

## Section 6. New Efforts Based on Recent Trends

### 1. Efforts for Development and Use of Space

The enactment of the Basic Space Law<sup>27</sup> passed by the Diet in May 2008, has made it clearer that the development and use of space by Japan shall be carried out under the pacifism enshrined in the Constitution of Japan in compliance with international commitments. The law also stipulates that the Government of Japan shall take necessary measures to promote the development and use of space that contributes to ensuring the peace and security of the international community, as well as to the security of Japan. Furthermore, the Strategic Headquarters for Space Policy was formed within the Cabinet in order to promote measures for the development and utilization of space in a comprehensive and systematic manner.

On June 2, 2009, the Basic Plan for Space Policy was formulated based on the Basic Space Law by the Strategic Headquarters for Space Policy. The six key elements of the plan include the realization of a secure, pleasant and affluent society utilizing space, as well as the enhancement of national security utilizing space.

With the drastic changes in the environment through the enactment of the Basic Space Law, the Ministry of Defense has been deliberating on potential development and use of space in the new security context, in coordination with discussions on the comprehensive and systematic development and use of space of the entire Government. Specifically, on January 15, 2009, the Committee on Promotion of Space Development and Use formulated the “Basic Guidelines for Space Development and Use of Space,” the Ministry of Defense of Japan (Basic Guidelines).

Incorporated into the Basic Guidelines are the following.

- 1) The development and use of space is a particularly effective tool for strengthening functions of C4ISR<sup>28</sup> in light of the emphasis on building-up of defense capabilities on realization of sophisticated situational awareness, information sharing, and command and control systems by organically linking individual equipment and systems, and thus maximizing the capacity of the equipment as a whole.
- 2) Based on the significance of the development and use of space in the defense area, with regard to measures for the promotion of the development and use of space, examinations are to be conducted in view of specific measures, including ones beyond the generalization theory<sup>29</sup>, while keeping in mind the revision of the National Defense Program Guidelines (NDPG) and the formulation of the next Mid-term Defense Program, with the effective coordination of the whole Government.

In the future, the Ministry of Defense intends to vigorously conduct examinations on specific measures, in coordination with related ministries, including the Cabinet Secretariat, based on the Basic Guidelines and the Basic Plan for Space Policy in order to promote new development and use of space in the security field. In FY2010, it will address projects such as 1) research for enhancement of C4ISR utilizing space, 2) enhance space-based communication capability, and 3) expanded use of imagery from commercial satellites.

### **Current Situation regarding the Development and Use of Space in the Area of Defense in Other Countries**

It is extremely beneficial in defense, to make use of the special properties of space that it does not belong to the territory of any country, and that there are no constraints such as the topography of the earth's surface. The use of space in the area of defense is being actively promoted in other countries.

The United States, for example, is a significant leader in the field of space development and use. As well as improving its large high-performance satellites, and increasing the purchase of imagery from commercial satellites to obtain information for defense purposes, it is working to secure diverse methods of information collection. This includes advancing the development of operationally responsive space satellites capable where necessary, of being launched in a short period of time.

On the other hand, because of enormous costs incurred in upgrading satellites, joint efforts are undertaken by multiple nations, in which satellite information is shared. In Europe in 2006, the six countries of France, Germany, Italy, Spain, Belgium, and Greece agreed on the Multinational Space-based Imaging System (MUSIS) program in which the countries make use of one another's satellite information. Efforts to move toward dual-use are also underway, including the collaborative application of satellites in both defense and civilian areas.

## **2. Enhancing Information and Communications Capabilities**

Information and communications are the basis for command and control, between the central commands, the respective headquarters of each Self-Defense Force, and the subordinate units. The Ministry of Defense is making efforts in areas including the response to cyber attacks, by improving information systems and communication networks based on operational requirements to enhance information and communications capabilities, which are directly linked to the ability to complete missions, and to secure these systems and networks.

### **1. Improvement of Information Systems and Communication Networks**

Based on the remarkable development of information and communications technology (ICT) in recent years, the Ministry of Defense and the SDF are driving the construction of an advanced information and communications system compatible with the excellent ICT at home and abroad, in order to facilitate the certain transmission of commands and orders, and the rapid sharing of information. This includes 1) improvement of the Defense Information Infrastructure (DII), 2) improvement of the Central Command System (CCS) and the various command systems from the Ground, Maritime, and Air Self-Defense Forces<sup>30</sup>.

### **2. Response to Cyber Attacks**

In recent years, cyber attacks have become more sophisticated and complicated, and responding to these attacks has been recognized as an important challenge in national security. In July 2009, large-scale cyber attacks were perpetrated against websites such as those of the Republic of Korea and U.S government agencies.

(See Part I Chapter 1 Section 3)

Due to the fact that information systems and communications networks are crucial foundations for SDF activities, the Ministry of Defense and the SDF must prepare sufficiently for their response to cyber attacks.

Consequently, not only did the Ministry of Defense and the SDF inaugurate the SDF C4 (Command, Control,

Communication & Computers) System Command in March 2008, but they are also engaged in various efforts as follow.

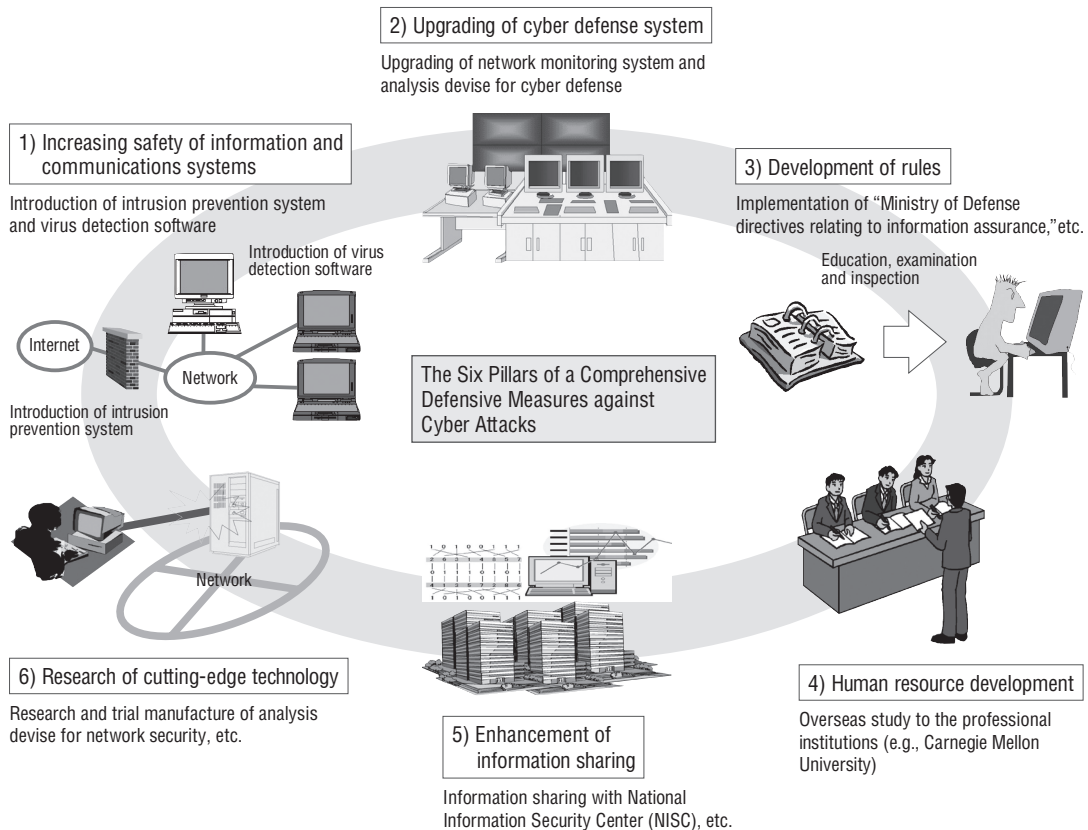
- 1) Introduction of intrusion prevention systems and so on in order to increase the safety of information and communication systems.
- 2) Development of defense systems such as analysis devise for cyber defense.
- 3) Enactment of regulations<sup>31</sup> establishing postures and procedures for response to cyber attacks.
- 4) Development of talented people with high-level knowledge and technical capabilities, through the dispatch of exchange students to professional institutions in the United States.
- 5) Driving of information sharing with concerned organizations, such as the National Information Security Center.
- 6) Research in order to acquire the latest technology pertaining to responding to cyber attacks.

In FY2010, a strengthening of the ability to respond to cyber attacks is planned, through efforts of the kind outlined below.

- 1) New assignment of a Coordinator for Cyber Planning (provisional title) to the Joint Staff Office
- 2) Implementation of a design for the purpose of enhancing the functions of analysis devise for cyber defense
- 3) Strengthening of Defense Intelligence Headquarters functions in order to conduct long-term, specialist gathering and analysis of information relating to trends in cyber warfare in other countries.

(See Fig. II-2-6-1) (See This Chapter Section 4)

Fig. II-2-6-1 Cyber Defense Policy Package of the Ministry of Defense and SDF



## The Role of Satellite Communications in Everyday SDF Activities

Satellite communications are now a vital communications method in the execution of SDF missions due to their ability to offer wide-ranged and instantaneous communications.

For instance, the exchange of information for timely and proper reporting between destroyers and aircraft conducting surveillance activities in surrounding waters, or to ensure flexible operations in disaster and other areas, would not be possible without the wide-ranged coverage capacity of satellite communications. In addition, satellite communications significantly contribute to the prompt and accurate transfer of information and command structure, which are important in effectively handling ballistic missile attacks. Furthermore, satellite communications play a major role as a method for members of units dispatched in remote areas overseas to directly communicate with their families so that they can carry out their missions in a comfortable state of mind.

In this way, satellite communications are a vital information communications foundation for everyday SDF activities. Satellite communications are aimed to increase in speed and capacity in order to further enhance the information communications capacity of the SDF.



An SDF officer dispatched overseas using a satellite phone



The satellite antenna of an escort vessel

### 3. Efforts Relating to the Environment

#### 1. Effects Exerted by Climate Change on the Security Environment

With the mounting concern for climate change caused by global warming, there has been a growing tendency in recent years to give thought to the effects exerted by climate change on security. For example, in the Quadrennial Defense Review (QDR) published by the U.S. Department of Defense on February 1 this year, climate change is positioned as one of the factors which exert an important effect on the shape of the security environment of the future.

In this way, there is increasingly shared understanding of the fact that a range of effects may be brought about by climate change even on the security environment. For Japan too, it is necessary to pay attention to the effects that climate change will exert on the security environment.

#### 2. Efforts for Environmental Conservation

As part of the government, the Ministry of Defense is developing action plans based on various government programs, and actively promoting a variety of efforts for the environment<sup>32</sup>.

In 2001, the Ministry of Defense “Environment Month” and “Environment Week” were established. Garrisons nationwide also took part, performing diverse activities for the purpose of environmental conservation in areas such as preventing global warming. Their objective was to raise consciousness among troops and personnel in relation to environmental conservation.

In managing and maintaining its facilities and equipment, the SDF is promoting a range of efforts<sup>33</sup> to ensure thorough environmental conservation and to reduce the environmental burden. Specifically, in March 2010, the facilities at Camp Kochi (in Konan, Kochi Prefecture) adopted for the first time an all-electric system in which everything is covered by electricity, including the kitchen, air conditioning, and hot water system which had used gas and boilers. Furthermore, progress is being made in areas such as the installation of energy conservation equipment at SDF buildings, and the replacement of worn out vehicles with eco-cars, which are compatible with exhaust gas regulations, and which have excellent mileage. Thanks to efforts like these, great results can be expected in environmental conservation, such as reduced exhaust CO<sub>2</sub>, not to mention the substantial economic benefits.

#### **4. Efforts for Ocean Policy**

Under various circumstances regarding the ocean, including the sea areas surrounding Japan, the Basic Act on Ocean Policy<sup>34</sup> was put into force in July 2007 with the aim of the sound development of the economic society and the stability and improvement of the lives of the people in Japan as well as our contribution to the coexistence of the ocean and human beings, recognizing that it is critical for Japan, as a maritime nation, to establish a new Oceanic State which harmonizes peaceful and proactive development and use of the sea with the preservation of the marine environment. Then, the Headquarters for Ocean Policy was established within the Cabinet as a system to promote ocean policy intensively and comprehensively.

Based on this act, a cabinet decision was made in March 2008 to adopt the Basic Plan on Ocean Policy<sup>35</sup>, which stipulates the basic policy of various measures with regard to the oceans in order to promote such measures comprehensively and systematically.

The Basic Plan on Ocean Policy includes extremely important measures in terms of the security of our country: for example, maintaining order at sea carried out from the viewpoint of securing maritime safety, efforts for maritime transport safety, countermeasures against marine-derived natural disasters, and securing maritime transport.

The Headquarters for Ocean Policy has been discussing coordination between ministries on the integration of marine survey data and the preservation and management of islands<sup>36</sup>. The Ministry of Defense participates in these discussions so that works in the related fields can be performed in closer coordination with other ministries.

The Basic Plan on Ocean Policy stipulates: the systematic development of ships and aircraft for the purpose of ensuring maritime safety; and the conducting of exercises based on the manuals on joint response to suspicious boats. Accordingly, the Ministry of Defense is engaged in a number of efforts in FY2010, including 1) to improve equipment for ensuring maritime transport safety, such as escort vessels, fixed-wing and rotary-wing patrol aircraft, 2) to strengthen cooperation with the Japan Coast Guard through events such as joint maritime exercises in dealing with suspicious ships, and 3) to deal with pirates off the Coast of Somalia and in the Gulf of Aden. (See Part III Chapter 1 Section 4)

## Notes:

- 1) See <[http://www.clearing.mod.go.jp/hakusho\\_data/1977/w1977\\_9110.html](http://www.clearing.mod.go.jp/hakusho_data/1977/w1977_9110.html)>.
- 2) See <[http://www.clearing.mod.go.jp/hakusho\\_data/2005/2005/html/17221300.html](http://www.clearing.mod.go.jp/hakusho_data/2005/2005/html/17221300.html)>.
- 3) “On Introduction of Ballistic Missile Defense System and Other Measures” (decided by Cabinet) (See Reference 27), Report by the Council on Security and Defense Capabilities <<http://kantei.go.jp/jp/kakugikettei/2003/1219seibi.html>>, etc.
- 4) “New threats and diverse contingencies” are defined in the 2004 NDPG to include increased proliferation of weapons of mass destruction and ballistic missiles, activities by international terrorist organization and others, and diverse situations in which peace and security are affected.”  
Some basic examples of these are ballistic missile attacks, guerrillas and special operations force attacks, invasions of Japan’s offshore islands, violations of Japanese airspace, invasions by armed special operations vessels, submerged foreign submarines operating in Japan’s territorial waters, and large-scale and unconventional disasters. In addition, issues such as response to cyber attacks and providing transport for Japanese nationals living abroad can also be considered to be part of the response to these situations.
- 5) 1) Not designed to directly counter military threats 2) The portion of the concept stating that Japan will maintain defense capabilities based on strategic environments and geographical characteristics in order to prevent invasion is deemed to remain effective and thus will be sustained under the new security environment.
- 6) Regarding the contents of talks Japan held with the United States based on ideas shown in the 2004 NDPG, see Part III, Chapter 2, Section 2.
- 7) The following is in regards to the specific posture for defense capabilities as described above in the figure outlining the 2004 NDPG:
  - 1) Regarding the change in structure of the GSDF, in March 2007, the Central Readiness Force was newly organized, and in March 2010, the 15th Brigade was newly organized, whereupon the GSDF was reorganized into a structure of nine divisions (including one armored division) and six brigades.
  - 2) Regarding the change in structure of the MSDF, in March 2008, consolidations were made to destroyer units and fixed-wing aircraft units, while regional destroyer units and rotating wing aircraft were unified with the Self Defense Fleet.
  - 3) Regarding the change in structure of the ASDF, all changes except those related to BMD were completed by March 2009.
- 8) Major equipment of the MSDF (Aegis-equipped destroyers: four vessels) and major units of the ASDF (Air-warning control units: seven warning groups and four warning squadrons; surface-to-air guided missile units: three groups). For development of the BMD system, see Part III, Chapter 1, Section 2-1.
- 9) Total costs of defense equipment that becomes necessary throughout the full lifecycle of brainstorming sessions, the development process, mass production, operations (including maintenance and repair costs), and equipment scrapping.
- 10) Cabinet decision, “Regarding the development of defense capabilities, etc.” (See Reference 11)
- 11) Based on this statement, it was decided on December 24, 2005 by the Security Council and the Cabinet that the joint Japan–U.S. technical research on a sea-based midcourse system of the BMD would be succeeded by joint Japan–U.S. development in FY2006. In a statement issued by the Chief Cabinet Secretary on the same day, it was stated that “weapons required by the United States for the purpose of joint Japan–U.S. development shall be provided under strict control and also upon coordination with the United States regarding a framework for provision of weapons.” Following this statement, the Exchange of Notes concerning the Transfer of Arms and Military Technologies was concluded by the Japanese and U.S. Governments in June of 2006. The exchange provides a framework for enabling the transfer of weapons



and weapons technologies designed for the joint Japan–U.S. BMD development, as well as weapon technologies that were subject to transfer under the previous Exchange of Notes concerning the Transfer of Military Technologies. (See Part III, Chapter 1, Section 2-1 and Part III, Chapter 2, Section 3-6).

- 12) In June 2006, Japan decided to provide patrol vessels, which fall under the category of weapons and others under the Three Principles on Arms Export, to Indonesia as grant aid meant to support the country in its efforts to control and prevent terrorism and piracy. A statement issued at that time by the Chief Cabinet Secretary stated that the transfer of the patrol vessels was exempted from the Three Principles on Arms Export on the condition that an international agreement is concluded with the recipient country to ensure that the vessels are not used for purposes other than controlling and preventing terrorism and piracy and that the country does not transfer the vessels to a third party without Japan's prior consent.
- 13) See <<http://www.kantei.go.jp/jp/singi/shin-ampoboue12010>>.
- 14) 1) Effective response to the new threats and diverse contingencies, 2) preparations for full-scale invasion, 3) proactive efforts on Japan's own initiative to improve the international security environment. See Section 2-2 of this chapter.
- 15) FY2010 Budget Compilation Policies. In addition, there are Cabinet decisions that determine policies for the entire government related to FY2010 budget compilation, the Reform of Budget Compilation (October 23, 2009) and Basic Policies for Budget Compilation (December 15, 2009).
- 16) The project screening of the necessity of existing budgets, and the discussions of budget execution occur in public, so that “the points of discussion,” and “the budgetary priorities” are clear to the Japanese people. See <<http://www.cao.go.jp/sasshin/index.html>> for more information on the Government Revitalization Unit and project screening.
- 17) Efforts within each ministry to grasp the actual budget expenditures and uses, inspect its own projects by such means as an open process inviting outside experts, and reflect the result of such reviews into project implementations and budget requests.
- 18) The breakdown for the Ground, Maritime, and Air SDF is as shown below. There are other elements such as the Joint Staff and Defense Intelligence Headquarters, so these numbers do not match the overall total.

	2004 NDPG regular personnel	End of FY2010 regular personnel	Increase or decrease (-)
GSDF	145,906	141,223	-4,683
MSDF	43,697	41,940	-1,757
ASDF	45,007	43,270	-1,737

- 19) Cost reduction amount = initial requirement (theoretical value before implementing efficiency measures) – actual accumulated amount  
 Cost reduction ratio = cost reduction amount / (expenses related to equipment and materials + cost reduction amount).
- 20) “Special Action Committee on Okinawa”. See Part III Chapter 2 Section 4-1.
- 21) In the improvement of defense capabilities, some things span multiple years. In these cases, the fiscal year in which the contract is concluded is different from the fiscal year in which the payment to the contractor is made. Therefore, first of all, the maximum future payment amount is appropriated in the budget as an act of bearing liabilities with national treasury funds (budget authority only to incur obligations is granted, i.e., the MOD is able to conclude a contract but not to make payment). Then, based on such budgeting, in principle, in the fiscal year that construction is completed or that equipment is procured, expenses necessary for payment are allocated as budget expenditure (budget authority to incur obligations and make payment is granted, i.e., the MOD is able to conclude contracts and allocate budget expenditure).

Budget expenditure for payments incurred under contracts concluded in previous fiscal years is called “obligatory outlay expenses,” while expenditure for which the payment period has yet to come is termed “future obligation.”

- 22) A typical cost under this category is expenses for installation of a sound-proof system in residences located near U.S. bases. (See Part 4, Section3-3).
- 23) The comparison with the previous year does not account for SACO-related expenses and the U.S. forces realignment-related expenses (portion meant to reduce the burden on the local community).
- 24) The sum total of new future obligation based on general material expenses and the act of bearing liabilities with national treasury funds. The contract is concluded in the applicable year, and the scale of the material expenses (operating expenses) that are to be paid from the applicable year in future is shown. In FY2010 this is 2.5848 trillion yen.
- 25) A gauge that measures each country’s ability to purchase assets or services by taking into account their respective price levels.
- 26) The table excludes Russia and China, for which no OECD data on purchasing power parity exist. For changes in defense expenditures of each country in its local currency, see Fig. Part I, Chapter 2, Fig. II-2-5-7 and Reference 22.
- 27) See <<http://www.kantei.go.jp/jp/singi/utyuu/about2.html>>.
- 28) Abbreviation“Command,Control,Communication,Computer,Intelligence,SurveillanceandReconnaissance” which is the collective term of each function.
- 29) The notion that allows the SDF to use satellites whose use has been generalized and those with similar functions.
- 30) For further details on Defense Information Infrastructure (DII: unified network of the Ministry of Defense and the SDF) and Central Command System (CSS: a central command system which performs operations such as intensive processing of data while connected online with the various command systems of the Ground, Maritime, and Air Self-Defense Forces and so on), see <<http://www.mod.go.jp/j/approach/others/security/it/youkou/index.html>>.
- 31) There are directives relating to information assurance of the Ministry of Defense (Ministry of Defense Directive No. 160, 2007).
- 32) The action plan of the Ministry of Defense which was devised in October 2007 on the back of the “Action Plan for Greenhouse Gas Emission Reduction in Government Operations” (Cabinet decision made in the same year), the “Defense Agency Guidelines on Environmental Consideration” enacted in 2003 based on the government’s Basic Environment Plan, and a review of those guidelines carried out in January 2005, etc. For details on Ministry of Defense guidelines for environmental consideration, see <<http://www.mod.go.jp/j/approach/chouwa/hairyo.html>>.
- 33) Specifically, this includes measures for the purpose of conservation of the atmospheric environment, water quality conservation, recycling and waste disposal, improvement of environmental conservation facilities, and environmental surveys.
- 34) See <<http://www.kantei.go.jp/jp/singi/kaiyou/about2.html>>.
- 35) See <<http://www.kantei.go.jp/jp/singi/kaiyou/kihonkeikaku/index.html>>.
- 36) In order to appropriately manage the sea under jurisdiction, the area of which (approximately 4.47 million km<sup>2</sup>) includes exclusive economic zones extending to roughly 12 times the land area (of approximately 380,000 km<sup>2</sup>), in December 2009, the Headquarters for Ocean Policy formulated the “Basic Policy concerning Preservation Management of Islands for Management of the Sea.” Then, on May 26, 2010, a bill was passed that pertained to the conservation of exclusive economic zones and the continental shelf, and to improvement of base facilities.