Section 2 Defense Production, Technological Bases, and Acquisition of Equipment

In order that our defense capabilities can demonstrate their function sufficiently, not only are the organizational and "human resource bases" described in the previous section important; so too is constant review of the frameworks behind "material bases" (including the various types of equipment and the defense production and technological bases that support them) and the acquisition of equipment and materials that are intimately related to the efficient upgrading of defense capability.

This section will describe efforts to enhance and strengthen "material bases" of this kind.

1 Defense Production and Technological Bases

1 The Importance of Defense Production and Technological Bases

The term defense production and technological bases are defined as human, physical and technological bases for development, manufacturing (purchase), operation, maintenance, remodeling, and refurbishment of defense equipment required for Ministry of Defense and SDF activities. For example, by maintaining defense production and technological bases domestically, not only does it become possible to acquire an operational concept suitable to the special characteristics of Japanese territory and the security environment surrounding Japan, as well as equipment and materials which satisfy the performance requirements, but Japan can then secure independence in our security and demonstrate deterrent effects in the form of potential defense capability, through the effective and efficient maintenance and upgrading of equipment and materials in a short time. These bases have significance in areas such as ensuring bargaining power against other countries when procuring equipment and materials from abroad and when participating in international joint development and production, as well as facilitating the acquisition of equipment and related technologies at terms beneficial to Japan.

Defense production and technological bases are essential to the upgrading of the defense capability of the Ministry of Defense and SDF, as well as their activities, but with equipment becoming increasingly high-performance and more complex, it is anticipated that the degree of reliance on defense production and technological bases in many areas will grow as the demand for readiness, mobility, flexibility, durability and versatility to support a dynamic defense force increases. Consequently, the question of how to maintain, foster and upgrade our defense production and technological bases is an extremely important policy issue.

See Reference 75

2 Initiatives to Maintain , Foster Upgrade Defense Production and Technological Bases

In light of the current status of defense production and technological bases and its importance, which will be described below, the Ministry of Defense compiled a report in September 2010, entitled "Future Direction of Acquisition Reform." In this report, the Ministry indicated its belief that it is necessary to identify critical defense production and technological bases that should retained at home from the perspective of their importance to security and achieving greater competitiveness in domestic industry, and to channel energy into maintaining and developing these fields ("selection and concentration").

Furthermore, both the 2010 NDPG and the 2011 Mid-Term Defense Program state that the Strategy on Defense Production and technological bases (hereinafter referred to as "the Strategy") will be formulated in order to develop and maintain defense forces in a stable manner from the medium- to long-term perspective.

Minister of Defense Morimoto receiving Final Report of the Study group on Defense Production and Technological Bases (June 2012)

Against this policy backdrop, the Ministry of Defense hosted a meeting involving the Study group on Defense Production and Technological Bases[1] in November 2010, membership of which includes academics, representatives of defense business-related organizations, and deliberations concerning approaches to the Strategy.

(1) Deliberations Concerning the Strategy on Defense Production and Technological Bases

In June 2012, the Study group on Defense Production and technological bases compiled a report entitled "Final Report of the Study group on Defense Production and Technological Bases", outlining the outcomes of its deliberations to date, and submitted its recommendations to the Ministry of Defense, to serve as a point of reference when formulating the Strategy. The outline of the report is as follows:

a. Current status of and issues concerning defense production and technological bases in Japan

In Japan, there is no national arsenal (state-owned munitions factory), so the defense industry handles almost all of the functions and roles of the defense production and technological bases. In order to avert the risk that their management will be governed largely by fluctuations in defense-related expenditures, most defense-related companies are not so-called "specialized defense manufacturers", but have rather maintained their defense-related business through flexible management resources and civilian sector business within the same company. However, amid a worldwide recession triggered by the Lehman Shock in the autumn of 2008 and the ongoing appreciation of the yen, the civilian business that supports defense business finds itself in a severe predicament, so it is becoming difficult to maintain defense business in a form reliant upon civilian

Column VOICE Commentary Q&A

Voice from the Defense Industry

The Shipbuilders' Association of Japan, Naval Ships & Patrol Ships Sub-Committee

Shipbuilders with cooperation of government-furnished equipment makers and subcontractors support operations of Maritime Self-Defense Force vessels through construction of vessels, checking-out, maintenance and repair of vessels in commission.

They operate MSDF vessel business leveraging technologies unique to navy vessels and knowhow accumulated over the years based on their equipment, technology and human resources for construction/repair of merchant vessels.

Most of the newly constructed merchant vessels are for overseas client, and our business environment is extremely severe. In addition to the strong yen, serious oversupply is going on due to the global decline in construction demand combined with the expanded construction capacity of Korea and China.

Keihin Shipyard of Universal Shipbuilding Corporation, a member of the Shipbuilders' Association of Japan

If merchant vessel business that accounts for over 70% of all vessel business sales does not turn up, it will have a serious impact on the navy vessel business that is built on the foundation of the former. Even repair of navy vessels would become difficult in the worst case.

While ensuring continual work load is essential to maintain the base for navy vessel construction and repair, recently the need to strengthen design/development capability and optimize production systems is also strongly recognized as means to reinforce international competitiveness of the entire vessel business, which prompts shipbuilders' move toward enterprise partnership and integration of business.

1 For an overview of Study Group on Defense Production and Technological Bases Study Group, see <http://www.mod.go.jp/j/approach/agenda/meeting/seisan/gaiyo.html>

demand, as has hitherto been the case.

Moreover, with defense-related expenditures demonstrating a downward trend due to the harsh fiscal situation, inversion began to take place in FY2005 in regard to expenditures relating to the purchase of major equipment and the expenditures required to maintain this equipment, so the feasibility of the defense industry based on manufacturing is declining. Furthermore, the current status of the Japanese defense industry is such that market mechanism does not always necessarily function adequately in that environment, so one cannot expect an efficient, effective bases to be fostered if this is left up to market mechanism.

In addition to this situation, in the field of advanced equipment, which is becoming increasingly high-performance and more complex, in light of the fact that there is a major trend towards international joint development and production, in order to curb development and production costs, while using advanced technology from allies and friends, one has to say that from the perspective of both finances and technical strength, it will be difficult to keep the whole of Japan's defense production and technology infrastructure within Japan in the future.

Consequently, while taking international joint development and production into consideration, ① ascertaining which areas of the defense production and technological bases should be retained fully within Japan; and ② taking measures to maintain and cultivate them, as well as increasing their sophistication, are becoming pressing issues in relation to the stable maintenance and upgrading of Japan's defense capability in the medium- to long-term and promoting the maintenance of, fostering and upgrading the defense production and technological bases required to support the activities of the Ministry of Defense and SDF.

However, when thinking about the environment surrounding defense production and technological bases in Japan, we must recognize the following as “given conditions”:

○ Finance: Under the increasingly severe fiscal conditions, it is difficult to expect a large increase in defense spending.

○ Macro economy: As long as the predicament of the manufacturing industry continues, it will be difficult to run defense business relying on civil business. Furthermore, it is imperative for the entire company as well as defense business to become more competitive internationally amid the ongoing globalization.

○ Market: It is apparent that, being restricted by regulations, the defense industry is not in an environment to make decisions based on economic rationality; there is a limit to their business efforts. Moreover, it is difficult for Japan to adopt a policy to promote arms export that has been adopted by other developed countries.

○ Technology: It will become more difficult for a single country to develop and manufacture defense equipment with growing performance and complexity. Licensed productions will be more difficult to be permitted or the ratio of permission for licensed production will decline.

b. The Direction of the Strategy on Defense Production and Technological Bases

In light of the above, it is appropriate for Japan to seek to maintain, foster and upgrade defense production and technological bases, through a combination of "measures for qualitative improvement of the industry", "measures for an industrial structure to optimize allocation of resources", and "measures to support the industry through the expansion of demand both within Japan and overseas", within a scope that contributes to the security of Japan; accordingly, the Strategy on Defense Production and Technological Bases should encompass initiative relating to these measures. In doing so, the core initiatives will be as follows:

① Defense Production and Technological Bases to be kept in the country

In order to realize the stable and medium-to long term defense capabilities, it is necessary to select the defense production and technological bases to be retained in Japan (hereinafter referred to as "key fields"), in accordance with the following approach:

○ Selection and concentration of the nation’s resources

Ensure the maintenance of stable and medium-to-long term defense capabilities through “selection and concentration” by selecting “Key Areas” and focusing on maintaining, fostering and upgrading them based on “the Strategy.”

○ Selection and concentration of management resources of defense-related companies

“The Strategy” should be able to serve as a guideline for the defense industry to improve its managerial predictability, control its revenue risk and work on equipment investment, research and development and human resource development from a long-term perspective.

○ Defense equipment cooperation with our security partners

Create an environment for Japan to efficiently participate in international joint development/production

The purely domestically-produced Type 10 tank, which uses unique Japanese technologies

conducive to our security by indicating the area of possible international joint development/ production.

○ Grouping in "Key Areas"

Based on the above, it is appropriate to divide "Key Areas" into the area of "all-Japanese" equipment that should be (or need to be) manufactured within the borders using our own technologies and the possible area of "international joint development/production" in the sense that there is an option to conduct research, development and manufacturing in collaboration with other countries or "made-in Japan under license from other countries."

② Organization of the defense industry

It is important to consider what kind of organization would be effective in each of the fields in Japan's defense industry. Industrial alliances and restructuring, such as business collaboration and the integration of sectors, can be effective methods.

③ Defense technology

When focusing on elemental technologies, such as those relating to defense equipment, as well as conducting technological research from a medium- to long-term perspective, it is important to gain an understanding of trends in technology which is becoming increasingly borderless and oriented towards dual use, as well as gaining a clear picture of the relationship between the maintenance, cultivation and increased sophistication of defense production and technological bases, and dual-use and general-purpose technology.

④ International joint development and production

In addition to indicating the potential field to become the focus of international joint development and production in the key area, it would be desirable for the Ministry of Defense to set forth the approach that it will take when considering participation in international joint development and production, such as the technological advantages and the cost-related advantages.

⑤ Measures that the Government should take

○ Measures that the Ministry of Defense should implement

There are a number of improvements that could be made in the structure of the competitive environment and procurement (contract) techniques, in order to maximize the effect and outcomes of the resources invested.

In particular, efforts should be made to pursue methods that will increase the efficiency of acquiring equipment, such as improved systems for contracts and procurement that will result in a win-win relationship for Japan's national security policy and defense industry.

○ Necessary regulations and constraints

Due to the nature of the defense industry, there are also constraints and necessary regulations that must be considered. These "given conditions" on which Japan's defense production and technological bases should be verified and clearly set forth in the Strategy.

However, considering the current state of our Defense Production and Technological Base, in addition to clarification of "Key Areas" and study of how the industrial organization should be, "the Strategy" may need to come up with new approaches to regulations and limitations depending on the situation, including encouraging the industry's ingenuity and efficiency improvement efforts concerning limitations and regulations, and showing the government's active commitment to international joint development/production.

The Ministry of Defense takes delivery of the last F-2

○ Collaboration among relevant ministries and agencies and industry- academia- government collaboration

As a means of ensuring the optimal resource allocation among stakeholders, with a view to achieving increased productivity as a consequence, it is important to promote collaboration among ministries and agencies and between industry, academia and government.

(2) Initiatives Aimed at Maintaining and fostering Production and Technological Bases for Aircraft

a. Fighter aircraft production and technological bases

With regard to fighter aircraft, which are one of the main pieces of equipment of the SDF, the last F-2 fighter was delivered to the Ministry of Defense on September 27, 2011; this marked the end of the production of fighter aircraft in Japan for the foreseeable future. Due to the hitherto continuous production of fighter aircraft in Japan, as well as the R&D, improvement, and repair necessary to use them, domestic production and technological bases have been maintained and improved, and three elements which are absolutely vital to the use of fighter aircraft, "maintaining a high availability," "capability increase appropriate to use by Japan," and "maintaining safety", have been secured.

There is a risk that the recent suspension of the production of fighter aircraft will bring about a decline in operational support for areas such as improvement and repair of fighter aircraft, and give rise to difficulty in maintaining and improving the level of technology required for R&D relating to future fighters.

The US-2 amphibious search and rescue aircraft, regarding which a request was made for the disclosure of technology data, with a view to its conversion to civilian use

The C-2 transport aircraft, regarding which a request was made for the disclosure of technology data, with a view to its conversion to civilian use

With regard to what impact this blank period will have, the interim report[2] published in December 2009 by "The Meeting on the Nature of Production Technological Bases for Fighter Aircraft" indicated three challenges that should be addressed in regard to the future of the production and technological bases for fighter aircraft.

- ○ Close examination of the bases which must be maintained domestically in the future for the use of fighter aircraft, from the perspective of maintaining domestically the vital bases behind the three elements, "maintaining a high availability," "capability increase appropriate to use by Japan," and "maintaining safety."
- ○ Formulation of a vision for fighter aircraft-related R&D in the future, from a medium- to long-term viewpoint.
- ○ Consideration and promotion of measures including the conversion for civil use of technology cultivated during the development of SDF aircraft, given that some of the production and technological bases for fighter aircraft are maintained by the development and production of other aircraft.

b. The concept of future fighter aircraft

The "R&D Vision concerning Future Fighter Aircraft"[3] which dealt with the concept of future fighter aircraft and necessary matters for review was prepared and announced in August 2010 in order to allow development at the required time of review of acquisition of the F-2 fighter's successor to be considered as a possible option. Moreover, because it is important to share an awareness of the direction that should be taken with the defense aircraft industry, the Joint Public-Private Sector Research Group on Future Fighter Aircraft was established, thereby beginning regular sessions of opinion exchange with Japan's defense aircraft industry.

c. Adapting aircraft for civilian use

A study in collaboration and cooperation with concerned ministries is proceeding not only concerning maintaining and strengthening defense production and technological bases but also concerning civilian use of aircraft developed by the Ministry of Defense, which can expect a reduction in the procurement prices of SDF aircraft and other equipment. A policy was compiled regarding such issues as how corporations that use such aircraft are to pay usage fees to the national government and the disclosure and use of technology-related materials possessed by the Ministry of Defense, with the aim of establishing a concrete system design for converting aircraft to civilian use in August 2010[4] The Ministry of Defense has since taken steps toward encouraging civilian use such as setting up in the Ministry in 2011 a system for accepting applications from private enterprises interested in civilian use[5].

2 For the Interim Summary of the Panel on Approaches to the Production Technological Base for Fighter Aircraft, see <http://www.mod.go.jp/j/approach/agenda/meeting/sentouki/houkoku/houkoku.html >

3 For an outline of the R&D Vision concerning Future Fighter Aircraft, see <http://www.mod.go.jp/j/press/news/2010/08/25a.html>

4 For details regarding the Conference on the Civilian Use of Ministry of Defense Developed Aircraft, see <http://www.mod.go.jp/j/approach/agenda/meeting/kaihatsukokuki/houkoku/houkoku.html>

5 The first application submitted by a company under this system was approved in August 2011. See <http://www.mod.go.jp/j/approach/agenda/meeting/kaihatsukokuki/sonota/kaiji_201108.html>

2 Acquisition of Equipment and Materials

1 The Current Status of the Acquisition of Equipment and Materials

Appropriate and efficient acquisition of defense equipment is of extreme importance to improvement of the defense capability of Japan. Hitherto, in the committee meeting regarding Promoting Comprehensive Acquisition Reform, which was held in September 2003, the Ministry of Defense has made efforts to consider and implement the necessary measures, such as streamlining and rationalizing the procurement and supply of equipment and materials, due to changes in the acquisition environment in the form of higher prices, as a result of the increasingly high-performance nature of equipment and the recent harsh fiscal situation.

Moreover, from the perspective of fulfilling our obligation to ensure adequate accountability to the people with regard to the use of their taxes, effective measures have been put in place to control risk and cost, and facilitate the acquisition of superior equipment, while maintaining fairness and transparency in equipment acquisition.

For example, in the acquisition of equipment, the Ministry is continuing to promote acquisition reform that incorporates such new concepts as rethinking systems relating to acquisition and contracts in order to take into account the entire life-cycle of equipment, looking at the elements required to operate it after it has been acquired, rather than focusing on measures aimed solely at achieving temporary price reductions.

2 Initiatives Concerning the Acquisition of Equipment, etc.

In 2007, the Comprehensive Acquisition Reform Promotion Project Team was established at the instruction of the Minister of Defense. The Project Team was formed to address the need for effective and efficient acquisition of equipment and materials in order to keep up with trends in military science and technology, promote integrated operation and meet the needs of forces, all of which required an acceleration of comprehensive acquisition reform. To date, the committee has considered various issues, as outlined below, and is currently engaged in deliberations in conjunction with the "Study of Structural Reform to Improve the Effectiveness of Defense Capability" framework.

(1) Strengthening Life Cycle Cost (LCC)[1] Management

The main equipment and materials are used for extended periods after procurement, so it is of extreme importance to promote efficient and rational management during the entire life cycle of such equipment, from concept, development, production, and operation (including maintenance, repair, and upgrades) through to disposal. Appropriate management of cost throughout the life cycle of equipment, beginning with decision making based on judgment of cost effectiveness at the juncture of launching into development and production, contributes to the acquisition of effective and efficient equipment.

In March 2008, the Ministry of Defense commenced a trial of LCC management. and from April 2010, based on the results of the trial so far, it carried out cost calculations and cost management, while continuing to advance the application of LCC management. The latter focused on areas such as consideration of cost comparisons for equipment selection and acquisition format, tradeoff studies between performance and cost, and cost reduction.

(2) Expansion of the Incentive Contracts System

When the Ministry of Defense concludes contracts, it commonly uses a contract method to decide the prices paid, after inspections have been carried out of performance figures based on the implementation of the contract. In such cases, even if a company achieves cost reductions through efficiency efforts in the process of executing the contract, the fruits of this are not returned to the company in question, because the contract is amended to reflect the reduced price, having deducted the reduction from the originally contracted amount. This furthermore leads to a decrease in future contracted amounts and profits, from the next contract onwards. Hence, it is difficult to encourage companies to address the issue of cost reduction. On the other hand, if costs overrun, the contracted amount is not increased, which is also often displeasing to companies.

The Incentive Contracts System aims to reduce the cost of equipment through the promotion of proactive cost reduction activities among companies by sharing between the Ministry of Defense and corporations a percentage of the cost reductions generated in regard to contracted equipment through the efforts of civilian companies with which contracts have been concluded, as an incentive to increase profit. The cost reduction activities of companies contribute to increased productivity, strengthening and promoting a low-cost structure, and, by extension, it would seem to lead to stronger defense production and technological bases.

The Ministry of Defense introduced a price reduction proposal system in 1999, and undertook a full-scale review of the Incentive Contracts System in 2008, following which the

1 Costs required throughout the life cycle of a product, from its design, development, mass production, and operation (including maintenance, repair and upgrading), through to its disposal

scope of targets was expanded to companies' cost-reduction activities across the board, and a new system was implemented to increase effectiveness, in areas including improvement of the examination procedures for business proposals. As of January 2012, it has been used four times.

(3) Efforts to Curtail Costs

In order to curtail expenditures related to the R&D, procurement, maintenance, and management of defense equipment, we are striving to apply a range of techniques including the short-term intensive procurement in an individual year, of equipment and such planned for procurement over multiple fiscal years, the lump-sum purchase of equipment for two or more Self-Defense Forces, the part commoditization and sharing of methods during development, promoting the use of commercial items, private sector outsourcing, and the streamlining of maintenance and improvement costs. Since fiscal year 2007, the results of such efforts have been compiled, and the performance in reduction compared to fiscal year 2006 organized and published (See Fig. III-4-2-2). Furthermore, as a new initiative in 2012, the Ministry of Defense is striving to curtail its expenditures by implementing the lump-sum purchase of vessel equipment with the Japan Coast Guard.

(4) Efforts to Increase Fairness and Transparency

The Ministry of Defense aims to increase fairness and transparency in relation to the acquisition of equipment and materials, and has thus far implemented a variety of measures from the view of making contracts more appropriate, and strengthening checking functions.

Recently, as a part of the effort to make public procurement more appropriate across the whole of government, a number of measures are being tackled in the Ministry of Defense, including the introduction and expansion of a comprehensive evaluation bidding system[2], the increase of multiple-year contracts, making bidding procedures more efficient, and reviews of sole source contracts. Alongside these measures, in July 2006, a deputy chief in charge of auditing was established at the Equipment Procurement Office[3] (as it was then named), as was an auditing division in the Internal Bureau, working toward strengthening checking functions.

In 2008, in light of cases such as Yamada Corporation's falsification of estimates by foreign manufacturers in order to overcharge the Ministry of Defense, a number of measures were put in place, including the establishment of special contract terms for general import procurement, the introduction of import procurement surveys, and an increase in the number of import procurement specialist officers resident in the United States.

Furthermore, in May 2009, based on the Bid-Rigging Information Manual, the Ministry of Defense, the Ministry of Defense notified Japan Fair Trade Commission (JFTC) of the instances of unusual bidding in the procurement of office furniture and other office supplies by the ASDF 1st Depot for Office Supplies, which were detected as a result of the 2008 Defense Survey. In June 2009, JFTC conducted an on-the-spot investigation of suppliers and the ASDF, and issued a cease and desist order and a payment order for surcharge to related suppliers in March 2010 under Anti-Monopoly Act and requested the Minister of Defense to implement improvement measures.

Fig. Ⅲ－4－2－1 Cost Reduction Conditions

FY	Cost reduction amount[1]	Cost reduction rate[2]
FY2007	Approx. 170 billion yen	Approx. 8.8%
FY2008	Approx. 160 billion yen	Approx. 8.3%
FY2009	Approx. 280 billion yen	Approx. 13.9%
FY2010	Approx. 140 billion yen	Approx. 7.8%
FY2011	Approx. 121 billion yen	Approx. 6.7%

Notes: 1. Cost reduction amount = amount required at the time (theoretical value before optimization measures) – actual total amount
2. Cost reduction rate = cost reduction amount ÷ (equipment and material purchase expenses + cost reduction amount)

In the FY2012 budget, efforts are being made to curb costs through the intensive procurement of modernized F-15 radar components

2 Unlike in the automatic bid system, which focuses only on price, this is a system in which the successful bidder in determined on the basis of a comprehensive evaluation that includes both the price and other elements, which is used in cases in which it is important to carry out an evaluation of the technological elements, etc.

3 The Equipment Procurement Office was reorganized to create the Equipment Procurement and Construction Office in September 2007

In response to circumstances such as these, the Ministry of Defense held an "Exploratory Committee Meeting for Bid-Rigging Issues in the ASDF 1st Depot for Office Supplies such as Office Furniture," as a result of which, disciplinary actions were taken against a total of 50 people involved in these irregularities. Moreover, in order to prevent the recurrence of similar incidents, it was decided to implement a number of improvements, such as revising the replenishment and upgrading system in the ASDF, outsourcing the procurement of office supplies, such as office furniture, and strengthening oversight functions in regard to budget execution.

(5) Overhaul of Central and Regional Procurement

The Ministry of Defense is purchasing in the Equipment Procurement and Construction Office, mainly warships, aircraft, weapons, vehicles, and other important equipment and materials, and items common to all forces (hereinafter referred to as central procurement). It is focused on purchasing mainly things closely associated with the execution of duties by units in each Self-Defense Force and other organizations (hereinafter referred to as regional procurement).

Central and regional procurement differ in character in terms of the items dealt with and procedures. However, as part of review efforts, in order to increase the transparency of the procurement procedure further, since July 2008, the high price sole-source contracts of regional procurement (under the same criteria of 150 million yen and greater, as central procurement) became items requiring approval by the Minister of Defense.

Furthermore, the Ministry of Defense decided to leverage cloud computing starting at the end of fiscal year 2010 to manage data on central and regional procurement in a unified manner, using the functionality for various projects including the planning for bulk purchase.

(6) Overhaul of Central and Regional Procurement Further Efficiency in the Acquisition of Equipment

The approach to deliberations aimed at achieving further efficiency in the acquisition of equipment, which was compiled in September 2010, is as follows.

a. Equipment acquisition by means of the IPT (Integrated Project Team) system[4]

In order to review equipment acquisition taking full account of maintenance, education and training, and skill improvement from the equipment concept stage, it is necessary to expand and advance acquisition methods using the Integrated Project Team (IPT) system, which brings together various concerned departments. Moreover, it would be necessary to forge long-term public-private partnerships with participation by private enterprise for the future.

b. Cost management system

In order to maximize cost effectiveness, including cost associated with the operation of equipment, the control system for accurately determining the LCC of equipment must be expanded.

c. The introduction of PBL (Performance Based Logistics)

It is necessary to consider the possibility of introducing PBL, which involves paying a certain amount in exchange for achieving equipment performance in terms of availability and safety, and to seek long-term cost reductions while maintaining and improving equipment quality.

Accordingly, in July 2011, the "Ministry of Defense PBL Introduction Guidelines" were formulated and published; these set forth the definition of PBL to be used by the Ministry of Defense, as well as the points of contention that should be resolved when visualizing and considering methods of introducing PBL.

In addition, using the special transport helicopters (EC-225LP) being acquired by the GSDF from FY2012 as a pilot model to facilitate the smooth introduction of PBL, the Ministry plans to conclude a comprehensive contract concerning the acquisition and repair of airframe parts.

d. Improving Procurement Techniques

Procurement methods must be improved in order to improve

With a view to the smooth introduction of PBL, a comprehensive contract is due to be concluded in regard to the acquisition and maintenance of airframe components for the GSDF's special transport helicopter (EC-225LP)

4 As an example, in the selection of the F-X, the next-generation fighter plane of the ASDF, an IPT was established with the participation of representatives of multiple related departments and bureaus within the Ministry of Defense, which was involved in all facets of the model selection process, including conducting the evaluation in order to facilitate selection. In addition, cross-departmental reviews are also being conducted for the GSDF's new multipurpose helicopter, the successor to the FH-70 towed howitzer, and the MSDF's escort ship, as an IPT has been established for each.

efficiency in terms of such factors as the labor and hourly cost required in the procurement process (e.g., blanket procurement in a single contract over several years).

3 Review of the System concerning Contracts for the Procurement of Equipment and Materials

(1) Background to the review

In order to cope with the increasingly harsh environment surrounding the procurement of equipment and materials, the Ministry of Defense is faced with the growing necessity to accept new ideas and promote the reform of acquisition in a more forceful way.

Based on this background, the Ministry of Defense held the Contractual Systems Study Group Meeting[5] in 2010, to formulate new measures from a wide-ranging perspective.

In its deliberations concerning such matters as contracts relating to equipment procurement, this Contractual Systems Study Group has not stopped simply at curtailing procurement costs from the government's point of view, but has taken a medium- to long-term perspective, keeping in mind improving the advantages of companies' participation in the defense business and building "Win-Win" relationships to reward those who have made efforts to improve efficiency. After considering various issues, the Contractual Systems Study Group published its first interim report in August 2010, and its second interim report in April 2011.

(2) Measures to improve systems relating to contracts for defense equipment

a. Improvement of the provision requiring the return of excessive profit

The provision requiring the return of excessive profit is a contract provision which stipulates that, in the event of any excessive profit remaining after the execution of a contract, companies must return this to the Government. This provision is applied in the event that a large portion of the cost of the equipment is difficult to forecast, including in general competitive contracts, and it is a characteristic contract provision in the procurement of defense equipment with low marketability.

For the Government, this provision is not only aimed at preventing the counterparty of the contract from generating excessive profits; it also has the advantage of enabling the collection of cost information through an audit after performance of the contract, as well as the advantage for the company that, because cost is allowed by the government, it forms the basis for the prices of similar contracts concluded in the future.

On the other hand, with contracts that include this provision, cost reductions due to the companies' efforts and other excessive profits generated are subject to return, diminishing the effectiveness of cost reduction incentives for the company. Furthermore, careful evaluation is required concerning the appropriateness of imposing the excessive profit return provision in regard to projects with multiple bidders, where substantial competitiveness is acknowledged to exist.

Accordingly, in March 2012, the Ministry of Defense improved the regulations, as a result of which, this provision is not applied in the case of competitive contracts in which real competiveness is ensured. At present, further deliberations are continuing concerning the method of calculating the planned price of equipment in the Ministry of Defense, including the approach to cost confirmation methods, the creation of databases for cost information, and the improvement of cost control capability.

b. Improvement of the contract system to generate cost reduction incentives

The Ministry of Defense has undertaken a variety of initiatives in order to produce cost reduction incentives for companies to date, including the operation of an Incentive Contracts System. Since being introduced in 1999, however, these incentive contracts have only been used for four projects. Furthermore, the rationalization of public procurement now requires that competitive procedures, such as an open tender, be conducted

The Ministry of Defense is undertaking deliberations focused on the promotion of the acquisition and operation of X-band SATCOM network using the PFI method. (Photograph shows the Superbird-B2 [provided by SKY Perfect JSAT Corporation])

5 For a summary of the Contractual Systems Study Group, see <http;//www.mod.go.jp/j/approach/agenda/meeting/keiyaku_seido/gaiyo.hmtl>

for each contract, even for equipment and materials where in effect only a single supplier will bid.

As a result, in most cases only a single supplier has responded to a tender, which indicates that these procedures have in fact lost their substance. Accordingly, the Ministry of Defense improved the "System to promote the streamlining of work processes"[6] in April 2012 and, at present, as well as relaxing the existing Incentive Contracts System, it is undertaking deliberations focused on the medium- to long-term challenges of expanding intensive procurement, rethinking the open tender system, and promoting cost reductions in regard to contracts where it is clearly evident that only a single supplier will bid, by means of single tendering contracts that bypass the open tender procedures.

c. Reducing procurement costs further through multiple-year contracts that actively utilize the PFI (Private Finance Initiative) Promotion Act[7]

In order to reduce costs, long-term contracts that are consolidated to a certain degree are essential. However, the upper limit for acts resulting in Treasury liability is five years and it does not make business sense for companies to invest in such short-term contracts, so it seems that they refrain from investment that could lead to cost reductions and, furthermore, do not accept orders, in order to avoid risk.

Accordingly, as well as realizing the planned acquisition and execution of budgets using standardized investment amounts, it is anticipated that implementing long-term multiple-year contracts through the active utilization of the PFI Promotion Act and the Public Service Reform Act[8] will give rise to such benefits as cutting equipment procurement costs by reducing risks for those accepting orders, and promoting the entrance of new suppliers. From this perspective, in regard to the project focused on the enhancement of the X-band communications satellite, the Ministry of Defense is actively utilizing the PFI Promotion Act[9,10] which was revised in 2011, over the 19 years from the manufacture of the satellite until the end of its service life. Moreover, in PBL contracts, consideration should be given to utilizing the Public Service Reform Act, which permits the use of long-term contracts up to a maximum of ten years, if contracts are required that exceed the upper limit for acts resulting in Treasury liability (five years). However, in the case of long-term contracts, it is necessary to give adequate consideration to the risk that budget rigidity or inefficiency may arise as a result of technological innovation. In addition, it is necessary to examine the contract method and the calculation method, etc., since a PBL contract is a form of contract where compensation is paid based on performance.

4 Deliberations on Measures Concerning Changes in the International Environment Surrounding Defense Equipment

Advanced equipment is becoming increasingly high-performance and expensive, so in its development and production, there is a growing tendency to participate in international joint development and production, which curbs development and production costs, while utilizing the advanced technology of allies and friends[11]. In light of the fact that the New NDPG stipulated that consideration should be given to measures that respond to the major changes taking place in relation to such defense equipment, a statement by the Chief Cabinet Secretary concerning the Standards for the Overseas Transfer of Defense Equipment, etc. was published on December 27, 2011. These Standards have made it possible to engage in joint development and production with the U.S.A. and other countries with which Japan has a cooperative security relationship, based on the premise of stringent management. As well as ① making it easier to procure advanced equipment, ② it is anticipated that this will have the advantage of reducing the unit costs of production by curbing development costs and increasing production volume, and also ③ further support the construction of a dynamic defense force through the maintenance and increased sophistication of the defense production and technological bases.

6 A system jointly involving the public and private sectors to investigate whether there is room for streamlining work processes in which a fact-finding survey and analysis of work processes is performed by the Ministry of Defense utilizing consulting companies, in order to raise the efficiency in the execution of contract counterparty duties.

7 Act on Promotion of Private Finance Initiative

8 Act on Reform of Public Services by Introduction of Competitive Bidding

9 In June 2011, the PFI Promotion Act was revised and rental housing, marine vessels, aircraft and satellites were added to the list of facilities subject to the Act

10 In May 2011, the Ministry of Defense established the X-Band Satellite Communications Upgrade Program execution Group in order to promote the project to acquire and operate the X-band SATCOM network using the PFI method with an integrated contract running from design to disposal, utilizing the funds, management abilities and technical knowledge of civilian companies; since then, deliberations have been ongoing, with this Group at the forefront.

11 As an example of this, nine countries, including the U.S.A., the U.K., the Netherlands and Italy, are participants in the joint development of the F-35, the model selected as Japan's next-generation fighter aircraft.

3 Research and Development of the Technical Research & Development Institute (TRDI)

TRDI engages in research and development that emphasizes the operational demands of units by incorporating the latest scientific techniques[1]. Since FY2009, TRDI has conducted a research program as "operationally demonstrative research" on the personal gear of troops that makes it possible for the unit to share information with each of its members via a network. In order to reflect user feedback concerning improvements in operability and lighter weight, research is conducted in cooperation with units using the outcomes of unit tests[2] to acquire various evaluation data assuming real operation.

In addition, from the perspective of integrated operation, TRDI is developing a highly functional digital data link system for fighters in order to achieve organized combat by creating a network that links military capabilities.

From the perspective of optimizing cost, schedule and performance through the entire life cycle of equipment, TRDI thoroughly analyzes and compares multiple proposals concerning performance, cost and all in the conceptual study, research and development stages, as well as conducting research of modeling and simulation, such as integrated air defense system simulations and initial review and assessment technologies for ships, as a tool for the analysis and comparison. Further, in order to prevent surge in unit cost of procured equipment, TRDI and the Equipment Procurement and Construction Office (EPCO) have been cooperatively conducting cost estimates as part of the life cycle management even in development phase of defense systems.

The TRDI exchanges technical information with various organizations within Japan, including the Japan Aerospace Exploration Agency and universities. The Ministry intends to further strengthen studies of technological trends both within Japan and overseas and make even greater efforts to promote the application of the technology held by institutions and private companies in Japan to its own research and development. Moreover, in light of the Statement by the Chief Cabinet Secretary on Guidelines for Overseas Transfer of Defense Equipment, the Ministry will promote technological exchange with countries with which Japan has a cooperative security relationship. In addition, as well as working on the development of new decontamination sets and the research into unmanned aerial vehicles, on the basis of the lessons learned from the Great East Japan Earthquake, the Ministry will promote research and development of equipment based on the outcomes of various technological innovations by remarkable progress in science and technology in private sectors, such as information and communications technology and cyber attacks countermeasures technology.

1 "Operationally demonstrative research" has been introduced. In this type of research, the SDF service (the future operator) will evaluate the prototypes of the equipment. The evaluation will be reflected in later R&D, procurement, and related operations. Further "Evolutionary development" has been introduced. At the start of the development phase, the performance requirements to be achieved are left undecided. Even after the start of the development phase, the required performance can be updated, and state-of-the-art military science technology can be introduced.

2 Experiments conducted by the GSDF using specific units, for the purpose of specifying the "New Way of Fighting Based on Information Supremacy" and the effective development of command and communications equipment.