# Chairperson's Summary

On December 11, 2024, the National Institute for Defense Studies held the International Symposium on Security Affairs on the theme of "National Security Space Policies in the Changing Environment." This symposium aimed to contribute to security dialogues, enhance the quality of research, revitalize human exchanges, foster mutual understanding internationally, and inform security policies.

The symposium was divided into four parts: the Keynote Speech and sessions 1 to 3. Session 1 discussed Changes in the Strategic Environment in the Space Domain, Session 2 discussed Major Country Policies in the Changing Environment, and Session 3 held a Wrap-up Discussion. IIDA Masafumi, Director of the Security Studies Department at the National Institute for Defense Studies, served as the chairperson. Below is the Chairperson's Summary of the symposium from the Keynote Speech to Session 3, in that order.

The Keynote Speech was titled "Space Security Challenges for the U.S.-Japan Alliance" and given by Dr. Scott Pace (Professor of the Practice of International Affairs, Director of the Space Policy Institute, Director of the Institute for International Science and Technology Policy and Director of the MA International Science and Technology Policy program at the George Washington University's Elliot School of International Affairs). Dr. Pace touched on the fact that Japan had adopted the three approaches of (i) radically expand the use of space systems for national security, (ii) ensuring safe and stable use of outer space, and (iii) realizing a favorable cycle between national security and the space industrial base, in the Space Security Initiative (SSI) it had released in June 2023, and then discussed the multifaceted challenges and responses pertaining to space security in relation to these approaches.

Firstly, regarding diplomatic aspects, Dr. Pace stated that if Russia chose to place a nuclear weapon in orbit, that would be a clear violation of international law, and the United States and Japan must continue to work closely together to compel a change in Russia's behavior while considering possible courses of action with like-minded countries in the United Nations.

Next, regarding military aspects, Dr. Pace stated that in order to deter China, Russia, and North Korea, it is important to operate space capabilities linked to the various

capabilities in other domains, and that he hoped that the joint capabilities and cross-domain operations capabilities of the Japan Self-Defense Forces would be enhanced. Furthermore, he noted regarding the counterstrike capabilities that the Japan Self-Defense Forces plan to possess, that Japan will need to embed the TCPED (tasking, collection, processing, exploitation, and dissemination) process in its weapons systems and utilize its space capabilities, while ensuring a shared understanding with its allies and partners.

Moreover, regarding economic aspects, Dr. Pace pointed out that Japan should utilize the space industry as the foundation of its own economic security and self-defense capability in preparation for conflict with China. As an example of a first step toward that, he mentioned collaboration on a future Low Earth Orbit (LEO) Hypersonic Glide Vehicle (HGV) detection and tracking constellation, a result of the U.S.-Japan Summit Meeting in April 2024, and he suggested that Japan consider the approach of "Buy it," "Build it," and "Improve it" toward rapidly acquiring national security space capabilities. Note that he also urged caution to ensure, when utilizing private sector capabilities, that the range of satellite constellations being pursued by the Ministry of Defense does not become isolated from actual war-fighting needs and thus not contribute to the U.S.-Japan security alliance.

Finally, Dr. Pace gave three recommendations to Japan: (i) determine which national security missions require space capabilities, (ii) develop plans and budgets for national security–related space programs, and (iii) prioritize the development of national security space capabilities that are complementary and interoperable with allied space capabilities. In addition, he stated that to strengthen the space capabilities of the Japan Self-Defense Forces, Japan should prioritize improving information security, enhancing joint service integration and interagency cooperation, and conducting more realistic training and exercises that reflect joint and combined arms scenarios likely to be faced by Japan. Finally, he concluded his speech by reiterating that challenges to space security are a crucial component of U.S.-Japan defense cooperation.

In Session 1, Mr. Bryan Clark (Senior Fellow and Director of the Center for Defense Concepts and Technology at Hudson Institute), Dr. John Klein (Senior Fellow and Strategist at Falcon Research, Inc.), and Dr. Kevin Pollpeter (Director of Research at the Department of the Air Force's China Aerospace Studies Institute) gave presentations on Changes in the Strategic Environment in the Space Domain, and Dr. AOKI Setsuko (then Professor of Law at Keio University Law School; currently Professor at Chiba Institute of Technology) discussed with the presenters.

At the outset, Mr. Clark gave a presentation titled "Winning the Fight for Sensing and Sensemaking." To begin his presentation, he pointed out that it has become difficult for the U.S. military to maintain overwhelming dominance against its enemies in all environments, and diverse and capable competitors have emerged in all regions, so there is a pressing need to form appropriate deterrence tailored to the nature of each region and adversary. He then argued that in order to counter China, which is particularly reducing the capability gap with the United States, the operation of non-kinetic offensive capabilities, namely the method of countering sensing and sensemaking, will be important.

Based on the recognition that China has been enhancing its sensing and sensemaking capabilities in recent years and is achieving military success by building and using multiple space-based systems, Mr. Clark stated that to counter the Command, Control, Communications, Computers, Cyber, Intelligence, Surveillance, and Reconnaissance (C5ISR) capabilities which China has been enhancing, it is necessary to take countermeasures tailored to the capabilities of the adversary; for example, countering satellite-based signal intelligence collection with the creation of false targets by transmitting radio waves from uncrewed surface decoys, and decoys and jamming against synthetic aperture radars (SARs) installed on satellites to counter image intelligence collection.

Furthermore, he mentioned the importance of having more diverse capabilities and a greater number of options to mislead the adversary and delay their decision-making. He explained that in the case that tools for countering an adversary are limited, it is possible for the adversary to easily predict and respond to any moves made by our side, and that maintaining and enhancing the diversity of tools for countering an adversary in order to introduce an element of surprise is effective.

Mr. Clark concluded his presentation by pointing out that collaboration with industry is important in the development of these non-kinetic offensive capabilities, that technological innovation in private sector companies should be encouraged through government support, and that sustained efforts throughout peacetime competition will be the key to restoring U.S. military superiority.

Following this, Dr. Klein gave a presentation titled "Commercial Space for Competitive Advantage" about how governments are using commercial space activities to gain an advantage over their competitors. At the outset, he proceeded on the premise that in recent years, commercial space activities have expanded significantly in both scale and

diversity, including a dramatic increase in the number of satellites launched, and they now play an important role in the constantly changing security situation. He followed this by pointing out that the space strategies of the Western countries have emphasized the importance of the private sector in achieving political and military objectives. He then noted that technological innovation by private sector companies is an important element for generating competitive advantage and argued that governments are utilizing private sector technologies to achieve strategic objectives while cutting costs.

Moreover, Dr. Klein mentioned that the utilization of private sector companies can be a way for governments to expand their influence in competition and conflict while avoiding direct risks. He stated that space-related technologies are dual-use and that by using the technologies and services of private sector companies, governments can reduce research and development costs and rapidly acquire the necessary capabilities. In particular, he presented the idea that building and utilizing hybrid space architectures, comprising various orbits and types of satellites and their related systems, would be more effective than using individual satellites and their functions.

Finally, Dr. Klein pointed out that the use of commercial satellites in wartime entails legal challenges and risks, making prior discussions essential. It is necessary to deepen collaboration with the private sector and maximize the utilization of technological innovation, while taking measures to protect commercial assets. He concluded his presentation by stating that building trust between governments and companies during peacetime is key to the success of space strategies.

Finally, in Session 1, Dr. Pollpeter gave a presentation titled "China's Growing Space and Counterspace Capabilities." He began by pointing out that in recent years, China has dramatically increased the number and types of satellites it launches into orbit, and that China's space activity capabilities, including its activities on the Moon and Mars, have achieved remarkable progress not only in quantity but also in quality. He stated that the backdrop to this is that China stated in its Defense White Paper that space is one of its four critical security domains, in addition to maritime, cyber, and nuclear, that China strongly recognizes the importance of space capabilities for fulfilling a variety of functions, such as projecting power far from its shores, intelligence gathering, and strike assessments, and that China has the objective of achieving space superiority which it defines as the ability to freely use space itself and deny space to adversaries.

Dr. Pollpeter also presented several examples and evaluations, showing that China has made remarkable progress in counterspace capabilities, including direct-ascent

anti-satellite (ASAT) weapons, directed-energy weapons, cyberattack capabilities, electronic warfare weapons, and co-orbital weapons. He then expressed concern about the potential impact these capabilities could have on the space programs of Japan and the United States.

Moreover, Dr. Pollpeter mentioned the Fractional Orbital Bombardment System (FOBS), which is launched into orbit around the Earth and then deorbited before completing a full revolution around the Earth to attack ground targets, as the largest concern at present. Considering that the FOBS enables surprise attacks on all ground targets from unanticipated directions and could be equipped with nuclear warheads, it could become an extremely large threat. He pointed out that there is a possibility that China is seeking to move from a traditional nuclear triad to a four-component nuclear structure by incorporating FOBS, potentially having a significant impact on the current nuclear deterrence regime.

Finally, Dr. Pollpeter concluded his presentation by reaffirming that China is advancing its space program in various fields, which demonstrates the rise of China's national power and could pose a significant threat to Japan and the United States.

In the Session 1 discussion, Dr. Aoki made comments and posed questions to the three presenters, and received responses from each of them. Dr. Aoki firstly mentioned that the presentations by the three presenters, under the same theme of "Changes in the Strategic Environment in the Space Domain," each had different focus points, but reached common conclusions about (i) the ever-growing threat from China, (ii) the importance of strengthening the deterrence regime using advanced, non-traditional non-kinetic approaches, (iii) the decisive impact that the space capabilities possessed by commercial entities have on national security, (iv) the importance of cooperation with allies in a U.S.-led non-kinetic approach, and (v) the importance of trust-building and effective task division between military and commercial entities.

Following this, Dr. Aoki pointed out that the Government of Japan envisions the utilization of private sector space capabilities being limited to defensive non-kinetic approaches, but even in this case, the space assets possessed by private sector companies are still exposed to threats from enemy nations. Dr. Aoki then presented the view that when the space assets of the private sector are involved in peacetime military activities, even if they are merely providing passive communications or images, if they are deemed to be integrated into a nation's military space activities, the nation will be subjected to retaliation to the extent that is legal in peacetime, and if the assets are judged to

have engaged in illegal interference with the adversary nation, they will be subjected to countermeasures. Dr. Aoki then stated that there are problems of what kinds of arrangements should be made between the national government and private sector companies and how the private sector entities should be protected, and pointed out that it was necessary to stipulate in advance, in a specific and detailed manner, the risk allocation between the national government and the companies.

Next, Dr. Aoki posed two common questions to the three presenters and sought their responses to both of the questions or either one. The first question concerned the latter part of Dr. Aoki's comment: what measures can be taken to protect private sector companies, and what types of agreements are essential for this purpose? The second question asked for the presenters' honest views on the role Japan should play in solidarity among allies to maintain and build information superiority against China, particularly regarding the advantages held by Japan and the fields in which Japan should make urgent preparations going forward.

Firstly, Dr. Pollpeter responded that he believes Japan and the United States can cooperate more closely in space situational awareness (SSA) and that supplementing and ensuring redundancy in U.S. launch methods, navigation systems, and remote sensing systems could be considered.

Next, Dr. Klein responded by touching on the ethical problems associated with attacking the commercial systems of countries that are not parties to a conflict, using Starlink as an example. He noted that meticulous coordination and consensus building among the relevant stakeholders is necessary to determine whether such systems should be regarded as allied military assets and how they might be perceived by an adversary. He cited Japan's geographical characteristics and robust industrial base as strengths, but he concluded that a continuing issue is how Japan can fulfill an appropriate role for self-defense within its constitutional constraints.

Finally, concerning the use of Japan's commercial space capabilities, Mr. Clark began by stating that it was possible to advance commercial use pertaining to areas not included in the kill chain, such as use of communications satellites. He further stated that it may also be possible to go a step further to handle missile information, etc. at the planning stage of a conflict before the outbreak of actual hostilities. He then noted that the work of clearly distinguishing between areas included and not included in the kill chain would continue to be important, and that there is still room for improvement. He responded that it is thought that one area in which Japan can demonstrate its strengths is in the utilization of uncrewed systems that are short-range and slow-speed, yet inexpensive,

compact, and simple.

In Session 2, Dr. Bleddyn Bowen (Associate Professor in the School of Government and International Affairs at Durham University), Dr. FUKUSHIMA Yasuhito (then Senior Research Fellow, Global Security Division, Policy Studies Department, National Institute for Defense Studies; currently Associate Professor, Faculty of Policy Management, Keio University), Dr. Xavier Pasco (Director of the Foundation for Strategic Research), and Dr. Rajeswari (Raji) Pillai Rajagopalan (Resident Senior Fellow, Australian Strategic Policy Institute) gave presentations on Major Country Policies in the Changing Environment, and Dr. SUZUKI Kazuto (Professor of Science and Technology Policy at the University of Tokyo's Graduate School of Public Policy and Director of the Institute of Geoeconomics) held a discussion with the presenters.

Firstly, Dr. Bowen gave a presentation entitled "The UK in the Global Space Age." He pointed out that the nature of the use of space by the United Kingdom is a "binary system." This means that the space policies of the United Kingdom depend on the "special relationship" with the United States, while being partially embedded in the systems of Europe, and vacillate between the two poles. Then he stated that the space policies of the United Kingdom are facing difficulties in the context of the reelection of Donald Trump as the next president of the United States and the growing political vulnerabilities of the countries in Europe.

Dr. Bowen stated that, in historical terms, the national security space policies of the United Kingdom have largely depended on the United States, including the launch of satellites, and then he pointed out that the United Kingdom had not presented its own comprehensive space policies for many years. According to Dr. Bowen, in this context, the United Kingdom has in recent years announced a string of comprehensive policy documents concerning space. For example, in its 2021 National Space Strategy, the UK presented a policy of spending ten billion pounds in space-related fields over the next ten years, and in addition, in the 2022 Defense Space Strategy, the UK emphasized that it would have its own space capabilities. Dr. Bowen pointed out that the United Kingdom's major areas of military space capabilities are satellite communications, Space Domain Awareness (SDA), ISR, and space control. He noted that the UK is advancing development and launch activities in these areas and is also investing in related U.S. companies.

According to Dr. Bowen, another characteristic of the space policies of the United

Kingdom in recent years is that it has been exploring collaboration with middle powers such as Japan, South Korea, Italy. Finally, he predicted that resource constraints, including budget cuts, could become an issue.

Next, Dr. Fukushima gave a presentation titled "Japan's Defense Space Policy: The Past and Next Ten Years." He acknowledged the persistent misconception that Japan was not using space for defense applications prior to the enactment of the Basic Space Law in 2008, and pointed out that actually Japan has used space for defense purposes for over 50 years. That has covered almost all areas, from telecommunications to environmental monitoring (meteorological observation, etc.), ISR, positioning, navigation, and timing, and early warning of missile launches. He also said that one change due to the establishment of the Basic Space Law was that the Japan Self-Defense Forces began to consider acquiring dedicated space-related capabilities.

Following this, Dr. Fukushima mentioned the progress made over the past ten years, the efforts by the Ministry of Defense and the Japan Self-Defense Forces to acquire X-band defense communications satellites, space surveillance capabilities, and capabilities for gaining superiority in the use of space. He pointed out that the backdrop to starting development of the space surveillance capabilities was the emergence of risks to the use of space, as well as the U.S. Department of Defense starting full-scale efforts to strengthen space collaboration with allies during the Obama administration. Furthermore, according to Dr. Fukushima, the major turning points for Japan's defense space policies were the National Defense Program Guidelines and Medium Term Defense Program, both in 2018. Gaining superiority in the use of space was added as a new mission in the space domain in these documents, and as a result, Japan began development of the related capabilities.

As another example of the progress made over the past ten years, Dr. Fukushima brought up the establishment of dedicated units. The establishment of a space domain mission unit responsible for space surveillance and gaining superiority in the use of space was specified in the above National Defense Program Guidelines and the Medium Term Defense Program. Accordingly, the Space Operations Squadron was launched in the Air Self-Defense Force in 2020 and the Space Operations Group was launched in 2022 to oversee the squadron.

Finally, Dr. Fukushima stated the outlook for the next ten years. He ended his presentation by pointing out that concrete efforts based on the three new strategic documents approved by the Cabinet in 2022 (the National Security Strategy, the

National Defense Strategy, and the Defense Buildup Program) would be made to build satellite constellations utilizing the technologies of the private sector, reorganize the Air Self-Defense Force into the Air and Space Self-Defense Force, and strengthen collaboration with companies, allies, and partners.

Next, Dr. Pasco gave a presentation titled "Protecting and engaging: The Tight Rope of the French Military Space Policy." He firstly stated that the space policies of France were started by President Charles de Gaulle in the 1950s, and France has operated reconnaissance satellites and other systems in order to strengthen its sovereign nuclear deterrence. He also mentioned that since the 1990s, France has utilized satellites in the Gulf War and in counterterror operations conducted in Africa. He stated in relation to these points that "knowledge and anticipation" was incorporated as the fifth strategic function in the White Paper on Defence and National Security published by the French Ministry of Defence in 2008, which led to increased use of space systems for intelligence and combat operations support.

Moreover, Dr. Pasco pointed out that since the ASAT test by China in 2007, multiple countries had conducted similar tests, and against this backdrop, France began efforts to promote active defense through its 2019 Space Defense Strategy, etc. According to Dr. Pasco, France is advancing the creation of a command, control, communication and computing center for space operations and the development of patrol-guard satellites (YODA), in-orbit lasers (FLAMHE), and ground-based lasers (BLOOMLASE) by 2030.

Dr. Pasco ended his presentation by stating that the "active defense" military initiative should be supplemented by diplomatic activities aimed at ensuring transparency, so that the initiative does not provoke excessive reactions from other countries.

Finally, Dr. Rajagopalan gave a presentation titled "India's National Security Space Policy." She first stated that India's use of space was centered on the civil field over many years, and India took the position of criticizing the space policies of the United States, the former Soviet Union, and other countries, which promoted the military use of space. She pointed out that India was prompted to change this kind of negative stance toward the military use of space by China's implementation of an ASAT test in 2007. According to Dr. Rajagopalan, India has begun to discuss the need to prepare for threats from its neighbors and protect its own space assets.

Dr. Rajagopalan pointed out that India's specific measures regarding its use of space for national security purposes include the enhancement of military equipment, such as

the development of communications satellites with military applications, positioning systems, and weapons designed to protect space assets (electromagnetic pulses, lasers, directed-energy weapons, etc.). In relation to this point, she noted that Prime Minister Narendra Modi declared in 2019 that India would advance the development of its own ASAT capabilities. Furthermore, she raised the fact that beginning with the establishment of the Defence Space Agency (DSA) within the Indian military in 2018, India has also been advancing the development of institutional aspects. Furthermore, according to Dr. Rajagopalan, the DSA conducted its first military exercises in the area of space operations in November 2024. In addition, she pointed out that in recent years the Indian military leadership has been making positive statements about the military use of space.

Finally, Dr. Rajagopalan stated that India intends to strengthen cooperation with countries which have a similar perspective concerning China. This includes bilateral collaboration with the United States and Japan, among others, as well as deepening cooperation within minilateral frameworks such as the Quad. She stated that while India's external cooperation in space has traditionally been conducted with developing countries in most cases, the strengthening of relations with developed countries such as the United States, as described above, indicates that there has been a change in India's space policy.

In the Session 2 discussion, Dr. Suzuki commented on the presentations by the four speakers and then raised questions. (The responses to the questions were postponed to Session 3 due to time constraints.)

Dr. Suzuki pointed out that the space policies of the four countries raised in this session each have their own historical backgrounds and unique contexts, which suggests that space policies for national security purposes do not necessarily target a specific "enemy" and that the problem of "who the enemy is" is not necessarily a decisive factor. Furthermore, he stated that we can conclude that institutions are also important, and each country is building institutions based on its respective context. Moreover, he presented the analysis that leadership is also an important factor in space policymaking, citing the examples of President de Gaulle of France and Prime Minister Modi of India, who were mentioned in this session, and in addition Chief Cabinet Secretary KAWAMURA Takeo in Japan and Prime Minister Margaret Thatcher of the United Kingdom, to demonstrate that the presence of leaders who form policies based on the context and institutions of their own countries is important.

Based on the above premises, Dr. Suzuki posed three common questions to the

four presenters. The first question was, from a leadership perspective, what impact do you expect President Trump's new space policies to have on your country? The second question was, from an institutional perspective, how will the programs for the use of space for national security in your country change going forward as a consequence of the progress of commercialization? Thirdly, he asked about the impact that Mr. Elon Musk will have on the use and commercialization of space going forward. Each presenter was asked to respond to one or more of these questions.

In Session 3, a Wrap-up Discussion by all of the previous speakers was held, but firstly, the presenters responded to the questions from Dr. Suzuki in Session 2, and after that, the discussion was held in the form of responses to questions from the audience.

With respect to Dr. Suzuki's questions in Session 2, firstly Dr. Rajagopalan expressed the view that with President Trump's return to power, uncertainty and unpredictability in the United States will increase, so other countries will want to have their own options while partnering with the United States, will not rely excessively on the United States, and will begin to shoulder more of the burden by themselves. Next, Dr. Pasco stated that in the relationship with the United States, which will become unpredictable with President Trump's return to power, issues such as what Europe is aiming for concerning the use of space, what contribution Europe can make as a partner of the United States, and how Europe manages its relationship with the United States will be important. Regarding the progress of commercial space activities and their relationship to national security, Dr. Fukushima stated that the U.S. Department of Defense had been developing and operating space systems itself and only using the space capabilities of the private sector as auxiliary capabilities, but recently it has been focusing on how commercial space innovation can be utilized effectively. Dr. Fukushima also pointed out that before the establishment of the Basic Space Law the ownership of satellites by the Japan Self-Defense Forces was not permitted and the Japan Self-Defense Forces had a long history of utilizing the space capabilities of the private sector. Then he stated that recently the question of how to stably use commercial space systems in response to the emergence of deliberate threats has become an issue. Finally, Dr. Bowen predicted that the national security space policies of the second Trump administration would maintain continuity with those of his first administration. He pointed out that it is thought that military space cooperation between the United States and the United Kingdom will likely continue unchanged, but Mr. Musk has been intervening in domestic British political affairs, so there is a risk that this could cause diplomatic friction, and caution is necessary.

Next, the presenters responded to questions from the audience. Firstly, regarding the second Trump administration, Dr. Pace acknowledged that space policy would be an area with a high degree of continuity, while stating that the question of what to actually implement was most important, and from that perspective, the nomination of Mr. Jared Isaacman to be the Administrator of the National Aeronautics and Space Administration (NASA) was a good choice. Furthermore, he expressed the view that the second Trump administration would implement various reforms concerning the utilization of private sector space capabilities in the national security field.

Next, in response to a question asking how the space innovation and services of the private sector should be utilized in national security and how the risks borne by the private sector as a consequence of that can be minimized, Dr. Klein pointed out that indemnification and insurance with respect to private sector companies are necessary to minimize risks. Dr. Aoki stated that it is necessary to make arrangements with private sector companies and clarify their conditions in advance, as well as to consider introducing more resilient private sector satellite constellations and economic indemnification for companies.

Next, concerning the military usefulness of the FOBS for which China conducted a launch test in 2021, Dr. Pollpeter responded that unlike the Soviet Union's FOBS, China's FOBS is useful because it is able to use hypersonic technologies to evade missile defenses and attack at high speed. Furthermore, he expressed the view that the reason why China conducted the FOBS test is perhaps that China is thinking that it wants to overcome a vulnerability in its own nuclear forces in order to establish nuclear deterrence against the United States. In relation to that, he stated that China has been concerned about and considering how to evade the missile defenses of the United States since the second half of the 1990s, so China's possession of various long-range strike capabilities, including FOBS, could pose more dilemmas for the United States.

Moreover, regarding the suspicion that Russia is developing a nuclear-armed ASAT weapon, Dr. Pasco responded that it was shocking news for France as well and was a military message showing that the relationship between space and nuclear had become closer. In relation to this, he pointed out that France's defense authorities are concerned about Russia's satellites getting close to those of other countries, and that it is necessary to take concrete measures, including SSA and active defense, to deter such undesirable behavior by Russia. Furthermore, he added that the countries of the world must unite in the United Nations to raise their voices against Russia's undesirable behavior and engage in signaling. Next, Dr. Bowen stated that Russia was probably talking about

a nuclear-armed ASAT weapon in order to incite fear, so we shouldn't pay too much attention to it. Finally, Dr. Rajagopalan commented that there are concerns that current international norms are being diluted by irresponsible behavior by China, Russia, and other countries, as in the case of cyberattacks on space systems or the problem of the deployment of nuclear weapons in space, and that it is necessary to reassert basic principles.