defense capability that can execute cross-domain operations, which organically fuse capabilities in all domains to generate synergy and amplify the overall strength, so that even when inferiority exists in individual domains, such inferiority will be overcome and national defense accomplished.

In order to ensure national defense in increasingly uncertain security environment, it is also important for Japan to be able to seamlessly conduct activities at all stages from peacetime to armed contingencies. To date, Japan has endeavored to develop a defense capability that allows to engage in diverse activities in a swift and sustainable manner. In recent years, however, the SDF has had to increase the scope and frequency of its steady state activities such as maintaining presence, as well as intelligence, surveillance and reconnaissance (ISR) activities: This is exacting a chronic burden on its personnel and equipment, generating a concern that the SDF may not be able to maintain proficiency and the volume of its activities. Japan needs to: improve quality and quantity of capabilities that support sustainability and resiliency of various activities; and develop a defense capability that enables sustained conduct of flexible and strategic activities commensurate with the character of given situations.

Further, Japan's defense capability needs to be capable of strengthening the ability of the Japan-U.S. Alliance to deter and counter threats as well as promoting multi-faceted and multi-layered security cooperation.

In light of the foregoing, Japan will henceforth build a truly effective defense capability, "Multi-Domain Defense Force," which: organically fuses capabilities in all domains including space, cyberspace and electromagnetic spectrum; and is capable of sustained conduct of flexible and strategic activities during all phases from peacetime to armed contingencies. The development of "Multi-Domain Defense Force" will be done while honing the attributes of "Dynamic Joint Defense Force" under the 2013 NDPG.[2]

Section 2 Role that Japan's Defense Forces Have to Fulfill

The NDPG states that, in order to create a security environment desirable for Japan and to deter and counter threats, Japan's defense capability must be able to serve the following roles in a seamless and combined manner: (1) response from peacetime to "gray-zone" situations; (2) countering attacks against Japan, including its remote islands; (3) response in space, cyberspace and electromagnetic domains during all phases; (4) response to large-scale disasters, etc.; (5) cooperation with the United States based on the Japan-U.S. Alliance; and (6) promotion of security cooperation.

In particular, in view of protecting the lives and peaceful livelihoods of Japanese nationals, it is all the more important for Japan's defense capability to fulfill diverse roles on a steady-state basis.

See Reference 15 (Main Operations of the Self-Defense Forces); Reference 16 (Statutory Provisions about Use of Force and Use of Weapons by SDF Personnel or SDF Units)

1 Response from Peacetime to Grey Zone Situations

Among the roles that must be served by Japan's defense capability as set forth in the NDPG, the idea of "(1) response from peacetime to 'gray-zone' situations" is as follows.

The SDF will enhance its presence on a steady-state basis by actively engaging in, among others, joint training and exercises and overseas port visits, thereby demonstrating Japan's will and capability. The SDF will, in close integration with diplomacy, promote strategic communications, including the aforementioned activities by SDF units.

The SDF will leverage its capabilities in all domains to conduct wide-area, persistent intelligence, surveillance and reconnaissance (hereinafter referred to as "persistent ISR") activities around Japan. The SDF will prevent the occurrence or escalation of emergencies by employing flexible deterrent options and other measures. Leveraging posture in place for these activities, the SDF will, in coordination with the police and other agencies, immediately take appropriate measures in response to actions that violate Japan's sovereignty, including incursions into its territorial airspace and waters.

The SDF will provide persistent protection against incoming ballistic missiles and other threats, and minimize damage should it occur.

Initiatives carried out based on this role are explained below.

See Section 2-2-2 of this Chapter (Response to Missile Attacks) Chapter 3 Section 1 (Strategic Promotion of Multi-Faceted and Multi-Layered Defense Cooperation)

2 See Part II, Chapter 3, Section 1, Footnote 7

GSDP personnel engaged in warning and surveillance activities

Warning and surveillance activities around a maritime platform in the East China Sea (photo from an MSDF P-3C)

Warning and surveillance activities on an ASDF E-767 airborne warning and control aircraft

1 Persistent ISR in the Area Surrounding Japan

(1) Basic Concept

Japan is comprised of a little over 6,800 islands, and is surrounded by wide sea space, which includes the sixth largest[1] territorial waters (including inland waters) and Exclusive Economic Zone (EEZ) in the world. The SDF is engaged in persistent intelligence collection and warning and surveillance during peacetime over Japan's territorial waters and airspace, as well as the surrounding sea and airspace so that it can respond to various contingencies immediately and seamlessly.

(2) Response by the MOD/SDF

The Maritime Self-Defense Force (MSDF) patrols the areas such as the waters surrounding Hokkaido, the Sea of Japan, and the East China Sea from peacetime, using patrol aircraft and other aircraft. The Air Self-Defense Force (ASDF) uses radar sites at 28 locations nationwide, and early warning and control aircraft amongst others, to carry out warning and surveillance activities over Japan and its surrounding airspace. These activities of the MSDF and ASDF are done 24 hours a day. Warning and surveillance activities in major channels are also conducted 24 hours a day by MSDF guard posts, Ground Self-Defense Force (GSDF) coastal surveillance units, and other assets.[2] Furthermore, warning and surveillance activities are carried out with the flexible use of destroyers, aircraft, and so on as required. The information obtained through such surveillance activities is shared with the relevant ministries and agencies, including the Japan Coast Guard, in order to strengthen coordination.

To show an example of the events that were reported from SDF's surveillance, following September 2012 when the Government of Japan acquired property rights to and ownership of three of the Senkaku Islands (Uotsuri Island, Minamikojima Island, and Kitakojima Island), Chinese government vessels carried out intermittent intrusions into Japan's territorial waters surrounding the Senkaku Islands.[3] In June 2016, a Chinese Navy combatant vessel entered Japan's contiguous zone to the north of the Senkaku Islands for the first time. Chinese Navy vessels continue their activities in the sea areas surrounding Japan, and six vessels including the Kuznetsov-class aircraft carrier "Liaoning" passed through the sea area between the main island of Okinawa and Miyakojima Island, and entered the western Pacific in December 2016. This was the first time that the entry of this aircraft carrier into the Pacific Ocean was confirmed.[4] In July 2017, a Chinese naval intelligence collection ship entered Japanese territorial waters southwest of Kojima (Matsumae, Hokkaido) passing east through the Tsugaru Strait to the Pacific Ocean for the first time. In January 2018, the SDF confirmed that a Chinese submarine and warship had been navigating through the Japanese contiguous waters of the Senkaku Islands on the same day. Furthermore, in April, in waters some 350 km south of Yonaguni Island, a number of (presumed) fighter jets were observed taking off from the aircraft carrier Liaoning for the first time. Also in June 2019, the SDF confirmed that six vessels, including the aircraft carrier "Liaoning," passed through the sea area between the main island of Okinawa and Miyako Island, and entered the Pacific.

It has been pointed out that North Korea is attempting to evade United Nations (UN) Security Council sanctions through smuggling. As part of its regular warning and surveillance activities in Japanese territorial waters, the SDF is carrying out information gathering on vessels suspected of violating the UN Security Council sanctions. During the period from 2018 to the end of June 2019, SDF patrol aircraft have confirmed 20 observations[5] of seaborne rendezvous between North Korean tankers and foreign-flagged tankers in the East China Sea. The information was shared with

1 Excluding overseas territories. The EEZ is the eighth largest in the world if overseas territories are included.
2 Article 4(1)18 of the Act for Establishment of the MOD (Investigation and research required for the performance of duties within jurisdiction) provides the legal basis for early warning surveillance activities by the SDF.
3 Since December 26, 2015, Chinese government vessels equipped with weapons, which appear to be machine guns, have intruded into the territorial waters of Japan.
4 Activity associated with the passage of Chinese naval vessels through the Ryukyu Islands between the main island of Okinawa and Miyakojima Island was confirmed 15 times in 2018.
5 For a specific example, see the MOD website (https://www.mod.go.jp/j/approach/defense/sedori/index.html)

relevant agencies and ministries. In a comprehensive judgment across the government, the vessels concerned are strongly suspected of engaging in ship-to-ship transfers with the North Korean vessels, which is prohibited by UN Security Council resolution. Japan reported this to the UN Security Council Sanctions Committee on North Korea, shared the information with relevant countries, gave information to the relevant countries regarding the tankers concerned and made public announcements on the subject.

In response to these illicit maritime activities including transshipments with North Korean vessels prohibited under the UN Security Council resolution, the United States and other concerned countries are carrying out early warning surveillance activities using aircraft based at the United States Kadena Air Base in Japan.[6] Australian, Canadian, New Zealand and French aircraft made patrol flights over a one-month period starting late April 2018. In addition, naval vessels of the U.S. Marine Corps, the United Kingdom, Canada,[7] Australia and France carried out early warning surveillance activities[8] in sea areas surrounding Japan.

The MOD/SDF intend to continue their close cooperation with concerned countries to ensure compliance with the UN Security Council resolution.

In December 2018, Gwanggaeto, the Great class destroyer of the Republic of Korea (ROK) Navy, directed a fire control-radar at a MSDF patrol aircraft conducting warning and surveillance activities off the coast of Noto Peninsula (within Japan's exclusive economic zone).[9] Taking the incident seriously, in January 2019, the MOD published its final statement,[10] compiling objective facts, and has been urging the Korean side to take recurrence prevention measures. The SDF patrol aircraft was flying while keeping sufficient altitude and distance, and did not fly in a way that could have threatened the Korean navy vessel. The MOD will expend all possible means to monitor the situation and gather intelligence.

A North Korea-flagged tanker and a small ship of unidentified nationality confirmed by an MSDF vessel, which are strongly suspected of engaging in a ship-to-ship transfer on the high seas of the East China Sea (January 2019)

Falcon 200, a French reconnaissance aircraft conducting warning and surveillance operations against ship-to-ship transfers
[Courtesy of Ministry for the Armed Forces, France]

See Fig. III-1-2-1 (Conceptual Image of Warning and Surveillance of the Sea Areas and Airspace Surrounding Japan); Fig. III-1-2-2 (Number of Incursions into the Territorial Waters around the Senkaku Islands by Chinese Coast Guard Ships); Part I, Chapter 2, Section 2-2 (Military Affairs); Part I, Chapter 2, Section 3-1 (North Korea)
Reference 17 MOD's Final statement regarding the incident of an ROK naval vessel directing its fire-control radar at an MSDF patrol aircraft

6 Australia and Canada conducted early warning surveillance activities using aircraft based at the United States Kadena Air Base in Japan for about one year from late April 2018, followed by Australia, Canada and New Zealand for about one and half months from mid-September of the same year, Australia for about a week from early December of 2018, France for about three weeks from March 2019, and Australia for about a month from May 2019. In addition, Canada has been conducting early warning surveillance activities using aircraft since early June 2019 (as of the end of June 2019).

7 At the Japan-Canada Summit Meeting held on April 28, 2019, Justin Trudeau, Prime Minister of Canada, indicated that Canada will extend the period for dispatch of aircraft and vessels for conducting warning and surveillance activities against ship-to-ship transfers of cargo by two years, and Prime Minister Shinzo Abe expressed his gratitude.

8 A number of vessels of the U.S. Navy, the United Kingdom's naval frigate HMS Sutherland, Argyle and Montrose and a landing ship Albion, Canadian Navy's frigate Calgary, Australian Navy's frigate Melbourne and French Navy's frigate Vendémiaire conducted early warning surveillance activities in the waters around Japan, including East China Sea. In addition, Canadian Navy's frigate Regina and its supply ship Asterix have been conducting early warning surveillance activities in the waters around Japan, including the East China Sea since mid-June 2019 (as of the end of June).

9 Upon analysis by the MOD of the radar waves directed at the MSDF P-1, the MOD has confirmed that the P-1 was continuously irradiated for a certain period, multiple times, by the fire-control radar of the ROK destroyer. After being irradiated by the fire-control radar, the MSDF P-1 patrol aircraft called out using three different frequencies, but there was no response at all from the ROK destroyer. In addition, according to the Code for Unplanned Encounters at Sea (CUES), a code adopted in 2014 by navies and self defence force from 21 countries including Japan and the ROK, aiming fire control radars is considered a simulation of attack, and is stipulated as an action a commander should avoid.

10 To read the MOD's final statement, look at photos taken by the MSDF P-1 patrol aircraft, and listen to the radar dictation, etc., see the MOD website (https://www.mod.go.jp/e/d_act/radar/index.html)

Fig. III-1-2-1 Conceptual Image of Warning and Surveillance of the Sea Areas and Airspace Surrounding Japan

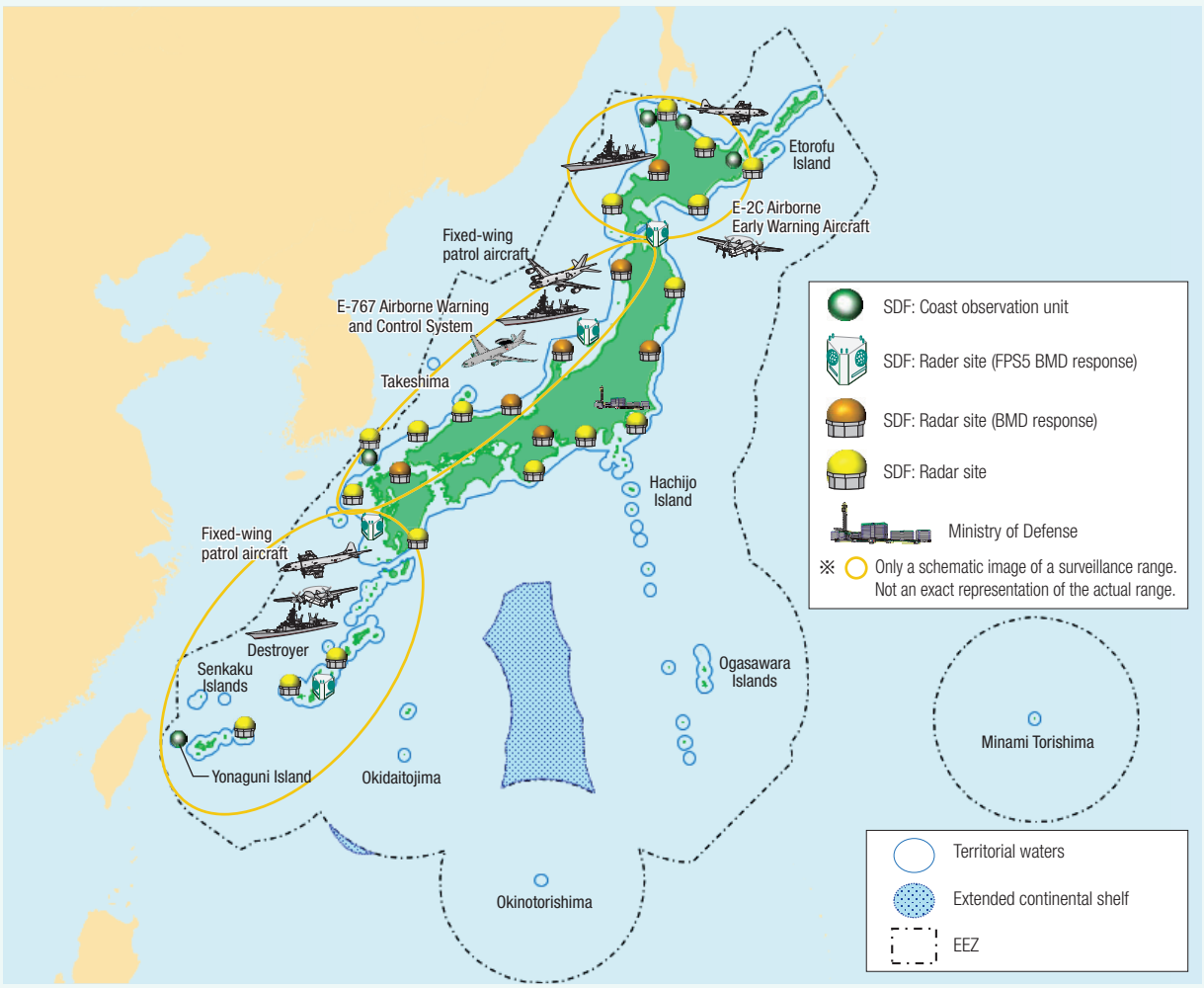
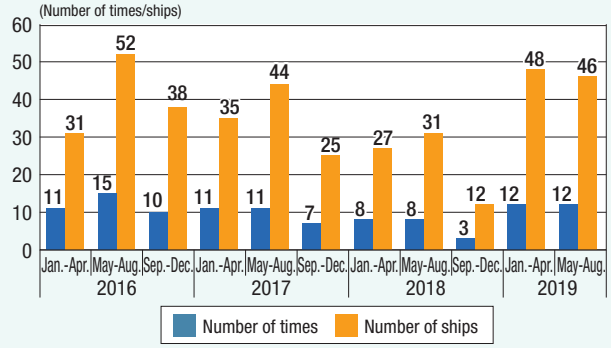


Fig. III-1-2-2 Number of Incursions into the Territorial Waters around the Senkaku Islands by Chinese Coast Guard Ships



2 Measures against Violation of Japan's Sovereignty

(1) Warnings and Emergency Takeoffs (Scrambles) in Preparation against Intrusion of Territorial Airspace

a. Basic Concept

Under international law, countries have complete and exclusive sovereignty over their airspace. Scrambling against aircraft intruding into territorial airspace is conducted as an act to exercise the right of policing intended to maintain public order. Unlike measures taken on land or at sea, this measure can be taken only by the SDF. Therefore, the ASDF is primarily responsible for conducting the actions based on Article 84 of the SDF Law.

b. Response by the MOD/SDF

The ASDF detects and identifies aircraft flying in airspace surrounding Japan using warning and control radars as well as early warning and control aircraft. If any suspicious aircraft heading to Japan's territorial airspace are detected, fighters and other aircraft scramble to approach them in order to confirm the situation and monitor the aircraft as necessary. Furthermore, in the event that this suspicious aircraft has actually intruded into territorial airspace, a warning to leave the airspace would be issued, among other responses.

In FY2018, ASDF aircraft scrambled 999 times, which was an increase by 95 times compared with the previous fiscal year. This is the 2nd highest number of times since 1958, when scrambles commenced and the number continues to be kept relatively high.

Breaking this figure down, planes were scrambled 638 times in response to Chinese aircraft. Chinese aircraft continue to be highly active, as this is the 2nd highest figure since the number of scrambles by country and region was

Russian Tu-95 long range bombers intruding into Japan's airspace (June 2019)

An ASDF pilot running up to an F-15 fighter aircraft on receiving an order to scramble

first made public in 2001.

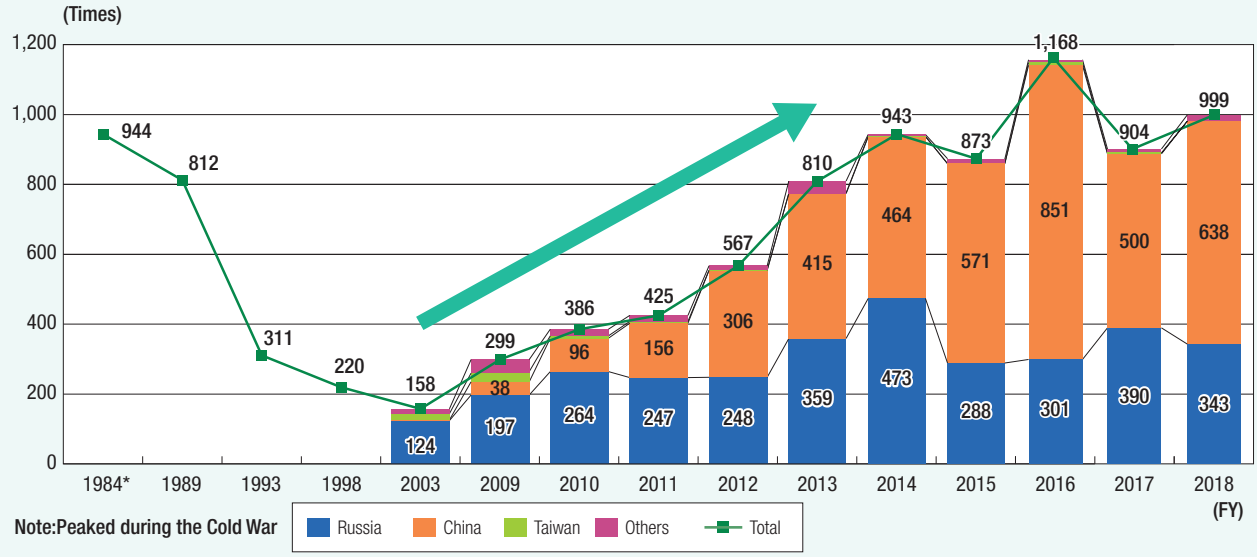
A distinctive example arose in May 2017 when a drone caused an airspace violation as it flew above a Chinese naval vessel entering Japanese territorial waters near the Senkaku Islands. Japan lodged protests against the Chinese government through diplomatic channels. In August that year, six Chinese military bombers were observed in an unprecedented flight from the East China Sea over the main island of Okinawa and Miyakojima Island northeast across the Pacific to an area off the Kii Peninsula before returning. Then in December, five aircraft including two fighter jets flew over the Tsushima Strait and entered the Japan Sea airspace.[11] Then in April 2018, a (presumed) unmanned Chinese aircraft flew across the East China Sea.

With these kinds of acts, China is expanding and intensifying the activities of its air force inside Japanese airspace and one-sidedly escalating its actions in some cases. It is a troubling situation.

Planes were scrambled 343 times in response to Russian aircraft, a decrease of 47 events compared to the year before. As a distinctive example, in September 2018, a Su-35 fighter jet was for the first time recognized over the Sea of Japan. In June 2019, two Tu-95 long range bombers intruded into Japan's airspace above the territorial waters of Minamidaitojima Island (Okinawa Prefecture). One of them further intruded into Japan's airspace above the territorial waters of Hachijojima Island (Tokyo). Japan lodged protests against the Russian government through diplomatic channels. Due attention needs to be paid to the activities of Russian aircraft.

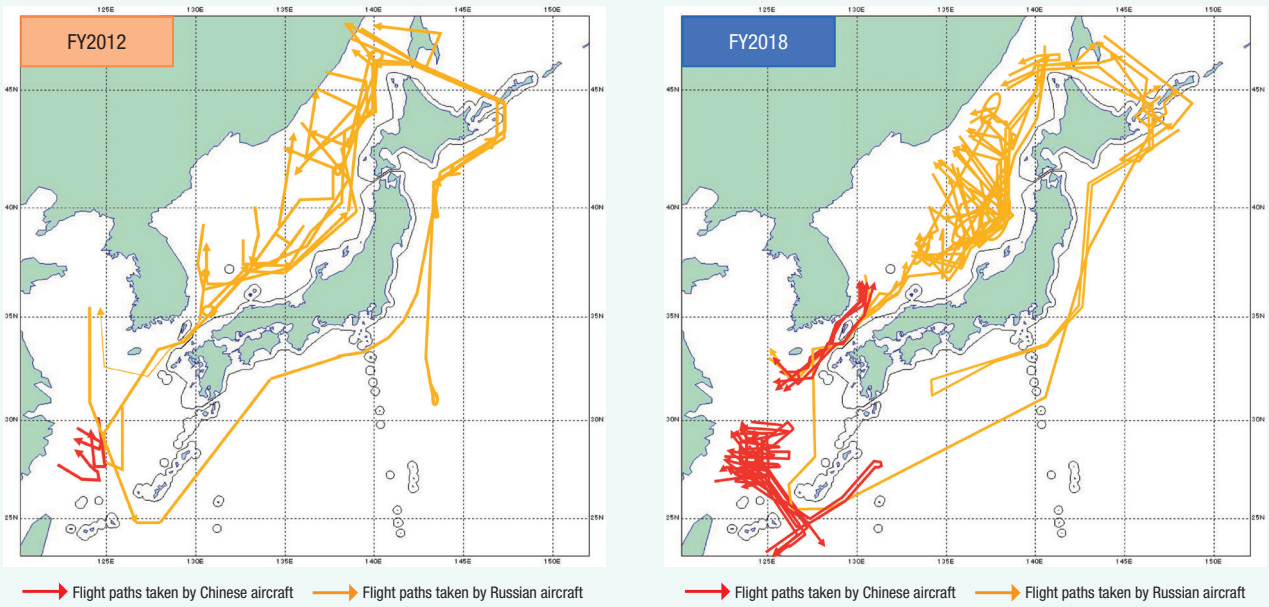
In July 2019, two Chinese H-6 bombers and two Russian Tu-95 long-range bombers carried out long distance joint flights from the Sea of Japan to the East China Sea. In addition, one Russian A-50 early warning and control aircraft allegedly supporting Tu-95 long-range bombers intruded into Japan's airspace above the territorial waters of Takeshima Island in Shimane Prefecture. A Korean fighter fired warning shots to the Russian aircraft. Japan lodged protests against the Russian government which intruded into Japan's airspace and against the Korean government which fired warning shots to the Russian aircraft through

Fig. III-1-2-3 Number and Breakdown of Scrambles since the Cold War



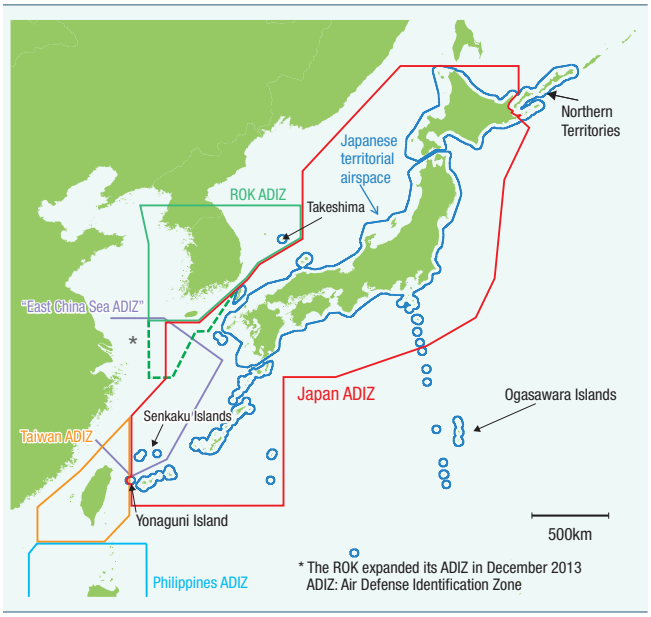
11 This was the first time that a Chinese fighter has been confirmed entering the Japan Sea airspace.

Fig. III-1-2-4 Example Flight Patterns of Aircraft to Which Scrambles Responded (image)



* Comparison with the flight patterns in FY2012, when scrambles against Chinese aircraft increased significantly.

Fig. III-1-2-5 Air Defense Identification Zone (ADIZ) of Japan and Those of Neighboring Countries and Regions (image)



diplomatic channel.

Even after the establishment of the "East China Sea Air Defense Identification Zone" by China in November 2013, the MOD/SDF has implemented warning and surveillance activities as before in the East China Sea, including the zone in question, and has continued to take all initiatives necessary to engage in warning and surveillance in both the sea and airspace around Japan. The MOD/SDF also engages in strict airspace antiintrusion measures in accordance with international law and the SDF Law.

See Fig. III-1-2-3 (Number and Breakdown of Scrambles since the Cold War); Fig. III-1-2-4 (Example Flight Patterns of Aircraft to Which Scrambles Responded); Fig. III-1-2-5 (Air Defense Identification Zone [ADIZ] of Japan and Those of Neighboring Countries/Regions); Part I, Chapter 2, Section 2-2 (Military Affairs), Part I, Chapter 2, Section 4-4 (Russian Forces in the Vicinity of Japan); Part II, Chapter 5, Section 2-3-5 (Measures Against Intrusion of Territorial Airspace)

(2) Response to Submarines Submerged in Japan's Territorial Waters

a. Basic Concept

With respect to foreign submarines navigating underwater in Japan's territorial waters,[12] an order for maritime security operations will be issued. The submarine will be requested to navigate on the surface of the water and show its flag, in accordance with international law, and in the event that the submarine does not comply with the request, the SDF will request it to leave Japanese territorial waters.

See Part II, Chapter 5, Section 2-3-2 (Maritime Security Operations)

b. Response by the MOD/SDF

The MSDF is maintaining and enhancing capabilities for: expressing its intention not to permit any navigation that violates international law; and responding in shallow water areas by detecting, identifying, and tracking foreign submarines navigating under the territorial waters of Japan. In November 2004, the MSDF observed a submerged Chinese nuclear-powered submarine navigating under Japanese territorial waters around the Sakishima Islands. In response to this incident, the MSDF issued an order for maritime security operations, and continued to track the

12 The term "territorial waters" also includes inland waters.

submarine with MSDF vessels until it entered the high seas.

MSDF P-3C patrol aircraft and others also confirmed observation of submerged submarines navigating through the Japanese contiguous zones in May 2013 in waters south of Kumejima Island, in March 2014 off the east coast of Miyakojima Island and in February 2016 in waters southeast of Tsushima Island. Further, in January 2018, a submerged submarine was spotted by MSDF assets including a destroyer moving through Japanese contiguous zones of the Senkaku Islands. The submarine was then observed surfacing in international waters of the East China Sea flying the Chinese flag. This was the first time that a Chinese naval submarine has been observed operating in the Japanese contiguous zones of the Senkaku Islands. Although international law does not forbid foreign submarines navigating underwater in the contiguous zone of coastal states, Japan maintains a posture to appropriately deal with such activities.

(3) Response to Armed Special Operations Vessels

a. Basic Concept

The Japan Coast Guard, as a police organization, is primarily responsible for responding to suspicious armed special operations vessels (unidentified vessels). However, in the event that it is deemed extremely difficult or impossible for the Japan Coast Guard to respond to a situation, an order for maritime security operations will be issued and the situation will be handled by the SDF in cooperation with the Japan Coast Guard.

b. Response by the MOD/SDF

In light of the lessons learned from the cases of an unidentified vessel off the Noto Peninsula in 1999, an unidentified vessel in the sea southwest of Kyushu in 2001, and other similar incidents, the MOD/SDF have been making various efforts.

In particular, the MSDF has been taking the following steps: (1) deployment of Patrol Guided Missile Boats; (2) establishment of the MSDF Special Boarding Unit;[13] (3) equipment of destroyers with machine guns; (4) furnishing forcible maritime interdiction equipment (flat-nose shells);[14] (5) improving the sufficiency ratio of military vessel personnel; and (6) enhancing equipment for the Vessel Boarding Inspection Team.

3 Initiatives towards Ensuring Maritime Security

(1) Basic Approach by the Government

The National Security Strategy (NSS) states that as a maritime state, Japan will play a leading role, in maintaining and developing "Open and Stable Sea," which are upheld by maritime order based upon such fundamental principles as the rule of law, ensuring the freedom and safety of navigation and overflight, and peaceful settlement of disputes in accordance with relevant international law, rather than by force.

The third Basic Plan on Ocean Policy[15] was given Cabinet approval in May 2018. Taking a broad view of ocean policy from the perspective of security on the ocean, the Plan states that the government will act as one in undertaking "comprehensive maritime security."

For this purpose, the government will undertake securing of the national interest in the territorial water of Japan and stable use of its important sea lanes.

Furthermore, the government will further strengthen its efforts toward enhancement of Maritime Domain Awareness (MDA) that collects and summarize a variety of maritime information from ships, aircraft, etc. in order to use the information for measures regarding the sea.

(2) Initiatives of the MOD/SDF

In order to maintain the order of "Open and Stable Seas" and contribute to comprehensive maritime security, the MOD/SDF is enhancing warning and surveillance activities on important remote islands and their surrounding sea areas and conducting counter-piracy operations to secure stable use of sea lanes.

Within the framework of the Western Pacific Naval Symposium (WPNS), the MSDF has been engaged in initiatives such as cooperation in the establishment of the Code for Unplanned Encounters at Sea (CUES).[16] In September 2018, three MSDF destroyers, including Destroyer JS "Kaga," five carrier aircraft, and submarine "Kuroshio" conducted an anti-submarine warfare exercise in the South China Sea.

At the Association of Southeast Asian Nations (ASEAN) Defence Ministers' Meeting-Plus (ADMM-Plus) in October 2018, Minister of Defense Iwaya raised an objection to attempts to unilaterally change the status quo by force in the Indo Pacific and spoke of the importance of consolidating order based on the principles of international law.

See Chapter 3, Section 2 (Ensuring Maritime Security)

13 A special unit of the MSDF was newly established in March 2001 to deter expected resistance, and disarm suspicious vessels in the event of vessel boarding inspections under maritime security operations.

14 A non-bursting shell launched from the 76-mm gun equipped on destroyer, the flat front nose of which keeps it from bouncing.

15 The Basic Plan on Ocean Policy is set forth by the government in order to ensure comprehensive and plan-based promotion of measures concerning the ocean.

16 This standard of behavior adopted in 2014 stipulates procedures for safety, communication methods and other matters in the event of an unplanned encounter at sea by naval vessels and aircraft of the member countries of the WPNS (without legal binding force and does not override international aviation regulations or conventions)

2 Defense of Japan including its Remote Islands

Among the roles that must be served by Japan's defense capability as set forth in the NDPG, the idea of "(2) countering attacks against Japan, including its remote islands" is as follows.

In response to attack on Japan including its remote islands, the SDF will quickly maneuver and deploy requisite units to block access and landing of invading forces while ensuring maritime[17] and air[18] superiority. Even when maintaining maritime and air superiority becomes untenable, the SDF will block invading forces' access and landing from outside their threat envelopes. Should any part of the territory be occupied, the SDF will retake it by employing all necessary measures.

Against airborne attack by missiles and aircraft, the SDF will respond in a swift and sustained manner by applying optimal means and minimize damage to maintain SDF's capabilities as well as the infrastructure upon which such capabilities are employed.

In response to attack by guerrillas or special operations forces, the SDF will protect critical facilities including nuclear power plants and search and destroy infiltrating forces.

In responding to such attacks, the SDF will implement cross-domain operations that organically fuse capabilities in space, cyberspace and electromagnetic domains to block and eliminate attacks.

In view of protecting the life, person and property of the nationals, the SDF will implement measures for civil protection.

Initiatives carried out based on this role are explained below.

1 Defense of Japan's Remote Islands

(1) Basic Concept

Japan possesses numerous remote islands. In order to respond to attacks on these islands, it is important to station units and so forth in accordance with the security environment, and also to maneuver and deploy them according to situations on a steady-state basis. It is also important to ensure maritime and air superiority by detecting signs at an early stage through persistent intelligence, surveillance, and reconnaissance (ISR) conducted by the SDF.

If signs of attack are detected in advance, troops will be maneuvered and deployed in an area expected to be invaded ahead of the deployment of enemy units, and block access and landing of invading forces. Even when maintaining maritime and air superiority becomes untenable, the SDF will block invading forces' access and landing from outside their threat envelopes.

Should any part of the territory be occupied, the SDF will retake it by employing all necessary measures such as bringing the enemy under control by ground fire from aircraft and vessels, and then regaining the territory by the landing of GSDF forces.

See Fig. III-1-2-6 (Conceptual Image of Defending Japan's Remote Islands)

(2) Initiatives of the MOD/SDF

For defense posture buildup in the southwestern region, the ASDF established the 9th Air Wing in January 2016 and newly formed the Southwestern Air Defense Force in July 2017. The GSDF, in addition to the Yonaguni coast observation unit formed in March 2016 and other newly-formed units, established the Amphibious Rapid Deployment Brigade with full-fledged amphibious operation capabilities in March 2018. Moreover, the GSDF deployed some units, including an area security unit in Amami Oshima, and an area security unit in Miyakojima Island, in March 2019. The GSDF will deploy an area security unit in charge of the initial response and other units also in Ishigaki Island.

As part of measures to enhance the persistent ISR posture, the SDF has acquired a new type of destroyer (FFM) and E-2D airborne early warning aircraft. The Medium Term Defense Program (FY2019-FY2023; MTDP)[19] plans to establish one airborne early warning (AEW) wing and one squadron of unmanned aerial vehicle (UAV) units in the ASDF in addition to the development of new fixed air defense radar and strengthening of over-the-horizon radar capabilities.

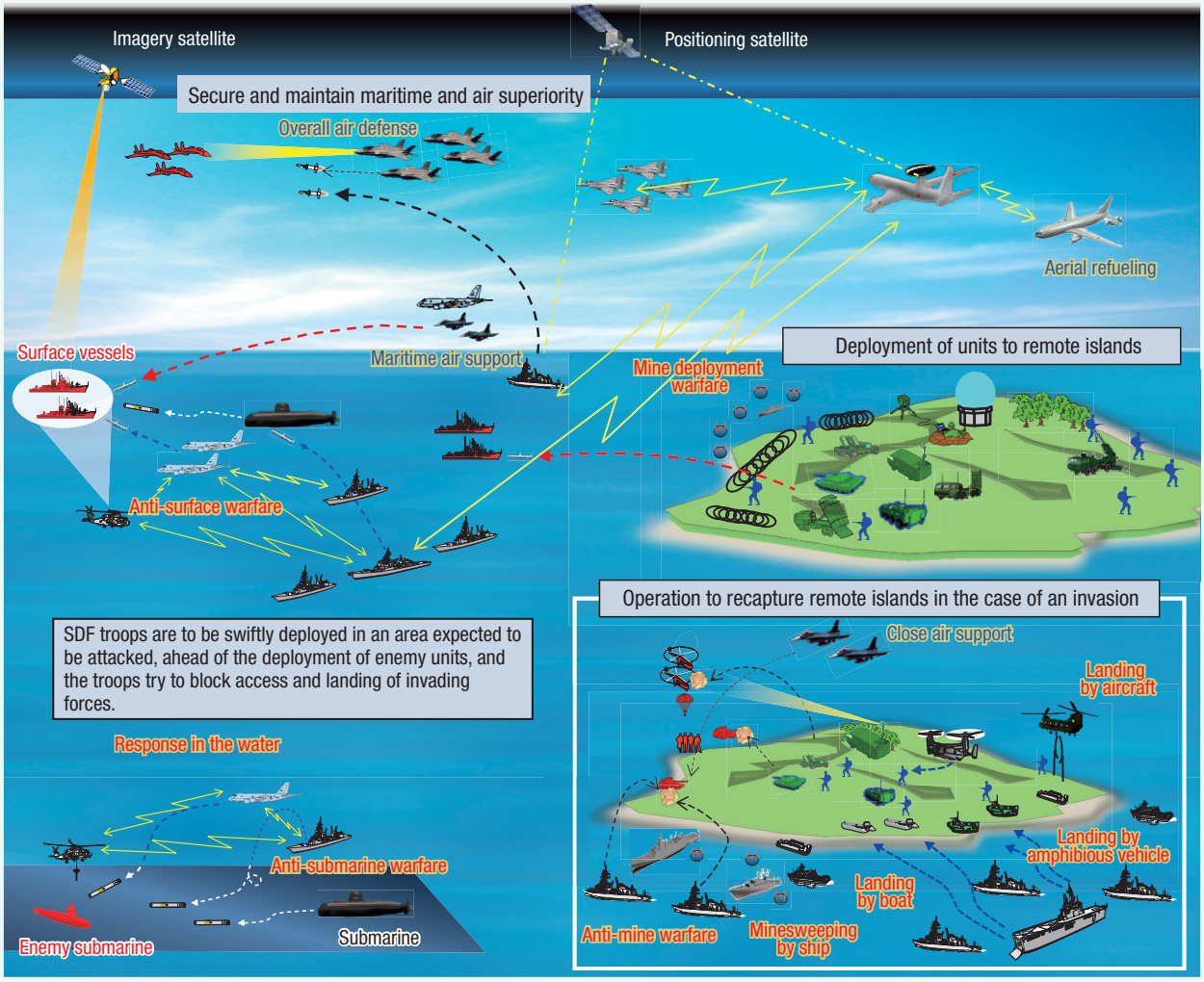
In order to deal with ships and landing forces attempting to invade Japan while ensuring the safety of SDF personnel, the SDF procured stand-off missiles which are capable of responding from the outside of their threat envelopes, and started Research and Development (R&D) on technologies required for new anti-ship missiles and HVGPs (Hyper Velocity Gliding Projectiles) for the defense of remote

17 Maritime superiority refers to the condition in which one side has a tactical advantage over the opposing force at sea and can carry out maritime operations without suffering substantial damages by the opposing force.

18 Air superiority refers to the condition in which one side can carry out airborne operations without suffering a significant level of obstruction by the opposing force.

19 See Part II, Chapter 4, Section 1, Footnote 2

Fig. III-1-2-6 Conceptual Image of Defending Japan's Remote Islands



Commander of the GSDF Miyako Gurad handed over the Unit Flag from Defense Minister Iwaya (April 2019)

Amphibious vehicle training landings in Iron Fist 19 (from January to February 2019)

islands to take all initiatives necessary to defend the islands since FY2018. R&D on hypersonic weapons is also planned in the MTDP and necessary expenses are included in the FY2019 budget.

Also, in order to secure capabilities for swift and large-scale transportation and deployment of units, initiatives are underway to enhance rapid deployment capabilities through: the improvement of Osumi class LST (Landing Ship, Tank); and the introduction of V-22 Ospreys and C-2 transport aircraft.

In particular, for the operation of V-22 Ospreys, the MOD determined that the KYUSHU-SAGA International AIRPORT was the best airfield to be used as their deployment site due to positional relationships with the amphibious deployment brigade and relevant units in joint operations, the length of the runway, and potential use as relocation destination of JGSDF Camp Metabaru. In August 2018, the Governor of Saga prefecture expressed their acceptance. The MOD/SDF will continue to work to gain understanding on deployment at the airport from the relevant local authorities

column

Establishment of the Airborne Warning and Control Wing

The Airborne Early Warning Group is the only unit that has airborne warning and control systems (E-767) and airborne early warning aircraft (E-2C) equipped with airborne radar. Since its establishment in 1986, the group has been conducting warning and surveillance in airspaces difficult to survey by warning and control radar on the ground during steady state.

In recent years, in addition to the expansion of Chinese military aircraft to the western Pacific and long-range flights by Russian military aircraft near Japan, other military activities by neighboring countries have been rapidly expanding and intensifying near the islands on the Pacific side, where units in charge of warning and surveillance have not been deployed. The importance of warning and surveillance using airborne warning and control systems is increasing in these air spaces.

In response to this situation, the Airborne Warning and Control Wing will be established by upgrading the Airborne Early Warning Group in FY2019 in order to strengthen the posture for effective operation of airborne warning and control systems, etc. The establishment is expected to enhance the SDF's air defense posture in the airspace around Japan, including the vast airspace on the Pacific side.

The ASDF has been sequentially upgrading airborne warning and control systems and other equipment owned by the Airborne Early Warning Group. It will further upgrade such aircraft and other equipment, including by introducing E-2Ds that are new airborne early warning aircraft and by conducting avionics improvement necessary for retrofit of the current central computing device of E-767 and installation of electronic warfare support measures.

VOICE

Toward Training of V-22 Pilots in Command

Major Akira Takeuchi, U.S. Training Team Leader of the 1st Helicopter Brigade, GSDF

Since 2016, the GSDF has been training personnel in the United States who will play central roles in the introduction of the V-22. I earned the qualification of V-22 copilot at the Marine Corps Air Station New River, North Carolina, the United States, in March 2018 and have been participating in the training of V-22 pilots in command there since March 2019. Here, about 30 GSDF personnel join U.S. marines on a steady basis to undergo training in accordance with their respective strengths and have been steadily improving their skills to become leading GSDF V-22 experts.

Capable of vertical take-off and landing, the V-22 drastically excels in range, speed and load. This is a dream aircraft that can change not only future aircraft operations but also the operation modalities of the entire SDF. After piloting a V-22 I found the both helicopter flight mode and fixed-wing flight mode amazingly easy, and the operations for mode conversion are also smooth. Equipped with many fail-safe devices, this is truly a state-of-the-art and the most reliable aircraft.

During the pilot training, I will improve my skills for safer flight of V-22s and study their effective and efficient operation tailored to the characteristics of Japan so that they will manifest their fighting strength promptly after introduction.

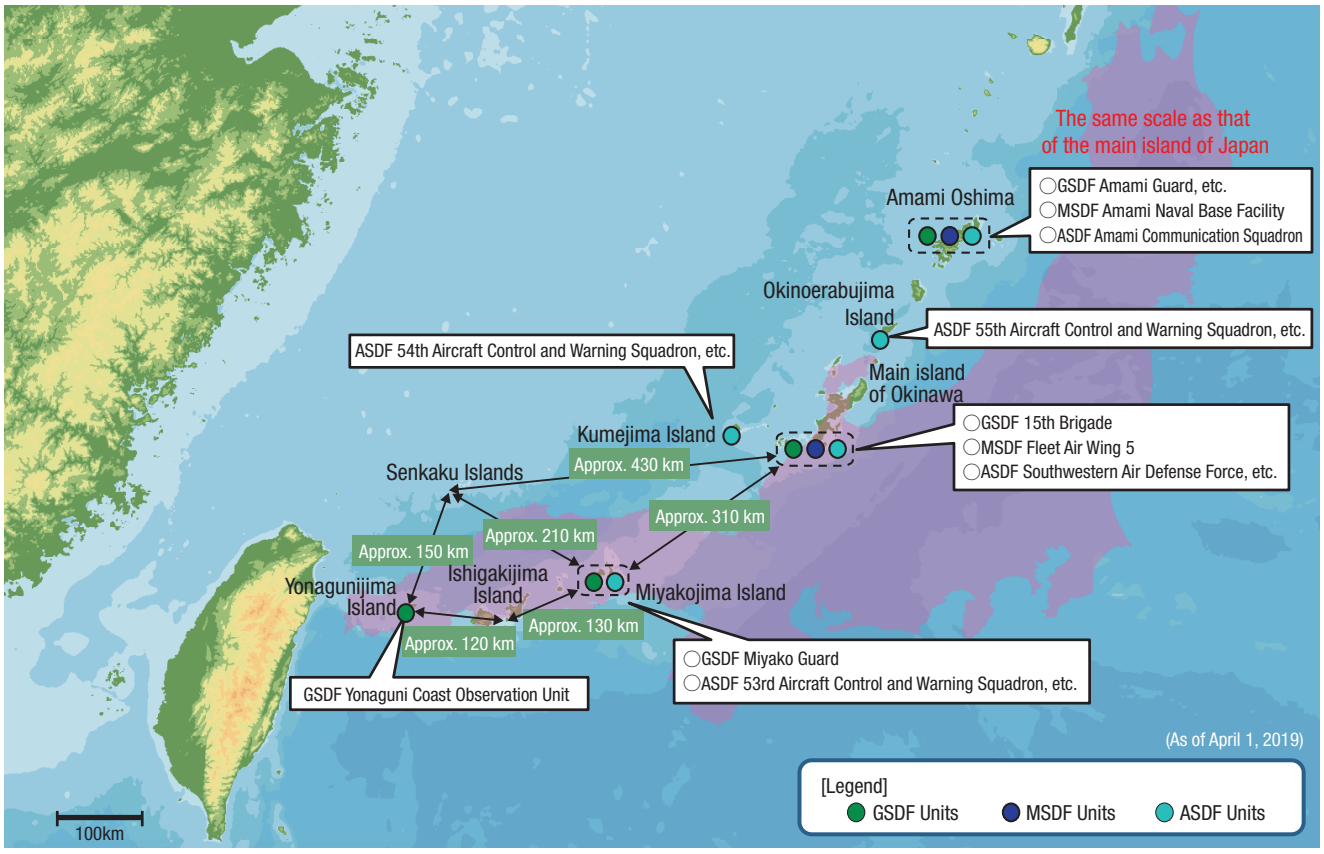
The author undergoing training using GSDF V-22

and others.[20] Meanwhile, in May 2019, the MOD explained their intention to temporarily deploy V-22 Ospreys at Camp Kisarazu, since there is the prospect that the deployment at KYUSHU-SAGA International AIRPORT will take a certain period of time.

The MTDP also stipulates that, in order to strengthen the transport function to remote islands, the SDF will introduce logistics support vessels (LSV) and landing craft utilities (LCU), establish 1 group of maritime transportation units as a Joint Unit and consider new vessels necessary to smoothly

20 At the KYUSHU-SAGA International AIRPORT, the ramp, aircraft hangars, etc., are to be developed on the west side of the airport. Approximately 70 aircraft, consisting of 17 newly acquired V-22 Ospreys and approximately 50 helicopters transferred from Camp Metabaru are expected to be deployed.

Fig. III-1-2-7 Deployment Status of Major Units in the Southwestern Islands (image)



implement amphibious and other operations in the future.

Meanwhile, various types of training to increase the capacity for amphibious operations are being undertaken. The SDF endeavored to increase its capacity through multilateral joint training RIMPAC 2018 in the United States conducted from June to August of 2018, joint amphibious operation training in October 2018 and field training Iron Fist 19 with the U.S. Marines Corps in the United States from January to February 2019.

The MTDP sets forth that the Amphibious Rapid Deployment Brigade, which will be strengthened by the establishment of one amphibious rapid deployment regiment, will conduct persistent steady-state maneuvers, such as coordinated activities with ships as well as various training and exercises.

See Fig. III-1-2-7 (Deployment Status of Major Units in the Southwestern Islands (image))

2 Response to Missile Attacks

(1) Japan's Comprehensive Air and Missile Defense Capability

a. Basic Concept

Japan began developing the Ballistic Missile Defense (BMD) system in FY2004 to be fully prepared for the response against ballistic missile attacks. Necessary amendments were subsequently made to the SDF Law in July 2005, and in December of the same year, the Security Council (then) and Cabinet decided to begin Japan-U.S. cooperative development of an advanced ballistic missile interceptor. To date, Japan has steadily built up its own defense system against ballistic missile attacks, by such means as installing ballistic missile defense capability to the Aegis-equipped destroyers and deploying the Patriot Advanced Capability-3 (PAC-3).[21]

Currently, Japan's BMD is an effective multi-layered defense system with the upper tier interception by Aegis equipped destroyers and the lower tier by Patriot PAC-3, both interconnected and coordinated by the Japan Aerospace Defense Ground Environment (JADGE).[22] The upcoming introduction of the land-based Aegis system, Aegis Ashore,

21 The Patriot PAC-3 system is one of the air defense systems for countering airborne threats. Unlike the conventional type of anti-aircraft PAC-2 missiles, which mainly intercepts aircraft and other targets, the PAC-3 missiles are designed primarily to intercept ballistic missiles.

22 JADGE is a core system for the command and control as well as communication functions. It centrally processes the information regarding aircraft captured by radar installed nationwide, and it provides fighters instructions required for scrambling against aircraft intruding into Japanese territorial airspace and air defense combat operations. In addition, it controls Patriot and radar, etc. in responses to ballistic missiles.

will enable our forces to intercept missiles in the upper tier not just from Aegis destroyers but from land.

Today airborne threats to Japan are increasingly complex and diverse, including ballistic missiles equipped with multiple/maneuverable warheads, high-speed and longer-range cruise missiles, and stealth and multi-role aircraft. In order to effectively and efficiently counter these airborne threats by optimum means and minimize damage, it is necessary to establish a structure with which to conduct integrated operation of various equipment pieces, those for missile defense as well as air defense equipment that each SDF service has separately used, thereby providing persistent nation-wide protection from peacetime and also enhancing the comprehensive air and missile defense capability that can simultaneously deal with multiple, complex airborne threats.

In this regard, the SDF will strive to standardize and streamline the means for interception that each SDF service possesses, including their maintenance and replenishment systems.

In case ballistic missiles or other objects are launched against Japan as an armed attack, it will be dealt with by issuing a defense operation order for armed attack situations. On the other hand, when such situation is not yet acknowledged as an armed attack, Japan will take measures to destroy the ballistic missiles.

As a response against ballistic missiles or other objects, the Joint Task Force-BMD is formed, with the Commander of the Air Defense Command serving as its Commander, and various postures for effective defense are to be taken under a unified command through JADGE. Furthermore, the GSDF will play a leading role in dealing with damage caused by the impact of a fallen ballistic missile.

See Fig. III-1-2-8 (Comprehensive Air and Missile Defense (image))
Fig. III-1-2-9 (Build-up and Operational Concept of BMD (image))
Part II, Chapter 5, Section 2-3-4 (Destruction Measures Against Ballistic Missiles)
Reference 18 (History of Efforts for BMD Development in Japan)

b. Response by the MOD/SDF

Since 2016, North Korea has conducted three nuclear tests and 40 ballistic missile launches. These military actions by North Korea are a severe and imminent threat to the safety of Japan. North Korea expressed its intention to fully denuclearize the Korean Peninsula at the North Korea-United States summit held in June 2018, and disclosed destruction of its nuclear test ground. However, the second North Korea-United States summit held in February 2019 ended without any agreement and North Korea has not dismantled all its weapons of mass destruction or ballistic missiles in a complete, verifiable and irreversible manner. Taking into consideration the facts that North Korea is believed to have achieved the miniaturization of nuclear weapons and have developed nuclear warheads through repeated nuclear tests and ballistic missile launches to date, that it possesses and deploys several hundred ballistic missiles capable of reaching almost every part of Japan, and that it has pursued enhancement of the operation capabilities necessary for saturation attacks and its ability to conduct surprise attacks, there is no change in North Korea's nuclear weapons and missiles capability.

The MOD/SDF continues to carefully monitor the concrete actions of North Korea toward the dismantlement of weapons of mass destruction and missiles, and conducts the necessary intelligence, warning and surveillance activities, and other necessary activities while closely cooperating with the United States and other countries.

Further cooperation with the U.S. Government including the U.S. Forces in Japan is essential for efficient and effective operation of the BMD system. Thus, related measures including constant real-time sharing of BMD operational and relevant information, and the expansion of BMD cooperation have been agreed upon at the Japan-U.S. Security Consultative Committee (2+2 Meeting).

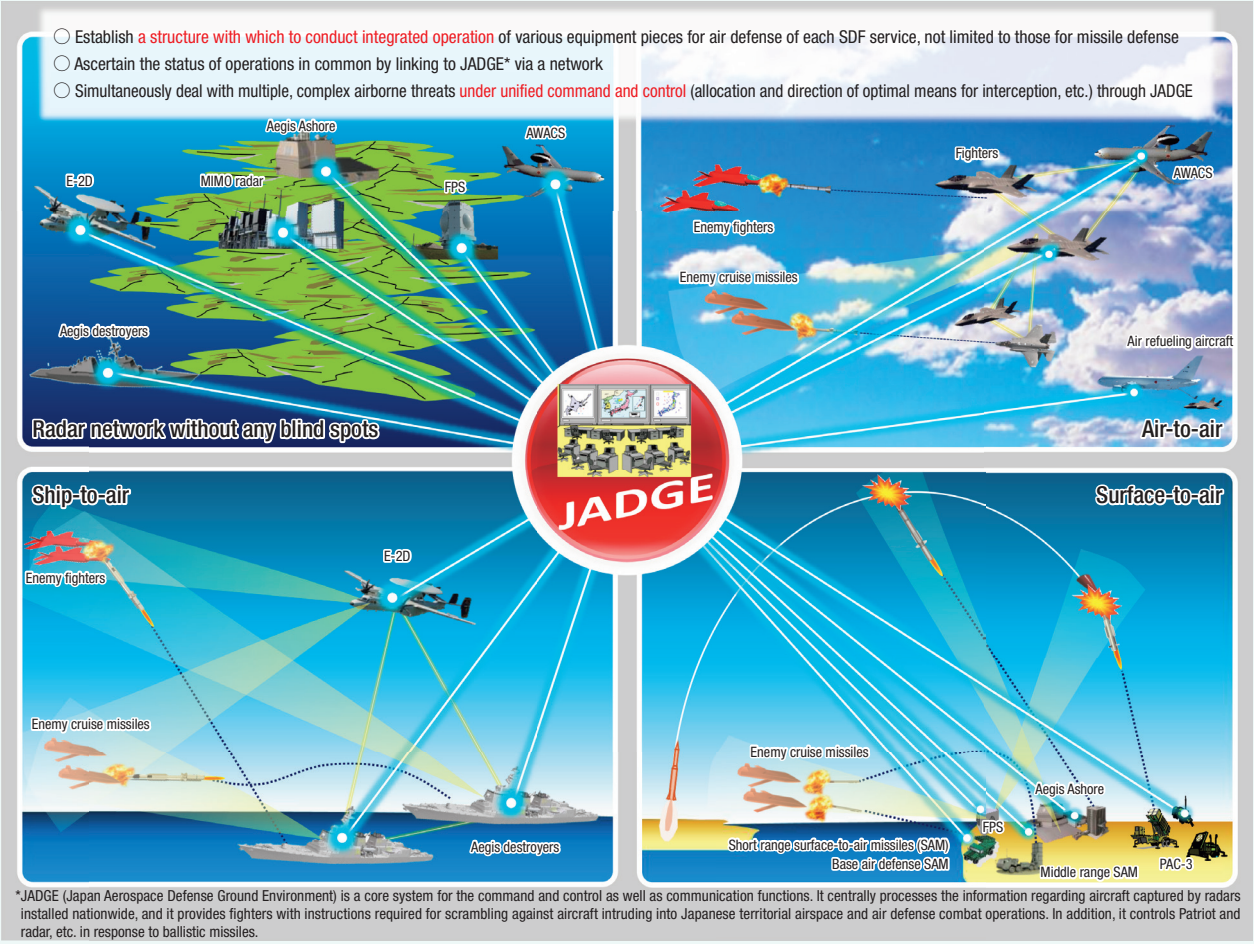
Furthermore, Japan has closely cooperated with the United States in responding to ballistic missiles, by means such as receiving Shared Early Warning (SEW)[23] from the U.S. Forces, and sharing intelligence gathered by assets including transportable BMD radar (TPY-2 radar) and Aegis-equipped destroyers deployed in Japan by the U.S. Forces.

Maintenance, enhancement and validation of Japan-U.S. bilateral response capabilities have been actively conducted through training and other activities. Since FY2010, BMD special exercises have been held between the MSDF and the U.S. Navy, connecting their ships and other equipment via a network to conduct a simulation of response to ballistic missiles. In 2018, the ASDF participated in this exercise, and the GSDF joined in 2019. The exercise is conducted as a joint Japan-U.S. air defense/missile defense exercise aimed to improve tactical skills and strengthen cooperation.

Beyond Japan-U.S. cooperation, there is also a need to bolster cooperation between the United States, Japan and the Republic of Korea. In January, March, October and December 2017, trilateral ballistic missile information sharing exercises were held in waters off Japan with the objective of strengthening coordination

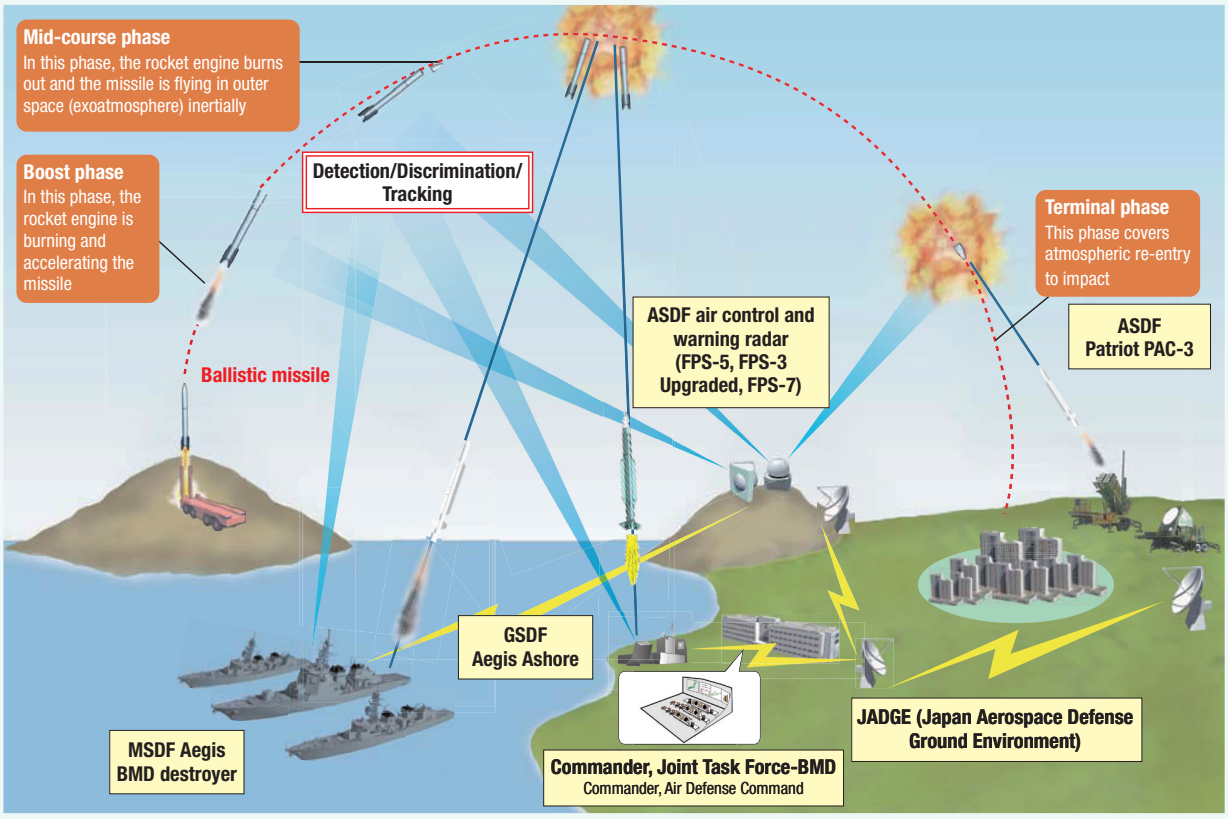
23 Information on the area and time of launch, the projected area and time, where and when objects fall relating to ballistic missiles launched in the direction of Japan, which is analyzed and conveyed to the SDF by the U.S. Forces in a short period of time after the launch. (The SDF started to receive the information since April 1996.)

Fig. III-1-2-8 Comprehensive Air and Missile Defense (image)



*JADGE (Japan Aerospace Defense Ground Environment) is a core system for the command and control as well as communication functions. It centrally processes the information regarding aircraft captured by radars installed nationwide, and it provides fighters with instructions required for scrambling against aircraft intruding into Japanese territorial airspace and air defense combat operations. In addition, it controls Patriot and radar, etc. in response to ballistic missiles.

Fig. III-1-2-9 Build-up and Operational Concept of BMD (image)



With respect to the sharing of finely detailed information related to ballistic missiles, etc. with relevant countries, including the United States, the passage of the Specially Designated Secrets Act in December 2014 (Law no. 108, 2013) has established the basis for protection of highly confidential information related to national security. This has promoted increased sharing of information not just within the government but with the United States and other relevant countries.

In addition, the Japan-ROK General Security of Military Information Agreement (GSOMIA)[24] entered into effect on November 2016. GSOMIA serves as a framework for protecting various confidential information, including information regarding North Korea's nuclear and missile threat, shared between Japan and the ROK, which will be required for practical and effective responses to various situations. However, in August 2019, the Government of the ROK notified the Government of Japan of its intention to terminate the GSOMIA in writing. The MOD/SDF will expend all possible means to monitor the situation and gather intelligence in order to avoid causing any deficiency in the defense of Japan.

The SDF engages in various training on a daily basis to improve its capability to counter ballistic missiles. It has been conducting PAC-3 maneuver deployment training from June 2017 in an effort to strengthen the SDF's capability to counter ballistic missiles and generate a sense of safety and security among the public. It has conducted 22 training sessions as of the end of June 2019 including deployments to U.S. Forces Japan's facilities.

See Part I, Chapter 2, Section 3-1 (North Korea); Chapter 3, Section 1-2-4 (Republic of Korea); Reference 18 (History of Efforts for BMD Development in Japan)

c. Initiatives towards Strengthening of the BMD System

Currently the SDF maneuvers and deploys according to situation Aegis-equipped destroyers for defense of the entire territory of Japan and PAC-3, which is deployed across the country for the defense of stationing locations. On that premise, the SDF has worked to increase the number of Aegis BMD destroyers. Of the six MSDF Aegis-equipped destroyers that are present, the MOD completed refurbishment of two without BMD capabilities, "Atago" and "Ashigara," to give them BMD capabilities by December 2018. The MOD also decided to acquire two additional Aegis-equipped destroyers with BMD capabilities using the FY2015 and FY2016 budgets. These projects will increase the number of Aegis-equipped destroyers with BMD capabilities from the present six to eight by FY2020.

Aegis Destroyer JS "Atago," refurbished to give ballistic missile defense capability and conducting a test launch of SM-3 BLK IB (September 2018)

Meanwhile, Japan and the United States are jointly developing advanced interceptor missiles for BMD (SM-3 Block IIA), which will be the successor to SM-3 Block IA to be mounted on Aegis-equipped destroyers, and promoting the project to its deployment, in order to deal with future threats posed by increasingly advanced and diverse ballistic missile attacks.

At the National Security Council 9-Minister Meeting in December 2016, a decision was made to transition to joint production and the deployment phase. Since the FY2017 budget, SM-3 Block IIA acquisitions are ongoing. Acquisition and deployment of SM-3 Block IIA are planned to be implemented in FY2021.

In comparison with the previous SM-3 Block IA, SM-3 Block IIA will have not only extended interceptable altitude and coverage of protection, but also have enhanced defeating capability and simultaneous engagement capability. In addition, it is expected that the interception capabilities of SM-3 Block IIA will be enhanced against ballistic missiles equipped with interception avoidance measures such as a decoy and ballistic missiles launched with an intention to avoid being intercepted by taking a higher than nominal trajectory (lofted trajectory).[25]

With regard to Patriot PAC-3, necessary expenses have been appropriated in the supplementary budgets for FY2016 and FY2017 to enable the acquisition of the enhanced capability type, PAC-3 (MSE) (Missile Segment Enhancement). Introduction of PAC-3MSE will realize the extension of interception altitude from less than 20 km to tens of km, meaning that the coverage of protection (area) will expand more than twice compared with the current PAC-3.

In this way Japan is taking measures necessary to strengthen its protection structure and plans to continue the

24 The official name is the "Agreement Between the Government of Japan and the Government of the Republic of Korea on the Protection of Classified Military Information," which was signed by Nagamine, Ambassador of Japan to the ROK, and Han Min-goo, then Minister of National Defense of the ROK, in Seoul, ROK, on November 23, 2016.

25 By taking a higher trajectory than minimum energy trajectories (trajectories that enable efficient flying of a missile and maximize its range), it takes a shorter range than the maximum range, but the falling speed of the missile becomes faster.

efforts.[26]

d. Introduction of Aegis Ashore

In the past, the BMD of Japan was based on deploying Aegis-equipped destroyers, etc. in preparation for interception for a required period of time after early detection of signs of missile launch. Under the past posture regarding a possible missile attack on Japan, the MOD has believed that protection of the entire territory of Japan was possible if about two of the destroyers continued BMD missions in the sea for a certain period of time with a system of eight Aegis-equipped destroyers.

Meanwhile, North Korea has improved its practical launch capability using a transporter erector launcher (TEL) and developed submarine-launched ballistic missiles (SLBM), which makes it difficult to grasp signs of launch at an early stage. In light of the changing situation, it is necessary to maintain a persistent 24-hour, 365-day deployment of Aegis-equipped destroyers for a long period of over one year. This fact triggered a review of the past Japanese ballistic missile defense posture itself.

Furthermore, under the current Aegis equipped destroyer system that requires frequent long-term deployment, the working environment for crew onboard these destroyers is extremely severe. The service requires high level of concentration day and night to cope with ballistic missiles that can be launched anytime.

Under these circumstances, with North Korea's nuclear weapons and missiles posing a severe and imminent threat to the safety of our country, Japan must work to drastically upgrade its ballistic missile defense capabilities in order to ensure constant and sustained protection from peacetime. At meetings of the National Security Council and Cabinet in December 2017, a decision was made to purchase two Aegis Ashore units, to be retained by the GSDF. Aegis Ashore refers to a missile defense system that consists of radars, a command communication system, a vertical launch system (VLS), etc. similar to Aegis-equipped destroyers but deployed on the ground. Aegis Ashore intercepts ballistic missiles flying in space outside of the Earth's atmosphere from the ground. It is a piece of equipment with parts other than the ship hull of an Aegis-equipped destroyer on the ground in a fixed position. The introduction of two units of Aegis Ashore would enable seamless defense of the entire territory of Japan 24 hours a day and 365 days a year, and the burden on personnel is anticipated to be lifted significantly. Under the system of eight Aegis-equipped destroyers, about two of them had to focus on BMD mission only in the sea in order to protect the entire territory of Japan. Once Aegis Ashore is deployed, the Aegis-equipped destroyers can be used for missions ensuring maritime security, conducting training to maintain these skills, and ensuring sufficient change of crewmembers, which will be connected to further strengthen Japan's deterrence capability as a whole. The radar units to be mounted on the Aegis Ashore are state-of-the-art high-performance radar units called Lockheed Martin Solid State Radar (LMSSR). This radar will drastically enhance Japan's capabilities to respond to ballistic missiles, and includes enhancement of the capability against lofted trajectory launches and response to simultaneous majority attacks compared with Aegis-equipped destroyer of the MSDF.

Since GSDF Araya Maneuver Area in Akita Prefecture and Mutsumi Maneuver Area in Yamaguchi Prefecture were selected as candidate sites for the deployment of two units of Aegis Ashore, the MOD has repeated briefing sessions for local governments and residents and provided explanations on the necessary survey and the need for the deployment. However, there has been much inappropriate conduct, such as mistakes in briefing material and behavior showing a lack of respect by a defense official at the briefing session. The MOD sincerely reflects on our past conduct. In order to prevent a similar incident from occurring and to fundamentally strengthen the internal study framework, the MOD established "Aegis Ashore Introduction Promotion Headquarters" in June 2019, with the State Minister of Defense as the head of the office.

Regarding Aegis Ashore, the MOD believes that the basic premise is to deploy and operate it without impact on residents. Residents have voiced, to the MOD, various doubts and concerns about the need for and safety of the deployment, and the ministry will continue to provide explanations on them in a concrete and easy-to-understand manner with the best of intentions.

(2) Missile Defense of the United States and Japan-U.S. BMD Technical Cooperation

a. Missile Defense of the United States

The United States is developing a multi-tier missile defense system that combines defense systems suited for each of the following phases of the ballistic missile flight path to provide a mutually complementary response: (1) the boost phase, (2) the mid-course phase, and (3) the terminal phase. Japan and the United States have developed close coordination concerning ballistic missile defense, and a part of the missile defense system of the United States has been deployed in our

26 The FY2019 budget includes expenses necessary for upgrading renovations to enable Atago-type Aegis ship to launch SM-3 Block IIA.

country in a step-by-step manner.[27]

b. Japan-U.S. BMD Technology Cooperation, etc.

The Government commenced a Japan-U.S. cooperative research project on a sea-based upper-tier system in FY1999. As the result showed good prospects for resolving initial technical challenges, in December 2005, the Security Council (then) and the Cabinet decided to start Japan-U.S. cooperative development of an advanced ballistic missile interceptor by using the results of the project as a technical basis. The joint development started in June 2006 with a view to expanding the coverage of protection[28] and dealing with future threats posed by increasingly advanced and diverse ballistic missiles attacks.

In February and June 2017, Japan and the United States conducted tests of the SM-3 Block IIA interceptor in waters off Hawaii. Analysis of the test data confirmed that it meets all performance requirements.

Currently, as part of development work, the United States is carrying out validation of the data connection between the Aegis system and the SM-3 Block IIA, and between radars. Japan continues to cooperate as required.

3 Response to Attacks by Guerillas, Special Operations Forces and Others

In Japan, where most of the towns and cities are highly urbanized, even small-scale infiltrations and attacks can pose a serious threat against the country's peace and security. These cases refer to various mode and forms including illegal activities by infiltrated foreign armed agents[29] etc., and sabotage carried out by foreign guerillas or special forces, which can be deemed as an armed attack against Japan.

(1) Basic Concept

In the stage where the actual situation of intruders and the details of the ongoing case are not clear, the police primarily respond to the situation, while the MOD/SDF will collect relevant information and reinforce the security of the SDF facilities. When the situation is clearer and can be dealt with by the general police force, various forms of assistance such as transportation of police officers and provision of equipment to the police force will be carried out. If the case cannot be dealt with by the general police force, then public security operations by the SDF will be implemented. Furthermore, if it has been confirmed that an armed attack is being carried out against Japan, the SDF will respond under a defense operation order.

(2) Responses to Attacks by Guerillas and Special Operations Forces

Typical forms of attacks by guerrillas or special forces include the destruction of critical private infrastructure and other facilities, attacks against people, and assassinations of dignitaries.

In dealing with attacks by guerrillas or special forces, the MOD/SDF responds with a particular emphasis on the establishment of a relevant information gathering posture, warning and surveillance to prevent invasions in coastal areas, protection of key facilities, and search and destruction of invading guerrillas or special forces. Efforts will be made for early detection of attacks and indications through warning and surveillance, and, as required, the SDF units will be deployed to protect key facilities, such as nuclear power plants, and the necessary posture for protection will be established at an early stage. Based on this, in the event of an infiltration of our territory by guerrillas or special operations forces, they will be searched for and detected by reconnaissance units, aviation units and others and combat units will be promptly deployed to besiege and capture or to destroy them.

The MTDP states that in order to enhance the ability to respond effectively and efficiently, the SDF will improve its ISR posture and its ability to protect key facilities, including nuclear power plants, and search and destroy infiltrating units.

See Fig. III-1-2-10 (Example of Operations against the Attacks by Guerillas and Special Forces)

(3) Response to Armed Agents

a. Basic Concept

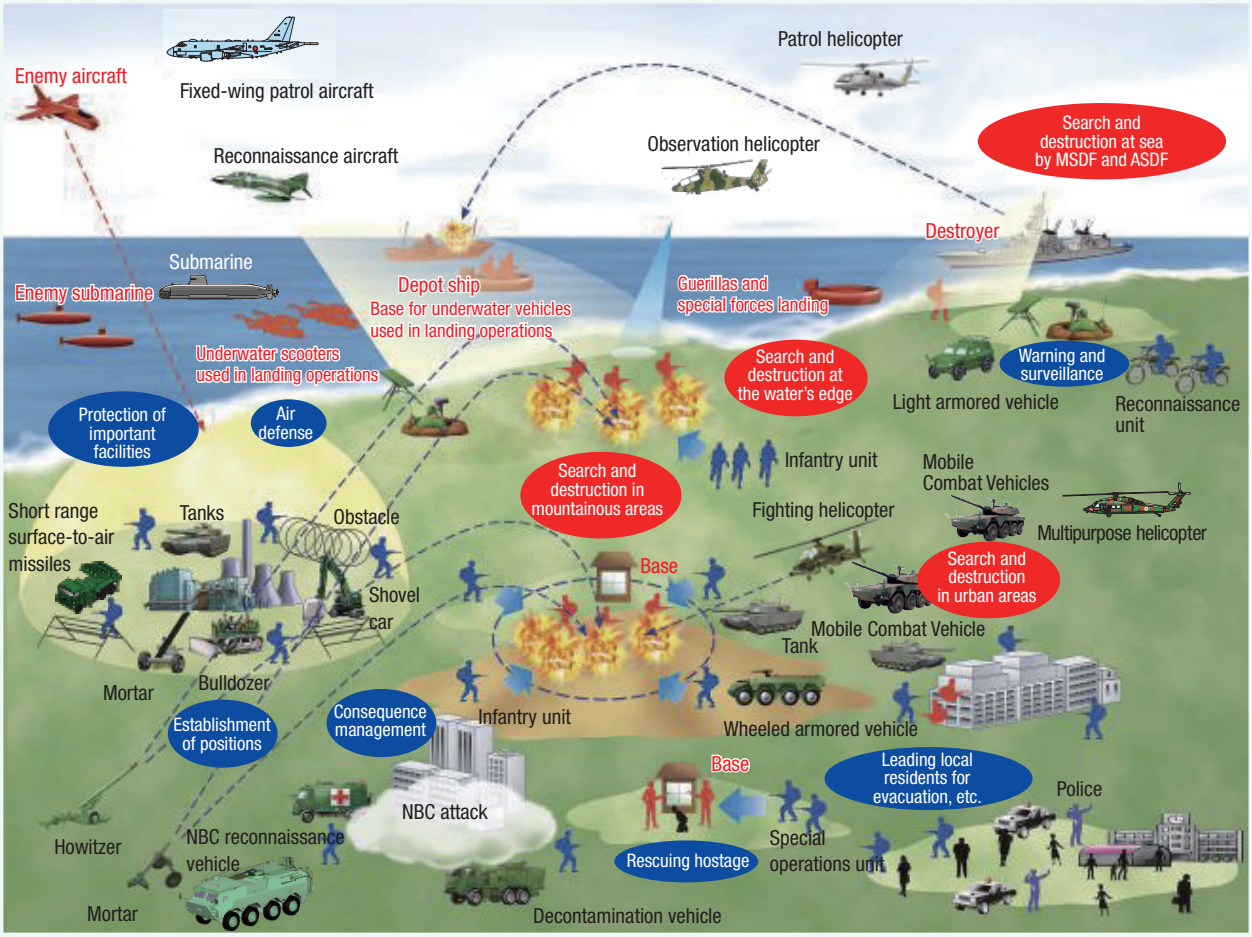
While the police assume primary responsibility for responding to illegal activities of armed agents, the SDF will respond in accordance with situational developments.

27 Specifically, a TPY-2 radar (so-called "X-band radar") for BMD has been deployed at the U.S. Shariki Communication Site in 2006. In October 2006, Patriot PAC-3 units were deployed in Okinawa Prefecture, and in October 2007, a Joint Tactical Ground Station (JTAGS) was deployed in Aomori Prefecture. Furthermore, the 2nd TPY-2 radar was deployed at the U.S. Kyogamisaki Communication Site in December 2014.
In addition, BMD-capable Aegis ships of the U.S. Forces were deployed at Commander Fleet Activities, Yokosuka (Yokosuka City, Kanagawa Prefecture) in October 2015, March 2016 and May 2018.

28 With regard to the Japan-U.S. cooperative development, it is necessary to export BMD related arms from Japan to the United States. In accordance with the Chief Cabinet Secretary's statement issued in December 2004, it was determined that the Three Principles on Arms Exports would not apply to the BMD system and related matters under the condition that strict controls are maintained. Based on these circumstances, it was decided that the prior consent of Japan could be given to the third party transfer of the SM-3 Block IIA under certain conditions. This decision was formally announced in the Joint Statement of the Japan-U.S. Security Consultative Committee (2+2 Meeting) in June 2011.
The Three Principles on Transfer of Defense Equipment and Technology (Three Principles) received Cabinet approval in April 2014. However, with regard to exceptional measures instigated before the Three Principles were decided, overseas transfers will continue to be organized in the guidelines for the principles as allowable under the Three Principles.

29 Refers to persons committing illegal acts such as subversive activities in Japan while possessing weapons with significant wounding and killing power.

Fig. III-1-2-10 Example of Operations against the Attacks by Guerillas and Special Forces



When this happens, the SDF cooperates with the police force. Accordingly, with regard to public security operations of the SDF, the Basic Agreement[30] concerning cooperation procedures between the SDF and the police, as well as local agreements between GSDF divisions/brigades and prefectural police forces, have been concluded.[31]

See Part II, Chapter 5, Section 2-3-1, (Public Security Operations)

b. Initiatives of the MOD/SDF

The GSDF has been conducting field training exercises nationwide with the police of each prefecture, in an effort to strengthen such collaboration by, for example, conducting field exercises at nuclear power plants throughout the country since 2012.[32] Furthermore, joint exercises in dealing with suspicious vessels are also continuously conducted between the MSDF and the Japan Coast Guard.

(4) Response to Nuclear, Biological, and Chemical Weapons

In recent years, there has been strong recognition of the danger of NBC (Nuclear, Biological, and Chemical) weapon proliferation, which can cause indiscriminate mass casualties and contamination of an extensive area, and the means for transporting such weapons, as well as related equipment and materials, to terrorists and countries under suspicion of proliferating such weapons. The sarin gas attack[33] on the Tokyo subway in March 1995 is one of the examples of an incident in which these weapons were used.

a. Basic Concept

In the event of the use of NBC weapons in Japan in a way

30 The Agreement on the Maintenance of Public Order in the Event of Public Security Operations, which was concluded between the then Defense Agency and the National Public Safety Commission (concluded in 1954 and fully revised in 2000).

31 In 2004, guidelines were jointly formulated between the National Police Agency and the Defense Agency concerning dealing jointly with public security operations in the event of armed agent incidents.

32 The GSDF also conducted exercises on the ground at Ikata Nuclear Power Plant (Ehime Prefecture) in 2012, at Tomari Nuclear Power Plant (Hokkaido) and Mihama Nuclear Power Plant (Fukui Prefecture) in 2013, at Shimane Nuclear Power Plant (Shimane Prefecture) in 2014, at Higashidori Nuclear Power Plant (Aomori Prefecture) and Kashiwazaki-Kariwa Nuclear Power Plant (Niigata Prefecture) in 2015, at Takahama Nuclear Power Plant (Fukui Prefecture) in 2016, at Hamaoka Nuclear Power Plant (Shizuoka Prefecture) and Shiga Nuclear Power Plant (Ishikawa Prefecture) in 2017, and at Genkai Nuclear Power Plant (Saga Prefecture) in 2019.

33 An incident in which members of the Aum Shinrikyo spread extremely poisonous sarin gas in subway trains crowded with commuters, claiming the lives of 12 people (this number refers to the number of deaths indicated in the judgment rendered to Chizuo Matsumoto (commonly known as Shoko Asahara, a guru of Aum Shinrikyo)). The SDF conducted decontamination operations on the trains and stations as well as supported police forensics.

Policemen of Yamagata Prefectural Police and GSDF personnel conducting training according to the joint guideline under the order of Public Security Operations (February 2018)

that corresponds to an armed attack, the SDF will conduct defense operations to repel the armed attack and rescue victims. Furthermore, in the event of the use of NBC weapons in a way that does not correspond to an armed attack but against which the general police alone cannot maintain public security, the SDF will conduct public security operations to suppress the armed group and rescue victims in cooperation with related agencies. Furthermore, when the incident does not fall under the category of defense operations or public security operations, the chemical protection units of the GSDF and medical units of the ASDF, GSDF and MSDF will cooperate with relevant organizations in information gathering concerning the extent of the damage, decontamination activities, transportation of the sick and injured, and medical activities through disaster relief and civil protection dispatches.

b. Initiatives of the MOD/SDF

The MOD/SDF possesses and maintains the GSDF Central Nuclear Biological Chemical (NBC) Weapon Defense Unit and the Countermeasure Medical Unit as well as increasing the number of chemical and medical protection unit personnel, in order to improve the capability for responding to NBC weapon attacks. Also, the GSDF has designated personnel to take initial action in the event of extraordinary disasters in order to allow operations to begin within approximately one hour.

The MSDF and the ASDF have also acquired protective equipment and materials to be used on vessels and at bases.

4 Readiness against Invasion

The NDPG states that only the necessary level of readiness against land invasions involving the mobilization of large ground forces, which was expected primarily during the Cold War, will be retained.

In the event of a military attack on Japan, the SDF will respond with defensive mobilization. Their operations are categorized into (1) operations for aerial air defense operations, (2) defense operations protecting waters around Japan, (3) operations protecting the land, and (4) operations ensuring security in maritime communication, based on the characteristic of their purposes. In executing these operations, the U.S. Forces will assist the operations implemented by the SDF and deploy operations to complement the capabilities of the SDF, including the use of striking power, in line with the Guidelines for Japan-U.S. Defense Cooperation.

(1) Air Defense Operations

Based on the geographic features of Japan, in that it is surrounded by the sea, and the features of modern wars,[34] it is expected that Japan will be repeatedly hit by rapid and surprise aerial attacks by aircraft and missiles in the case where a full-scale invasion against Japan occurs. Operations for aerial defense[35] aim to deal with enemy aerial attacks at the farthest point from our territory, prohibiting enemies from gaining air superiority and preventing harm to the people and the sovereign territory of Japan. At the same time, efforts will be made to inflict significant damage on the enemy thus making the continuation of their aerial attack difficult.

(2) Defense Operations Protecting Waters Surrounding Japan

If an armed attack is carried out against Japan, which is an island country, aerial attacks are expected to be combined with attacks against our ships and territory by enemy destroyers. In addition, transport vessels could be deployed to enable massive enemy ground forces to invade our territory. Our defense operations protecting the waters surrounding Japan are composed of measures at sea, measures in waters around our coasts, measures in major straits, and aerial defense above waters around Japan. We need to protect the waters around our country by combining these multiple operations, blocking the invasion of our enemies, and attacking and depleting their combat capabilities.

(3) Operations Protecting the Land

In order to invade the islands of Japan, invading countries are expected to gain sea and air superiority, followed by the landing of ground troops from the sea and airborne troops from the air.

For invading ground and airborne troops, it tends to be

34 Aerial attacks are important elements influencing the results of modern wars. It is vital to obtain air superiority before or at the same time as implementing ground or maritime operations.

35 A special characteristic of operations for aerial defense is that initial response is critical and can influence the entirety of operations. Thus, Japan needs to maintain its readiness for a quick initial response on an ongoing basis in peacetime, regularly collect information, and rapidly and comprehensively exert combat capabilities from the outset of operations.

difficult to exert systematic combat capabilities while they are moving on their vessels or aircraft or right before or after they land in our territory. As we protect our land, we need to make best use of this weakness to deal with our enemies between coastal and sea areas or at landing points as much as possible and attack them at an early stage.

(4) Operations Ensuring Security in Maritime Transportation

Japan depends upon other countries for the supply of much of its resources and food, making maritime transportation routes the lifeblood for securing the foundation of our existence and prosperity. Furthermore, if our country comes under armed attack, etc., maritime transportation routes will be the foundation to maintain continuous warfare capabilities and enable the U.S. Forces to come and assist in the defense of Japan.

In operations to ensure the safety of our maritime transportation, the SDF combines various operations such as anti-sea, anti-submarine, anti-air and anti-mine operations to patrol,[36] defend SDF ships, and protect straits and ports, as well as setting up sea lanes[37] to directly defend Japanese ships, etc. Aerial defense (anti-air operations) for Japanese ships on maritime transportation routes is conducted by destroyers, and support from fighter jets and other aircraft is provided as required.

5 Initiatives Related to the Protection of Civilians

(1) Basic Policy on the Protection of Civilians and the Role of the MOD/SDF

In March 2005, based on Article 32 of the Civil Protection Act, the government established the Basic Guidelines for the Protection of the People. It anticipates four types of armed attack: 1) a land invasion, 2) an attack by guerrillas or special forces, 3) a ballistic missile attack, 4) an air attack and points to consider in taking measures to protect civilians depending on the type of attack.

The MOD/SDF, based on the Civil Protection Act and the Basic Guidelines, have developed a Civil Protection Plan of the MOD and the Acquisition, Technology and Logistics Agency. This plan stipulates that in a situation where Japan is under attack, the SDF would make utmost efforts to fulfill its basic task of repelling the attack It also states that, within the scope of no hindrance to the task, the SDF would do as much as possible to protect civilians through support on evacuation and disaster relief.

See Part II, Chapter 5, Section 2-1-4 (Civil Protection)

GSDF personnel doing a transportation task in cooperation with relevant organizations in civil protection training conducted in Aichi Prefecture (January 2019)

(2) Initiatives of the MOD/SDF to Facilitate Measures for Civilian Protection

a. Civil Protection Training

For sound and expeditious implementation of measures to protect civilians, it is important to conduct training on a regular basis to ensure effective and efficient collaboration with concerned ministries, agencies and local governments. The MOD and the SDF hold exercises in cooperation with concerned ministries and agencies and with the participation of local governments and others. They also participate and cooperate in civil protection exercises held by other ministries, agencies and local governments.

For example, civil protection training was hosted by the central government (Cabinet Secretariat and the Fire Defense Agency) and local governments (Aichi prefecture and Toyota City) in Toyota City, Aichi in January 2019. The GSDF, MSDF, ASDF and JSDF Aichi Provincial Cooperation Office also participated in the training in preparation for an incident during an international sports event.

See Reference 19 (Participation of the Ministry of Defense and the SDF in Civil Protection Joint Training Exercises with Central and Local Government Bodies [2018])

b. Ongoing Collaboration with Local Governments

The MOD and the SDF are establishing liaison departments in Regional Armies and Provincial Cooperation Offices to ensure ongoing and close collaboration with local governments and other bodies.

Civilian protection councils are also being established in local governments for comprehensive implementation of measures to protect civilians. Representatives of each branch of the SDF and Regional Defense Bureau officials have been appointed to the councils.

Moreover, local governments are recruiting retired SDF

36 The act of systematically monitoring a specific area with the purpose of gathering information and intelligence to prevent a surprise attack by an opposing force.
37 Relatively safe marine areas defined to enable the transportation of ships. The locations and width of sea lanes change depending on the situation of a specific threat.

officers to serve as crisis managers. For example, they act as coordinators with the MOD/SDF, as well as developing and implementing joint action plans and exercises.

3 Responses in the Domains of Space, Cyberspace and Electromagnetic Spectrum

Among the roles that must be served by Japan's defense capability as set forth in the NDPG, the idea of "(3) response in space, cyberspace and electromagnetic domains during all phases" is as follows.

In order to prevent any actions that impede its activities in space, cyberspace and electromagnetic domains, the SDF, on a steady-state basis, conducts persistent monitoring as well as collection and analysis of relevant information. In the event of such an event, the SDF will promptly identify incidents and take such measures as damage limitation and recovery. In case of an armed attack against Japan, the SDF will, on top of taking these actions, block and eliminate the attack by leveraging capabilities in space, cyberspace and electromagnetic domains.

Furthermore, in light of society's growing dependence on space and cyberspace, the SDF will contribute to comprehensive, whole-of-government efforts concerning these domains under appropriate partnership and shared responsibility with relevant organizations.

Initiatives carried out based on this role are explained below.

1 Responses in Space Domain

(1) The Whole-of-Government Approach

The Office of National Space Policy[38] established in the Cabinet Office in July 2012 engages in the planning, drafting, coordinating, and other policy matters relating to the Government's development and use of space. In light of the environmental changes surrounding space policy and the new security policies stated in the NSS that was approved by the Cabinet in 2013, the Basic Plan on Space Policy[39] was decided upon in the Strategic Headquarters for Space Development which was established within the Cabinet in January 2015. This Basic Plan was prepared as a 10-year development plan focusing on the next approximately 20 years to improve the predictability of industries' investments, and strengthen the industrial base, and has the following goals: (1) Ensuring space security; (2) Promoting the use of space in the civilian sector; and (3) Maintaining and strengthening of space industry and scientific/technological bases. Amid rising dependence on space systems and increasing threats and risks in space, "mission assurance" initiatives are underway to ensure stable space operations including detection and avoidance of threats and risks, increased survivability of the systems themselves and early recovery of functionality.

Responding to Japan's progress in development and use of outer space, the Diet approved the Act on Ensuring Appropriate Handling of Satellite Remote Sensing Data (Remote Sensing Data Act) and Act on Launch of Artificial Satellites and Launch Vehicles and Control of Artificial Satellites (Space Activities Act) in November 2016, and the Remote Sensing Data Act and part of the Space Activities Act went into effect in November 2017. The Space Activities Act fully went into effect in November 2018.

The Space Activities Act stipulates matters necessary to secure public safety and provide prompt protection of the victims from damages in Japan's space development and use, such as a launch permit system, obligation for reparation, and government compensation. In addition, the Remote Sensing Data Act established (1) a license pertaining to use of satellite remote sensing instruments, (2) a certification of persons handling satellite remote sensing data and (3) a system that enables the Prime Minister to issue an order to a satellite remote sensing data holder to prohibit provision of data under certain occasions.

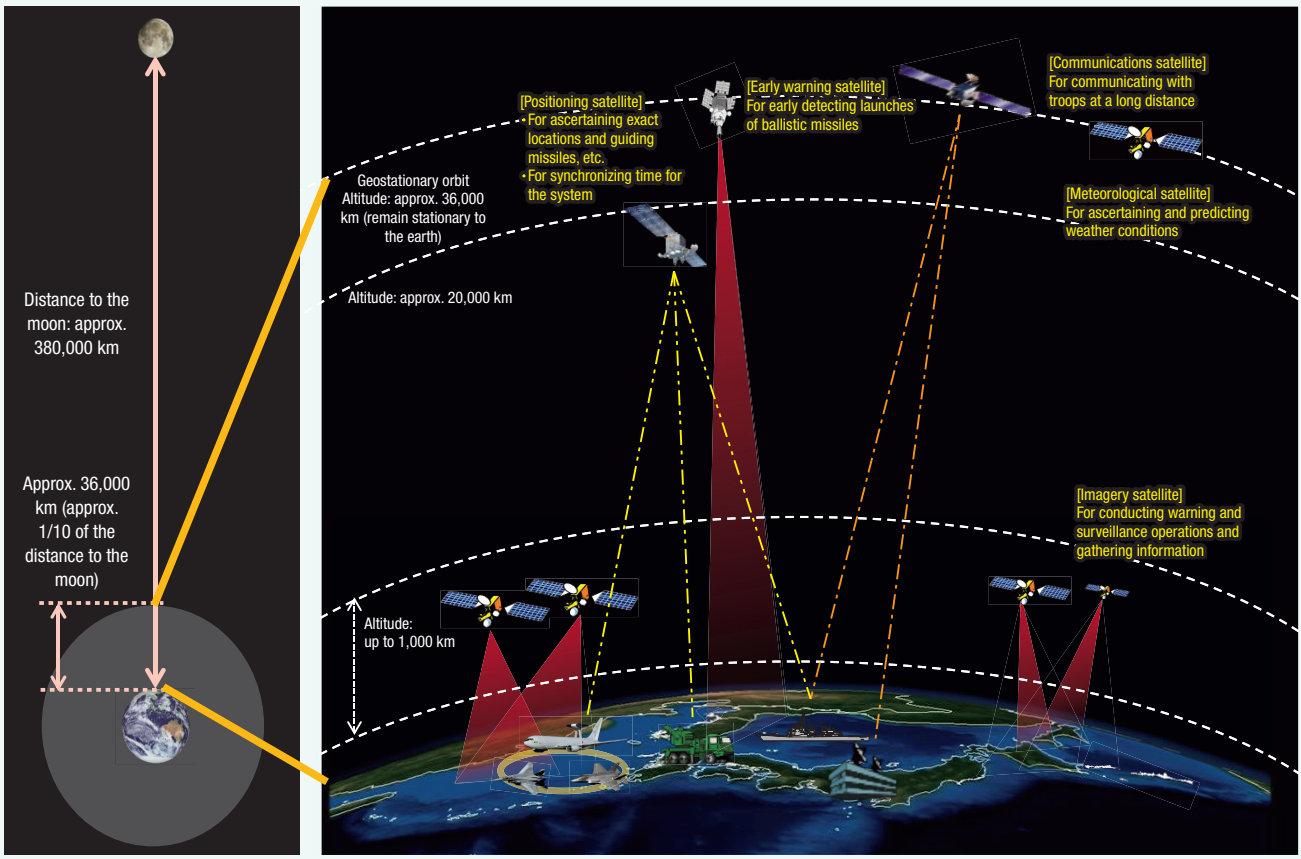
(2) Initiatives of the MOD/SDF

Effective use of satellites for such purposes as information-gathering, communication and positioning is essential for realizing cross-domain operations. On the other hand, threats to the stable use of space are increasing.

The MOD/ SDF has sought to ensure effective and efficient use of space by strengthening information gathering, C2 (command & control) and communication capabilities by using satellites and through Space Situational Awareness (SSA). In addition to these initiatives, based on the MTDP, the MOD/SDF will work to enhance capabilities to ensure superiority in use of space at all stages from peacetime to armed contingencies. The efforts include (1) establishing an SSA system in order to secure the stable use of space; (2)

38 In April 2016, the Office of National Space Policy was reorganized into the National Space Policy Secretariat.
39 Cabinet decision on April 1, 2016

Fig. III-1-2-11 Use of Space in the Security Field (image)



improving various capabilities that leverage space domain including information-gathering, communication and positioning capabilities, and; (3) building the capability to disrupt C4I (command, control, communication, computer, and intelligence) of opponents in collaboration with the electromagnetic domain.

In so doing, the SDF will (4) work to enhance cooperation with relevant agencies, including the Japan Aerospace Exploration Agency (JAXA), and with the United States and other relevant countries. The SDF will also engage in such organization building as the creation of units specializing in space and a dedicated career field, and develop human resources and accumulate knowledge and expertise in the space domain.

See Fig. III-1-2-11 (Use of Space in the Security Field (image))

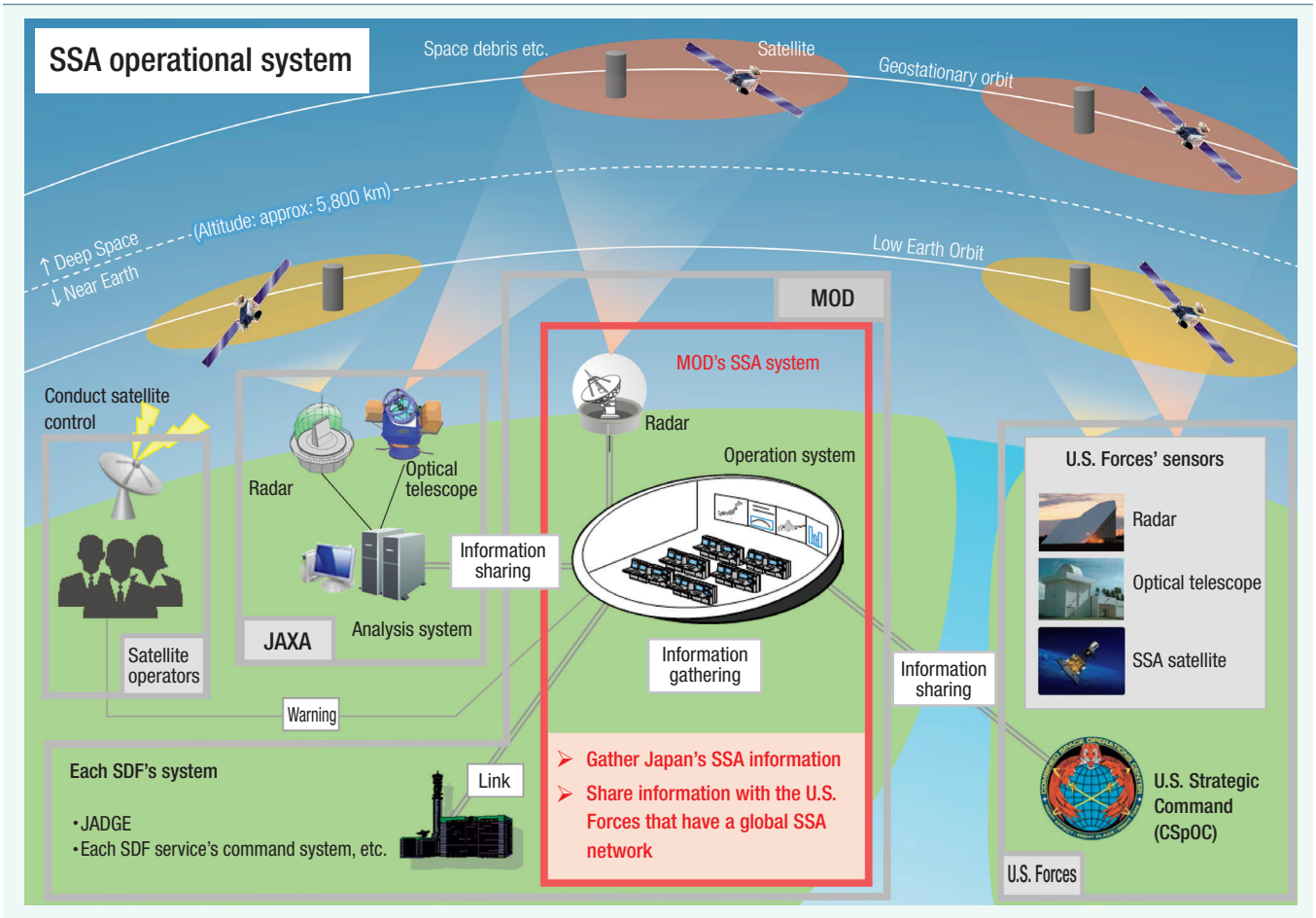
a. Development of the SSA System

When using outer space, it is necessary to ensure its stable use. However, there has been a rapid increase in the volume of space debris in outer space, raising the risk of significant damage to satellite functions caused by collision between debris and satellite. In addition, it is speculated that the development and verification test of a killer satellite, which approaches a target satellite to disturb, attack, and capture it, is underway, increasing the threat to the stable use of outer space.

That is why the MOD, based on the Basic Plan on Space Policy and through cooperation with relevant domestic institutions, such as the JAXA, and the U.S., aims to establish SSA by 2022 to monitor and maintain an accurate picture of conditions in space. It is also working to deploy radar to monitor threats to Japanese satellites, such as space debris, and its operating system for information gathering, processing and sharing. The SDF will establish one squadron of the ASDF space domain specialized unit to operate the system and new specialty dedicated to the space domain.

For this to happen, the government agencies and ministries concerned need to work together to build an effective operating system. On this point, JAXA is devising a plan to deploy radar able to monitor low Earth orbit (at altitudes of up to 1,000 km) and a ground-based optical telescope to monitor geostationary orbit (at altitudes of around 36,000 km). Combined with the radar of the MOD that will principally be dedicated to geostationary orbit monitoring, Japan is planning an effective SSA program. For its operation system, necessary adjustment is in progress to link the system to the

Fig. III-1-2-12 Initiatives for the Development of the SSA System



U.S. Forces' system in addition to JAXA by FY2022.

For the future, in addition to radar to monitor threats to Japanese satellites such as space debris as mentioned above, the MOD will introduce SSA satellites that are space-based optical telescopes and ground-based SSA laser ranging devices to measure distance from low earth-orbit satellites. The expenses for study of their costs, functions and performance are included in the FY2019 budget.

See Fig. III-1-2-12 (Initiatives for the Development of the SSA System)

b. Improving Various Capabilities to Leverage Space Domain Including Information-Gathering, Communication and Positioning Capabilities

The MOD/SDF has conducted information-gathering, communication and positioning using satellites, but in order to fulfill its missions effectively and efficiently it is necessary to further enhance these capabilities.

For this purpose, the MOD/SDF will strengthen its intelligence and surveillance capabilities through multi-layered acquisition of satellite images using Information Gathering Satellites (IGS) and commercial satellites, including microsatellites. It will also continue to use images from the satellite operated by JAXA (ALOS-2) and information from Automatic Identification System, etc., and conduct research on dual wavelength infrared sensors.[40]

Regarding communications, the MOD/SDF launched an X-band defense communications satellite called Kirameki-2 in January 2017 and Kirameki-1 in April 2018, owned and operated by the MOD for the first time, to be used for the communications, which is essential for command and control in unit operations. Going forward, in light of the future increase in communication requirements, the MOD will conduct steady development of Kirameki-3 to realize integrated communications as well as high-speed and large capacity communications, thereby aiming for the early realization of a three-satellite constellation with all of the three X-band defense communications satellites. The

40 Research is underway to mount dual wavelength infrared sensors with excellent detection and identification performance on the Advanced Optical Satellite planned at JAXA and activate them in the space environment.

ministry will also conduct research and surveys on the next defense communication satellites.

With regard to positioning, the MOD/SDF has mounted GPS receiving terminals on a large number of equipment and used them as important means to support troop movement, including highly accurate self-positioning and improvement of missile guidance. In addition to these efforts, the Quasi-Zenith Satellite System (QZSS) of the Cabinet Office started service in November 2018. With this in mind, the MOD/SDF will continue considering the securing of redundancy by using multiple positioning satellite signals, including QZSS, while considering its cost effectiveness.

c. Enhancing Capabilities to Ensure Superiority in Use of Space

Utilization of satellites plays a vital role as the basic infrastructure for security, while some countries appear to be developing anti-satellite weapons, including killer satellites and anti-satellite missiles. In this context, the MOD/SDF needs to improve the resilience of the X-band defense communications satellite and other satellites.

To this purpose, the SDF will newly introduce training devices to study and train responses to the vulnerabilities of Japanese satellites, and devices to grasp the state of electromagnetic interference against Japanese satellites. Expenses for study and research[41] necessary for this purpose are included in the FY2019 budget.

The SDF will build the capability to disrupt C4I of opponents in coordination with the electromagnetic domain.

d. Enhancing Cooperation with Relevant Agencies and with the United States and Other Relevant Countries

For the MOD to promote space development and use effectively, it is essential to enhance cooperation with relevant agencies with advanced knowledge, including JAXA, and with the United States and other relevant countries.

Currently the MOD and JAXA are cooperating in the development of SSA described above and technical demonstration of dual wavelength infrared sensors. In addition, the ministry exchanges human resources, including the dispatch of ASDF personnel to the JAXA Tsukuba Space Center.

Also, from the perspective of further promoting cooperation in the space field between the defense authorities of Japan and the United States, the two countries established the "Japan-US Space Cooperation Working Group (SCWG)" in April 2015 and so far held five meetings. The SCWG continues to promote consideration in broader fields such as: (1) promotion of space policy-related consultation, (2) closer information sharing, (3) cooperation for training and securing space experts, and (4) continued participation to tabletop exercises.

As part of such initiatives, the MOD has taken part in the annual SSA multinational tabletop exercise hosted by the U.S. Strategic Command since 2016 with the purpose of acquiring knowledge related to the SSA operation as well as of strengthening cooperation with the United States and other partner countries. These efforts to enhance the SSA capabilities also contribute to enhancing deterrence against new threats in outer space.

In October 2018, the MOD took part for the first time in the Schriever Wargame, a multinational tabletop exercise hosted by the U.S. Air Force Space Command to deepen space cooperation with participating countries and to think about its further space polices.

Japan engages in space security dialogues not only with the United States but also with France, the European Union (EU), and India.

See Chapter 3,Section 3-1 (Cooperation in the Use of Space Domain)

2 Response in Cyber Domain

(1) The Whole-of-Government Approach and Other Initiatives

With regard to cybersecurity, the number of cases that were detected as suspicious communication to Japanese governmental organizations and required confirmation as to whether or not they need coping, there were 111 suspicious malware infections and 66 targeted attacks in FY2018. This is a situation which requires sufficient and continuous attention.[42]

In order to deal with the increasing threat to cybersecurity, in November 2014, the Cyber Security Basic Act was enacted. The Act aims to contribute to the security of Japan by comprehensively and effectively promoting the measures regarding cybersecurity.

In response to this, in January 2015, the CyberSecurity Strategic Headquarters was established in the Cabinet, and the National center of Incident readiness and Strategy for Cyber

41 The following study and research for enhancement of C4ISR (command, control, communication, computer, intelligence, surveillance, and reconnaissance) functions using space are included in the budget: (1) study and research on posture to monitor electromagnetic spectrum in space; (2) study and research on vulnerability of satellites and countermeasures, and; (3) study and research pertaining to stable use of the outer space.

42 Cybersecurity 2019 (approved by the Cybersecurity Strategic Headquarters on May 23, 2019).

column

Participating in a Multinational Tabletop Exercise Schriever Wargame

In October 2018, the MOF/SDF together with other space-related organizations of Japan (National Security Secretariat, Cabinet Office, Ministry of Internal Affairs and Communications, Ministry of Foreign Affairs, Ministry of Education, Culture, Sports, Science and Technology, Ministry of Economy, Trade and Industry, Cabinet Satellite Intelligence Center and Japan Aerospace Exploration Agency [JAXA]) and other countries participated in multinational tabletop exercise named the Schriever Wargame, hosted by the U.S. Air Force Space Command. This was the first participation in the exercise from Japan.

The Schriever Wargame is a multinational tabletop exercise involving wide-ranging discussions from strategy to operation level on responses to various situations in outer space, which are anticipated to arise in about ten years from now. This time, the United Kingdom, Australia, Canada, New Zealand, France and Germany also participated in the exercise in addition to the United States.

In recent years, space debris, anti-satellite weapons, and other risks that could interfere with the stable use of outer space have been growing. In this context it is vitally important to respond to these risks effectively in cooperation with relevant ministries and the international community in order to ensure security. In the Schriever Wargame we were able to have wide-ranging discussions on cooperation with the United States and other partner countries in the new domain, space. The MOD/SDF will continue to take similar opportunities to further strengthen cooperation with relevant countries in the new domains.

Schriever Wargame participants from Japan

Security (NISC)[43] was established in the Cabinet Secretariat. The NISC is responsible for planning and promotion of cyber security-related policies and serves as the control tower in taking measures and responding to significant cybersecurity incidents in government organizations and agencies, as well as critical infrastructures. Furthermore, in September 2015, the Cybersecurity Strategy was formulated for the comprehensive and effective promotion of measures pertaining to cybersecurity, with the aims to create and develop free, fair and safe cyber space to enhance the vitality of the economy and society and realize their sustainable development, to realize a society in which citizens can live safely and with peace of mind, and to contribute to the peace and stability of the international community as well as the security of Japan. Furthermore, in July 2018 the strategy was reviewed to promote cybersecurity for sustainable development and initiatives from three perspectives ((1) mission assurance by service providers, (2) risk management, and (3) participation, cooperation and collaboration), while sticking with the basic position of the strategy.

(2) Initiatives of the MOD/SDF

Information and communications networks that leverage cyberspace form a foundation for the SDF's activities in various domains, and any attack against them would seriously disrupt the organized activities of the SDF.

The MOD/SDF has engaged in holistic measures including the following: introduction of intrusion prevention systems, in order to ensure the safety of information and communication systems; development of defense systems, such as the security and analysis devices for cyber defense; monitoring of MOD/SDF communications networks around the clock and response to cyber attacks[44] by the SDF C4 (Command, Control, Communication & Computers) Systems Command and others; enactment of regulations[45] stipulating postures and procedures for responding to cyber attacks; research on cutting-edge technology; development of human resources, and collaboration with other organizations.

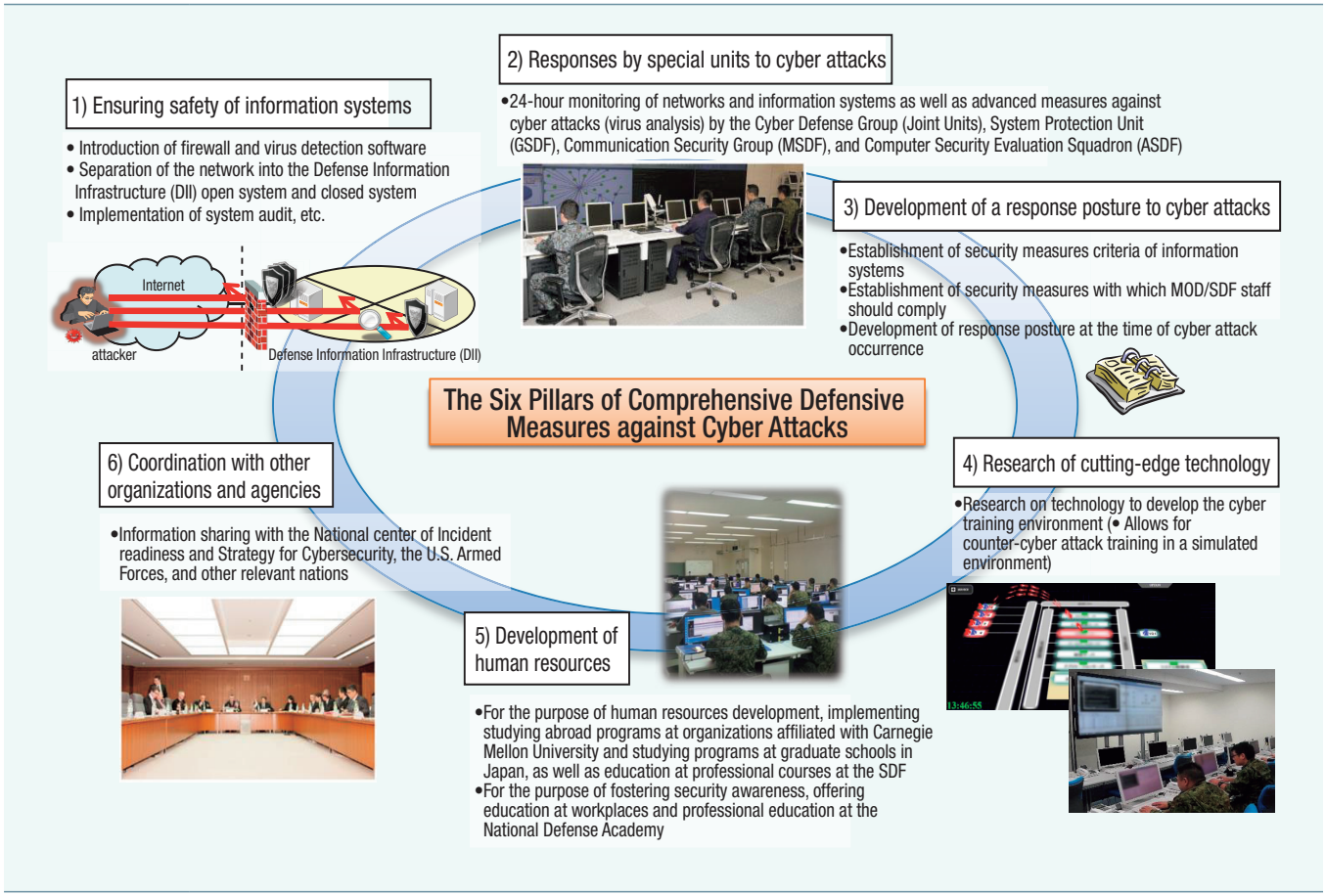
In addition to these initiatives, based on the NDPG, the SDF will fundamentally strengthen its cyber defense capability, including the capability to disrupt, during an

43 With the enactment of the Basic Act on Cybersecurity in January 2015, the National Information Security Center (NISC) was reorganized as the National center of Incident readiness and Strategy for Cybersecurity (NISC). The NISC is responsible for the planning and promotion of cybersecurity-related policies and serves as the control tower in taking measures and responding to significant cybersecurity incidents in government organizations and agencies, as well as critical infrastructures.

44 Illegal intrusion, information theft, alteration or destruction, operation stop/malfunction of information system, execution of unauthorized program, DDoS (distributed denial of service) attacks, etc. which are made through cyberspace by abusing information communication networks, information systems, etc.

45 There are directives relating to the information assurance of the MOD (MOD Directive No. 160, 2007).

Fig. III-1-2-13 MOD/SDF Comprehensive Measures to Deal with Cyber Attacks



Member of Cyber Defense Group responding to increasingly sophisticated, skillful cyber attacks

attack against Japan in time of emergency, the opponent's use of cyberspace for the attack. Specifically, the MTDP stipulates (1) establishment of the necessary environment for ensuring cybersecurity, (2) keeping abreast of the latest information including cyber-related risks, counter measures and technological trends, (3) development and securing of human resources, and (4) contribution to the whole-of-government initiatives.

See Fig. III-1-2-13 (MOD/SDF Comprehensive Measures to Deal with Cyber Attacks); Reference 20 (Efforts in Recent Years by the Ministry of Defense on Cybersecurity)

a. Establishing an Environment for Ensuring Cyber Security

(a) Expanding the Structure of Cyber Defense Group and Other Units

"Cyber Defense Group" was established under the SDF C4 Systems Command in March 2014. In order to appropriately deal with cyber attacks that are becoming more sophisticated and skillful day by day, the Cyber Defense Group was expanded from approximately 110 to 150 personnel in FY2018 to strengthen the posture. For the future, the group will be further expanded by about 70 personnel to approximately 220 in FY2019. Furthermore, the structure of the SDF C4 Systems Command will be reviewed and a cyber defense unit will be newly established as a joint unit by FY 2023.

(b) Strengthening Capabilities of Information Gathering, Research and Analysis

In order to secure functions of the system and network of the MOD/SDF under any circumstance, it is necessary to strengthen the capabilities of information gathering, research and analysis, and develop a practical training environment.

To this end, the MOD/SDF will continue initiatives such as (1) upgrade of information gathering devices for indications and techniques of cyber attacks, (2) enhancing functions of analysis devices for cyber protection, and (3) development of an environment for cyber exercises carried

out as competition between an attacking team and a defense team.

b. Keeping Abreast of the Latest Information Including Risks, Counter Measures and Technological Trends

In order to respond to cyber attacks in a swift and appropriate manner, it is necessary to keep abreast of the latest information, including cyber-related risks, counter measures and technological trends, through cooperation with the private sector, and strategic talks, joint exercises and other opportunities with allies and other parties. For this purpose the MOD/SDF will effectively cooperate with private companies and foreign countries, including the United States, which is Japan's ally.

(a) Cooperating with Private Companies and Others

In Japan, in July 2013, the "Cyber Defense Council" (CDC) was set up, and its core members consist of around ten companies in the defense industry with a strong interest in cybersecurity. The MOD/SDF and the defense industry have made efforts to deal with cyber attacks through joint exercise and other initiatives.

(b) Cooperation with the United States

Since comprehensive defense cooperation, including joint response, between Japan and its ally the United States is vital, the two countries set up the Cyber Defense Policy Working Group (CDPWG) as a framework between the defense authorities of Japan and the United States. Under this framework, meetings have been held six times to discuss the following topics: (1) promotion of policy discussions regarding cyber issues, (2) closer sharing of information, (3) promotion of joint exercises incorporating response to cyber attacks, and (4) matters such as cooperation for training and maintaining experts. Moreover, in May 2015, the two countries announced a joint statement on the specific future direction of the cooperation.

In addition, Japan's cooperation with the United States is to be further strengthened by such means as participation in the "Japan-U.S. Cyber Dialogue," a whole-of-government approach by both nations, holding of the "Japan-U.S. IT Forum," a framework between the defense authorities since 2002, and dispatching liaison officers to the U.S. Army's cyber educational institution.

(c) Cooperation with Other Countries etc.

Japan has held cyber dialogues with the respective defense authorities of the United Kingdom, the North Atlantic Treaty Organization (NATO), and others. Furthermore, Japan has participated as an observer in cyber defense exercises organized by NATO or the Cooperative Cyber Defence Centre of Excellence (CCDCOE). In addition, the IT Forum has been held between the defense authorities of Singapore, Vietnam, and other countries to exchange views on initiatives in the information communications area including cybersecurity and current trends in technology.

See Chapter 3,Section 3-2 (Cooperation in the Use of Cyber Domain)

c. Development and Securing of Human Resources

In order to strengthen the cyber defense capability of the SDF, it is necessary to secure human resources who have advanced and broad-ranging knowledge on cybersecurity.

To this end, the MOD/SDF will work to (1) implement common cyber education;[46] (2) send personnel to study at colleges, etc. in Japan and abroad; (3) ensure appropriate treatment for security and IT human resources who work as a bridge between highly professional human resources and general administration departments in the MOD;[47] and (4) consider the utilization of external human resources through a public-private personnel exchange system to employ people with practical experience in private companies as well as contracts for service, for example.

d. Contribution to the Whole-of-Government Approach

Along with the National Police Agency, the Ministry of Internal Affairs and Communications, the Ministry of Economy, Trade and Industry, and the Ministry of Foreign Affairs, the MOD, as one of the five government agencies that are members of Cybersecurity Strategy Headquarters, participates in cyber attack response training and personnel exchanges, and provides information about cyber attacks, etc. to the cross-sector initiatives led by the NISC as well as sending personnel to the Cyber incident Mobile Assistant Team (CYMAT).

The MOD is considering applying the knowledge and experience of the SDF to penetration tests of the IT systems of government ministries and agencies conducted by NISC.

3 Response in Electromagnetic Domain

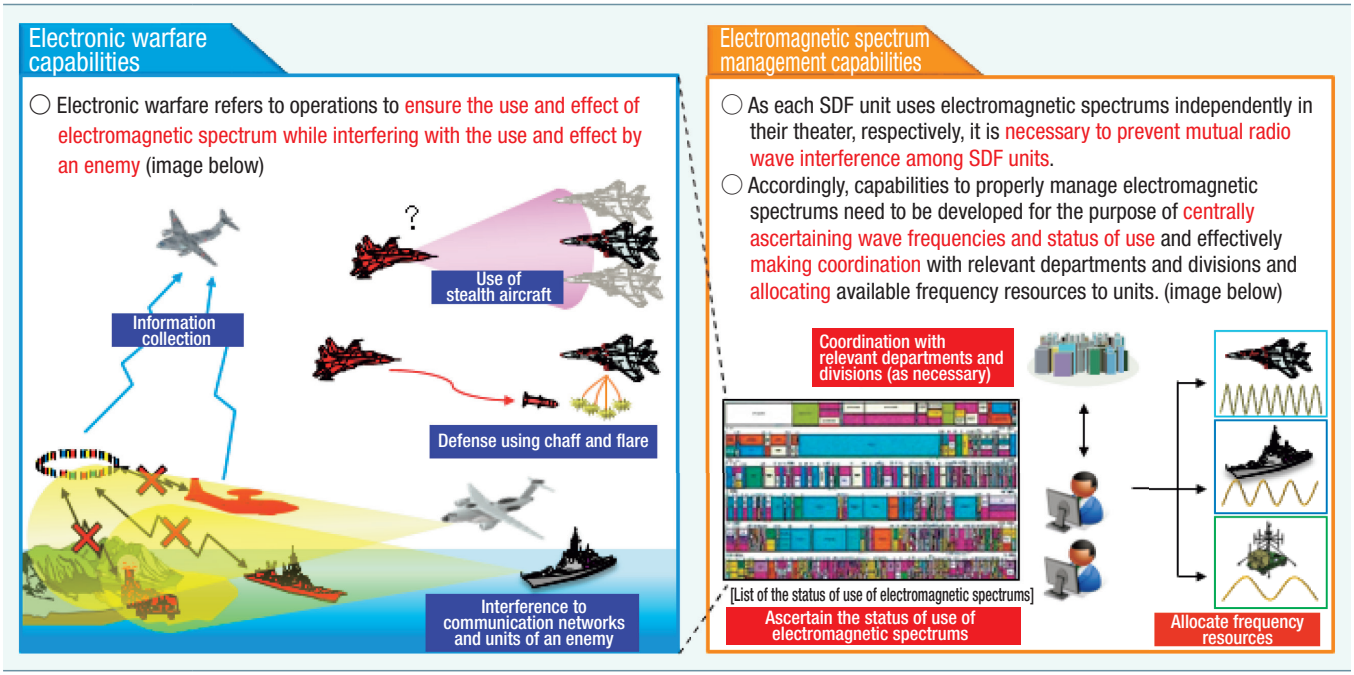
Electromagnetic spectrum[48] has been used for command/communication, and warning/surveillance. With the development of the technology, its use has expanded in range and purpose, and it is now recognized as a major operational domain situated on the frontline of the offense-defense

46 Common cyber security education provided for graduates of an IT-related program that is provided by each SDF service

47 Measures based on the Comprehensive Policy for Enhancing the Development of Security and IT Human Resources at Governmental Organizations (Approved by the Cybersecurity Strategic Headquarters on March 31, 2016)

48 Collective term for radio waves, infrared rays, visible rays, etc.

Fig. III-1-2-14 Electronic Warfare Capabilities and Electromagnetic Spectrum Management Capabilities (image)



dynamic in today's warfare.[49] In response, the SDF, based on the NDPG, etc., will (1) enhance its ability to appropriately manage and coordinate the use of electromagnetic spectrum, (2) strengthen information collection and analysis capabilities related to electromagnetic spectrum, and develop an information sharing posture, (3) strengthen capabilities to neutralize the radar and communications of opponents who intend to invade Japan, and thereby acquire and enhance capabilities to ensure superiority in the electromagnetic domain.[50]

(1) Enhancing the Ability to Appropriately Manage and Coordinate the Use of Electromagnetic Spectrum

In order to gain an advantage in warfare by using electromagnetic spectrum proactively and effectively, it is necessary to build capabilities to manage electromagnetic spectrum by centrally grasping and coordinating wave frequencies and status of use, and appropriately allocating frequency resources to units, etc. in addition to electronic warfare capabilities to ensure the use and effect of electromagnetic spectrum while interfering with the use and effect by an enemy.

For this purpose, the FY2019 budget includes (1) establishment of "Electromagnetic Spectrum Policy Office" in the Information and Communications Division, Bureau of Defense Buildup Planning to enhance the planning function for appropriate utilization of electromagnetic domain and the function for coordination with other ministries and agencies; and (2) establishment of "Electromagnetic Domain Planning Section" in the C4 System Planning Division, C4 Systems Department in Joint Staff, for planning and study pertaining to electromagnetic capabilities to ensure smooth joint operation of the SDF. The new offices specialized in electromagnetic domain will lead capacity building in electromagnetic management.

See Fig. 1-2-14 (Electronic Warfare Capabilities and Electromagnetic Spectrum Management Capabilities [image])

(2) Strengthening Information Collection and Analysis Capabilities Related to Electromagnetic Spectrum, and Building an Information Sharing Posture

In order to gain an advantage in electromagnetic warfare, it is important to gather and analyze information on electromagnetic spectrum at all phases from peacetime to armed contingencies and appropriately share the information among SDF units.

To this end, the MOD/SDF plans to enhance information gathering and analysis capabilities through the procurement of electromagnetic information gathering aircraft and ground-based SIGINT sensors, and establish electromagnetic operation units to gather information regarding electromagnetic spectrum as subordinate units of the Ground Component Command. In order to share the

49 One of the attacks using electromagnetic waves is electromagnetic pulse (EMP) attacks, which place an extreme burden on electronics by generating instantaneous powerful electromagnetic waves through nuclear explosions and other means leading to their malfunctioning or destruction. This type of attack would impact not just the defense field but Japanese people's lives in general. The Government of Japan as a whole will deliberate on necessary countermeasures.

50 In addition, the MOD/SDF is advancing the multiplication of the communications network required for information sharing among the services, and conducting research in light of the viewpoint of EMP protection.

information among SDF services while ensuring security of the information, the SDF will promote the upgrade of the JADGE system, the connection of each SDF service's systems, including the Defense Information Infrastructure (DII) and the improvement of each SDF service's data links.

(3) Strengthening Capabilities to Neutralize Radar and Communications of an Opponent who Intends to Invade Japan

Neutralizing use of electromagnetic spectrum, including radar and communications of an opponent who intends to invade Japan based on information gathering and analysis in peacetime is effective as a means for the defense of Japan so that even when inferiority exists in individual domains such inferiority will be overcome and national defense accomplished.

For this purpose, the SDF will proceed with capability development through the procurement of fighters (F-35A) superior in electronic countermeasures for self-protection and network electronic warfare devices, installation of new electronic warfare equipment on fighters (F-15), expansion of the frequency band that utility aircraft (EP-3) can gather, and enhancement of the capability of utility aircraft (UP-3D) to simulate an electronic warfare environment.

A Network electronic warfare device that can disable radar or communications of opponents

Furthermore, the SDF will also swiftly proceed with studies and R&D aimed at the procurement of (1) standoff electronic warfare aircraft for jamming from outside of the threat envelopes of the opponent, (2) high-power electronic warfare devices, (3) high-power microwave devices that can instantaneously disable a large number of drones, etc., and (4) Electronic Magnetic Pulse (EMP) bombs that can instantaneously generate strong electromagnetic radiation to disable electronic devices temporarily or permanently.

4 Response to Large-Scale Disasters

1 Response to Large-Scale Disasters

When disasters such as natural disasters occur, the SDF works in collaboration with local governments, engaged in various activities such as the search and rescue of disaster victims or ships or aircraft in distress, controlling floods, offering medical treatment, preventing epidemics, supplying water, and transporting personnel and goods.

(1) Basic Concept

Among the roles that must be served by Japan's defense capability as set forth in the NDPG, the idea of "(4) response to large-scale disasters, etc." is as follows.

In the event of a major disaster, all possible measures will be taken to rapidly transport and deploy the SDF units required and if necessary, to sustain the mobilization for a long period. Not only will the SDF units respond to the needs of affected residents and local authorities through care, proper collaboration and cooperation, but they will also be engaged with institutions concerned, local authorities and the private sector to save lives, achieve urgent rehabilitation and provide livelihood support.

The SDF has put in place arrangements for an initial response to ensure that disaster relief operations are conducted promptly. This is called "FAST-Force."

See Fig. III-1-2-15 (State of Readiness for Disaster Relief [Standard]); Part II, Chapter 5, Section 2-4 (Disaster Relief and Others)

(2) Response by the MOD/SDF

a. Response to Natural Disasters, etc.

(a) Disaster Relief in Response to July 2018 Flooding Disaster

In July 2018, record levels of rain fell across a wide swath of Japan from east to west, causing rivers to breach their banks and multiple large scale flooding and landslide events. In response to disaster relief requests from the governors of Kyoto Prefecture, Hyogo Prefecture, Okayama Prefecture, Hiroshima Prefecture, Yamaguchi Prefecture, Kochi Prefecture, Ehime Prefecture and Fukuoka Prefecture, around 300 liaison officers were sent to coordinate closely with local governments in up to 74 locations to save lives, rescuing stranded residents, supplying water, providing bathing facilities and meals, distributing goods, preventing water intrusion, clearing roads and removing rubble. As part

Fig. III-1-2-15 State of Readiness for Disaster Relief (Standard)

Common to All The state of readiness with which SDF troops can begin gathering information immediately after an earthquake of seismic intensity five-lower or higher occurs. * When an earthquake of seismic intensity five-upper or higher occurs, information is to be collected by using aircraft.
FAST-Force (GSDF) First response units throughout Japan (about 3,900 personnel, about 1,100 vehicles, and about 40 aircraft) are on standby around-the-clock and will be deployed in an hour upon receiving an order as a standard procedure. Various units including helicopters (video transmission), chemical protection units, and bomb disposal units are on standby in each regional army.
FAST-Force (MSDF) Vessels on standby: Designate one response vessel in each regional district Aircraft on standby (about 20 aircraft): Deploy in 15 minutes to two hours in each base as a standard procedure
FAST-Force (ASDF) Standby for aircraft rescue and emergency transport duties (about 10-20 aircraft): Deploy within 15 minutes to two hours in each base as a standard procedure Aircraft on standby may commence information gathering as necessary for scrambling against aircraft intruding into Japanese territorial airspace.

of assistance, the MOD used a private boat Hakuou under a contract with the ministry to provide bathing facilities in Hiroshima and Okayama Prefectures. In addition, SDF Ready Reserve Personnel were called up with 311 SDF Ready Reserve Personnel engaging in daily support of survivors at its peak. This mission involved approximately 33,100 personnel, 28 boats (including the private boat Hakuou) and 38 aircraft. In total, 2,284 people were rescued, 18,973 tons of water were supplied, 94,119 people were provided with bathing facilities, and 20,590 meals were provided.

(b) Disaster Relief in Response to the Hokkaido Eastern Iburi Earthquake in 2018

In September 2018, a magnitude 6.7 earthquake with epicenter at the central eastern part of Iburi, Hokkaido occurred, which caused landslides and a massive blackout in Abira, Atsuma and Mukawa towns, and other places. In response to disaster relief requests from the governor of Hokkaido, liaison officers were sent to closely coordinate with local governments in up to 29 locations to save lives, clear roads, supply water, provide bathing facilities and meals as well as transport goods including equipment for restoration of power supply, and install water gauges and remove driftwood, etc. to prevent collapse of Atsuma dam due to precipitation and sediment. In addition, the private boat Hakuou under a contract with the ministry was used to provide bathing facilities in Tomakomai City, Hokkaido. Furthermore, SDF Ready Reserve Personnel were called up with 251 SDF Ready Reserve Personnel engaging in relief activities at its peak. This mission involved approximately 25,100 personnel, 9 vessels (including the private boat Hakuou) and 46 aircraft. In total, 46 people were rescued, 1,186 tons of water was supplied, 24,091 people were provided with bathing facilities, and 166,963 meals were provided.

In this disaster relief mission, drones for disaster were used for the first time. They were used for speedy collection of information in places and directions where human access

GSDF personnel conducting rescue activities in July 2018 Flooding Disaster (July 2018)

ASDF personnel and a police dog searching for missing people in the Hokkaido Eastern Iburi Earthquake in 2018 (September 2018)

was difficult in order to help rescue activities by disaster relief units.

Furthermore, while many hospitals did not function due to massive blackout or other reasons, SDF Sapporo Hospital, which had been rebuilt with a design of a disaster resilient hospital (opened in 2015) was able to maintain its functions intact and carry out treatment just after the disaster.

(c) Disaster Relief in Response to Water Supply Relief

In October 2018, water supply failure continued in Suo-Oshima Town, Yamaguchi Prefecture, because a water pipe fell off when a foreign vessel struck Oshima Ohashi bridge.

In response to disaster relief requests from the governor of the prefecture, the SDF provided relief supplies of purified and other water. These missions engaged around 500 personnel, some 170 vehicles, generated approximately 94 tons of water, and supplied approximately 490 tons of water in total.

(d) Disaster Relief in Response to Swine Fever Outbreak

Between December 2018 and the end of June 2019, the occurrence of swine fever was confirmed in Gifu, Aichi, and Nagano Prefectures. As prompt epidemic prevention measures, including slaughter of hogs, were required, the SDF assisted with the slaughter and other measures in response to disaster relief requests from the governors of the prefectures. These missions engaged around 8,000 personnel and some 1,200 vehicles.

(e) Disaster Relief in Response to Forest Fire

Over the period from July 2018 to the end of June 2019, local authorities conducted firefighting operations against fighting forest fires in Nagano Prefecture, Gunma Prefecture, Saitama Prefecture, Wakayama Prefecture, Tochigi Prefecture, Hiroshima Prefecture, Shizuoka Prefecture, Fukushima Prefecture, Aomori Prefecture, Yamagata Prefecture, Hokkaido, Tokyo, and Kochi Prefecture but were unable to settle the situation despite their efforts. Based on requests issued by the governors of these prefectures, the SDF contributed to aerial firefighting and other resources. The SDF dispatches were conducted 21 times in total, including a total of some 9,400 personnel, around 700 vehicles and some 230 aircraft. Approximately 4,300 tons of water was applied on 1,000 occasions.

See Fig. III-1-2-16 (Record of Disaster Relief [FY2018]); Reference 21 (Record of Disaster Relief [Past Five Years])

b. Transportation of Emergency Patients

The SDF uses its aircraft to transport emergency patients from isolated islands and remote areas with insufficient medical facilities (transportation of emergency patients). In FY2018, out of a total of 443 cases of disaster relief, 334 cases involved the transportation of emergency patients, with dispatches to remote islands such as the Southwestern Islands (Okinawa and Kagoshima Prefectures), the Ogasawara Islands (Tokyo), and remote islands of Nagasaki Prefecture representing the majority of such cases.

In addition, the SDF carries out sea rescues upon requests by the Japan Coast Guard on such occasions as transport of emergency patients from vessels navigating areas of ocean far from the mainland where the aircraft of other organizations are unable to respond, due to reasons including a short flight range and emergencies of vessels due to incidents such as fire, flooding or capsizing. Furthermore, the SDF conducts wide-area medical transport operations for serious-case

VOICE Participating in Disaster Relief Activities following the 2018 Hokkaido Eastern Iburi Earthquake

Leading Private Ryosuke Hariyamaza, Gunner, 2nd Firing Battery, 1st Artillery Battalion, 7th Artillery Regiment (Chitose Ciry, Hokkaido)

During disaster relief following the 2018 Hokkaido Eastern Iburi Earthquake, I participated in rescue activities conducted at Yoshino District, Atsuma Town, which was the territory of my battalion.

I had never been a part of disaster relief before and the only knowledge and images I had were from television and newspapers. Arriving at the disaster area, I saw cruel sites beyond my imagination and felt the importance of SDF missions.

In the area of our battalion, houses were swept away dozens of meters by a landslide accompanying the earthquake. On piled up fallen trees and soil we searched for the missing by hand following clues of scattered beds and clothes.

The nightlong rescue in the rain in a highly time-sensitive situation was very severe but we were able to complete the mission with the desire to rescue people as soon as possible and the strength and energy we had cultivated through our daily training.

Through the disaster relief activities, I strongly felt people's expectations of the SDF and a sense of mission to meet the expectations. I will continue to push forward with my duties with pride as SDF personnel.

Atsuma Town rescue activities (Sept. 8, 2018)

Fig. III-1-2-16 Record of Disaster Relief (FY2018)

Description	Number of dispatches	Total number of personnel	Total number of vehicles	Total number of aircraft	Total number of vessels
Responses to storm, flood, and earthquake disasters	4	1,291	332	24	0
Transporting emergency patients	334	1,693	2	357	0
Search and rescue	17	6,638	1,094	99	9
Assisting firefighting	49	5,512	374	124	0
Other	26	7,531	1,288	40	2
Total	430	22,665	3,090	644	11
July 2018 Flooding Disaster	12	Approx. 957,000	Approx. 49,500	Approx. 340	Approx. 150
Hokkaido Eastern Iburi Earthquake in 2018	1	Approx. 211,000	Approx. 17,800	Approx. 230	Approx. 20

* Figures concerning the July 2018 Flooding Disaster and the Hokkaido Eastern Iburi Earthquake in 2018 are not included in the record for FY2018.

patients, by the ASDF transport aircraft C-130H utilizing its mobile medical units in certain occasions.

Furthermore, in FY2018, the SDF carried out 49 dispatches of firefighting support, with 37 cases responding to fire in the areas near SDF facilities.

c. The MOD/SDF Response to Nuclear Disaster

In order to respond to nuclear disasters, the MOD/SDF has formulated "The SDF Nuclear Disaster Response Plan." The SDF also participates in general nuclear disaster prevention drills jointly implemented by the government, local governments, and nuclear operators, to confirm the effectiveness of municipal governments' evacuation plan and to strengthen cooperation with relevant agencies in a nuclear disaster emergency. Moreover, since October 2014, SDF personnel (five personnel as of April 1, 2019) were transferred (on temporary assignment) to a section in charge of nuclear disaster prevention within the Cabinet Office as part of an effort to enhance the effectiveness of nuclear disaster response capabilities.

d. Formulating Plans for Responding to Various Disasters

Formulating Plans for Responding to Various Disasters in the event of the occurrence of various disasters, the MOD/SDF will take all possible measures such as swift transportation and deployment of sufficiently sized units in their initial response. By establishing a rotating staffing posture based on a joint operational approach, the MOD/ SDF will ensure that it is able to sustain a well-prepared condition for a long-term response. In doing so, the MOD/SDF will fully take into account the lessons learned from the Great East Japan Earthquake and other disasters.

The MOD/SDF formulates various contingency plans for responses to large-scale earthquakes, which are under consideration at the Central Disaster Management Council, based on the Ministry of Defense Disaster Prevention Plan to respond to such earthquakes.

MSDF US-2 landing on water near a vessel to transport emergency patients in an area of ocean far from the mainland (October 2018)

e. Exercises Involving the SDF

In order to respond to large-scale and various other disasters in a speedy and appropriate manner, the SDF carries out various disaster prevention drills, and also actively participates in disaster prevention drills organized by the Japanese Government or local governments and is seeking to ensure cooperation with various ministries and agencies, and local governments.

(a) Joint Exercise for Rescue (JXR)

In June 2018, the SDF conducted a comprehensive disaster drill including a field exercise in preparation for an earthquake directly hitting the Tokyo area. In addition, in May 2019, the SDF carried out a disaster drill concerning its command and staff activities and its coordination with relevant organizations, U.S. Forces, etc. in the event of occurrence of an earthquake directly hitting the Tokyo area during the Tokyo 2020 Olympic and Paralympic Games. In this manner, the SDF carried out initiatives to maintain and enhance the SDF's earthquake response capability.

(b) Tomodachi Rescue Exercise (TREX) Joint Disaster Response Exercise with U.S. Forces

In October 2018, joint exercises were held with U.S. Forces stationed in Japan in the scenario of a Nankai Trench earthquake. The purpose of the exercise was to maintain and enhance earthquake disaster handling capabilities in collaboration between the SDF and U.S. forces and to strengthen cooperation with relevant local authorities.

(c) Remote Island Disaster Relief Exercise (RIDEX)

In September 2018, the SDF participated in a general disaster prevention training planned and organized by Okinawa Prefecture and conducted a field training exercise to deal with sudden large-scale disasters in a remote island to maintain as well as enhance the SDF's ability to respond to disasters in remote islands and strengthen collaboration with relevant local authorities.

(d) Other

In November 2018, GSDF North Eastern Army implemented

Michinoku ALERT2018 for a field exercise in preparation for Sanriku offshore and other earthquakes to enhance the SDF's ability to respond to disasters in the Tohoku area in collaboration with relevant local authorities, ministries and agencies.

They also took part in the Ministry of Defense Disaster Management Headquarters drill, the comprehensive disaster prevention drills on Disaster Prevention Day, and more.[51]

f. Collaboration with Local Governments and Other Relevant Organizations

It is important for the MOD/SDF to strengthen collaboration with local governments and other relevant organizations under normal circumstances for the purpose of conducting disaster relief operations smoothly. For this reason, the SDF implements various measures including: (1) Assignment of the post of Liaison Officer for Civil Protection and Disaster Management (administrative official) at the SDF Provincial Cooperation Offices; (2) Temporary assignment of SDF officers to the department in charge of disaster prevention at the Tokyo Metropolitan Government, and mutual exchange between administrative officials of both the GSDF Middle Army and Hyogo Prefectural Government; and (3) Recommendation of retired SDF personnel with knowledge in disaster prevention in accordance with requests from local governments. As of the end of March 2019, as many as 495 retired SDF personnel are working in disaster prevention and other sections in 348 local governments in 46 prefectures throughout the country. Such cooperation in human resources is a very effective way of strengthening collaboration between the MOD/SDF and local governments, and its efficacy was confirmed through the experiences of the Great East Japan Earthquake and other disasters. In particular, each GSDF regional Army establishes a forum for interaction with senior directors for crisis management and other officials from local governments and share information and exchange opinions to strengthen collaboration with those local governments.

In the event of a disaster, liaison officers are sent quickly and effectively from the units to the local municipalities in order to ensure smooth coordination.[52]

See Fig. III-1-2-17 (List of the Three-Year Emergency Measures for Disaster Prevention/Reduction and National Resilience [MOD])

RIDEX: Transport of Disaster Medical Assistance Team (DMAT) to the MSDF transport ship "Osumi" by ASDF CH-47J (September 2018)

g. Measures Based on the 3-Year Emergency Countermeasures for Disaster Prevention/Mitigation and National Resilience

In December 2018, the 3-Year Emergency Countermeasures for Disaster Prevention/Mitigation and National Resilience[53] were approved by the Cabinet. Under the measures, the MOD is focusing on emergency measures for concrete block walls, etc. of SDF facilities, for SDF facilities and SDF equipment related to disaster prevention, from the perspective of maintaining functions including important infrastructure for disaster prevention.

See Fig. III-1-2-17 List of the Three-Year Emergency Measures for Disaster Prevention/Reduction and National Resilience [MOD]

2 Response to Rescue and Transport of Japanese Nationals Overseas, etc.

(1) Basic Concept

In the event of natural disasters, insurgencies, and other emergencies overseas, the Minister of Defense can order SDF units to rescue or transport Japanese nationals and other people overseas upon request from the Minister for Foreign Affairs to guard, rescue or transport Japanese nationals overseas, etc. and upon subsequent consultations with the Minister, on the basis of Article 84-3 (rescue Japanese nationals overseas, etc.) or Article 84-4 (transport of Japanese nationals overseas, etc.) of the SDF Law.

(2) Initiatives of the MOD/SDF

For prompt and appropriate implementation of rescue or transport of Japanese nationals overseas, the SDF is prepared to dispatch its units swiftly. Specifically, the SDF maintains operational readiness, with the GSDF designating

51 In addition, the following drills were conducted and participated in, in 2018: 1) government tabletop drills, 2) the Nuclear Energy Disaster Prevention Drill, 3) the large tsunami disaster prevention drill, 4) the drill for medical treatment activities following a large-scale earthquake, 5) a drill related to the Comprehensive Disaster Prevention Drill of Nine Prefectural and City Governments, 6) a drill related to the joint disaster drill among the Kinki prefectures, 7) comprehensive disaster prevention drills conducted by local governments or other bodies.

52 Based on the "Examination Report on the Initial Response to the Heavy Rain in July 2018" (November 2018), in order to rescue and support more victims in the event of a large-scale disaster and considering possible confusion of the local authorities, the MOD/SDF will not only wait for request from the authorities but also actively propose specific support activities by the SDF.

53 In recent years, the Heavy Rain in July 2018, Typhoon No.21 in 2018, Hokkaido Eastern Iburi Earthquake in 2018 and other natural disasters caused function loss of important infrastructures necessary for living and economic activities of the people, which had a major effect on the activities. Learning from the experience, the Emergency Countermeasures stipulate physical and non-physical measures that individual ministries and agencies should implement intensively for the period of three years from the perspective of maintaining functions including important infrastructure for disaster prevention and important infrastructure supporting the national economy and people's lives.

Fig. III-1-2-17 List of the Three-Year Emergency Measures for Disaster Prevention/Reduction and National Resilience [MOD]

Emergency measures	Outline of the measures	Period
Emergency measures for concrete block walls, etc. of SDF facilities	After the Osaka Earthquake in 2018, safety inspections were conducted with regard to concrete block walls, etc. on the borders of the SDF facilities adjacent to private properties and public roads and it was found that there are approximately 110 old concrete block walls and other structures that do not comply with the current Building Standards Act and pose safety risks. Therefore, the MOD will take emergency measures, such as removal of such dangerous walls and installation of new fences.	By FY2020
Emergency measures for SDF facilities	After the Osaka Earthquake in 2018, emergency inspections were conducted for the SDF's significant disaster response bases regarding their resilience to earthquakes, deterioration levels and the status of installation of power generators, and some of these facilities were found likely to cause hindrance to the SDF's prompt and appropriate performance of duties. Therefore, the MOD will take seismic reinforcement measures for around 10 facilities, countermeasures against deterioration for around 40 facilities, and measures to enhance power supplying capability for around 30 facilities.	By FY2020
Emergency measures for SDF equipment related to disaster prevention	As it is urgently necessary to develop equipment required for the SDF's relief activities upon a disaster from the perspective of preventing functional failures due to deterioration and of strengthening such relief activities, the MOD will take emergency measures for securing necessary equipment, communication devices, and vehicles for camps nationwide where old dysfunctional equipment was found.	By FY2020

a helicopter unit and leading transport unit personnel, the MSDF designating vessels such as transport ships (including ship-based aircraft), and the ASDF designating airlift units and personnel for dispatch.

Since these activities require close coordination among the GSDF, MSDF and ASDF, the MOD/SDF constantly conducts joint exercises. In September 2018, the exercise for the rescue of Japanese nationals overseas was conducted in Djibouti with the aim of enhancing overseas deployment and activity capabilities and strengthening cooperation between the SDF and the U.S. Forces. In December 2018, the SDF carried out an exercise in Japan for the rescue of Japanese nationals overseas to practice the whole process of the actions and coordination with related organizations for the rescue in order to enhance integrated operational capabilities and strengthen coordination with related organizations. Furthermore, in January and February 2019, the MOD/SDF also took the opportunity of the annual multilateral exercise Cobra Gold taking place in Thailand to conduct an exercise for the series of activities to protect Japanese nationals overseas in cooperation with the Ministry of Foreign Affairs and the Embassy of Japan in Thailand. With the participation of Japanese nationals overseas, the exercise strengthened the collaboration between the MOD/SDF and the Ministry of Foreign Affairs.

The MOD/SDF has conducted the transportation of Japanese nationals in four cases.

Responding to the kidnapping of foreigners and Japanese in Iraq, 10 Japanese evacuated to Kuwait by an ASDF C-130H plane in April 2004. In January 2013, a government aircraft was deployed to bring seven Japanese nationals and the remains of a further nine nationals back to Japan following the kidnapping in Algeria. With respect to the terrorist attack in Dhaka, Bangladesh, which occurred in July 2016, the bodies of Japanese victims (seven nationals), their families, and other involved parties were transported to Japan. In relation to the deterioration of the situation in South Sudan in July of the same year, the ASDF transport aircraft C-130H transported four embassy staff from Juba to Djibouti.

Cobra Gold: GSDF personnel protecting Japanese nationals overseas boarding on an ASDF C-130H in an exercise for rescue of Japanese nationals overseas (February 2019)

See Part II, Chapter 5, Section 2-3-6 Rescue and Transportation of Japanese Nationals Overseast

column

Starting Operation of a New Government Aircraft

With the retirement of the B-747 that had been used as the government aircraft, the MOD decided to introduce a B-777 as a new government aircraft in August 2014 and started its operation in April 2019.

Since 1993, when the B-747 started its operation as the first government aircraft, it was used for overseas visits by leading figures, including their Majesties the Emperor and Empress, their Imperial Highnesses the Crown Prince and Princess, and 15 Prime Ministers from Miyazawa to Abe. The aircraft was also used for UN PKO, emergency international disaster relief operations and other international cooperation activities by the MOD and for TJNO (Transportation of Japanese Nationals Overseas).

The new government aircraft B-777 has better fuel efficiency and a longer maximum range compared with the B-747. Its interior was also changed completely for more comfortable flight experience. It has become more environment-friendly and more comfortable aircraft.

A government aircraft that carries the leading figures of Japan is indispensable for " Diplomacy that takes a panoramic perspective of the world map." It is also an important aircraft for security cooperation of the MOD. The realization of peace and security in Japan through the creation of a desirable security environment for Japan is extremely important. The MOD will continue to support these activities through the operation of the government aircraft.

New Government Aircraft B-777

Parliamentary Vice-Minister of Defense Suzuki attending the ceremony to replace the aircraft