

and the Paracel Islands²⁵. In recent years, the countries concerned, including China, have stepped up their activities to assert their sovereignty. Developments associated with the freedom of navigation in the sea have been subject to increasing international concern.

8 Southeast Asia

Southeast Asia is located at the crossroads of traffic, linking the Pacific and the Indian Oceans, such as the Straits of Malacca and the South China Sea. This region, however, has maritime security issues, including disputes over the sovereignty of the South China Sea and piracy.

In 2002, ASEAN and China signed the Declaration on the Conduct of Parties in the South China Sea (DOC)²⁶ aimed at peacefully setting the issues over the South China Sea. Currently, official consultations are held with a view to establishing the Code of the Conduct of Parties in the South China Sea (COC). The COC is deemed to contain more specific content than the DOC and be legally binding. In addition, there have been developments related to settling issues through arbitral proceedings set out in UNCLOS.

In January 2013, the Philippines instituted arbitral proceedings pursuant to UNCLOS for the dispute between the Philippines and China over its assertions and actions in the South China Sea. In response, in February 2013, China issued a notification to the Philippines stressing that the issue be settled bilaterally and that China would not agree to arbitral proceedings²⁷. In December 2014, China released a paper alleging that the arbitral tribunal does not have jurisdiction over this case. That same month, Vietnam, another contesting state, requested the arbitral tribunal to take into consideration Vietnam's assertions over the South China Sea. In this regard, there has been a trend among some countries concerned to work towards a peaceful solution of the issue in accordance with international law.

In the Southeast Asia region, multilateral cooperation has also made progress to deal with wide-ranging security issues, including piracy and other transnational issues. With regard to counter-piracy measures, Indonesia, Malaysia, Singapore, and Thailand conduct the Malacca Strait Patrols²⁸. In addition, efforts have been under way to share information related to piracy and build a cooperation arrangement in accordance with ReCAAP.

Section 4 Outer Space and Security

1 Outer Space and Security

Nearly 60 years have passed since a satellite was launched into outer space for the first time in the history of mankind. In recent years, technology leveraging outer space has been applied to various areas. No state is allowed to own outer space, and it is freely available to all nations. Major countries thus make proactive efforts to use outer space¹. For example, meteorological and observation satellites are used to observe weather as well as land and waters; communication and broadcasting satellites are used for the Internet and broadcasting; and positioning satellites are used to navigate aircraft and ships. These satellites have widely prevailed in social, economic, scientific, and other areas as essential infrastructure for the public and private sectors.

In major countries, military forces are actively involved in outer space activities and utilize a variety of satellites. There is no concept of national borders in outer space, meaning that the utilization of satellites enables the observation of, communication at, and positioning on any area on Earth. Thus, major countries make efforts to enhance the capabilities of a variety of satellites and launch them for the purpose of enhancing C⁴ISR functions². Such satellites include image reconnaissance satellites reconnoitering military facilities and targets, satellites gathering radio wave information for military communications, communication satellites for military communication, and positioning satellites for navigating naval vessels and aircraft and enhancing the precision of

²⁵ China, Taiwan, Vietnam, the Philippines, Malaysia, and Brunei assert sovereignty over the Spratly Islands. China, Taiwan, and Vietnam assert sovereignty over the Paracel Islands.

²⁶ See Part I, Chapter 1, Section 6-4, Footnote 41

²⁷ In the case of the arbitral tribunal in accordance with UNCLOS, even if either party to a dispute does not agree to bring the case before the arbitral tribunal, the tribunal may continue the proceedings and make its award, at the request of the other party to the dispute.

²⁸ The Malacca Strait Patrols are comprised of: the Malacca Strait Sea Patrols which commenced in 2004 by the navies of Indonesia, Malaysia, and Singapore to monitor piracy and other activities in the Malacca-Singapore Strait (Thailand participated in 2008); aircraft patrol activities which commenced in 2005; and information sharing activities which commenced in 2006.

¹ The Outer Space Treaty (The Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, Including the Moon and Other Celestial Bodies) that came into force in October 1967 defines such matters as the use of the Moon and other celestial bodies for peaceful purposes, the freedom in principle of exploration and use of outer space, and the prohibition of ownership. However, no clear international agreement has been reached on the definition of outer space, though according to one of the concepts, outer space is considered space located 100 km or further away from the Earth's surface.

² The term "C⁴ISR" stands for command, control, communication, computer, intelligence, surveillance, and reconnaissance. The 1991 Gulf War is considered "the first high-tech war conducted in outer space in the history of mankind."

weapons systems.

On the other hand, in January 2007, China conducted an Anti-Satellite (ASAT) test to destroy its aging satellite with a missile launched from the Earth's surface. The resulting space debris³ spread across the satellite's orbit, which was noted as a threat against space assets such as satellites owned by countries. Since existing frameworks, including the "Outer Space Treaty" that prescribes the exploration and use of outer space, 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"⁴ proposed by the European Union (EU) and the guidelines for "Long-term Sustainability of

Outer Space Activities"⁵ of the Scientific and Technical Subcommittee of the United Nations Committee on the Peaceful Uses of Outer Space (COPUOS) which address such matters. Moreover, countries are working on the Space Situational Awareness (SSA)⁶ by monitoring the impact of accelerated solar activity on satellites, electronic equipment on Earth and threats caused by meteors reaching the Earth, in addition to threats posed by anti-satellite weapons and space debris on space assets.

All of this shows that the risk to the stable use of outer space has become one of the critical security challenges countries face.

See Part III, Chapter 1, Section 1-5 (Responses in space)

2 Trends in the Use of Space by Countries for Security Objectives

1 United States

The United States launched its first satellite, Explorer 1, in January 1958, following the satellite launches by the former Soviet Union. The country has since then proceeded with a variety of space activities in fields including military, science, and resource exploration, such as launching the world's first reconnaissance satellite and landing on the Moon. Today, the United States is the world's leading space power. Its activities cover a wide spectrum of areas including military, social, and economic aspects, benefiting the United States as well as the entire world⁷. In addition, U.S. forces clearly recognize the importance of outer space for their actions, and in this regard, actively utilize outer space for security purposes.

In June 2010, the United States released the "National Space Policy" that presents the country's basic guidelines for space policy, including its objectives and principles. It specified guidelines on security space, civil space, commercial space, and international cooperation, among other sectors. In February 2011, the country also released the "National Security Space Strategy" (NSSS) as the security guideline regarding outer space, explaining that the current and future outer space environment is driven by three trends: (1) congestion caused by artificial objects including satellites; (2) contestation by potential adversaries; and (3) increasing competition with other

countries. Based on this understanding, the NSSS identifies that the U.S. strategic objectives for outer space are to: (1) strengthen safety, stability, and security in outer space; (2) maintain and enhance the strategic national security advantages afforded to the United States by outer space; and (3) energize the space industrial base that supports U.S. national security. To meet these objectives, the NSSS states that the country will pursue the strategic approaches of (1) promoting responsible, peaceful, and safe use of outer space, (2) providing improved U.S. outer space capabilities, (3) partnering with responsible nations, international organizations, and commercial firms, (4) preventing and deterring aggression against space infrastructure that supports U.S. national security, and (5) preparing to defeat attacks and to operate in a degraded environment.

From an organizational perspective, the National Aeronautics and Space Administration (NASA) is responsible for non-military space development in the United States, while the U.S. Department of Defense works on space development from a national security perspective. Recently, NASA and the U.S. Air Force announced cooperation in areas such as aircraft design and materials development.

Major satellites used for military purposes include satellites for image reconnaissance, early warning, gathering radio wave information, communication, and positioning, and their operations are wide-ranging.

³ Unnecessary artifacts orbiting around the Earth, including satellites no longer in use, upper stages of rockets, parts, and fragments.

⁴ In 2008, the EU formulated a draft and started bilateral discussions with major countries. Discussions have been made multilateral since 2012 and have been ongoing with a view towards its adoption.

⁵ In 2007, the chairperson of the United Nations Committee on the Peaceful Uses of Outer Space (U.N. COPUOS) proposed to discuss "the long-term sustainability of outer space activities" in relation to civil space activities, for the purpose of defining risk reduction for long-term sustainable activities and equal access to outer space. Based on this proposal, the Scientific and Technical Subcommittee of U.N. COPUOS set up a working group, which carries out ongoing discussions for establishing the guidelines.

⁶ In May 2014, Gen. William L. Shelton, Commander of the U.S. Air Force Space Command, stated, "Currently, we track more than 23,000 objects in space—10 centimeters in size and larger. However, our sensors cannot see the estimated 500,000 pieces of debris between 1 and 10 centimeters in size," and contends that space monitoring capabilities need to be strengthened.

⁷ For example, the United States offers its GPS to the private sector.

2 Russia

Russia's space activities have been continuing since the former Soviet Union era. The former Soviet Union successively launched multiple satellites after it launched the first satellite in the history of mankind, "Sputnik 1," in October 1957, and had the largest number of launched satellites in the world by the end of the collapse of the former Soviet Union. The satellites included many military satellites, which enabled the country to compete against the United States for military expansion in outer space. Russia's space activities have declined since the former Soviet Union collapsed in 1991. However, the country has recently started to expand its activities once again against the backdrop of its economic recovery.

Regarding the country's trends in security, the "National Security Strategy of the Russian Federation until 2020," approved in May 2009, states that threats to Russia's military security include the policies of developed countries aiming for the militarization of outer space and interference with Russia's space control systems. "The Military Doctrine of the Russian Federation," a document created in February 2010 to specifically define the principles of the "National Security Strategy" in the military field⁸, says that securing supremacy in outer space is one of the decisive factors in achieving the objectives of its armed forces. It also states that the tasks of the armed forces include providing timely warning to the Supreme Commander-in-Chief of the Armed Forces of the Russian Federation of an air or space attack and deploying and maintaining space systems supporting the activities of the Russian armed forces. In addition, it refers to the need to establish air-space defense organizations.

From an organizational perspective, the Russian Federal Space Agency (FSA, commonly called "Roscosmos") works on space activities related to Russia's scientific and economic areas, while the Russian Ministry of Defense is involved in space activities for security purposes. The

Russian Aerospace Defense Force⁹ conducts actual space activities for military purposes, manages facilities for launching satellites, among other activities.

Major satellites launched by Russia are satellites for image reconnaissance, early warning, gathering radio wave information, communication, positioning, and others, all of which are presumed to be used for security purposes. Currently, Russia is developing a new Angara carrier rocket¹⁰, along with building a new launch site in Vostochny in the Far East¹¹.

3 Europe

Regarding European outer space activities, France succeeded in launching its own satellite for the first time in 1965, following the former Soviet Union and the United States, and the United Kingdom succeeded in launching its own satellite for the first time in 1971. Italy and Germany used rockets developed by the United States to own satellites in December 1964 and July 1965, respectively. On the other hand, the European Space Agency (ESA)¹² Convention signed in May 1975 established the ESA, which launched a satellite in 1979.

In Europe, the EU, the ESA, and European countries are promoting their own unique space activities and are helping each other to implement space activities¹³.

The ESA signed a "framework agreement" with the EU in May 2004 to specify that they will collaborate to proceed with space development and hold regular minister-level council meetings. The joint council meeting held by the ESA and the EU in May 2007 approved the "European Space Policy" to improve synergy effects between civil and defense space activities, implement space activities based on coordinated efforts among member states, and ensure an internationally-competitive space industry.

The ESA has thus far focused on Earth observation satellites used mainly for civil purposes, among others, based on the contribution of funds made by ESA member

⁸ "The Military Doctrine of the Russian Federation" was revised in December 2014.

⁹ Valery Gerasimov, Chief of the General Staff of the Russian Armed Forces, announced that the "Aerospace Force" would be formed in 2015 by merging the Aerospace Defense Force with the Air Force.

¹⁰ In July 2014, the first launch of Angara-1.2PP was conducted successfully. In December 2014, Angara-A5 successfully put a dummy satellite into orbit for the first time. The Angara rocket is considered the first large rocket that Russia developed following the collapse of the Soviet Union. It is expected that the rocket will be launching commercial satellites and satellites for military purposes into orbit.

¹¹ The new launch site is being built to replace the Russian-leased Baikonur Cosmodrome in Kazakhstan. Russia aims to complete the site by 2020.

¹² The ESA was established in May 1975 based on the ESA Convention targeting to establish a single European space organization focusing on the peaceful use of space research, technology, and application areas. The organization was formally established in October 1980.

¹³ In the past, the European Commission (EC) and the ESA created the European Space Strategy in September 2000 to progress Europe's integrated and effective space activities. The strategy specified that the EC makes political and strategic decisions on space policies and that the ESA functions as an implementation organization, among other directions.

states. France also provided a launch site for rockets to the ESA.

On the other hand, European countries including France, Germany, Italy, and the United Kingdom have their own outer space policy and space development organizations to launch their unique reconnaissance, communication, and other satellites for security purposes.

It is thought that in the future, “Galileo,” a satellite positioning system planned by the EU and the ESA; “Copernicus,” a global-level environment and security monitoring program; and the Multinational Space-based Imaging System (MUSIS)¹⁴, a reconnaissance satellite project implemented by the European Defence Agency¹⁵, will be utilized for security in Europe.

4 China

China began work on space development in the 1950s. In April 1970, the county launched its first satellite “Dong Fang Hong I,” mounted on the transportation rocket “Long March 1,” using technology enhanced through its missile development.

China has thus far conducted manned spaceflight and launched satellites orbiting around the Moon. According to some observers, China’s space development is intended to enhance national prestige and develop space resources.

China’s space development is also referred to in “China’s Five-Year Plan for National Economic and Social Development”¹⁶ that is reviewed every five years. The latest “12th Five-Year Plan” mentions enhanced military-civilian collaboration in the aviation and space area. In addition, “the National Medium- and Long-Term Program for Science and Technology Development” published by the State Council positions manned spaceflight¹⁷, moon exploration¹⁸, and high-resolution Earth observation systems as specific critical projects in the aerospace area. Along with these medium- and long-term plans, “China’s Space Activities in 2011,” a space white paper published

by China in December 2011, clarifies the country’s major challenges, policies, and international cooperation projects for the coming five years and emphasizes the peaceful use of space.

With regard to the organizational setup, the State Administration for Science, Technology and Industry for National Defense, under the Ministry of Industry and Information Technology of the State Council, oversees industries related to space, nuclear technology, aviation, ships, and weapons. The China National Space Administration enforces the administrative control of the space area for civil and commercial purposes and represents the Chinese Government externally.

At the same time, it is presumed that China also uses space for information gathering, communication, and navigation¹⁹ for military purposes. The Air Force has recently indicated that it would actively pursue the use of space²⁰. Furthermore, “China’s National Defense in 2010,” a national defense white paper published by China in March 2011, specifies that the country protects its security interests in outer space in addition to its marine interests and electromagnetic space. The white paper also states that China will develop its defense industrial technology for its peaceful use in the fields of aviation and spaceflight.

In addition, China is developing new models of its “Long March” carrier rocket series²¹, and is building a new launch site in Wenchang, Hainan Province which will become China’s fourth launch center²². The launch center under construction faces the ocean contrary to China’s other launch sites and is located furthest south. In this regard, some observers note that the launch site allows launches to be conducted with a high degree of freedom²³. Carrier rockets are developed and manufactured by Chinese state-owned enterprises, which are thought to be also developing and manufacturing ballistic missiles. It is expected that China will pursue space development through close collaboration between the public sector, military, and private sector.

14 The MUSIS was started by Belgium, Germany, Greece, France, Italy, and Spain. The organization was joined later by Poland in December 2010. This is a joint project succeeding such projects as Helios 2 (a French military reconnaissance satellite), Pleiades (a French Earth imaging satellite used for military and civilian purposes), SAR-Lupe (a German group of military radar satellites), and COSMO-SkyMed (an Italian constellation of Earth observation satellites).

15 The EDA was established in 2004 to improve Europe’s defense capabilities for crisis management purposes and to execute and maintain security and defense policies.

16 The latest plan is the 12th Five-Year Plan covering the period between 2011 and 2015 (published in March 2011).

17 China recently launched “Tiangong-1,” a space laboratory, in September 2011 and succeeded in docking it with an unmanned spacecraft, “Shenzhou 8,” in November 2011 and with the manned spacecraft “Shenzhou 9” and “Shenzhou 10” in June 2012 and June 2013, respectively. In this regard, China is considered to have acquired the technologies needed for its space station construction project.

18 The State Administration for Science, Technology and Industry for National Defense landed the lunar explorer “Chang’e-3” on the moon in December 2013.

19 By December 2012, the BeiDou Navigation Satellite System officially started its services covering most of the Asia-Pacific region. It is reported that the BeiDou system has already started to be mounted on navy vessels, government vessels belonging to maritime law enforcement agencies, fishing boats, among other vessels. BeiDou offers not only positioning services but also interactive short message features. It is suggested that these features make it possible to centrally capture and share, in real time, the position and other data related to vessels of other countries that Chinese navy vessels have detected, and improve information gathering capabilities on the ocean and other areas.

20 In April 2014, Xi Jinping, Chairman of the Central Military Commission, inspected an Air Force agency and made reference to building an air force that “integrates air and space capabilities and balances offensive and defensive operations.”

21 China is developing Long March-5 (for launching large satellites), Long March-6 (for launching small satellites), and Long March-7 (for launching “Shenzhou”). It is deemed that China also has plans to develop Long March-9 (for launching ultra-large satellites) and Long March-11 (for launching small satellites).

22 In September 2014, China announced that the launch center was already ready for launching vehicles. It is deemed that the facility under construction will be able to launch larger rockets (e.g., Long March-5) than the launch sites in China’s inland areas.

23 The launch center enables discarded stages of the rocket, such as the first stage rocket, to fall into sea rather than into Chinese or other countries’ territories. It is thus suggested that the launch center eliminates the restrictions on launches. In addition, latitudes close to the equator at which a rocket can take advantage of the force of the Earth’s rotation are generally considered favorable for launches into a geostationary orbit and other launches.

China also continues to develop anti-satellite weapons. In January 2007, the country conducted a test to destroy one of its satellites using ballistic missile technology. In July 2014, China conducted a test not involving the destruction of a satellite²⁴. Additionally, the country is allegedly developing equipment that uses laser beams to interfere with satellite capabilities.

5 India

India's space development promotes space programs aimed at social and economic development in line with the 5-year national plan. The country's latest 12th Five-Year Plan²⁵ focuses on non-military projects including communication, positioning, Earth observation (e.g., disaster monitoring, resource exploration, and weather observation), transportation systems, space science, and spinoff promotions.

The Indian Space Commission (ISC) determines the country's space policy under the leadership of the Prime Minister and assumes responsibility for preparing space development budgets and implementing space development programs. The Department of Space, managed by the ISC, oversees the Indian Space Research Organisation (ISRO), which implements space development policy, develops and launches rockets, and develops and manufactures satellites.

India reportedly launches remote sensing²⁶ satellites also for security purposes. In addition, the country plans

to launch positioning satellites, implement planetary explorations, and conduct manned spaceflight²⁷. In September 2014, India's first Mars orbiter was successfully inserted into Mars orbit.

6 Republic of Korea

The Republic of Korea (ROK) is considered to have started full-scale space development by creating the first "Mid- and Long-Term Basic Plan for Space Development (1996-2015)" in 1996. The country has recently been promoting space development projects in accordance with the Space Development Promotion Act (enacted in May 2005)²⁸. In January 2013, the country succeeded in launching "Naro (KSLV-1)," a rocket developed through a technology cooperation agreement signed with Russia. In November 2013, the country created three key plans, including the "Mid- and Long-Term Plan for Space Development (2014-2040)"²⁹, which plans to move up the first launch of rockets manufactured by the ROK to June 2020; the "Space Technology Industrialization Strategy," which prompts the whole industry to lead space development; and the "Modification of Korean-made rocket development plan," which leverages Korean-made rockets and develops planetary and space exploration satellites and high orbit satellites on its own.

On the security front, the ROK's Defense White Paper published in December 2012 states that the ROK would secure a space surveillance system and other mechanisms for developing the Air Force into an aerospace force, and establish a Satellite Surveillance Control Group in order to secure air and space operational capabilities.

On the organizational front, the ROK has the National Space Committee, which deliberates major issues related to space development under the leadership of the President; and the Korea Aerospace Research Institute, which leads research and development as an implementation agency. Furthermore, the Korea Agency for Defense Development is engaged in the development and use of various satellites.

Major satellites launched by the country include image reconnaissance and communication satellites launched using foreign rockets.

24 The February 2015 "Worldwide Threat Assessment" of the U.S. Director of National Intelligence notes that in July 2014, China conducted a non-destructive ASAT test. In addition, it states that China has satellite jamming capabilities and other means of interfering with satellite functions.

25 The 12th Five-Year Plan covers the period between April 2012 and March 2017.

26 Technology enabling the observation of the size, shape, and nature of an object from a distance without making physical contact with the object.

27 In December 2014, the ISRO succeeded in the test launch of a large rocket carrying an unmanned capsule.

28 The Act stipulates that the country creates a mid- and long-term basic plan every five years and an execution plan for each fiscal year, and establishes the National Space Committee. Based on this Act, the country established the "1st Basic Space Development Promotion Plan" and the "2nd Basic Space Development Promotion Plan" in June 2007 and December 2011, respectively.

29 This is a modified version of the "2nd Basic Space Development Promotion Plan."