

防衛省

Ministry of Defense



Defense Programs and Budget of Japan

Overview of FY2020 Budget Request

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Overview of FY2020 Budget Request

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Concept of JFY2020 Budget Request

1. Japan will steadily improve its defense capabilities as the second year of the “Medium Term Defense Program (FY2019 – FY2023)” (MTDP) (approved by the Cabinet on December 18, 2018) based on the “National Defense Program Guidelines for FY2019 and beyond” (approved by the Cabinet on December 18, 2018) in order to build a truly effective defense capability, “Multi-Domain Defense Force”.
2. In order to realize cross-domain operations, the Self-Defense Forces (SDF) will acquire and strengthen capabilities in new domains, which are space, cyberspace and electromagnetic spectrum by focusing resources and leveraging Japan’s superb science and technology. In addition, SDF will enhance capabilities in maritime and air domains, stand-off defense capability, comprehensive air and missile defense capability and maneuver and deployment capability to effectively respond to various situations during cross-domain operations in close combination with capabilities in new domains. Furthermore, to be able to sustain a range of requisite activities at all stages from peacetime to armed contingencies, sustainability and resiliency of defense capability including logistics support will be enhanced. Moreover, Japan will prioritize reinforcement of human resource base in the face of aging population with declining birth rates and technology base regarding advances in military technology, as well as strengthening Japan-U.S. Alliance and security cooperation with other countries in light of changes in security environment.
3. In order to adapt to increasingly rapid changes in security environment, Japan will strengthen its defense capability at speeds that are fundamentally different from the past. Japan will strengthen its defense capability effectively by allocating resources flexibly and intensively without adhering to existing budget and human resource allocation. Furthermore, SDF will further promote joint-ness of the Ground, Maritime and Air Self-Defense Forces in all areas, avoid stove-piped approach and optimize their organizations and equipment.
4. Considering increasingly severe fiscal conditions and importance of other budgets related to people’s daily life, Japan will work to achieve greater efficiency and streamlining through various measures to streamline procurements while harmonizing with other policies and measures of the Government.

Defense-Related Expense

Overall Defense-Related Expense

(Unit:¥100million)

Categories	FY2019 Budget		FY2020 Budget	
		Year on Year Change		Year on Year Change
Defense-related Expenses	50,070 (52,574)	682[1.4] (663[1.3])	53,222 (53,223)	3,153[6.3] (648[1.2])
Personnel and provisions expenses	21,831	△19[△0.1]	21,437	△394[△1.8]
Material expenses	28,239 (30,744)	701[2.5] (682[2.3])	31,785 (31,785)	3,546[12.6] (1,042[3.4])
Obligatory outlay expenses	18,431 (19,675)	841[4.8] (777[4.1])	21,614 (21,615)	3,183[17.3] (1,939[9.9])
General material expenses (activity expenses)	9,808 (11,068)	△141[△1.4] (△95[△0.8])	10,171 (10,171)	363[3.7] (△898[△8.1])

(Note)

- []: growth rate (%).
- Figures may not add up to the total due to rounding (the same hereafter).
- The upper figures in each cell does not include SACO-related expenses, U.S. Forces realignment-related expenses (the portion allocated for mitigating the impact on local communities), expense for the introduction of new government aircraft and expenses related to the three-year emergency measures for disaster prevention/mitigation and building national resilience. The lower figures in parentheses indicate the expenses that include those above.

The amount of the SACO-related expenses are:

FY2019: ¥25.6 billion; FY2020: [Item Request without specific amount of budget]

The U.S. Forces realignment-related expenses (the portion allocated for mitigating the impact on local communities) are:

FY2019: ¥167.9 billion; FY2020:[Item Request without specific amount of budget]

Expenses related to the introduction of new government aircraft are:

FY2019: ¥6.2 billion; FY2020: ¥30 million

Expenses related to the three-year emergency measures for disaster prevention/mitigation and building national resilience are:

FY2019: ¥50.8 billion; FY2020: [Item Request without specific amount of budget]

- Exchange rate for FY2019 defense budget request: US\$1 = JPY110.

【Future Obligation Concerning New Contracts】

(Unit:¥100million)

Category	FY2019 Budget		FY2020 Budget	
		Year on Year Change		Year on Year Change
Total	24,013 (25,781)	4,074[20.4] (4,617[21.8])	25,170 (25,170)	1,157[4.8] (△611[△2.4])
Conventional portion	22,121	2,455[12.5]	24,518	2,397[10.8]
Long-term Contracts	1,892	1,620[594.9]	652	△1,240[△65.5]

(Note)

- []: growth rate (%).
- The upper figures in each cell does not include SACO-related expenses, U.S. Forces realignment-related expenses (the portion allocated for mitigating the impact on local communities), expense for the introduction of new government aircraft and expenses related to the three-year emergency measures for disaster prevention/mitigation and building national resilience. The lower figures in parentheses indicate the expenses that include those above.

The amount of the SACO-related expenses are:

FY2019: ¥5.5 billion; FY2020: [Item Request without specific amount of budget]

The U.S. Forces realignment-related expenses (the portion allocated for mitigating the impact on local communities) are:

FY2019: ¥160.1 billion; FY2020:[Item Request without specific amount of budget]

Expenses related to the introduction of new government aircraft are:

FY2019:[no request] ; FY2020: [no request]

Expenses related to the three-year emergency measures for disaster prevention/mitigation and building national resilience are:

FY2019: ¥11.3 billion; FY2020: [Item Request without specific amount of budget]

- Details of long-term contract are:

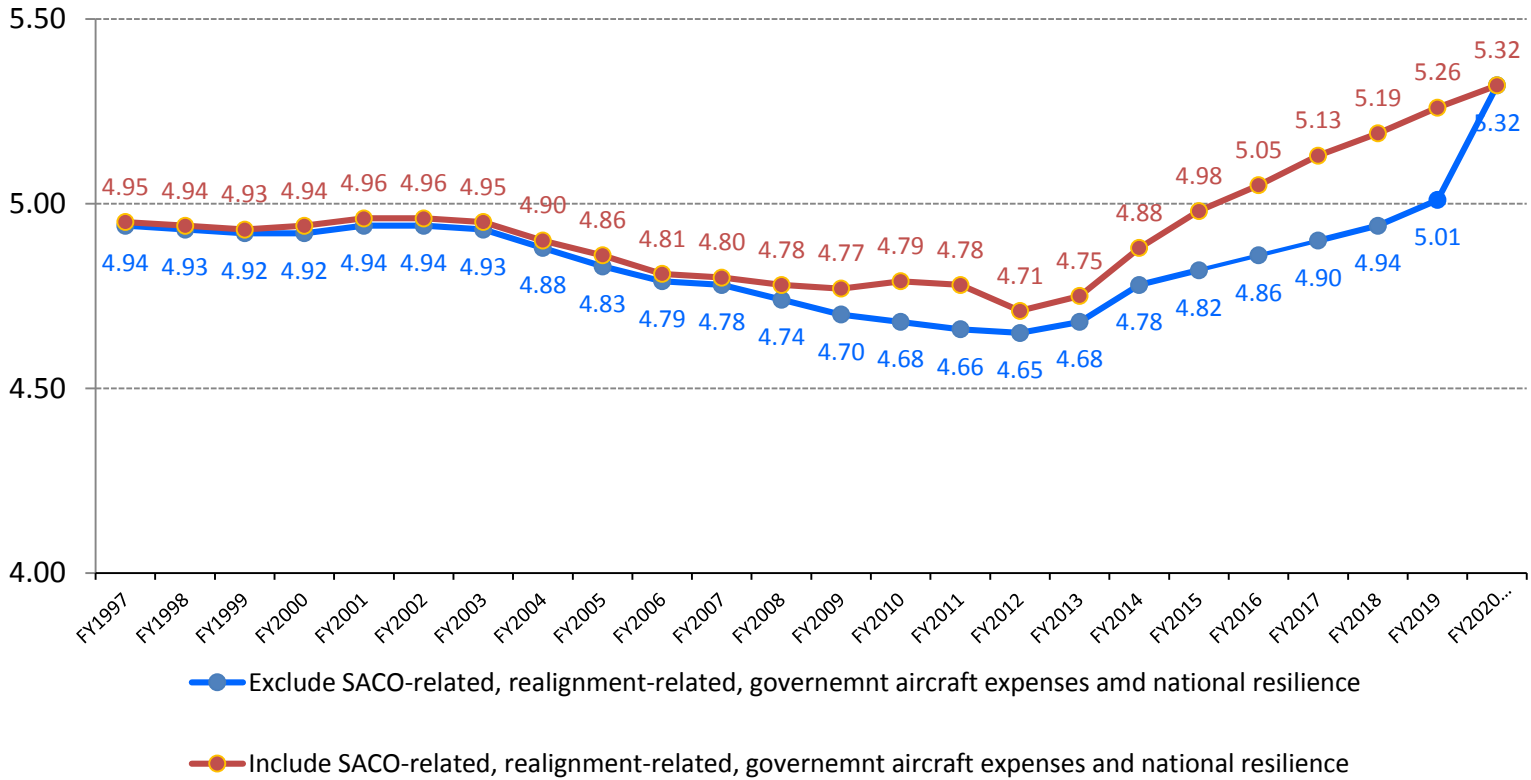
FY2019: Comprehensive contract for components of PAC-3 missiles (¥3 billion), procurement of Airborne Early-Warning Aircraft (E-2D) (¥186.2 billion)

FY2020: Bulk-procurement of Vertical Launching System(VLS)(¥39.6billion),comprehensive repair for component of fighter aircraft(F-15)(¥25.6billion)

Transition of the Defense-Related Expense

Transition of the Total Amount

(Unit: ¥1trillion)



Transition of the Growth Rate

(Unit : %)

Category	FY1997	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	FY2006	FY2007	FY2008
Include SACO-related, realignment related, government aircraft expenses and national resilience	2.1	△0.2	△0.2	0.1	0.4	0.0	△0.1	△1.0	△1.0	△0.9	△0.3	△0.5
Exclude SACO-related, realignment related, government aircraft expenses and national resilience	2.0	△0.3	△0.2	0.0	0.3	0.0	△0.3	△1.0	△1.0	△0.8	△0.2	△0.8

Category	FY2009	FY2010	FY2011	FY2012	FY2013	FY2014	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020 Budget Request
Include SACO-related, realignment related, government aircraft expenses and national resilience	△0.1	△0.3	△0.3	△1.3	0.8	2.8	2.0	1.5	1.4	1.3	1.3	1.2
Exclude SACO-related, realignment related, government aircraft expenses and national resilience	△0.8	△0.4	△0.4	△0.4	0.8	2.2	0.8	0.8	0.8	0.8	1.4	6.3

Note: The above figures are on an expenditure base.

Notes 1: Numbers in the text represent **expenses, excluding non-recurring costs**, that are required for the production of equipment, unless otherwise specified.

2: Numbers in the text are on a **contract base**, unless otherwise specified.

3: **Blue text** indicates **new programs**.

II Priorities for Strengthening Capabilities Necessary for Cross-Domain Operations

Japan will build a defense capability, 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, as security environment surrounding Japan becomes more testing and uncertain at remarkably fast speeds.

1 Acquiring and Strengthening Capabilities in Space, Cyber and Electromagnetic Domains

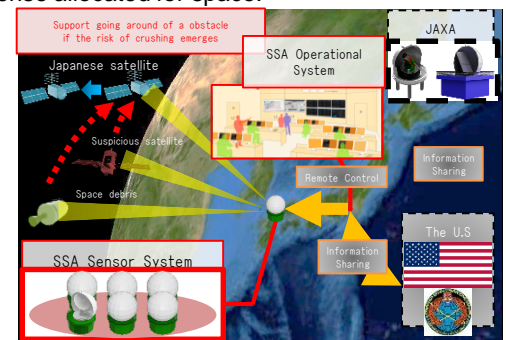
In order to realize cross-domain operations, SDF will acquire and strengthen capabilities in new domains, which are space, cyberspace and electromagnetic spectrum by focusing resources and leveraging Japan's superb science and technology.

(1) Capabilities in Space Domain

- Structuring Space Operations Squadron (tentative name)
 - Establish "Space Operations Squadron (tentative name)" in ASDF (approx.20 personnel) to secure superiority in using outer space
 - Establish "Space Domain Planning Section (tentative name)" in C4 Systems Division, C4 Systems Department, Joint Staff.
 - Establish "2nd Project Planning Division (tentative name)" in Defense Department and "Space Communication and Electronic System Section (tentative name)" in Maintenance and Supply Division, Logistics Department, Air Staff Office.
 - Acquire knowledge concerning matters related to outer space by dispatching personnel to the Space Operations Course provided at U.S. Air Force base in the U.S. state of Colorado.

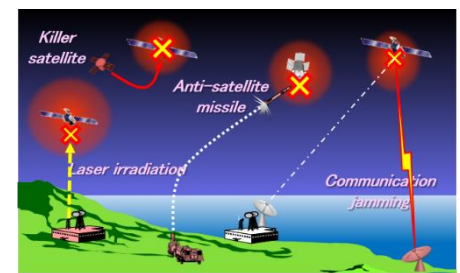
Space-related budget: ¥52.4billion*

* Excluding the portion related to ballistic missile defense allocated for space.



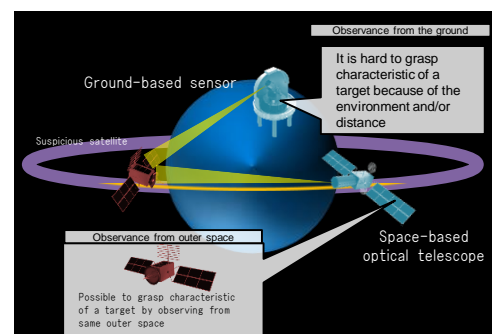
Space Situational Awareness System and its Operation (conceptual image)

- Strengthening Capability to Secure Stable Use of Outer Space (¥4billion)
 - Research and Study on capability to disrupt opponent's C4I in collaboration with electromagnetic domain
 - Procure devices to grasp the state of electromagnetic interference against Japanese satellites
- Strengthening Information-Gathering Capability Using Outer Space (¥5.9billion)
 - Demonstration of Satellite-Integrated Dual-Band Infrared Sensor
 - Research about infrared sensing element with high sensibility and broadband.
 - Research and study on surveillance utilizing satellite.



Threat against Stable Use of Outer Space (conceptual image)

- Procurement of Space-Based Optical Telescope (¥3.3 billion)
 - Procure components of space-based optical telescope to grasp characteristic of debris and unknown subject flying around X-band defense communication satellite on the orbit of stationary satellite.



Space-Based Optical Telescope (conceptual image)

- Procurement of Space Situational Awareness(SSA) System (¥15.4billion)
Procure necessary related components to perform SSA in cooperation with the U.S. and the relevant domestic organizations.
- Utilization of Satellite Communication (¥13.5billion)
 - Enhance resiliency of satellite communication system
 - Modification to equipment, etc. to adapt to the X-band communication satellite.
 - Leasing of commercial communication satellite lines, development and maintenance, etc. of satellite communication equipment.

- Use of Data from Imagery Satellite (¥10.1billion)
 - Procurement of data for image analysis (various domestic commercial satellites, including miniature earth observation satellite, etc.)
 - Utilizing Meteorological satellites
 - Acquiring satellite information which contributes to maritime surveillance



X-band Defense Communication Satellite (conceptual image)

- Other Measures related to Space Policy (¥130million)
 - Acquire knowledge concerning matters related to outer space by dispatching personnel to the Space Operations Course provided at U.S. Air Force base in the U.S. state of Colorado.(repost)
 - Participate in multilateral table-top exercises in the field of outer space.
 - **Involvement in international effort to build international legal norms regarding space domain**

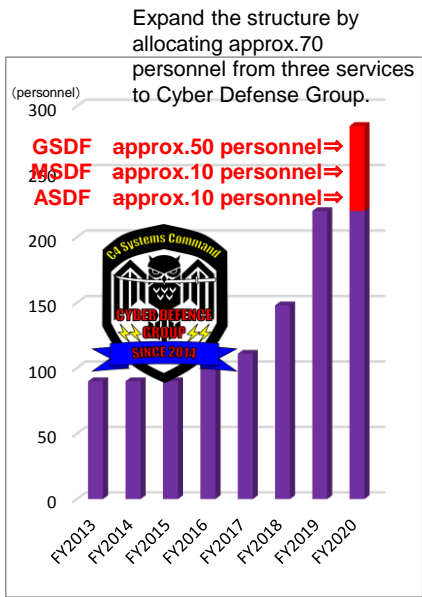
* Budget related to BMD (only the space-related portion): ¥52.3 billion

Cyber-related budget: ¥23.8 billion

(2) Capabilities in Cyber Domain

Enhance posture of Cyber Defense Group etc.

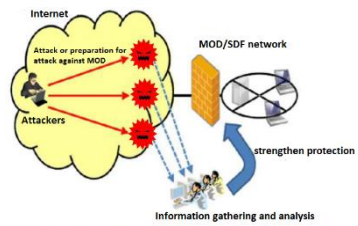
- Expand Cyber Defense Group (from approx.220 personnel to approx. 290 personnel)
 Increase the number of Cyber Defense Group (joint unit) workforce by approx. 70 personnel in order to further strength cyber defense capability
- Establish Cyber Protection Unit (tentative name) in GSDF
 Establish Cyber Protection Unit (tentative name) under the System and Signal Brigade which belongs to the Ground Component Command (GCC) in order to create a posture to effectively protect network systems of GSDF.



Expansion of cyber defense group structure.

Utilizing Cutting-Edge Technology in the Field of Cyberspace

- Procure Cyber Information Gathering Devices (¥3.2billion)
 Procure cyber information gathering devices in order to gather information on the tactics, techniques and procedures (TTPs) of cyber attacks against the MOD/SDF.



Cyber information gathering devices (conceptual image)

- Design a AI-enabled System to Respond against Cyber Attack. (¥30million)
 Autonomously distinct malicious e-mails and judge the level of threat by utilizing AI
- Research and Study on the Security of Network Devices (¥70million)
 In 5G era, Conduct a research on cybersecurity measures for network devices used by the MOD/SDF.

Secure/Develop Cyber Workforce

- Join the U.S. Cyber Commander Education Courses (¥40million)
 Participate in courses at the U.S educational institutions such as National Defense University (NDU) to learn knowledge required for the commanders cyber warfare
- Develop Posture of Internal Education on Cyber
 Secure and develop cyber workforce, (1) Establish “Cyber Instructor’s Office” (tentative name) that would be responsible for common cyber education for all services in GSDF Signal School (2) Prepare to establish “System/Cyber Specialized Course (tentative name)” in GSDF High Technical School (HTS) (planned to start in JFY2021)

- Host a cyber competition “MOD-CTF” (tentative name)* (¥20million)
Discover cyber talent by hosting open-public cyber competition.

*MOD-CTF stands for; Ministry of Defense - Capture the Flag



Cyber competition (conceptual image)

Improve System Network

- Improvement of the Defense Information Infrastructure (closed) (¥7.6billion)
Improve the closed system of the DII to prevent cyber attacks by intruders.
- Improvement of controllability and Situation Awareness of System Network (¥1.2billion)
Improve the system to conduct necessary security measures effectively by unilaterally managing the situation and status of all system networks operated by the GSDF.

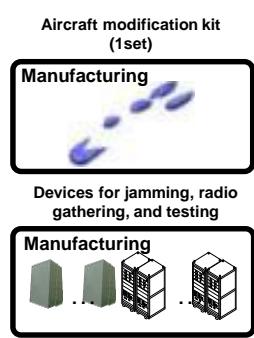


Improvement of Administrative Capability for System Network (conceptual image)

3. Strengthening Capability in Electromagnetic Domain

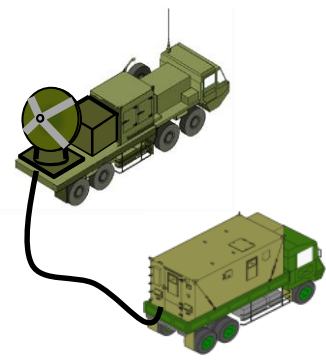
Research and Development of equipment for Neutralizing the Radar of the opponent Invading Japan

- Development of Stand-off Electronic Warfare Aircraft (¥20.7 billion)
Development of stand-off electronic warfare aircraft to support SDF air operation by conducting effective communication jamming



Development of stand-off electronic warfare aircraft (conceptual image)

- Conduct Research on Anti-air Electronic Warfare Device (¥3.8billion)
Procure and research the device which emits radio wave from the ground and neutralize the radar of invading aircraft



Research on anti-Air Electronic Warfare device (conceptual Image)

Strengthen capability to minimize electromagnetic jamming from opponent attempting to invade Japan

- Procurement of F-35A (three aircraft: ¥31billion)
Procure F-35A with superior electronic protection capability and secure air superiority. Include another ¥48.2 billion in the request as other related cost (maintenance equipment etc.)



F-35A Fighter Jet

- Procurement of F-35B (six aircraft:84.6 billion)
Procure F-35B with superior electronic protection capability and improve flexibility of fighter operation. Include another ¥23.6 billion as other related cost (maintenance equipment etc.)



F-35B Fighter Jet

- Improvement of F-15's Capability
Improve electronic warfare (EW) capability of F-15 by upgrading program.
*See p.13 for the detail of the program



Upgrading F-15 Fighter Jet

- Procurement of Network Electronic Warfare System (¥10.4 billion)
Improve the GSDF's network electronic warfare system to have an advantage in operations by collecting and analyzing signals and jamming communication.



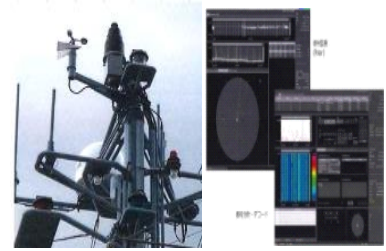
Network Electronic Warfare System

Improve posture of Electronic Warfare Unit

- Establish an Electronic Warfare Unit
Establish an electronic warfare unit and introduce network electronic warfare system in GSDF in order to strengthen operational capability in electromagnetic domain.
- Restructure an Intelligence Unit
Restructure MSDF Fleet intelligence Command in order to strength information analyzing capability including electromagnetic information.

Strengthening Intelligence Capability related to electromagnetic spectrum

- Research for Upgrading Radio Wave Information Collecting Device for Vessels (¥700million)
 Conduct research for improving radio wave information collecting capability of vessels by procuring radio detecting and radio management device for vessels as samples.



Research for Improving Capability of the Vessels in Electromagnetic Domain

Improving Electromagnetic Spectrum Management Capability

- Research on Technology to Support Electromagnetic Spectrum Management by Visualizing a Usage of Electromagnetic Spectrum Resources (¥900million)
 In order to appropriately execute electronic warfare, start the research on electromagnetic spectrum management support technology for visualizing the usage of electromagnetic spectrum resources.

Strengthening Posture of Communication and Information Sharing

- Improve Maritime Tactical Intelligence Processing System (MTIPS) (¥2.6billion)
 Improve tactical intelligence processing system for prompt sharing of electromagnetic information etc.
- Improve the Tactical Datalink (¥6.9billion)
 Improve the tactical datalink of aircraft and vessels for swift forwarding/sharing of the target information.

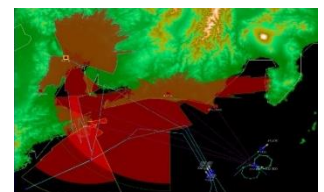
Training/Exercise, Developing Personnel

- Participate in Table-top Exercise Hosted by Royal Navy (¥0.6million)
 Participate in comprehensive exercise including electromagnetic domain hosted by Royal Navy.



Participate in command post exercise by Royal Navy (conceptual image)

- Retrofit Educational Device for Electronic Warfare (¥200million)
 Start on retrofitting educational device for electronic warfare in ASDF as the effort to effectively develop personnel for maintaining and strengthening capability in electromagnetic domain.



Educational Device to Electronic Warfare (conceptual image)

- Dispatch Personnel to an Educational Course of Electronic Warfare in the U.S(¥4million)
 Dispatch personnel from ASDF to the electronic warfare operation course for officers conducted in the U.S and acquire command and control capability regarding operation in electronic warfare.

2 Enhancing Capabilities in Traditional Domains

SDF will enhance capabilities in maritime and air domains, stand-off defense capability, comprehensive air and missile defense capability and maneuver and deployment capability to effectively counter attacks by aircraft, ships and missiles during cross-domain operations in close combination with capabilities in space, cyber and electromagnetic domains.

(1) Capabilities in Maritime and Air Domains

Strengthening a Posture for Persistent ISR **(intelligence, surveillance and reconnaissance)**

- Procurement of Fixed-Wing Patrol Aircraft (P-1)
(3 aircraft:¥ 63.7billion)
In response to decommissioning of existing fixed-wing patrol aircraft (P-3), procure upgraded P-1 as its successor.

* Target identifying ability, flight performance and intelligence processing capability improved compared to conventional P-1 aircraft.

- Life Extension of Fixed-Wing Patrol Aircraft (P-3C)
(7 aircraft:¥ 3.5 billion)
Implement life extension measures for P-3C to maintain the number of fixed-wing patrol aircraft.

- Procurement of Patrol Helicopter (SH-60K)
(7 helicopters:¥50.6 billion)
In response to decommissioning of current patrol helicopter of MSDF (SH-60J),procure SH-60K as its successor.

*Cost for aircraft acquisition decreased by ¥4.8 billion as a result of joint bulk procurement with ASDF rescue helicopter (UH-60J)

- Refurbishment of Patrol Helicopters (SH-60K) to rescue specification
(3 helicopters: ¥2.9billion)
Refurbish SH-60K to rescue specification to maintain rescue capability.

- Life Extension of Patrol Helicopters (5 helicopters: ¥9.1 billion)
Implement life extension measures for three SH-60K and two SH-60J to maintain the number of patrol helicopters.

- Life Extension of Imagery Intelligence Gathering Aircraft (OP-3C) (¥400million)
Implement life extension measures for imagery intelligence gathering aircraft (OP-3C) to maintain the number of reconnaissance aircraft.



Fixed-Wing Patrol Aircraft (P-1)



Fixed-Wing Patrol Aircraft (P-3C)



Patrol Helicopter (SH-60K)



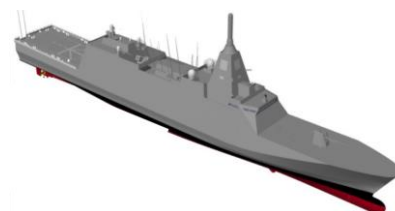
Imagery Intelligence Gathering Aircraft (OP-3C)

- Life Extension of Signal Reconnaissance Aircraft (¥200million)
Prior to implementing life extension measure for EP-3 to maintain the number of signal reconnaissance aircraft, conduct a fatigue evaluation to confirm health of airframe structure.



Signal Reconnaissance Aircraft (EP-3)

- Construction of Destroyers (2 ships: ¥94 billion)
Construct 2 destroyers (fifth and sixth ships of FFM (3,900t class) built in FY2018), equipped with compact hulls and improved multi-role capability (such as mine countermeasures, which were conventionally served by minesweeping vessels); bringing the total number of destroyers to 54.



FY2020 Destroyer(FFM) (3,900t)
(Conceptual image)

- Life Extension of Destroyers (life extension for 7 ships and parts procurement for 5 ships:¥8.3billion)
Implement life extension measures for the Murasame-class, Kongo-class, Asagiri-class and Abukuma-class destroyers to maintain the number of destroyers.

- Construction of a Submarine (1 ship:¥ 69.6billion)
Construct a submarine (fourth ship of new class ship (3,000t class) built in FY2017) with enhanced capabilities (detection, etc.) to effectively carry out intelligence and surveillance activities in the surrounding sea with 22 submarines.



FY2020 Submarine (3,000t)
(conceptual image)

- Life Extension of Submarines (life extension for 3 ships and parts procurement for 7 ships:¥2.4billion)
Implement life extension measure for Oyashio-class and Soryu-class submarine to increase the total number of submarines from 16 to 22.



Soryu-Class Submarine
(2900t)

- Construction of a Minesweeping vessel (1 ship:¥12.8 billion)
Construct a minesweeping vessel (forth ship of Awaji-class ship(690t class)) with enhanced mine countermeasure capability, and FRP-made, which has higher durability than wooden construction.



FY2020 Minesweeping Vessel(690t)
(conceptual image)

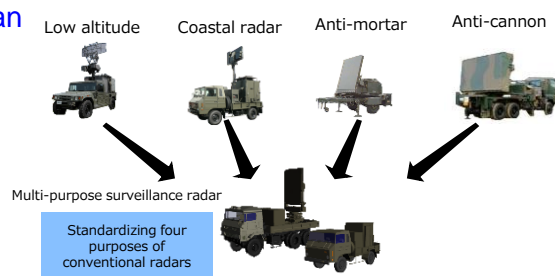
- Procure Initial Parts for Airborne Early Warning Aircraft (E-2D) (¥38billion)
Bulk-procurement of necessary initial parts for airborne early warning aircraft to strengthen ISR capabilities in airspace around Japan including vast air space on the Pacific side.
- Improvement of Capability of Electronic Warfare Information of the Japan Aerospace Defense Ground Environment (JADGE) (¥1.8billion)
Add a buffer system align with development of new warning and control radar to deal with future airborne threat

- Establish a Temporal Unmanned Aerial Vehicle Unit (tentative name)
As introducing long endurance unmanned aerial vehicle(Global Hawk), establish a temporal unmanned aerial vehicle unit(tentative name) in JASDF to structure a posture which enables effective procurement and sustainment of equipment, training, and testing.



Long-endurance unmanned aerial vehicle (RQ-4B) Global Hawk (picture: same type of UAV)

- Develop Multi-purpose Surveillance Radar(¥800million)
Develop multi-purpose radar which can detect threats of an adversary with low observability, and by a effort of standardizing respective radars which GSDF has(low altitude, coastal, anti-mortar, anti-cannon), reduce production cost and LCC while improving maintainability and interchangeability.



Multi-purpose Radar (conceptual image)

* Total cost reduction of ¥26.1billion is expected by standardize four conventional radars into one because it reduce development cost and future maintenance work.

Obtaining and Maintaining Air Superiority

- Procurement of F-35A(repost)



F-35A

- Procurement of F-35B(repost)



F-35B

- Upgrade of F-15 (¥39billion)
Upgrade to integrate stand-off missiles, increase ammunition payload, and improve electronic warfare capabilities in order to provide effective defense against surrounding countries' modernized air forces as well as fulfilling various duties.

- Upgrade of F-2 (2 aircraft:¥2.7billion)
Designing to upgrade current fighter, improve anti-ship capability and networking capability in order to provide effective defense against surrounding countries' modernized air forces as well as fulfilling various duties.



F-2

- Procurement of Aerial Refueling and Transport Aircraft (KC-46A) (4 aircraft:¥112.1billion)
Procure aerial refueling and transport aircraft for fighter units to obtain capability to sustainably conduct various operation surrounding Japan, including the vast airspace of the Pacific
* Cost reduction by¥10.7 billion by bulk-procuring four aircraft.



Aerial refueling and transport aircraft (KC-46A) (conceptual image)

- Establish a Squadron for Aerial Refueling and Transport
Establish a squadron with KC-46A as its main asset for aerial refueling and transport in order to strengthen aerial refueling and transport for fighter units to conduct various operations sustainably and broadly.

- Refurbishment of Destroyer “Izumo”(¥3.1billion)
Conduct partial refurbishment which enables takeoff and landing by F-35B.



Destroyer “Izumo”

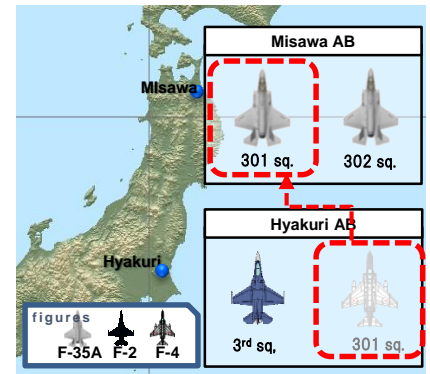
- Procurement of Rescue Helicopter (UH-60J) (8 helicopters:¥39billion)
Dealing with decreasing number of UH-60Js in ASDF, and to maintain/improve the number of rescue helicopter as well as improve the posture to practically cope with various situations.



Rescue Helicopter (UH-60J)

*Reduction by ¥7.9billion from air vehicle acquisition cost as a result of joint-bulk purchase with MSDF's patrol helicopter (SH-60K)

- Shifting the Posture of Fighter Squadrons, etc.
 - Shift the posture of fighter squadrons to develop readiness for ensuring air superiority.
 - Establish F-35A squadron in Misawa AB and restructure F-4 squadron in Hyakuri AB in accordance with the shift from F-4 to F-35A.



Shifting the posture of fighter squadrons, etc.

- Procurement of Type-03 Middle-Range Surface-to-Air Missile (modified) (1 set: ¥13.8billion)

Procure the Type-03 medium-range surface-to-air missile (modified) with enhanced capability to respond to low-altitude and high-speed targets in order to strengthen air defense capability.



Type-03 Middle-Range Surface-to-Air Missile (modified)

- Procurement of Air Defense Command and Control System (1set:¥3.2billion)
Procure the air defense command and control system for GSDF to ensure effective joint response operations against airborne threats.

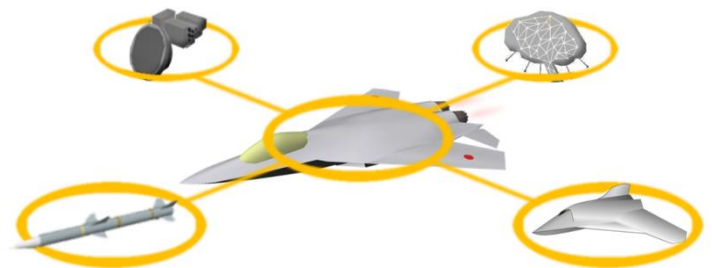


Air Defense Command and Control System

Future Fighter

- Japan-led Development of Future Fighter Aircraft (Item Request without specific amount of budget)
Start on Japan-led development with a scope of international collaboration regarding fighter aircraft which can play a core role of future networked warfare.(Plan to have Japan-led development even if international collaboration takes place)

- Research on the Integration of the Mission System of a Fighter (¥17.7billion)
Mission system integration research, to enable Japan's freedom into the future for control over the mission system, which is central to a fighter's operational and mission execution capability.



Integration of Mission System (conceptual image)

- Research on Technology for Remote Control Support Aircraft Technology (¥1.9billion)
Conduct research related to human machine interface technology necessary for formation flight technology and remote control, which are required for future remote-control support aircraft that can assist manned aircraft.
- Strengthen Posture for Development of Future Fighter
Establish "future fighter development office(tentative name)" in ATLA to effectively implement Future Fighter development

Obtaining and maintaining maritime superiority

- Procurement of Fixed-wing Patrol Aircraft (P-1) (repost)
- Life Extension of Fixed-wing Patrol Aircraft (P-3C) (repost)
- Procurement of Patrol Helicopters (SH-60K) (repost)
- Life Extension of Patrol Helicopters (repost)
- Construction of Destroyers (repost)
- Life Extension of Destroyers (repost)
- Construction of a Submarine (repost)
- Life Extension of Submarines (repost)
- Construction of Minesweeping Vessels (repost)
- Introduce Small UUV for Underwater Defense (¥7.6billion)
For the security of SDF personnel, introduce the UUV which can be deployed to targeted waters by remote control and prevent the opponent vessel from invading Japan.



Small UUV for Underwater Defense
(conceptual image)

- Development of ASM-3 (modified) (¥16.1billion)
In order to cope with modernization of vessels in other countries, improve the shooting range of Air-to-ship guided missile which has higher survivability because it can fly at supersonic speed.



ASM-3 (modified)
(conceptual image)

(2) Stand-off Defense Capability

- Procurement of Stand-off Missile (¥10.2billion)
Procure stand-off missile(JSM) which can react from outside of the opponent's threat range and can be mounted to F-35A.
- Procurement of F-35A (repost)
- Upgrade of F-15 (repost)



Stand-off Missile (JSM)

(3) Comprehensive Air and Missile Defense Capability

BMD-related budget :¥1 1 6 . 3 billion

- Joint-bulk Procurement of Vertical Launch System (VLS) (¥42.2billion)
 Joint-bulk procurement* of VLS for GSDF Aegis Ashore (6 sets) and MSDF destroyers (FFM) (24 sets, and that makes total of 30 sets)



Vertical Launch System (VLS) (conceptual image)

* Cost reduction of approx. ¥22.8 billion by joint-bulk procurement utilizing long-term contract

Aegis Ashore-related cost (¥12.2billion)
 • Procurement of VLS (¥10.3billion)
 • Other related cost such as for developing personnel and research (¥1.9billion)
 (Do not include cost based on an assumption of specific site for deployment)

- Procurement of SM-3 Block II A (¥30.3 billion)
 Procure SM-3 block II A for BMD purpose.



SM-3 Block II A

- Modification to the Patriot system (¥10.6 billion)
 Modify the patriot system to operate PAC-3 MSE missile

*As a result, all fire units will be able to operate PAC-3 MSE in JFY2022.



PAC-3 MSE Missile (Photo: same model)

- Research and Study on the Concept of the Comprehensive Air and Missile Defense Capability (¥60million)
 Research and Study on strengthening the comprehensive air and missile defense capability, future airborne threat and means to respond to such threats



Comprehensive air and missile defense capability (conceptual image)

- Upgrade of JADGE (repost)
- Procurement of Type-03 Middle Range Surface-to-air Missile (modified) (repost)
- Procurement of Air Defense Command and Control System (repost)

- BMD Exercises
Improve SDF's capabilities of BMD and enhance operational coordination with the U.S. Forces.



BMD Exercises (conceptual image)

(4) Maneuver and Deployment Capability

- Procurement of Type-16 Mobile Combat Vehicles (33 vehicles: ¥24.3billion)
Strengthen rapid deployment capabilities of the basic operational units (rapid deployment division and rapid deployment brigade) by deploying Type-16 mobile combat vehicles suited for transportation by aircraft and other mean.



Type-16 Mobile Combat Vehicle

- Procurement of Type-19 155mm Wheeled Self-Propelled Howitzers (7 vehicles: ¥4.7 billion)
As the successor of the existing 155mm field howitzer (FH70), procure the 155mm wheeled self-propelled howitzer, which is capable for the operation with quick and maneuver in various situations and can be also contributed for its efficiency.



Type-19 155mm wheeled howitzer (prototype)

- Procurement of Transport Helicopters (CH-47JA) (three helicopters: ¥23.7billion)
Procure transport helicopter (CH-47JA) which can conduct airborne maneuver and transport of units with heavy equipment or large quantity of payloads.
*cost reduction of ¥2.8 billion by bulk-procurement of three helicopter



Transport helicopter (CH-47JA)

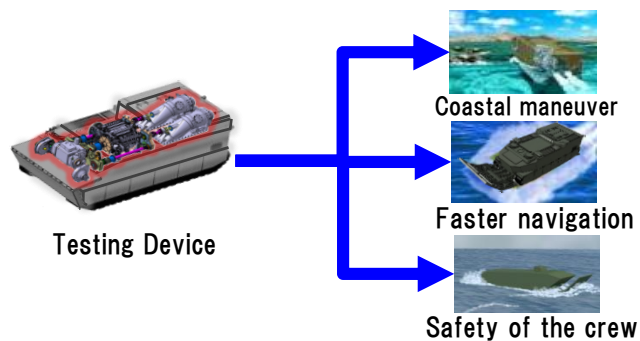
- Procurement of Engines for C-2 Transport Aircraft (6 sets: ¥22.7billion)
In view of the decreasing number of the current transport aircraft (C-1), procure the engines for transport aircraft that contribute to the large scale deployment by improving flight range and payload



Transport aircraft (C-2)

- * cost-reduction by approx. ¥4.1billion by bulk-procurement of 6 sets

- Research on Testing Device for Future Amphibious Technology (¥2.2billion)
 Make prototype of testing device for future amphibious vehicle and validate technology for coastal maneuver, faster navigation and safety of the crew.



Research on Testing Device for Future Amphibious Technology (conceptual image)

- Improvement of Facility Related to the Deployment of the Units
 - Development related to an area security unit in the southwestern region (¥23.7billion)
 In order to improve the initial response readiness in the defense of remote islands, allocate budget related to the development of barrack and other SDF facilities related to the deployment of guard unit in Ishigaki-jima island, roads etc. within the Bora area in Miyako-jima island, and ammunition depot in Amami-oshima island (Setouchi-detachment)
 - Base Improvement for GSDF Ospreys(¥3billion)
 Design and site construction as base measures for GSDF Ospreys (associated with the Saga airport)



Key Facilities Associated with Unit Deployment (conceptual image)

- Enhancement of Readiness for Joint Transportation Using PFI Ships
 Enhance the readiness for joint transportation by improving the operational effectiveness of PFI ships through the implementation of an exercise using such ships to transport units and equipment and verification of port entry.



Training of Joint Transportation using PFI Ships

- Japan-US Bilateral Joint Exercise (Field Training Exercise (FTX))
 Enhance SDF's capability for joint operation and interoperability between Japan and US by conducting field exercise of Japan-US joint reaction for defense of Japan. Also, conduct joint communication training (field training) to improve readiness regarding electromagnetic domain.



Japan-US Bilateral Joint Exercise

- Joint Amphibious Operation Exercise
Conduct a joint amphibious operation exercise to enhance the SDF's joint amphibious operation capabilities and bilateral response capabilities with U.S. Forces.



Joint Amphibious Operation Exercise

Training and Exercises for enhancing constantly deploying ground defense force

- Maneuver, Deployment and Field Training in Remote Islands by Rapid Deployment Division and Brigade
 - Improve readiness and capability for response by deploying rapid deployment division and brigade to conduct field training suitable for the characteristic of the area.



Maneuver Exercise by MSDF vessel

- Field Exercise by Amphibious Rapid Deployment Brigade in Remote Islands and Deployment on Water in Southwest Region in Collaboration with Vessels
 - To effectively react to various situations such as attacks to remote islands, make efforts to further enhance capability of Amphibious Rapid Deployment Brigade.



Maneuver Exercise on the water in Southwest region.

- Rapid Deployment Training in Fine Domestic /Overseas Training Environment including Hokkaido, the U.S and Australia
 - Enhances bilateral response capabilities with the U.S. and others through exercises aimed at improving tactical skills and interoperability necessary for operations for response to various situations.



Field Exercise with the U.S Force Oversea

3 Strengthening Sustainability and Resiliency

In order to be able to operate units continuously at all stages from peacetime to armed contingencies, SDF will promote measures necessary for securing ammunition and fuel and protecting infrastructure and other foundations for SDF operations. Moreover, in order to swiftly and effectively respond to various situations, MOD/SDF will promote measures to ensure high operational availability of equipment.

(1) Securing Continuous Operations

- Procurement of Anti-air Missiles that Contributes to Air Superiority and provides effective response to threats as well as torpedoes needed to secure sea superiority (¥19.9billion)
- Procurement of aerial refueling and transport aircraft(KC-46A) (repost)
- Site Acquisition in Order to Expand Logistic Capability in Yokosuka Base
Acquire site in Arai area for logistics support and proceed with expanding logistics capability in Yokosuka base.
- Procurement of New Rifles (3,283 units:¥1billion)
Procure new rifles with better environment durability, fire power and extensibility as successor of current rifles



New Rifle (photo: current model)

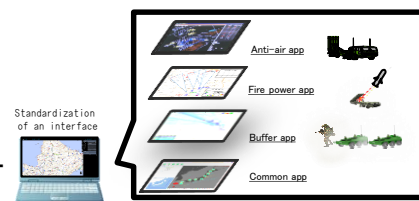
- Procurement of New Pistols (323 units:¥30million)
As successor of current pistols, procure new pistols which are easier to handle.



New Pistol (photo: current model)

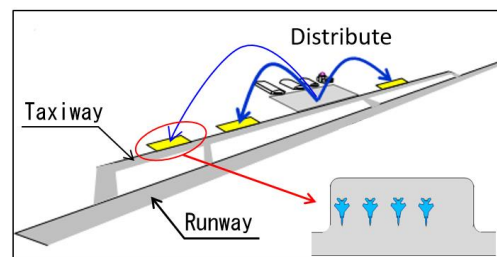
- Procurement of Counter Drone System for Security (¥2.8billion)
Based on amendment to the Act on Prohibition of Flight of UASs around and over Key Facilities ensure security around camps and bases of the SDF by strengthening posture for response to drones.

- Integration of Administrative Systems (¥3.8billion)
Integrate various administrative system to enable commanders in each level to process/share general and targeted information in real-time and enhance the basis for communication and command(C2).



Integration of Administrative Systems (conceptual image)

- Development for Dispersion Pads (¥40million)
Development for dispersion pads at air bases for enhancing resiliency.



Dispersion Pads

- Procurement of Equipment Necessary to Improve the Capabilities to Restore Damaged Runways (¥600million)
 - Procure equipment which enables a faster restoration of damaged runways of airbase (ASDF)
 - Procure field equipment to support restoration for runways of maritime/air SDF in addition to restore damage to airfield of GSDF.(GSDF)



Equipment to Restore Damage in Runways

- Upgrade including Seismic Resistance of Aging SDF Facilities (¥62.9billion)
 Ensure the SDF's stable operational readiness by renovating SDF facilities such as office buildings and barracks, which undermine operations of the SDF.



Air-conditioning facility

(2) Ensuring Operational Availability of Equipment

- Ensure Necessary Cost for Maintenance of Equipment (¥952.5billion)
- Reduction in Procurement Lead Time through the Use of PBL (Performance Based Logistics) Contracts

Realize a timely supply of parts through PBL contracts, in which contract procedures are no longer required for every procurement, and estimating demands and controlling inventory that are left at the discretion of suppliers, while also taking advantage of global supply chains.



MCH-101 helicopter(MSDF)

- PBL contract for repairing and other services for minesweeping and transport helicopter(MCH-101) (¥19.6billion)

III Priorities in Strengthening Core Elements of Defense Capability

As equipment becomes more advanced and complex and missions become more varied and internationalized against the context of the rapidly shrinking and aging population with declining birth rate, MOD/SDF will strive to secure diverse, high-quality talents from a wider range of people and also promote initiatives on a priority base towards the establishment of an environment that enables all SDF personnel to maintain high morale and continue to fully exercise ability. Moreover, to reinforce technological base that has bearing on defense equipment by leveraging Japan's superb science and technology, as character of warfare changes dramatically due to advances in military technologies, Japan will promote measures to shorten research and development timelines and to obtain technological superiority, and improve cost-effectiveness through measures such as strengthening project management, to efficiently secure defense capability in necessary and sufficient "quality" and "quantity".

1 Reinforcing Human Resource Base

(1) Promotion of Measures to Secure Highly-Qualified Personnel

Enhancement of Recruitment Programs

- Recruitment Advertising Videos (¥300million)
Promote recruitment advertisement targeted at potential applicants from various angles by creating recruitment advertising videos and strengthening the lineup of recruitment advertising media.



Recruitment advertising videos

Enhancement of Re-employment Support Programs

- Introduction of new Vocational Training Subjects (¥4million)
Establish new subjects to get qualifications such as project-sustainability manager to expand opportunity to be re-employed to crisis-management sector in private companies and other employers.
- Internship Program as a part of Re-employment Support Measure (¥10 million)
Provide internship program for the SDF personnel who are retiring in order to prevent mismatching of re-employment that leads to quitting a job in early timing as well as to expand the opportunity of re-employment.



Internship program
(Image: hospitality field)

Others

- Promotion of Measures to Prevent Power Harassment (¥10million)
 - Program to improve coaching skill (tentative name) by experts from outside of the ministry
 - Establish a consultation desk by third party regarding harassment

(2) Promote Measures to Ensure Further Participation of Female Personnel and the Work-Life Balance

Further promote greater engagement of female personnel through expanding recruitment and promotion, while implementing and enhancing measures concerning the work-life balance.

Female SDF Personnel in Action



First female commander of GSDF communication group



First female captain of minesweeping vessel



Personnel conducting air control

Improvement of the Working Environment for Female SDF Personnel(2.8billion)

- Development of Facilities for Female SDF Personnel
 - Promote secured sections for female personnel in barracks.
 - Make renovations to improve living and working environments for female SDF personnel (renovations of lavatory and bathing facilities).
 - Improvement in training foundation for female uniformed SDF personnel.

Improvement of Section for Female Personnel



Image after the Renovation

Image after the Renovation



Improvement of Section for Female Personnel (Turning men's lavatory into women's)

- Improvement of Sections for Female Personnel on Ships (MSDF)
- Development Training for Mentors
- Invite Outside Counselors for Female SDF Personnel, etc.

Improvement of Working Environment for Workstyle Reform (¥50million)

- Improvement of Working Environment to Realize a better Workforce



Support for Work-Life Balance (¥400million)

- Improvement of Workplace Nurseries
Promote workplace nurseries suitable for working patterns particular to the SDF so that personnel raising children can engage in their duties without concerns.
- Improvement of workplace nursery (National Defense Medical College).
- Provision of supplies in workplace nurseries.
- Provision of Supplies for temporary Child-care Service in case of Emergency Operations
- Provide supplies (safety mats, baby beds, etc.) for temporary child-care service in case of emergency operations
- Implement temporary child-care service drills, preparing for emergency operations.
- Participate in courses designed to improve child-care skills for temporary child-care service in case of emergency operations



Workplace Nurseries
(conceptual image)



A Scene of Temporary Child-Care
Drill in Support of Emergency
Operations

Promotion of Female Personnel Engagement in International Cooperation, etc.

- Dispatch Personnel to NATO Gender-related Annual Meeting
Dispatch female SDF personnel to the gender-related annual meeting and other occasion hosted by NATO for developing personnel and to bring in perspective of gender in PKO activity etc.

* Gender: Distinction between men and women formed historically, socially, and culturally, such as the "male image" and "female image," different from sex that shows the biological difference between males and females.

Implementation of Training and Drills for Raising Awareness(¥30million)

Effort to eliminate conventional mindset about gender roles in the workplace and develop a work environment that enables all personnel, including those under time restriction due to child-care or nursing care, to demonstrate their full potential.

- Hold Seminars on Mentality Reform, etc.
- Collective Trainings for Promoting Gender Equality, etc.
- Creation and Distribution of Pamphlets featuring Roles Played by Female Personnel and Support for Work-life Balance, etc.



A Scene of the Collective
Training

Others (¥80 million)

- Recruitment of Female SDF Personnel
Create brochures targeting female recruits
- Promote Measures to Prevent Sexual Harassment

Improvement of Working Environment

- Security-of Fixtures, Daily Necessities, etc. to Improve Living and Working Environment for SDF personnel (¥2.4 billion)
Renew aged daily life/workplace fixtures and secure daily necessities, etc. so that all the troop members will be able to fulfill their missions with high morale.



Upgrade air-conditioning facility

- Upgrade of SDF Facilities to Improve Living and Working Environment of SDF Personnel(¥58.6billion)



(3) Enhancement of Educational and Research System

Implement measures to enhance the education and research systems at the National Institute for Defense Studies, the National Defense Academy, and the National Defense Medical College, and develop an environment enabling personnel to devote themselves to their duties.

National Institute for Defense Studies

- Promoting International Academic Exchange through mutual Dispatching of Researchers and Conducting Joint Researches by newly Established short-term Fellowship with French Military Institution of Strategic Research (IRSEM)



Reference: Visit by Chief of IRSEM
(L'institute de recherche strategique /
'ecole militaire)(31.3.4)

The National Defense Academy

- Development of the Education and Research System (¥400million)
Develop educational experimental equipment to adapt to advances in the field of science and technology and to the expansion of the educational research field

The National Defense Medical College

- Improvement the Governance of the National Defense Medical College
Conduct fundamental study to develop central medical institution as a hub for regional medicine and clinical research in order to secure necessary amount of medical cases for education and research(¥50million)
- Strength Research Function Related to Defense Medicine
 - Conduct advanced research on defense medicine which contribute to the operation of SDF units and education at the National Defense Medical College(¥300million)
 - Establish a framework of fundamental study of defense medicine to have pure research direct to the field of defense and develop it so as to contribute to medical activity of the SDF(¥30million)

(4) Promotion of effort related to SDF Reserve Personnel and others who support sustainable unit operation

Promote the efforts to increase the number of SDF Reserve Personnel as well as have SDF Ready Reserve and Reserve Personnel in action for wider variety of opportunities.

- Establish “Subsidy to the companies that cooperate in developing SDF Ready Reserve Personnel” (tentative name) (¥70million)
SDF Reserve Personnel with no experience as SDF personnel need to join the training (approx.40days/3years) to acquire necessary knowledge and skills to be Ready Reserve Personnel in addition to the training of SDF Reserve Personnel. As they have to be away from their work for many days for this reason, this subsidy (¥560 thousand/person) aims to gain understanding and cooperation from the employers.
- Development of Uniforms and Accessories, etc. (¥100million)
In order to improve the effectiveness of SDF Reserve Personnel, implement developments in uniforms, accessories, as well as containers and shelves to store those

(5) Enhancement of Medical Functions

In order to respond to various situations, SDF will strive to enhance measures such as frontline first aid capabilities and the capacity to conduct Damage Control Surgery (DCS) at field medical facilities to stabilize the symptoms of patients as part of strengthening the system to seamlessly cover the entire stretch between the frontline and final medical evacuation facilities. Moreover, SDF will establish an efficient and high-quality medical care regime through further endeavors including upgrading of SDF hospitals into medical hubs with enhanced functions. For improving capability of battle injury treatment, build up training and educational foundation, for the capability of international cooperation activities, strengthen the necessary foundation for operation.

- Strengthen Posture of seamless Medical Care and Evacuation from Frontline to the final Medical Evacuation Destination
 - Procure equipment required in a damage control surgery (DCS) and post-surgery patient management (¥400million)
 - Procure necessary equipment and supply for managing patient during medical evacuation (¥20million)
 - Procurement of equipment for blood preservation (¥1million)
 - Procurement align with change in specification of individual first-aid kit (¥200million)



*Field Surgical System (for divisions and brigades)
(left: outside right: inside)*



*Example of Equipment
for DCS*



*Change to specification of
Personal first-aid kit*



Automatic resuscitator

- Initiatives toward Upgrading SDF Hospitals to Hubs with Enhanced Functions
 - Steadily promote development of a core hospital in each district and hospitals with special functions, including education of international activities, submarine medicine, and aviation medicine.
 - Construction of the building of SDF Iruma Hospital (tentative name) in line with the consolidation of SDF hospitals (¥5.3billion)
 - Soil pollution investigation for reconstructing SDF Fukuoka Hospital (¥10million)
 - Basic design for reconstructing SDF Yokosuka Hospital (¥100million)
- Education and Training for Improving Capability to Respond to Battle Injury, and Develop of Foundation for such Educational Training.
 - Develop training system for aviation medicine (¥800million)
 - Procure educational material for improving first-aid skill (¥100million)
 - Develop personnel for DCS section (¥20million)



*Image of training system for aviation medicine
(Left: outside Right: inside)*



*Human-body Simulator for improving
first-aid skill in frontline*



*Improving skill of DCS
(DCS section)*

- Enhance Capabilities in Response to Infectious Diseases which can be International Threat
 - Development of posture to secure the ability to transfer patient with infectious disease (related training, securing related medical supply etc.) (¥100million)
 - Training & education to be doctors who have infectious disease professional knowledge (¥4million)
 - Strengthen posture of prevention for severe infectious disease (¥200million)



Image of Response to an Infectious Disease



*(Patient Monitoring Device
for transferring)*



(syringe)

*Examples of necessary medical equipment for
long-distance transfer of patient with infectious disease.*

(6) Increase the number of Defense Officials

Increase the number of defense officials who are also SDF personnel in order to improve structure to execute what NDPG and MTDP stipulates given the fact that Prime Minister decision which directs personnel expense and organization and quota of staff change request in each fiscal year (Directive for Organization and allocation of personnel expense in JFY2020 to proceed with core issue of the cabinet office, July 31st, 2019.) include development of security arrangement.

Strengthen necessary capability for cross-domain operation (121 personnel)

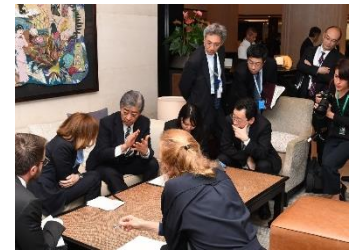
- Increase the number of defense officials to improve project planning capability, developing personnel and information collection/analysis in new domains of space, cyberspace and electromagnetic spectrum
- Increase the number of defense officials to develop equipment to strengthen capabilities in maritime and air domains and comprehensive missile and air defense capability.



Defense Official engaging in Cyber Security work (conceptual image)

Improve security cooperation, strengthen Japan-US alliance (71 personnel)

- Increase the number of defense officials to promote security cooperation based on the concept of “Free and Open Indo- Pacific” and to promote Japan-US defense cooperation in new domains
- Increase the number of defense officials to promote the projects to mitigate the impact on local communities such as relocation related to the return of land areas south of Kadena Air Base and improvement of facility for contingency use of Tsuiki/Nyutabaru AB.



Defense official supporting the Minister of Defense in defense cooperation and communication with other countries (conceptual image)

Strengthen organization to cope with shrinking and aging population with declining birth rates (75 personnel)

- Increase the number of defense officials to secure talented human resource within severe recruiting environment
- Increase the number of defense officials to conduct improvement of facility such as refurbish or reconstructing of aged barracks to enable SDF personnel to fulfill their missions with high morale and pride.



Defense official in construction of defense facility (supervising) (conceptual image)

Increase the number of defense officials to build truly effective defense force (135 personnel)

- Increase the number of defense officials to support cross-domain operations, by measures such as enforcement of technology base, intelligence capabilities, efforts to conduct effective training and exercise, improvement of medical functions and collaboration with local community

< Reference : Changes in the number of defense officials >

(unit: person)

	JFY2015	JFY2016	JFY2017	JFY2018	JFY2019	JFY2020
Rationalization, etc.	△281	△269	△269	△276	△273	△269
Requested*	355	383	394	425	394	402
Budget*	164	169	182	209	204	—
TOTAL	△117	△100	△87	△67	△69	133

*Doesn't include special component of organizational quota for promoting employment of persons with disabilities, etc.

2 Reinforcing Technology base

(1) Reinforcing technology base

To secure technical superiority in the field of strategically important equipment and technology, make concentrated investment for core technology such as technology in new domains or cutting-edge, game-changing technology such as AI.

Priority investment for future-promising technology field

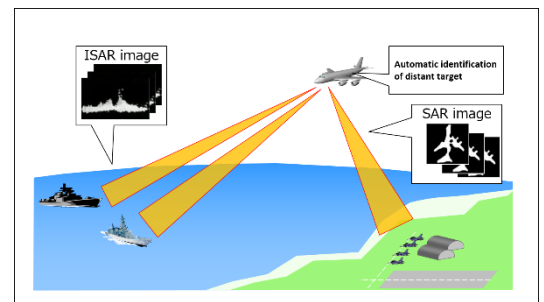
Promote core research under Mid-long term technology estimation (published Aug.2016, currently under revise), Specifically, conduct following efforts stipulated in Research and Development vision (published Aug.2019).

Effort in electromagnetic domain

- Research on Technology to Support Electromagnetic Spectrum Management by Visualizing the Usage of Electromagnetic Spectrum Resources (repost)
- Study on Protection Measure Against EMP Threat (¥200million)
Evaluate the effectiveness of electromagnetic protection measure in a level of element or circuit which configure electronic devices by EMP emission device and formulate EMP protection guideline that are applicable to equipment commonly
*EMP: Electro-magnetic pulse

Effort for wide-area persistent surveillance including outer space

- Experimental Study for Radio Image Identification Technology with Artificial Intelligence (¥900million)
In order to continuously conduct ISR activity in effective way, demonstrates the application of AI to radar image target identification
- Research about Infrared Sensing Element with high Sensitivity and Detection Range Broadband (repost)



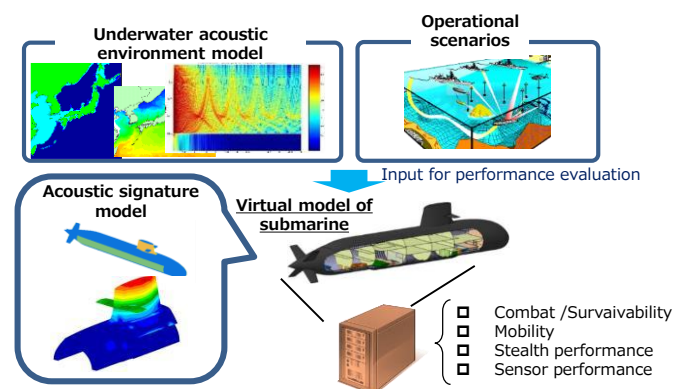
Experimental Study for Radio Image Identification Technology with Artificial Intelligence (conceptual image)

Effort for Cyber Defense

- Study on Technology for Responding to Cyber Attack Targeting Intelligence Processing Capability within Equipment System (¥100million)

Effort for Underwater Defense

- Research on Comprehensive Capability Assessment Simulator for Future Submarine (¥2.1billion)
Conduct research on modeling and simulation technology which enables quantitative performance evaluation in various environments and operational scenarios



Research on comprehensive capability assessment simulator (conceptual image)

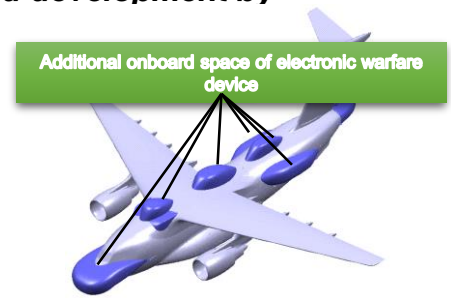
Effort for Stand-off Defense Capability

- Research on HVGP (Hyper Velocity Gliding Projectile) for Defense of Remote Islands (¥28.5billion)
Continue research on HVGP which glide in high speed and hit the target with high accuracy aiming for early practical use

Cutting down time required for research and development

Promoting effort for decreasing time and cost for research and development by stepwise development and other measures

- Development of Stand-off Electronic Warfare Aircraft (repost)
Prompt application by stepwise development ,and formulate Open-architecture standard for shortening the lead time for development and decreasing the cost in future upgrades.



Reducing time for research and development in development of stand-off electronic warfare aircraft (conceptual image)

Promotion of Rapid Prototyping of Evolving Cutting-Edge Civilian Technologies

Promoting efforts for early operationalization of cutting-edge civilian technology ,and to discover and nurture innovative and emerging technology by utilizing the “Innovative Science & Technology Initiative for Security” program

- Effort for Early Operationalization of new Technology (¥800million)
Make effort for early operationalization in three to five year timeframe by adapting industrial technology with early innovation cycle such as ICT by both engineer and operator in unified manner, and also pursue reduction of price of equipment and cost for sustainment by utilizing the result of this effort also in the market.

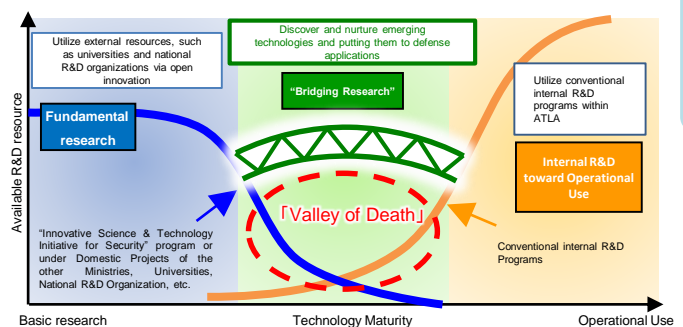


Example of effort for early operationalization for cutting-edge civilian technology with fast advancement, (VR system for maintenance of aircraft)

*VR: Virtual Reality

- Discovering and Fostering Innovative and Emerging Technology (¥10.8billion)

- Continuingly promote the “Innovative Science & Technology Initiative for Security” program regarding basic research on advanced civilian technologies.
- Conduct “Bridging Research” for leading Emerging Technologies in Basic Research into Defense Applications..
- Efforts of utilization or establishment of think-tank which research and analyze the trend of cutting-edge technology in and out of Japan.



Conceptual image of bridging research

(2) Promotion of Optimized acquisition

Improve effectiveness and flexibility of project management through lifecycle to further promote effective and efficient procurement of equipment, and promote the effort to rationalize FMS procurement given that the importance of managing price and delivery date in FMS is increasing.

Improvement of effectiveness and flexibility of project management through lifecycle of equipment

- Strengthening Posture to Improve Effectiveness and Flexibility of Project Management including Expansion of Targeted Items for Project Management.
 - Transfer supervising function over project management from Joint Systems Division to Project Planning Division in order to unify the presiding function related to project management(transferring the scope of authority)
 - Newly establish "Project Management Division (Guiding Weapon and Joint Systems) (tentative name)"and abolish Joint Systems Division in order to concentrate on management of guided weapons and joint systems designated as project management target items, which are on the rise.

Rationalization of FMS procurement

- Strengthening Posture of FMS-related Division within ATLA
Establish "FMS coordination section(tentative name)" which plans FMS policy in the US within Procurement Planning Division and study and make effort for more effective and efficient operation of FMS.
- Dispatching Personnel from ATLA to US Think-tank
Conduct research and study about FMS-related effort of the customer countries to rationalize FMS procurement (¥10million))

Streamlining sustainment of equipment

- Reduction in Procurement Lead Time through the Use of PBL (Performance Based Logistics) Contracts
Realize a timely supply of parts through PBL contracts, in which contract procedures are no longer required for every procurement, and estimating demands and controlling inventory that are left at the discretion of suppliers, while also taking advantage of global supply chains.



Minesweeping and transport helicopter of MSDF(MCH-101)

- PBL contract for repairing and other service for minesweeping and transport helicopter of MSDF (MCH-101) (repost)



(3) Strengthening Defense Industrial Base

In order to strengthen the resilience of Japan's defense industrial base, which is essential foundation for production, operation and maintenance of equipment, the government will actively take measures to strengthen supply chain. Also, the government as a whole will promote appropriate overseas transfer of equipment under the Three Principles on Transfer of Defense Equipment and Technology, which permits transfer of defense equipment in cases such as the transfer contributes to Japan's Security.

Support for strengthening defense industrial base

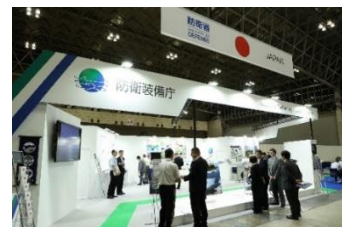
- International survey on participation of domestic companies in maintenance program of imported equipment
Conduct survey on situations of foreign countries regarding how their domestic companies participate in the maintenance program of imported equipment (¥40million)
- Study on measure to support companies for strengthening defense industrial base
Conduct survey to study on measure to support the companies' effort for strengthening defense industrial base (¥30million)

Strengthening supply chain

- Build a constant monitoring on supply chain
Grasping risk information of companies which make up defense supply chain to cope with the risk of bankruptcy or withdrawal of those companies based on the information acquired by supply chain (¥10million)
- Discovering and utilizing the innovative technology and SME's technology
 - Discover small and medium sized enterprises which possess superior technologies and products through exhibitions to match them and the SDF/MOD or defense primary corporations.(¥10million)
 - Evaluate the possibility of innovative technology such as 3D printer or AI to be adapted to defense equipment (¥90million).

Promote appropriate overseas transfer of defense equipment

- Accelerate efforts related to defense equipment and technology cooperation to promote overseas transfer of defense equipment
 - Conduct feasibility study on possible defense equipment and technology cooperation projects (¥200million)
 - Participation to international defense equipment exhibitions
Display defense equipment developed in Japan and superior technology possessed by small and medium-sized enterprises(¥300million)



Booth Hosted by the ATLA
(MAST ASIA 2019)

- Enhancing posture with security of information and technology
Establish "Equipment Security Management Division (tentative name)" in Department of Equipment Policy of ATLA which specializes in security of information technology in order to promote the policy to enhance information security within Japan's defense industry and to prevent leakage of advantageous technologies on the occasion of overseas transfer of defense equipment.



3 Enhancing Intelligence Capabilities

In order to be able to provide timely and effective intelligence support to policy decision and SDF operations, MOD/SDF will enhance intelligence capabilities at all stages, including gathering and analyzing of information.

- Reinforcement of intelligence collection and analysis capabilities
Establish necessary arrangements at the Defense Intelligence Headquarters, etc. to enhance capabilities of intelligence collection and analysis of international military situations, etc.

- Development of common infrastructure at the Defense Intelligence Headquarters
Establish shared information platform to integrate various and wide range of intelligence gathered by all services of the SDF and the Defense Intelligence Headquarters, in order to promote all-source analysis.

- Procurement of data for image analysis (various commercial satellites, including earth observation miniature satellites, etc.) (repost)
Collect information concerning the region surrounding Japan using various commercial satellites, including optical satellite (WorldView-4), to which MOD has an exclusive tasking right and miniature satellites for earth observation, etc.



IV Response to Large-Scale Disasters

In the event of a natural disaster, the SDF will respond to it by immediately transporting and deploying sufficient numbers of SDF units based on a joint operational approach, and also will promote measures to strengthen the response posture.

1 Maintenance/Enhancement of Function of Military Camps/Bases to Serve as Hubs for Disaster Response

- Promotion of Seismic Retrofitting and Tsunami Defense Measures to Maintain and Enhance Functions in Preparation for the Event of a Disaster (¥21.9billion)
- Development of Disaster Response Hub Areas, etc. (Iruma) (¥1billion)

2 Implementation of Exercises to Respond to Large-Scale and Unconventional Disasters

- SDF Joint Exercise for Rescue (JXR: Joint Exercise for Rescue)
Implement the SDF Joint Exercise for Rescue to maintain and improve the SDF's joint operation capabilities to respond to large-scale domestic disasters, in order to minimize damage through smooth and effective responses in the event of large-scale domestic disasters.
- Joint Disaster Response Exercise with U.S. Forces (TRES: Tomodachi Rescue Exercise)
Implement Joint Disaster Response Exercise with U.S. Forces to establish procedures on coordination with U.S. Forces in Japan in the event of large-scale domestic disasters, and to maintain and enhance the disaster response capabilities.
- Remote Island Disaster Relief Exercise (RIDEX: Remote Island Disaster Exercise)
Implement drills to maintain and enhance capabilities to ensure smooth joint disaster response operations against sudden disasters caused by large-scale disasters on remote islands.



SDF Joint Exercise for Rescue (JXR)



Joint Disaster Response Exercise with U.S. Forces (TRES)



Remote Island Disaster Relief Exercise (RIDEX)

3 Procurement of Equipment Contributing to Disaster Response

- Procurement of Type-07 Mobility Support Bridge (1 set:¥1.2billion)
Procure a mobility support bridge in order to temporarily restore bridges damaged by earthquakes, floods, etc., conduct emergency evacuation of disaster-affected people and enable relief activities by the SDF and local governments.



Type-07 Mobility Support Bridge (disaster management exercise)

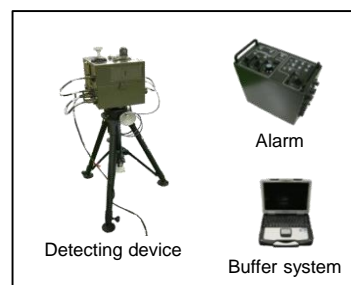
- Readiness for Unconventional Disaster
 - Procurement of decontamination set (decontamination vehicle) (1 vehicle: ¥100million)
 - Procurement of Type-18 personal protective equipment (8,000 set:¥2billion)
 - Procurement of NBC alarms (1 set:¥300million)



Decontamination Set (decontamination vehicle)



Type-18 personal protective equipment



NBC alarms

- Procurement of Rescue Helicopter (UH-60J) (repost)
- Procurement of Transport Helicopter (CH-47JA) (repost)

4 Actions based on the Three-Year Emergency Measures for Disaster Prevention/Mitigation and Building National Resilience*(Item Request without specific amount of budget)

- Emergency Measures for the SDF's Assets Related to Disaster Prevention and Facilities.

*Based on "three -year emergency measures for disaster prevention/mitigation and building national resilience" (approved by cabinet on Dec.14th 2018) , conduct improvement of facility to secure necessary equipment or supplies for rescue operation intensively in three years. In JFY2020, as the last year, appropriate scale of measures should be taken after considerate impact of consumption tax raise to the demand in market and latest economic situation.

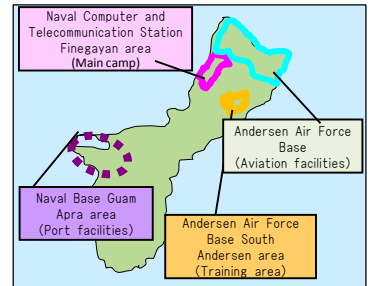
V Strengthening Japan-U.S. Alliance and Measures for Bases

While maintaining the deterrence of U.S. Forces, Japan will steadily implement specific measures, including the realignment of U.S. Forces in Japan, to mitigate the impact on local communities, such as those in Okinawa.

1 U.S. Forces Realignment-Related Expenses [measures for mitigating the impact on local communities](Item Request without specific amount of budget)

Relocation of U.S. Marine Corps Stationed in Okinawa to Guam

- Projects Concerning the Relocation of the U.S. Marine Corps Stationed in Okinawa to Guam



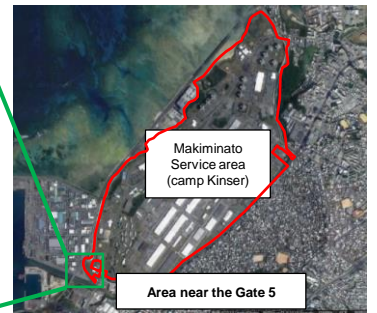
Guam

Realignment-related Measures of U.S. Forces in Japan

- Project for the Realignment in Okinawa
- Project for Relocating of the Carrier-based Aircraft
- Project for Contingency Use
- Project for the Training Relocation
- Project Intended to Facilitate Smooth Implementation of Realignment-related Measures



MCAS Futenma



The Return of Area near Gate 5 on Makiminato Service Area (Camp Kinser) on 31st, March 2019

2 SACO-Related Expenses (Item Request without specific amount of budget)

- Japan will Continue to steadily Implement the Measures (Mitigating the impact on local communities in Okinawa) in the Special Action Committee on Okinawa(SACO) Final Report except for Changes Made under the Japan-U.S. Security Consultative Committee (“2+2”) Joint Statement

Considering the importance of implementing the above measures as early as possible, the results of coordination with local communities, U.S. Forces, etc., during the budget drafting process needs to be reflected in the budget. The JMOD will carefully consider during the budgetary process and take necessary measures.

3 Promotion of Measures for Bases

In order to balance the operational requirements of defense facilities and local communities, Japan will steadily implement measures for communities around bases, and promote measures to secure smooth and effective stationing of the U.S. Forces in Japan.

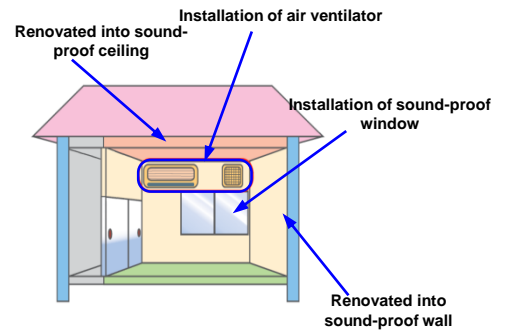
(1) Expenses Related to Programs for Communities Around Bases

¥117.6billion

Including: Residential sound proofing: ¥52.8billion
Improvement of living environment of neighboring communities: ¥64.9billion

- Expenses for the prevention of disturbances resulting from SDF activities or the establishment and operations of defense facilities
 - Implementation of sound proofing projects for residences around air bases, etc.
 - Implementation of projects to improve the living environment of neighboring communities (river and road restoration, sound-proofing systems in schools, sand control dams, improvement of public welfare facilities, etc.).
 - Implementation of projects covered by Specified Defense Facilities Environment Improvement Adjustment Grants, which are strongly requested from municipalities around bases (development of public facilities and so-called soft projects, such as medical cost subsidies, etc.).

[Example of Residential Sound Proofing]



Sand Control Dam

(2) Cost Sharing for the Stationing of U.S. Forces in Japan

¥201billion

including: Special Measures Agreement : ¥152.2billion
Facilities Improvement Program : ¥21.9billion
USFJ employee measures, etc.: ¥26.9billion

- Expenses of cost sharing based on the Special Measures Agreement and other measures to ensure the smooth and effective stationing of U.S. Forces in Japan
 - Sharing of the labor cost of USFJ employees and cost of utilities used at USFJ facilities.
 - Facilities Improvement Program (barracks, family housing, etc.)
 - Payment of the cost of social insurance premiums by the employer (healthcare insurance, welfare annuity insurance, etc.) for USFJ employees.



Barracks

(3) Rent for Facilities, Compensation Expenses, etc.

¥153.8billion

- Rental cost for the land of defense facilities and compensation for the loss of fishers' income due to training on water areas, etc.

VI Strengthening Security Cooperation

Japan will actively leverage its defense capability to work on defense cooperation and exchanges which include joint training and exercises, defense equipment and technology cooperation, capacity building assistance and interchanges among military branches to strategically promote multi-faceted and multi-layered security cooperation, based on the concept of “Free and Open Indo-Pacific”.

1 Contribution to Stabilization of the Indo-Pacific Region

Promotion of Capacity Building

- Promotion of Initiatives Emphasizing Capacity Building for the ASEAN as a Whole
 - Implement capacity building initiatives concerning humanitarian assistance/disaster relief(HA/DR) and maritime security, while also promoting sharing of the recognition of international laws.
- Promotion of Capacity Building in the Indo-Pacific Region
 - Implement programs to improve capabilities and training of military personnel in Southeast Asia in fields such as humanitarian assistance/disaster relief and PKO.
 - Implement capacity building programs related to field such as maritime security in South Asia and Pacific island nations.
 - Capacity building initiative in collaboration with the U.S and Australia.



Japan-ASEAN HA/DR invited Program



Field Training in the HA/DR field

Promotion of Defense Cooperation and Exchanges

- Initiatives under the ASEAN Defence Ministers’ Meeting-Plus (ADMM-Plus)
 - Proactively facilitate the enhancement of regional defense and security cooperation through the ADMM-Plus, which is the only official meeting of defense ministers of the whole Asia-Pacific region which includes Japan.
- Initiatives under the Vientiane Vision
 - Promote practical defense cooperation, which is the mixture of different measures such as defense equipment and technology cooperation, training and exercises, academic intellections and personnel developing in addition to capacity building that contributes to the enhancement of the capabilities of the whole ASEAN in addition to individual ASEAN countries based on the Vientiane Vision, which is the guidelines for Japan-ASEAN defense cooperation.
- Participation to Pacific Partnership
 - By visiting countries in the Indo-Pacific region to provide medical services and conduct cultural exchanges, the Pacific Partnership strengthens partnerships among participating countries and facilitates international disaster relief operations through cooperation with governments, militaries, international organizations and NGOs.



ADMM-Plus



Professional Airmanship Program



Pacific Partnership

- Indo-Pacific Deployment (IPD) 2020
Contribute to regional peace and stability by improving tactical skill of the MSDF and promoting connection with navies from other countries by conducting bilateral/multilateral training with navies from Indo-Pacific Region.
- Japan-U.S.-Australia Humanitarian Assistance/Disaster Relief Joint Exercise in Micronesia
Jointly working with the U.S. and Australia to improve the airdrop capabilities and to reinforce partnerships in order to conduct swift and effective assistance operations in flooded areas or sea areas in the event of a large-scale disaster including flood or a tsunami.
- Field Exercise with Indian Army in India (Dharma Guardian)
Dispatching units of GSDF to India to strengthen cooperative relationship between Japan and Indian Army as well as to improve tactical skills of GSDF on anti-terrorism.



Indo-Pacific Deployment (IPD)



Japan-U.S.-Australia HA/DR Joint Exercise



Dharma-Guradian

2 Appropriately Respond to Improve Global Security Challenges

Enhancement of Capability to Conduct Overseas Activities

- Participate in multilateral Training/ Exercises (Khaan Quest)
Dispatching GSDF units to multilateral exercise in Mongolia and improve necessary capability for PKO activities and interoperability among nations.
- Participate in multilateral Training/Exercises
The GSDF,MSDF and ASDF participate in multilateral training/exercises such as Cobra Gold to improve capability to Rescue of Japanese Nationals Overseas.



Khaan Quest



Cobra Gold

International Cooperation with UN and Partners in the Areas of Strength

- Dispatch of instructors to PKO Centers in African countries
The SDF dispatches personnel as instructors in order to educate peace keeper candidates, mainly in African countries, based on their request to help improve their own peacekeeping capabilities and to maintain stability in the region.



Lecture by Japanese instructor

- Capacity Building Assistance of Disaster Response Capacity Enhancement for the Djibouti Forces
Promote mutual understanding and confidence building with the Republic of Djibouti, mainly through enhancement of the relationship between the defense authorities, and contribute to the development and peace of Africa by implementing assistance to enhance disaster response capabilities for the Djibouti Forces, for which there has been a strong request from the Djibouti government.



Instruction Concerning the Operation of Engineering Equipment For the Djibouti forces

- UN project for Rapid Deployment of Enabling Capabilities
Contribute to Rapid Deployment of U.N. PKO Engineering units by dispatching SDF personnel and providing education to engineers from African and Asian countries with regard to the operation of heavy machinery.



UN project for Rapid Deployment of Enabling Capability

Ensuring Maritime Security

- Counter-piracy Operations off the Coast of Somalia and in the Gulf of Aden
 - Continue counter-piracy operations by destroyers and P3Cs off the Coast of Somalia and in the Gulf of Aden.
 - Carry out activities in Combined Task Force 151 (CTF151), a multinational counter-piracy task force.
 - Conduct air transportation using KC-767 and other aircraft as necessary.



A Destroyer Escorting Commercial Vessels

VII Streamlining Initiatives

- **Organization and Equipment Optimization Project-**
Based on the NDPG and MTDP which were approved Dec.2018, various initiatives to further streamline and rationalize defense force development have been promoted, resulting in reduced costs of approximately ¥265.3 billion.

1 Organization and Human Resource Optimization

Review human resource allocation in all MOD/SDF branches by abolishing existing units and promoting outsourcing, and reallocate staff to the new domains of space, cyberspace and electromagnetic spectrum (approx.550 personnel)

2 Review of Projects [Expected reduction:¥93.7billion]

Pursue cost reduction by suspending the use of equipment with lowered importance, reviewing/discontinuing projects of low cost-effectiveness, and streamlining maintenance methods.

(Example)

- Review of the quantity of engine modification for transport helicopters (CH-47J) [Expected reduction:¥2billion]

3 Standardization and Optimization of the Equipment Specifications

[Expected reduction:¥54.2billion]

Review equipment structure through modularization, standardization, use of civilian goods and review of equipment specifications, to shorten development and acquisition timelines and reduce the life cycle cost.

(Example)

- Multi-purpose surveillance radar: Develop a new radar to integrate conventional four-type radars into one [Expected reduction¥26.1billion]

4 Bulk and Joint Procurement [Expected reduction:¥34.6billion]

Pursue cost reduction by bulk purchase of equipment and joint procurement of equipment components commonly used across all SDF services.

(Examples)

- Joint procurement of patrol helicopters (SH-60K) and rescue helicopters (UH-60J) , total of 15 helicopters [Expected reduction¥12.7billion]
- Four aerial refueling/ transport aircraft (KC-46A) [Expected reduction ¥10.7billion]
- Three transport helicopters (CH-47JA) [Expected reduction ¥2.8billion]

5 Procurement of Equipment and Services Using Long-Term Contracts

[Expected reduction:¥27.9billion]

Pursue lower-cost and stable procurement of equipment and services by making use of long-term contracts of six fiscal years or longer

(Examples)

- Joint procurement of Vertical Launching System (VLS) (procured over eight years) [expected reduction ¥22.8billion]
- Package contract for repairing components of fighters (F-15) (seven-year contract) [Expected reduction ¥5.1billion]

6 Cost Scrutiny, etc. [Expected reduction:¥55billion]

Pursue reduction of procurement cost for major equipment through examination of unit costs and related expenses.

7 Securing of Revenue

Secure revenue such as income from SDF hospitals, compensation for the use of national property, and proceeds from sales of no-longer used goods.

VIII Others

1 Restructuring and Organizational Quota Changes

Implement unit reorganization programs in order to ensure effective deterrence and response to various situations.

- Establish "Space Operations Squadron(tentative name)" (repost)
- Establish "Cyber Protection Unit" in GSDF (tentative name)" (repost)
- Establish New Electronic Warfare Unit (repost)
- Request for increase in the number of SDF personnel
 - Improve the readiness to quickly respond to various situations by increasing the number of uniformed SDF personnel to develop and reinforce the defense postures in the southwestern region as well as in its surrounding sea and airspace, while also improving the response capability in new domains.
 - In order to further improve posture in new domains, transfer personnel from GSDF to JSO to make the best out of limited human resources.

category	GSDF	MSDF	ASDF	Joint Staff and others	Total
Improve sufficiency rate	+ 2 3 1	+ 2 0 6	+ 2 3 7	0	+ 6 7 4
Transfer	△ 6 3	△ 1 3	△ 1 3	+ 8 9	
Total	+ 1 6 8	+ 1 9 3	+ 2 2 4	+ 8 9	

Note: Joint Staff Office and others include Joint Staff Office, joint task units, Defense Intelligence Headquarters, Internal Bureau, and the Acquisition, Technology and Logistics Agency.

○ Organizational Quota Changes

- Based on the concept of "Free and Open Indo-Pacific", for the purpose of strategically promote multi-layered and multi-faceted security cooperation, establish another director-level position named "Councilor (Director) (tentative name)" in the Bureau of Defense Policy in order to execute expanding defense cooperation and exchanges in swift and accurate manner, and to execute security cooperation with other countries under the sustainable manner.
- Transfer supervising function over project management execution from Joint Systems Division to Project Planning Division of the Department of Project Management of ATLA in order to unify the presiding function related to project management (transferring the scope of authority). Also establish "Project Management Division (Guiding Weapons and Joint Systems) (tentative name)" and abolish Joint Systems Division in order to concentrate on management of guided weapons and joint systems designated as project management targeted items, which are on the rise. (repost)
- Establish "Equipment Security Management Division (tentative name)" in Department of Equipment Policy of ATLA security of information and technology in order to promote the policy to enhance information security within Japan's defense industry and to prevent leakage of advantageous technologies when on the occasion of overseas transfer of defense equipment.(repost)



Shangri-La Dialogue (June,2019)

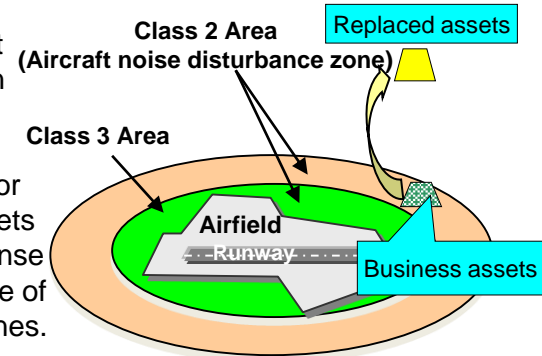
2 Initiatives to Ensure Appropriate Management of Administrative Documents

- Increase the number of personnel to improve the posture for securing appropriate management of documents
- Improve the posture to execute information disclosure to the public in appropriate and effective manner.

3 Tax Reform Request

- Extension of Special Measures such as Making a Replacement Purchase of Business Assets Related to Aircraft Noise Reduction (Relocation) Measures [Income Tax, Corporation Tax]

The JMOD requests three-year extension of special measure for taxation to transfer income in case of transferring business assets located within the aircraft noise disturbance zones around defense facilities to the government and making a replacement purchase of those assets to locate outside the aircraft noise disturbance zones.



*Replacement of business assets
(Conceptual Image)*

- Expansion of Tax Exemption Measures for the case of Provision of Tax-Exempt Light Oil based on ACSA [Light Oil Delivery Tax]

When the JMOD acquires light oil for the engines of their vessels, Light Oil Delivery Tax is exempted. On the other hand, in case of transferring the tax-exempt light oil to a third party, Light Oil Delivery Tax is imposed to the JMOD (deemed-taxation).

Currently, special measures for exemption of Light Oil Delivery Tax is applied to the JMOD when providing tax-exempt light oil based on ACSA to Australia, UK, France and Canada. The JMOD requests for the application of special measures for tax exemption in the same manner when providing tax-exempt light oil based on a new ACSA if it is concluded hereafter.



*Providing light oil to a
foreign military vessel at sea
(Conceptual Image)*

Major Equipment

1 Major Equipment

Procurement type		FY2019 Number Procured	FY2020			
			Number procured	Amount(¥100 million)		
Aircraft	GSDF	New Utility Helicopter(UH-X)	6	—	—	
		Transport Helicopter(CH-47JA)	—	3	237	
	MSDF	Fixed-wing patrol aircraft(P-1)	—	3	637 (400)	
		Life extension of fixed-wing patrol aircraft(P-3C)	(5)	(7)	35	
		Patrol Helicopter(SH-60K)	—	7	506 (79)	
		Life extension of patrol helicopter(SH-60K)	(3)	(3)	72	
		Life extension of patrol helicopter(SH-60J)	(2)	(2)	19	
		Life extension of imagery intelligence gathering aircraft(OP-3C)	—	(1)	4	
		Life extension of signal reconnaissance aircraft(EP-3)	—	—	2	
		ASDF	Fighter aircraft(F-35A)	6	3	310
	Fighter aircraft(F-35B)		—	6	846	
	Improvement in air-to-air combat capability of fighter aircraft (F-2)		Upgrade	(—)	(—)	—
			Parts	(7)	(—)	—
	Improvement of capability of fighter aircraft(F-2)		(—)	(2)	1 (26)	
	Improvement of capability of fighter aircraft(F-15)		(2)	—	390	
	Transport aircraft(C-2)		2	—	227	
	Airborne early-warning aircraft(E-2D)		9	—	380	
	Improvement of capability of airborne early warning and control systems(E-767)		Upgrade	(1)	(—)	0
			Parts	(—)	(—)	0
	Aerial refueling and transport aircraft(KC-46A)		—	4	1,121	
Rescue helicopter(UH-60J)	—		8	390 (16)		
Unmanned aerial vehicle(RQ-4B Global Hawk)	1	—	—			
Vessel	MSDF	Destroyer	2	2	940 (2)	
		Submarine	1	1	696 (1)	
		Mine sweeping vessel	—	1	128 (2)	
		Life extension of Asagiri-class destroyer	Work	(2)	(3)	1
			Parts	(1)	(1)	1
		Life extension of Abukuma-class destroyer	Work	(1)	(3)	1
			Parts	(—)	(—)	1
		Life extension of Kongo-class destroyer	Work	(—)	(1)	42
			Parts	(2)	(2)	42
		Life extension of Murasame-class destroyer	Work	(—)	(—)	39
			Parts	(1)	(2)	39
		Life extension of Oyashio-class submarine	Work	(4)	(3)	24
			Parts	(3)	(5)	24
		Life extension of Soryu-class submarine	Work	(—)	(—)	1
			Parts	(—)	(2)	1
		Life extension of Hibiki-class ocean surveillance ship	Work	(—)	(1)	7
Parts	(2)		(1)	7		
Life extension of Towada-class fast combat support ship	Work	(1)	(1)	2		
	Parts	(1)	(—)	2		
Modernization of destroyer CIWS (high-performance 20mm autocannon)	Work	(5)	(1)	0.6		
	Parts	(4)	(—)	0.6		

procurement type				FY2019 Number procured	FY2020	
					Number procured	Amount (¥100 million)
Vessel	MSDF	Modernization of command system of Asagiri-class destroyer	Work	(2)	(3)	13
			Parts	(-)	(-)	
		Modernization of command system of Takanami-class destroyer	Work	(-)	(-)	7
			Parts	(-)	(2)	
		Update of computers in command system of Murasame-class destroyer	Work	(2)	(-)	38
			Parts	(-)	(4)	
		Update of computers in command system of Akizuki-class destroyer	Work	(-)	(-)	37
			Parts	(1)	(2)	
		Update of computers in command system of Hyuga-class destroyer	Work	(1)	(-)	20
			Parts	(-)	(1)	
		Update of computers in command system of Izumo-class destroyer	Work	(1)	(-)	9
			Parts	(-)	(1)	
		Update of computers in command system of Oyashio-class submarine	Work	(1)	(-)	-
			Parts	(-)	(-)	
Improvement in capability of Osumi-class LST	Work	(-)	(-)	3		
	Parts	(-)	(1)			
Upgrade of submarine rescue ship Chihaya	Work	(-)	(1)	7		
	Parts	(1)	(-)			
Missile	GSDF	Type-03 middle-range surface-to-air missile (modified)		1 company	1 company	138 (25)
Firearm, vehicle, etc.	GSDF	New Rifle		-	3,283	10 (1)
		New Pistol		-	323	0.3
		Anti-personnel sniper rifle		6	8	0.3
		60mm mortar (B)		6	6	0.2
		120mm mortar RT		12	6	3
		Type-19 150mmself-propelled howitzer		7	7	47
		Type-10 tank		6	12	166
		Type-16 mobile combat vehicle		22	33	243
		Vehicle, communications equipment, facility equipment, etc.		¥34.4billion		-
BMD	GSDF	Land-based Aegis system (Aegis Ashore)		2	-	-
	MSDF	Improvement of capability of Aegis-equipped destroyers		2 vessels	2 vessels	17
	ASDF	Upgrade of Patriot system		12	8	106

Note 1: The procurement amount for FY2019 indicates the number that was envisioned in the original budget.

Note 2: Price represents amounts, excluding non-recurring costs, needed for the production of equipment. The non-recurring costs are indicated in parentheses in the amount column (external value).

Note 3: "Number procured" indicates the number newly contracted in FY2020. (The period for acquiring the item varies by equipment, but can take between two to five years.)

Note 4: The number in brackets represents the number related to upgrading the existing commissioned equipment.

Note 5: Regarding the procurement for the improvement in capability of air-to-air combat capability of fighter aircraft (F-2), improvement in capability of Airborne Warning and Control Systems (AWACS) (E-767), installation of aerial refueling capability to transport aircraft (C-130H), modernization of destroyer CIWS (high-performance 20mm autocannon), modernization of command system of destroyers and submarines, update of computers in command system of destroyers, modernization of command system of Oyashio-class submarine, and upgrade of submarine rescue ship Chihaya, the upper figure represents the procurement of modification and work services for the existing commissioned equipment, while the lower figure represents the number of parts, etc. necessary for the capability improvement. Regarding the volume of procurement for the service like extension of vessels, the upper figure represents the number of ships subject to service life extension work and the lower figure represents the number of parts procured for service life extension work.

Note 6: The number of procurements in FY2019 for the upgrade of the capability of Aegis-equipped destroyers represents the number of procurements for upgrading two Atago-class destroyers to be able to launch SM-3 Block IIA.

Note 7: Price of GSDF guided missiles indicates the amounts excluding procurement cost for ammunition.

Note 8: The cost for upgrading of patriot system in FY2020 include upgrade of 8 sets and a launch system.

2 Major Research and Development Programs

Item	Overview	FY2020 Amount (¥100 million)
Development of ASM-3 (modified)	In order to cope with modernization of vessels in other countries, conduct upgrade program such as extending shooting range of Air-to-Ship missile with high survivability thanks to the technology to fly at hypersonic speed.	161
Research on testing device for future amphibious technology	Make prototype of testing device for future amphibious vehicle and validate technology for coastal maneuver, faster navigation and safety of the crew.	22
Development of Stand-off electronic warfare aircraft	Development of the stand-off electronic warfare aircraft to support SDF air operation by conducting effective communication jamming.	207
Development of multi-purpose surveillance radar	Develop multi-purpose surveillance radar that can detect a threat with low observability, and reduce the production cost and LCC by standardizing conventional radars(low-altitude, coastal, anti-mortar, anti-cannon).	8
Research on technology to support electromagnetic spectrum by visualizing the usage of electromagnetic spectrum resources.	In order to appropriately execute electronic warfare, start the research on the electromagnetic spectrum management support technology for visualizing the usage of electromagnetic spectrum resources.	9
Experimental study for radio image identification technology with artificial intelligence(AI)	In order to continuously conduct ISR activity in an effective way, experiment the application of AI to the radar image target identification.	9
Simulator for comprehensive capability assessment of submarine	Conduct a research on modeling and simulation technology which enables quantitative validation of capability of submarine under different circumstances.	21
Research on infrared sensing element with high sensibility and broadband	utilize advanced semiconductor technology which Japan has been building up, establish dual-wavelength and single element infrared sensing element technology that is compact sized and light in weight, and has high sensibility and broadband.	30

3 Changes in the Number of SDF Personnel

● Changes in the number of SDF personnel

(Unit: Person)

	End of FY2019	FY2020	Change
GSDP	158,758	158,676	△82
Regular personnel	150,777	150,695	△82
Ready reserve personnel	7,981	7,981	0
MSDF	45,356	45,329	△27
ASDF	46,923	46,943	20
Joint units	1,350	1,418	68
Joint Staff Office	376	382	6
Defense Intelligence Headquarters	1,918	1,932	14
Internal Bureau	48	49	1
Acquisition, Technology and Logistics Agency	406	406	0
Total	247,154	247,154	0
	(255,135)	(255,135)	(△0)

Note 1: Figures for the end of each fiscal year are budget figures.

Note 2: The number in the parentheses includes the number of SDF ready reserve personnel.

● Number of SDF personnel (annual average)

(Unit: Person)

	GSDP	MSDF	ASDF
Annual average	140,347	42,704	43,851

● Number of SDF reserve personnel

(Unit: Person)

	GSDP	MSDF	ASDF	Total
SDF reserve personnel	46,000	1,100	800	47,900

● Number of candidates for reserve personnel

(Unit: Person)

	GSDP	MSDF	ASDF
SDF reserve candidates	4,600	21	4,621

● Changes in the number of defense officials

(unit: person)

	FY2015	FY2016	FY2017	FY2018	FY2019	FY2020
	The 13 th rationalization plan					The 14 th plan
Rationalization, etc.	△281	△269	△269	△276	△273	△269
Increase	164	169	182	209	204	402
Total	△117	△100	△87	△67	△69	133
Number at the end of FY	21,161	21,061	20,974	20,931	20,903	21,036

Note 1: The period of 14th rationalization plan is from JFY2020 to JFY2024,

Note 2: Other than that, rationalization of organizational quota by operational reform and request for increase of personnel would take place in JFY2020 budget request.

Note 3: Number at the end of FY includes number for promoting employment of persons with disabilities (FY2018: 24 officials, FY2019: 41 officials) and the increase does not include this number

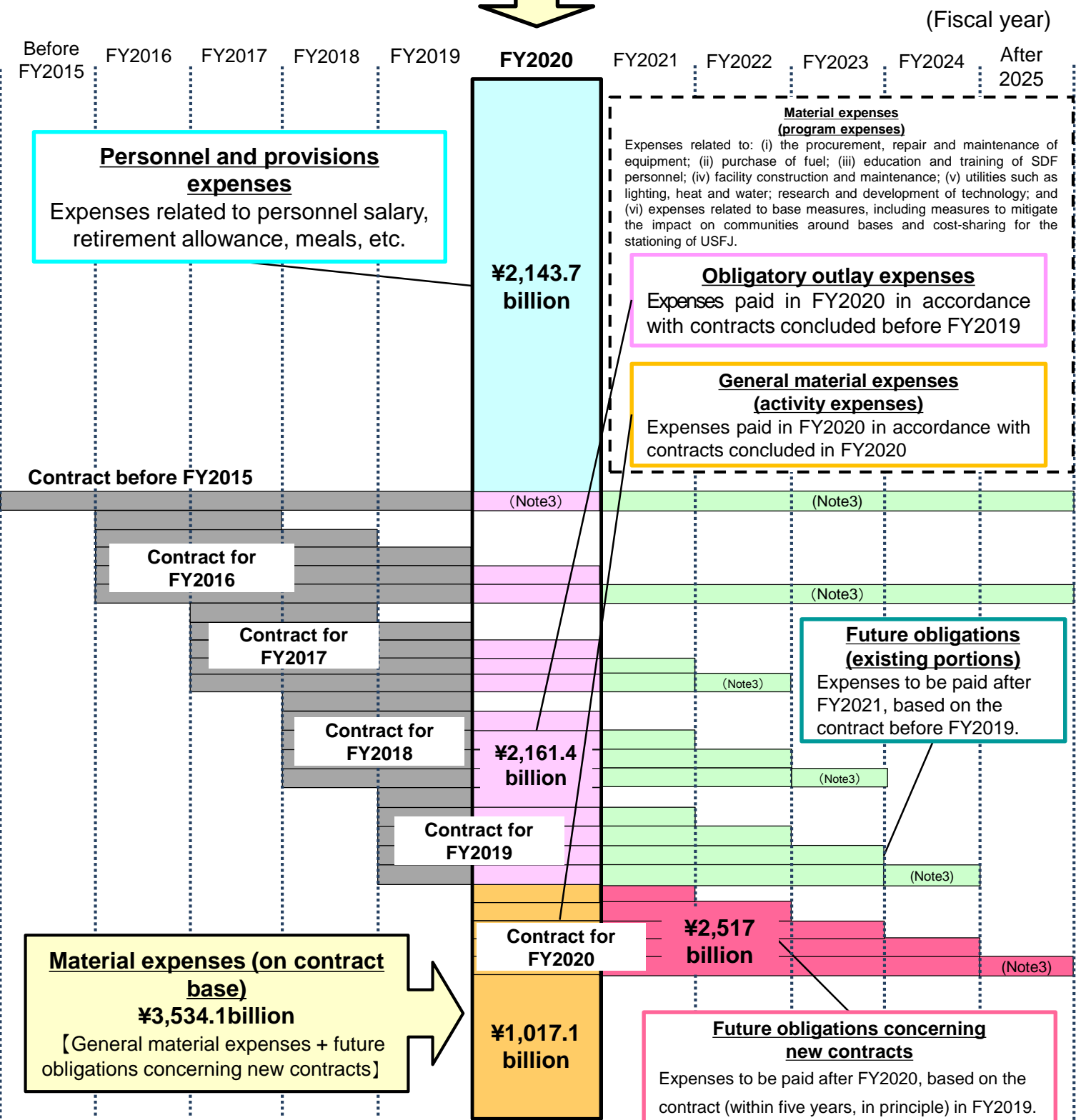
Note 4: Does not include the Minister, State Minister, two Parliamentary Vice-Ministers and Senior Advisor to the Minister

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Reference

Composition of Defense-Related Expenses

Expenditures: ¥5,322.2 billion
 [Personnel and provisions expenses + obligatory outlay expenses + general material expenses]



Note 1: Does not include SACO-related expenses, U.S. Forces realignment-related expenses (the portion allocated for mitigating the impact on local communities), expense for the introduction of new government aircraft and expenses related to the three-year emergency measures for disaster prevention/reduction and national resilience.

Note 2: This chart is a rough diagram. The length of a box does not necessarily correspond to the actual amount of expenses.

Note 3: There are expenses to be paid over 5 years in association with the introduction of long-term contracts for the procurement of equipment.

Details and Classification of Material Expenses (program expenses)

(Unit: ¥100 million)

FY2020	Expenditure base	Contract base
Material expenses (program expenses)	31,785	35,341
Obligatory outlay expenses	21,614	
General material expenses (Activity expenses)	10,171	10,171
Future obligation concerning new contracts		25,170

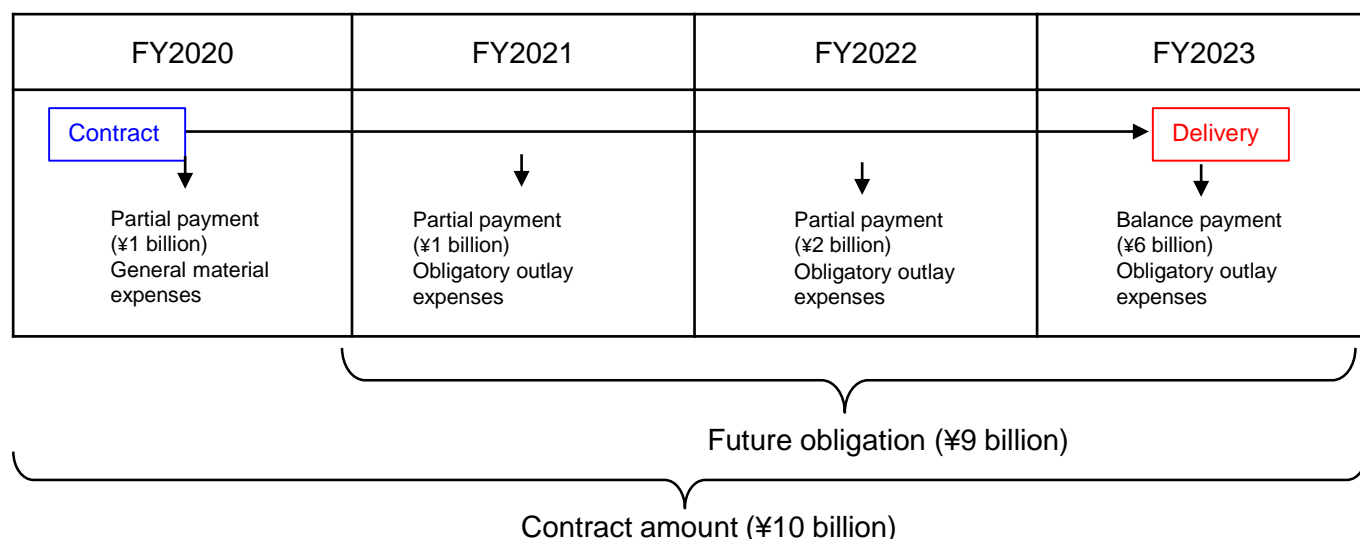
(Explanation)

- **Expenditure base:** Total amount to be paid in the current fiscal year for projects like procurement of equipment and facility development. Specifically, it is the sum of the expenses to be paid in FY2020 (general material expenses) based on the contracts concluded in FY2020 and the expenses to be paid in JFY2020 (obligatory outlay expenses) based on the contracts concluded before FY2019. This is a useful point of view in understanding the share of defense-related expenses in the overall expenditure budget of the government, which is in principle an annual budget.
- **Contract base:** Total amount of contracts concluded in the current fiscal year for projects like procurement of equipment and facility development. Specifically, the sum of the expenses to be paid in FY2020 and the expenses to be paid after FY2021 (future obligation pertaining to new contracts) based on the contracts concluded in FY2020. This is a useful point of view in understanding the total amount of expenses by program with respect to year-by-year projects for developing defense capabilities.

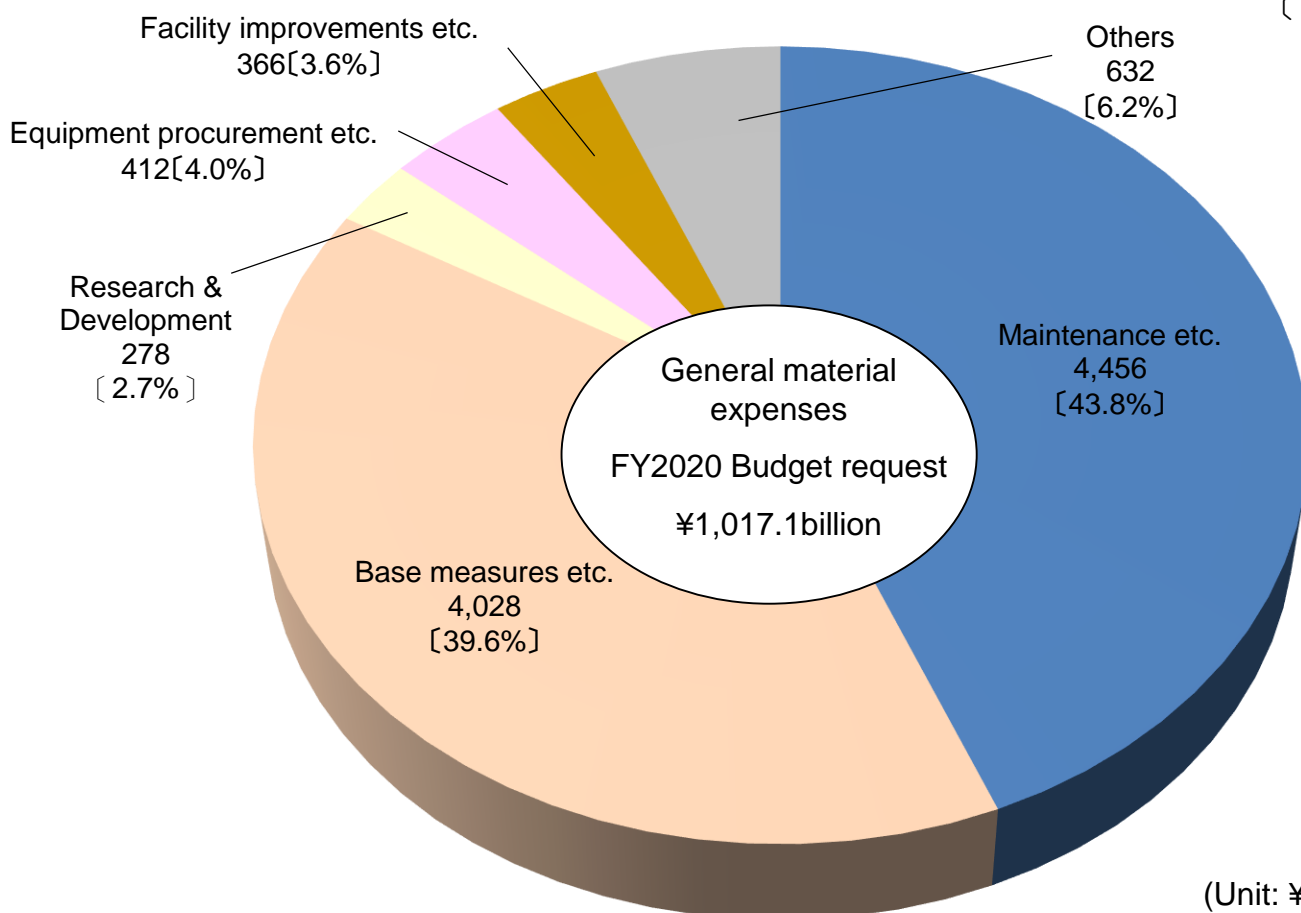
Concept for Future Obligation

The build-up of defense capabilities, such as procurement of major equipment including vessels and aircraft, as well as construction of hangars and accommodations for SDF personnel, may take several fiscal years. For this reason, the Ministry of Defense makes contracts for which the span is several fiscal years (up to five years, in principle), and, at the time of concluding a contract, makes an advance commitment to pay the expenses at a certain time in the future. Future obligation refers to the amount that will be paid in the fiscal year or years following the year the contract is concluded, in accordance with the contract of several fiscal years.

(e.g.) 10 billion worth of equipment is procured under a four-year contract



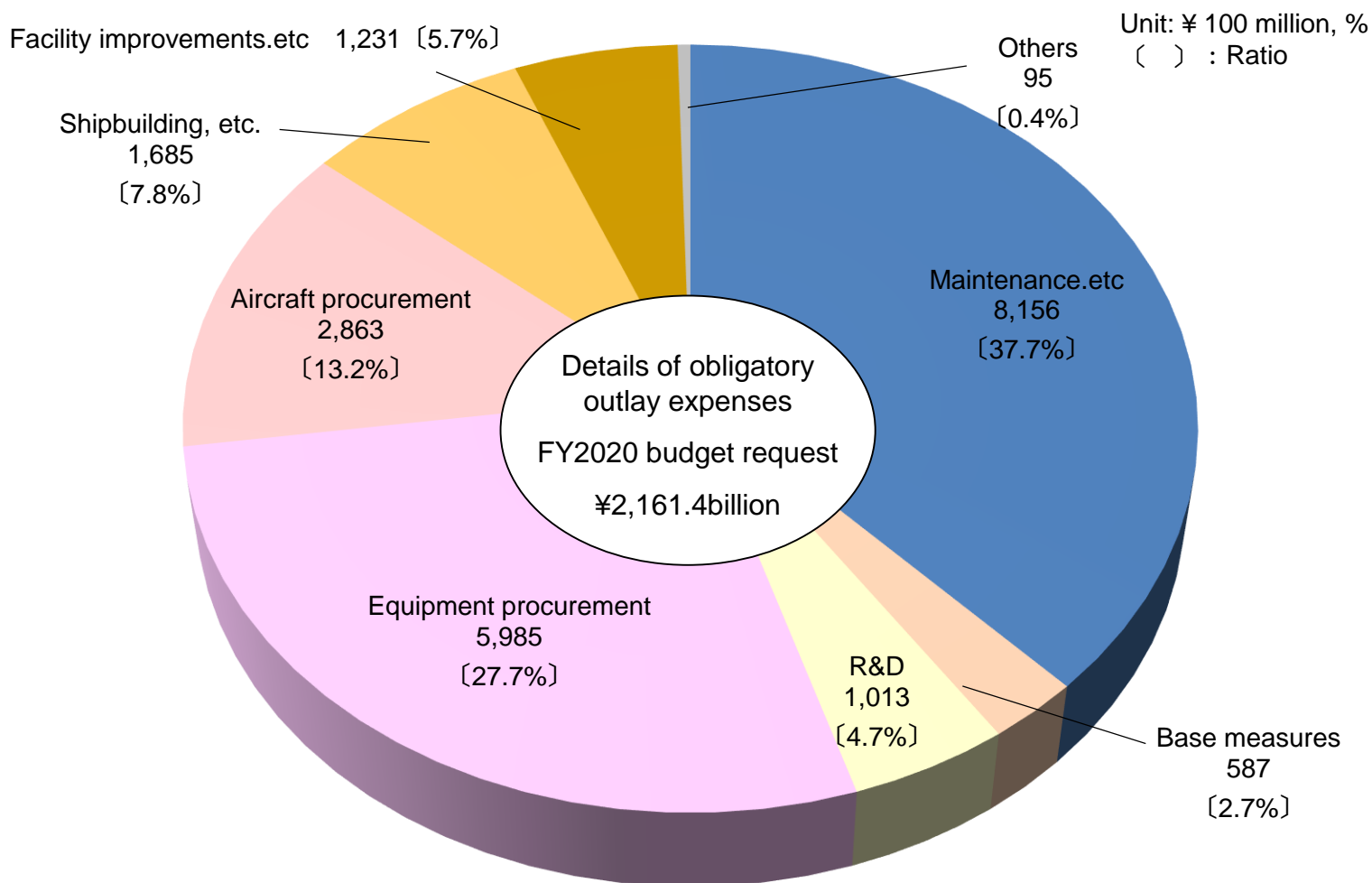
Details of General Material Expenses (activity expenses)

Unit : ¥100million, %
() : Ratio

Item	FY2019 Budget	FY2020 Budget request	YoY Change
Maintenance, etc.	4,156	4,456	299
• Petrol	942	1,026	84
• Repair	1,716	1,854	137
• Education & training	280	288	8
• Medical care, etc.	267	277	10
• Utilities	951	1,011	60
Base measures, etc.	3,987	4,028	41
• Countermeasures in areas near bases	778	788	10
• Host nation support	1,803	1,819	16
• Rent, compensation costs, etc.	1,406	1,420	15
Research & development	269	278	9
Equipment procurement, etc.	518	412	△106
Facility improvements, etc.	248	366	118
Other (computer rentals, etc.)	630	632	2
Total	9,808	10,171	363

Note: Does not include SACO-related expenses, U.S. Forces realignment-related expenses (the portion allocated for mitigating the impact on local communities), expense for the introduction of new government aircraft and expenses related to the three-year emergency measures for disaster mitigation/reduction and building national resilience.

Details of Obligatory Outlay Expenses



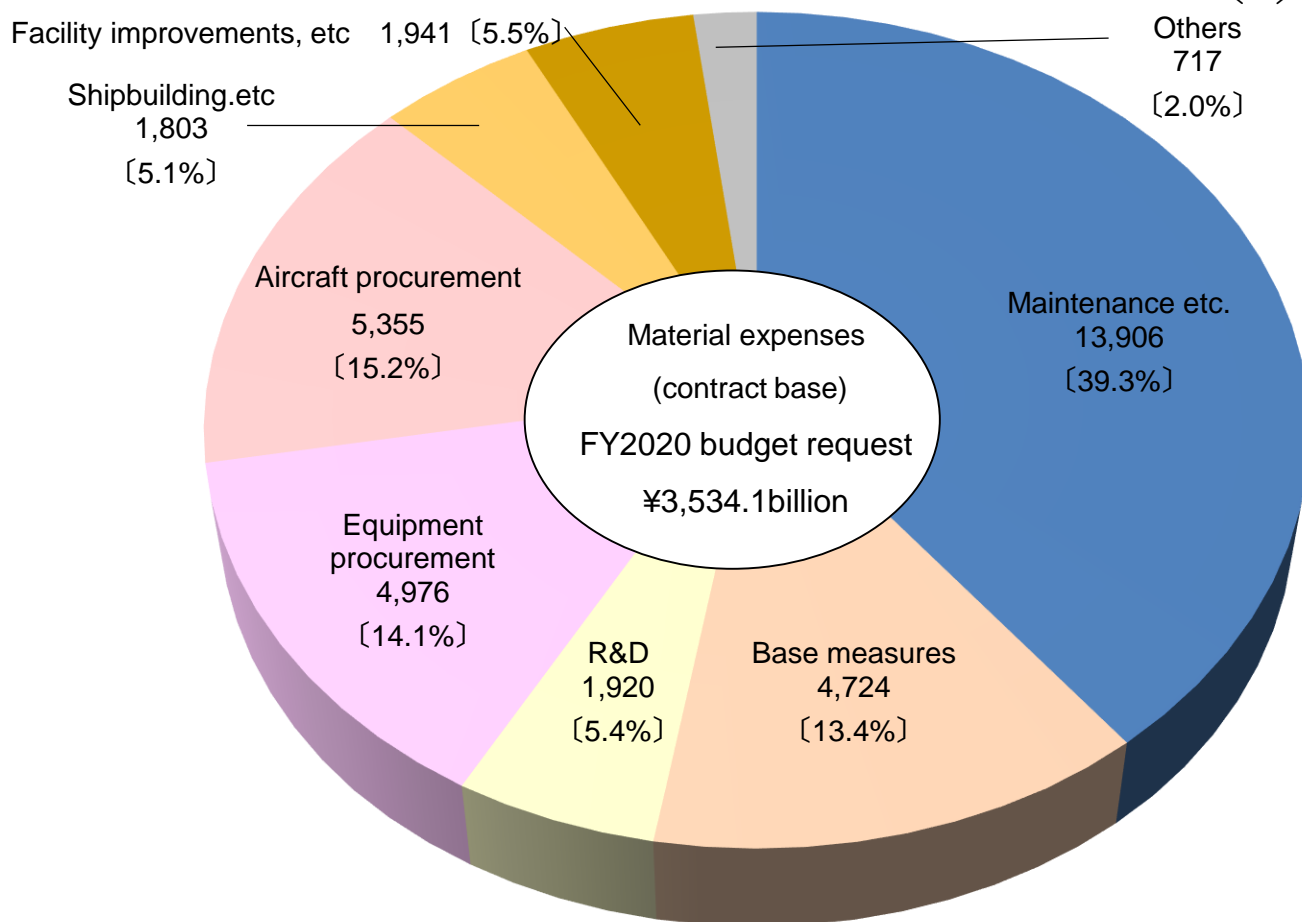
(Unit: ¥100 million)

Item	FY2019 Budget	FY2020 Budget Request	YoY Change
Maintenance, etc.	7, 8 7 1	8, 1 5 6	2 8 5
Repair	7, 5 2 8	7, 8 8 8	3 6 0
Education & training, etc.	3 4 3	2 6 9	△ 7 5
Base measures	4 8 3	5 8 7	1 0 4
Research & development	1, 0 1 4	1, 0 1 3	△ 1
Equipment procurement	4, 4 1 5	5, 9 8 5	1, 5 7 0
Aircraft procurement	1, 9 8 4	2, 8 6 3	8 7 8
Shipbuilding, etc.	1, 4 1 2	1, 6 8 5	2 7 3
Facility improvements, etc.	1, 1 5 9	1, 2 3 1	7 1
Other (computer rentals, etc.)	9 2	9 5	3
Total	1 8, 4 3 1	2 1, 6 1 4	3, 1 8 3

Note: Does not include SACO-related expenses, U.S. Forces realignment-related expenses (the portion allocated for mitigating the impact on local communities), expense for the introduction of new government aircraft and expenses related to the three-year emergency measures for disaster prevention/mitigation and building national resilience.

Details of Material Expenses (contract base)

Unit: ¥100million, %
() : Ratio



(Unit:¥100million)

Item	FY2019 Budget	FY2020 Budget request	YoY Change
Maintenance, etc.	13,534	13,906	372
Petrol	942	1,026	84
Repair	10,726	10,897	170
Education & training, etc.	1,866	1,983	117
Base measures	4,610	4,724	114
Research & development	1,490	1,920	430
Equipment procurement	7,017	4,976	△2,041
Aircraft procurement	3,432	5,355	1,923
Shipbuilding, etc.	1,724	1,803	80
Facility improvements, etc.	1,251	1,941	690
Other (computer rentals, etc.)	763	717	△47
Total	33,821	35,341	1,520

Note1 : Does not include SACO-related expenses, U.S. Forces realignment-related expenses (the portion allocated for mitigating the impact on local communities), expense for the introduction of new government aircraft and expenses related to the three-year emergency measures for disaster prevention/mitigation and building national resilience.

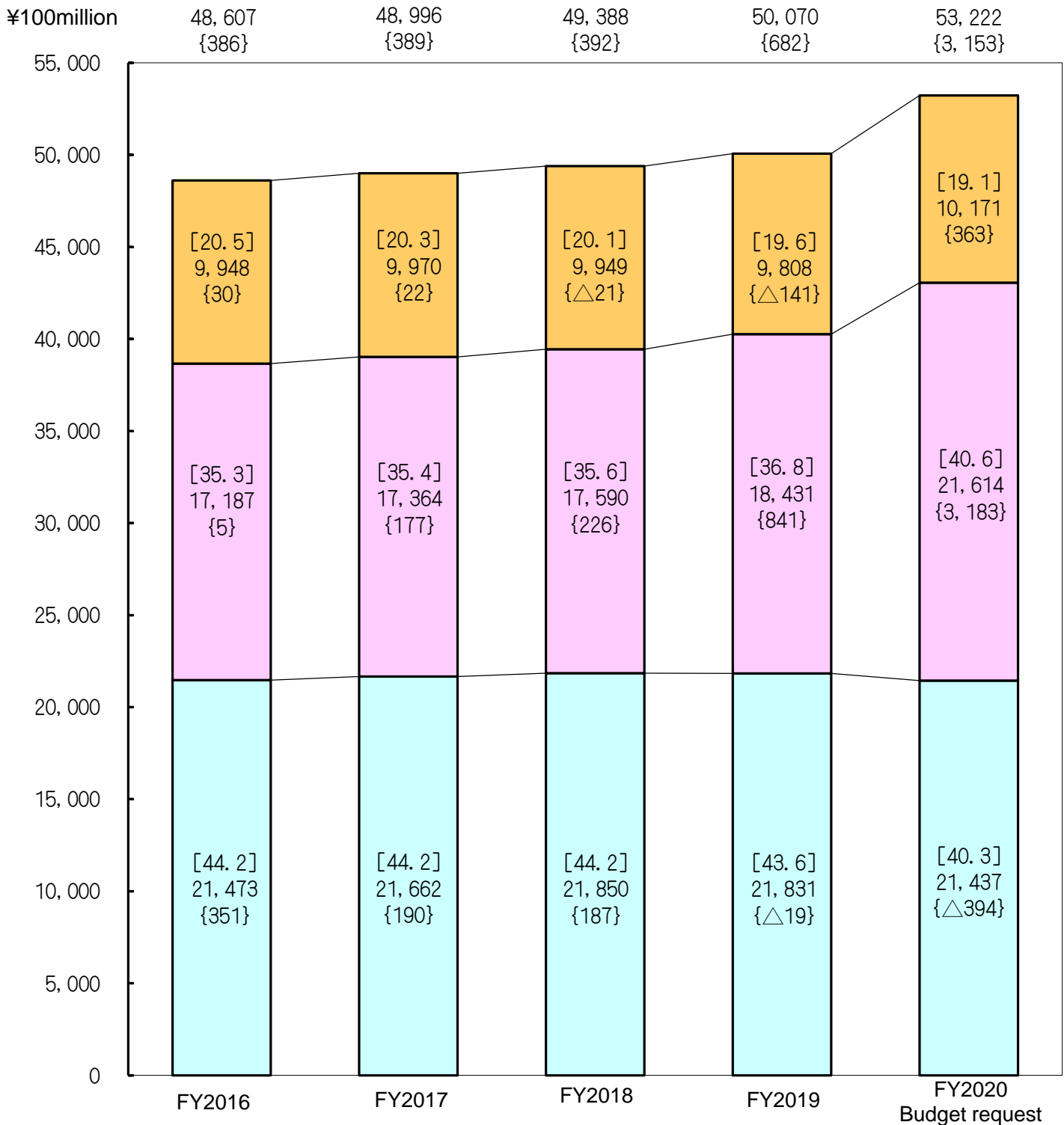
Note2 : The items in FY2019 budget is rebelled differently because of reviewing the structure of categories, and does not necessarily align with the pamphlet("Defense Programs and Budget of Japan overview of FY2019 budget").

Changes in the Three Categories

General material expenses

Obligatory outlay expenses

Personnel and provisions expenses

[] : Ratio of expenditures (%)
{ } : YoY change

Note: Does not include SACO-related expenses, U.S. Forces realignment-related expenses (the portion allocated for mitigating the impact on local communities), expense for the introduction of new government aircraft and expenses related to the three-year emergency measures for disaster prevention/mitigation and building national resilience.

Breakdown by Organization

(Unit: ¥100 million, %)

Classification	FY2019 Budget	FY2020 Budget request	YoY change	Growth rate
Defense-related expenses	50,070	53,222	3,153	6.3
Ministry of Defense	50,070	53,222	3,153	6.3
(Ministry of Defense Head Office)	48,333	51,396	3,063	6.3
GSDF	18,450	17,781	△669	△3.6
MSDF	12,247	12,987	740	6.0
ASDF	11,012	13,862	2,850	25.9
Subtotal	41,709	44,630	2,921	7.0
Internal Bureau	4,931	5,094	163	3.3
Joint Staff Office	521	554	33	6.4
Defense Intelligence Headquarters	703	687	△15	△2.2
National defense Academy	171	157	△15	△8.5
National Defense Medical College	267	244	△23	△8.5
National Institute for Defense Studies	25	24	△2	△6.7
Inspector General's Office of Legal Compliance	8	7	△1	△9.5
Subtotal	6,625	6,766	142	2.1
(Regional Defense Bureaus)	201	207	7	3.3
(Acquisition, Technology and Logistics Agency)	1,535	1,619	83	5.4

Note: Does not include SACO-related expenses, U.S. Forces realignment-related expenses (the portion allocated for mitigating the impact on local communities), expense for the introduction of new government aircraft and expenses related to the three-year emergency measures for disaster prevention/mitigation and building national resilience.

Promotion of Measures for Bases

(Unit: ¥100 million, %)

Classification	FY2019 Budget	FY2020 Budget Request	YoY Change	Growth Rate	Remarks
Promotion of measures for bases, etc.	< 4,610 > 4,470	< 4,724 > 4,615	< 114 > 145	< 2.5 > 3.2	
(1) Expenses for countermeasures in areas near bases	< 1,162 > 1,078	< 1,176 > 1,166	< 15 > 88	< 1.3 > 8.1	
Residential sound proofing	< 523 > 435	< 528 > 520	< 5 > 86	< 1.0 > 19.7	Subsidies for sound proofing work near air bases
Improvement of living environment of neighboring communities	< 639 > 643	< 649 > 646	< 10 > 2	< 1.5 > 0.3	Subsidies for living environment and facilities (river and road reconstruction, sound proofing systems in schools, improvements to sand control dam and public welfare facilities, etc.)
(2) Cost sharing for the stationing of USFJ	< 1,987 > 1,974	< 2,010 > 1,998	< 23 > 24	< 1.2 > 1.2	
Special Measures Agreement	1,497	1,522	25	1.7	
Labor cost	1,269	1,287	19	1.5	Labor cost of USFJ employees
Utilities	219	223	3	1.5	Cost of utilities used at USFJ facilities
Training relocation cost	9	12	4	42.8	Expenses related to U.S. field-carrier landing practice at Iwo To
Facilities Improvement Program	< 220 > 207	< 219 > 207	< △1 > 0	< △0.3 > 0.0	Improvement of USFJ facilities (barracks, family housing, etc.)
Measures for USFJ employees	270	269	△2	△0.6	Expense related to social insurance premiums by the employer
(3) Rent for facilities, compensation expenses, etc.	< 1,462 > 1,418	< 1,538 > 1,451	< 76 > 33	< 5.2 > 2.4	Rental cost of land used for defense facilities and compensation for loss of fisher's income, etc.

(Note: The above figures are on an expenditure base (general material expenses + obligatory outlay expenses), and figures in <> indicate a contract base amount.

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