of this negotiation can be found in the memoir of US ambassador to Japan, U. Alexis Johnson. See Johnson U. Alexis, *The Right Hand of Power* (Englewood Cliffs: Prentice-Hall, 1984.) Quoted in Sato, "A Contested Gift of Power," p. 189; Shigebumi Saito, *Nihon Uchū Kaihatsu Monogatari* (Japanese Space Development Story) (Tokyo: Mita Shuppankai, 1992).

public opinion, the caveat was that public and political opinion needed to be assuaged about ensuring the non-militarization of the technology transfer. Simply put, by accepting the technology, Japan would cast itself as the country that repurposed U.S. ballistic missiles to peaceful purposes. Ensuring this track also provided a major role for the left in being seen to steer Japan away from any hint of rearmament. Thus, accepting the U.S. offer was easy way to appeal to voters, doves and opposition. This, then, is the political background to the PPR.

SAFs 4 & 5: At the time of the offer, the STA was making slow progress with research into liquid-fuel rockets, development of which actually had begun as early as 1954. A series of early rockets that involved MHI had been developed, but none of them was a match for the Thor-Delta technology on offer. The switch to U.S. technology, then, can be explained by a number of factors, one of them being the slow progress pre-NASDA entities had made with liquid-fuel research by NAL's precursor, the Institute of Aeronautics Technology, and by the National Space Development Center (NSDC), which was established by the STA in 1964. NSDC's main tasks had been to develop a liquid rocket with a guidance control system. The NSDC made steady progress, developing the two-stage *LS-A* and *LS-C* liquid-solid rockets. NAL meanwhile accumulated technology and experience. The *Q* Project was designed to develop a launch vehicle to put a 150 kg payload to a 1,000 km orbit by 1972; the *N* Project was to launch a 100 kg satellite into a geostationary orbit by 1974.²²

Against this modest progress, U.S. technology seemed to offer the potential of a lower-risk, faster-return pathway that entirely fit the institutional logics of the STA. Thus the STA jumped at the offer with Kiuchi publicly stating that "the idea of having the United States launch our satellites is pathetic... We have a strong wish to launch our satellites through research and development in Japan."²³

For the STA the offer was also win-win-win because should the transfer, opposed by MOE and ISAS, go ahead, then the STA, with its mandate of pushing back scientific frontiers, was the obvious recipient. The STA was also in a good position to take advantage of the U.S. offer because of its links with the MPT, which was responsible for telecommunications investment and advancement, thus creating a linkage to the future need to develop communications satellites. On the other hand, the opposition from ISAS and the MOE was also logical. The offer of cooperation was regarded by some, in fact, as something of a poisoned chalice; Itokawa and ISAS at first argued with Sato about the need to focus on indigenous development of a larger launch vehicle, but, arguably, could find no strong counter to the prospect of the leapfrog-shortcut advances that would be enabled by accepting Thor-Delta technology.

Then, SAF 6 developed into a challenger SAF during the late 1960s, and coalesced into an active SAF in conjunction with the Johnson offer as Keidanren members saw the opportunity for sustained long-term investment to develop a new sector and services. The emerging space sector offered a mix of government projects leading to commercial spinoffs such as communications satellites. Thus, in 1968, Keidanren established the Space Activities Promotion Council (SAPC) to set up an institutionalized

²² See Pekkanen & Kallender Umezu (2010), pp. 108-12. The most notable early rockets were in the *LS-A* series, a two-stage rocket, with one liquid and one solid stage that was developed by MHI which was explicitly to make ballistic flight observations possible. The *LS-A* was a sub-orbital version of the *Lambda* and was launched four times between August 1963 and November 1965. Japan then went to make steady but unspectacular progress in developing the *LS-B* and later the *LS-C* rockets. The *LS-C* rockets, eight of which were launched between 1968 to 1974, were designed and tested for improving satellite launches.

²³ Yasushi Sato, "A Contested Gift of Power: American Assistance to Japan's Space Launch Vehicle Technology, 1965-1970," *Historia Scientiarum*, Vol. 11, No. 2 (November 2001), pp. 176-204.

channel for industry to express its views to improve indigenous technology development and promote domestic production.

Formation of the General Space Activities SAF

Much has been discussed about the original goals of the PPR, and why the administrative structure was bifurcated, but the framework settled on in 1969 proves to be logical when viewed through the SAF model. As the first major step towards building a more strategic space development policy signaling Japan as a spacefaring nation (and thus a member of a highly exclusive club of leading advanced economies, and with a view to nurturing another export market and lessening reliance on foreign procurement in a new high-tech applications field, the government established the SAC in the Prime Minister's Office in 1968.

While establishing the principal of political control, the SAC was given the authority to plan, discuss and decide comprehensive space policy. SAC's decisions were to be submitted to and authorized by the prime minister, and once made, SAC's decisions had also to be respected by the prime minister. In setting this administrative and political-policy arrangement, the strategic national technological importance of space development was recognized, but at the same time policymaking and strategy was also placed under the operational control of the bureaucracy, set one level above the competitive in-ministerial jockeying.

The decision to accept the U.S. offer was sealed in July 1969, in which the U.S. committed to exporting unclassified Thor-Delta technology for the development of Japan's N-series launch vehicles and communications satellites, *if* used for peaceful purposes, and *if* re-entry technologies applicable to ICBM usage were excluded.²⁴ This let the other pieces of the jigsaw fall into place with the formation of the policy and administrative structure that remained until 2001. The settlement included a clear normative and administrative framework, in the form of the PPR, which was designed to echo the earlier commitments of the three non-nuclear principles.

Regarding SAFs 1-3 and 8, the PPR fulfilled multiple objectives in satisfying both the needs of alliance management, the political left, Kōmeitō, and public opinion. To further cement the principle, following the establishment of NASDA under the control of the STA on October 1, 1969, a supplementary provision by the Diet stipulated that NASDA's activities were also to be circumscribed to peaceful purposes in the guise of the PPR.²⁵

In terms of SAFs 4 & 5, the outcome was as was to be expected. With its inherently advantageous position vs. the MOE and ISAS, and/ because space development was regarded as a national strategic technology development program whose results could be spun on to industry and society, the STA became the implementing agency under SAC, with the MOE, despite its higher ministerial status, left to manage its core competency of space science.

While the budget and the space science programs of ISAS within the MOE were to be respected and integrated as a fundamental part of the comprehensive space policy, the focus was to be on the STA and NASDA. The main power relationships of SAFs 4 & 5 were therefore through the SAC-STA-NASDA axis, although as the budget and research and technology expanded, following a classic institutional

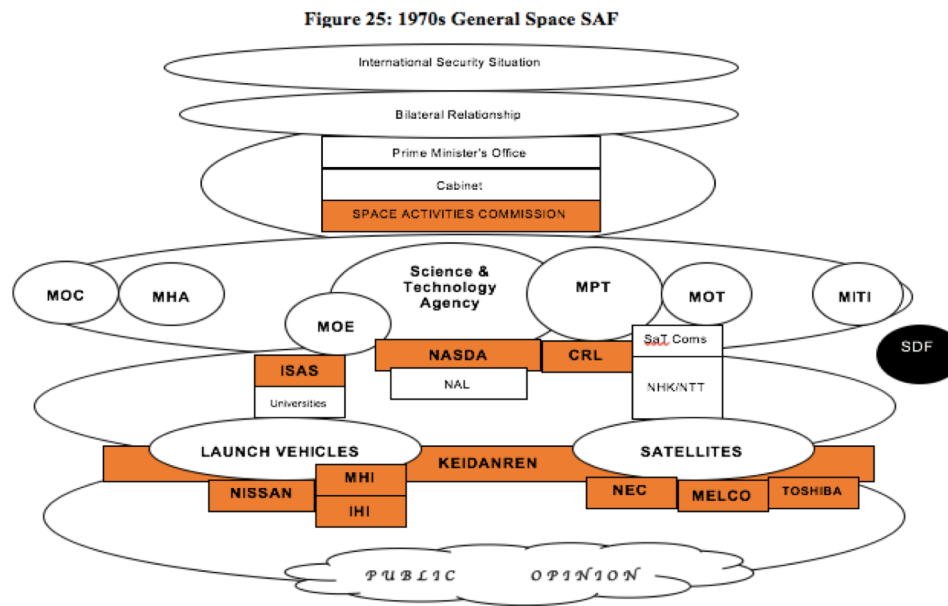
²⁴ Harrison (1996), p. 23.

²⁵ Uchū Kaihatsu Jigyōdan Hō ni Tai Suru Kokkai no Futai Ketsugi" [Supplementary Resolution by the Diet Concerning the National Space Development Agency Law], 13 June 1969.

model, ministries accrued a growing subgovernmental layer of organizations receiving budgets to research and develop all sorts of applications. Because NASDA was the main organization tasked with developing satellites *and* launch vehicles, competitive bidding for complementary budgets and programs that were authorized were to be mainly built and launched through NASDA. The SDF, meanwhile, because of the PPR, was strictly forbidden from using space.²⁶

For SAF 7, this field settlement offered a clear hierarchy for industry, focused on bidding for contracts from NASDA. The industry group can be split into three main smaller SAFs; a launch systems SAF; a satellite systems SAF; and a support/infrastructure SAF. In the launch systems SAF, a clear hierarchy of incumbent vs. challengers was established very early as MHI, with its U.S. license agreements became the major contractor for NASDA's liquid fueled program, while IHI became a smaller subsystems provider. Nissan, deeply associated with Itokawa's group, became Japan's main solid rocket contractor, and also provided auxiliary boosters under license for NASDA launch vehicles. In the satellite systems SAF, through the coming decades, contracts were awarded to NASDA on a revolving carousel to Melco, NEC Corp. and Toshiba Corp. on the basis of trying to spread competencies around the three companies so as to build up the sector.

Regarding SAF 8, this, arguably, remained a dormant player in policymaking until the late 1990s when public outrage over the Taepodong incident and, following this, increasing public concern about North Korea, and then China began to surface. A basic post-1969 General Space Activities SAF could look something as in Figure 25.



Source: Author's own construction. This SAF shows the relationships between the different players in the fields. The critical decision-making body is SAC and the crucial implementing agency is NASDA. The proximity of the players shows their relationships. For example, among the SAF 4 level players, the MPT is closest because it would regulate the expected domestic broadcasting and communications market with the Communications Research Laboratory (CRL) providing key technologies for the satellite makers, cooperating with the main customers, expected to be Nippon Hōso Kyokai (NHK), Nippon Telegraph and Telephone (NTT) state telecommunications monopoly, together with expected satellite communication companies. The distance of the ministries from the center also tries to convey their relative power within the SAF 4 SAF. The Ministry of Transport also expected to develop new applications, which did indeed emerge as technologies advanced. The Ministry of Construction (MOC) and Ministry of Home Affairs played a relatively peripheral role. MITI was distanced from space activities in the 1970s, but later came to the fore as a challenger. Because of the PPR, the SDF is separated. Note, over the course of the development of SAF 5, a huge number of subgovernmental agencies and organizations built up under the ministries. These are not included here. During the 1970s through to the late 1990s public opinion was largely irrelevant to the Japanese space program.

²⁶ Aoki (2004), p. 4; Pekkanen & Kallender-Umezū (2010), p. 137.

Chapter 7

Episodes of Contention, Shocks and Strategic Action 1990-1998

Introduction

This chapter uses the SAF framework to focus on specific episodes of contention that reshaped the General Space Activities SAF. The SAF framework approach holds that SAFs are often, even inherently ripe for contestation, and that they are dynamic, even when an SAF or SAFs appear to be settled. Given the complex interlinkages that exist in and between SAFs, if shocks or changes occur in one part of a given SAF, such influences may provoke actions that may well have consequences both in proximate and more distant SAFs. For example, if one player or influence initiates a strategic action that upsets the stability of one element an SAF, this may ripple through the SAF and then on to other SAFs. The purpose of this chapter, then, is to describe a how series of episodes of contention arose within the General Space Activities SAF that were to cause a series of innovative and strategic actions (actions-reactions-actions) among players, concomitant episodes of contention, and the subsequent rupture of the field, which is discussed in the following chapter.

Episodes of Contention, Strategic Action in SAF 2

One of the findings of this dissertation is that SAF 2 played a major role in both the stressing of the General Space Activities SAF, and an indirect role in field settlement in 2015, and that SAF 2 played a contributory but not decisive role in the dissolution of the General Space Activities SAF. In fact, U.S. actions in SAF 2 combined with the institutional logics of implementing agencies (primarily NASDA and JAXA) in SAF 5, and the rational behavior of the business lobby (SAF 7) do much to explain the “dual-use” technology approach that comprises *Basic Plan 2016* as a workable compromise policy that takes into account all the needs, demands, parameters for actions, and behavioral logic of the various players.

An analysis of the actions of players before, during, and after the Taepodong “shock” suggests that rather than being a turning point for Japanese space policy, a “crossing of the Rubicon” towards the development of a national space security program, the decisions and actions of players (and, by implication, of Japan as a whole) were rather of formalizing and institutionalizing processes that had been in train for at least several years previously, and possibly since the early 1990s. On the other hand, the series of innovative and strategic actions taken by politicians to try to reorder the administration of space activities, covered in the next chapters, initiated fifteen years of episodes of contentions before field settlement was reached.

This chapter focuses on how SAF 2 provoked strategic action in SAFs 6 and 3, and also indirectly on SAF 4. In this, there were several episodes of contention: 1. The refusal to disclose more technical information to Japan for the N-II launcher. 2. The impact of the 1990 U.S.-imposed “satellite agreement.” 3. The budget cuts of the late 1990s, which featured the breakdown of the funding mechanism for SAF 5, caused in part by the institutional failure of the incumbent player in SAF 5 (JAXA), which can be categorized as SAF 3 exerting strategic action on SAFs 4 and 5. And, 4. The Taepodong overflight, which precipitated strategic action by SAF 3 on SAFs 4 and 5.

1] Technology Management Contention

As posed earlier, in terms of diplomatic history or international relations theory, the U.S. role in Japanese space policy could be described as one of contested management, with the U.S. emphasizing a control or guiding function, and the Japanese side parsing this into the opportunity to spin on autonomously developed technologies into new applications (industries). The following analysis looks more closely at SAF 2 field formation and dynamism in terms of formation, episodes of contention and strategic action, and the impact of these on both proximate and distal fields.

So, as noted, the offer of U.S. technological assistance in the late 1960s can be construed as a series of linked two-level games. On a bilateral security level (SAF 1), the Johnson Administration's offer of Thor-Delta technology was logical because, if handled correctly, it both forestalled the perceived risk of the possibility of Japanese acquisition of ballistic missile technology in addition to Japan's extant ability to produce nuclear weapons. The transfer also asserted a U.S. role in the seminal Japanese space activities sector, and the potential of a controlling hand over future technological development. This can be seen in terms of the SAF framework as the incumbent (the U.S.) using its social skill and taking strategic action to change the rules of the emerging Japanese space program, encompassing the space activities field of the bilateral relationship, in order for the U.S. to maintain its dominance in the overall partnership. Following this start, SAF 2 behavior has had a series of profound impacts on the General Space Activities SAF and has contributed both to contention, strategic action and settlement.

In SAF 2, the issue of social skill by the U.S. can also be portrayed as another two-level management solution by both helping the LDP and Japan push forward with scientific and technological advancement, while also controlling it. For Japan, the import of U.S. technology was a chance to create a new plank of cooperation and reassurance in the bilateral relationship, while gaining access to higher level technology in a strategic field. In terms of the objective of the U.S. to exercise management of the technology transfer, by putting severe restrictions on its use, the restrictions placed on the offer served to flip the perceived negativity of Japan initiating a full-blown space development program (due to its military potential) into a positive development.

This analysis is also useful in demonstrating the close connections that exist between SAF 2 and SAF 7 in periods of stress or contention, as will be seen in subsequent events. The other SAFs have already been discussed. The logic behind the technology transfer translated into exerting control successively and managing Japanese technological gains so that they did not compete with U.S. interests, and constraining the acquisition by Japan of U.S. missile technology. The mix of expectations and the subsequent sense of frustration by the Japanese side later caused a series of interrelated actions and reactions in SAFs 5, 6 and 4 that were to have profound and long-lasting consequences that rippled along the narrative history of Japanese space development through the 1970s and 1980s, and on until today.

The severity of the licensing restrictions placed on the offer, with considerable parts of key technologies "black boxed" can be seen in subsequent friction between the U.S. and Japanese engineers and program managers. The first liquid-engine launch vehicles, the N-I and N-II, used Thor-Delta technology, containing ballistic missile technology-derived components. N-I development was largely conducted by MHI and the launch vehicle design was based on the Thor-Delta launch vehicle from McDonnell Douglas Co., which was equipped with the highly capable MB-3 engine licensed from Rockwell/ Rocketdyne. The Thor launch vehicle was a major part of the U.S. Air Force's early liquid-fuel propelled ballistic missile program. The original technologies were derived from the Rocketdyne LR79

(liquid oxygen and kerosene) engine, itself derived from the U.S.'s Jupiter and Atlas boosters. The Thor's propulsion system quickly evolved to an MB-3 version used by IRBMs, especially by the United States Air Force's Thor SLV-2. The N-I, launched seven times (all successfully) between 1975-82, enabling Japan to loft payloads of just over 100 kg into fairly accurate geostationary orbit. This was actually achieved with the launch of the Engineering Test Satellite I (ETS-I/*Kiku-1*) and lauded as a major milestone for Japan, especially since the second stage contained Japanese engineering based on the original *Q* rocket.¹

The N-II was approved in 1976 so as to enable Japan to lift 350 kg payloads to geostationary orbit. The N-II featured nine strap-on solid boosters compared to three for the N-I, a longer first stage with 34 percent more capacity, and a new engine, the Aerojet AJ10-118FJ for the second stage. The third stage was purchased from Thiokol Corp. of the U.S., and then built in Japan. Japan successfully launched all eight missions planned.²

Up until this point U.S. technology export restrictions required many of the vehicle subassemblies and components to be imported pre-assembled.³ Besides forbidding the technology transfer of N-I and N-II technology to third parties, U.S. restrictions made some of the technologies associated with the licenses classified to such an extent that engineers were not allowed to examine a range of components they were assembling. As Tomifumi Godai later noted: "The Delta rocket was originally developed as a medium-range missile. Thus, most of its technological information was strictly kept classified, and the purchasing country was allowed to import only the finished parts. Because of this, there was an increasing number of opinions in Japan in favor of developing domestically engineered rockets even before the first N-II rocket was launched."⁴

The licensing restrictions, then, served to justify Japan to go it alone relatively quickly, in what was perhaps an unforeseen consequence by the U.S. The difficulties attached to gaining information for the N-II showed Japan that U.S. technology transfer was not providing the level of utility hoped for. This led to the decision in 1981 that Japan seek to completely *kokusanka* (indigenize) rocket technologies with the development of the H-I.

While *kokusanka* has remained a fundamental concept in post-war Japanese industrial and science policy in a number of strategic areas (notably, for example, integrated circuits, leading to the growth of the Japanese semiconductor industry that was from the latter 1980s to cause extreme trade friction with the U.S.) the decision was to have profound consequences for Japan's space program. While the U.S. was increasingly concerned about managing Japan's access to missile technology, NASDA's mandate – its institutional logic – was to push forward science and engineering first and foremost, making sure that such technologies were strictly under the PPR. The result was that *kokusanka* was achieved, but at a high cost to the taxpayer, since the resulting rockets, particularly the H-II, were sophisticated to the point that they were over-engineered, expensive and impossible to commercialize.

¹ Following launches were also highly important steps for Japanese space technology with Japan rapidly acquiring the ability to launch a geostationary satellite, Engineering Test Satellite II (ETS-II) in 1977. ETS-2, or *Kiku-2* established Japan as the third country in the world to launch such satellites. The N-1 launched seven engineering satellites between 1975 and 1982 from a new facility at Tanegashima.

² Ryojiro Akiba, Hiroki Matsuo, and Tomifumi Godai, "A History of Japanese Space Launch Vehicles-From the Pencil Rocket to the M-V and H-IIA," paper presented at the *Sixth International Symposium, Propulsion for Space Transportation for the XXIst Century [AAAF 16_80_P]*, Versailles, France, 14-16 May 2002, pp. 1-6.

³ *Ibid.*

⁴ William D. Wray, "Japanese Space Enterprise: The Problem of Autonomous Development," *Pacific Affairs*, Vol. 64, No. 4 (Winter, 1991-1992), pp. 463-488, esp. 478-479; Harvey (2000), pp. 6-33, 52-78, 97-101.

The H-I program set this process in motion. Capable of putting 550 kg payloads into geostationary orbit, the 84 percent-Japanese designed and built rocket represented a significant technology jump. It was also the result of successful cooperation between MHI, IHI, NAL and ISAS, which resulted in the development of Japan's first cryogenic engine, the LH-2, an extremely efficient, complex and...expensive design. On its maiden launch in 1986, the H-I successfully took three payloads into orbit, thereby establishing Japan's ability to handle heavier missions. Between 1987 and 1992, the H-I took an additional eight satellites successfully into orbit amid an atmosphere of increasing pride and optimism, leading to the belief that the planned successor launch vehicle, the H-II, could compete commercially in the international launch market.⁵

The H-II, developed with twin goals of technological autonomy and, ostensibly, commercial service entry, succeeded only in the first. While technologically sophisticated with its highly efficient and complex engines, the H-II launch cost was about double that of European and U.S. commercial launch vehicles. Then, two successive failures in February 1998 and November 1999 (leading to the program's cancellation one flight early) had multiple and disastrous consequences. First, the failures heavily damaged both Japan's hard-won reputation for technological sophistication and reliability, and refocused doubts, already raised by successive satellite failures in the 1990s, about NASDA's institutional and engineering competency. Second, the H-II failures also led to the cancellation hard won commercial orders for the successor H-IIA, built painstakingly by an industry consortium, with the orders based on the H-II's reliability and the promise that the H-IIA's launch price would be halved, to commercially acceptable levels.⁶ The two successive launch failures also impacted public opinion amid an atmosphere, ramped by the media, of a sense of general malaise in Japan, which had itself began spreading from the middle of the 1990s. This pressured opinion in SAF 3 (and elsewhere, in the court of public opinion, and in the MOF) that NASDA was undergoing institutional failure, which caused SAF 3 to initiate strategic action successively, which will be analyzed below and in Chapter 7.⁷

2] The 1990 Satellite Agreement

As has been indicated, the mentor-student relationship that the U.S. constructed in the late 1960s as the framework for cooperation between the U.S. and Japan in the arena of space development (and also in many other areas) was acceptable for Japan as long as it retained utility in aiding Japanese technological and industrial growth. Consequently, as we have seen, Japanese engineers and program managers soon became frustrated with the licensing agreement imposed on them for launch vehicle technologies, and began to pursue the *kokusanka* route. A roughly similar scenario emerged in the field of satellite

⁵ Akiba et. al (2001), p. 8.

⁶ For this story, see Pekkanen & Kallender Umezu (2010), pp. 77, 122; Paul Kallender, "Peer Reviews Could Reform NASDA, Bring Fiscal Change," *Space News*, 2-8 February 1998; "Has the Sun Set on Japan's Space Industry," Tokyo (AFP), November 16, 1999.

The H-II had a troubled development history. An accident during a test at MHI killed an engineer in August 1991 but led, after difficulties led to the development of the advanced LE-7 first stage and LE-5 second stage engines, enabling the 260-ton H-II to launch 2-ton payloads despite being only about half the weight of its rival Ariane-4 and a third of the weight of the Proton. But its cost at around \$165-\$170 million per launch were prohibitive for commercial purposes, and the H-II remained captive to Japanese government payloads. The Japanese press lambasted NASDA and even the emphasis on lowering costs as main culprits for the failure. It thereby also called into question the future of Japan's space program as a whole.

⁷ For a discussion of the failures, see Eiichiro Sekigawa and James R. Asker, "Japanese Satellite in Errant Orbit," *Aviation Week & Space Technology* (hereafter *AWST*), 5 September 1994; Craig Covault and Eiichio Sekigawa, "Japanese H-2 Failure Ruins Satcom Research Mission," *AWST*, 2 March 1998; and Paul Kallender, "Japan's Satellite Success Rests on Launch of ETS-7," *Space News*, 17 November 1997.

development, where U.S. manufacturers were quite content to sell Japan crucial parts and components as long as Japan kept its emerging market for satellites and services open to U.S. companies. However, difficulties that emerged in the 1980s with U.S. components (particularly apogee kick-motors used to maneuver satellites into their final orbits) forced, or gave a reasonable rationale, for Japanese industry to press for *kokusanka* for satellites and related services and technologies.

Specifically, in 1979 and 1980, two N-I launches for the experimental communications satellites *Ayame 1* and *2* failed to reach orbit following malfunctions in the U.S. supplied apogee engines. However, the extant technology transfer agreements meant that the U.S. would not disclose technical details of the engines, meaning Japanese engineers were unable to determine the cause of the accidents. Then in 1990, Japan agreed to accede to a request from United States Trade Representative (USTR) to open up its domestic communications satellite market to international bidding – the so-called “satellite agreement.”⁸ The effect of the decision directly impacted SAFs 6 and 7, but also indirectly SAF 6 in ways that were to have important reverberations later especially in the 2012-13 period when METI made a sustained attempt to bend space policy, in the form of *Basic Plan 2*, to its vision.

The satellite agreement, over the long term, made SAF 7 an increasing active challenger in the General Space Activities SAF, setting industry on a collision course with the fundamental research and development strategy of NASDA, and later, JAXA. In IDOJ, I identified the satellite agreement as one of the triggers that caused industry to ask Keidanren to scrap the PPR and create a domestic national security applications market, with this “military market” substituting for the failure of Japanese companies in Japan’s domestic commercial satellite broadcasting market. In other words, the satellite agreement played a major role in provoking innovative and strategic action by industry and policymakers to create a domestic market based on national security needs, i.e. with the fundamental orientation moving from the (commercial) market *to the military*.

Since the implied objective of the space development model of 1969 was based on the logic of “catch-up” until Japan was in a position to compete in the commercial space applications market, mainly for communications satellites, the 1990 satellite agreement had a profound impact. Until that point, sustained government investment in NASDA through the 1970s and the 1980s had focused on developing increasingly capable satellite and rocket technologies that were, when they were ready (and at least in theory), to be spun on to industry. The first market to justify sustained continued investment would be Japan’s domestic communications, broadcasting and applications market, with domestic satellite makers to use the technologies developed in conjunction with NASDA and other subgovernment organizations as a springboard to *kokusanka*.

The idea was that, sheltering under this protected market, Japan could then sell to itself. Then, given the extra investments and profits made through this, Japanese satellite makers could then consider an assault on the international market. Even if that was not possible, the internal domestic procurement market would at least ensure a stable series of investment, purchases, production and sales contracts that would sustain industry, particularly Melco, NEC and Toshiba.⁹ While this view remains fundamentally valid, a reinterpretation through the SAF framework better contextualizes the impact of the shock of the satellite agreement through the different fields as one of the episodes of contention leading to field

⁸ Pekkanen & Kallender-Umezu (2010), pp. 78-81.

⁹ The argument that the pressure of industrial interests on space policy, combined with realist pressures for Japan to scrap the PPR in the face of security threats and this recognition in political circles combined to create the fundamental rationale for the *Basic Law* was the basic premise of Pekkanen & Kallender-Umezu (2010).

settlement in *Basic Plan 2016*. Through the lens of the SAF framework, this shock can be characterized as follows.

SAF 2 characteristics and contentions: The satellite agreement can be seen in a number of ways. In terms of the incumbent, the U.S., through its industrial lobby of aerospace and space companies, was alarmed by the potential of Japan as a rising challenger and potential competitor in a growing space applications market. A second level of interpretation could construe the agreement as part of a longstanding effort by the U.S. for Japan to open its protected domestic procurement markets to more U.S. products, and one of the opening salvos in marked and increasing pressures by the U.S. through the early and mid-1990s on a number of fronts for Japan to open up its markets to U.S. competition. Some of these have been covered in great detail through two-level games analysis by Schoppa, for example, as mentioned in Chapter 2.

SAF 6 characteristics and contentions: By 1990, the three Japanese satellite makers – Melco, NEC and Toshiba – with technologies nurtured initially with transfer agreements from U.S. partners and through work with NASDA, were taking aim at both Japan’s domestic satellite applications market and, potentially, make inroads into the global market. Let’s quickly look at these players.

After it entered the space market in 1966 working with TRW, in 1969, Melco was chosen as the prime contractor for Japan’s first working satellite for ionosphere sounding, and built Japan’s first domestically produced communications satellite (CS-2A/B/ *Sakura-2a/b*) in 1983 and CS-3a/b in 1988. Melco then subsequently built Japan’s first large-scale EO satellite, the Earth resources satellite (JERS-1/*Fuyo-1*) in 1985. NEC’s roots were even deeper, with the company delivering a rocket telemetry transmitter-receiver system to a lab at the University of Tokyo back in 1956. In 1969, NEC established a Yokohama plant for its space business, building Japan’s first satellite *Ohsumi*, Japan’s first geostationary weather satellite, GMS/*Himawari*, in 1977, and then Japan’s first broadcasting satellite, BS-1/*Yuri-a* in 1978. For its part, Toshiba built the ETS-III, BS-2A/*Yuri-2a*, BS-2B/*Yuri-2b*, broadcasting satellites, but, unfortunately, also an early record of failure with its BS satellites series in the 1980s, which were constructed with the help of General Electric (GE). The principal customer for these satellites was Nippon Hōsō Kyōkai (NHK). A variety of malfunctions plagued the BS-2A, and although Toshiba and GE were favored by NASDA to develop the next generation BS-3 series, NHK opposed the move, and the follow-on contract then went to NEC.¹⁰

Fast-forwarding to the 1990s, however, the direct impact of the satellite agreement was immediate and devastating for the three companies, which lost what was to emerge as a two-decade, 20+ satellite domestic procurement market to U.S. rivals. Because of the satellite agreement, in 1990, NHK chose GE to build its next *Yuri* (BS-3A) and BS-3H satellites, which would have gone to either NEC or Toshiba. Then, NASDA had planned a CS-4 project for communications satellites for NTT to serve the growing market for 1995 onwards, which would likely have gone to Melco, but this was again cancelled in 1990, with the satellites in that series replaced by the N-STAR satellites built by U.S. suppliers.¹¹

From that point (1990) until 2005, around 25 satellites for communications and broadcasting were procured from the U.S. from a range of Japanese applications users, including NHK, and by the burgeoning digital satellite broadcasting market that emerged from the second half of the 1990s. This

¹⁰ This paragraph is a summary of an overview of the three companies in Pekkanen & Kallender-Umezu (2010), pp. 79-92.

¹¹ Michael Cross, “Japan drops satellite programme under US pressure,” *New Scientist Print Edition*, 31 March 1990; Michael Cross, “Space - Japan's new frontier,” *New Scientist Print Edition*, 21 April 1990.

barren market prevailed for fifteen years until finally Melco secured its first ever order for a communications satellite for one of its keiretsu affiliates, Space Communications Corporation, in 2005, using a bus system designed for a “research and development” communications satellite for JAXA, the DRTS/*Kodama*.¹²

Industry response to the impact of the satellite agreement and the loss of the NASDA springboard was rational. From the mid-1990s, Keidanren stepped up its lobbying for increased budgets and investment, while key members led by MHI, Melco, NEC and Toshiba, supported by IHI, worked extremely hard to use what technologies they had developed through the government procurement market to enter the commercial market. In 1996, Keidanren requested huge budgetary increases for space development, suggesting about ¥7 trillion in funding for space-related activities to cover space projects over the next fifteen years.¹³

At the same time, Melco, NEC and Toshiba switched strategies. Regarding the external market, the strategy was based on one major objective: to make the leap from being subsystems and components suppliers, which they had become successful at, to the ability to integrate and build complete systems, which in industry parlance meant winning prime contractorships for satellite systems, specifically a huge number of global communications constellations that were being proposed at the time.

Regarding SAF 4, satellite makers strongly supported a plethora of proposals for advanced communications and EO systems to substitute for the loss of the domestic commercial market (see below). Through the mid-late 1990s, all three companies made bullish (in fact wildly optimistic in some cases) press statements about their proposed or impending participation in a series of global communications constellations, and pushed forwards with investments in them. But when the market for these constellations disappeared after 1998 with the global glut of trunk fiber optical systems providing cheaper alternatives, the satellite makers were left with very little. Specifically, the collapse of several deals and stalled orders for a reduced NASDA market (again, see below) forced the consolidation of NEC’s and Toshiba’s space systems divisions, with NEC’s problems exacerbated by a major scandal when the company, desperate for profits from JDA and NASDA contracts, was found to have engaged in systematic padding.¹⁴

¹² Ellis S. Krauss, *Broadcasting Politics in Japan: NHK and Television News* (Ithaca, NY: Cornell University Press, 2000), p. 181; Melco, “Mitsubishi Electric Receives Order for Superbird 7 Communications Satellite from Space Communications Corporation,” press release No. 2373, 1 November 2005; Paul Kallender-Umezu, “Mitsubishi Electric to Build Superbird-7 for SCC—Deal is Japanese Maker’s First Domestic Commercial Satellite Contract,” *Space News*, 7 November 2005.

¹³ Nippon Keidanren, “Kokumin Seikatsu no Shitsu Kōjō ni Shi Suru Uchū Kaihatsu no Suishin o Yōbō” [A Call for Space Budget Increase—Improving Our Quality of Life on Earth], 21 June 1995.

¹⁴ For example, NEC took aim at the Intermediate Circular Orbit (ICO) consortium and won orders for ground infrastructure and satellite phones and at the Teledesic “Internet in the Sky” global constellation proposed by Bill Gates, which at one point posited needing up to 840 satellites. But both business evaporated. Toshiba invested in building up its satellite facilities in 1997 and took aim at the 64 satellite Skybridge broadband communications constellation proposed by Alcatel as a direct rival to Teledesic, but failed in its bid, with the Skybridge proposal later collapsing due to lack of demand for satellites. Melco took a more cautious approach, heavily investing in its Kamakura factory, but was sustained by winning orders for the IGS constellation in 1998. In 1997 top NEC officials expressed confidence that the company was number one in Japanese space business and likely to become a top ten player in the global space business.

See, for example, Paul Kallender, “Interview with Hiroaki Shimayama, senior vice president, NEC Corporation,” reprinted in Newsmaker Forum, *Space News*, 14-20 April 1997; Paul Kallender, “Japanese Firms Poised to Enter World Markets,” *Space News*, 4 August 1997. On ICO Global Communications, see generally “Inmarsat Affiliate to Operate Medium-Altitude Satellite System,” *AWST*, 23 May 1994, p. 58; Bruce D. Nordwall, “Inmarsat Is Changing,” *AWST*, 23 January 1995, p. 56; Joseph C. Anselmo, “Hughes Has Selected Launch Providers,” *AWST*, 4 November 1996, p. 92; James R. Asker, “Satellite Markets,” *AWST*, 1 December 1997, p. 21; Anthony L. Velocci, Jr., “Market Focus,” *AWST*, 2 November 1998, p. 13; Bruce A. Smith, “Tough Times Ahead?” *AWST*, 29 March 1999, p. 23. NEC, “NEC Wins Ground

Melco was partially insulated from all this. In the late 1990s, Melco's space systems president Ichiro Taniguchi made it his life's goal that Melco would enter the global satellite market. Melco in 1998 won the contract for IGS satellites, ensuring regular business for the coming decades, enabling it to become Japan's primary satellite builder.¹⁵ In fact, as is shown later, the Melco-IGS development model became a flagship experiment towards a new working relationship between industry and government. In IDOJ, the IDG program was seen as the first stage, or template, for the switch to creating a domestic military applications market. In this dissertation, this transformation is characterized in terms of the government providing a national security market to sustain industry, which became formalized as strategic policy goal in the *Basic Law*, and became a major assumption in the basic working model behind *Basic Plan 1* onwards. In this light, the award of the IGS contract to Melco became the harbinger of the later domestic national security procurement market, of which the QZSS is now a main pillar.

The loss of the IGS contract to Melco also served to severely damage NEC, which had been successively injured by a series of earlier satellite failures and was unable to secure a sufficient range of tested technologies to build the sorts of larger satellite frames necessary to compete in commercial communications and broadcastings applications markets. This, in turn, as will be seen in Chapters 8 and 9, caused METI to push heavily to support NEC (which became a challenger to Melco's incumbent position) as METI itself became a challenger to MEXT. Supporting NEC was also logical as part of METI's industrial policy of supporting a viable and competitive space industry, which also seek to avoiding the development of a monopoly controlled by the Mitsubishi group.¹⁶

Mainly due to the satellite agreement and various subsequent impacts, including the budget cuts of the late 1990s that are explained in following section, according to one estimate, Japan's space business shrunk by nearly 40 percent in the decade to 2005, and the number employed in the space industry fell by a third. By the close of the 1990s, Japanese industry was sufficiently concerned by the state of the space industry, once seen as so promising, that executives went public with their demands for increased funding.

However, overall, in terms of the SAF framework approach, it can be concluded that the experiences of the 1990s served to change the behavioral (and business) logic of players in SAF 6 into *challengers* in the form of aggressively lobbying for the revision or abandonment of the PPR, support for the *Basic Law*,

Systems Order for Global Mobile Satellite Communications Network," press release, 3 March 1997, and also NEC, "ICO's Handset Orders Go to NEC," press release, 25 June 1998; NEC, "ICO System TT&C RFT Hand-Over," press release, 15 October 1998; Paul Kallender, "NEC Aims New Satellite Platform at Teledesic," *Space News*, 9 March 1998. "TRW Has Filed a Lawsuit," *AWST*, 20 May 1996, p. 21; Michael A. Taverna, "ICO Stock Shortfall Raises New Questions," *AWST*, 14 June 1999, p. 90; Joseph C. Anselmo, "ICO Faces Long Climb Out of Bankruptcy," *AWST*, 6 September 1999, p. 29; "The Former ICO Global Communications Emerged from Chapter 11 Bankruptcy Protection," *AWST*, 22 May 2000, p. 20; Bruce A. Smith, "ICO Investments," *AWST*, 17 July 2000, p. 23; Bruce A. Smith, "Merger Off," *AWST*, 12 November 2001, p. 17; and Frank Moring, Jr., "Teledesic Pulls the Plug," *AWST*, 7 October 2002, p. 46; Paul Kallender, "NASDAQ Bars NEC from Competing for New Awards," *Space News*, 16 November 1998; "NEC Suspected of Cheating NASDAQ," *The Daily Yomiuri*, 7 November 1998; "NEC to Calculate Refund Owed to Defense Agency, NASDAQ," *Japan Times*, 19 November 1998. For an overview of Toshiba's troubles, see "Loss of Satellite Sparks Complaint by Japan," *AWST*, 21 May 1984; "Japan Broadcaster Wants Space Agency to Guarantee Satellite," *AWST*, 7 July 1986; "Toshiba to Supply Space Systems/Loral with Satellite Solar Array Panels," press release, 17 November 1997.

¹⁵ Melco, "Mitsubishi Electric Completes Japan's Largest Privately-Owned Satellite Assembly and Testing Plant," press release No. 0487, 29 October 1999.

¹⁶ However, before this happened, Melco was later found to have engaged in multi-decade systematic padding of its NASDAQ/JAXA, IGS and MOD space and defense contracts, pointing to more fundamental difficulties for industry working for government in this sector. See Paul Kallender-Umezumi, "Probe uncovers 40-year Japanese Contractor Fraud," *Defense News*, 29 October 2012; Paul Kallender-Umezumi, "Japan Still Calculating Cost of Defense Firm's Padded Bills," *Defense News*, 5 November 2012.

and for investment in a domestic security market. This challenger behavior was to play a major role in successive episodes of contention over the following decade.¹⁷ In this light, the actions by industry in SAF 6 appear constant and logical, with this SAF becoming a major contributory factor to pushing for a relaxation of the PPR in order to create a domestic procurement market for national security goals.¹⁸

3] Budget Cuts of the Late 1990s

SAFs 4 and 5 characteristics and contentions: The satellite agreement had a broad and catastrophic impact on SAFs 4 and 5, which eventually contributed to institutional failure by NASDA and the emergence of MITI as a challenger against the incumbent players in the form of the STA and NASDA. In this scenario, two decisive shocks had long-reaching consequences. Because of the satellite agreement, NASDA saw a good deal of its rationale to provide technologies that could be spun on to a closed Japanese domestic market severely undermined. NASDA faced the need to find a new rationale for development. NASDA's institutional logic meant that it had no choice but to pursue increasingly challenging technological development, i.e. pushing the envelope as far as it could.

Following the cancellation of CS-4, NASDA was forced to develop only R&D satellites, which was to prove extremely problematical. This was because the NASDA development model was already long, painstaking, and bureaucratic. And this, in turn, was partly because of the difficulties of the new technologies required careful planning and testing. NASDA's bureaucratic development system involved a complex procurement and building process that took up to seven years from initial design to launch. This process also gave makers little scope for profit. The long process also put further pressure on developers to try to leapfrog technologies, further increasing the risk of failure and the complexities involved.

The result of this hoarding was a series of satellites and systems that were to test advanced – sometimes highly advanced technologies – that *might*, if they had not failed or been delayed, have helped Japanese industry compete in the global commercial market. Overall, NASDA's technological base and progress can be said to have been insufficient to have given industry the tools it needed to compete commercially. As noted previously, these failures did grievous damage to NEC and Toshiba.

The next shock was the decision by the MOF, under political pressure from, and in agreement with SAF 3, to stop raising the general space activities budget.

Through the early to mid-1990s, STA and NASDA and other players in SAF 4 and 5, amid rising budgets, coordinated with SAC to find ever-new non-military science and research projects to sustain funding. In this, the MPT became an increasingly important player (contender) through its Communications Research Laboratory (CRL). In addition the 1970s also saw a proliferation of a whole new layer of space development, research and implementation-related subgovernment organizations. The rising tide of budget floated more and more boats. This resulted in the MPT and the CRL becoming an increasingly ambitious players and challengers. This growth, and growth in ambition, and sense of entitlement by the MPT also resulted in a long series of requests for investment in massive and complicated programs by the MPT and its successors that continued through the following decade as the MPT (later the MHPT, then the MIC) proposed a series of ambitious orbital constellations of

¹⁷ Keiji Tachikawa, "JAXA Vision—JAXA 2025, presentation to the Foreign Correspondents' Club of Japan, Tokyo, 28 April 2005; Paul Kallender, "Japan Takes on Europe, U.S., Public Cash Infusion for Satellite Component Makers," *Space News*, 23-29 March 1998.

¹⁸ Samuels (1996), pp. 77-78; Pekkanen & Kallender-Umezu (2010).

communications satellites and successively more advanced communications and broadcasting technologies.

On the other hand, much of this planning, and efforts to get publicly funded communications and relatively high-resolution EO constellations into SAC's *Fundamental Plans* were sabotaged by the combination of launch and satellite failures already mentioned. In addition, many were rejected by realistic appraisals by SAC acting as a responsible governance unit, and then impacted again by the flat budgets from 1996 onwards.¹⁹

On the expectation of continuing budget increases continuing through to the 2000s, NASDA had drawn up plans for an ambitious range of programs that would have seen Japan developing, for example, its own space shuttle to be based on the H-II Orbiting Plane-Experimental (*HOPE-X*) reusable orbital plane. However, successive failures in key programs, including the highly advanced ETS-VI/*Kiku-6* satellite and COMETS test satellites, which would have given NEC key next-generation communications technologies (the former when an apogee engine failed [again], the later through an H-II failure), and other high profile problems created severe reputational damage to NASDA.²⁰

Nevertheless, the early 1990s had seen steadily rising space budgets, based on momentum built up during the 1980s.²¹ By as late as the beginning of 1996, NASDA was looking toward at least, on average,

¹⁹ This was particularly seen, for example, through proposals such as the World Environment and Disaster Observation Satellite System and Global Observation Satellite System WEDOS/GDOS. For much of the mid-to-late 1990s Japan was awash with proposals to build a constellation of EO satellites for both environmental monitoring and disaster mitigation, mainly led through NEC, SJAC and CRL from 1987, and taken onboard by SJAC in 1989 to provide a constellation to provide continual environmental monitoring. Feasibility studies were conducted, in particular a 29-member mission to assess the needs of such a system for the Asia Pacific Region led by NEC officials, SJAC, MITI and, Keidanren, and executives and engineers from Toshiba, Melco, and NASDA, among other companies and organizations. After visiting various government agencies and laboratories, including 15 administrative and 16 research organizations around the region, unsurprisingly enough, perhaps, the committee concluded that an observation system deploying (Japanese built) satellites with 2-meter resolution infrared sensors and 5-meter resolution radars should be built.

By 1997 the proposal had morphed into a huge proposition that would have worked under U.N. auspices with the U.S. to include a disaster management and observation component, a regional satellite communications system, the development of small satellite technologies to support them. The main proposal to build 26 EO satellites in LEO with 6 GEO data satellites to provide 2-meter resolution. For these projects, see, for example, "Proposal for an International Concept toward the 21st Century WEDOS World Environment and Disaster Observation System, Summary Report of East Asia Mission," published by SJAC in October 1994; 1996 Workshop Report of the Japan-U.S. Science, Technology & Space Applications Program (JUSTAP), revised November 1997, p. 3, held by the author.

By the late 1990s NEC had published at least a dozen scholarly papers on the constellation. Typical examples are, T. Kuroda, T. Orii (Assistant General Manager, Space Systems Division NEC Corporation, S. Koizumi, Chief Engineer, Space Systems Division, NEC Corporation, "Concept of Global Disaster Observation Satellite System (GDOS) and Measures to Be Taken for its Realization," *IAF-9-C.3.03*, 48th *International Astronautical Congress*, 6-10 October 1997, Turin Italy; Takaji Kuroda, Takeshi Orii, Shinkichi Koizumi, "Concept of Global Disaster Observation Satellite System (GDOS) and Measures to Be Taken for its Realization," *Acta Astronautica*, Vol. 41, Nos. 4-10 (1997), pp. 537-549.

²⁰ See above footnote. In 1994 the ETS-VI, a highly advanced communications satellite which would have given Japanese companies a chance to develop commercial models was placed into an incorrect orbit. In 1996 Japan's prototype, unmanned space shuttle development test model *Hyflex* sunk in the ocean when its flotation device failed, leading to the eventual cancellation of the program by the MOF. Then in 1997, *ADEOS/Midori* a flagship Earth observation satellite designed to showcase Japan's global environmental contribution with a vast array of sensors and international contributions from NASA and Europe failed on orbit when the glue holding its solar array together failed. The following year, in 1988, another major communications test satellite, COMETS, the successor to ETS-VI was then injected into the wrong orbit by a second stage failure of the H-II. As noted above, the H-II, which was supposed to be Japan's first commercial launch vehicle in 1999, then suffered a second launch failure in a row, destroying a major weather and international aviation control satellite, and was cancelled, while launch contracts for its successor from two major U.S. satellite makers were cancelled.

²¹ Craig Cobalt, "Japan's Growing Space Effort: Japan Challenging Western Leadership in Space," *AWST*, 14 July 1986, p. 18; Roy Garner, "How Japan Is Finding Space for Private Enterprise," *Financial Times*, 7 April 1988; "Advanced Technology Moves Japan Toward Launcher Market," *AWST*, 9 March 1987, p. 132; Eiichiro Sekigawa, "Japan Boosts Budget for Space by 7.2%," *AWST*, 7 March 1994, p. 23; Eiichiro Sekigawa, "Japan Approves \$2 Billion in Space

10 percent per annum increases in its budget, perhaps highlighting the disconnect between NASDA and political and public sentiment.²² By the second half of the 1990s, it seemed to many observers that the confidence of the bureaucratic-dominated postwar development model that had, overall, helped deliver so many successes until the end of the 1980s, had run its course, as noted in Chapter 2, as Japan was rocked with a series of bureaucratic, financial and corporate scandals following the collapse of the real estate bubble, then a series of ministerial scandals encompassing the *jūsen* scandal and other issues such as the Ministry of Health and Welfare being found out when it tried to cover up its responsibility for allowing the import of HIV-infected blood. Japan it seemed, was facing structural economic issues, societal ills, and a crisis of government highlighted in the poor handling of the 1995 Kobe earthquake.²³

In this light, NASDA's performance in particular, and the necessity of maintaining ever-rising space activities budgets that could not be spun on into industrial and commercial gains, came into question, especially against a backdrop of rising Sovereign Debt, which passed ¥200 trillion in 1994 and doubled to ¥427 trillion in 1998.²⁴ This led Prime Minister Hashimoto to immediately find cost savings, and longer term, to try to rationalize the central bureaucracy. While SAF 3's impact on SAFs 6 and 7 was to be the strongest strategic action on the General Space Activities SAF, and the analysis of it will form the final section of Part 2 of this chapter, the decision by the MOF that high single-digit or double digit annual budget creases were no longer sustainable, was a profound shock.

By 1996, the MOF, mindful of the public mood and facing severe pressure to cut spending, using NASDA's string of expensive and high-profile failures as evidence, restructured the budget to nominal 1 percent rises – a situation that remained until 2009. Along with technological problems, this action directly caused the delay or cancellation of many programs into the 2000s, causing further pain for industry.

Thus, in 1996 the total space activities budgets began to be curtailed, just at the same point when increased investments were needed to complete the new ambitious programs such as the *HOPE-X*. The space budget for fiscal year 1996 grew just 1.2 percent over that of 1995. For the fiscal year beginning April 1997, SAC put forward a 6.5 percent funding increase. Instead, NASDA received 1.7 percent and ISAS a 0.36 percent increase. In fiscal 1998, the space activities budget rose only about 1.4 percent over the previous year.

These cutbacks cumulatively led to the scaling back and delay of a slew of programs, including the Engineering Test Satellite-VIII/*Kiku-8* (designed to give Melco satellite to portable phone communications capabilities for that market) the Solar X-ray Observing Satellite (*Solar-B*), the Advanced Land Observing Satellite (*ALOS/Daichi*), the OICETS (*Kirari*) laser communications satellite for NEC,

Agency Spending," *AWST*, 18 March 1996 p. 58; Eiichiro Sekigawa, "Japan Seeks 6.5% Boost in Space Budget," *AWST*, 7 October 1996, p. 73.

²² See comments by the former president of NASDA in "Newsmaker Forum: Takashi Matsui," *Space News*, 8 January 1996.

²³ Of all these the *jūsen* issue had captured the public's attention due to the fact that seven housing loan companies had been allowed under the MOF to rack up ¥13.2 trillion in debts, while by 1998 the MOJ had conservatively put the extent of total bad loans in Japan amounting to ¥77 trillion, or approximately 14 percent of total domestic loans. Tomohito Shinoda, *Contemporary Japanese Politics, Institutional Changes and Power Shifts* (New York: Columbia University Press, 2013), pp. 58-65.

²⁴ See Suzuki (2008).

and the SELENE (Selenological and Engineering Explorer/*Kaguya*) moon mission. The HOPE unmanned shuttle program was cancelled outright.²⁵

4] The Taepodong “Shock”

Japan’s decision in 1998 to launch the IGS program is now analyzed from the point of the SAF framework to show that actions of Japan as a whole were entirely logical from the point of view of each SAF. Evidence shows that the overflight acted more as a “trigger,” or at least threw open a door to institutionalize, and to provide a funding and development framework to meet a long-growing demand for better and independent ISR capabilities, built on pressure from industry, the intelligence community, and, not least, the JDA.²⁶

The main feature of the IGS program in terms of the SAF framework is the strong entry of SAF 3 in the form of activist political leadership that sought to cut through the possibility of bureaucratic entanglements, and the speed with which SAF 5 players fell into line, making sure that as many of the players were rewarded as possible. A sequential analysis of key movements, events and policies before and after the 31 August overflight is as follows:

Table 4: Timetable of Decisions Before and After the 31 August 1998 Taepodong “Shock”

| Year/Date | Event |
|------------------|---|
| 1984 | SDF submits a budget for ¥70 million for acquisition of commercial remote sensing satellite images. Successive budgets grow to reach ¥8.87 billion in 1998. ²⁷ |
| 05 February 1985 | “Unified view” by the government that JDA could gain access to commercial satellite imagery and use commercial transponders for communications. ²⁸ |
| 1985 | JDA begins purchasing images from Landsat satellites focusing on the Soviet-held Northern Territories. ²⁹ |
| 1987 | JDA starts purchasing SPOT (French commercial imagery satellite) data. ³⁰ |
| 1987 | Japan starts monitoring Chinese activities in the South China Sea. ³¹ |
| 17 January 1991 | Operation <i>Desert Storm</i> (combat phase ends 28 February 1991). |

²⁵ Eiichiro Sekigawa, “Japan Forced to Cut Hope, Other Programs,” *AWST*, 4 August 1997, p. 28; Paul Kallender, “Japan Suspends Projects Due to Budget Proposal,” *Space News*, 3 February 1997; Paul Kallender, “Japan Cuts Spending: Hope Killed,” *Space News*, 21-27 July 1997; Paul Kallender, “Solar-B, Shuttle Denied Full Development Funding,” *Space News*, 12 January 1998; Gilbert Kirkham, “Japan’s Space Budget Request for JFY98: Little Change for Now,” Report Memorandum #98-04, Tokyo: National Science Foundation, 19 February 1998.

²⁶ For an overall analysis of the IGS see Johnson-Freese and Gatlin (2004), pp. 538-552; Oros (2007), pp. 29-48; Oros (2008), pp. 139-146; Hughes (2004), pp. 85-88; Hughes (2009), p. 198; Federation of American Scientists (FAS), “Space Policy Project/World Space Guide—Japan: Information Gathering Satellites—Imagery Intelligence,” available online at www.fas.org; Paul Kallender, “Lurching into Military Space, Japan Rushes to Develop Spy Satellites,” *ACCJ Journal*, March 1999; Paul Kallender, “Japan Considers Spy Satellite in Response to N. Korea,” *Space News*, 14 September 1998; Paul Kallender, “Firms Vie to Win Japan’s Biggest Satellite Deal,” *Space News*, 8 February 1999; Paul Kallender, “Spy Satellite Launch Marks New Era for Japan in Space,” *Space News*, 9 April 2003; and Paul Kallender, “Japan Aims for Operational Military Space Systems by 2006,” *Space News*, 2 September 2003.

²⁷ Aoki (2004), p. 4.

²⁸ *Ibid.*, p. 4.

²⁹ “Jieitai no Eisei Riyo, Honkakuka; Supabado-B Tosai no Chukeiki 7 gatsu Kado” [SDF Use of Satellites Taking Shape; Transponder on Superbird-B Operational from July], *Asahi Shimbun*, 31 May 1992.

³⁰ Shunji Taoka, “Japan’s Turning Point Toward Spy Satellites and Information Independence; Decision Made to Launch Satellites in Four Years,” *Area*, 11 January 1999, pp. 46-80.

³¹ No author, “Chugoku ga Seisanshoto ni Wan mo Kensetsu, Nanshoto de no Sakusen Yoi ni, Yomuri Shimbunsha ga Eisei Shashin wo Nyusu” [China Constructs Port on Paracel Island, Allows for Easy Operation in Spratley Islands; Yomiuri Receives Satellite Photos], *Yomiuri Shimbun*, 21 August 1993, p.4.

| | |
|----------------|---|
| 1991 | Cabinet Intelligence Research Office (CIRO) is reported to have begun a study into the possibility of building a domestically developed, independent reconnaissance satellite capability. ³⁴ |
| 06 March 1991 | Commenting on Japan's intelligence capabilities, MOFA Minister Taro Nakayama expresses support for the idea of Japan building its own reconnaissance satellite ability to the House of Representatives' Foreign Affairs Committee, likening such a constellation as a <i>gaikō eisei</i> ("diplomatic satellites"). ³² |
| May 1993 | North Korea test launches <i>Nodong</i> missiles into the Sea of Japan. |
| 21 August 1993 | <i>Yomiuri Shimbun</i> publishes images shown to it by a JDA official of a Chinese airfield and port construction on the Paracel Islands taken from NASDA's Maritime Observation Satellite (MOS) satellite, revealing that the JDA has been using MOS images to monitor the Chinese military since at least 1985. ³³ |
| January 1994 | The JDA Defense Policy Bureau finalizes a classified report "Outline for Photo-Reconnaissance Satellites," examining the possibility of building an indigenous capability with the help of MHI, Melco, NEC and Toshiba, using the H-II or a future launcher at a total cost of up to ¥1 trillion. The report is leaked to the <i>Mainichi Shimbun</i> in August 1994 as the JDA was completing its next five-year MTDP. ³⁵ |
| August 1994 | The <i>Higuchi Report</i> recommends that Japan should start building up its C4I capabilities, investigate a missile defense system, and incorporate mid-air refueling capabilities. |
| Summer 1994 | The Japan Socialist Party-led administration, which had spent the postwar era contesting the constitutionality of the JDA shelves this policy. |
| January 1996 | Return to power of the LDP under Ryūtarō Hashimoto. |
| 15 May 1996 | The LDP Research Commission on Foreign Affairs and Research Commission on Security begins joint meetings on introducing an indigenous reconnaissance satellite capability. Meetings are attended by officials from MOFA, the JDA and NEC. NEC costs a two-satellite system based on technologies used on its ALOS satellite for NASDA with 30-cm resolution sensors, along with ground facilities, at ¥210 billion. ³⁶ |
| Summer 1996 | MOFA requests a ¥5.24 million investigation budget to review Japan's options for independent reconnaissance satellites. ³⁷ |
| 4 January 1997 | The Defense Intelligence Headquarters (DIH) is established with an imagery analysis division. ³⁸ |
| August 1998 | The SDF starts close monitoring the North Korean launch site in advance of an expected test of the Taepodong-1 missile. Japanese officials meet North Korean representatives in Beijing, urging them to refrain from conducting the test, which is subsequently tracked by a MSDF Aegis missile destroyer deployed to monitor the event. ³⁹ |

³⁴ Tsuyoshi Sunohara, *Tanjo Kokusan Supai Eisei: Dokuji Johomo to Nichibei Domei* [The Birth of an Indigenous Spy Satellite: Independent Intelligence Network and the Japan-U.S. Alliance] (Nihon Keizai Shimbunsha, 2005), pp. 7-8, 22-23, 25, 44-45.

³² Kokkai Kaigiroku, "Shugiin: Gaimu Iinkai," No. 5, 6 March 1991, <http://kokkai.ndl.go.jp/>.

³³ *Yomiuri*, 21 August 1993, *ibid*.

³⁵ "Teisatsu Eisei, Hoyu Fukume Kento; 'Kaihatsuhi Ha Icchoencho'—Bōeicho Ga Himitsu Kenkyu Ripoto" [JDA Secretly Studied Reconnaissance Satellites Including Possession; 'Development to Cost Over 1 Trillion Yen], *Mainichi Shimbun*, 15 August 1994, p.1; Naoaki Usui, "Japan May Include Spy Satellites in Plan," *Space News*, January 1994, pp. 24-30; Naoaki Usui and B. Opall, "Japan Eyes Space for Defense," *Space News*, 1-7 August 1994, p. 1; Naoaki Usui, "Group in Japan Recommends Spy Satellites," *Space News*, 29 August-4 September 1994.

³⁶ Eiichiro Sekigawa, "Japan Ponders Building Military Recon Network," *AWST*, 10 June 1996, p. 38; Haruyuki Aikawa, "LDP Researches Domestic Spy Satellite Development," *Mainichi Shimbun*, 16 May 1996; "Bōeichō, Teisatsu Eisei, Dōnyū no Hōshin—Dokuji no Jōhō Shūshūryoku Kyōka, 2001 Nen Ikō Uchiage" [JDA Considers Introduction of Reconnaissance Satellites—Emphasis on Independent Information-Gathering Power, Launch From 2001], *Nihon Keizai Shimbun*, 5 May 1996; Eiichiro Sekigawa, "Japan Ponders Building Military Recon Network," *AWST*, 10 June 1996, p. 38.

³⁷ Sunohara (2005), p. 22 quotes a figure of about \$50,000 in MOFA's 1997-1998 budget allocated for the study of "international Information Gathering Satellites."

³⁸ "Jōhō Honbu Kongetsu-matsu ni Hassoku, Eisei Gazō no Busho Mo" [Defense Intelligence HQ To Commence Operations at the End of This Month, Will Have Satellite Imagery Posts as Well], *Sankei Shimbun*, 4 January 1997, p. 3; Norihide Miyoshi, "Integrated Security HQ Set Up by Defense Agency to Enhance Operations," *The Daily Yomiuri*, 25 January 1997; "Japan's New Spy Agency Consolidates Five Units," *Wall Street Journal*, 21 January 1997; Masahiko Sasajima, "Information Is Power When Responding to Emergencies," *The Daily Yomiuri*, 23 April 1998.

³⁹ Paul Kallender (1999) p. 23; Johnson-Freese, Lance Gatling, "Japan Joins the Exclusive Space Spy Club," *YaleGlobal*, 31 March 2003.

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| 15 August 1998 | NEC submits a second study, proposing an initial three-satellite system with two reconnaissance and one data relay satellite for an initial cost of ¥210 billion. ⁴⁰ |
| 25 August 1998 | Melco President Ichiro Taniguchi presents a ¥210 billion, four-satellite system based on two optical and two radar satellites using improved versions of Melco's MOS satellites to the LDP's Science, Technology, and Information Roundtable Discussion. ⁴¹ The U.S. reportedly offers satellites to Japan. ⁴² |
| 31 August 1998 | Taepodong launched, overflies Japan |
| 06 September 1998 | LDP Secretary General Yoshiro Mori and Takashi Fukaya, Chairman of the LDP's executive council appear on TV independently discussing Japan's reaction to the Taepodong overflight. Fukaya suggests Japan should launch spy satellites and work with the U.S. on BMD. Mori replies that the LDP was sending Tokuichiro Tamazawa, head of the LDP's Research Commission on National Security and Taro Nakayama, head of the LDP's Research Commission on Foreign Affairs, to the U.S. to discuss Japan's reaction. The JDA Director General appears in several TV interviews saying that the SDF should be allowed to use satellites to gather intelligence, proposing that Japan should launch a "multi-purpose satellite system." ⁴³ The ALOS EO satellite being developed by NEC for NASDA rapidly emerges as a candidate reference design at the STA, and a senior NASDA engineer says that redeveloping ALOS for sharper resolution would not pose great difficulties. A consensus emerges in the LDP that Japan should push development of BMD and it is decided that Nakayama and Tamazawa, head to the U.S. ⁴⁴ Even at this point there is talk of developing 1-meter class optical sensor technology and infrared missile plume EW sensors. A U.S. official tells the author that the U.S. quickly released photos and intelligence to the JDA on the Taepodong launch, while a general at the SDF disputes this, saying, "Japan feels it has no eyes, and that's the reason why we are pressing for (reconnaissance) satellite development." ⁴⁵ |
| 08-09 September | Yukio Hatoyama, deputy leader of the Democratic Party, announces that the PPR would allow for the development and use of reconnaissance satellites, echoing comments from Chief Cabinet Secretary Hiromu Nonaka. On September 8, STA director General Yutaka Takeyama states that the agency wants to play a role in any new reconnaissance satellite program (despite the PPR). Earlier that week JDA administrative vice director Masahiro Akiyama said the JDA wanted to take part in the project. ⁴⁶ |
| 10 September | Prime Minister Keizo Obuchi announces that Japan might launch its own reconnaissance satellite, to bolster Japanese military capacity and to monitor missile deployments in North Korea, suggesting the government buy Japanese. Naoto Kan, the main opposition leader, endorses the idea, and a task force in the ruling Liberal Democratic Party headed by Nakayama begins conducting a series of meetings with ministries and contractors. ⁴⁷ Melco's proposal is a ¥197 billion program for two optical (1-meter resolution) and two radar satellites (1-3 meter resolution) orbiting at 500 km; NEC's ¥200 billion proposal redevelops its 1996 plan, with the company pitching a maneuverable optical satellite capable of 1 meter resolution at 700km, but also |

⁴⁰ Yoshihiko Ninagawa, "STA, NASDA Study Improved Satellite Monitoring Resolution," *Sankei Shimbun*, 20 September 1998, p. 1.

⁴¹ Taoka (1999), pp. 46-50; Tamokuteki Eisei de Dokuji Kōsō—NEC to Mitsubishi Denki—1 Meetoru no Buttai mo Shikibetsu" [Independent Scheme with Multi-Purpose Satellites—NEC, Melco—Distinguishing Objects Also at 1 Meter], *Nihon Keizai Shinbun*, 12 September 1998.

⁴² Akinori Uchida "Washington Asks Tokyo to Buy U.S. Satellite," *The Daily Yomiuri*, 15 May 1999; Robert Wall, "Japanese Recce Program Wary of FS-X Missteps," *AWST*, 23 August 1999, p. 44.

⁴³ No author, *Asahi News Service*, 7 September 1998.

⁴⁴ Paul Kallender (1998) In a 11 September 1998 interview with the author, Hiroshi Fujita, director of the STA's Space Utilization Division, said early warning sensor technology development was on the STA's agenda and Yukio Haruyama, senior engineer at NASDA's Earth Observation Planning Department made it clear that ALOS was seen within the agency as a good starting point for the reconnaissance satellite design.

⁴⁵ Ibid. "Teisatsu Eisei Dōnyū—Shushō, Maemuki Shisei" [Introduction of Reconnaissance Satellites—Forward-Looking Stance of Prime Minister], *Nihon Keizai Shinbun*, 3 September 1998; "'Tamokuteki Eisei' o Kentō" [Investigating "Multi-Purpose" Satellites], *Nihon Keizai Shinbun*, 8 September 1998; Akinori Uchida, "U.S. Backs Japan's Plan to Launch Recon Satellite," *The Daily Yomiuri*, 15 September 1998.

⁴⁶ "Government Considers Reconnaissance Satellite," *The Daily Yomiuri*, 9 September 1998, p. 2

⁴⁷ "Japanese Spy Satellite Proposal Faces Political, Budget Hurdles," *The Daily Yomiuri*, 17 September 1998, p. 3.

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| | the ability to fly to 300 km to get 40 cm resolution, along with one 1-3 meter resolution radar satellite and a data relay satellite for quick access. ⁴⁸ |
| 17 September | In an author interview, Shinya Ono, Chairman of the LDP's Science and Technology Committee states that the prospective reconnaissance satellite program will not be in violation of the PPR. ⁴⁹ Nakayama complains that several ministries are pursuing their own interests and not cooperating sufficiently to reach a consensus on what sort of indigenous system Japan should develop. ⁵⁰ |
| 30 October | The government draws up initial plans for development based on the two-plus-two system from Melco, names Melco as the candidate contractor. ⁵¹ In an article in the <i>Nikkei</i> , JDA insiders are vociferous in complaining that the system will be useless militarily and strategically if IGS fulfills its stated goal as a multipurpose system and make it clear that a geostationary infrared satellite is needed if Japan is to have EW missile warning capability. ⁵² Nakayama says he and six lawmakers will leave for the U.S. to discuss the possibility of importing U.S. satellites. ⁵³ |
| 06 November | The Cabinet decides to develop and launch four reconnaissance satellites to be put in orbit in fiscal 2002, and placed the Cabinet Secretariat in charge of the program. The committee formed to hammer out implementation is headed by Deputy Chief Cabinet Secretary Teijiro Furukawa and the Cabinet Information Research Office, the Foreign Ministry, the JDA, STA, MITI and the MPT. The decision, announced by Nonaka, says the four satellites (two optical and two radar) satellites will be Japanese built, the program cost will be ¥190 billion to ¥300 billion, and will be able to observe the area around Japan at least once a day. Nonaka stresses that the 1985 interpretation of the PPR means that the JDA can have access to the data, and that there will be a supplementary bill to kick start research and development. A new Cabinet committee consisting of MOFA, STA, METI and other agencies will be formed to implement the plan. JDA head Fukushima Nukaga says the agency will support the plan for indigenous development and later in the month that it plans to bolster its data processing staff from 31 to 74 to prepare. ⁵⁴ |
| 08 November | Nakayama and the LDP Project Team on Information Satellites flies to the U.S and meet Kurt Campbell, Deputy Secretary of Defense for East Asia and the Pacific. Campbell tells Nakayama that the U.S. supports the move and offers technical support and staff training. ⁵⁵ Later in the month, Nakayama says Japan needs about 150 analysts to adequately handle data for the system. ⁵⁶ |
| 09 December | Melco's proposed system appears to gain official approval over that of NEC. ⁵⁷ ALOS' NASDA project manager Tsuguhiko Katagi reveals much of the optical and data storage technology, high precision attitude control system, radar and three-dimensional imaging technology will be developed from ALOS. ⁵⁸ |

⁴⁸ "Space Industry Gears Up for Spy Satellite," *Nikkan Kogyo Shimbun*, 23 October 1998, p. 15; See also "Nissan Jidōsha—Eisei Uchiage Sannyū [Nissan Motors: Joining Satellite Launch], *Nihon Keizai Shimbun*, 6 January 1998; "Tamokuteki Eisei de Dokuji Kōsō—NEC to Mitsubishi Denki—1 Meeteru no Buttai mo Shikibetsu" [Independent Scheme with Multi-Purpose Satellites—NEC, Melco— Distinguishing Objects Also at 1 Meter], *Nihon Keizai Shimbun*, 12 September 1998.

⁴⁹ Paul Kallender (1999), p. 23.

⁵⁰ "Japanese Spy Satellite Proposal Faces Political, Budget Hurdles," *The Daily Yomiuri*, 17 September 1998.

⁵¹ Eiichiro Sekigawa "Japan Signs Recce Accord," *AWST*, 11 October 1999, p. 34.

⁵² "Spy Satellite Decide, Leaving Unresolved Issues," *Nihon Keizai Shimbun*, 7 November 1998, p. 3

⁵³ Toshi Maeda, "Intelligence satellites urgent for defense, LDP says," *Japan Times*, 30 October 1998, p. 4.

⁵⁴ Eiichiro Sekigawa, "Japan Considers Hybrid Satellite Defense Options," *AWST*, 2 November 1998, p. 29; Michiyo Nakamoto, "Tokyo Aims for Final Frontier," *Financial Times*, 6 November 1998; "Cabinet Gives Go-Ahead to Recon Satellite Plan," *The Daily Yomiuri*, 7 November 1998.

⁵⁵ Sekigawa (1999). "U.S. Supports Japan's satellite plan," *Kyodo*, 9 November 1998; Akinori Uchida, "LDP, U.S. Discuss satellite research," *The Daily Yomiuri*, 11 November 1998, p. 2.

⁵⁶ "Ex-minister seeks increase in satellite-image analysts," *The Daily Yomiuri*, 16 November 1998, p. 3; Sayuri Daimon, "Spy satellite launches set for 2002," *Japan Times Weekly International Edition*, 16-22 November 1998, Vol. 38, No. 46, p. 3.

⁵⁷ Eiichiro Sekigawa, "Mitsubishi Recce Plan Gains Ground in Diet," *AWST*, 9 November 1998, p. 34.

⁵⁸ Isamu Mishima, "Technology ready for observation satellites," *The Daily Yomiuri*, 16 December 1998, p. 6; Shūhei, Yamada "Mitsubishi Denki, Eisei Jigyō o Kakudai" [Melco—Expanding Satellite Business], *Nikkei Sangyō Shimbun*, 2 December 1999.

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| 21 December | Keizo Obuchi's Cabinet approves a draft budget for fiscal 1999 allocating ¥6.8 billion for the plan to start what will become the IGS program to the STA, and ¥1.4 billion for the Cabinet Office. ⁵⁹ |
| 1999 | |
| 11 January | U.S. Defense Secretary William Cohen tells reporters that the U.S. strongly endorses passing defense cooperation bills that will allow Japan to offer rear-echelon support to U.S. forces abroad without revisions, but he suggests that while Japan has the right to decide whether to procure its reconnaissance satellites domestically, doing so would be far more expensive than buying from the U.S. ⁶⁰ |
| February | CIRO says it will set up a special center to manage the IGS system and will initially staff it with 200 people from the JDA and the NPA (National Policy Agency). A committee in charge of the IGS program will be staffed from the JDA, the NPA, and other ministries. ⁶¹ |
| 01 April | The Committee set up under Cabinet Secretariat staffed by the CIRO and bureau chiefs from MOFA, MITI, MPT, JDA and STA is chaired by Nonaka and Furukawa. At an April 1 press conference Nonaka tells reporters that Japanese technology is good enough to build the satellites. ⁶² |
| April | Final decisions are made whether to adopt derivatives of NEC's MDS-1 bus, Melco's JERS-1, or Melco's DRTS bus designs. The decision has to be made by June or July 1999 in order to be on time for the following fiscal year's budget request in August. ⁶³ Melco wins an initial ¥9 billion contract to start work on the satellite systems. Melco will also develop a propulsion system for maneuvering the satellites. ⁶⁴ |
| May | The U.S. asks Japan to buy at least one satellite for the constellation, but such moves are rebuffed. ⁶⁵ The satellite is rumored to cost between ¥20-30 billion. ⁶⁶ Later, in August, Cohen directly approaches senior Japanese figures including Minister of State for Defense Hōsei Norota saying the U.S. wants to assist Japan with the satellites, and the Japanese agree to U.S. assistance. ⁶⁷ |
| 27 July | JDA releases its 1999 White Paper outlining the IGS system. The proposed system would cost \$1.3 billion. Cohen sates the U.S. will support Japan's plans, that the U.S. is prepared to assist, and that plans for what parts and technologies can or should be transferred will be hammered out over coming months. ⁶⁸ |
| September | Japan agrees to basic deal to buy some crucial U.S. components and subsystems for the IGS under an MOU. ⁶⁹ The purchase price is estimated over ¥10 billion. ⁷⁰ The Exchange of Notes occurs September 29. The devices are for controlling the optical sensor angle designed to locate ground objects; data memory devices for transmitting the images to ground stations to enable analysis; and advanced optics materials. ⁷¹ |
| December | Following the completion of Melco's Kamakura Works refit and the building of the company's large space chamber, Melco's Taniguchi tells the <i>Nikkei Shimbun</i> , "The difference in technology between our company and such Western rivals as Hughes has narrowed." ⁷² |
| 2000 | |
| January | CIRO reveals it will hire more people for IGS image analysis. About 100 will be responsible for image analysis and 200 for satellite operations management. ⁷³ |

⁵⁹ Keizo Obuchi opened the 145th session of the Diet on 19 January 1999 saying "in order to ensure the security of our nation in the international environment which surrounds us, I will take measures beginning with the introduction of information-gathering satellites in order to collect, analyze, and transmit information which can be of use in ensuring our national security and in managing crises."

⁶⁰ Yoichi Kato, "Cohen: Don't Tie the Military's Hands," *Asahi News Service*, 12 January 1999.

⁶¹ "Cabinet Secretariat to Get Spy Satellite Center," *Mainichi Daily News*, 14 February 1999, p. 12.

⁶² "Govt. to set up panel on intelligence satellite," *The Daily Yomiuri*, 16 March 1999, p. 2; "Cabinet secretary to chair panel on production of spy satellites," *Kyodo News Service*, 1 April 1, 1999.

⁶³ Paul Kallender, "Firms Vie to Win Japan's Biggest Satellite Deal," *Space News*, 8 February 1999, pp. 3, 42.

⁶⁴ "Mitsubishi Selected," *AWST*, 26 April 1999, p. 23.

⁶⁵ Akinori Uchida, "Washington Asks Tokyo to Buy U.S. Satellite," *Yomiuri Shimbun/ The Daily Yomiuri*, 15 May 1999.

⁶⁶ "Japan to Use US SpySat Technology," *Tokyo AFP*, 24 September 1999.

⁶⁷ Robert Wall, "Japanese Recce Program Wary of FS-X Missteps," *AWST*, 23 August 1999, p. 44.

⁶⁸ *Ibid.*

⁶⁹ "Japan to Use US SpySat Technology," *Tokyo AFP*, 24 September 1999.

⁷⁰ "Japan to Buy U.S. Parts for Info Satellites," *Jiji Press Ticker Service*, 29 September 1999.

⁷¹ U.S. Department of State Dispatch, No. 10, Vol. 10, p. 9 ISN:1051-7693 IAC-ACC-NO;59450274, Treaty Actions; international treaties; Brief Article, MULTILATERAL Civil Aviation, 1 December 1999.

⁷² "Mitsubishi launches satellite bid, Company confident that it has narrowed the technology gap with Western Rivals," *The Nikkei Weekly*, 13 December 1999, p. 10.

⁷³ "Gov't to hire dozens from private sector for satellite project," *Kyodo*, 9 January 2000.

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| August | SAC requests ¥99.2 billion for IGS program, which will include ground stations in Tomakomai (Hokkaido), Akune (Kagoshima), a data center in Kitura in Ibaraki, and a Tokyo control center. ⁷⁴ |
| 2002 | |
| November | Yukio Sato, former ambassador to the UN, says Japan has been over-dependent on the U.S. for intelligence and that Japan needs independent capability to assess threats from Japan's neighbors and the Middle East. He says Japan has no intelligence on Chinese and Russian nuclear weapons. ⁷⁵ |
| 2003 | |
| 28 March | IGS-1a and 1b are launched by H-IIA into orbit. ⁷⁶ The news attracts international media attention. The blanket coverage preceding, covering and analyzing the launch and implications throws up several new facts, including plans to boost to 3,000 personnel from 2,100 staffers working on defense intelligence, and ¥50 billion in new funding to improve data reception and analysis. ⁷⁷ The launch is conducted under unusually tight security with hundreds of flack-jacketed police patrolling the Tanegashima Space Center and boats patrolling the waters around the Center. JAXA does not "christen" the satellites with Japanese names, and no pictures are released of the satellites showing their shapes. ⁷⁸ |
| 29 November | The H-IIA#6 failure destroys IGS-2a and 2b, crippling the utility of the constellation for several years. |

A SAF-based analysis of the decision for Japan to initiate the IGS program, based on movements before the August 31 flyover and subsequent decisions is as follows:

SAF 1 characteristics and contentions: The Taepodong overflight catalyzed awareness that Japan had limited independent means to monitor North Korea, and no means to counter ballistic missile attack, leading to the formalization of prior arrangements to bolster Japan's reconnaissance capability and initiate research into ballistic missile defense. Subsequent decisions to initiate both programs appear to be logical reactions, pushing on from early studies into BMD systems initiated as far back as the 1980s.⁷⁹

SAF 2 characteristics and contentions: There was some opposition to and questions raised about Japan developing an indigenous system, but these were quickly overcome. First of all, it was clear that as the purpose of a domestic procurement would be for national security, the obstacle of the 1990 satellite agreement could be lifted. Following its traditional alliance (technology) management strategy, the actions of the U.S. were to support the development of an indigenous system with the offer of U.S. technical support.

During the weeks after the flyover, the author was approached by U.S. State Department officials from the U.S. Embassy in Tokyo and told that that, for commercial and military reasons, and to save the Japanese taxpayer money, the U.S. would prefer Japan to buy U.S. systems with superior capabilities,

⁷⁴ "Panel seeks 99.2 bil. Yen for spy satellite program," *Kyodo*, 23 August 2000.

⁷⁵ Interview with Yuki Sato published in the *Asahi Shinbun*, 14 November 2002.

⁷⁶ Paul Kallender, "Spy Satellite Launch Marks New Era for Japan In Space," *Space News*, 31 March 2003, p. 8.

⁷⁷ Tetsuo Hidaka and Koichi Yasuda, "Better Spy Satellite System Needed: Reliance on U.S. Intelligence on Missile Launch Shows Need for Improvement," *The Daily Yomiuri*, 31 July 2006.

⁷⁸ Various reports detail combinations of these events including Eiichiro Sekigawa, "And So It Begins," *AWST*, 7 April 2003, Vol. 158, No. 14, p. 32; "Kokunai Hatsu no 'Teisatsu Eisei' Uchiage" [First National "Spy Satellites" Launched], *Asahi Shinbun*, 28 March 2003; "Jōhō Eisei Uchiage Seikō" [Successful Launch of Information Satellites], *Nihon Keizai Shinbun*, 28 March 2003; Michael Mecham, "Japan Preps for Its First Milsat Launch," *AWST*, 27 June 2003, p. 26; Reiji Yoshida, "Japan Readies Launch of Third Spy Satellite from Kagoshima," *Japan Times*, 9 September 2006; "Japan Ignores International Treaty on Registering Spy Satellites," *BBC Monitoring Asia Pacific*, 10 June 2007; Keisuke Yoshimura, "Japan's Spy Satellites Are an Open Secret," *Japan Times*, 15 June 2007. This refers to the Convention on Registration of Objects Launched into Outer Space, which opened for signature in 1975. Japan signed it in 1983 and, as of 2008, had registered more than 100 spacecraft, including their shape, orbits, and inclinations.

See the Annex to the Resolution adopted by the General Assembly, 3235 (XXIX) Convention on the Registration of Objects Launched into Outer Space, available online through the United Nations Office on Outer Space Affairs (UNOOSA) at www.oosa.unvienna.org; Frank Moring Jr., "U.S. Classifies Orbits of Visible Japanese Satellites," *AWST*, 21 April 2003.

⁷⁹ Kaneda et. al (2006), pp. 91-104.

which could also be integrated better with U.S. systems. However, the U.S. understood the constraints of the “unified view” that Japan would benefit longer-term from domestic development. Taken in the context of the decision by Japan to start “research” into U.S. BMD systems, the U.S. was in support of Japan’s indigenous procurement of satellites because both offered the prospect of closer cooperation and, longer term, at least a pathway towards better forward C4ISR and deterrence functions for the alliance – as well as the prospect of some sales (primarily of BMD systems!)

The SDF’s apparently minimalist response was framed by the PPR. The SDF has regarded space technologies as a useful addition to the prosecution of duties to the three main services and because of the PPR, the SDF pushed for BMD acquisition first. Within the defensive-defense posture of the SDF, there was no major normative/ policy logic for the SDF to develop a space program or research space technologies even if this had been legally possible. Thus, as a customer of the IGS, the SDF was opportunistic and willing to take advantage of any chance to gain extra ISR data. Being hermetically sealed away from space policy formulation, and institutionally distant from NASDA in particular, the SDF was content to become a customer.

As is shown in Table 4, by the mid-1990s, the JDA had already become a primary customer of a growing high-resolution commercial imagery market using non-Japanese commercial satellites, serviced by a growing domestic purchasing and resale sector, with not only the JDA but also MOFA and the Maritime Safety Agency as major customers.⁸⁰ Therefore, the SDF’s response must also be seen in the context of a long-standing interest in satellite imagery dating back to the 1980s, when Japan began purchasing both U.S. and French observation data, taking advantage of commercial technologies for ISR.⁸¹

Within this framework, by the middle 1990s, alarm at North Korea’s missile program caused concern in the SDF about its reliance on data purchased from foreign commercial satellites, and its inability to have its own dedicated source, causing the SDF to look for ways to lessen its dependence on commercial satellite image data. This led to several proposals that Japan launch its own reconnaissance satellites, which would be conceivably legally possible under the Nakasone “dual-use” theory, if the system’s resolution did not surpass that already commercially available.⁸²

For example, in 1994, the Higuchi Panel had focused on the importance of the SDF improving its ISR capabilities and investigating the feasibility of BMD.⁸³ In 1996, the JDA, with political support expressed by Prime Minister Tsutomu Hata, had then seriously considered the building of a made-in-Japan military reconnaissance network. Other agencies were also involved. According to budget

⁸⁰ Oros (2008), p. 137. For an overview of the key corporate and government actors, see Hirofumi Matsuo, “Firms Compete to be Japan’s Eye in the Sky—Mitsubishi, Hitachi Aim to Dominate Satellite Imaging,” *The Nikkei Weekly*, 17 June 1996. On Japan and satellite imagery trends, see Ryuichi Otsuka, “High-Resolution Satellite Photos Go on Sale,” *The Daily Yomiuri*, 5 October 1999; Michael Mecham, “Commercial Imaging to Enter 1-Meter Era,” *AWST*, 26 April 1999; Kyle T. Umezu, “EarlyBird Tweaks the Law,” *SpaceDaily*, 1997; Joseph C. Anselmo, “Commercial Space’s Sharp New Image,” *AWST*, 31 January 2000; Vernon Loeb, “Now Everybody Can Snap Up Satellite Secrets,” *The Sunday Herald*, 26 September 1999; “Protecting Japan—Eyes in the Sky Vital for Security,” *The Daily Yomiuri*, 8 June 2004; Hidaka and Yasuda (2006); Paul Kallender, “Consortia to Develop Imagery Markets in Japan,” *Space News*, 5 May 1997.

⁸¹ “Japanese Spy Satellite Proposal Faces Political, Budget Hurdles,” *The Daily Yomiuri*, 17 September 1998.

⁸² Doug Struck, Akiko Yamamoto, and Sachiko Sakamaki, “Japan to Launch Spy Satellites—Move Is Attempt to Lessen Dependence on U.S. Intelligence,” *Washington Post*, 26 March 2003; Tetsuo Hidaka, “Spy Satellites to Watch N. Korea: Extra Surveillance to Reduce Reliance on U.S. Intelligence,” *The Daily Yomiuri*, 4 March 2003; Peter B. de Selding and Naoaki Usui, “WEU Plan Strengthens European-Japanese Ties,” *Space News*, 9 December 1996.

⁸³ Green, (1995), pp. 146-148.

requests by MOFA, Japan had been studying indigenous development of space-based ISR since 1997.⁸⁴ Therefore, in one way at least, the IGS superseded a series of calls for already extant *kokusanka* space-based reconnaissance capabilities under discussion.

SAF 3 characteristics and contentions: While Japanese media played up the drama and the crisis of the overflight, the actions within SAF were logical and marked by a strong sense of leadership to find an institutional and funding pathway for the formal initiation of an independent capability that had been seen as increasingly necessary since at least 1993. Dealing with SAF 2, delegations were flown to the U.S. to coordinate the procurement issue and agreement on the utility of initiating the program for both sides, with U.S. input and technological exchange was quickly agreed to.

The actions of leading politicians were also notable for directly coordinating meetings with SAF 6 members (industry, particularly Melco, as NEC, as we have seen, following the major procurement scandal that broke during the crucial decision-making period, was temporarily barred from bidding for contracts from NASDA) in order to quickly gain basic technical knowledge on the possibilities of developing an indigenous capability, sometimes bypassing SAFs 4 and 5 to do so. Additionally, key members of SAF 3 ensured that leadership was exerted to choose the Melco design quickly, further exerting pressure to make sure that the roles for individual players in SAF 4 were coordinated quickly.

Leadership was quickly asserted by politicians through public statements confirming the legality of the proposed reconnaissance system, thus removing any institutional roadblocks, which was also important for gathering public understanding, or tamping opposition, in SAF 7. Despite the flat-line, minimal increase budgetary position of post-1997 space activities funding, it was made clear that new budget would be found for the new system, thus further reassuring both SAFs 4 and 7. When appropriate responses were gathered from SAF 4, critical decisions about the system were taken in time to find budget and workshare solutions by the end of December 1998, in time to start development the following April. Not least, key members of SAF 3 went to the mass media to repeatedly assure SAF 7 that appropriate actions were being coordinated.⁸⁵

It seems reasonable to assume, then, that the Taepodong incident also precipitated Japan's long-standing wish to upgrade its ISR infrastructure, the need for which had been becoming increasingly apparent since at least 1993 and the launch of the *Nodong-1*. The SDF's response must also be seen in the light of parallel administrative arrangements that had been developed in response to exogenous security pressures.

One of these major institutional responses was the establishment of the Defense Intelligence Headquarters (DIH) in early 1997 to improve Japan's autonomous gathering and analysis of

⁸⁴ Usui (1994); Usui and Opall (1994); "Hata Supports Future Possession of 'Spy Satellites,'" *BBC Summary of World Broadcasts*, 9 June 1994; "Bōeichō, Teisatsu Eisei, Dōnyū no Hōshin—Dokuji no Jōhō Shūshūryōkyō Kyōka, 2001 Nen Ikō Uchiage," [JDA Considers Introduction of Reconnaissance Satellites—Emphasis on Independent Information-Gathering Power, Launch From 2001], *Nihon Keizai Shinbun*, 5 May 1996; Sekigawa (1996); "USA Reported Opposed to Japan's Plan for Spy Satellites," *BBC Summary of World Broadcasts*, 8 January 1998.

⁸⁵ As an addendum to the previous analysis of neorealism-based surveys of the transition of Japanese security policy, these facts have led Hughes, for example, to regard the IGS as part of a creeping militarization of space as part of a broader shift towards a trajectory towards remilitarization willed on by policy elites and hawks, and necessitated by the more complex security situation that was evolving through North Korea's missile capability. As Hughes phrased it: "Japan's deployment of spy satellites and BMD has progressively pushed it to breach entirely the anti-militaristic principle on the peaceful use of space. Successive governments have incrementally shifted from the original 1969 interpretation of 'peaceful' (*heiwa no mokuteki*) as meaning 'non-military' (*higunji*) to emphasizing instead the 'defensive' military use of space." See Hughes (2013).

intelligence.⁸⁶ Thus, the SDF can be seen to have been a willing beneficiary of the IGS program, which supplemented its independent commercial purchase of militarily useful data. In fact, as the emerging relationship of the SDF with the IGS shows, external pressures both in the shape of emerging security threats and a strong political consensus formed to allow the SDF to directly benefit from, if not to direct, Japan's first military space program.

However, the empirical evidence can also be interpreted to show that the SDF in fact took a minimalist approach. Interviews conducted in 1998 by the author with several SDF staff, including a Major General, also confirm remarkable consistency in terms of the SDF's institutional and normative position on space technologies. SDF staff at the time saw the Taepodong incident as an opportunity to press the U.S. to release more and better-quality image data, increase image data acquisition budgets, and to improve the SDF's intelligence gathering capabilities.

Beyond that, in the face of U.S. pressure on Japan to import U.S. satellites, the SDF remained distant from the fray. The SDF would be happy to receive more data, but, in fact, according to one senior SDF official, Japan would be better off buying U.S. technologies than developing Japanese technologies, which were deemed as inferior and more expensive. If Japan pursued a *kokusan* path, then the SDF would use that data too.⁸⁷ Thus, while politicians were able to use the "trigger" of the Taepodong overflight to establish Japan's first dual-use national security space program, the SDF's response was rather minimal, and in that, entirely logical.

SAFs 4 and 5 characteristics and contentions: Under strong political pressure, each player in SAF 4 fell into line relatively quickly because the prospect of new budget for an indigenous system meant that it was in each player's institutional interest to cooperate. Regarding the positions of the STA and NASDA, once they assured that the systems were legally allowable, the STA played a relatively smooth coordinating role with other players including the JDA, CIRO, DIH and MITI and MOFA. Coordination was assisted through the experience and availability of the CIRO, which was already installed in the Cabinet Secretariat, which provided the logical home for management and coordination of the system. These arrangements meant the STA and NASDA could lead the design and development of the system with extant technologies available.

Within this, the STA was positive towards developing the system because both the proposed system from Melco used technologies developed by NASDA (the MOS satellites built by Melco, and a relatively sophisticated optical sensor under development for the ALOS satellite being integrated by NEC) as a technological base. Further, the program, because it was new and challenging suited NASDA's institutional logic of research and development! For the JDA and CIRO, the proposed system institutionalized arrangements that had developed over the prior decade, while partially assuaging JDA concerns that it was over-reliant on U.S. and commercial sources of data.

⁸⁶ Norihide Miyoshi, "Integrated Security HQ Set Up by Defense Agency to Enhance Operations," *The Daily Yomiuri*, 25 January 1997; "Japan's New Spy Agency Consolidates Five Units," *Wall Street Journal*, 21 January 1997; Derek de Cunha, "Japan Pushes Hard to Beef Up Its Military Intelligence," *Straits Times (Singapore)*, 4 July 1996; Masahiko Sasajima, "Information Is Power When Responding to Emergencies," *The Daily Yomiuri*, 23 April 1998; Nao Shimoyachi, "Spy Satellites Part of Intelligence Quest," *Japan Times*, 27 March 2003. For an overview of Japan's intelligence trends and policy structure, see Andrew L. Oros, "Japan's Growing Intelligence Capability," *International Journal of Intelligence and Counter Intelligence*, Vol 15., No. 1 (January 2002), pp. 1-25.

⁸⁷ Interviews on background with SDF officials in September/ October 1998.

SAF 6 characteristics and contentions: The decision for domestic procurement met the demands of industry to find a new, protected, domestic market. Budgets for a multi-decade and multi-satellite constellation with concomitant ground systems and infrastructure would at least ensure sustained investments and launch opportunities benefitting both satellite and launch vehicle makers.

In the event, Melco's system became the default choice after NEC was suddenly embroiled in its contract padding scandal, giving Melco a major advantage in its subsequent corporate strategy of investing in a modernized satellite manufacturing facility, from which it was able to bid for new domestic security procurement from a position of advantage, and, thanks to the sustained investment by the government, secure sufficient funds to adapt some of its designs to make inroads into the commercial satellite market.

SAF 7 characteristics and contentions: In this incident, the role of public opinion was important as the flyover caused a media sensation and aroused and focused public alarm about a growing potential threat from North Korea. To assuage public opinion about concerns about militarization of space, the satellite system was initially labeled a "multi-purpose satellite system." While it was understood that the intelligence and defense community would be the major customers, the IGS program management was put under the control of a new body, the CSIC in CIRO, thus distancing the system from the JDA and SDF.

Chapter 8

Episodes of Contention, Shocks and Strategic Action 2000-2011

Introduction

This chapter describes strategic action taken by SAF 3 to try to assert Cabinet Office control over space policy and administration. This followed strategic action asserted through the Kawamura initiative and its instrument, the *Basic Law*, and then subsequent episodes of contention within SAF 4 over the *Basic Law's* implementation. Following this, Chapter 9 focuses on the establishment on the new form of Cabinet Office government control of policy through the ONSP, and further episodes of contention before field settlement. This chapter is divided into three main sections focusing first on three episodes of contention that led to strategic action, and subsequent episodes of contention. Two important episodes of contention between 1998 and 2009 took place outside the General Space Activities SAF, but had direct impacts on it. These were the strategic actions by prime ministers Hashimoto and Koizumi to establish a greater degree of Cabinet Office leadership over policy and even budgeting.

Episodes of Contention 1: SAF 3 vs. SAF 4: Function of the Cabinet Office and Political Control

The attempted reforms of Japan's central ministries by Hashimoto represented strategic action by SAF 3 that caused the malfunction of the General Space Activities SAF through the loss of the coordination function of the SAC. In terms of the SAF framework approach, the reinstatement of a body with superior authority to coordinate budgets constituted one of the overall primary strategic actions of SAF 3 players, necessitating the *Basic Law*. This dissertation also delineates, newly, an analysis of how the Cabinet Office gradually asserted through its own strategic action, partial incumbency and superiority over other SAF 3 players, especially MEXT.

The essential issue with the CSTP policy, as pointed out in Chapter 5, was that there was no overall control function for budgeting for new space programs. This lack led to conflict within SAFs 3 and 4. However, a contextual analysis of the background and motivations behind the Hashimoto reforms through SAF 3 analysis is also important to understand the changing behavior of SAF 3 actors through to 2014.

As noted in Chapter 3, the Hashimoto reforms to institute more political control over policymaking and to cut the budgets, powers and prerogatives of the central bureaucracy were the latest in a long line of attempts and the attempted various actions of a series of Administrative Reform Councils (ARCs) whose recommendations were often sublimated or repurposed by the targeted ministries for their own purposes (or watered down/ rewritten or deflected). According to Shinoda, when Japanese politicians have tried to change the balance of power between politicians and the civil service and assert more political control, they have always had to overcome veto players, which can be either individual ministries, or through their *zoku* proxies, ministers in the Cabinet specifically, or, indeed, in the Diet.

The essential issue was that in Japan, the Constitution vests executive power in the Cabinet, not in the prime minister, so that authority over administrative operations was divided among various ministers. This allows ministries to serve as veto players when their interests conflict with the prime minister's policy initiative.¹ Further, under the accepted version of the Cabinet Law, prime ministers have refrained from instructing ministers without the unanimous consent of the entire Cabinet.²

¹ Shinoda (2013), p. 5.

² *Ibid.*, p. 66.

Hashimoto's main action was to revise the Cabinet Law to try to reinforce the policymaking power, or at least the initiative, of the prime minister in the Cabinet Office. Just one month after the October 1996 general election, Hashimoto inaugurated his newly-minted version of the ARC, forged in such a way as to bypass the civil service. To make it effective and to avoid ministerial veto power, Hashimoto set it up without new legislation, appointed himself chairman, packed it with his own appointees, and avoided populating it with staff from the civil service. In other words, the ARC was set up as what I call a "guerilla" unit. On May 1, 1997, to create leverage for the principle of political control, the ARC recommended that the prime minister be allowed to directly instruct ministries in *times of crisis*, and that a new position, that of Deputy Chief Cabinet Secretary for Crisis Management be established. More importantly, the ARC proposed the establishment of a more powerful Cabinet Office that would be in charge of coordinating different interests among ministries on behalf of the prime minister.

After various battles, by September 1997, the ARC called for drastic plans to establish a Cabinet Office function reporting to the prime minister, and among other proposals, that postal savings and insurance services be privatized and that central government ministries be streamlined to 13 from 23. While Hashimoto lost power through a series of scandals and political opposition from *yusei zoku*, bureaucratic opposition and public discontent, his strategic action established the tactic of short-cutting bureaucratic influence through creating "guerilla" committees, and of the of principal of the role of a more powerful (or potentially more powerful) Cabinet Office in policymaking.³

Table 5: Summary of Hashimoto Reforms 1998-2001 and the Cabinet Office Establishment Law

| |
|--|
| 1. Reduce ministries from 23 to 13. |
| 2. Revise Article 4 of the Cabinet Law to allow the prime minister to propose basic policy. |
| 3. Give Cabinet Secretariat to plan and draft national policy. |
| 4. Prime Minister given authority to appoint five assistants to support the Chief Cabinet Secretary (CCS). |
| 5. Appoint three assistant CCS at vice-minister level. |
| 6. Prime Minister has authority to add more secretaries. |
| 7. CCS given chief role as mediator between ministries (elevation of CCS to approximately same potential power as the U.S. White House Chief of Staff). |
| 8. The Administrative Deputy CCS to chair administrative vice-ministerial meetings which set agendas for Cabinet meetings. |
| 9. Cabinet to approve all higher ministerial officials from bureau chiefs upwards. |
| 10. Establishment of the Cabinet Office headed by the prime minister and administered by the CCS and CCS deputies (Cabinet Establishment Law), and the Council on Economic and Fiscal Policy (CEFP) taking over from the Economic Planning Agency, allowing the prime minister to initiate the budgeting process by proposing the total size of the budget and proposing major spending items, taking away the initiative of budget formation from the MOF. ⁴ |

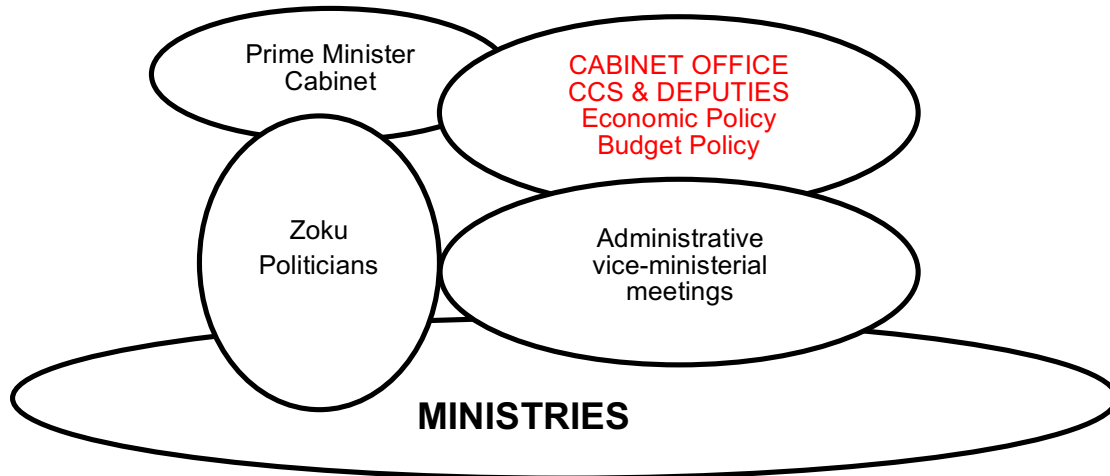
The most critical element of the Hashimoto strategic action was the Cabinet Office Establishment Law. Following this, many of the subsequent elements of contention in the attempts by politicians (primarily Kawamoto, Maehara, and Imazu) in space policy and administration were founded primarily on MEXT specifically attempting to stop the Cabinet Office taking more control of space policy and

³ Ibid., pp. 68-70.

⁴ Ibid., pp. 79-83: For the Cabinet Office Establishment Law, see 内閣府設置法平成 11 年法律第 89 号 [Naikakufu Sechi Hō Heisei 11 nen Hōritsu Dai 89 Gō] Cabinet Office Establishment Act Law 2002 Law No. 89, <http://www.kantei.go.jp/jp/cyuo-syocho/990427honbu/naikakuhu-h.html>.

therefore budgets, and why, with the initial establishment of the ONSP, the Cabinet Office was only able to take control of the QZSS system directly.

Figure 26: SAF 3 vs. SAF 4 Revision Under Hashimoto Reforms



Following Hashimoto’s strategic action, Koizumi went further in attempting to enact his own versions of the ARC’s recommendations. The SAF 3 contentions between Koizumi with LDP *yusei zoku* and SAF 4 players over a series of episodes of contention further established the principal of prime ministerial leadership and Cabinet Office control, providing a “how-to” example or template for the DPJ later. This might also be called an operating system or example framework that was a model for the DPJ later and adapted once more by Maehara. While many of Koizumi’s initiatives were perhaps products of the specific timing and his personal style and popularity, it has been said Koizumi was able to introduce for the first time, albeit temporarily, a “Westminster-like” top-down decision-making process that enabled him to ram through legislation unpopular not only with ministries and the subgovernment, but many in his own party.⁵

Koizumi’s charismatic administration also differed from those of his predecessors in a number of important ways. In Koizumi’s administration, most key foreign policy initiatives were taken by the prime minister, the CCS and Cabinet Office officials, with some input from confidants from MOFA and other ministries.⁶ Notably, however Koizumi pushed on from Hashimoto, using refined tools that employed a staged approach to achieve his goals regardless of the bureaucracy to initiate postal privatization, and attempt to cut down budget for the vast subgovernment sector, this time through proposing the privatization of 77 special public corporations in SAF 5, particularly the Japan Highway Public Corporation.

⁵ Hughes and Krauss (2007), pp. 157-176

⁶ Tomohito Shinoda, *Kantei Gaikō: Seiji Rīdashippu no Yukie* (Tokyo: Asahi Shimbunsha, 2004), pp. 9-50.

Table 6: Koizumi Tactics to Deal with SAFs 3, 4 & 5

| |
|---|
| 1. Used the CEFPP as a battering ram by packing it with outside experts not collectively owing loyalty to a particular ministry. Personally set the agenda of the CEFPP by setting a <i>honebuto no hōshin</i> (basic principles) and made its deliberations available to the public. ⁷ |
| 2. Hired outside experts, notably Heizō Takenaka, to take over key positions such as Minister for Economic and Fiscal Affairs and consulted with a narrow circle of outside experts to make the <i>honebuto no hōshin</i> . |
| 3. Established a “guerilla unit” – an inner circle of aids to keep the initiative on Koizumi’s side in the form of a Postal Privatization Preparation Office (PPPO, <i>Yusei Mineika Junbishitsu</i>) in the Cabinet Office’s secretariat, consisting of 80 academics and officials not collectively loyal to any one ministry. ⁸ |
| 4. Ordered the Cabinet Secretariat to take charge of legislation and draft bills but fired bureaucrats who had deliberately tried to rewrite bills to the Cabinet not in line with the PPPO’s orders. ⁹ |
| 5. Bolstered the CEFPP with further supplicatory councils and completely sidestepped the Cabinet Secretariat when it proved unreliable. |
| 6. Sidestepped traditional internal review processes (<i>jizen shinsa</i>) in the LDP General Council, forcing it to adopt legislation without the need for a unanimous vote. |
| 7. Authorized the Cabinet to approve legislation without endorsing its content, sidestepping the Administrative Vice-Ministers’ meeting. |
| 8. Elevated loyalists to key positions in the LDP, for example Tsutomu Takebe to LDP secretary general. |
| 9. Sent envoys to personally negotiate with opposing implementing bodies set up to carry out plans. |
| 10. Reversed the decision-making process in the LDP’s Policy Research Council where sub-committees vetted policy and got permission from coalition partners first. |

An analysis of Koizumi’s tactics to install a new internal governance unit at the heart of policymaking was basically attempted through sidestepping the civil service and grasping the initiative in policy proposal and report delivery through guerilla units. However, the mixed successes and failures of Koizumi’s attempts also highlighted the defense-in-depth that SAF 3 and SAF 4 players could wield. From the point of view of SAF 4 incumbents facing challenges, it is possible to delineate various layers of defenses from initiation of policymaking to implementation in the following failure modes:

1. Compromise planning by installing bureaucrats who will not draw up desired legislation in the spirit it was meant.
2. Rewrite recommendations or use prior drafts favorable to incumbent ministerial players.
3. Lobby *zoku* politicians to exercise veto power in the Cabinet.
4. Reinterpret legislation using discretionary powers to water it down or bring it more in line with the institutional goals of the incumbent ministry.
5. Staff implementing agencies or influence them in other ways to oppose, reinterpret and/or stall legislation.¹⁰

⁷ Heizō Takenaka, *Kōzō kaikaku no Shinjitsu: Takenaka Heizō Daijin Nikki [A Testimony about Structural Reform: The Diary of Minister Takenaka Heizo]* (Tokyo: Nihon Keizai Shinbunsha, 2006), pp. 216-18; 152. Much of the discussions about the tactics used by both Koizumi and Takenaka, and various SAF 4 players is taken from this monograph.

⁸ *Ibid.*, pp. 156-57. On April 26 that year, Koizumi himself helped write the office’s signboard in its opening ceremony, showing how much he backed it, an important ceremonial signifier of prime ministerial will that was also to be used by Prime Minister Noda in 2012 in the establishment of the ONSP.

⁹ *Ibid.*, p. 176.

¹⁰ All these tactics were used with some success by SAF 4 and SAF 5 players in opposing both Koizumi and Takenaka. There are several clear examples that serve to demonstrate how difficult strategic action by SAF 3 players is in Japan in general. For example, the MPHPT’s insertion of loopholes into the Letter Delivery Service Bill (LDS, *Shinsho-bin Hōan*) of 2001; leaking of information by PPPO insiders to the MIC; MIC staffers in the Cabinet Secretariat leaking information to the MIC; attempts by Japan Post to claim it would take three to five years to build a computer system to prepare for privatization; watering down of implementation in later administrations.

However, as we have seen, there was no CEFPP for space policy. Instead, ironically, the Hashimoto reforms had the unintended consequence of creating both a power vacuum *and* a super-powerful subgovernment agency in the form of the MEXT-JAXA combination all in the same shake of the dice. As pointed out in Chapter 6, the consolidation of SAFs 4 and 5 put space policy under the auspices of the CSTP. While this folded space policy into a national strategy, scrutinized by a wider community of experts linked to the Cabinet Office, the CSPT's remit was limited to national science and technology policy, not national security or industrialization.

As we have seen, the consolidation of ISAS, NAL and NASDA created JAXA, accounting for around 60 percent of the entire general space activities budget as an Independent Administrative Institution (IAI) with the ability to plan its own five-year programs, giving it far more policy input than NASDA than NASDA had ever enjoyed, and making it accountable to MEXT. The CSTP's policymaking parameters were further narrowed by the fact that the CSTP's last reference for space policy had been published by SAC in June 2001 just after SAC's policymaking function had been switched to JAXA, but it was treated by CSTP as if it had been a guideline for a comprehensive national space policy.¹¹ Thus, until the *Basic Law*, Japan's space policy was owned, lock, stock and barrel, by MEXT.

Episodes of Contention 2: The QZSS Program; the GX Program; and the Loss of the IGS Satellites

The inability to coordinate budget for the QZSS system is cited by Suzuki, along with the GX problem, as two of the fundamental causes for the Kawamura initiative, with the specific trigger of the failure of the H-IIA in November 2003 and the inability of Kawamura, who was the incumbent minister of MEXT at the time to find a single institution that would take responsibility for the accident. This study contextualizes the events in the SAF framework in terms of shocks or pressures, leading to social appropriation, innovative and strategic action, and episodes of contention. This study also seeks to show that the contours and specific policy and implementation strategies found in *Basic Plan 2016* can be better understood by looking at the wider field, i.e. the characteristics of SAF 3 action based on past president, not just only at the institutional logics and malfunctioning of SAF 4 and SAF 5 players.

One of the challenges and rewards of the SAF framework is the way that the actions of proximate SAFs play on each other. Thus, understanding the dynamics and motivational matrix of SAF 3 field dynamics, or put more simply the modes and limits of action available to SAF 3 players, is critical to

¹¹ IAIs had originally been established as part of a process begun in 1996 to start cutting government waste and debt so that research institutions, national hospitals and museums among other organizations were supposed to function rather like semi-independent firms and required to submit management plans of 3-5 years to increase their scrutiny and accountability. IAIs became a newly designed type of legal body for Japanese governmental organizations regulated by the Basic Law on Reforming Government Ministries of 1998. The IAIs are not under the National Government Organization Act that provides for Japanese Ministries and administrative organizations.

Originally proposed by the Administrative Reform Council, IAIs were created based on the concept of separating governmental ministries and agencies into planning functions and operation functions. Planning functions remain within government-based ministries and agencies while operating functions are transferred to IAIs.

Under the reforms, IAIs were supposed to utilize management methods of private-sector corporations and are given considerable autonomy in their operations and how to use their budgets. In April 2001, the Japanese government had first designated 59 bodies as IAIs. So, as we saw on the administrative level to the merging of STA and MOE to MEXT and the creation of JAXA, amalgamating NASDA under STA and ISAS under MOE to form JAXA as an IAI under MEXT. However, an essential problem arose in that R&D organizations such as JAXA couldn't become for-profit ventures and the reforms were roundly criticized as mere window-dressing, especially considering the continued prevalence of *amakudari*. See, in general, Richard A. Colignon, Chickako Usui, *Amakudari: The Hidden Fabric of Japan's Economy* (Ithaca, NY: Cornell University Press, 2003); "The Same Problem Under a Different Name," *Asahi Shimbun*, 20 December 2001.

understand why Japan had to go through three contested *Basic Plans* before reaching settlement in *Basic Plan 2016*.

Episodes of Contention: The QZSS system

SAF 1 and 2: The strategic need for guaranteed access to PNT, or rather the prospect of degraded access and reliance on GPS at the whim of the U.S. became a concern for Japan following the first Gulf War. In addition, through the 1990s as the utility of GPS became apparent and diverse applications markets using GPS started to develop, the development of a Japanese PNT system was framed in terms of its economic and social benefits.

SAFs 4 and 5: In the 1990s, the STA, METI, and the MPT in particular, looked to develop a PNT that would cover a large swathe of Asia. In March 1997, the STA asked NASDA to move ahead with research into the highly accurate, satellite-mounted atomic clocks needed for a high-precision PNT. By 2001, NASDA had proposed idea of a quasi-geostationary satellite system (the precursor to QZSS), involving three satellites, while MEXT was busy working on applications.

Following 2003, however MEXT's remit only covered research and development, and that of METI covered business promotion, while the prospective user ministries, MIC and MLIT, could not afford to manage the system without massive new funding, for which no mechanism or pathway existed. By 2004, the CSTP had endorsed the idea of an autonomous and/or GPS-complementary PNT system, but was not able, in turn, to approve a mechanism to run the program. In July 2005, a coordination committee was set up in the Cabinet Office between the four major ministries to address the issue, but the committee had no power to take over management. In 2006, Japan's Diet passed the Basic Act on the Advancement of Utilizing Geospatial Information (AUGI), which was enacted in 2007 to invest ¥75 billion for JAXA and Melco to develop an initial satellite. But a decade after planning started, the project lacked a strong lead institution to manage a large constellation of satellite program whose users and applications would involve a wide swath of ministries and private sector players.

SAF 6: The inability of ministerial players to coordinate Japan's PNT program intensely frustrated industry, which, led by Melco, had been researching technologies for it as early as the 1970s. Industry put successive pressure for the government to subsidize the system. In 1999, Keidanren proposed a QZSS-type system focused on communications. In 2002, it then established of a special Promotion and Investigative Committee to push for funding. In 2000 Itochu, NEC, and Toshiba proposed the Japanese Regional Advanced Navigation Satellite (JRANS) concept.

To try to gain partial government funding to build at least an R&D satellite and declare the system public infrastructure (to avoid the satellite agreement) and get the government to become an anchor tenant, in 2002, more than fifty Japanese companies, led by Mitsubishi Corporation, founded the Advanced Space Business Corporation (ASBC) to facilitate public participation and investment in the QZSS, in the expectation that the government would pay about half of the estimated ¥170 billion development and launch cost. But the consortium quickly collapsed when the CSTP was unable to find a coordinating mechanism, leaving the administration of the system locked in the four-year dispute mentioned above.

The GX Rocket

The GX project presented another major issue, because, again, no one ministry could manage the program. Originally conceived in the late 1990s by the STA as a cheaper replacement for the J-1 rocket, which had

been heavily criticized for its costs, the GX was positioned as a potentially commercially marketable JAXA-alternative to the solid-fueled M-V launch vehicle built by Nissan Aerospace (later merged into IHI) that had been developed for ISAS. The GX was also designed to provide an alternative to the H-IIA for the launch of smaller satellites. As conceived by NASDA, the GX was supposed to have combined the first stage of Atlas launcher supplied by Lockheed Martin Corporation, engines from Russia, and a second-stage liquid natural gas (LNG) engine developed by NASDA, thus, as far as NASDA was concerned, justifying its participation.

The basic framework of the project was approved by SAC in August 1999, and the development of a technology demonstration launcher was started. Following the second H-II failure in November 1999, however, it was decided that resources and efforts should be concentrated on the development of the H-IIA, and GX funding was suspended. In 2000, sensing an opportunity to create a commercial launch sector and to provide a backup for the H-IIA, METI decided to try to promote the program with funding from the private sector, particularly IHI, on the premise that the GX could be used for commercial launches, as well as a backup for domestic government use.

The GX became locked in a conundrum. JAXA's stated policy following 2003 was to have the H-IIA as Japan's primary launcher as part of a privatization agreement with MHI, IHI's direct commercial rival. Independently, the powerful ISAS group in JAXA was developing its own cut-price launcher, which was to become the *Epsilon*, whose first stage was to be supplied by IHI and subsequent stages from H-II derived technologies from MHI. While the GX's role in the government market was contested, it was estimated that it required up to three test launches, which IHI could not afford, to certify its reliability, if it was to stand any chance of being accepted by the commercial market.

By 2005, the GX program had morphed into a zombie project scarred by a series of running disputes between IHI and SAC over not only who was going to pay for it, but its overall utility. A fatal blow was delivered after the GX's development schedule was disastrously delayed when JAXA revealed it was having severe difficulties with the LNG engine. Further, the MEXT-controlled SAC was unwilling to fund a project that was under METI control, and rejected funding for test launches.¹²

The H-IIA Failure

The perception of institutional failure of the old NASDA, and that the whole development paradigm of the 1990s had run its course and needed to be rationalized, was reinforced when the new flagship H-IIA, painstaking redesigned and rechecked so as to be made as reliable as possible, failed on its sixth mission, destroying two IGS satellites in November 2003. It is worth repeating the fact that episode cost the taxpayer in advance of \$1 billion and severely delayed any national security utility of the IGS program for several years.

To put it bluntly, JAXA blew it. As noted in the conventional narrative, the disaster personally incensed then-MEXT Minister Kawamura.¹³ Enough was enough. It was at this point that Kawamura began a personal campaign that continues to this day to impose more political leadership on Japan's space program, with Kawamura playing an activist, interventionist role.¹⁴ In this sense, it is quite appropriate

¹² For historical details on the GX program, see Pekkanen & Kallender-Umezu (2010), pp. 78-79, 175-77.

¹³ Author interview, Takeo Kawamura, former minister for Education, Culture, Sports, Science, and Technology (MEXT), Tokyo, 28 March 2006.

¹⁴ Apart from forming the NSSPG, Kawamura began active lobbying toward building a caucus within the LDP through committee participation and leadership beginning with his assumption of vice chairman of the LDP's Special Committee

to identify the H-IIA failure of 2003 as a major shock that caused that led to social approbation and innovative action (the gathering of the NSSPG) then strategic action in the form of the *Basic Law*.

Strategic Action 1: The Kawamura Initiative and the Basic Law

SAF 3: The panoply of problems led Kawamura in 2005 to set up the NSSPG within the LDP to, over the course of ten meetings in August that year, recommend that through the establishment of the legislation that was to become the *Basic Law* that the Cabinet Office be put in control of planning and budgeting of the space program under a state minister within the Cabinet superior to all other ministries, particularly MEXT. The report recommended Japan should refocus on national security, industrialization, and promote the use of space as a diplomatic and foreign policy tool. It also recommended that PPR be scrapped and the generally-observed OST position on military space be adopted. Following this, the Space Development Special Committee of the LDP in April 2006 drew up a draft version of the *Basic Law*.¹⁵

The NSSPG report sought to fundamentally reorient Japan's space program into a strategic security role, although it was careful to couch the fundamental change in language that mentioned "applications" and industrialization, rather than national security (i.e. military) use. It also formed the normative, ideological, institutional and policy framework for *Basic Plan 2016*. Not only was the *Basic Law* founded upon it, but its recommendations form the template of Japan's current space development institutional framework. From an institutional approach, the report discussed the following options:

1. Appoint a Director General within Cabinet Office for specific fields/offices and make coordination of space development and utilization policy as a key policy of the Cabinet, as indicated in article 4, clause 2 of the Cabinet Establishment Law. The Cabinet would then appoint a Minister of State for Special Missions, as long as it concerned the Cabinet's key policy.
2. Establish an office in the Cabinet Secretariat with a director within the office of the Deputy Chief Cabinet Secretary.
3. Combine the Cabinet Secretariat and the Cabinet Office Bureau/Ministers of State for Special Missions.

In the event, the NSSPG recommended that the Cabinet Office take control of space policy by passing a *Basic Law* that would appoint a State Minister for Space Development, and that would establish an authoritative "Space Strategy Headquarters" within the Cabinet Office. The new body would have the authority to make a national space policy in close collaboration with the National Security Council and the Disaster Prevention Council, represent Japan in international negotiations and coordination on space policy and cooperation, and, in cooperation with SAC and the CSTP, establish medium- and long-term plans that would be guiding principles governing JAXA's own plans. The intention of the NSSPG was to create a brand-new structure, given authority by a State Minister, with policy control. From an institutional dynamics approach, this can be seen as a fairly bold strategic action because behind this law was to be used to wrest significant power from the incumbent ministry (MEXT). Critically, however, for

on Space Development in 2005 through September 2006; chairman of the same committee through to September 2008; and then Chairman of the Special Committee of Space and Maritime Development from 2014 to present.

¹⁵ Pekkanen & Kallender-Umezumi (2010), pp. 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 [Report by the National Space Strategy Planning Group "– Toward establishment (sic) of new space development and utilization system –" Report by the National Space Strategy Planning Group, August 2005], esp. pp. 5-13, 25-30, 61-66; Kazuto Suzuki (2007), pp. 76-80.

implementation of the *Basic Law*, both the recommendations and the *Basic Law* did not recommend giving budgeting authority to the Cabinet Office, only a policy coordination role.

Strategic Action 2: The Space Basic Law of 2008

The *Basic Law* was passed on 27 August 2008 and can be divided into two main areas. The first comprised the following six key objectives:

1. To promote the peaceful use of outer space (Articles 1 and 2).
2. Use space to improve the lives of Japanese citizens, which includes advance the purposes of ensuring a 'safe and secure' society, to 'mitigate disasters, poverty and various other threats to the survival and lives of humankind', and to maintain 'international peace and security; and to increase the national security of Japan' (Article 3).
3. Promote commercialization and industrial development of Japan's space technologies.
4. Use outer space to promote the prosperity of human society (Articles 5, 6, 7).
5. Promote more effective international cooperation.
6. Promote space development that does not degrade the space environment (Article 20).

The second comprised a whole slew of legislation to achieve a reduction in the power of MEXT, institute Cabinet Office control over policy, and downgrade the independence JAXA to become a tool of the totality of space policy under the Cabinet Office. Articles 24-34 reset administrative oversight, particularly Chapters 3 and 4, which delineated the role of a new Space Strategic Headquarters for Space Development (SHSP) in the Cabinet Office to control of national space policy. Article 2 scrapped Article 4 (Objectives of the Agency) of the JAXA Law of 2003 stating 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, in accordance with the pacifism of the Constitution of Japan."

Asserting Cabinet Office control, key stipulations included that:

1. JAXA's programs reflect user needs.
2. JAXA's mid-term goals reflect those of the Cabinet Office.
3. That JAXA would be co-administered by MEXT and the MIC, but with significant input and program jurisdictional rights from the Cabinet Office and METI.
4. Significantly, the MOD could also assume dual control of JAXA if it so wished to, a point we return to later.

The *Basic Law* was designed, then, to give a strong mandate to introduce Cabinet Office control over space policy formulation, superseding MEXT. To achieve this, the *Basic Law* contained three layers of interlocking and reinforcing mandates. First, the General Provisions in Article 2 set the stage for scrapping JAXA's commitment to the PPR. Next, Article 3 (Improvement of the Lives of the Citizenry, etc.) and Article 4 (Advancement of Industries) introduced the concept that national security and

promotion of industry were the top two primary goals for space policy. This, additionally, clearly mandated a change in approach from the MEXT/JAXA R&D-oriented policy. To reinforce the change, Article 12 (Reform of Administrative Organizations, etc.) mandated the “reform” of “administrative organizations” ...to improve executive management in implementing measures with regard to Space Development and Use.”

Second, Chapter III (“Basic Space Plan”) and Chapter IV (“Strategic Headquarters for Space Development”) introduced two new layers of interlocking and reinforcing legislation to achieve several goals. They appeared to give a mandate for the stripping away of power from MEXT to institute Cabinet Office control over policy and downgrade the independence of JAXA to become a tool of the totality of space policy under a superseding and superior body. Chapter III (“Basic Space Plan”) made it clear that the SHSP was to formulate a “Basic Plan” to implement the changes with concrete goals and clear time frames, and that the SHSP had the power to monitor, review and change the *Basic Plan* if it was not being implemented.

Further, to effect administrative reform, the *Basic Law* provided the SHSP with clear targets and timetables so that it had to draft the first *Basic Plan* to form the blueprint to enact the *Basic Law*’s new priorities within one year. Secondly, the SHSP was mandated to review and restructure space-related agencies to refocus space development on applications, industrialization and national security goals, and investigate how JAXA could be used to promote these. Perhaps one unwritten assumption was that the Cabinet Office through the Cabinet Secretariat would be given much clearer executive authority, not only to design the *Basic Plan*.

Central to this, in the *Basic Law*’s Supplementary Provisions, three articles clearly provided the rationale to effect a new command and control system over space policy to not only redirect policy away from R&D and space science as pursued by MEXT and JAXA, but also to assert control over the new policy of supporting industry and applying space technology more directly to defensive national security goals. Within three provisions, Article 3 mandated a review of JAXA within one year; Article 4 mandated the SHSP to create an administrative structure to effect the *Basic Plan*; and Article 12 mandated the reform of Japan’s space administration to improve “executive management.”

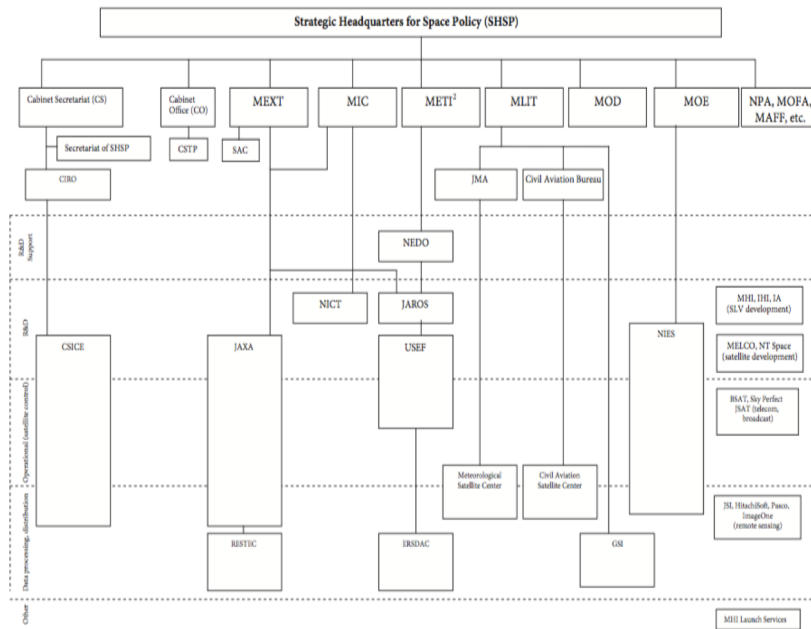
An analysis of the *Basic Law* shows it to be the legal implementation document of the NSSPG’s recommendations. The *Basic Law* mandated the establishment of the SHSP, formed from personnel drawn from the wider bureaucracy including MEXT, METI, JAXA, MIC, industry and academia. METI, which had long been interested in promoting the industrialization and commercialization of space but had been unable to implement programs in JAXA, for example, with the GX, was now at the top table. Even the MOD, since 1969 completely divorced from space policy, would be given a role – if it wished.

Setting Up the Post *Basic Law* General Space Activities SAF

In terms of the SAF framework, the *Basic Law* can be seen as strategic action in the legal sphere, while the establishment of the SHSP can be seen similarly in the administrative implementation sphere. In terms of the life cycles of SAFs, the SHSP can also be seen as marking a provisional stage towards a final settlement of the contested SAFs that had emerged from the administrative reforms of the 2000s. It was the SHSP’s task to build a working governance unit for the field that would be able to assert incumbency

powers over all the other actors. In conventional terms, the SHSP's function and relationship can be shown in Figure 27.

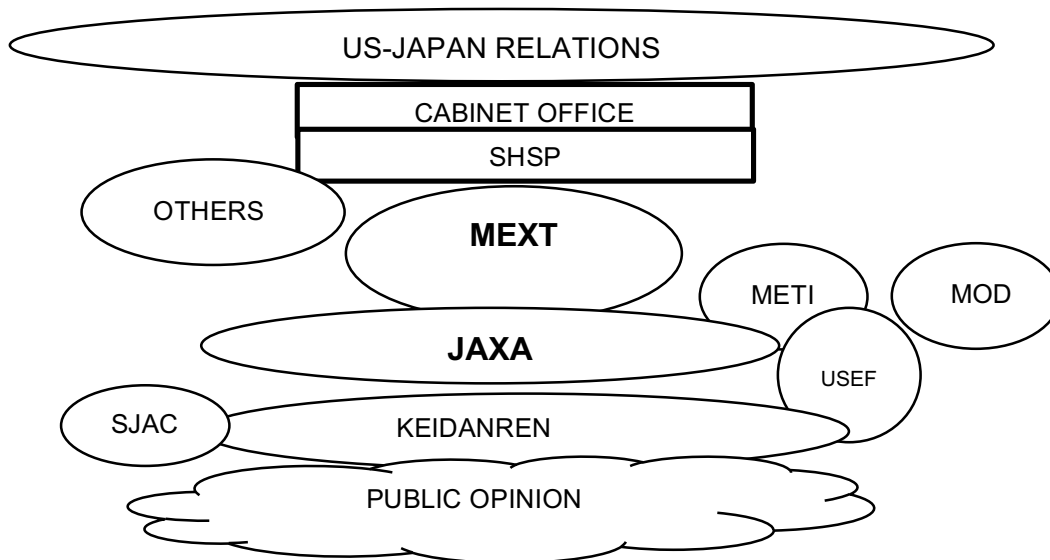
Figure 27. Conventional Chart: Japan's Space Establishment, August 2009



Source: Pekkanen and Kallender-Umezu (2010), p. 56

However, an SAF framework-based description would show the SHSP's position almost as a transitional "guerilla" unit designed to enforce, or at least work out a redistribution of power back from MEXT into the Cabinet Office, as follows.

Fig. 28 Transitional (Contested) General Space Activities SAF



In this schema, SAF 3 is aware of the growing need to balance stronger U.S. demands (SAF 2) for Japan to contribute to the U.S. pivot, while meeting public and industry expectations to take control and assert direction for space development and policy. The SHSP in the Cabinet Secretariat was formed to find a way to control SAF 4, and to impose Cabinet Office control on SAFs 4 and 5, where MEXT and JAXA are incumbent players, vastly imbued with budget and resources but also facing increasing public and political discredit stemming from the steady series of failures experienced almost successively since 1994. Against them is METI and USEF acting as more aggressive challengers, looking for a way to assert strategic action or gather power to enable collective action. The story of the period 2003 to 2012 is actually how a series of challengers in SAF 4 and SAF 5 tried to establish new rules for the General Space Activities SAF against the incumbent power of MEXT. The primary actors were politicians and METI. The SHSP, connected to the Cabinet Office, designed to be a new governance unit, was actually to be a challenger. When it was absorbed and deflected by SAF 4, SAF 3 stepped in with more strategic action in which Maehara formed his own “guerrilla” unit with the Matsui committee.

SAF 3: As the experience of previous strategic actions under Hashimoto and Koizumi have shown, the success of strategic action when tackling Japan’s central bureaucracy depends on overcoming an extensive defense-in-depth that was listed in the failure/resistance modes mentioned above. In enacting the *Basic Law*, this would mean exerting effective control of the Cabinet Secretariat, or, more specifically:

1. Ensuring powerful political leadership in the SHSP, for example creating a top leadership structure responsible to the Cabinet Office and not SAF 4 and SAF 5 actors, and to avoid it from being packed by MEXT or MEXT-sympathetic civil servants.
2. Replicating this structure through the Cabinet Secretariat as much as possible (creating leadership at each decision level).
3. Carefully selecting staff, either by appointing non-bureaucrats (outside experts) or bureaucrats not tied to a particular ministry.
4. Controlling any implementation or discussing committees.
5. Setting the agenda for such committees or pre-programming them in ways to produce the desired results.

The success of the SHSP would also depend on continuity of leadership and purpose not only once the SHSP delivered its recommendations, but also through the engagement of the State Minister for Space Development. In short, close control and management of the SHSP would be required during at least a one year period. Given the experience of previous SAF 3 vs. SAF 4 contests, SHSP would need to be tightly controlled for the initial entire two-year period until it actually deliver a reformed structure. Following that, close supervision by the new “Space Strategy Headquarters” would probably be required for another year to ensure actual implementation of the first *Basic Plan*.

In terms of setting up the SHSP, these requirements were well understood by Kawamura, an old hand, who, as we saw (and as he told the author in 2006) felt he had been given enough of the runaround by the civil service. Following the passing of the *Basic Law*, the LDP immediately in August 2008 established the SHSP, formed from personnel drawn from line ministries including MEXT, METI, JAXA, MIC, industry and academia. In line with the *Basic Law’s* fundamental rationale of establishing political oversight, Prime Minister Taro Asō was instituted as Director-General and no less than Kawamura himself as CCS, became the senior Deputy Director-General, with Seiko Noda assuming the

newly-created Minister of State for Space Policy portfolio (following a two-month tenure by Fumio Kishida from June to August).

In terms of political control, the SHSP appeared at the outset to be fully equipped and specifically designed to deal with the tasks at hand as envisaged by Kawamura, as both Asō and Noda had no strong positions on the direction of space policy. Also, the SHSP's Director-General was former METI executive Masakazu Toyoda.

The functional and programmatic tasks of the new body would be to make critical choices on where to focus investment. A close reading of the NSSPG report leaves the clear impression that the intention of the authors was to solve the QZSS issue as soon as possible by setting up a Cabinet Office control and a funding mechanism. Solving the QZSS issue in this way would have knock-on benefits. The proposed system would involve, eventually, a seven-satellite constellation in need of spares and replenishment. Since Melco could provide its proven DS-2000 bus, NEC, which excelled in ground stations and communications systems, could be given at least a portion of the program for infrastructure and communications systems. Thus the QZSS would provide the framework for a two-contractor manufacturing base, sustaining both Melco and NEC.

The elephant in the room, though, would be a global EO monitoring system, which, as we will see, was to be placed as the first priority of *Basic Plan 1* in 2009. If a funding and program management system could be established, then this system would actually represent a massive “net add” to Japan's space program, as the IGS constellation was already embedded as a fixture, and a pathway towards the QZSS system, no matter how contested and problematical, had already been set up.

Critically, however, there was, no extant broad-based “national” or public infrastructure rationale for a new dual-use global EO system, for which significant new funding would have to be found. As we have seen, extant plans for EO systems lay through the old MPT-NASDA framework. This is where we can see the importance of METI's SOD system, mentioned in Chapter 1. As will become clear, METI regarded what was to become the *Basic Law* as its chance to become a major space player and bend the development and policy logic of combining national security with industrialization to *its* vision. We return to this below.

In terms of the SAF framework, then, the SHSP can be seen as strategic action by SAF 3 to set up a new, provisional internal governance unit, so that contestation would occur until settlement. But until it succeeded through either innovative or strategic action in assuming control, (put more conventionally, if the SHSP could be kept clear of compromises or entanglements with SAF 4 actors), the SHSP would be seen as the challenger, with the possibility of the creation of a series episodes of contention until settlement was finally achieved. If, however, the SHSP became entangled with SAF 4 players, it would be become the subject of strategic action between SAF 4 players for control, or put bluntly, a football.

SAF 4: In terms of challengers and incumbents, the *Basic Law* set the SHSP as the cauldron for contests between MEXT, the previous incumbent and future challenger, the SHSP itself (unless it could be directly or indirectly controlled, manipulated, sublimated or blocked by MEXT) and METI, which saw the *Basic Law* as an opportunity to fundamentally transition a considerable portion of development to industrialization under *its* control. In other words, from an SAF framework-based analysis, the creation of the SHSP was both a threat and an opportunity for MEXT, and an opportunity for METI. Logically, MEXT would attempt innovative and strategic actions as incumbent to protect its position, while METI

would attempt innovative or, if it could, strategic action to take advantage of the opportunity availed by the advent of the SHSP.

In the event, the challenge to MEXT was immediately urgent and critical since the *Basic Law* had specifically mandated an investigation of JAXA's role in the new administrative and policy paradigm. This, in the wrong hands (activist politicians intent on really challenging the *status quo*) the *Basic Law* could possibly be interpreted by MEXT as a declaration of war. Thus, it is possible to see from an institutional framework point of view how MEXT, path dependent on a track fundamentally different from the new paradigm faced, potentially, a crisis (or to use neoinstitutionalist terminology, a critical juncture.)

METI's position, on the other hand would be to maximize its gains through innovative and strategic action. Normatively, METI's *raison d'être* was promoting industrialization. Crucially, however, as we have seen, in 1969, MITI had been excluded from the business of developing Japan's space program in favor of the STA. However, MITI had been pressing for a bigger role in space policy, budget and authority ever since the late 1970s. MITI first established its Space Industry Office in 1979, then upgraded it to a Space Industry Division in 1987. In July 1997, MITI merged its aircraft and space divisions both under the Machinery and Information Industries Bureau, into the Aircraft, Ordnance and Space Division.¹⁶

MITI had carefully built up its own space program through its research arm, the Institute for Unmanned Space Experiment Free Flyer (USEF), which had played a major role in developing a series of dual-use technologies that were potentially useful to the new policy paradigm, working with industry, notably Melco and NEC. Next, METI would need to defend the GX program. Third, in terms of industrial policy, METI had taken the decision through USEF to support NEC. Through its work on IGS and the DRTS system, Melco had managed to develop large satellite technologies that were becoming commercially sellable. Through the loss of COMETS however, NEC had lost its own route to developing large communications satellite frames. This led METI through USEF, and working with NEC, to find ways to secure funding for NEC, which was to emerge in the form of funding for the Advanced Satellite with New System Architecture for Observation (ASNARO) project in particular.

In IDOJ, I identified USEF as METI's major development arm designed to build lobbying momentum for the creation of a domestic national security market. Established in 1986, USEF was METI's main space organization. Its publicly-stressed role was to fund satellite programs that promoted cost-cutting and commercialization of the Japanese space industry. Privately, USEF saw itself as an kind of antidote to NASDA, as METI saw itself as the antidote to MEXT. Where NASDA would take seven years to research and launch a satellite for several hundred million dollars, USEF and MEXT wanted to do the same in five years or shorter, at a fraction of the cost. Further, behind the scenes, USEF also played a major role in developing quite aggressive dual-use technologies, including the USERS-SEM re-entry system. In terms of the SAF framework, USEF can be seen as an overall attempt by METI to assert strategic action as a challenger to STA/NASDA, and then JAXA.

While, as is explained in IDOJ in detail, USEF was typically led by retired Melco executives, following METI's strategy of supporting a wide industrial applications base. But USEF took a decision to

¹⁶ Saadia Pekkanen, *Picking Winners? From Technology Catch-up to the Space Race in Japan* (Stanford, CA: Stanford University Press, 2003), pp.172-173; Norihiko Saeki, "COTS Policy & 'Space on Demand' in Japan," METI, Aerospace and Defense Industry Division, Manufacturing Industries Bureau, Tokyo, 29 October 2007, slide 2.

actively support NEC by awarding it contracts to build ASNARO. Thus, supporting the ASNARO system for EO (dual-use ISR/MDA) systems became a major priority, or perhaps even the fundamental plank for METI to mount a strong challenger bid, then strategic action to place itself as a chief beneficiary of any policy change and administrative reorganization.¹⁷

Working with NEC, in anticipation of the major policy and administrative reorientation proposed by the Kawamura initiative, METI in 2007 had commissioned NEC to build this relatively high-resolution dual-use ASNARO satellite program designed to be a fraction of the price of the IGS satellites, which METI planned to propose as a major component of the new dual-use markets to be created as a result of the *Basic Law*.¹⁸ In fact, METI Senior Vice-Minister Hachirō Okonogi was one of six authors of the 2005 NSSPG report. As a backdrop to this, in that year, 2005, Okonogi had struck a major trade agreement with Vietnam designed to help Vietnam's accession to the WTO. In 2011, METI was to lead a landmark deal selling two of the satellites, JV LOTSUSat-1 and JV LOTSUSat-2, based on ASNARO technology, to Vietnam as Japan's first-ever major ODA agreement to feature space technologies.¹⁹ In terms of the SAF framework, all these actions can be cast in terms of innovative, then strategic action by METI to insert, and then assert itself as a major part of what it hoped would be Japan's new space policy and administrative paradigm.

Thus, it is probably reasonable to assume that METI's wishes were writ large in, or that it expected a positive outcome, from *Basic Law*. Then, if the Cabinet Office was in control of policy, METI should expect to play a role both in planning and therefore execution of the new opportunities afforded in the *Basic Law*. METI's logic, in the competitive field in institutional dynamics would therefore for be to maximize its opportunity. Ideally, or ambitiously perhaps, METI's game plan would be to move from a challenger to incumbency. This is exactly what it tried.

SAF 7: As noted in SAF 3, industry as a challenger played a major in setting up the post-*Basic Law* General Space Activities SAF. As a general field of action, Keidanren consistently pushed not only for investment for their members but also for relaxations on restrictions, particularly the PPR.

¹⁷ Pekkanen & Kallender Umezu (2010), pp. 68-9, 97. Behind the scenes, USEF even investigated the development of a HiMEOS (高度なマヌーバビリティを有する地球観測監視衛星 or High Maneuverability Earth Observation Satellite) that had similar capacities to the just launched *Tsubame*. This program was rejected in the mid-2000s by the MOF because the MOF could find no nonmilitary justification for the program.

¹⁸ Paul Kallender, "Japanese Firms Urged to Cut Satellite Costs—Institute Proposes Mission to Test New Parts," *Space News*, 20 April 1998; Paul Kallender, "Japan Takes on Europe, U.S., Public Cash Infusion for Satellite Component Makers," *Space News*, 23-29 March 1998; Under Fire, President Quits," *New York Times*, 25 March 1998; "Losses and Scandal Claim Mitsubishi Scalp," *BBC News Online—World: Asia-Pacific*, 25 March 1998; "Interview, Ichiro Taniguichi, 'Nihon no Uchū Kaihatsu Riyō to Bijinesu' [Business and Japan's Space Development and Industrialization]," 11 July 2007, available online at www.jaxa.jp; also see Saeki, (2007), esp. slides 5-9, 14-20; Ministry of Economy, Trade, and Industry (METI), *Uchū Sangyōka Wakingu Gurupu—Chūkan Hōkoku* [Space Industrialization Working Group—Midterm Report] (Tokyo: METI, August 2004), pp. 3-4. For details of the dual-use spy satellite program, called Advanced Satellite with New system (sic) Architecture for Observation ASNARO, which was to become very important to METI in the coming years, see http://www.jspacesystems.or.jp/en_project_asnar0/.

¹⁹ 国家宇宙戦略立案話会 報告書 — 新たな宇宙開発利用制度の構築に向けて — 2005年8月 国家宇宙戦略立案話会, 国家宇宙戦略立案話会のメンバー, p. 49; Paul Kallender-Umezu, "Japan, Vietnam Sign Deal for Two Radar Imaging Satellites," *Space News*, 4 November 2011; Press release, "Signing of Japanese ODA Loan with the Socialist Republic of Vietnam —Supporting Sustainable Development through Climate Change Measures and Economic Growth—" *Japan International Cooperation Agency*; Prof. Doan Minh Chung, Director Space Technology Institute (STI) Vietnam Academy of Science and Technology (VAST), "Earth Observation Satellite Program of Vietnam and applications for disaster management," presentation to the UNESCAP – ICC & HLDM Meetings, Bangkok, 26-28 November 2013; Aaron Mehta and Paul Kallender-Umezu, "With New Rules, Japan Emerges in Pacific," *Defense News*, 3 May 2015.

On top of regular calls on the government for more funding by USEF, whose presidents, as we saw, were traditionally retired leaders of Melco's space division, Keidanren made specific calls for both sustained investment and the relaxation of the PPR. Keidanren's actions regarding space policy and investment were entirely logical. Specific concerns in lobbying selected LDP politicians from 2003 onwards included getting the H-IIA back to work, funding the QZSS system, and, for example, relaxing export restrictions so MHI that could sell various rocket engines overseas.²⁰

In June 2006 Keidanren let the government know that it strongly supported the enactment of what was to become the *Basic Law* because Keidanren deemed it indispensable to moving forward from development to what Keidanren framed as "three new pillars" for Japanese space industry, namely; national security, industrialization, and research and development. It further lobbied for the setup of a "space development strategy headquarters" with the prime minister at its head. In July 2007, Keidanren again urged the necessity of a "basic space law," calling for a unified space promotion system that would smooth the path of the Japanese space industry and take it to a new stage.²¹

Also, as for the MOD, Imazu was one of the authors of the NSSPG and there is little doubt that the report reflected many of the MOD's concerns. However, institutionally, as noted, the then JDA was separated and distant from the civilian space program and, until the PPR was changed, the SDF's logical strategy might be framed along the lines of promoting any new system that could give it better deliverables with the minimum risks and costs. If we adopt this logic of the MOD's behavior would be to transform its position from distanced customer to participant, when it suited it, but mainly as to one as beneficiary, much of the MOD's subsequent actions can be explained in terms of its individual institutional logic.

As with other ministries, the MOD took the *Basic Law* as an opportunity to consider its space-related activities more systematically.²² In 2008, the MOD moved to establish an outline for its potential needs. The first step was to establish preliminary institutional and decision-making structures. As discussed earlier, this was necessary because the MOD lacked any formal structures to deal with funding space activities except to deal with its commercial arrangement renting transponders for communications, and for the purchase of image data. As an institutional novice, then, the MOD had to begin with the foundational work of establishing committees and offices. This was achieved with a small space office, the Committee for the Promotion of Outer Space Development and Utilization (CPSDU), a Space and

²⁰ Author interview with Takashi Inoue, manager of Space, Energy and Technology Policy Group, Nippon Keidanren, Tokyo, 19 May 2004. LDP backers included, for example, Fukushima Nukaga, who was appointed Director General of the Japan Defense Agency in July 1998. He subsequently headed the LDP's PARC and was thus in a position to guide the LDP's policy on a number of fronts, including defense and constitutional reform. Interviews, Kobayashi Minoru, Director, Space Systems Department Aerospace Headquarters, MHI; member, Planning Subcommittee of the Space Activities Promotion Council, Tokyo, 17 June 2004, and 6 July 2004. See also Paul Kallender-Umezu, "Industry Wants to Allow Japanese Military to Use Space Technology," *Space News*, 21 June 2004; Nippon Keidanren, "Looking to Japan's Future: Keidanren's Proposal on Constitutional Policy Issues," 18 January 2005.

²¹ Interview, Tsuzukibashi, 18 April 2006; Uchū Kaihatsu Riyō Suishin ni Muketa Dai 3 Ki Kagaku Gijutsu Kihon Keikaku ni tai suru Yōbō [Request Regarding the Promotion of Space Development and Utilization in the Third Basic Science and Technology Plan], 2 March 2005.

²² Ministry of Defense (MOD), *Nihon no Bōei* (Tokyo: MOD, 2009), p. 105; CPSDU, "Uchū Kaihatsu Riyō ni kan suru Kihon Hōshin ni Tsuite [Concerning the Basic Policy on Space Development and Utilization], 15 January 2009, pp. 1-13). Committee on Promotion of Outer Space Development and Use (CPSDU), "Uchū Kaihatsu Riyō ni kan suru Kihon Hōshin ni Tsuite (Gaiyō)" [Concerning the Basic Policy on Space Development and Utilization (Outline)], 15 January 2009; "Space-Related Defense Policies and Future Topics for Consideration" (Tokyo: MOD, November 2008), slides 2-7. See also Paul Kallender-Umezu, "Japan Military Space Guidelines Identify Capabilities but Lack Planning Specifics," *Space News*, 16 February 2009.

Maritime Security Policy Office, and a Space Technology Planning Office in the Technical Research and Defense Institute (TRDI) weapons laboratory.²³

After conducting an audit of its potential defensive military space needs, the MOD published the 2009 *Basic Guidelines for Space Development and Use of Space* on January 15, 2009. The *Guidelines*, following a series of meetings conducted through late 2009 from September chaired by Vice Minister Seigo Kitamura, as we have seen, the MOD identified a significant number of space-related technologies and programs as being critical to the development of an integrated C4ISR infrastructure based on the need for improved imaging satellites and a dedicated military communications satellite system. Other items of interest included EW, small and low-cost satellites that can be launched on short notice (TacSats), space-based SIGINT, independent PNT, satellite protection, and SSA capabilities.²⁴

To understand the MOD's position, in line with prior comments made in earlier chapters, it is probably best to consider it again, as with IGS, fundamentally still as a *customer* ministry rather than as an activist challenger. In terms of budgets and programs, the MOD had been a notable beneficiary of the Taepodong "shock" through the establishment of Japan's BMD architecture, providing budgets and weapons platforms for both the Maritime Self-Defense Forces (through a growing flotilla of Aegis cruisers) and the Ground Self-Defense Forces (through PAC-3 batteries). At the same time the SDF was also receiving some benefit from data provided by the slowly evolving IGS system.

From this perspective it is unsurprising that the NDPG of 2004 omitted mention of space-related capabilities with the exception of BMD. However, reflecting the potential opportunities afforded by the *Basic Law*, the revised NDPG of 2010 identified Japan's need to respond to new challenges for access to outer space as part of the "maintenance of the global commons," and for the SDF, as part of the concept of the Dynamic Defense Force (DDF) concept developed in the NDPG, to develop its ISR capabilities, including the use of space technologies. However, no major budget lines were established, except for some small R&D budgets to study space-based EW.²⁵

The MOD's careful approach, again, can be explained on two more levels. While post-2007 the SDF had become concerned about the PRC's ASAT test and the growing potential of a PRC ASAT threat, the MOD felt it could do very little about it, except to invest some R&D into satellite hardening by making satellites better able to withstand laser blinding or, more extremely kinetic attacks, presumably from co-orbital or direct-ascent ASATs. Secondly, the MOD remained reluctant to spend more than a minimal amount of money researching space-based EW because of budget and technology constraints, its unfamiliarity with the realities of space development and its lack of established doctrine for the defensive utilization of space. With all this in mind, unless there was a major shock and a strong political decision and the support of the U.S. in establishing an independent EW system, the MOD's main goal was remain a customer – but an increasingly sophisticated one.²⁶

²³ Paul Kallender-Umezu, "Japanese MoD Unveils First Ever Space Budget," *Space News*, 8 September 2008.

²⁴ See Ministry of Defense, *Basic Guidelines for Space Development and Use of Space*; Paul Kallender-Umezu, "Japan Military Space Guidelines Identify Capabilities but Lack Planning Specifics," *Space News*, 16 February 2009, p. A4.

²⁵ Japan Ministry of Defense, *National Defense Program Guidelines for FY11 and Beyond*, 17 December 2010, pp., 3, 4, 15.

²⁶ Oe interview, *ibid.*

Episode of Contention

Following its establishment, the SHSP quickly initiated three primary bodies, the Experts Research Committee on Space Development Strategy (Experts Committee, or Special Committee on Space Policy), which became the motor driving the SHSP's work, and with two working groups: a Working Group on the Study of the Restructuring for the Organization for Space Development and Use (also referred to as the Working Group for Restructuring of Space Related Organizations, or Restructuring WG) and the Working Group to Study a Space Activities Act (also known as the Working Group for Legislation on Space Related Activities, or SAA WG).

Of these, the two former groups were tasked with both formulating the "Basic Plan" (*Basic Plan 1*) and executing the administrative reform strategy. As soon as December 2008 the SHSP released a "Vision" version of the *Basic Space Plan*, which was initially to be formalized by May 2009, that set out a new "Basic Strategy" that initially delineated "five pillars" for future space policy:

1. Improving the Welfare and Safety of Daily Life.
2. Strengthening the [sic] International Security by applying the [sic] Space Technology.
3. Performing Constructive International Roles through Space Technology.
4. Developing the Private Sector as the Strategic Industry in the 21st Century.
5. Inspiring People to Dream and Investing in the Future."²⁷

Following this, the SHSP subsequently released its first *Basic Plan for Space Policy*, or *Basic Plan 1: "Wisdom of Japan Moves Space,"* on 2 June 2009. This was formulated on Article 24 of the *Basic Law*. *Basic Plan 1* set out development goals on principles specified in the *Basic Law*:

1. Ensure a Rich, Secure and Safe Life.
2. Contribute to (sic) Enhancement of Security.
3. Promote the Utilization of Space for Diplomacy.
4. Create an energetic future by promoting R&D for the forefront areas [sic].
5. Foster Strategic Industries for the 21st Century.

To fulfill the basic targets, five-year development goals and ten-year targets for five satellite systems were set. These were:

1. A land and ocean observing satellite system to contribute to Asia and other regions.
2. A global environmental change and weather observing satellite system.
3. An advanced telecommunication satellite system.
4. A positioning satellite system.
5. A satellite system for national security.

In addition, there were four R&D programs; a space science program, a human space activities program, a space solar power program and a small demonstration satellite program. After only six meetings ending August 2009, the SSA WG set itself the goal to draft by January 2010 a fully-fledged law governing space activities by September 2010.²⁸

²⁷ Yasuyoshi Komizo, Ambassador, Permanent Mission of Japan to the International Organizations in Vienna "Japanese Space Policy – Basic Space Law-" COPUOUS Legal Subcommittee 48th Session.

²⁸ The Legal WG, also called the Working Group for the Space Activities Act (SAA WG) met six times between October 2008 and August 2009, and drew up a final report in preparation for a bill that would have led to the SAA, but that was never submitted to the Diet; see Setsuko Aoki, "The National Space Law of Japan: Basic Space Law and the Space and the Activities Act in the Making," presentation, Galloway Symposium, The National Center for Remote Sensing, Air and

Then, on 17 March 2009, the SHSP's restructuring WG released its mid-term report on delivering the institutional organizational review.²⁹ As noted before, the WG came up with four basic options. The first option represented a virtual "do-nothing scenario," suggesting that JAXA to reflect its priorities based on the *Basic Plan* while maintaining the jurisdictional control of its programs under MEXT. The second option suggested adding the role of the Cabinet Office to promote space utilization and giving other ministries co-jurisdiction to promote their own projects. The third option would see the Cabinet Office take control of certain programs while allowing other ministries co-jurisdiction of their programs in JAXA. The fourth option suggested a much cleaner break with the past placing JAXA completely under the Cabinet Office, in other words *de facto* setting up a completely new executive Space Agency, some form of an Uchūchō within the Cabinet Office.

Basic Plan 1 retained a significant focus on R&D in four major areas and left MEXT and JAXA's extant global environmental monitoring programs intact, but with major additions: a dual-use land and ocean global EO system, and budgeting for the QZSS navigation system. Meanwhile, the IGS reconnaissance satellite program was kept in place, and kept separate. In other words, *Basic Plan 1* was designed to add two dual-use and strategic programs to the *status quo*, with a stated funding pathway of increasing the overall space actives budget to around ¥500 billion annually from the ~¥350-billion level that had been set as a budget ceiling by the MOF.

A closer look at the five programs already, as noted above, however, shows that *Basic Plan 1* was clearly a huge ask, particularly in terms of the first program, for which there was no precedent. The inclusion of the concept of the land and ocean observing satellite system being oriented to contribute to Asia clearly signifies that this program was to be based on the METI-ASNARO-NEC program, which would require major lifting to enact. First, USEF plans for this constellation would involve around eight ASNARO satellites and would require the convincing of MEXT and JAXA to fundamentally reconsider their own plans and programs. Secondly, funding such a program would require a major boost in annual funding; if this could not be achieved, then someone else, probably MEXT and JAXA, would have to pay by shedding some programs. So coordination of this program necessitated an executive authority with sufficient policy or budgeting power in whatever new administrative structure that would be established to push the program through, probably against the opposition of MEXT, which would feel its incumbency threatened.

Space Law at the University of Mississippi School of Law The Journal of Space Law and the International Institute of Space Law, 6th Eilene M. Galloway Symposium on Critical Issues in Space Law, a Comparative Look at National Space Laws and Their International Implications, 1 December 2011.

²⁹ See 宇宙開発利用体制検討ワーキンググループ 第6回 議事次第 平成21年3月17日(火)「Uchū Kaihatsu Riyō Taisei Kento Waakingu Gurupu [Agenda of the 6th Meeting of the Working Group on the Study of the Restructuring for the Organization for Space Development and Use, 17 March 2009 (Tuesday).] The WG produced four reports; a summary; a schema of the proposed restructuring; a detailed report; and an opposition "opinion" by MEXT, which was already moving to resist encroachment on its budget and program by the CO. The summary: 我が国の宇宙開発利用体制の在り方について<中間報告>(案)~主な論点~」 Waga Kuni no Uchū 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](案) 我が国の宇宙開発利用体制の在り方について <中間報告> (An) Waga Kuni no Kuni no Uchū Kaihatsu Riyō Taisei no Arigata ni Tsuite <Chūkan Hōkoku > [(Draft) Concerning the Way Forward for Our Country's Space Development and Utilization System <Interim Report >]; MEXT's opposing opinion: 宇宙開発利用体制の在り方についての意見 (文部科学省提出資料 Uchū Kaihatsu Riyō Taisei no Arigata ni tsuite Ikken (Monbukagakushō Teishutsu Shiryō) [Opinion on Concerning 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 it should retain control of JAXA and that JAXA be the main pillar of Japanese space development. See SHSP website at: <http://www.kantei.go.jp/jp/singi/utyuu/working/dai6/gijisidai.html>. The author's interpretation is based on his translation of the Japanese.

Basic Plan 1, then showed a clear attempt by the SHSP to deliver a new approach to space policy. First, *Basic Plan 1* established the SHSP as the coordinating institution for space policy. Secondly, by delineating outlines for five-, and ten-year timescales, the SHSP had attempted to place clear parameters for the utilization agenda specified as a goal in the *Basic Law*. However, *Basic Plan 1* also contained fundamental flaws. First of all, in its Appendix 1, schedules were written as a “reference” and therefore not considered to be binding. Further, *Basic Plan 1* was riddled with caveats regarding specifics, such as “...will be considered,” and “...will be targeted.”

Second and most critically, *Basic Plan 1* failed to specify the overall budget for implementation and did not clearly show which programs should enter research and development from the current or the next fiscal year. Far from the CEPF model, the SHSP did not have the power to force the MOF to approve the long-term funding required to start the dual-use global monitoring system, or fund the QZSS.³⁰

This was also because, without having established a definitive new structure within the Cabinet Office as stipulated in the *Basic Law*, work-sharing and agreement between MEXT, the incumbent, and METI, which wanted Japan to purchase its ASNARO satellites, remained contested. As the MOF retained the authority to sanction budget increases without coordination with the SHSP, and as no clarity existed on the feasibility and schedules in *Basic Plan 1*, the MOF, following its own institutional, normative and legal logic, declined to fund the major budget increases *Basic Plan 1* requested. In simple but dramatic terms, *Basic Plan 1* was still-born.

Regarding the restructuring WG outcome, it is also possible to see classic stalling tactics within the SSHP. Instead of coming up with a definitive new structure, the restructuring WG had come up with four options, and only two of them approached the outcome desired by the NSSPG and implied as the objectives of the *Basic Law*. As noted previously, the first option only asked JAXA to reflect its policy in a future *Basic Plan*, and failed to provide a policy control body superior to MEXT, which would retain control of JAXA.

The second option also left ministries with jurisdiction over their own projects, and again did not implicate the necessity of establishing a superior policymaking body. On the other hand, the other two options favored the new direction, i.e. were closer to that intended by the NSSPG. The third option anticipated a partial solution that would place control over industrialization and national security-related programs under the Cabinet Office. The fourth, and most radical, represented a fundamental change in terms of wresting control of space policymaking away from MEXT and into the Cabinet Office, which could be interpreted as being fully implementing a decisive break from the past.

A second main overall issue, and one was not addressed in the *Basic Law*, was budgeting authority. While it can be reasonably anticipated that the Uchūchō-based solution would enable a new agency to produce its own final budget line and the authority to present budget requests to the MOF, as the old SAC had done, none of the other three options suggested this power, *de facto* potentially leaving budgeting up to competitive bidding. As the history of Japan’s bureaucracy shows, and as institutional theory often points out, protection of budgets is the *sine qua non* of any administrative organization.

What had happened?

Of the eight members of the WG, chaired under professor Akihiko Tanaka of the University of Tokyo, six were affiliated to MEXT through their professorships or organizational affiliations, and only two directly to private industry, suggesting that the WG’s conclusions were a compromise between

³⁰ Suzuki (2009).

different institutional actors within the field of the Cabinet Office. Whatever deeper motives may have existed in the restructuring WG, during the summer of 2009, politics intervened. The LDP-led SHSP was running out of time. By the spring of 2009, it was apparent that the DPJ would probably win the upcoming Diet elections, with surveys of the three hundred single-member districts by major daily newspapers conducted prior to the general election had predicted that the DPJ would likely receive over three hundred seats.

In fact, by 2008 the LDP faced widespread loss of its political mandate with voters following a succession of increasingly unpopular prime ministers since the premiership of Koizumi, and the broad perception both domestically and internationally of the failure of the LDP's economic and fiscal policies. This probably explains the fast one-year timetable to complete restructuring (as does the fact that budget negotiations usually begin in mid-summer in time for bidding requests to the MOF each August).³¹

The next critical issue confronting the tasks involved in implementing the *Basic Law* was the fact that the DPJ had its own vision for instituting a command-and-control function, by establishing an Uchūchō and Cabinet Office committees to control all aspects of policy and budget-making.

Episode of Contention: Non-Compliance of SHSP with DPJ

SAF 3: The electoral victory of the DPJ in September 2009 added a fundamentally new variable to the analytical framework; the field of political dynamics. The 16 September 2009 inauguration of Yukio Hatoyama as prime minister, and only the fourth non-LDP prime minister since 1955, also brought Japan its first substantial change of government since 1955. The victory was a landslide, with the party securing 308 out of 480 seats in the House of Representatives, leaving the LDP with only 119 seats, a complete reversal from four years earlier, when the LDP secured 296 seats and the DPJ 113. The DPJ's huge majority was hailed as an "historic watershed" by commentators.³²

It also appeared to give the DPJ a political mandate for its policies, or failing that, to try a new direction along the lines of the DPJ's promises of *seiken kōtai* ("regime change") and *seikatsu dai-ichi* (quality of life first).³³ Another major platform was the *jigyō shiwake* investigations to attack "public waste," i.e. to open up and publicly scrutinize/ audit the more obviously opaque or pork-barrel projects lurking in the vast budget consumed by the subgovernment.³⁴ The advent of the DPJ was to have a major

³¹ Following the 2006 ouster of Koizumi, the major factor in the LDP's 2005 victory, the electorate faced the return of "politics as usual" with a succession of three prime ministers unable to deliver on the party's 2005 manifesto. The administration of Prime Minister Taro Asō was criticized in particular for its economic stimulus program, which seemed only to increase debt but deliver no improvements in quality of life. Japan's ranking in per capita gross domestic product (GDP), which was third in the world as recently as 2000, fell to 19th in 2007, while during the 2000-7 period of export-led growth, Japan rose to second in the world in its poverty rate, which measures the number of people who earn less than half the median income. Over the same period, the number of non-regular employees rose to more than a third of the Japanese labor force. Tobias Harris, "How will the DPJ Change Japan?" *Naval War College Review*, Vol. 63, No. 1. (Winter 2010).

³² Hiroshi Izumi, "Historic Victory, Ticklish Transition," *Tokyo Foundation*, 7 September 2009.

³³ One *Asahi Shimbun* poll found that only 24 percent of respondents felt that "regime change"—that is, a DPJ victory—would make Japanese politics better; 56 percent felt the DP would leave things unchanged. Another *Asahi* poll asked respondents to comment first on whether the LDP would be able to pay for its promises, then whether the DPJ would be able to pay for those it made. The numbers were the exact same for both parties: 8 percent felt that each party would have the funds to cover its promises, while 83 percent were skeptical; *Asahi Shimbun*, 20 August 2009.

³⁴ Regarding cutting waste, which Kato called a "review of governmental programs" the DPJ brought in the Governmental Revitalization Unit (GRU) within the Cabinet Office to no less than attempt to reform no less than... "The overall national administration, including the budget and system of national administration," "from the people's standpoint, and also to review the division of roles among the national government, local public authorities, and private

impact on the SHSP because the DPJ attempted and failed to assert its political control of space policy over MEXT by attempting to establish an Uchūchō.

The DPJ's stance on political control was far more radical than that of even Koizumi, was heavily informed by the policies of Hatoyama's own grandfather Ichiro Hatoyama, and lessons learned by DPJ members who had experienced their own powerlessness during the abortive 1993-4 seven-party coalition government of Morihiro Hosokawa fifteen years earlier.³⁵

The techniques to be employed in the pursuit of *seiken kōtai* favored by the DPJ in 2009 were outlined by Katsuya Okada, the DPJ's first foreign minister and Hideki Kato, who in October 2009 became secretary general of Japan's Government Revitalization Unit.³⁶

These were, first, echoing Koizumi, to strengthen the Cabinet Office at the expense of the bureaucracy. Second, cutting waste meant introducing a new policymaking system led by top-down political leadership by the Cabinet to take control of the allocation of the ¥207 trillion budget, while attacking budget pork through the *jigyō shiwake* hearings.³⁷ In an October 26 speech to the 2009 Extraordinary Diet Session, Hatoyama laid out his vision to institute a "bloodless Heisei Restoration,"

companies." See "First Meeting of the Government Revitalization Unit," Prime Minister's Office, 22 October 2009 http://japan.kantei.go.jp/hatoyama/actions/200910/22sassin_e.html

³⁵ Hatoyama's grandfather Ichiro Hatoyama, the 52nd, 53rd and 54th Prime Minister of Japan had noted the central bureaucracy's own "transfer of power" from political parties to the military before World War II and then to the U.S. occupation forces after the defeat of Japan in 1945, during which the bureaucracy had re-enhanced its own power in a "divide-and-conquer strategy" taking advantage of the Occupation's General Headquarters' heavy reliance on the cooperation of Japanese administrators, to construct a sectionalist structure that made it indispensable to formulate and administer stable policy resistant to political or military control.

When Hatoyama ousted Yoshida and took over as prime minister, he found himself stymied by the sectionalism that Yoshida had built as a bulwark to protect the bureaucracy. The Hatoyama Cabinet had devised a variety of reforms intended to break down sectionalism that included Ichiro Kono, who served in a number of cabinet posts during his career, including that of minister of construction, as a battering ram to try to effect a massive reallocation of budget funds to benefit the rural prefectures. Hatoyama had also tried to impose his agenda at meetings of administrative vice-ministers, and set up conferences among the heads of related ministries and pushed for a budget office directly under the prime minister. He also tried to increase the number of political appointments in the government. Many of these tools were to become the basis of the weapons that the DPJ attempted to deploy after September 2009.

Half a century later, the DPJ's approach was also to be informed by lessons learned by DPJ members who had experienced their own powerlessness during the abortive 1993-4 seven-party coalition government of Morihiro Hosokawa, which had conspicuously failed to find a practical way to form policy not independent from the bureaucracy, undermined by a weak cabinet that the bureaucracy was able to ignore. See Tetsuya Murai, "The DPJ's True Mandate," *The Tokyo Foundation*, 26 November 2010, <http://www.tokyo-foundation.org/en/articles/2010/the-dpj2019s-true-mandate>.

³⁶ In a major speech held in conjunction with the 16th Annual Japan-U.S. Security Seminar, Hideki Kato, who in October 2009 became Secretary General of Japan's Government Revitalization Unit within the Cabinet Office, and in April 2010 became president of the Tokyo Foundation, laid out the tasks as he and the Hatoyama Administration saw them. As he put it, under Japan's system, the central ministries did not implement policy formulated by Cabinet ministers able to construct policy above bureaucratic sectionalism, but the ministries "came first," taking control of policy formulation and implementation, so that ministers were "effectively figureheads and forced to implement extant policies, making effective parliamentary control to effect drastic policy shifts.

To assert control, the DPJ would introduce a council of three political-level appointees comprising the minister, senior vice-minister, and parliamentary secretary to enable ministers to take the lead, and this council would meet on its own terms, banning press conferences by administrative vice-ministers—the highest-ranking bureaucrats, lessening their abilities to set agenda.

³⁷ Katsuya Okada, *Seiken Kōtai*, (Tokyo: Kodansha, 2008), pp. 218-23; Democratic Party of Japan Election Manifesto, July 2009, available at www.dpj.or.jp/special/manifesto2009/pdf/manifesto_2009.pdf. In an October 26 speech to the 2009 extraordinary Diet session, Hatoyama had laid out his vision to institute a "bloodless Heisei Restoration," in terms of conducting a "major cleanup" of waste, boosting social spending and strengthening political leadership within ministries by dissolving the administrative vice ministers' council, among other measures. For Hatoyama's speech, see 第173回国会における鳩山内閣総理大臣所信表明演説, 平成21年10月26日, <http://www.kantei.go.jp/jp/hatoyama/statement/200910/26syosin.html>. See also Ichiro Ozawa, *Ozawa-shugi* (Tokyo: Shueisha, 2006), pp. 101-104; Naoto Kan, "Minshuto seiken no mezasu kuni no katachi," *Chuo Koron* (July 2009), pp. 172-73.

and talked in terms of conducting a “major cleanup” of waste, boosting social spending, and strengthening “political leadership” within ministries by dissolving the Administrative Vice Ministers’ Council, among other measures.

The DPJ attempted a six-prong attack on extant practices. First it set up a new National Strategy Bureau (NSB) headed by a senior Cabinet minister and staffed with roughly 30 appointees, including ten Diet members, to try to take over direction of the budgeting process with Naoto Kan, simultaneously serving as deputy prime minister, at the helm. Second it established an “inner sanctum” of like-minded senior figures, with Okada as MOFA Minister and Hatoyama confidante Hirofumi Hirano as Chief Cabinet Secretary, Kan as Deputy Prime Minister and NSB chief, and Hirohisa Fujii as MOF Minister to distance decisions from interference from the Administrative Vice Ministers’ Council. Third, the DPJ then duly abolished the Administrative Vice Ministers’ meetings and replaced them with Parliamentary Vice Minister’s meetings, while establishing regulations governing contact between bureaucrats and politicians not holding Cabinet or subcabinet appointments. Fourth, new regulations required bureaucrats to list the contents of all requests from Diet members known to their ministers and, in principal, banned efforts by bureaucrats to influence Diet members. Fifth the DPJ mandated that bureaucrats save records related to requests for subsidies, licenses and contracts from backbenchers or their secretaries. Sixth, Cabinet ministers would be free to choose their own deputy ministers and parliamentary secretaries.³⁸

SAF 4: The DPJ’s attempted strategic action on SAF 4, not only in space activities but on this whole layer of decision-making power immediately turned it into a challenger. In terms of the General Space Activities SAF, the new administration was also a challenger, and the LDP-appointed SHSP flipped its role to that of incumbent.

The DPJ’s challenge also rapidly brought it into conflict with both industry and METI in particular when the *jigyō shiwake* investigations that began in November 2009 under the control Yukio Edano, State Minister in charge of Administrative Reform in December 2009, decided to end the GX program.³⁹ The cancellation immediately served notice on not only JAXA and MEXT but also METI and the SHSP that the DPJ intended to follow its manifesto. The second round of screenings in late April and late May then focused on the vast subgovernment network of IAIs, which included JAXA, and Public Interest Institutions. In a move that reached the national news, JAXA had its PR facilities shuttered amongst several other high-profile cuts experienced by major IAIs, which had previously considered themselves untouchable.⁴⁰

³⁸ DPJ Administrative Preparations Committee, Kokumin to tomo ni Kōdō suru “Atarashi Seifu” no Kakuritsu ni Mukete, 25 September 2003; Office of the Prime Minister, “Roles and Responsibilities of Politicians and Bureaucrats,” 16 September 2009.

³⁹ Paul Kallender-Umezu, “Japan’s GX Rocket Targeted for Cancellation in 2010,” *Space News*, 20 November 2009.

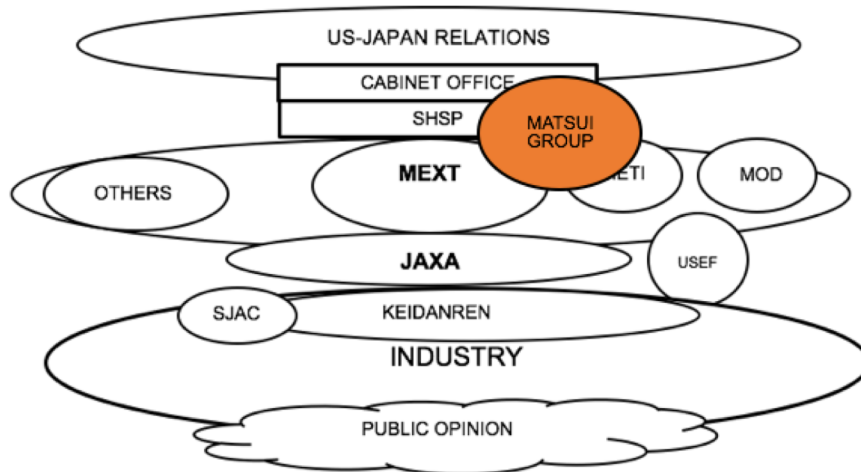
⁴⁰ In the event, the publicly televised hearings developed a show trail atmosphere, with bureaucrats, unused to being challenged and questioned, clearly discomfited as they attempted to defend various projects in the full glare of TV cameras. According to commentators, the DPJ’s unstated motives actually were to examine the IAIs’ relationships with their supervising ministries and particularly check for collusive relations between corporations and ministries with respect to amakudari as well as the salaries and expenses of amakudari-appointed officials, focusing on the Japan Foundation, the Japan External Trade Organization (JETRO), JICA, the Agriculture and Livestock Industries Corporation (ALIC), the Japan National Tourism Organization (JNTO) and last but not least JAXA, which had its PR facilities cut along with tourism services for foreign visitors to Tokyo provided by JNTO, overseas offices of ALIC, and the cutting of programs and/or lending activities by Japan the Housing Finance Agency Agriculture, the National Institute for Biomedical Innovation and the Forestry and Fisheries Industries Trust Fund, as well the scaling down of the international business support program of JETRO. See Aurelia George Mulgan, “Round two of Japan’s government revitalisation,” *East Asia Forum*, 3 June 2010.

Strategic Action by Seiji Maehara: Formation of a Guerilla Unit

The DPJ then faced the task of implementing its Uchūchō concept amid upheavals that were out of its control. First, in December 2009, the MOF rejected a slew of funding requests including funding ASNARO proposed by METI, which by now had openly become the platform for METI to attempt strategic action to challenge MEXT and JAXA.⁴¹

Then, as part of a move to institute the Uchūchō, activist DPJ Minister for Space Development Seiji Maehara attempted what amounted to a coup, adopting the guerilla tactics employed by Koizumi and Takenaka a decade earlier. Completely bypassing the SHSP, in February 2010 Maehara constituted a small (five member) independent expert panel under Takafumi Matsui, Professor Emeritus of Tokyo University and Director of the Chiba Institute of Technology’s Planetary Exploration Research Center, tasked with radically overhauling the administrative policymaking structure.

Figure 29: The Machara- Matsui Guerrilla Unit



As with the earlier Koizumi-Takenaka tactics, the makeup of the committee was crucial. Matsui, a friend of Maehara, had a strong interest in government reform while preserving space science in ISAS, views broadly shared by fellow member Taizo Yakushiji of the Japan Science and Technology Agency. Yakushiji had also been a CSTP member back at the turn of the century and had a long interest in bringing space policy under a national strategy. Joining them were Hiroshi Yamakawa, an elite scientist and engineer from ISAS who had played a key role in the celebrated *Hayabusa* asteroid mission and who

⁴¹ Aoki (2009). While the main business of the SHSP ground to a halt following the election of the DPJ, some new progress was made early into the DPJ administration, but only with the low priority and politically less contentious Lunar Exploration Panel, which met regularly through 2009-10, producing its conclusions on 30 July 2010.

Notably, METI had tried to include its ASLET air-launch project designed as small-satellite launcher (but with also a dual use potential direct ASAT application) as an R&D program in the original August budget request, but this disappeared by December. For some details on ASLET see Seiji Matsuda, Hiroshi Kanai, Takayoshi Fuji, Motoki Hinada, “An Affordable Micro Satellite Launch Concept in JAPAN,” paper presented to the *6th Responsive Space Conference*, April 28–May 1, 2008 Los Angeles, CA Launch Concept in JAPAN (AIAA-RS6-2008-5004).

was to become the Director-General of the Secretariat of the SHSP under the DPJ; and Shinichi Nakasuka, a University of Tokyo scientist and the father of Japan's university-led microsatellite program.⁴²

Their product, "Suggestions for Japan's Strategic Space Policy" or *Matsui Plan*, were drawn up after only half a dozen meetings and released on 20 April 2010. The five-page plan advised that an Uchūchō be controlled by a small executive committee of around five experts that would report directly to Hatoyama and Maehara.

The new system proposed breaking JAXA up into smaller units and reorganizing the whole administrative and institutional into project groups focused on specific objectives under the control of a small Space Policy Commission. All this was to be effected *immediately*, in time for the annual budget request due August. Therefore, in creating a parallel track to the LDP-era SHSP, Maehara had sought to re-orientate the implementation of the *Basic Law* to the most radical direction.⁴³

The *Matsui Plan* provides the first compelling empirical data that sustains one of my research's key points; that beginning 2009 a new approach to government and political-bureaucratic relations was attempted by the DPJ that was partially successfully implemented in space policy and administration. The *Matsui Plan* was radically different both in presentation and semantic approach to any other space policy document seen by this researcher. It was written in under five pages, in clear and straightforward language, and contained simple diagrams and lists of objectives proposed, in stark contrast to the dozens and hundreds of pages of vague and sometimes florid content that had composed the *Fundamental Policy* of SAC in 1996.

In terms of programmatical priorities, the *Matsui Plan* sought to reset the dial back to the *Basic Law*, re-concentrating focus on interlinking industrialization with national security by pushing forward with the dual-use land and ocean observation program as the first priority, communications satellite development as the second, and the QZSS as a triptych of three top-priority programs. In terms of programmatical logic, it is already apparent to see the direct impact of both U.S. pressure and concern about the behavior of the Chinese PLAN on policymakers, testifying to power of SAFs 1, 2 and 3 on Japanese space policymakers.

In terms of implementation and administrative strategic action, however, most critically, the *Matsui Plan* proposed that the Uchūchō would centralize control of program management and budgeting for *all* Japan's taxpayer-funded space programs, effectively reducing JAXA to a reporting role to a small body of commissioners in the Uchūchō. In effect, JAXA and MEXT might have to go cap-in-hand to a superior body. If Maehara's strategic action in setting up the Matsui Committee could be interpreted narratively as an attempted a coup over SAF 4, the *Matsui Plan* could be characterized as an attempted follow-up revolution.⁴⁴

SAFs 4 and 5: The *Matsui Plan* fundamentally challenged the SHSP's previous recommendations and was immediately opposed by the SHSP, which treated the plan as a private and personal initiative by Maehara, and not an official SHSP product.⁴⁵ Indeed, *Matsui Plan* was self-styled as intentionally radical

⁴² 今後の宇宙政策の在り方に関する 有識者会議 提言書 平成 22年 4月 20日 Kongō no Uchū Seisaku no Arikata ni Kan Suru Yūshikisha Kaigi Teigensho [Regarding Future Space Policy, Experts Group Recommendations, April 20, 2010]. See: http://www.kantei.go.jp/jp/singi/utyuu/seisaku_kaigi/dai7/gijisidai.html; Paul Kallender-Umezu, "Japan Urged to Break Up JAXA and Establish New Space Agency," *Space News*, 3 May 2010, p. 10.

⁴³ Interviews with Shinichi Nakasuka, 25 April 2010, and Matsui, 27 April 2010.

⁴⁴ Author interview with Matsui, 27 April 2009.

⁴⁵ "We have no official English name for 今後の宇宙政策の在り方に関する有識者会議, which was held on Feb 23rd this year for the first time, and was held seven times until April 20th...The committee was established to make a report to Mr. Maehara, Minister for Space Policy, not by Strategic HQ for Space Policy. So far we have not made any decision at government level about [a] "Space Agency". [The] Space Basic Law requires the government to make a necessary law in

by Matsui himself, who stated, “This is a revolutionary scheme that says we [the political leadership advised by specialists and the user community] will make the plan and they [the bureaucracy] will just implement the projects.”⁴⁶ For Maehara, the *Matsui Plan* was the only way he felt able to advance the DPJ’s manifesto to assert Cabinet Office control. In terms of the SAF framework, this move represented strategic action by SAF 3 to assert control over SAFs 4 and 5. The *Matsui Plan* transformed the SHSP from challenger to incumbent.⁴⁷

Episodes of Contention

The implementation of the *Matsui Plan* however immediately fell victim to political instability. By October, Maehara was gone, promoted to Foreign Minister, and the *Matsui Plan* was shelved by the SHSP, as it was directly opposed by MEXT Minister Tatsuo Kawabata, exposing a fundamental flaw in the NSSPG’s plans, and the Basic Law. Without a further major revision of the Cabinet Office law, or without the deliberate selection of Cabinet ministers all supporting a prime minister and not behooved to protecting the budgets, powers and prerogatives of their own ministries, the sanction power of a single minister in the Cabinet trumped all others. In the event, the results of the experts’ discussion were first shelved and then ultimately abandoned. Subsequently, the restructuring WG did not meet for one year following the DPJ’s election.⁴⁸

Following the failure of the *Matsui Plan*, and with the original 2009-era “option four” proving impossible to realize, the challenger (guerilla) group established by Maehara then began a long series of innovative and strategic actions seen through a long-drawn out process of open public meetings and more formal negotiations with MEXT, with the guerilla group periodically recalibrating its innovative action, replicated in a series of mini-episodes of contention until the guerilla group achieved its strategic goal. In narrative terms, this led to the establishment of the ONSP and (partial) field settlement. Towards this, the guerilla unit launched forward and attempted “option four” (establishment of the Uchūchō), but would eventually be pegged back to restructuring “option three”, Cabinet Office control, and *only* of the QZSS system.

Subsequent the departure of Maehara, the DPJ and the guerilla group changed tactics. This meant more innovative action. In order to use the SHSP to implement the DPJ’s policies, the SHSP was scrapped and decisive strategic action was taken by the DPJ as it created a “Mk. II” version of the SHSP, reconstituting it with new DPJ appointees, with the guerilla unit developing the strategy of taking control

order that affairs concerning the HQ shall be processed within Cabinet Office, to review and take necessary measures concerning the JAXA and other agencies related to space development and use and administrative organs that are the competent authorities of them within approximately one year after the coming into effect of the law, and to carry out a review concerning the administrative organization in order to promote measures with regard to space development and use,” Email exchange with Hirohisa Mori, Senior Coordinator, SHSP, to the author, 27 April 2010.

⁴⁶ Author interview with Matsui, Tokyo, 27 April 2010 (unpublished version).

⁴⁷ “You have to remember that the recommendation report is by Prof. Takafumi Matsui and other experts. The recommendation was aimed at increasing the transparency of Japan’s space development strategy and policy, and to look at how to unify both our decision making and budget under one authority. In order to urge and promote that idea, we were proposing to establish a space Agency under the control of the Cabinet Office. Currently the Ministry of Education, Culture, Sports, Science and Technology, which has jurisdiction over JAXA; the Cabinet office, the Ministry of Economy Trade and Industry, the Ministry of Defense; and other ministries and various other space-related organizations each have their own space budget. Our role is to combine them all together. In order to fulfill our commitment to making an effective national strategy, it is necessary to unify all these into one system, we believe. Originally this was written in the DPJ’s manifesto.” Paul Kallender, “Seiji Maehara, Foreign Minister, Japan,” *Space News*, 18 October 2010.

⁴⁸ Ministry of Education, Culture, Sports, Science and Technology. Kawabata Tatsuo Monbukagakushō Daijin Kisha Kaiken Roku [Record of MEXT Minister Tatsuo Kawabata’s press briefing on 23 April of 2010]. See: http://www.mext.go.jp/b_menu/daijin/detail/1293106.htm; Anan (2013), pp. 210-218, esp. p. 211.

of the QZSS as an initial wedge to establish the principal of Cabinet Office control over at least part of Japan's space program.

The QZSS program, having already faced a fifteen year struggle to free itself from interministerial infighting, was chosen as the battering ram, or as Matsui once framed it to the author, the "thin end of the wedge." Before this innovative action could begin, or at least as part of establishing the groundwork to work towards this goal, there were several layers of remodeling of the SHSP necessary. First of all, the Experts Committee, the main decision-making body in the SHSP, was scrapped. Following the failure of the *Matsui Plan*, the Experts Committee last met in May 2009 with its recommendations on the *Basic Plan*. It then did not meet again until October, when it dealt with reports on issues of secondary importance, while accepting a report from the SAA WG. When it did subsequently reconvene on 20 December 2010, after a fourteen month gap, it was as a group of DPJ appointees and with personnel deemed reliable in their desire to implement the DPJ's vision.⁴⁹

However, disastrously for the DPJ's reform attempts, while all this was happening, in July 2010, the DPJ lost control of the Upper House, severely damaging the administration's political and policy leverage. From this point on, many of the subsequent modalities of the DPJ's relationship with the SHSP can be understood against two overall factors: 1. The continuing opposition by MEXT and JAXA to resist change to the reformulated "Mk. II" SHSP, and the long and coordinated series of discussions by DPJ appointed members to take control of the QZSS program as a wedge to achieve at least part of option three for establishing Cabinet Office control. 2. Instability within the DPJ, which on top of losing the Upper House, saw three Prime Ministers, five cabinets and four State Ministers for Space Development serve office in the course of just over three years.

In fact, the difficulties faced in taking control of space policy echoed the larger problems the DPJ failed to resolve overall. First, the Hatoyama administration had quickly discredited itself in the eyes of the U.S., and in the face of a conservative media assault, lost tremendous credibility in the court of public opinion through its inability to work with the U.S. on the Futenma Base issue in Okinawa. This mishandling contributed to the DPJ's disastrous election losses in 2010. Then, the Naoto Kan administration was forced to deal with the national crisis of the 11 March 2011 Great East Japan Earthquake and Fukushima Nuclear Power Plant accident, with the magnitude of these issues meaning that the overstretched DPJ and civil service remained in crisis management mode for much of the following spring and summer. In these circumstances, prosecuting the DPJ's agenda in space policy and administrative change was drowned in a *tsunami* of other more pressing issues.

Meanwhile, more narrowly in the SHSP through 2010, as mentioned above, efforts by the DPJ to institute a command and control function could not be solved while they faced the implacable opposition by MEXT Minister Tatsuo Kawabata, whose mission was to protect MEXT's budget and any attack on JAXA.⁵⁰ In summary, 2010, instead of being a transformational year, became a transitional year for the SHSP.

⁴⁹ Subsequent information is based on a close analysis of the Experts Committee and QZSS working group meeting and reports documented in detail at the SHPS's website, and also numerous interviews with key figures in the SHSP, including Matsui, Hiroaki Akiyama, Taizo Yakushiji, the key members of the ("Mk. II") Experts Committee, and subsequent *Space News* and *Defense News* articles.

⁵⁰ Interview with Matsui, 17 January 2012.

Episodes of Contention and Strategic Action: Formation of the ONSP

The following year was to become the year under the DPJ when the Cabinet Office finally exerted some control, by taking over the QZSS program in a compromise that roughly followed “option three” of the original SSHP WG recommendations. In effect, in 2011 was to finish off some of the uncompleted work of 2009.

SAF 3 Proxy Position: Following the failure of the *Matsui Plan*, the DPJ attempted to rebuild the SHSP to assert Cabinet Office control over the QZSS program, at least. This strategic action was to be accomplished in phases of innovative action. The first phase was to establish what became the ONSP. This required re-amending the Cabinet Law. However, negotiating the Cabinet Law would require tremendous resources to avoid the common failure modalities of every other action – stalling committees and/or the packing of them with noncompliant appointees, turning them into talking shops, etc. Understanding the range and depth of hurdles ahead, allies of Matsui and Matsui himself, as we have seen, decided the best strategy was to take control of the QZSS program as the leverage towards establishing the principal of (at least some) Cabinet Office control. If this principal could be established, then it *might* be possible then to coordinate the Earth and marine observation program. The follow-on objective was then to reset the *Basic Plan 1* into a more feasible *Basic Plan 2*, that was at least able to fund the QZSS program and, if possible, the more ambitious global observation program that had been listed at the top of priorities in *Basic Plan 1*.

SAF 4: As well as the challenge of taking on the incumbency of MEXT, the post-Maehara SHSP itself was also subject to a challenge by METI, which was becoming increasingly impatient to maximize its opportunity, as it saw it. As noted, METI’s position was to place its long-prepared NEC-ASNARO dual-use satellite program, carefully nurtured in USEF as an alternative or addition to the Melco-based IGS constellation for EO. It is around this time that the global observation constellation also started being positioned for an MDA role as U.S. pressure on Japan to cooperate in this sphere began to wax. As we have seen, METI’s plan, offering what it saw much needed support for the struggling NEC, was to promote ASNARO as the basic constellation framework for the dual-use global observation system, already stalled through MEXT opposition because of the failure of the SHSP to coordinate the programs in 2009-10. Logically enough for METI, the ASNARO constellation could also be proposed for MDA. METI’s actions in the following episodes of contention can be described as moving from innovative action to attempted strategic action.

The subsequent direction of the SHSP to establish the principal of Cabinet Office control over part of the space program is best explained through the actions of the new and powerful 14-member Mk. II Experts Committee, chaired by Yoshiyuki Kasai, former Chairman of the Central Japan Railway Company, with the team behind the *Matsui Plan* (Matsui, Yakushiji, Nakasuka) at the core, with Hiroaki Akiyama, a microsatellite developer at Wakayama University, and with industry represented by MHI Chairman Kazuo Tsukuda, to retackle implementation of the *Basic Law*.

Behind this, there lay the will of Hirofumi Katase, an activist, committed senior METI officer, who had been appointed SHSP Deputy Secretary-General. Katase had a strong personal will to impose what he called “new thinking” on JAXA, which he regarded as over-bureaucratic and institutionally incapable of adapting itself to the new policy paradigm demanded by the *Basic Law*. Katase set out to, as he saw it, bring MEXT and JAXA into line to fulfill the industrialization objective of the *Basic Law*, with somewhat

of a personal mission to use the QZSS as a battering ram to establish a new principle of control over MEXT and JAXA.⁵¹

Out in front, and first of all, Yamakawa, one of the Matsui Committee's principal actors, was put in charge of SHSP, becoming the Director-General, and set about steering the new direction with Katase pushing constantly toward the new direction. Thus, under the new leadership of one of the *Matsui Plan* insurgents, the SHSP and decided to take collective and innovative action. For just one example, the SHSP decided to publicize a deadline to bring a conclusion to restructuring command and control by August 2011, putting MEXT under public pressure.

In an interview with the author at the beginning of his leadership of the SHSP, Yamakawa stated directly the deadlines and the objectives of the Mk. II SHSP to effect change. Diplomatically, Yamakawa blamed "political instability," or a lack of leadership for the defeat of the original *Matsui Plan*. But in February 2011 Yamakawa publicly reset the deadlines as, again, August of that year to achieve the reorganization.

Question: What's the biggest challenge the SHSP faces?

Yamakawa: The SHSP was created to coordinate activities among the 10 ministries involved in drafting budgets for space activities. Our challenge is that we have no authority to coordinate the budget, just policies. Another issue is the conservative nature of the ministries. If we come to them and say, "This can be done this way instead," or, "This is more efficient or effective," they still have the right to coordinate their own budget. So of course, the budget cannot be optimized for space policy.

Question: A DPJ-commissioned report last April recommended breaking up the Japan Aerospace Exploration Agency (JAXA) and establishing a new Cabinet-level space agency. What is your position?

Yamakawa: I have my own solution in terms of the reorganization, but as Secretary-General I cannot say what it is. Officially, I have to say the discussions continue at the special commission. I should add that there is not going to be a solution that will make everyone happy. We cannot think about the merit of one ministry. We have to think about the return for the country as a whole. There were four options in last year's report. The most conservative option was to strengthen the SHSP, and the most radical option was to merge everything into a single agency within the Cabinet Office. My personal opinion is that it would not be wise to undo the 2003 merger that created JAXA. But I think the whole governmental organization has to be optimized under a new agency. That's all I can say for now. I know I said 50-50, but by this summer some kind of reorganization can be done. Something will be done in that direction.

Question: What other issues is the SHSP wrestling with?

Yamakawa: The Basic Space Plan assumed an annual budget of 500 billion yen (\$6 billion) for 2009-2013. This year's budget is 300 billion yen and change, so there is a real gap between the projected figure and the real figure, and there is not enough money to do what was called for in the Basic Space Plan. We are in the middle of the first five-year plan now, so we have to revisit the Basic Space Plan as we prepare the budget proposal for next year. That is another very important task we have to complete by August.

Question: How strong is the DPJ's support for the SHSP?

⁵¹ In a February 17, 2012 interview, Katase said that he had been struggling hard for over a year to "change the culture" of MEXT in the SHSP and toward space policy in general, and to impose "new thinking" on it. In the interview, Katase gave a strong impression that MEXT and METI had fundamentally different cultures and mindsets, and that it would be METI that would impose its culture on the SHSP and space policy.

Yamakawa: I was one of the five members of the SHSP last year grappling with space policy and I met Foreign Minister Seiji Maehara, who was then state minister for space, and talked with him seven times. I thought we were following the same direction. Since this time last year, the number of DPJ politicians showing strong support for space is increasing. Their support is very strong.

Question: Will that support translate into a bigger space budget?

Yamakawa: If the reorganization succeeds, then doubling the budget, or at least reaching 500 billion yen, may be feasible. Reorganization and the budget increase are tied together. Without the reorganization, the other is impossible and nothing will be changed. Reorganization is not the final target. The final target is to maximize Japanese space activities, and to do that we need more budget. If we stay on the same trail as before, then nothing can be done.

Question: How soon could Japan's space spending grow to 500 billion yen?

Yamakawa: At the moment, the government can afford only about 300 billion yen. The remaining part can be partially bridged by growing Japan's private-sector space market. The private sector is facing a critical juncture. They have to launch a minimum of, say, four or more satellites and rockets a year to maintain their base. To do that, they have to rely on the government, but they also have to look to create new markets. The government is now strongly supporting these activities to expand the market. The final target of the Japanese government's annual space budget, together with the nongovernment market size, has to be about 500 billion yen, and that will take some time. Until we can get to that, we need a mixed strategy that includes government supporting industry.⁵²

As with the first incarnation of the SHSP, the Mk. II Experts Committee wasted little time in trying to implement changes toward solving the administrative reforms and redesigning *Basic Plan 1* towards what it hoped would be a more workable, coordinated *Basic Plan 2*. The first major move of the Experts Committee, in attempted innovative action (or an attempt to marshal resources to pursue collective action), was to constitute two new groups; one to investigate Japan's remote sensing needs to try to coordinate the global Earth and ocean observing constellation; and the QZSS Utilization Investigation Working Group (QZSS WG). This latter group was to become key to using the QZSS program as the wedge to establish partial Cabinet Office control, and featured the strong backing of Keidanren.

Thus, facing strong opposition from MEXT and JAXA to the *Matsui Plan*, the Mk. II Experts Committee staged a series of innovative actions targeted towards taking control of the QZSS program.⁵³ With the August 2011 deadline in mind, the Experts Committee embarked on innovative action in engaging in a comprehensive series of hearings from industry, ministries, academia and the user community build the authority and sense of competency of the leadership, and the process of negating MEXT.

This new approach reflected the attempted new style of political interaction by the DPJ with the civil service that was showcased through the very public nature of the *jigyō shiwake* hearings initiated at the beginning of the first Hatoyama administration, precluded by the explosive simplicity of the original *Matsui Plan*.

⁵² Paul Kallender-Umezu, "Profile: Hiroshi Yamakawa, Secretary General, Strategic Headquarters for Space Policy: Overhaul Overdue," *Space News*, 14 March 2011, p. 30.

⁵³ The various committees and reports are fully available in Japanese on the SHSP and CO website. Matsui has described the CO taking control of the QZSS to establish the precedent of CO control of a major space program, a vital wedge in leveraging MEXT from its position.

In the 1990s, minutes of SAC meetings were publicized amid very little interest to the media. The author would sit in committee after committee listening to the fine detail of the technical struggles with one program or the issues of another as the only journalist present. However, through the process of establishing control of the QZSS system, the innovative action by the DPJ-installed guerilla unit was to deliberately and explicitly involve much more public openness regarding documentations, meetings and proposals. At least in spirit, the guerilla unit sought to reflect the DPJ's desire to make policymaking more transparent by publicly opening the processes and progress of decision-making in committees. In terms of innovative action, the new approach can also be seen as part of a process of gaining leverage over MEXT. Thus, after scrapping and rebuilding the Experts Committee, the next innovative action stage for controlling the civil service response was setting up and populating with suitable staff a new experts committee, and making the progress of deliberations open to the public.

Having taken innovative action in setting up the QZSS WG, the staged approach involved using the committee to construct a pathway towards putting the Cabinet Office in control. The next key inflection point came in April 2011 when the QZSS WG recommended that Japan develop a robust satellite regional PNT system as an essential part of Japan's long-term space strategy. To enable this, the Experts Committee then conducted an exhaustive re-analysis of the opinions of ministries and industry. Discussions and coordination for this, particularly with MEXT, lasted until fall, when the Cabinet Office announced a scheme where it would at least be able to control budgeting and planning of the QZSS system, immediately backed by an initial ¥4.1 billion budget request for the following fiscal year to start building satellites.

Under the plan, the Cabinet Office initially set the goal by 2020 to build an initial system of four satellites that would provide 24-hour coverage that would provide the ability to offer regional augmentation to GPS, before moving on to building a seven-satellite system, with one or more satellites in geostationary orbit. Doing so would give Japan its own full independent PNT services. In terms of an SAF analysis, this report was highly significant because it also showed the new style of business involving direct political intervention at decisive moments.

In other words, the guerilla unit in the Cabinet Office was purposely fulfilling its mandate to build up power so that it could gain incumbency and achieve "option three" of the 2009 restructuring plan, and to reflect the wish of the original NSSPG of 2005 of direct political involvement in policy formulation. The decision therefore was sealed with a Cabinet Order under the new administration of Prime Minister Yoshihiko Noda on 30 September in the "Basic policy on the implementation of the operational Quasi-Zenith Satellite System (QZSS) project."⁵⁴

⁵⁴ Paul Kallender-Umezu, "Report Recommends Upgrading QZSS from Demo to Key System," *Space News*, 2 May 2011. The September decisions, including all-important Cabinet decisions on the QZSS and the future of the CO can be found in a raft of reports on the CO website: 実用準天頂衛星システム事業の推進の基本的な考え方 (本部決定) Jitsuyō Juntenchō Shisutemu Jigyō no Suishin no Kihon-teki na Kangaekata (Honbu Kettei) [Regarding the Basic Idea for the Promotion of a Practical Quasi-Zenith Satellite System (Headquarters' Decision)]; 宇宙空間の開発・利用の戦略的な推進体制の構築について (本部決定) Uchyū Kūkan · Riyō no Senryaku-teki na Suishin Taisei no Kōchiku ni Tsuite (Honbu Kettei) [Regarding Building a Strategic Framework to Promote Development and Utilization of Outer Space (Headquarters Decision)]; 実用準天頂衛星システム事業の推進の基本的な考え方 (閣議決定) Jitsuyō Juntenchō Shisutemu Jigyō no Suishin no Kihon-teki na Kangaekata (Kakugi Kettei) [Regarding the Basic Idea for the Promotion of a Practical Quasi-Zenith Satellite System (Cabinet Decision)]; and 宇宙空間の開発・利用の戦略的な推進体制の構築について (閣議決定) Uchyū Kūkan · Riyō no Senryaku-teki na Suishin Taisei no Kōchiku ni Tsuite (Kakugi Kettei) [Regarding Building a Strategic Framework to Promote Development and Utilization of Outer Space (Cabinet Decision)] at <http://www8.cao.go.jp/space/decision/kettei.html>.

The resolution devised in the Cabinet Office in the context of programmatic control and budgeting was at least highly significant, as costs for the system ranged from ¥170 billion for a four-satellite system to ¥260 billion for the seven-satellite system, meaning for the first time that the MOF had agreed to a significant amount of increased budget. This was designed, as we have seen, to be the first step toward the strategic goal of the *Basic Law* of finding pathways to increase the combined space activities budget to around ¥500 billion per year. In terms of a practical achievement in resolving the crisis of leadership in the early 2000s by installing new and superior body (the Cabinet Office) over the ministries, the taking over of the QZSS by the Cabinet Office was also propagandized as a breakthrough in establishing a new budget line that was not controlled by one particular ministry. The settlement did appear to be a significant gain. However, on the other hand, compared to original *Basic Law's* objective of a more thorough reform, this gain may also be characterized as a far from decisive step.⁵⁵

This is because this step was to prove unrepeatable when, in 2014, the METI dominated successor to the SHSP, the ONSP, tried to repeat the maneuver with the long-planned global EO program. In the shifting sands of institutional dynamics in the field of interministerial competition, the gain achieved by the Cabinet Office in achieving coordination over the QZSS had not, as of December 2017, translated beyond the QZSS.

The progress in achieving a Cabinet-level decision had been considerably aided by the incoming administration of Noda, who had played a major role in the DPJ's support of the *Basic Law*, and who had maintained a keen appreciation of the strategic value of space development, thus bringing the balance of the DPJ Cabinet in favor of reaching a long overdue but final decision. It was this extra pressure that forced a compromise. The September announcement, therefore, was a breakthrough in achieving at least one element of the *Basic Law*, as acknowledged by Prime Minister Noda himself: "Space development offers unlimited potential for the security of Japan and I have promised to develop a functional system in the second half this decade," Noda told the Japanese Diet in a nationally televised question and answer session held on 5 October 2011.⁵⁶

Matsui cast the achievement as a step towards a broader goal of establishing the principal toward the Cabinet Office at least "coordinating" space policy. As he said at the time: "The...*Michibiki* was the first major step, and now the September 30 decision was a major step toward a fully-functional [global

⁵⁵ See "Basic policy on the implementation of the operational Quasi-Zenith Satellite System (QZSS) project," Cabinet Decision on September 30, 2011, Cabinet Office: <http://www8.cao.go.jp/space/english/basicpolicy.html>. The text in English reads as follows: "The Quasi-Zenith Satellite System (QZSS) will strengthen industrial global competitiveness and make industry, daily life, and public administration more sophisticated and efficient. The QZSS will also contribute to the welfare of the Asia-Pacific region, an enhancement of Japan's presence there, strengthening the Japan-U.S. partnership, and a broad range of security including the improvement of the capacity to respond to natural disasters. Given the fact that other countries are already developing navigation satellite systems, the Government of Japan has decided to accelerate the deployment of the operational QZSS as expeditiously as possible. More specifically, four satellites constellation shall be established by the late 2010s. In the future, seven satellites constellation shall be completed to enable sustainable positioning. The Cabinet Office shall develop, deploy and operate the operational QZSS, based on the achievement of the first QZSS satellite (named "Michibiki"), and shall submit a budget request to cover relevant costs. The Cabinet Office shall coordinate with relevant ministries, agencies, and industries to promote this project at each stage of development, deployment, operation, utilization, and global dissemination. Legal amendments shall be made in order for the Cabinet Office to fulfill such a role in time for budget implementation. The implementation section in the Cabinet Office should be carefully established so as to avoid excessive organizational expansion of government administration."

⁵⁶ Paul Kallender-Umezu, "Japan Commits To Deploying Satellite Navigation System by 2020," *Space News*, 17 October 2011, p.14.

navigation satellite] system. In addition, the Cabinet is able to exercise leadership that crosses over interministerial responsibilities. Our function is now to coordinate these.”⁵⁷

MEXT publicly supported the decision. But MEXT saw the September 30 Cabinet decision in terms of a battle lost, or a concession from a position of power, not a major defeat. According to Goro Onoyama, then Deputy Director of MEXT’s Space and Aeronautics Policy Division, MEXT supported the Cabinet decision to the extent that it would enable MEXT to prosecute its role in development of the QZSS system: “We recognize that user ministries, the Cabinet Office at the core, will collaborate on the QZSS of practical use. We will help them effectively use what has been proved through the operation of the first QZSS.” Beyond this, Onoyama declined comment. This limited response spoke volumes. In effect, MEXT agreed because it could gain more budget.⁵⁸

In fact, gaining MEXT approval in the September agreement had only been achieved after highly public arm-twisting. What had happened was that an increasingly exasperated Special Committee had read MEXT the riot act. On June 30, the committee had published a mid-term report that represented carefully constructed ultimatum. After spending most of the spring and early summer engaging in innovative action in building consensus and negotiations with MEXT, building pressure to achieve an outcome so as not to fail, the SHSP felt it had no choice to call MEXT’s bluff. The June 30 mid-term report suggested that if MEXT failed to support the principle of Cabinet Office control of QZSS, the Special Committee would have no choice but to revisit the Uchūchō concept. The report was also remarkable because it directly “named and shamed” MEXT, stating that if nothing else could be done, the Cabinet Office would also take over about 30 percent of MEXT’s budget.⁵⁹

The key point in this episode of contention was whether the Cabinet Office’s implementation function of QZSS would mean jurisdiction over JAXA. As Anan put it: “Those in favor of centralizing the implementation and command functions in the Cabinet Office insisted that the Cabinet Office needed both functions to be a powerful organization leading Japan’s space policy. Those against centralization insisted that implementation be separated from command for a neutral and fair evaluation of the organization’s activities. This unresolved debate meant the (QZSS) report was not issued by the summer.”⁶⁰

The reaction to the June 30 report by MEXT was also direct and visceral, with a senior MEXT official telling the author directly that it was wholly unacceptable. The June 30 ultimatum therefore set the stage for a considerable amount of interministerial discussion, particularly by MEXT, to preserve its control over JAXA, and by METI to increase its influence, but with the process under considerable pressure by the DPJ to effect a settlement.⁶¹ In wresting agreement for the Cabinet Office to take over QZSS through the threat of engaging in a more fundamental reorganization and setting up a more

⁵⁷ Ibid.

⁵⁸ Ibid.

⁵⁹ According to the minutes of 17th meeting of Special Committee held on June 30, 2011 [See: <http://www.kantei.go.jp/jp/singi/utyuu/senmon/dai17/gijiyoushi.pdf>], the Office of Space Headquarters was willing to finish coordinating the content of the report with the Special Committee members and related ministries by late July. However, the Special Committee did not finish the report by the deadline, and it is unclear why it did not. The key points must have been conveyed to related ministries because the Cabinet made a decision on 30 September 2011.

⁶⁰ Anan (2013).

⁶¹ According to the minutes of 17th meeting of Special Committee held on June 30, 2011, Space Minister Koichiro Genba said, “I have heard of the current situation that [the discussion about space policy] is difficult to conclude and move forward. I would like to start the political process in order to decide the direction of the policy during my term [as Space Minister].” The strong-arm tactic was probably the work of Katase, who had grown extremely impatient with MEXT. Interview with SHSP senior figure who asked not to be named, 24 September 2014, Tokyo.

powerful Uchūchō directly attacking MEXT's budget, and in order for the necessity to show at least some progress, MEXT felt it clearly could yield a point of concession, the QZSS, but then shift the debate to protecting as much of its budget and control in the following debates towards deciding the role of the Cabinet Office in other areas.

Thus, the background to the September 30 decision might be characterized as something of a poker game between the guerilla group against MEXT in particular. There is one more point: the competing visions between the DPJ-backed leadership in the SHSP.

Said Matsui of the September 30 Cabinet Decision:

“It's almost everything we planned in terms of our “Plan B” [Plan A being the establishment of a small Uchūchō]. The budget is almost fixed. We will proceed on the basis of the understanding that we need to change the Cabinet Office. The first step is to reach a Cabinet Decision, this is essential. It's a step-by-step process. We will start working on the new structure of the space department within the Cabinet Office.

We need to discuss JAXA's position; which agency has the role control it. MEXT wants to control JAXA. The Cabinet Office will be a main ministry. We need to change the law to accommodate this, and JAXA's law. So now a “Department for Space” or something like that will be set up to control Japan's GPS system. Once that is started it is a step-by-step process. Prime Minister Noda is the person who will promote the new space law in the DPJ and he is willing to establish a new law. To do this we need to submit the law by the end of this year and need to change the law of the Cabinet Office. This process will start this month in October and be submitted early next year.

[Regarding the “Space Office:”]

The size and structure is subject to discussion. The debate will be held within our committee on promotion. Initially it is to control the QZSS but this is the first step of the very large bifurcation that will be established. The concern of MEXT was to reach a compromise and just get through the first step. Our concern is to initially control QZSS and try to expand and then start a new discussion and government effort to cut the number of IAAs under the Government Revitalization Unit.⁶²

Said Yamakawa:

“This Cabinet decision strengthens the functions of the SHSP on two points. First is the SHSP will coordinate policy and second it will have strengthened powers of implementation. It is not a full agency, however. The law will be passed in the next Diet session, maybe in April, maybe later, which will set up an office in the Cabinet Office. Right now, the SHSP belongs to the Cabinet Secretariat, nearer to the Prime Minister. Offices in the Secretariat are considered more tentative whereas offices in the Cabinet Office are considered more formal. We will have to establish a preparatory office as soon as possible.

It is essential to increase the QZSS to four satellites, with one in geostationary orbit with the possibility of a (military) encrypted signal. At least four are required for 24-hour coverage and at least seven are required for an independent and sustainable GPS system not only for Japan but for the South East Asian and Oceania region.⁶³

⁶² Author interview with Matsui, 5 October 2011, Tsudanuma, Chiba, Japan.

⁶³ Interview with Matsui, 6 October, 2011, Tokyo.

In summary, the period between the September decision, a 30 November 2011 pre-final, and a final 13 January 2012 Experts Committee meeting saw the concluding negotiations that led to a legal framework that would establish the ONSP.⁶⁴ Behind the discussions, however, the Special Committee and Cabinet Office adopted a new consensus that the Cabinet Office and Space Headquarters would decide the basic direction of organizational reform, an apparent significant advance showing how pressured MEXT felt, in what appeared to be a significant concession by it.⁶⁵

However, the failure to establish the principal of further institutional restructuring beyond establishing the control over the QZSS lay in the details of the post June 30 debates. This was because, following June 30, discussion subtly shifted ground on three premises:

1. That the Cabinet Office not be established through the consolidation of all space-related organizations;
2. That the Cabinet Office should consider “neutrality and fairness” when it decided how to divide the command and implementation functions among the administrative organizations, and;
3. Regarding jurisdiction over JAXA, the government must ensure the Cabinet Office had the authority to exercise its command function effectively considering the achievements that MEXT has already made as JAXA’s main competent ministry.

All this implied that MEXT would maintain its authority as the main competent ministry over JAXA while the relationship between the Cabinet Office and JAXA required yet more negotiation. From this, it is possible to interpret that MEXT’s negotiating position became one of ensuring that the Cabinet Office would only have a partial say over JAXA as one of a number of ministries, thus potentially diluting the Cabinet Office’s influence.

Following these debates, in January 2012, the Special Committee’s final report on the restructuring of the administrative arrangements for space policy indicated that JAXA be open to cooperation other ministries. To achieve this, a Cabinet Order was necessary to introduce a new mechanism in which competent ministers in addition to the MEXT minister would have a say on the policy direction of JAXA, including METI and MIC. The legislation would also include the provision that the MOD could join as a competent minister if it required later. In this setup, the competent ministers at least had the right to initiate development programs using JAXA.

Establishment of the ONSP

On 20 June 2012, Japan’s Upper House passed the “Partial Revision of the Cabinet Office Establishment Act, etc.” (Law 35 of 2012) enabling Cabinet Office to take more control of the planning of Japan’s

⁶⁴ The interpretations of these events, particularly using CO control of the QZSS as a battering ram are based on a series of interviews with Matsui, 30 August 2011, 6 September 2011, 8 September 2011, 3 October 2011 and 17 January 2012. Within these the all-important pre-final decision on the shape of the bill and thus the law, was reached by the January 13 decision announced at the 「宇宙開発戦略本部 宇宙開発戦略専門調査会 第 21 回会合 議事次第」 “Uchyū Kaihatsu Senryaku Honbu Uchyū Kaihatsu Senryaku Senmon Chōsakai Dai 21 Kaikaigō [Strategic Headquarters for Space Policy Space Development Strategy Experts Committee 21st Meeting Agenda],” with the key announcement being 「宇宙空間の開発・利用の戦略的な推進体制について(専門調査会報告書案)」 “Uchyū Kūkan · Riyō no Senryaku-teki na Suishin Taisei ni Tsuite (Senmon Chōsakai Kōkousho An) [Regarding Building a Strategic Framework to Promote Development and Utilization of Outer Space (Report by the Experts Committee)]” at: <http://www.kantei.go.jp/jp/singi/utyuu/senmon/dai21/gjjsidai.html>.

⁶⁵ Uchu Kūkan no Kaihatsu / Riyō no Senryaku Teki na Suishin Taisei no Kōchiku ni Tsuite [About the establishment of the strategic promotion regime of the development and use of outer space], Tokyo, 30 September 2011. See: http://www.kantei.go.jp/jp/singi/utyuu/pdf/honbu_taisei.pdf.

government space programs.⁶⁶ In terms of administrative and institutional dynamics, the law enabled the Cabinet Office to set up the SPC reporting directly to the Prime Minister that was to be tasked to provide policy, program prioritization and budgeting *recommendations* for the overall space program. The ONSP was given the power to redraw *Basic Plan 1* and communicate budgetary prioritization to the line ministries.⁹⁷⁶⁷

The legislation clearly represented a break from the past, as seen in the final rounds discussions of the fall of 2011. But it also involved a compromise between competing aims and objectives of SAF 3 and SAF 4 interaction. The principal of direct intervention of SAF 3 over SAF matters had been established by Prime Minister Noda. This was to be repeated subsequently in the following Abe administration where senior figures in the ONSP, including Matsui, would personally update the Prime Minister at dinner appointments. Such actions show at least how important implementing the *Basic Law* had become to Abe, and how important space policy had become to national security and the U.S.-Japan alliance. Backtracking a little, the establishment of the ONSP also arguably can be seen as a partially but not fully successful strategic action because it failed to give the ONSP full power of incumbency over MEXT. To explain this, Chapter 9 analyses the law and its implications regarding the administrative dynamics between the ONSP and, in particular MEXT and METI in resolving the balance of responsibilities between them, and of the retention of power of MEXT's influence over JAXA in relationship to the ONSP and METI, and lastly, METI's attempt to exert its own influence in the ONSP.

The law setting up the ONSP can be divided into several sections dealing with the establishment of the SPC and the legislation required to amend the role of the Cabinet Office to accommodate the change; setting up the ONSP, those delineating its new role, and those showing necessary shifts in the extant role administration and legal framework to accommodate the changes. A major proportion of the law dealt with the intricacies of establishing ONSP authority to enable it to prosecute its coordination duties.

The law appeared to grant the ONSP a much greater role in planning of space development and space applications in line with the *Basic Law*; the authority to coordinate all the other space related government organs involved in space; and the authority to promote programs and development except for those belonging to each specific ministry. The law also underscored the ONSP's authority by establishing the SPC within the ONSP so that, via the SPC, the ONSP would make key *recommendations* on program prioritization, scheduling and budget. The SPC was to serve as the top advisory committee for space policy with support from the ONSP and comprised seven or fewer part-time expert members and to investigate and deliberate on the follow-on *Basic Plan 2* and budgetary prioritization in response the

⁶⁶ Author's translation: the actual name of the law is 「内閣府設置法等の一部を改正する法律 法律第35号（平成24年）」 Naikakufu Sechi Hō Nado No Ichibu wo Kaisei Suru Hōritsu Dai- Sanju Go Gō, [Partial Revision of the Cabinet Office Establishment Act Law 35] which was based on, and almost completely unchanged from a bill sent to the Lower House on 14 February 2012. Both the bill 「内閣府設置法等の一部を改正する法律案（閣議決定）」 Naikakufu Sechi Hō Nado No Ichibu wo Kaisei Suru Hōritsu An (Kakugi Kettei) [Partial Revision of the Cabinet Office Establishment Bill (Cabinet Decision)] and supplementary materials, including preceding legislation (Japanese only) can be downloaded at Secretariat for the Strategic Headquarters for Space Policy (SHSP) homepage: <http://www.kantei.go.jp/jp/singi/utyuu/index.html>. A convenient summary of the Cabinet Office's new role and responsibilities can be found at: 「内閣府設置法（抄）」 Naikakufu Sechi Hō (Shō) [Cabinet Office Establishment Act (Excerpt)] at: <http://www8.cao.go.jp/space/cao/jurisdiction.html>.

⁶⁷ Space Policy Commission and Space Strategy Office are the author's own translation of the Japanese 「宇宙政策委員会」 Uchū Seisaku Inkai and 「宇宙戦略室」 Uchū Senryaku Shitsu, respectively. The investigation in this study was based on brief overview provided by the SHSP:

(<http://www.kantei.go.jp/jp/singi/utyuu/kettei/120214/gaiyou.pdf>)

(<http://www.kantei.go.jp/jp/singi/utyuu/kettei/120214/youkou.pdf>)

(http://www.kantei.go.jp/jp/singi/utyuu/kettei/120214/an_riyu.pdf)

Prime Minister's requests. Importantly, while the Prime Minister would be final arbiter, the opinions and recommendations of key ministers were to be heard in the SPC. Against this, the SPC's recommendations and opinions did not have legally binding power.⁶⁸

The legislation also contained revisions that impacted MEXT and JAXA to accommodate the changes. The law sought to (and seemed to) put JAXA specifically in a new relationship with the ONSP and other ministries. This was part of the attempt by the authors to dilute the relationship between MEXT over JAXA, so that JAXA's policy formulation could be better coordinated (or integrated) with that of the Cabinet Office. In the context of strategic policy formulation beyond JAXA, this, it was hoped, would smooth the formulation of a workable *Basic Plan 2*. The law also contained several key stipulations that seemed to direct that JAXA's programs be aimed away from R&D and more towards applications that "reflected user needs," and stated that JAXA's mid-term goals reflect those coordinated by the ONSP. The legislation also abolished the venerable SAC.⁶⁹ Subsequently, in July 2012, the Cabinet Office moved quickly to set up the ONSP with just over twenty members and a seven-member SPC, in time for the new structure to begin its work preparing for the 2013 budget.⁷⁰

In detailing the nuances and complexities of the clauses of the ONSP establishment law and their real meanings for shifting balances of power in policymaking away from MEXT and JAXA it can already be seen that, from the point of view of the overall objective of asserting ONSP policymaking over MEXT, the law had many insufficiencies. In yet more detail, it can be seen that law lacked in a level of specification required to definitively delineate any one institution as controlling JAXA, which was to be co-administered by MEXT and the MIC, but with significant input and program jurisdictional rights from the ONSP and METI. From the point of view of the Cabinet Office, then, the law implied that MEXT ceded *some* of its *exclusive* control of JAXA and space policy through loosing SAC and accepting the input of other ministries. But on closer examination, it became apparent that MEXT would continue to play a key role in recommending policy for JAXA, while the Cabinet Office would try to exercise a much stronger coordination and policy role.⁷¹

In terms of the context of the four options for administrative reform formulated by the original SHSP restructuring WG report of 2009, the conclusions reached in 2011 appeared, then, to deliver something not quite as conclusively taking power away from MEXT as intended in the original "third option." But it did imply a not insignificant shift of power to the Cabinet Office through the ONSP. Thus, the ONSP was given two key functions, coordination and implementation.

This was interpreted by ONSP as giving it the means to stop JAXA from proposing a specific mission or program if that program was not adjudged to be in line with the ONSP's priorities, which were to be drawn up in *Basic Plan 2*. Ultimately, ONSP saw itself in the position to exercise the last say over a

⁶⁸ This section also contains some interpretation of the significance of the elements of the law, based on a series of interviews with Yamakawa and Matsui.

⁶⁹ Interview with Hiroshi Yamakawa, 16 January 2012.

⁷⁰ Paul Kallender-Umezu "Japan Moves to Relax Restrictions on Military Space Development," *Defense News*, 23 January 2012; Paul Kallender-Umezu, "Japan Passes Law Permitting Military Space Development," *Defense News*, 22 June 2012; Paul Kallender-Umezu, "Japan Passes Overhaul of Space Management Structure," *Space News*, 2 July 2012; and Paul Kallender-Umezu, "Japan Centralizes Control Of Nation's Space Programs," *Space News*, 23 July 2012.

The Space Policy Commission members were formally announced July 20 on the Cabinet Office's website: <http://www8.cao.go.jp/space/index.html>.

⁷¹ In fact, Suzuki argues that the Cabinet Office had already taken administrative control of budget negotiations with the Ministry of Finance in the 2011 budget formulation. However, without the enactment of the law and the setting up of the Space Strategy Office and the SPC, the Cabinet Office lacked the teeth to make major alterations to JAXA and MEXT space policy and budget. Author interview with Suzuki, 16 April 2012.

certain program. While vague, the authority to control the budget and the planning of operation of projects promoted by multiple ministries was interpreted as giving the ONSP control of QZSS promotion, and, more significantly, the ONSP was given the power to propose its own programs. But this was hedged with an important caveat: that the program not be confined to a single ministry. This caveat was to prove a critical issue when the ONSP under METI leadership tried to extend its control over the global land and EO system, combining both JAXA and METI satellites. This coordination crisis was to become a major episode of contention and lead to the necessity of more strategic action by SAF 3 in the form of the Imazu intervention.

Regarding JAXA, in the fine detail of the law, the interpretation was understood along the lines that the MEXT Minister would still officially deal with JAXA as was, but, with the caveat that JAXA should remain Japan's core space development organization, and MEXT would retain significant power over it as a lead ministry. Thus, despite the strong push of the Executive Committee through 2011, the amendment did not change JAXA's competent ministry. In fact, Item 1, Paragraph 1, Article 26 of the amended JAXA act remained intact and stipulated that only MEXT managed matters relating to executives and employees, finance and accounting, and other administrative management.

Within this lay the point negotiated in the Executive Committee which explored the possibility of giving authority to the Cabinet Office as a second main competent ministry, but ended up acquiescing to the general rule that there should be only one competent ministry. Thus, instead of becoming a competent ministry, the Cabinet Office through the ONSP gained authority to participate in the jurisdiction of JAXA by virtue of the Prime Minister becoming one of the competent ministers.⁷²

Under this understanding, since the Prime Minister is the chief of the Cabinet Office, the Cabinet Office through the ONSP was given authority to oversee JAXA via the Prime Minister so that together with the ministers of the MEXT and MIC, the Prime Minister was given the power to direct the promotion of space use through JAXA. Thus, under the new regime, with the co-jurisdiction other ministries, other ministries, notably METI, would be able to promote their own programs using JAXA, if approved by the ONSP. The Prime Minister as head of the Cabinet Office, and both METI and MIC Ministers were entitled to submit their opinions dealing with future planning.

Within this, however, lay yet *another* important caveat. In order to gain leverage over JAXA, the ONSP would have to gain a consensus among other ministries using JAXA-developed satellites. And under this lay yet another trapdoor: for space science, the ISAS portion of JAXA promoting astronomy and asteroid exploration, continued to be exclusively under MEXT's jurisdiction.

All this can be summarized as putting the ONSP in a difficult position in terms of executing full incumbent control over SAF 4. In terms of the SAF framework, it can be said that a rolling series of episodes of contention had, instead of leading to field settlement, resulted in another contested area in which the ONSP would need to see if it could then develop a strategy to budget the stalled global ocean and EO program. However, tactically, the ONSP's main priority was logically, first and foremost, to secure adequate budget to promote the QZSS. Then second, more strategically, it was behooved to draw up a new *Basic Plan* – this time with MOF approval. Thus, *Basic Plan 2* and its budgeting and implementation became the next episode of contention between MEXT/JAXA and what was to play out as a failed attempted strategic action by METI to take over the ONSP.

⁷² Anan (2013), p. 212.

Chapter 9

Contention, Strategic Action & Field Settlement 2012-16

Introduction

This chapter is basically the story of how a new version of the SAC was established to take control of space policy and planning after a decade of confusion, and how space policy was fundamentally changed to become an important part of national security strategy.

The establishment of the ONSP was achieved through a final push involving the direct intervention of Prime Minister Noda. But as noted, the establishment of the ONSP, rather than representing field settlement, was perhaps only really another significant step toward field settlement as represented in the compromises that comprised *Basic Plan 2016*. In a nutshell, when the ONSP failed in 2012 to achieve workable workshares between competitive ministries, specifically MEXT and METI, once again another prime minister, Shinzō Abe, stepped in decisively, meeting members of the SPC and telling them they only had a certain amount of time to draw up a *Basic Plan* that met the LDP's new requirement, or face further sanction. As was suggested at the end of the previous chapter, the actions of the sitting prime minister in the Cabinet Office would be vital to suggest new programs in JAXA through MEXT, as the prime minister himself (or herself) had become a competent minister. In this way, the SPC, as an "evolved" SAC, represented a new phase in policymaking in Japan, where the principal of direct prime ministerial involvement could be extended deeper into SAF 4 and 5 – at least in theory.

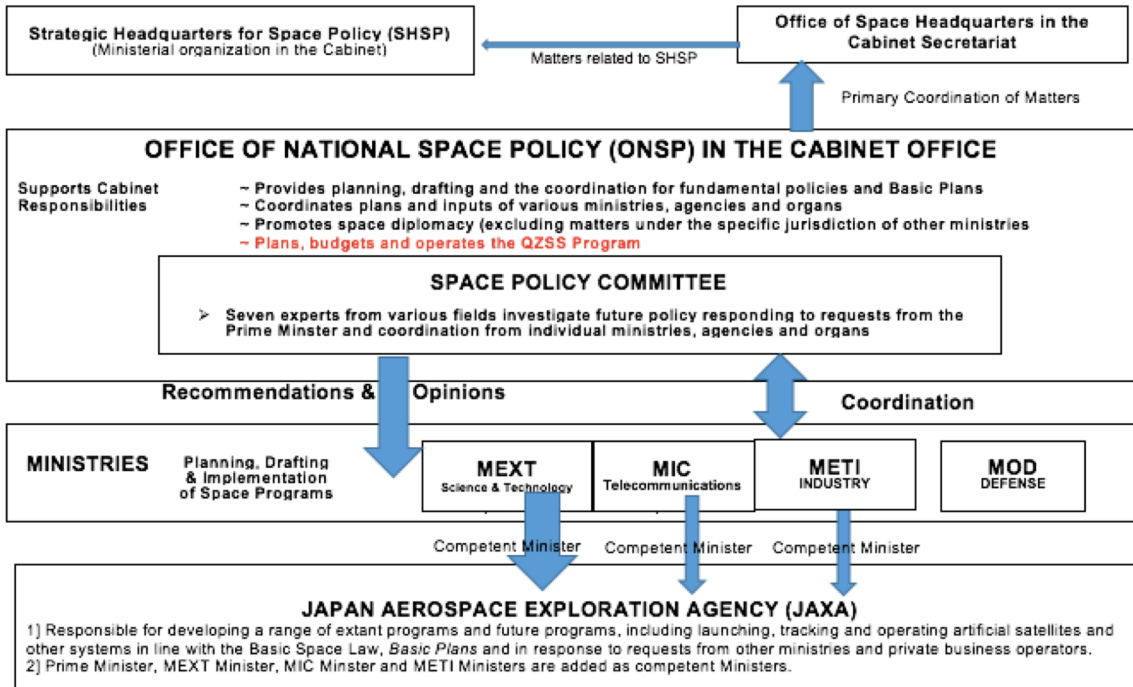
In more precise analytical terms, the strategic action within the SHSP by the core group of DPJ appointees and Katase to form the ONSP marked a brand-new stage in Japan's space policymaking and administrative framework. From it, it is possible to create a new General Space Activities SAF, similar to the schema shown in Chapter 1. The most salient point about this SAF is that it represents a settlement – but a potentially unstable one – in which an activist prime minister may be needed to break deadlock in the future. This chapter, then, comprises an analysis exploring the characteristics of the new General Space Activities SAF born out of the episodes of contention that formed it, the competitive tensions within in it, the resultant episodes of contention, and the partial field settlement.

In conventional narrative terms, this is the story of how the bargaining and compromises made in the writing of the Partial Revision of the Act for Establishment of the Cabinet Office that created the ONSP allowed it to take control of managing and budgeting the QZSS system, but basically also left further extension of its policymaking powers "up for grabs." The narrative is as follows: as the ONSP was formed, the next major episode of contention was over the funding and control of the global EO/ maritime observation system, which had been shelved since 2009; then there was the attempt by METI to take over the ONSP and the program and bend space policy its way. The failure to coordinate this then led to strategic action by SAF 3 in the form of the Imazu intervention, which led to today's (perhaps partial) settlement.

A closer look at the following schema shows the essential problem the SPC faced (and, perhaps, faces). Apart from the inclusion of the MOD, the all-important point is the "triple" ministerial control over JAXA by MEXT, MIC and METI, indicating the potential complexities of coordination and the fact that JAXA is supposed to "respond" to the requests of other ministries. But JAXA was still very much the creature of MEXT, and the "dual control" of JAXA functionally means the opposite. Because JAXA is the main implementing agency with its own built up and embedded rules, procedures and norms, working through it may only serve to bolster its power. Looking at the preponderance of dual-use programs

controlled by JAXA in 2017-2018, this very much looks to be the case. JAXA and MEXT look very much to have become the benefactor of the logic of consequences.

Figure 30: Space Activities Policy and Coordination Framework 2012~



SAFs 3 and 4: The critical point here is the compromises that were agreed to boiled down to the fact that the ONSP had only negotiated control of the QZSS system, so this left budgeting and control of the global maritime and EO system as an area of contestation for the next *Basic Plan*, *Basic Plan 2*. In short, this pitted MEXT against METI, or rather METI against *everyone else*, as METI attempted and failed to exert its own strategic action to take control of the ONSP. The failure to resolve disagreements between MEXT, METI and the ONSP over which satellites to use and how to fund the global maritime and EO system led to a major defeat of *Basic Plan 2* when the MOF refused to fund that specific proposal, noting disagreement and discord between the competing ministries.

The first generation ONSP was set up with senior METI official Junya Nishimoto, previously Deputy Director-General for Industrial Science and Technology and Environment, and former Director of METI’s Space Industry Office, as Director-General. This signaled a more direct and activist role by METI in the ONSP. Yamakawa, while notionally from MEXT, was at core an ISAS man and a scientist, and used to the culture of ISAS, in which small committees of expert scientists make decisions – very different from the bureaucratic culture of the NASDA culture which permeated JAXA.

Nishimoto’s background was pure METI, which had been increasingly anxious through the mid 1990s onwards to garner more funds for applications to support satellite makers in particular. This translated, following the *Basic Law*, into a broader strategy where METI wanted play a major role in the new policy paradigm of industrialization. Nishimoto’s appointment was balanced, however, by the fact that his Deputy Director-General was a senior MEXT official, Yoshinari Akeno, who was formerly Director of MEXT’s Nuclear Safety Division.

The composition of the SPC, announced July 20, chaired by Kasai, who also chaired the SHSP’s DPJ Mk. II Experts Group, also signaled that the ONSP was designed to deliver a space policy that fulfilled the *Basic Law*. Under Kasai, for its remaining six members, the SPC retained fully three authors of the 2010 *Matsui Plan* (Matsui, Yamakawa and Nakasuka). They were joined by Keio University’s Professor Setsuko Aoki, a leading international space law expert, to attempt to move forward with the coordination of the Space Activities Act. The final member was former JAXA astronaut Naoko Yamazaki.

Administratively, the SPC was tasked to complete Space Activities Act by the end of fiscal 2012 (March 2013) and in 2013 draw up *Basic Plan 2*, which was subsequently delivered in January 2013. The “Space Diplomacy and Security, Topics and Future Consideration” policy document drawn up by the SHSP in September 2012 showed that the ONSP was setting new priorities. The key hierarchy of policy was as follows:

Table 7: Key Priorities for the ONSP in 2012

| |
|---|
| OVERALL PRIORITIES |
| <ol style="list-style-type: none"> 1. Strengthen cooperation with the U.S. 2. Form and build partnerships with developing countries by using space investment and technology transfer to mitigate threats. 3. Flexibly use the range of space technologies already developed to improve ISR & BMD. |
| KEY RECOMMENDATIONS |
| <ol style="list-style-type: none"> 1. Improve and supplement reconnaissance functions for earlier warning and threat analysis over a wide geographical area. 2. Improve military communications for the MOD. 3. Investigate use of QZSS by the SDF. 4. Create an integrated, multi-country platform for space based disaster monitoring and security applications. 5. Improve the ability to detect ICBMs. 6. Improve the ability of IGS. |
| DIPLOMACY |
| <ol style="list-style-type: none"> 1. How to execute the 12 June 2011 2+2 agreement to cooperate more closely on SSA, satellite navigation, space-based MDA and the utilization of dual-use sensors. 2. Promote the International Code of Conduct for Outer Space Activities promoted by Europe in October 2012 while supporting the U.S. 3. Promote “package solutions” for technology transfer, infrastructure and partnership building with developing countries. |

The resulting *Basic Plan 2* was divided into four main chapters, which clearly reflected the new influence of both METI and the original Matsui reformers in its objectives, structure and program prioritization.¹ *Basic Plan 2* could be called a “METI-flavored” version of *Basic Plan 1*. First of all, as if to signal the desired direction of the new policy goals under the new regime, *Basic Plan 2* opens with a preamble explaining the fact the Prime Minister is now a competent minister of JAXA, and even though JAXA is positioned as the core development agency, the Prime Minister and the MEXT Minister “play a major role in promoting industry through JAXA.” This new addition shows the importance placed by the ONSP on the idea that the ONSP was ultimately serving the prime minister, and by inference, not MEXT.

¹ This summary comprises the author’s own translation in conjunction with English based briefing papers provided to the author by the ONSP and the budgetary and planning document 「新たな宇宙基本計画について 平成25年2月内閣府宇宙戦略室, ‘Arata-na Uchū Kihon Keikaku ni tsuite, Heisei 25 nen 2 gatsu Naikakufu Uchu Senryaku Shitsu, Concerning Japan’s Basic Plan for Space, Office of National Space Strategy, Prime Minister’s Cabinet Office, February 2013.’ The English language version is called the “Basic Plan on Space Policy, 25 January 2013, Established by Strategic Headquarters for Space Policy, Government of Japan,” <http://www8.cao.go.jp/space/plan/plan-eng.pdf>.

Table 8: Points Emphasized to Enact the *Basic Law* in *Basic Plan 2*

| | |
|-----------|--|
| Chapter 1 | Rights and obligations of the various entities involved with space development, with ONSP positioning itself as the final arbiter of which programs were to get developed and when, and JAXA the main implementing agency serving the needs of the Cabinet Office, MEXT, MIC and METI. ² |
| Chapter 2 | <p style="text-align: center;">Overall Goals</p> <ol style="list-style-type: none"> 1. National security and disaster management. 2. Industrial development. <p style="text-align: center;">Six Main Pillars</p> <ol style="list-style-type: none"> 1. Peaceful use built on strengthening C4ISR, bolstering the IGS system, apply national security-related technologies; bolster SSA. 2. Improvement of lives through QZSS. 3. Development of industry which has shrunk to ¥260 billion and 7,000 employees from ¥350 billion and 10,000 workers in the latter 1990s. 4. Prosperity of human society through space science. 5. Promotion of international cooperation and emphasise disaster monitoring in Asia through PPPs and support the ICoC. 6. Environment- address the space debris problem. |
| Chapter 3 | <p style="text-align: center;">Four Social Infrastructures Program Priorities</p> <p>QZSS Social Infrastructure for expanding the use of space and ensuring autonomy, but also enhancing the U.S.-Japan alliance with a 5-year goal and 10-year development plan.</p> <p>Emphasise building a regional Asian observation system in partnership with private business focusing on the ASNARO system.</p> <p>Focus communication satellite technologies to support national security and disaster management.</p> <p>Rockets: discuss the need for an H-III and the role of the <i>Epsilon</i>; look into air-launch; re-entry systems, hypersonic flight.</p> |
| Chapter 4 | <p style="text-align: center;">Promotion of Measures</p> <p>JAXA with making a mid-term goal (5 years) based on <i>Basic Plan 2</i>.</p> <p>Procedures to more effectively cost and evaluate space programs.</p> <p>Ensure all government stakeholders (again CO, MIC, MEXT, METI) cooperate.</p> <p>Assess the efficiency of implementation of space programs.</p> <p>Link space policy effectively with defense needs and the Science and Technology Basic Plan.³</p> |

The point that an entire chapter of *Basic Plan 2* is devoted to the rights and obligations of the players is more than semantically interesting. The chapter reads almost as if it is a mission statement and a declaration of intent by the drafters to lay down officially, almost to propagandize, the concept and the reality (it was hoped?) of the ONSP's rights to exert policy influence over JAXA. In this sense, or in terms of the SAF framework, the opening chapter appears to be a conscious act of social appropriation leading to innovative collective action, as described back in Figure 14. A more interesting question might be to ask whether the ONSP was really at this point the challenger or the incumbent. It could be argued that until *Basic Plan 3* was fully timetabled in *Basic Plan 2016*, the ONSP itself might be characterized as the challenger and MEXT the incumbent in practical terms.

² The complete text reads: "Japan Aerospace Exploration Agency (JAXA) has been positioned as the core organization that provides technical support for the entire governmental development and utilization of space projects. It is stipulated in law that JAXA's Mid-Term Goal should be based on the Basic Plan on Space Policy. (Article 19, Law concerning the Japan Aerospace Exploration Agency). JAXA is therefore supposed to make necessary contributions to the governmental space policies specified in the Basic Plan. On this basis, the Prime Minister, as the head of the Cabinet Office which is responsible for the administrative work for the promotion of space utilization, has now become one of the competent ministers of JAXA. (Articles 18 and 26, Law concerning the Japan Aerospace Exploration Agency). In addition, JAXA has begun to do support work, such as giving advice to private enterprises upon their requests. Now the Prime Minister and the Minister of Economy, Trade and Industry play a major role in promoting industry through JAXA in cooperation with the Minister of Education, Culture, Sports, Science and Technology and the Minister of Internal Affairs and Communications. (Articles 18 and 26, Law concerning the Japan Aerospace Exploration Agency)."

³ For the NDGP, see below. For the full English translation of the AUGI (Act No. 63) of 30 May 2007, see Basic Act on the Advancement of Utilizing Geospatial Information on the Geospatial Information Authority of Japan's website: <http://www.gsi.go.jp/kokusaikoryu/kokusaikoryu-e30004.html>.

Then, in terms of the semantic interpretations that can be applied to the policy hierarchy, the inclusion of the idea of “disaster management” and “industrial development” look very much like code words for the METI-ASNARO program, since “disaster management” was a very important rubric of the system’s proposed rationale. This is also reinforced further by the idea of the promotion of international cooperation and the emphasis on “disaster monitoring in Asia,” which again, very much conforms to METI’s vision (supported by Keidanren) of also selling ASNARO systems to emerging economies, especially (but not exclusively) focused on South East Asia.

SAFs 1-3: As we have seen, as part of its rebalance strategy, the U.S. had been requesting that Japan coordinate its space policy with U.S. strategy, and following the June 2011 Japan-U.S. Security Consultative Committee (2+2), space policy coordination started to become a key alliance agenda item, at least for the U.S., with the U.S. in particular requesting Japan to improve its SSA contribution and work on an MDA solution with the U.S.⁴ In the 2011 meeting, the U.S. and Japan agreed to examine cooperation between the countries on PNT systems (basically this meant integrating the QZSS system with GPS), SSA, adding a space-based component to MDA, and utilization of dual-use sensors, mainly in the context of space-based early warning systems, to enhance BMD. This platform, then comprised the U.S. response, a sort of shopping list of demands in the face of an emerging consensus between Japan and the U.S. that Japan’s space activities should support the U.S. on security issues, and on how to implement the space security policies of the two nations based on the *Basic Law*.

SAF 3 & 4: “METI’s Basic Plan:” As noted a few paragraphs above, *Basic Plan 2* reinstated and reinforced a hierarchy of importance that pushed JAXA’s traditional space science and human spaceflight programs to second-order priorities. Secondly, as so many of Japan’s first-priority programs were to be inherently dual-use and adaptable for national security purposes, *Basic Plan 2* had travelled some clear distance beyond *Basic Plan 1* in emphasizing national security and the promotion of industrialization. Thirdly, the influence of closer coordination with the U.S. was seen with SSA cooperation.

As noted, promoting industrialization and national security combined the interlinked goals of adding and extending the global EO/ ocean-cum-“disaster monitoring” observation system to the QZSS program under the Cabinet Office through promoting METI’s support of the ASNARO system and its builder, NEC, working in tandem with JAXA satellites. This effectively meant that the global EO/ maritime observation system was the next discussion topic. The elephant in the room, or the main point of contestation would be which player would get the budget. This then brought METI into a direct confrontation with MEXT through a proxy battle waged in the ONSP.

Further METI influences and the input of industry can be seen everywhere in *Basic Plan 2*, in the personnel, the structure of the SPC, and in the Space Industry Subcommittee, which played a critical role in promoting the successor to *Basic Plan 1*’s global EO maritime observation system, now renamed in English the “wide-area monitoring” program, which, under METI preference was to use a combination of ASNARO and other satellites as a new, and in the context of the overall scale of Japan’s space development standards, a massive nine-satellite project.

This change was effected by METI’s packing of the ONSP with its staff. For the 2012-era “Mk. II” ONSP, METI had seconded six, and the MOD four staff, respectively, to the twenty three-member office, with MEXT only providing four members (with the remainder shared by other ministries). Key industrial

⁴ The texts of the various agreements can be found on MOFA’s webpage: “Japan-U.S. Security Consultative Committee (2+2)” at: <http://www.mofa.go.jp/region/n-america/us/security/scc/>.

interests also populated the twelve-member Space Industry Subcommittee, including former Melco and USEF Chairman Setsuhiro Shimomura, who led Keidanren's SAPC, and former NEC Senior Vice President, and Keidanren Space Development Applications Promotion Committee Application Subcommittee Chairperson Tomonori Nishimura.⁵ Industrialization and national security space were at the core of policy. Fieldwork with ONSP officials at this time confirmed the METI flavor of the ONSP. In interviews conducted during these developments, seconded METI official and ONSP director Hirotohi Kunitomo was openly and frankly highly dismissive of both JAXA and MEXT's position. Kunitomo called the upcoming *Basic Plan* as a "last chance" to invest strategically in industry, primarily through QZSS and wide-area monitoring constellation.⁶ Following the establishment of the ONSP, as noted, the MOD seconded four staff to begin, for the first time, to be involved in daily planning and coordination of space policy. The foundation of the ONSP gave the MOD several options:

1. It could try to more directly work with JAXA for major new military space programs.
2. If it wished could join the MIC and METI ministers, for example, to assert "dual control" over JAXA and use it as a tool to develop new research or development programs.
3. It could also use JAXA expertise to assess programs it seeks to research or develop "in house."

Another option for the MOD would be to directly work with favored contractors, employing JAXA in a technical and advisory/ consultative role. However, the MOD's main strategy was to forge connections with JAXA to learn how the two very different organizations, with completely different cultures and approaches, could work together, while the MOD spent a minimal budget and focused on researching technologies.⁷ The MOD's logical strategy, then, was to piggyback off the new institutional and policy structures, i.e., specifically to make sure another ministry paid, reflecting the MOD's arms-length stance.

In addition, for the MOD exclusively, *Basic Plan 2* did help produce one major deliverable, a Private Finance Initiative funding scheme that minimized the MOD's budget outlay for a dedicated, hardened and modern communications satellites with improved bandwidth and encryption, ending the SDF's 30-year relationship of leasing commercial transponders.⁸ Further ongoing negotiations would also lead to the QZSS regional-wide PNT system with an encrypted channel providing it with its own centimeter-level-capable (at least over the Japanese archipelago) PNT and, for the U.S., a backup to GPS. The MOD would also be a primary customer for the emerging dual-use "wide-area" MDA constellation, for example, *if* coordination could be achieved; and the MOD would cooperate on SSA.

However, unsurprisingly, the ONSP's internal coordination failed. The ONSP held dozens of meetings in the arrangements leading up to the budget request for *Basic Plan 2* in which the MOD

⁵ 宇宙政策委員会 宇宙産業部会 委員名簿 Members List of the Space Industry Subcommittee, Space Policy Commission: <http://www8.cao.go.jp/space/committee/sangyou-dai1/gijisidai.html>.

⁶ In a series of interviews with Kunitomo (12, 26 March, 02 April 2013). For a profile of Kunitomo and interesting facts on ONSP's view of QZSS, see "Michibiki Enables New Positioning Services, The Office of National Space Policy and the Development of the Quasi-Zenith Satellite System," Hirotohi Kunitomo, Director, Office of National Space Policy: http://www.jaxa.jp/article/special/michibiki/kunitomo_e.html.

⁷ Kunitomo stressed that it would be "no problem" for the MOD to attach a senior defense bureaucrat, or even the defense minister himself or herself to utilize JAXA should it be necessary, for example, if a decision was taken to embark on a major new development program requiring JAXA's extensive expertise and competencies.

⁸ Paul Kallender-Umezu, "Japan Asks Industry to Finance Military Support Satellite," *Space News*, 13 February 2012; Defense Programs and Budget of Japan, Ministry of Defense Overview of FY2014 Budget, p. 16.

participated, but MOD never wavered from its two main priorities; improved ISR and communication as first priority, while supporting the ONSP in its attempts to control the QZSS system, which would be highly beneficial for the MOD, as shown by the unchanging contents of the MOD's submissions through the lengthy coordination attempts. As the METI-centric ASNARO-based wide-area (dual-use for MDA) constellation proposal advanced though, the MOD joined MEXT in expressing its own frustrations with the project, which, from the points of view of both MEXT and METI, seemed more designed to service METI's needs than those of the MOD. Thus, institutional competition and stovepiping acted as a major brake on policy advancement, even though it was fully in the MOD's favor to have access to more ISR data, particularly in the maritime field, where since 2010 the situation with the PRC, particularly the frequency of its air and maritime probing, had been worsening.

SAF 6: Fieldwork conducted with industry shows that it was highly satisfied with *Basic Plan 2*. For example, a simple summary of major procurement plans shows that Melco, the largest beneficiary of a long-term procurement policy for the IGS constellation, would be able to look forward to steady work through the 2020s for QZSS. Similarly, NEC would be able, after a twenty year struggle following its loss to the Mitsubishi group of the chance to bid for IGS, to recover its position as a major satellite provider through procurement of ASNARO based satellite systems. METI's informal industrial policy of maintaining at least an oligopoly of satellite companies rather than the de facto Mitsubishi oligopoly would then have been achieved. In the event, this was not to transpire, but NEC would secure the extensive ground systems contracts for the QZSS system.⁹

Episode of Contention: Failure of METI to Coordinate the Wide-Area Monitoring Network

The inability of the METI-led SHSP to control a budget line for the wide-area observation system based on its ASNARO proposal was to be a disaster for Nishimoto. Crucially, the proposal bypassed coordination in the SPC, which reported directly to Prime Minister Abe, abrogating the SPC's coordination skills, expertise, and both the personal and professional relationships necessary to smooth the way. The uncoordinated wide-area proposal was also opposed, unsurprisingly, by MEXT, which felt sidelined in the massive new program. A recalibrated proposal then connected the constellation to the IGS, but this was rejected as being too METI-centric by the CSIC. The MOD also felt that, as a customer ministry, it had not been fully consulted and that the solution proposed by ONSP advanced METI's agenda but did not fulfill the MOD's needs. The MOD's rejection of the METI-backed ONSP proposal in the fall of 2013 proved decisive, giving the MOF the excuse to reject the program as poorly coordinated. The MOF duly reduced the ambitious wide-area program to an R&D project at a *tenth* of the budget requested.¹⁰

As noted before, the MOF's objective viewpoint can be seen as entirely valid. In a sense the METI framework using the ASNARO-NEC proposal in the end only suited METI. The proposed constellation was, to put it a different way, neither fish nor fowl. First it was designed as a pan-Asian disaster monitoring network. Then it was a global observation network. Then it had an MDA function tagged on.

⁹ Paul Kallender, "A New Direction for Japan's Space Program? Japanese space programs face strict new reality," *AWST*, 6 May 2013.

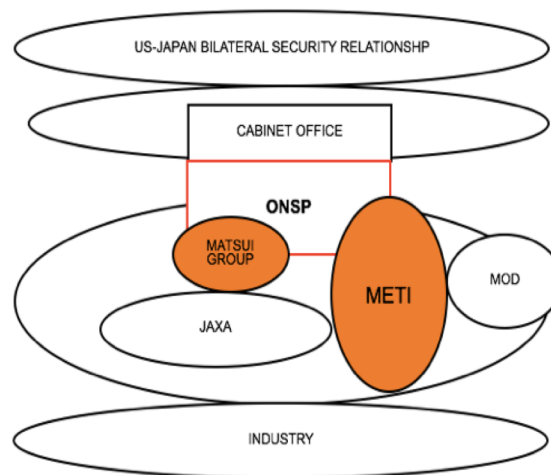
¹⁰ This fieldwork is the result of interviews with protagonists, including several Space Policy Commissioners on background including; interview, 16 June, 2014, correspondence 23 June 2014, email interview 27 June 2014, interview 17 September 2014; Tsuzukibashi, 12 & 23 June 2014, 18 November 2014; Uji, SJAC, 23 April 2014, 23 July 2014, 09 September 2014; Matsui, 5 September 2014; interviews Imazu, 28 August and 9 October 2014, 27 January 2015, all in Tokyo.

But from the beginnings of *Basic Plan 1* it was always inconceivable that MEXT or JAXA would easily cede such an opportunity for budget and programmatical power to an upstart such as METI. Further, had the constellation been approved, it might have upset the entire history of MEXT and JAXA, the heirs of the STA and MOE, NASA and ISAS, which had monopolized space development for forty years. Second, the introduction of METI and its ASNARO approach would have put Melco and JAXA in the position of potential competition with a rival building satellites both significantly faster and more cheaply. Third, as will be demonstrated later in this chapter, in the event, the ONSP was utterly unprepared, understaffed (lacked the organizational, institutional and political linkages) required for the “all of government” coordination issues required to conceive and launch a maritime-use (MDA) solution.

The failure to coordinate the wide-area observation constellation was somewhat repeated in Japan’s approach to SSA, despite this becoming a major priority for the U.S. Here again, the MOD kept its distance between the coordination difficulties experienced between the ONSP and JAXA, which was committed to a maintaining a civilian-led approach and protecting its prerogative. Despite strong U.S. pressure, and its 2009 statement that the U.S.-Japan security partnership would benefit from debris monitoring, without development funding for SSA in the next MTDP, which failed to emerge, the MOD’s default policy was to stay on the sidelines. This reluctance was reflected internally where there were apparent divisions between the ASDF, the Defense Policy Division and the new, small Space Policy Group, which did not regard SSA as a priority.

In fact, the MOD decided to play a multi-level game with SSA, where it was officially in favor of SSA being promoted, but in fact this public mask masked its real position of wanting to be a beneficiary. As one protagonist put it: “The Ministry of Finance does not understand the role of SSA in defense, and will not provide budget for it unless it is properly managed and explained. The MOD is unable to provide an answer, because it is not so interested, but needs to appear to be enthusiastic for alliance purposes. It’s thinking is comparatively traditional and narrow.”¹¹

Figure 31: The Attempted Takeover of the ONSP by METI



¹¹ Interview with senior SSA negotiator, on condition of anonymity, 8 January 2013, Tokyo.

These failures, however came at just, *exactly*, the wrong moment for METI – in fact just as the second Abe administration had developed the new NSS in December 2013, which had mandated that the ONSP produce a fully coordinated space policy that was integrated with the new national strategy. The failure also had a profound effect on the credibility of the ONSP in the eyes of the LDP as it came just as Japan formulated its first NSS. The lack of decisive leadership and beggar-thy-neighbor interministerial competition regarding the wide-area constellation was all too reminiscent of the struggles faced by the QZSS. The ONSP had been established, but it had not delivered the basic requirement of the net addition of a global observation constellation program to Japan’s space activities, as intended by the Kawamura initiative, expressed through the *Basic Law*, and the first stated priority of *Basic Plan 1*.¹²

While the ONSP’s failure to coordinate the wide-area constellation could not have come at a worse time in terms of domestic strategy making, it was also ill-starred in terms of alliance politics, because represented a poor outcome for U.S.-Japan cooperation, as Table 10 demonstrates.

On Level 2, in the U.S.-Japan cooperation SAF, the year 2013 shows the increasing pace of coordination and cooperation between Japan and the U.S. on outer space matters. Perhaps at Levels 2 and 3 this should not be seen so much as alliance pressure on Japan because the Abe administration appears to be a willing partner on the issues. In this light, as we have seen, 2013 saw Japan and the U.S. negotiate a third major policy statement, the Joint Statement by U.S.-Japan Comprehensive Dialogue on Space of 11 March 2013, apparently dovetailing with the *Basic Plan 2*’s reformulation of *Basic Plan 1* into a more dual-use national security direction. The Joint Statement clearly expressed both sides’ desire for further integration of Japan’s space assets and technologies into the broader U.S.-Japan regional security framework. This was followed by the June 4 Strategic Budgeting Plan for 2014 by the ONSP which provided the ONSP’s policy response to the March agreement.

The significance of QZSS has been noted as the prime deliverable desired by the *Basic Law*, but behind this many in the security and the space community in Japan agreed with the U.S. over the growing need to improve maritime surveillance (MDA), and of course SSA. The need to improve SSA capabilities for all satellites, not least Japan’s commercial communications services and EO programs had been highlighted in 2007.

On top of this, specifically, after 2010, MDA was seen as a major security concern of Japan following the marked upswing in specific Japan-China tensions focused on the Senkaku islets dispute as one of the nastiest serrated edges wounding relations between Japan and the PRC. It is possible to trace a turning point in 2010 following a collision between a Chinese fishing trawler and a Japanese Coast Guard vessel off the coast of the disputed Senkaku islets. This was part of a series of increasing and sometimes escalatory incursions occurring after the Government of Japan acquired ownership of the islets from what had been private ownership, which the PRC government chose to become incensed about. Through 2010-13 it became obvious to Japanese planners not only in space activities but more generally that Japan increasingly felt pressing need to improve its ability to observe and counter what Japan sees as increasingly problematic Chinese PLAN and paramilitary intrusions (mass incursions by fishing fleets flanked by Chinese coastguard gunboats) into Japanese territorial waters – all this of course also of great

¹² Ibid.

concern to the U.S., which wanted Japan to bolster its C4ISR capabilities for both partners and adopt a more robust deterrence posture.

Table 9: Full List of Comparative Dimensions of Key Policy Benchmarks

| Policy | <i>Basic Law</i> | <i>Basic Plan 1</i> | <i>Basic Plan 2</i> | <i>LDP Strategy</i> | <i>Mid-Term Plan</i> | <i>Basic Plan 3</i> |
|---------------|--|---|--|---|--|---|
| Purpose | Foundational | Implement <i>Basic Law</i> | Revise <i>Basic Plan 1</i> following failure to secure budget | Root-and-branch reorientation following failure of MDA constellation | Reorientation of <i>Basic Plan 2</i> to confirm national security direction | Implementation of NSS reflecting LDP Strategy |
| Date | August 2008 | June 2009 | January 2013 | August 2014 | August 2014 | January 2015 |
| Details | End PPR; normalize military space use in the OST. Make a <i>Basic Plan</i> 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 <i>Basic Plan</i> & 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. | 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. | Focus on: (1) a regional QZSS system; (2) continuous global monitoring system; (3) integrate new satellite systems into national security; (4) more flexible space access; (5) downgrade 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. | Integrate space policy with NSS & create NSSS; integrate NSSS with U.S. 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 an independent think tank. | Space's primary purpose is national security; cooperate with the U.S.; cooperate with ASEAN; create a long-term plan to enhance industrial base. Specific policies: 1. Infrastructure: (a) 7 satellite QZSS (b) boost IGS, EO (c) new data relay & optical data relay satellites (d) H-3 2. Utilization: (a) SSA, MDA, coms, EW, fast flexible launch, high flexibility satellites (b) revolutionary pico and nanosats. 3. Strategic: (a) improve planning and policy (b) finish <i>Space Activities Act</i> . | Policy guided by NSS; National security top priority along with U.S. cooperation. China openly stated as destabilizing factor. Programmatically, QZSS, IGS funded to 2025; IGS to be bolstered; two high-data, including one military dual use optical data relay sats funded; needs for SSA and MDA to be worked out in 2-year studies. QZSS GPS backup. JAXA works closely with MOD ALOS to host MOD EW sensor; JAXA dual-use tacsats and SLATs funded. |
| Outcome | Ongoing | Failed | Overtaken | Partial failure necessitating (<i>Basic Plan 3</i>) | Ongoing | Mediated Solution |
| | 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. | MOF rejects budget-doubling and takes advantage of DPJ disorganization and ministerial infighting. Policy moves on autopilot until <i>Basic Plan 2</i> . | CO takes partial control via QZSS but fails to tackle infighting; loses credibility over MDA failure. METI withdraws; JAXA moves in. More military emphasis. | Established to end infighting and coordinate better following MDA failure. In MTP, ONSP worked on coordination with NSS with MOD and dual-use actors. Decision on an Uchūchō shelved. | 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. | Uchūchō shelved; phased increase in IGS constellation numbers; ONSP's MDA plans shelved in favor and multi-year negotiation required to deal with continued inter-ministerial discussions. |
| U.S. Position | 2+2 June 2011 | 1 st Comprehensive Dialogue on Space | 2+2 Oct. 2013 | 2 nd Comprehensive Dialogue on Space | Defense Cooperation Guidelines | |

| | | | | | | |
|------------------|---|---|---|--|---|--|
| | Bolster cooperation on ISR, BMD, outer space and cyberspace; specifically, in space in 4 areas: SSA, QZSS, MDA, dual-use sensors. | March 2013; collaborate with GPS/QZSS, SSA, MDA, TCBMS for International Code of Conduct; May 2013 Exchange of Notes concerning SSA Services. | 2013: BMD: Deploy SM-3 Block IIA, 2 nd AN/TPY-2 radar; SSA, MDA, cooperate on an International Code of Conduct for Outer Space Activities; establish bilateral Defense ISR Working Group. | May 2014: Japan's space assets indispensable for U.S. Japan security; provision of SSA data from JAXA to U.S. Strategic Command. | First update since 1997; establishes "seamless" cooperation on outer space and cybersecurity cooperation | |
| Defense Strategy | 1 st Abe Administration (2006-7) | Fukuda Cabinet (2008) | 2 nd Kan Cabinet (Sep. 2010 – Jan. 2011) | 2 nd Abe Administration (1 st Cabinet) | 2 nd Abe Administration (1 st Cabinet) | |
| | Nov. 2006: Established Council on the Strengthening of the Functions of the Prime Minister's Office Regarding National Security. Feb. 2007, proposed establishment of the NSC; abandoned due to July 2007 House of Councillors election and Abe's resignation. May 2007; establishment of the Advisory Panel on Reconstruction of the Legal Basis for Security (<i>Yanai Commission</i>) to consider rights of CSD. | Shelves the 2008 <i>Yanai Commission</i> that recommended allowing limited CSD under existing legal system without a constitutional amendment, with the exercise allowed under 4 scenarios, including to protect a U.S. naval vessel in seas near Japan and shooting down a missile passing through Japan's airspace targeting third countries. | NDPG MTDP (Dec. 2010): To provide continuous steady-state ISR activities of the land, sea and air space around Japan; hold Japan-U.S. consultations to advance cooperation on space, cyberspace, maritime security, etc. SDF will build an enhanced X-band satellite communication network. | Dec. 2013: Establish NSC and NSS; called for integration of space policy into the NSS; NDPG. The SDF to strengthen ISR through space with "diverse" sensors; strengthen C3I capabilities with sophisticated X-Band satellites; actively promote SSA; pursue R&D satellite protection; seek more extensive cooperation and training with the U.S. | July 2014, reinterpret Article 9 of the Constitution to allow for limited rights of collective self-defense. Through 2014 extending through 2015, work towards "seamless" cooperation including the defense of U.S. naval assets, etc. and the deeper integration of Japanese and U.S. defense capabilities, interoperability, etc. | |
| MOD Space | PPR Era military space: IGS & BMD | <i>Basic Plan 2009</i> | Participation in planning & policy | Increased participation. | <i>Revised Basic Plan 2014</i> | |
| | 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 an investigation into its needs. | Response to <i>Basic Law</i> : 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. | Continued research into space-based EW; increased participation in CO planning and <i>Basic Plans</i> ; coordination with other ministries; decision to launch a dedicated X-band milsatcom constellation through PPP, discussions over SSA and MDA. | 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. | Response to MDA failure, U.S. demands, & NSC & NSSS. Three-domain strategy: <i>Operational</i> -improve ISR, boost IGS, integrate dual-use EO with ISR, develop fast response, flexible tacsats, MDA; <i>Infrastructural</i> -dedicated coms and QZSS; <i>Responsive</i> - EW, space based BMD EW R&D with JAXA, SSA. | |

This is the context therefore, for understanding why the global EO initiative was, along with SSA, one of two major new space-based security-bolstering measures agreed by Japan as part of the June 2011 meeting and subsequent U.S. Japan negotiations, particularly the Joint Statement by U.S.-Japan Comprehensive Dialogue on Space on 11 March 2013, in which both sides agreed to bolster cooperation in SSA, PNT (integrating the QZSS with GPS), a possible Japan-developed space-based component for MDA, and utilization of dual-use sensors. In addition, as we saw, with orbital space security has become a major strategic and geopolitical global commons issue, not least for the U.S., for which SSA has become arguably one of the major global space policy issues of the decade, as it has indeed become for Europe and other major space powers. It is not surprising that SSA was placed as top priority by the 2011 2+2 statement.

Strategic Action: The Imazu Intervention

At the point of the ONSP's coordination failure, SAF 3 initiated strategic action. The LDP intervened, with Kawamura, architect of the *Basic Law* and his deputy Imazu, newly elected chair of the LDP's SDSS piling on pressure on the ONSP and the civil service to coordinate effectively. From January 2013 to September 2014, it is possible to see a highly competitive dynamic in institutional behavior under two new pressures; politically from the LDP, and diplomatically from the U.S.

The political pressure was extreme, and can be called an attempt at decisive strategic action by Imazu, an attempted *ippon-waza*. Over the course of ten meetings the SDSS published an initial (mid-term) "Recommendations for a Comprehensive Space Strategy to Implement Japan's National Strategy" (hereafter, the *Strategy*) on 5 June 2014.¹³

The *Strategy* recommended that:

1. Within three years that Japan establish an Uchūchō with one budget line, i.e. the authority to request budget for all line ministries;
2. That Japan as quickly as possible establish a Japanese version of the U.S. military's National Security Space Strategy, a Japanese NSS (JNSS), and that the JNSS be drafted with and in close coordination with the newly-formed NSC and NSS.

In terms of policy development, the *Strategy* emphasized the need to deploy SSA and MDA satellite constellations to bolster not only regional security but also service U.S.-Japan alliance commitments. In terms of technological and programmatic development and deployment, the *Strategy* was explicit. It recommended that Japan must work for the "early establishment" of an MDA constellation using the most suitable combination of satellites available (ranging from 2-ton to 500 kg and 100 kg microsattellites), Unmanned Aerial Vehicles, Stratospheric Aerial Platforms, and remotely-controlled vessels, and that Japan establish an integrated SSA Monitoring and Analysis Center working in close cooperation with U.S. military SSA assets.

The *Strategy* also urged that Japan urgently bolster the four-satellite IGS constellation, deploying constellations of 100 kg-500 kg microsattellites dedicated to monitoring specific areas of concern, and that

¹³ 自由民主党政務調査会 宇宙・海洋開発特別委員会「国家安全保障宇宙戦略 - 提言(案) -」2015年9月 [Jiyū Minshuto Uchū Sōgō Senryaku Shōiinkai, Uchū・Kaiyō Kaihatsu Tokubetsu Inkai "Kokka Anzen Hosho Uchū Senryaku - Teigen (An)]." The following paragraphs are the author's translation of the report.

the data needs of security architecture be serviced with a concomitant advanced data relay satellite architecture. Next, the *Strategy* recommended that Japan begin research immediately on new direct military (MOD) usage of image intelligence (reconnaissance), SIGINT and a space-based EW capability and that, moreover, both the direct-use military spy, signals and EW assets should be specifically integrated to work real-time with their equivalent U.S. military space assets.

Turning to launch vehicles, the *Strategy* recommended that Japan develop specifically military-use vehicles. Further, Japan should ‘review’ its previous priorities to develop a new basic rocket system technology, and urgently upgrade the capability of its *Epsilon* for national security launch purposes for rapid deployment of small LEO space assets (TacSats). Next, the *Strategy* recommended that Japan quickly redevelop JAXA’s Tanegashima launch site, boosting security and ‘hardening’ facilities. On top of this, the *Strategy* recommended that JAXA’s mission be adjusted to that of U.S. DARPA-type role to service the new national security space last. Last but not least the *Strategy* recommended the foundation of a space-security think tank to conduct future strategizing and policy planning.

The creation of Imazu, the *Strategy* was designed to be utterly decisive. Stronger and bolder than the September 30 ultimatum to MEXT regarding accepting ONSP control over QZSS, the *Strategy* is quite remarkable in that it not only dusted of the Uchūchō option as a kind of sledgehammer threat, but in the radical way and language that it proposed to overtly militarize space policy. Had the *Strategy* been implemented as proposed it would have transformed Japan into a major strategic military space power more quickly and completely even than predicted in IDOJ.

Further significance for the *Strategy* lay in the fact that Imazu’s committee was institutionally important within the LDP hierarchy because it was a subordinate committee of the LDP’s Special Space and Maritime Committee, chaired by no less than Kawamura, reporting directly to the LDP’s PARC. Because Imazu is Kawamura’s *kohai* (junior) and because Imazu, as former JDA vice minister, was one of the authors of the original NSSPG report, it is logical to assume that the *Strategy* also represented the will of Kawamura, a point confirmed by Imazu himself over the course of three interviews.

In a strong echo of Kawamura’s expressed opinion in an interview conducted nearly a decade earlier with the author, Imazu made it clear that the ONSP’s inability to coordinate its wide-area constellation budget was regarded as a major failure and that he felt the administrative and institutional reorganization framework set up in 2012, i.e. the ONSP with its policy coordination role but inability to directly control JAXA, was inadequate. The evidence, suggested Imazu, was that the ONSP lacked the authority to enact policy change. Therefore, concluded Kawamura and Imazu, the only way to induce policy change was to adopt only an Uchūchō-based agency in the Cabinet Office, but also to give it budgetary power. In other words, Imazu and Kawamura had reached a similar conclusion to that of Maehara in 2009-10.¹⁴

Yet, when the SDSS released its final report in August, there were two significant changes. First, the insistence that the Cabinet Office be given budget authority was deleted, but that this should be *considered*. Second, the final *Strategy* specifically stated that the IGS constellation be more than doubled to ten satellites from four.¹⁵

¹⁴ Author interviews with Hiroshi Imazu in October 2014, April 2015, in Tokyo. See also, Paul Kallender-Umezu, “Profile, Hiroshi Imazu, *Space News*, 2014; Paul Kallender-Umezu, “Japan Begins National Security Space Buildup,” *Defense News*, 13 April 2015; Paul Kallender-Umezu, “Interview: Hiroshi Imazu Chairman, Policy Research Council’s Research Commission on Security, LDP of Japan,” *Defense News*, 21 April 2015.

¹⁵ “Recommendation for a Comprehensive Space Strategy to Implement Japan’s National Strategy,” 26 August 2014, Policy Research Council, The Liberal Democratic Party.

Strategic Action: The ONSP

Eighteen days after the second, “watered down” version of the *Strategy* was published, the ONSP convened a Fundamental Strategy Committee (FSC) led by Nakatsuka, one of the original Matsui Committee members, to coordinate the ONSP’s response in a new Basic Plan – *Basic Plan 3* – that was to be drawn up no later than December, so that the plan be budgeted for the following April.¹⁶ The FSC then again immediately delivered its own updated medium-term space policy, the “Fundamental Policy Committee Mid-Term Summary” (MTS) on only its second meeting, on August 20, 2014.¹⁷ A week later, the ONSP delivered its budget request for 2015 formally requesting the MOF for funding of the implementation of the MTS.

Behind the events, several more two-level games were occurring. First, fully and quickly disclosed minutiae of building the FSC’s platform show the ONSP’s standard operating procedure when trying to advance a new agenda and stake out its position. The first documents established the membership of the committee to demonstrate its will and credibility.¹⁸ Second, the FSC had immediately produced, on only one page, its foundational purpose and rationale, objectives, and timetables for reaching them.¹⁹ Third, on one page, the FSC clearly delineated exactly what information would be demanded from which organizations to what timetable to produce the policy product, deadlined for August 8.²⁰

The next section contained presentations made by all the players; the final sections categorically stated the FSC’s legal and administrative right and power to do all these things, including setting the parameters for discussion and the timetables, the principal that the meetings are behind closed doors but that FSC members must give press briefings and respond to enquiries by the press; that for transparency and accountability a summary of the meetings must be publicized to the general public; and that later full minutes be published, along with all documentation and briefing materials.²¹ Here again, as with the opening chapter of *Basic Plan 2*, we can see the conscious and open adoption of attempted social appropriation. And, finally, there was a one-page statement of the FSC’s power and role within the policymaking power of the ONSP as a whole.²²

In terms of a two-level game analysis, the difference between the June and August versions of the LDP’s *Strategy*, and the alacrity and clarity of the ONSP’s response, indicate that the LDP had used the tactic, certainly with support from key members of the ONSP, of using the threat of creating an Uchūchō with budgeting authority as a battering ram to force change within the ONSP, but that the LDP was prepared to negotiate to reach a compromise position where it dropped the Uchūchō scenario in favor of a

¹⁶ 宇宙政策委員会 基本政策部会 第1回会合 議事次第.

See: <http://www8.cao.go.jp/space/committee/kihon-dai1/gijisidai.html>.

¹⁷ 宇宙政策委員会 第26回会合 議事次第宇宙政策委員会 基本政策部会 中間取りまとめ(案) available at: <http://www8.cao.go.jp/space/committee/dai26/siryou1.pdf>. A quick and easy summary, 宇宙政策委員会 「基本政策部会 中間取りまとめ(概要)」 showing a ‘before and after’ and immediately crystallizing the military refocus is available at: <http://www8.cao.go.jp/space/committee/dai26/siryou2.pdf>.

¹⁸ 資料1 宇宙政策委員会 基本政策部会 委員名簿:

See: <http://www8.cao.go.jp/space/committee/kihon-dai1/siryou1.pdf>

¹⁹ 資料2 宇宙政策委員会 基本政策部会の設置について(平成26年6月26日決定)

See: <http://www8.cao.go.jp/space/committee/kihon-dai1/siryou2.pdf>

²⁰ 宇宙政策委員会 基本政策部会の今後の検討の進め方(案)

<http://www8.cao.go.jp/space/committee/kihon-dai1/siryou3.pdf>

²¹ 参考資料1 宇宙政策委員会の運営について(平成24年7月31日決定)

See: <http://www8.cao.go.jp/space/committee/kihon-dai1/sankou1.pdf>

²² 参考資料2 宇宙政策委員会の今後の検討体制について(平成26年6月26日決定)

See: <http://www8.cao.go.jp/space/committee/kihon-dai1/sankou2.pdf>

negotiated settlement with the ONSP and MEXT if at least they would be able to coordinate and press forward with a clear national security focus based on at least pressing for doubling the number of IGS satellites.

This had been the result, through spring 2014, of were described to the author as dozens of coordination meetings and possibly dozens more of other unofficial meetings not only between the SPC and the ONSP and the LDP, including a series of dinners between Matsui and Prime Minister Abe, but also within the ONSP and the SPC and between the ONSP and SPC and ministries and within line ministries themselves to coordinate a response. The discussions particularly involving MEXT and METI focused on how to dilute or defeat both the establishment of the Uchūchō and/ or its budgeting power. There was, therefore clearly a two-level game within the ONSP and the representatives of ministries within the ONSP.

After careful coordination and bargaining, the final and official version of the June Strategy document was watered down the timetable for the Uchūchō and the demand for a single budget line, stating that only a decision would be made within three years on the fate of the Uchūchō, perhaps a case of *tana-age* (shelving the issue). At the same time, then the ONSP's two-level game was to accommodate the LDP but at the same time produce a significant change in policy direction vs. MEXT, METI and MOD in particular. In other words, the ONSP had to produce a new policy that at least endorsed most of the *Strategy's* points, minus the creation of an Uchūchō with budgeting authority.²³

The MTS mostly seemed to achieve what had been demanded by the LDP. In fact, the MTS is probably historic in terms of Japanese space policy documents because it is the first to directly endorse national security clearly and explicitly as the fundamental first priority of Japanese space activities. While essentially a mediated (diluted) version of the *Strategy*, the MTS nonetheless reads like a defense strategy policy document. The opening paragraphs could very well have been lifted directly out of the NSS, for example, by clearly putting MDA as the top agenda item. Superseding prior statements, the MTS directly stated that while Japan's space policy to date founded on the *Basic Law* scraps science and technology as the main goal and substitutes it for industrialization and national security; put simply it said that, following the NSS, Japan's space policy must adapt to a new paradigm. Primarily, it denoted a fundamentally changed recognition of the role of Japanese space policy in that:

1. Space should play an essential role national security
2. That the U.S.-Japan Alliance had reached a 'New Era' (almost directly borrowing the terminology from the LDP), and that space technology was a critical component for the U.S. to deter aggression and help its power projection in the Asia-Pacific Region, and that should the U.S.'s space-based capabilities be eroded or degraded Japan must be in a position to support the U.S.; and
3. That is was essential that that space policy support long-term investment in space development.

Specifically, the MTS stated that the full seven-satellite QZSS system be built as quickly as possible; that the IGS constellation be improved and the new data load handled by an improved communications infrastructure, including an orbital data relay system; and that Japan develop a new capstone rocket program focused on fast responsiveness and from hardened facilities. In terms of utilization, the MTS urged that national security related programs were top priority, focusing on SSA, MDA, communications,

²³ Author interview with ONSP executive, Tokyo, 7 September 2014.

space-based ballistic missile early warning, and rapid response.

Towards Contested Settlement

With a strong mandate from Prime Minister Abe himself to draw up a new *Basic Plan (Basic Plan 3)* in December in time for the following year's budget preparations, the ONSP went to work. The resulting *Basic Plan 3* clearly seemed to endorse the new national security first direction. Building on the MTS, *Basic Plan 3* clearly stated that Japan must actively develop a national security space program with the military use of space in tune with the new NSS, strengthen the IGS reconnaissance satellite constellation, develop a space-based MDA capability, boost Japan's communications and PNT for national security purposes, bolster SSA capabilities, and link Japan's space assets in the service of U.S. security strategy to support its deterrent power. Further the full seven-satellite constellation QZSS system was positioned to serve as a regional positioning system specifically as a backup to the GPS in case that system is "degraded." For the first time the MOD was to be directly involved in a budget mission development program under the general space activities budget in the form of to its experimental EW sensor on a newly developed ALOS satellite developed by JAXA.

In fact, *Basic Plan 3* was completely similar to *Basic Plan 2016* in most respects. So why the need for *Basic Plan 2016*? The fact was that MDA satellite constellation again failed to find funding due to coordination issues and a decision on the makeup of the constellation was still under discussion, for finalization in 2017. Secondly, *Basic Plan 3* contained no concrete figure on the future size of the IGS constellation, despite that being a clear goal stressed by the August LDP *Strategy* document, which was apparently endorsed by the MTS. One major criticism of the *Basic Plan 3* in terms of deliverables compared to the LDP *Strategy* document was the lack of clear timetables. After extensive coordination, an agreement was reached with MOF that the IGS and IGS-related infrastructure would be funded.²⁴

From now, mention of an Uchūchō was dropped. After waving the "big stick" of an even more fundamental institutional reorganization, with the prospect that better coordination would be achieved through *Basic Plan 3*, the LDP withdrew the threat. Significantly, however, *Basic Plan 3* did contain a clause mentioning that if coordination problems continued, meaning that the ONSP and ministries did not come to a satisfactory conclusion regarding the MDA and the IGS constellations in two years, alternative administrative arrangements would be reconsidered. This can be interpreted as meaning that as far as the LDP was concerned, the Uchūchō idea might be dusted off again, but held back as a future threat, should the ONSP not produce the desired results.

As it transpired, the difficulties in coordinating MDA turned out to be more difficult as those for the QZSS. In fact, it appears the main reason for ONSP's failure to coordinate the MDA solution fully in time for *Basic Plan 2016* is that it not only required careful coordination with the U.S. but a genuine all-of-government approach by both sides, with the U.S. side only just coordinating what it needs for cooperation itself. It may be that the Japanese attempt to press forward to launch a constellation under METI's initiative was not only premature and uncoordinated internally, but also premature and uncoordinated or out of sequence with the steps required by the U.S.

The complexity of coordinating a space-based MDA system is apparent by the number of stakeholders. Against this, 2014 did see the beginning of tangible progress towards cooperation on MDA, according to a senior U.S. negotiator on the effort. For example, in March 2014, U.S. representatives met

²⁴ Author interview, Uji, SJAC, Tokyo, 23 July 2014.

with their Japanese counterparts at a Table Top Exercise (TTX) on the use of space for MDA attended by representatives from over a dozen Japanese ministries and agencies, and numerous U.S. departments and agencies, the TTX was projected as a “whole-of-government” affair, consistent with the U.S. doctrinal definition of MDA, which defines it in terms that encompass include safety, security, the economy and the environment. However, at that time, none of the ministries or agencies represented at the TTX were ready to endorse the concept. “No surprise, since the topic had never been considered on a whole-of-government basis, and because security had historically been vested solely in the military and intelligence community entities,” said the U.S. interlocutor.²⁵

The major outcome of the TTX was a commitment “to build a foundation of knowledge and experience” regarding the use of space for MDA, engaging all maritime stakeholders.²⁶ This commitment was re-affirmed in May 2014, at the 2nd U.S.-Japan Comprehensive Dialog on Space; then in July, 2014, over a dozen representatives of the Government of Japan traveled to Alameda, CA, where the U.S. Coast Guard (USCG) briefed their maritime domain awareness activities at the national level, with a visit to the Maritime Intelligence Fusion Center – Pacific, and at the local level, with a visit to the USCG San Francisco Sector operations center.

In the same timeframe, representatives from Japan visited the USCG Maritime Intelligence Fusion Center – Atlantic, and the Joint Interagency Task Force – South.²⁷ The U.S. noted that it was only at the end of 2014 that the Japanese side began to feel itself ready to talk to the U.S on a more formal basis, and in December, the Japanese Coast Guard was finally involved. The U.S. position at the time, recognizing the inability Japan to coordinate a new space-based constellation, was that Japan should focus on using existing systems and sharing information. For the moment, the U.S. seems content on just data sharing with JAXA’s ALOS-2 satellite, which carries both an Automatic Identification System (AIS) receiver and a SAR capable of wide-area maritime surveillance, an idea confirmed by a senior MEXT bureaucrat.²⁸

The concluding chapter, Chapter 10 updates the fate of the global constellation program originally posited in *Basic Plan 1* nearly a decade ago, showing it to be probably a bridge too far. In this way both the progress and the limits to the changes that have been achieved in the post *Basic Law* phase of policy and institutional reform are revealed.

²⁵ Author email interview with John Mittleman, Naval Research Laboratory, 9 March 2015.

²⁶ Ibid.

²⁷ Ibid.

²⁸ Ibid. Author interview with Yoshiyuki Chihara, Director, Research and Development Bureau, MEXT, Tokyo, 30 March 2015.

Chapter 10

Conclusions: Contextualizing Japan's Space Policy and Administrative Transition

The major purpose of this investigation has been to use a new approach, the SAF framework, to move beyond trying to label where Japan's space policy and administrative structure fits into conventional international relations paradigm-type assessments of Japan's security strategy. This dissertation's goal has to be to try to understand space policy and administrative change reflecting the full breath of external and internal pressures, responses and bartering, while emphasizing the interconnected nature of all these relationships, and the logic of player (or stakeholder) behavior.

Analytically, for scholars of Japanese politics and security studies, or more generally for those interested in seeing how Japan makes important strategic decisions, this focus on (a) space policy and (b) a non-traditional framework approach is suggested as valid and new in a number of ways.

In terms of newness of subject matter, the topic of Japan's space development and its relationship with national security is new. It is also demonstrably and now self-evidently an important one; and one that is the subject of close cooperation between the U.S. and Japan. And, if we are to understand the significance and importance of the *Basic Law* through its implementation, then, to the author's knowledge, this is the first full-scale analysis in academic literature about how deeply or successfully the *Basic Law* has been implemented in terms of both in policy and institutional reform.

The importance of Japan's space program and the move – increasingly decisively during the second Abe administration following the publication of the NSS and the establishment of a more hands-on politically controlled NSC – to fold Japan's space program into Japan's national security policy has now been identified. Further, the significance of the *Basic Law* in Japanese polity is not adequately understood without understanding how it was implemented. Attempting to understand this has been a major focus of this dissertation.

In terms of answering the primary research question, first it should be noted that the change in space policy in scrapping the PPR represented a challenge to a core part of Japan's postwar identity as a peaceful country focused on trade and economic advancement. Adjusting space policy in the field of space technologies has to be seen in terms of its historical and strategic role; of being inherently dual-use, born out of superpower rivalry and developed primarily for strategic military advantage. But Japan's normative and institutional framework had been deliberately positioned, via the PPR, to avoid developing the very military strategic advantages afforded by the use of outer space. This normative block on any form of militarization was reinforced deeply on the implementation side by an institutional framework designed explicitly to pursue the same.

So, why did it take so long to implement the Basic Law?

The attempt to redistribute policymaking and budgeting power into the Cabinet Office was only partially successful at best. Much of the answers to the first two research questions are embedded, after all, in the institutional logics of the bureaucracy.

As the institutional portion of Chapter 2 has shown, when Japanese politicians have sought to challenge the power of Japan's civil service and subgovernment network, a Japanese version of the law of unintended/unanticipated consequences seems to apply, as pointed out by Kawabata and others who have

studied the institutional logics involved.¹ In the Japanese version, the result is more often than not either an unexpected drawback or a perverse result; that the civil service repurposes any change or challenge to the *status quo* as an opportunity for gain, often at the expense of the original purpose.

In the case of policy and institutional change, a series of shocks, emerging security concerns and U.S. pressure forced Japan to re-examine its commitment to the PPR. In the case of space policy, changes were admissible by the bureaucracy provided institutional changes did not disrupt access to budgets and programs that make up the core of the business of the civil service. The *Basic Law*, in attempting to place a Cabinet Office that was oriented to implementing the will of politicians, rather than being yet another bureaucratically-controlled coordination body, amounted to a direct and major challenge to the reality of bureaucratic control as exercised by MEXT.

Looking for answers to the first research question, the crux of the matter was whether MEXT, intuitively wed to a peaceful purposes-only technology development paradigm, could be prevailed upon by political pressure to accept the new policy and institutional paradigm. In the event, MEXT acted entirely logically and resisted political pressure. Progress was made only after it was assured of retaining its role as the core implementation organization for the *Basic Law*, which was guaranteed in *Basic Plan 3* following the defeat of the METI-backed “wide-area” EO constellation and the default, as it were, distribution of the lion’s share of dual-use national security programs into JAXA budget lines – a result which was exactly what MEXT’s overall strategy was all long

The answer to the second research question is quite strongly connected to the first. The successful prosecution of the aims of the *Basic Law* and find funding for two new satellite constellations – the QZSS and the global EO constellations – would have required mastery over budget coordination by the Cabinet Office, probably through the establishment of an Uchūchō. In the event, the Cabinet Office, after a long series of battles, only succeeded with the QZSS. The aborted bid by METI to fund its version of the global EO (wide-area) constellation was defeated by the implacable opposition of the incumbent player, MEXT.

Regarding the third research question, the partial success and partial failure of the Cabinet Office also shows the limits of the power of this institution over incumbent ministries. In terms of the dynamics of power struggles between politicians and the bureaucracy, perhaps result was a, perhaps a draw.

A temporal analysis of key events is may at first be helpful in explaining the answer to the first research question in a little more detail. First of all, one of the roots of the many of the troubles can be found in the Cabinet Office Establishment Law and the subsequent failures of the NSSPG, the *Basic Law* and the Partial Revision of the Cabinet Office Establishment Law in 2012 to establish detailed, superior budgeting authority in the Cabinet Office, as mentioned.

The original Law passed by the Hashimoto administration gave the prime minister a role to propose basic policy and initiate budgeting processes, but not fuller powers. Following this, the NSSPG report recommended that the proposed “Space Strategy Headquarters” in the Cabinet Office appoint a Minister of State to “consolidate discussions” and set “medium and long term strategic aims” that would be regarded as “guiding principles” for JAXA, i.e. stopping at a coordination role.

In reality, this meant MEXT would effectively retain its power as veto player. As the *Basic Law* failed to mandate the creation of an Uchūchō with its own complete and superior control of budgeting and

¹ Robert K. Merton, “The Unanticipated Consequences of Purposive Social Action,” *American Sociological Review*, Vol. 1, No. 6 (December 1936), pp. 894-904.

policy, and relied on promoting the Cabinet Office as a powerful policy coordination role, MEXT and JAXA would be able to resist any changes MEXT, through its minister in the Cabinet did not want to sanction. Very unsurprisingly, this is exactly what subsequently happened, with MEXT Minister Kawabata stolidly defending his patch against all attempts to challenge MEXT's accumulated budgeting and programmatical dominance.

More precisely however, progress towards implementing the *Basic Law* looks to have been significantly impeded by defense-in-depth tactics within the SHSP in 2009 by the offering of the “four options,” among which, in the context of the potential veto power of MEXT, only the Uchūchō solution would have been sufficient to gain the authority to force the necessary coordination to make a timetabled budget request to secure the necessary funds for the new programs targeted in the *Basic Law* from the Ministry of Finance.

The depth of the entrenched resistance to institutional and policy change can be seen in the glaring failure of interministerial coordination in time for the August 2009 budget request, signaling that, as far as the bureaucracy was concerned, space administration would continue as normal (or on autopilot) unless something different was negotiated or imposed. Crudely put, the bureaucracy (MEXT in particular) simply outwaited Kawamura.

The prospect of the indefatigable resistance in many forms by the bureaucracy also probably explains the DPJ's immediate assumption of guerilla tactics and the Uchūchō option in the knowledge that this would be only way to foist change. But again, stalling, the bureaucracy simply outwaited the activist Maehara.

Then, it may have been a tactical failing of the challenger group in the Cabinet Office, led by the Matsui Committee members, to subsequently choose the QZSS system as a battering ram to assert the principal of limited direct (single program) coordination and budgeting power by the Cabinet Office, and not to target the global observation system. But this decision to choose QZSS over the global EO system probably reflects the acknowledgement of Matsui and co. of the size of the task of coordinating the EO against the veto power of MEXT, compared to using the QZSS system as an attempted lever to establish the principal of Cabinet Office control and budgeting for “new” programs.

What the challenger group in the DPJ-era lacked was strong leadership from a prime minister to intervene or appoint Cabinet ministers who would support change. Until that happened, all the innovative actions and attempted strategic actions in the world would have come to nothing until a prime minister intervened. When this did happen, under Noda, it did produce a significant shift in supporting the Cabinet Office's assumption of control of the QZSS, but it is significant that it took a Cabinet decision to force this relatively minor concession out of the incumbent MEXT.

The subsequent Partial Revision of 2012 only reflected the muddled solution proposed by the restructuring WG that JAXA be open to cooperation with other ministers, which, in reality implied that MEXT would retain its authority as the main competent ministry over JAXA. While the ONSP would be granted a much greater role in planning and prioritization through the SPC, with the prime minister as final arbiter (and a competent minister over MEXT), the SPC's recommendations did not have legally binding power.

Because of this, MEXT was able to ignore even the powerful strategic action by METI and what might be called its attempted hijacking of the ONSP and defeat through non-cooperation with METI's “wide-area” EO program, no matter what the first chapter of *Basic Plan 2* stated.

It was only the threat of the Uchūchō sledgehammer, backed by a stable and committed LDP administration with the force of the newly appointed and powerful NSC and the NSS as a strategic national security policy superior to space policy, backed further by U.S. pressure, that exerted enough force to produce the pathway to *Basic Plan 3*; and even that suffered from coordination issues until Prime Minister Abe intervened again.

The next main point I would like to stress here is that policy and institutional reform existed in a symbiotic relationship. As became obvious in the early 2000s, the former – policy change – could not be achieved without a degree of the latter, administrative reform. Judged by such metrics, the strategic action behind framing and passing the *Basic Law*, and the struggles for its implementation or realization can be seen in conventional terms of domestic politics as LDP and DPJ politicians battling against the incumbent civil service to prevent a perverse result. The key reason for the delay in implementing the *Basic Law* was the entrenched position of the civil service, which would not allow a changes in policy and institutional arrangements to succeed until it was assured that the net balance of power and budgeting remained as little changed as possible.

In terms of the SAF framework, the struggles or inter-SAF episodes of contention (so many of them!) to implement the *Basic Law*, indeed the buildup to it, and the contests after it, can be explained thoroughly in terms of field formation, internal and exogenous pressures leading to field instability, innovative and strategic action, episodes of contention, cycles of these, and, finally field settlement. When the institutional framework was all shook up, the pieces fell slightly differently, but MEXT's budget and power within the space program were if anything, even larger.

In many cases, as perhaps scholars of the institutionalist school might keenly appreciate, the crucible of the critical SAF interaction was demonstrably between SAFs 3 and 4, with SAF 5 inextricably or symbiotically linked to SAF 4. But it is also readily apparent that resonances and ripples (episodes of contention, starting in this study with the Johnson Administration's offer of black-boxed ICBM technologies, ironically perhaps to forestall Japan's ability to develop solid fueled ballistic missiles) first come from SAFs 1 and 2. Thus, the SAF framework succeeded in linking (or detailing the links) between exogenous pressures and domestic responses in a framework that logically explained the motives, *modus operandi*, and behavioral logic of all the players, and how they interrelated.

This study also demonstrated then, that a SAF-based rational actor framework is able to show something of the *whys*, *whens* and the *hows* of space policy and administrative change (without being party to the many hundreds of meetings involved during debates between protagonists in committees or elsewhere) over time, based on rules (albeit borrowing heavily from rational actor scenario-based assumptions about behavior) that predict how players in SAFs, and their component institutions and, even, individuals will behave in a given circumstance. Thus, because the SAF framework can be extended to cover both international political events and domestic bureaucratic behavior, it is possible to see Japan's space policy and administrative change over time as a collection of coherent rational responses to particular inputs.

By setting up space policy and administration as an SAF, constructing a series of SAFs, and placing the players into three main categories (incumbents, challengers and governance units) it was possible to explain the behavior of a given player or SAF at a given time. Generally speaking, we can see the General Space Activities SAF constructed in 1969 as subject to a series of shocks, periods of contention and strategic action by players at certain points to try to take control of the field. External shocks or pressures

on the SAF had impacts and resulted in behavior that was entirely rational; incumbents tried to stay in power (and did!), challengers sought to engage in collective action to take control (and won a bit), and governance units attempted to govern.

The simplest story is that the General Space Activities SAF suffered shocks that disrupted its functioning, and through a contested strategic action (the Hashimoto reforms following 1998) lost its governance unit, SAC. The result was contestation in which players engaged in episodes of contention until the governance unit was restored in the form of the ONSP gradually asserting control over a misplaced incumbent (MEXT).

In terms of political and administrative analysis, then, *Basic Plan 2016* is very simply a logical outcome of SAF field dynamics, a complex compromise between many different forces ranging from strategic security and alliance politics down to the desire by NEC corporation to get more budget to keep its satellite building business running.

Focusing on the third question, an analysis of Japan's space policy and administrative change is very interesting because it does show something of the possibility of a new form of governance emerging. More than the traditional politicians vs. bureaucrats conflict model, the story of the ONSP's formulation shows how a small group of experts, piggybacking off the desire of the LDP to exert more political power over the bureaucracy, were able to effect change.

In the light of this, it may be useful to ask in the context of all the factors involved, how can we measure the degree or judge how substantive a change in policy has been achieved.

How Different is Today's Space Policy Compared to Prior Practice?

There *have* been some substantial changes. Ten years ago, Japanese space development was for exclusively peaceful purposes-only applications. Any idea that the MOD would be flying an experimental EW sensor on a JAXA satellite would have surprised many. Fast-forward to the present, and many of Japan's strategically militarily useful technologies are being deputized and may later be very useful in supporting the U.S. "pivot" to constrain China. This answers the question, "is space policy important? Or, to put it another way, "Why bother exploring space policy?"

So, generally speaking, it seems reasonable to conclude that space policy change has undoubtedly been accomplished to an extent that might surprise scholars of the constructivist school. Beyond the abandonment of the PPR, the direct and realist-type language of *Basic Plan 2016*, and the basic assumptions of the necessity of Japan prosecuting a national security space program in the face of worrying regional security challenges shows this. For evidence in favor of this assertion, perhaps one document sums this up more than any other.

On 25 May 2017 the SPC published a document listing up a schedule of its national security related tasks and programs. That list contains no fewer than 31 items, noting which programs are national security-, national infrastructure (dual-use)- or basic technology development- related. For simplicity's sake I will note these as "S" for national security, "I" for national infrastructure and "T" for basic technologies.²

² 「宇宙政策委員会宇宙安全保障部会関連工程表一覧表（平成29年度）平成29年5月25日内閣府 宇宙開発戦略推進事務局」 Space Policy Committee Space Security Committee Related Process List Table (Heisei 29) May 25, Heisei 25 Cabinet Office Space Development Strategy Promotion Office.

Table 10: Space Policy Commission National Security Space Programs as of May 2017

| | Program | Role |
|----|---|---------|
| 1 | Development, maintenance and operation of QZSS system | S, I |
| 2 | Promotion of utilization of QZSS system | S, I |
| 3 | IGS Optical | S |
| 4 | IGS Radar | S |
| 5 | Adaptable small TacSats | S |
| 6 | Advanced optical radar satellite | S, I |
| 7 | Geostationary weather satellite | I |
| 8 | Remote sensing advanced sensor technology 1 | S, I, T |
| 9 | Remote sensing advanced sensor technology 2 | S, I, T |
| 10 | Optical data relay satellite | S, I |
| 11 | X Band defense satellite communications network | S |
| 12 | Firing range usage | (S), I |
| 13 | Quick launch for TacSats | S |
| 14 | SSA | S, T |
| 15 | MDA | S, T |
| 16 | Space-based EW | S |
| 17 | Mission assurance for space systems | S |
| 18 | Components quality assurance strategy | T |
| 19 | Utilization of space assets to realize a vibrant future | I |
| 20 | Promotion of a unified approach to realize the <i>Basic Plan</i> | S, I, T |
| 21 | Strengthen collaboration between JAXA and the MOD | S |
| 22 | National Space Act | S, I, T |
| 23 | Legal framework for remote sensing | S, I, T |
| 24 | Anti-jamming countermeasures for QZSS | S, I |
| 25 | Realization and enhancement of the rule of law in outer space | S, I |
| 26 | Building a multilayered cooperative relationship with foreign countries | S, I |
| 27 | Joint public-private development of satellites, piggybacking | S, I, T |
| 28 | Promotion of international cooperation through industry-academia-government participation | S, I, T |
| 29 | Promotion of space cooperation in the Asia-Pacific region | S, I, T |
| 30 | Other efforts to secure space security | S |
| 31 | Other efforts to strengthen industrial and technical base | I |

So, from the perspective of measuring or testing to see if substantive change in space policy has occurred, then, it is helpful to look at the breadth of the programs that the ONSP is involved in, as laid out in Table 11. As demonstrated in the table, enacting the *Basic Law* has represented a fundamental reorientation of Japan's space policy. And, as noted in Chapter 1, a decade on from a time when the MOD was expressly excluded from any role at all in policy or development, the MOD is working with JAXA, an agency dedicated for nearly 40 years to expressly non-military space technologies, on a strategically important space based EW system.

Focusing on the areas of absolute advance toward the goals of the *Basic Law*, the biggest single achievement of the ONSP has been to take control of and fund the QZSS, and then, arguably, moving the IGS constellation to a ten-satellite system. In terms of two-level analyses, these can all be described in terms of Schoppa's win-sets, for the ministries and for the satellite makers, and, of course, in terms of policy outcomes, for the *Basic Law*.

Behind this, there is another elegant solution in that the provision of the advanced high-bandwidth data-relay and optical satellites to support the data communications architecture satisfy the demands of SAF 5 on a deeper level, because these were originally programs advanced by NICT and, before that, NASDA, that were planned back in the 1990s. NASDA had always intended to develop an advanced

DRTS satellite and NICT and NASDA (or rather the STA and the MPT/CRL) had long assumed that they would be getting budgets for a successor to the OICETS/Kirari optical interorbital high-data-rate communications satellite. But, as we have seen, these programs were shelved during the budget cuts of the late 1990s. So in a deeper historical context, the *Basic Law* has, in creating a national security space market, also established justification for reestablishing programs that were suppressed by the MOF nearly twenty years ago.⁷ Perhaps in this respect, Basic Plan 2016 shows *plus ça change, plus c'est la même chose* (the more things change, the more they stay the same).

In the case of the MOD's advanced X-band constellation, the picture is a little more nuanced. On the positive side of the balance sheet for the achievements of *Basic Plan 2016*, the X-band constellation is a significant win, if only because it has extricated the MOD, with a \$50 billion annual defense budget, from the situation of relying for its space communications on transponders rented from a commercial company.

On the other hand, the program was enabled somewhat on the cheap through a pay-by-installment scheme. Ironically, however this result comes as the U.S. is increasingly interested in disaggregating military missions onto commercial systems to save money and open up missions to new potentially cheaper contractors, weaning the DOD off its dependence of a tiny oligopoly military conglomerates! By that yardstick, Japan's inherently disaggregated framework – probably more through accident than design, looks, if anything, quite elegant.

But as outlined above, a closer look at the current situation with the implementation of the *Basic Law* shows that what has been achieved has come at a major price in terms of the vision of Kawamura and LDP politicians invested in asserting more direct control over space policy. As noted, MEXT and JAXA have, in the end, substantially both gotten their cake *and* eaten it. And METI's ambitious space plans so ambitiously laid out in 2007 in SOD are as dust. There is no ASNARO-based global EO observation system. The EW sensor is to fly on a JAXA developed satellite. The data relay and optical satellites are both JAXA satellites. And, not least, JAXA succeeded prior to *Basic Plan 2016* in securing the H-III rocket, which like its predecessors H-I and H-II, is supposed to be a revolutionary and highly engineered main launch vehicle, or Japan's space truck, to enter service at a much lower cost than its predecessors. It is not difficult to comment on this in terms of something like “we've heard this story before.”

Furthermore, it is instructive to see what has happened to the MDA and global observation programs. Outside of the ONSP, as alluded to at the end of Chapter 9, responsibility for coordination of MDA has involved harnessing an alphabet soup of non-space subgovernment actors, each with their own path-dependent priorities and ways of doing business, many of whom have had only tangential relationships with space policy. These include, for example, the Japan Meteorological Agency, the Fisheries Agency, the National Institute of Oceanographic Research and Development, the Agency for Natural Resources and Energy and the Petroleum Natural Gas and Metals and Mineral Resources Organization, and not least the Japan Coast Guard.

Facing this tremendous domestic coordination task, the NSS mandated a comprehensive strengthening of ocean monitoring capabilities including the utilization of space while paying attention to the construction of international arrangements. This can be interpreted as mainly meaning how to configure cooperation with the U.S. Three years after the basic understanding that Japan's contribution to MDA would first rest on using JAXA's ALOS-2, the MDA program has continued to take a minimalist approach with the MIC, Ministry of Agriculture, Forestry and Fisheries and MLIT all receiving small

⁷ For the Advanced DRTS program, see Pekkanen and Kallender-Umezu (2010), pp. 155.

budgets for MDA related data and communications systems for using JAXA satellites. If a major test of *Basic Plan 2016* is measuring how it coped with the idea of funding a new global EO constellation as one of the key platforms to raise the space activities budget to the ¥500 billion range annually, *Basic Plan 2016* falls conspicuously short.

By way of final conclusions, this dissertation does however produce some more nuanced insights overall. Japanese postwar history has demonstrated that efforts by politicians to exert change over the civil service usually often only last as long as the politician is able to continue to exert strategic action through periods of contention – or, more prosaically, stay in office.

In the case of space policy transition, we can see this clearly in the case of the ONSP when Maehara tried to set up his guerilla unit and quickly get the job done of enacting *Basic Plan 1* in 2009 in time for the upcoming August budget request. Of course this failed in the short term, but behind this, SAF 3, in the case of space policy, was able to exert, on-and-off, what amounted to a decade-long campaign of innovative and strategic actions to maintain pressure on SAF 4, beginning with the innovative (or strategic action) of establishing the NSSPG, itself a direct response to the shock of the H-IIA #6 failure.

In this sense, space policy and administrative change is interesting because it not only highlights the difficulty of political-led change over institutional inertia. It also, counterintuitively, shows something about what can be achieved under certain conditions. In terms of space policy and institutional transition, the chances of a non-civil-service originated and institutionally disruptive change succeeding depend on the ability of politicians to sustain effective innovative and strategic action to overcome bureaucratic defense-in-depth. The changes that did occur 2010-16 also showed, however, the potential of the extension of the Cabinet Office and political control into a new national policy in a field of new strategic importance – space policy. Space policy is now inextricably linked to military national security policy and the U.S.-Japan alliance and an administrative and institutional structure has been delivered, somewhat slowly and painfully, to run this.

Next, as shown on several occasions, using the legal and administrative framework set up by the SPC, prime ministers and senior politicians became more directly engaged at several critical moments, beginning with the establishment of ONSP control of the QZSS system under Prime Minister Noda, and then with Prime Minister Abe in *Basic Plan 2016*. They *did* succeed in effecting change! So, in a way, the principal of more direct political control of a new and strategic policy area over the central ministries has been partially established. In a sense, this does represent a partial fulfillment of both the intention of Prime Minister Hashimoto, and the vision of Prime Minister Koizumi.

This new principal of more assertive and effective political control is still contested in space policy. In terms of the SAF framework, the new General Space Activities SAF may not be fully settled. While the prime minister has a kind of “dual control” through the Cabinet Office over MEXT in terms of space policy, the primacy of the ONSP and the Cabinet Office is not yet fully established.

However, the achievements of the guerilla unit set up by Maehara in setting up the ONSP also point to a new way of doing government business through the use of bringing in outside experts, academics, lawyers and the private sector to participate in commissions over the course of policymaking and implementing timeframes. In the case of delivering the *Basic Law*, it had become apparent that, with the loss of Kawamura at the helm of the SHSP, attempts to frame the implementation of the *Basic Law* in the terms of the challengers (the U.S., politicians, and business) would come within the framework of

reference, the logic of appropriateness, of the incumbents – governing incumbent civil servants and the institutions and priorities *they* serve.

This dissertation starkly demonstrates that each attempt to change the deeply embedded institutional and administrative framework, any challenge to the power and budgeting distribution of Japanese ministries, was either absorbed, diverted, repurposed, resisted or parsed into an accommodation where policy might change, but the mechanics of administrative government remained relatively untouched. This is, in the end, the final story of why it took so long to partially effect change in space policy and implementation in Japan.

Some Shortfalls

Of one of the many shortfalls of this dissertation I can admit to is that I failed to analyze and contextualize one of the critical planks of the original NSSPG report, which was to use space development as a diplomatic tool, and which dedicated an entire chapter to the subject.³ Specifically, I may have been remiss in not tracking the increased involvement of MOFA. But, arguably, this is not a critical failing. Until recently, MOFA remained largely uninvolved in space diplomacy until the *Basic Law*; with one major caveat, as shown in Chapter 7, with its early interest in reconnaissance data and its support for the IGS program.⁵

On the other hand, over the last decade, MOFA has become involved in pursuing a wide-ranging agenda, including following Japan's high-profile engagement in UNCOPUOS for space security and sustainability, mainly supporting the U.S. Then, since 2010, especially with the growing interest of the U.S. in deputizing the Japanese space program's security enhancing potential in the service of the alliance, MOFA has played an increasingly important role facilitating the various dialogs. Most recently, MOFA has seen itself as the primary international implementation nexus for Abe *gaikō* and, for example, cooperation on MDA.

But in these activities, MOFA has acted/ is acting as a facilitator of dialog, greasing the wheels, as it were, rather than a major SAF player blocking, or supporting strategic actions in domestic episodes of contention. If a major satellite program gets funded, or does not get funded, is of little material importance to MOFA's budget. So I chose to deliberately skip over MOFA and its role in space diplomacy because in the crucible of SAF interactions, I chose to see MOFA as neutral.

Another more serious shortfall of this dissertation has been to ignore the long process of drawing up the Space Activities Act, which establishes a framework for new private sector actors to obtain licenses and government backed insurance for the launching and operation of satellites so as to promote new entries, or, in reality, to try to open the door for more commercial opportunities. The drawing up of the Act and dealing with the complexities has without doubt been a major accomplishment of the *Basic Law*.⁶

One more note on missing ministries. For the purposes of this SAF analysis, this dissertation has treated the MOF as a constant, incumbent domestic governance unit. This has been because the MOF has

³ See "Part III Application of Space Development for Foreign Affairs," Report by the National Space Strategy Planning Group – "Toward establishment (sic) of new space development and utilization system –" Report by the National Space Strategy Planning Group, August 2005, pp. 18-26.

⁵ As noted, the mid-1990s, the JDA had become a primary customer of a growing high-resolution commercial imagery market using foreign commercial satellites serviced by a growing domestic purchasing and resale sector, with not only the JDA but also MOFA and the Maritime Safety Agency as major customers. Subsequent to that MOFA staffers as advisors and analysts have played a substantive role in both the CIRO and CSIC.

⁶ Setsuko Aoki, "New Law Aims to Expand Japan's Space Business," *Nippon.com*, 3 March 2017.

played a constant role in suppressing the space activities budget since the 1990s and its stance has been unchanging. It has been, in a sense, untouchable and its institutional behavior has been constantly negative. In fact, whenever it has had a chance, as was seen in 2009 with *Basic Plan 1* and then with the METI wide area EO constellation, *all* the other players have come up short, and political pressure from the LDP has failed to move the MOF beyond the stance of preventing the overall raising of the general budget.

A Final Note: The Possible Application of the SAF Framework to Cybersecurity

In terms of further research, the utility of the SAF framework is proposed to be extended to another area; that of cybersecurity policy transition. This may be interesting because cybersecurity policy transition on certain levels and in certain ways shares some very similar features to space policy transition.

First, it became apparent by the mid-2000s that the highly sectionalized, divided and uncoordinated information and data assurance policies drawn up under the bailiwicks of no fewer than ministries were becoming badly dated and inadequate.⁸ Second, almost in a direct parallel with space policy transition, U.S. concerns about Japanese cybersecurity rose through the mid-2000s. In the case of cybersecurity, concerns focused on the safety of transferring data about strategic military technologies, notably BMD-related, and increased intelligence sharing. This led to an April 2006 U.S.-Japan States Memorandum of Understanding Concerning Cooperation Regarding Information Assurance and Computer Network Defense.⁹ Third, as part of a growing awareness that Japan's administrative and institutional structure for cybersecurity was inadequate, and perhaps very similar to space policy there was then a partial reform of administrative governance that sought to put more power into the Cabinet Office.

In the framework of cybersecurity policy and administration, this initially took place in 2004 with the establishment of the a Cabinet Office IT Strategic Headquarters, and, in 2005, the Information Security Policy Council (ISPC), which were tasked with devising Japan's basic strategy and a National Information Security Center (NISC) to act as its secretariat to develop strategy roadmaps, maintain a government-wide framework for coordinating cyber critical infrastructure protection, and to formulate Japan's as then limited international engagement on cybersecurity issues.

The parallels continue. As in space policy, cybersecurity also had its own Taepodong-like shocks. The first was the discovery in 2009 that Japan was not at all as cyber secure as it thought it was. But the

⁸ For an overview of Japanese cybersecurity policy transition using a neorealist framework, please see Paul Kallender and Christopher M. Hughes, "Japan's Emergence as a 'Cyber Power': From Securitization to Militarization of Cyberspace," *Journal of Strategic Studies*, Vol. 40, Issues 1-2, 2017, pp. 118-145.

Japan's foundational IT policies were initiated by the 2000 Information Technology Basic Law and the establishment in February 2000 of an Information Security Section in Prime Minister's Cabinet Office. The first 'e-Japan Strategy' of 2001 focused on harnessing the revolutionary potential of the digital economy, rather than security considerations. The IT Basic Law Article 22 mandates the assurance of security and reliability of advanced information and telecommunications networks and the protection of personal information. In the 'e-Japan Strategy' of January 2001, security is only mentioned twice; once in connection with promoting a shift to the use of IPv64 addressing in a discussion of targets, and the other, in passing, notes that security is important as the government should work to eliminate the use of paper.

⁹ This had been provoked by Japan's revealed vulnerabilities in 2006-07 over the handling of data relating to the Aegis naval air-defense system. In an embarrassing incident in 2006-2007, it was discovered that details of the U.S. Aegis system had been copied by a 34-year old lieutenant commander onto a CD and passed to other MSDF officers, who had themselves made copies, causing the U.S. to temporarily halt the shipment of parts Aegis radar upgrades on the Japanese destroyer Kongō just as Japan was pressing the United States to allow it to procure the F-22 fighter and stealth technologies. See Kallender and Hughes (2017), pp. 16-17.

major shock came in 2011 when it was revealed that MHI had been penetrated as part of a highly sophisticated Advanced Persistent Threat attack, probably by APT-1 (a paramilitary PLAN cyberattack battalion) or similar body, and that very possibly it had been successful.

As with the Taepodong flyover, the “shock” of the MHI revelations was profound. Following that the Japanese public was schooled in a whole new vocabulary of cybersecurity-related jargon such as Advanced Persistent Threats (APTs), worms, backdoors, hackers, and so on. Meanwhile, as Japanese waters were increasingly encroached on by Chinese PLAN ships and paramilitary fishing fleets, the Japanese government, leading research institutions, think-tanks, and top-tier Japanese companies involved in a broad range strategic areas (not only in military-related technologies, but also in the IT, advanced materials and biotechnology sectors, to name a few) were revealed as being inundated in *tsunamis* of APTs. Following this, there was more urgency attached to re-reinforce the Cabinet Office to exert more control over the line ministries and draw together an all-Japan strategy, with mixed results.

After many attempts to do this, almost directly paralleling the battles between different players (including the DJP attempting to impose its vision) in November 2014 the Policy to Enhance Japan’s Cyber Security was published and the Cyber Security Strategy Headquarters (CSSH), responsible for creating Japan’s new ‘whole of government’ *Cyber Security Strategy* of September 2015 was established in the Cabinet Office, backed by a Cyber Security Basic Act that is supposed to give the CSSH more comprehensive powers to assert a national strategy for cybersecurity and try to prevent continued stovepiping by making one of its prime missions under the law’s first provision ‘3. General Policy’ the assurance of cybersecurity at national administrative organs.

The CSSH should now have authority to formulate common security standards for all central ministries and to evaluate their performance, especially in the light of any breaches or inadequacies exposed. It also has the authority to monitor expense budgeting plans for cybersecurity in ministries and IAs, placing it above competitor agencies such as METI and the MIC.¹⁰

As the above conventional narrative shows, the similarities between space policy and administrative arrangements and their counterparts in cybersecurity are startling. But the endpoint looks very similar; more Cabinet Office oversight and some more direct political control, but leaving much of the extant framework in place. In this light, follow-up research I would like to do would involve examining cybersecurity policy and administrative change using the SAF framework to delineate how and why, and how much (or how little) today’s cybersecurity policy and administration has changed.

¹⁰ All these points are covered in detail in Kallender and Hughes (2017).

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