Section

4

# **Strengthening Defense Industrial Base**

Strong industrial base is essential for ensuring the production and a high operation rate of high-performance equipment. For this purpose, the MOD established the Strategy on Defense Production and Technological Bases in June 2014 to maintain and strengthen the base. Based on the NDPG<sup>1</sup>, etc., the ministry will make efforts towards making the defense industrial base more resilient, so that it can effectively respond to changing security environment. For example, since 2019, the MOD has arranged meetings to exchange views with the industry.

## Current Situation of Japan's Defense Industrial Base

The term "defense industrial base" refers to the human, physical, and technological bases that are essential for the production, operation, sustainment, and maintenance of defense equipment required for the MOD/SDF's activities. In Japan, most of the base is covered by companies (the defense industry) that manufacture defense equipment and associated items. Therefore, a broad range of companies<sup>2</sup> that possess special and advanced skills and facilities are involved in the defense production and technological bases. Meanwhile, the degree of defense demand dependence (the ratio of defense-related sales that account for all company sales) is approximately 5% on average, indicating that defense business is not the primary business in many companies.<sup>3</sup> Furthermore, unit costs and maintenance/sustainment costs tend to increase due to low-volume, high mix production and the sophistication and complication of defense equipment. For this reason, Japan's defense industrial base faces issues, such as difficulties in maintaining and passing on skills and techniques, and withdrawal of some companies from defense business because work quantity is decreasing due to a decrease of procurement volume.

In addition, as the realignment of the Western defense industries and international joint development are making progress, Japan formulated the Three Principles on Transfer of Defense Equipment and Technology in April 2014. However, improvement of international competitiveness has



e: 1 "Maintenance and upgrade expenditures for equipment" refers to the budget for repair costs for equipment, consumable goods costs, and service costs with each service of the SDF (referring to the amount calculated by excluding repair costs for the extension of vessel life and modernization of aircraft from the repair costs of each SDF unit).
Since F2/2019 expenditure for the Three-Yeer Emergency Response Plan for Disaster Prevention Disaster Prevention and Building National Resilience are included.

Since FV2019, expenditure for the Three-Year Emergency Response Plan for Disaster Prevention, Disaster Mitigation, and Building National Resilience are included.
 The amounts represent contractual figures.

- 2 For example, it is said that approximately 1,100, 1,300 and 8,300 companies are involved in the manufacture of fighter aircraft, tanks and destroyers, respectively.
- 3 According to the survey of defense demand dependence conducted on 73 defense-related companies based on their sales performance in FY2018. Although relatively small in scale, some companies possess important technologies for supporting the defense industry with over 50% of the defense demand dependence, in which case the scale of defense demand has a significant impact on the management of these companies.

Chapter

2

<sup>1</sup> See Part II. Chapter 3. Section 2.

become a challenge for Japan's defense industry, because it has developed based on the production of defense equipment only for the SDF.

Q See Fig. IV-2-4-1 (Changes in Maintenance and Upgrade Expenditures for Equipment, etc.) Section 5-1 of this Chapter (Three Principles on Transfer of Defense Equipment and Technology)

# The Strategy on Defense Production and Technological Bases

## 1 Context of Formulation of the Strategy on Defense Production and Technological Bases, etc.

For the purpose of maintaining and strengthening Japan's defense production and technological bases, which is an important and essential element supporting Japan's defense capability, the "Strategy on Defense Production and Technological Bases" was formulated in June 2014. The Strategy responded to the National Security Strategy and the 2013 NDPG, replacing "Kokusankahoshin (guideline for domestic development/production)."<sup>4</sup>

Q See Reference 1 (National Security Strategy [Outline])

## 2 Overview of Defense Production and Technological Bases

## (1) Significance of Formulation of the Strategy on Defense Production and Technological Bases

"The Strategy on Defense Production and Technological Bases" has made the following three points clear: (1) the context of the formulation of the strategy on defense production and technological bases and where this strategy stands; (2) characteristics of defense production and technological bases; and (3) changes in the environment surrounding defense production and technological bases.

## (2) Goals and Significance of Maintaining and Strengthening Defense Production and Technological Bases

Through maintaining and strengthening defense production and technological bases, the MOD intends to (1) ensure sovereignty of security, (2) potentially contribute to increasing deterrence capability, and maintain and improve bargaining power, and (3) contribute to the sophistication of the domestic industry in Japan driven by cutting-edge technology.

#### (3) Basic Viewpoints for Promoting Measures

For the promotion of measures, the MOD takes into account the following basic viewpoints: (1) establishing long-term partnership between the private and public sectors; (2) strengthening international competitiveness; and (3) ensuring consistency with efficient and optimized acquisition of defense equipment.

#### (4) Defense Equipment Procurement Methods

With regard to defense equipment procurement, currently multiple methods, such as domestic development, international joint development and production, licensed domestic production, utilization of commercially produced goods, and imports, are adopted. These methods directly affect the defense production and technological bases. According to the characteristics of defense equipment, the MOD appropriately selects acquisition methods, including international joint development and production, which have become more agile and flexible due to the Three Principles on Transfer of Defense Equipment and Technology.

## (5) Measures for Maintaining and Strengthening Defense Production and Technological Bases

In order to maintain and strengthen defense production and technological bases, the MOD will promote the following measures with a focus on variation and efficiency, while considering Japan's severe fiscal condition: (1) improvement in the contract system; (2) initiatives in research and development; (3) promotion of defense equipment and technology cooperation; (4) initiatives for defense industrial organizations including the building of robust production and technological bases through understanding actual situations of the supply chain; (5) strengthening of the MOD's functions through the establishment of ATLA,<sup>5</sup> etc.; and (6) collaboration with other relevant ministries and government agencies.

## (6) Current Situation and Courses of Action for Each Defense Equipment Sector

With regard to the main defense equipment sectors (such as land equipment, supplies, etc., ships, aircraft, explosives, guided weapons, communications electronics and command control systems, unmanned equipment, space and cyber systems), the MOD will analyze the current situation of defense production and technological bases. At the same

5 The ATLA was established on October 1, 2015.

<sup>4</sup> The basic guideline for production and development of defense equipment, the development guideline for defense industry, and the stimulation guideline for R&D (Directive July 16, 1970)

time, based on the priority matters for developing the SDF's structure indicated in the 2013 NDPG, the MOD will present the future direction of the maintenance and strengthening of defense production and technological bases and the acquisition plan for each defense equipment sectors, and thereby, seek to increase predictability for companies.

## Initiatives toward Strengthening of Defense Industrial Base

#### 1 Past Initiatives

Based on the Strategy on Defense Production and Technological Bases, the MOD has implemented various measures contributing to the maintenance and strengthening of the defense industrial base, such as improving the contract system, including the enactment of the Long-term Contract Act, and the establishment of ATLA, which integrated the organizations involved in the defense equipment procurement.

In addition, the following new measures are also taken in ATLA: (1) formulation of Defense Technology Strategy, etc. for ensuring the technological superiority, and implementation of the "Innovative Science & Technology Initiative for Security" (see Section 2); (2) formulation of the Acquisition Strategic Plan for promoting project management, and improvement of contract systems (see Section 3); (3) grasping the supply chain in the defense industry and responses to risks in order to maintain and strengthen the defense industrial base (see Paragraph 2 below); and (4) participation of Japanese companies in the international F-35 program and defense equipment and technology cooperation involving joint research and development with other countries (see Section 5).

#### 2 Initiatives Based on the NDPG

In order to strengthen Japan's defense industrial base, which is essential to the production, operation, sustainment and maintenance of defense equipment, the MOD will work on the following initiatives based on the NDPG, etc., while considering the orientation of the defense production and technology strategy.

## (1) Reforming the Existing Contract System towards Creating a Competitive Environment among Companies

Japan's defense industry is in a less competitive environment as there are many defense equipment items that only one company can produce. To address this issue, the MOD will review the existing contract system towards creation of a competitive environment among companies by actively evaluating initiatives and results which contribute to strengthening the competitiveness of the defense industry and cost reduction, as well as giving appropriate incentives based on the evaluation result.

## (2) Strengthening Risk Management of Supply Chain for **Defense Equipment**

The procurement of defense equipment involves not only prime companies that directly contract with the MOD but also supplier companies in a broad range of fields and sizes, which contract with the prime companies. The chains of these companies (supply chains) are the basis of Japan's defense industry. However, these supply chains are confronted with risks, such as supply disruption due to withdrawing or bankruptcy of some manufacturing companies. In order to deal with the risks, the MOD is taking measures in order to maintain and strengthen the supply chains.

Past supply chain surveys revealed the presence of Small and Medium-sized Enterprises (SMEs) that have a high dependency rate on defense equipment. In the supply chain survey conducted by the end of FY2019<sup>6</sup>, key suppliers holding irreplaceable technologies were identified. Additionally, vulnerabilities became apparent, such as a concentration of orders to a certain supplier.

Based on the survey results, the MOD will create a database of the results of the supply chain survey, and build a regular monitoring system for early identification of risks, such as supply disruption. Furthermore, the MOD will accurately deal with the vulnerabilities in the supply chain and strengthen the chain through initiatives such as identification of SMEs that have excellent technologies/ products, advancement of the technology base in order to manage supply disruption and other risks, a study of measures to support enterprises regarding transfer of business and evaluation of the possibility of application of innovative technologies represented by 3D printer and AI to defense equipment.

# (3) Further Industrial Participation of Japan's Defense Industry in Sustainment and Maintenance of Imported Equipment, etc.

Industrial participation in the sustainment and maintenance business of imported equipment is productive for the strengthening of Japan's industrial base. For this purpose, it is important to pursue participation in the sustainment

By the end of FY2019, the MOD conducted a supply chain survey of 60 major defense equipment items.

Chapter

2

and maintenance of F-35A, Osprey, and other imported equipment and benefits for domestic companies through further promotion of joint R&D of high-capability equipment with the United States and other countries.<sup>7</sup>

# (4) Promoting Appropriate Overseas Transfer of Defense Equipment under the Three Principles on Transfer of Defense Equipment and Technology

The government as a whole will work on necessary improvement in implementation of related rules for promoting appropriate overseas transfer of defense equipment. At the same time, the MOD will strengthen intellectual property management, technology control and information security to prevent leakages of important technologies regarding defense equipment.

#### a. Initiatives for Necessary Operational Improvement

The MOD, in cooperation with relevant ministries and agencies, will work on necessary improvement in implementation of related rules based on the Three Principles on Transfer of Defense Equipment and Technology, which are the operational standards for the Foreign Exchange and Foreign Trade Act. As a result, the MOD will enhance predictability for the defense industry and will promote appropriate and smooth equipment transfer.

Specifically, the ministry thinks it necessary to improve the implementation of relevant systems and procedures, which include rationalization of the handling of basic marketing information necessary for early business talks at international trade shows, etc.<sup>8</sup> in order to ensure the smooth provision of such information.

## b. Preventing Leakage of Key Technologies (a) Intellectual Property Management

Through the application of more appropriate contract provisions regarding intellectual property, the MOD will accurately grasp intellectual property generated through R&D, etc. to promote the clarification of public or private belongings and prevention of leakages of key technologies to abroad. The ministry will also present options regarding the opening or closing of intellectual properties based on the characteristics of the technology and promotes appropriate management for each option.

#### (b) Technology Control

The MOD will strengthen technology control systems and functions for strengthening prevention measures of technology leakage such as ensuring prompt and proper assessment of technological sensitivity based on the importance and superiority of the technologies, which is needed in the examination of the propriety of overseas transfer of defense equipment and technology. Also, in order to prevent leakages of sensitive technologies, the MOD, in cooperation with relevant ministries and agencies, promotes studies on reverse engineering countermeasure technologies, such as black box constitution.

#### (c) Strengthening Information Security

For Japan's defense industry to participate in international businesses, it is necessary to respond to increasing threats of cyber attacks. With the aim of strengthening information security measures, the MOD will review the information security standard applicable to contractors handling the MOD's information to be protected.<sup>9</sup>

In order to further encourage companies to consider entry into defense procurement business and facilitate their business with defense-related companies in Japan and abroad, it is important to improve the predictability of the necessary security measures for the companies. For this purpose, the MOD will develop an information security guidebook that comprehensively defines security measures that will normally be required for concluding a contract, which involves the handling of information to be secured, with the MOD in advance.

#### (5) Other Initiatives to Achieve Efficiency and Strength

Other than the above-mentioned initiatives, the MOD/SDF will undertake measures such as making the equipment manufacturing process efficient and thoroughly reducing cost and will strive to make Japan's defense industry base efficient and resilient while foreseeing possible realignment and consolidation of businesses that may occur as a result of these measures.

#### **3** Cooperation/Collaboration with the Industry

The maintenance and strengthening of Japan's technological and industrial base are essential for production, operation and maintenance of defense equipment. For the effort of "Reinforcing Technology Base" and "Strengthening Defense Industrial Base" that are provided in NDPG and MTDP, cooperation between the MOD and the industry is indispensable.

In this context, in October 2019, Defense Minister

9 Information subject to "Sensitive" or "For Official Use Only" in the MOD and information created using such information.

Chapter

2

<sup>7</sup> SM-3 block IIA, jointly developed by Japan and the United States, is subject to FMS procurement, but Japanese companies have received contracts for manufacturing about half of the components, including those procured by the United States.

<sup>8</sup> In October 2018, the Q&A section of the Ministry of Economy, Trade and Industry website made it clear that information on the performance of goods and other matters that is used in early stage business talks and that does not include "specific information necessary for design, manufacture or use," such as design information and production technique, is not subject to regulation under the Foreign Exchange Act. At the request of companies, the MOD is currently confirming the range of information included in data created by a company that may be disclosed to the public and handled as publicly known technology available to an unspecified large number of people.

VOICE

# Defense Industry Supporting Build-Up of Defense Capability

#### SUMIYOSHI Kurata, Director,

## Naval Ship Construction Department, Yokohama Shipyard, Japan Marine United Corporation (JMU)

JMU is a ship builder established by the merger of IHI Marine United and Universal Shipbuilding Corporation in January 2013. We have seven shipyards and works for production in total across the country. Yokohama Shipyard Tsurumi and Isogo Works are in charge of building new ships for Ministry of Defense (MOD). Maizuru Shipyard, Kure Shipyard and Innoshima Works, in addition to the above two works, offer repair service for MOD.

At Tsurumi Works, "Etajima," a large Mine Sweeper Ocean (MSO) made of Fiber Reinforced Plastic (FRP) planned in FY2017, is under construction toward completion at the end of FY2020. In recent years, Isogo Works constructed Large Helicopter Destroyers (DDH) including "Hyuga," "Ise,"



Launching of MSO "Etajima"

Kono and executives of the Japan Business Federation exchanged opinions on a wide range of themes, including international situations and defense policy in addition to defense equipment policy, and discussed the strengthening of public-private cooperation in general. In November of the same year, the commissioner of the ATLA had an opinion exchange with executives of the Japan Business Federation. From December onward, discussion on challenges and "Izumo" and "Kaga." At the end of FY2019, the Works delivered "Maya," Guided Missile Destroyer (DDG) equipped with the latest Aegis system, planned in FY2015.

Although "Maya" was the first Aegis-equipped destroyer to be constructed in about 20 years, we made full-scale efforts, leveraging our accumulated experience as well as introducing cutting-edge technologies. Now we are building DDG "Haguro," which was planned in FY2016 and is the second Maya-class ship.

Our corporation has built many ships including destroyers, Auxiliary Ice Breaker, Landing Ship Tank, Fast, Combat Support Ship and Mine Sweeper Ocean. We will continue to be a part of naval vessel building/ repairing base of Japan.



Destroyer "Maya" during an official sea trial

improvement measures regarding the defense industry and defense equipment policy has still continued at the working level.

The MOD will continue the initiatives for strengthening public-private cooperation, including opinion exchange with the industry at each of the minister level, the commissioner level and working level.

Chapte