Section 2 Disaster Management System, —Correspondence and Preparation in the Event of Disaster

2-1 Revision of the Basic Disaster Management Plan

The Basic Disaster Management Plan is a basic plan for disaster reduction in Japan prepared by the National Disaster Management Council in accordance with Article 34, Paragraph 1 of the Basic Act on Disaster Management, and is subject to consideration "every year the results of scientific research on disasters and disaster prevention, the situation of disasters that have occurred, and the effects of emergency disaster response measures taken in response to such disasters, and it is revised if necessary." Based on the Basic Disaster Management Plan, local governments must prepare local disaster management plans, and designated administrative organizations and designated public corporations need to prepare and revise disaster reduction operation plans.

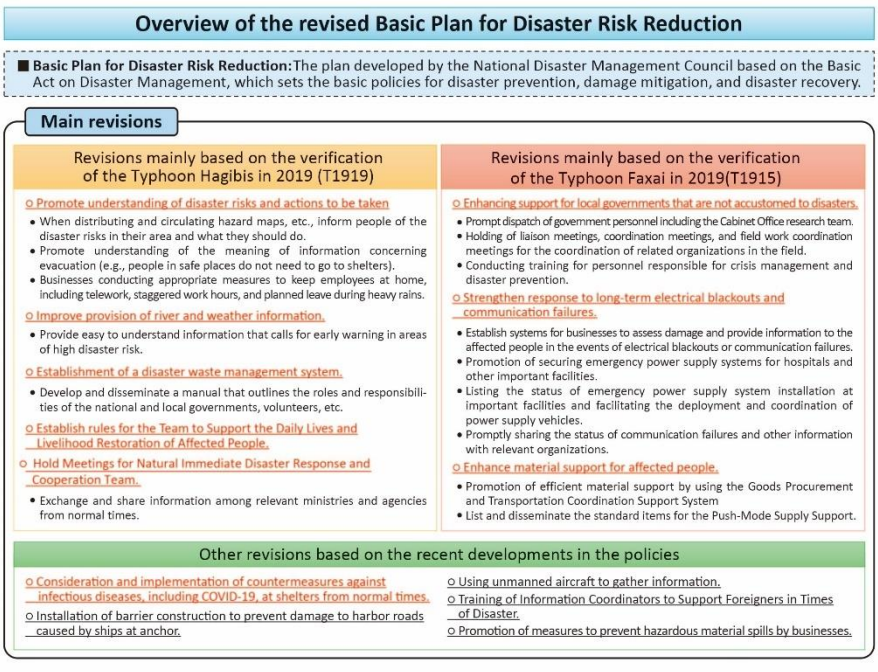
(Reference: http://www.bousai.go.jp/taisaku/keikaku/kihon.html#syusei)

Regarding FY 2020, the Basic Disaster Management Plan was revised in May 2020 (FIG. 2-1-1). Main revisions to the plan include the addition of descriptions of responses to issues that became apparent after the disasters that occurred in FY 2019.

Specifically, based on the consideration of Typhoon Faxai in 2019 (T1915), the report describes the strengthening of responses to long-term power outages and communication failures, and the enhancement of support for local governments that are not accustomed to disasters. Also, based on the consideration of Typhoon Hagibis in 2019 (T1919), the report adds descriptions of the promotion of understanding of disaster risks and actions to be taken, and the holding of the "Meetings for Natural Immediate Disaster Response and Cooperation Team" to share information among relevant ministries and agencies from normal times.

In addition, necessary revisions have been made in light of recent developments in disaster prevention measures, such as the consideration and implementation of countermeasures against infectious diseases, including COVID-19, in shelters during ordinary times.

FIG. 2-1-1 Overview of revisions to the Basic Plan for Disaster Risk Reduction (May 2020)



2-2 Enhancement of Training Content for Heads and Staffs of Local Governments

Rapid and accurate disaster response depends largely on the knowledge and experience of local government leaders and disaster management staff. To this end, the Cabinet Office has been working on the "Training of Disaster Prevention Specialists" for national and local government officials since FY 2013 in order to develop "people who can respond quickly and accurately to crisis situations" and "people who can form national and local networks."

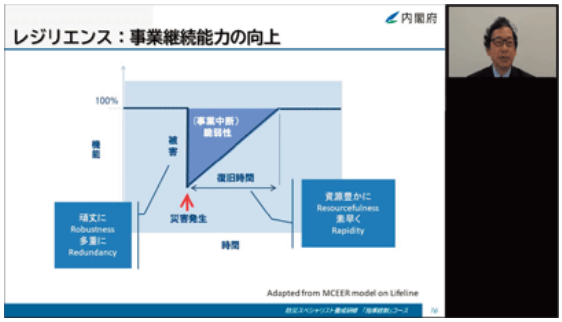
For the FY 2020 Ariake no Oka training program, working groups were held for each course to discuss and review the curriculum, training guidelines, textbooks, tests, and human network initiatives with the coordinators. In addition, the regional training program, which has been in implementation since FY 2019, has been working on human resource development related to disaster prevention among employees of local governments and other organizations by incorporating content that meets local conditions and needs. Furthermore, through the course of "follow-up trainings," those who completed the Ariake no Oka training program were encouraged to further improve their skills and strengthen their human networks. In this fiscal year, due to measures to prevent the spread of COVID-19, it was difficult to conduct these trainings in a group, so the trainings were conducted online.

In addition, we studied the standardization of e-learning creation methods with the aim of developing an e-learning program for disaster prevention specialists, mainly for municipal employees, to allow them to learn about the tasks that have been identified as disaster response issues in recent disasters.

Besides, the National Seminar on Disaster Prevention and Crisis Management for Mayors of Towns and Villages was held jointly with the Cabinet Office and the Fire and Disaster Management Agency (the seminar for mayors of cities and words was cancelled in FY 2020 in consideration of the spread of COVID-19). The seminar is designed to help improve the ability of mayors of towns and villages to make quick and accurate judgments, and to provide training on how to respond to disasters a mayor, and on the initial response of local governments that have actually been affected by disasters.

Moreover, the Cabinet Secretariat, the Cabinet Office, and the Fire and Disaster Management Agency co-hosted the "Special Seminar on Disaster Prevention and Crisis Management" for prefectural department heads and crisis management supervisors via web conference in June 2020, and the "Training for Municipal Crisis Management and Disaster Prevention Officers" for municipal officers via online training in November 2020 and February 2021.

In light of the new way of life triggered by COVID-19, efforts should be made to improve the effectiveness and efficiency of training, as well as to enhance the content of these training programs, to further improve disaster resilience and disaster response capabilities.



FY 2020 "Training of Disaster Prevention Specialists (Ariake no Oka) (Online Training)"

FY 2020 National Seminar on Disaster Prevention and Crisis Management for Mayors of Towns and Villages

2-3 Securing Designated Emergency Evacuation Sites and Designated Shelters

"Designated emergency evacuation sites" are facilities or places where residents can evacuate in an emergency to ensure the safety of their lives in the event of imminent danger from tsunamis, floods, and other dangers. “Designated shelters” are facilities where evacuated residents can stay for a necessary period of time until the danger of disaster disappears, or where residents who cannot return to their homes due to a disaster can stay temporarily.

At the time of the Great East Japan Earthquake, there was not always a clear distinction between evacuation sites and shelters, and this contributed to the spread of damage. For this reason, the Cabinet Office amended the Basic Act on Disaster Management in 2013 to require the mayor of a municipality to designate designated emergency evacuation sites and designated shelters separately in advance, and to inform residents (public notice) of the details. The status of designated emergency evacuation sites as of April 1, 2020, is as shown in FIG. 2-3-1.

FIG. 2-3-1 Designated Emergency Evacuation Sites

	Designated Emergency Evacuation Sites							
	Flooding	Sediment Disaster (Landslide Disaster)	Storm surge	Earthquake	Tsunami	Widespread fire	Flood Rainfall inundationding	Volcanic phenomena
Number of designated evacuation sites (sites)	68,961	64,141	20,823	82,798	37,051	39,497	37,569	10,003
Expected capacity (10,000 people)	12,420	13,419	5,866	23,624	8,381	16,569	7,427	2,280

Source: Formulated by the Cabinet Office based on the Fire and Disaster Management Agency report “Status of Regional Disaster Management Administration” (multiple responses permitted for each category)

In addition, designated emergency evacuation sites can be viewed on the web map "Geospatial Information Authority Map" managed by the Geospatial Information Authority of Japan (FIG. 2-3-2).

FIG. 2-3-2 Example of how designated emergency evacuation sites can be shown

Source: Geospatial Information Authority of Japan website
(Reference: https://www.gsi.go.jp/bousaichiri/hinanbasho.html)

The Cabinet Office, together with the Fire and Disaster Management Agency, has been urging local governments to promptly designate designated emergency evacuation sites. In addition, since designated emergency evacuation sites are to be designated for each type of disaster, local governments across the country are called upon to urgently initiate the maintenance of information boards according to the "Hazard Specific Evacuation Guidance Sign System (JIS Z 9098)" (March 2016), which was established to enable evacuees to make clear decisions. (FIG. 2-3-3, FIG. 2-3-4).

(Reference: http://www.bousai.go.jp/kyoiku/zukigo/index.html)

FIG. 2-3-3 Example of a signboard based on the Hazard Specific Evacuation Guidance Sign System

- A pictogram indicating it is an evacuation site (required).
- Hazard specific pictograms (required).
- Suitability/unsuitability marks ("○" for suitable and "×" for unsuitable.)
- Stating that it is an evacuation site. (Example of a evacuation site name)
- Preferably also in a foreign language.(Example in English)

FIG. 2-3-4 Standardizing pictograms for shelters etc.

Types of disasters from the Basic Act on Disaster Management	JIS approved disaster pictograms
Tsunami	Tsunami & Storm surge (Previous pictograms are also used, and general pictograms are also created)
Storm surge	
Flooding	Flooding Rainfall inundation
Rainfall inundation	
Slope failure Debris flow Landslide	Slope failure Landslide
	Debris flow
Widespread fire	Widespread fire
Earthquake	Covered by disasters that occur (tsunamis, widespread fires, etc.)
Volcano	Raise awareness of shelters, etc. for evacuation.

- **Evacuation sites are set up for each type of disaster.**
- To standardize the picograms for evacuation sites, the relevant government ministries and agencies have decided to establish a liaison conference to promote the standardization of pictograms for evacuation sites. The JIS Drafting Committee prepares the draft, and reports it to the Minister of Economy, Trade and Industry.

  →Pictograms were approved by JIS on March 22, 2016.

(Reference: Pictograms approved by JIS)

Evacuation site JISZ8210

Shelter JISZ8210

Tsunami evacuation site/ Tsunami evacuation building JISZ8210

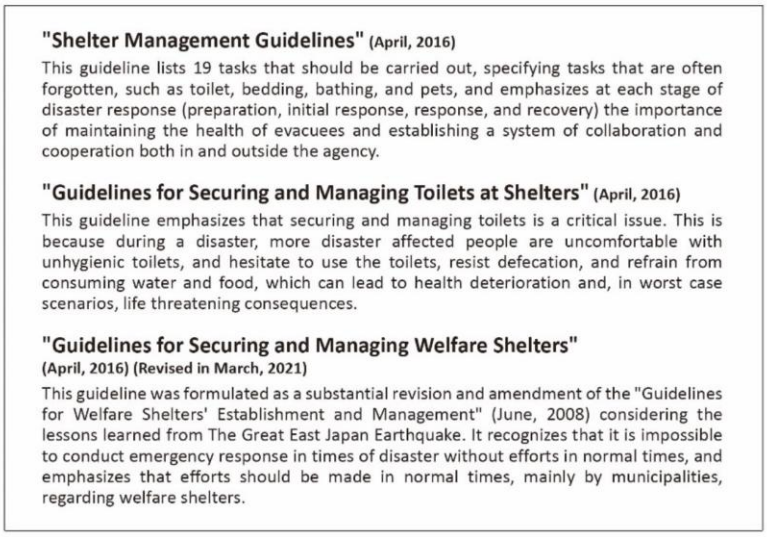
As for the state of designated shelters based on Article 49-7 of the Basic Act on Disaster Management, the number of designated shelters increased from 48,014 as of October 1, 2014, to 79,281 as of October 1, 2020, partly

due to the fact that municipalities that have not completed the designation since April 2014, when the designation system was established, have been urged to complete it promptly.

In response to recent disasters, various problems related to securing a suitable living environment in shelters and issues such as the improvement of toilets in shelters were pointed out. It is considered important to improve the quality of life and ensure a good living environment even under the circumstances where people are forced to live uncomfortably in shelters during disasters. To this end, the Cabinet Office has been holding the "Study Group on Securing Shelters and Improving their Quality" since July 2015 in order to study a wide range of issues related to promoting the designation of shelters and welfare shelters by municipalities, improvement of toilets in shelters, and development of support systems and consultation services for people in need of consideration, and to take necessary measures. In April 2016, we partially revised the "Guidelines for Ensuring Satisfactory Living Conditions at Shelters" (formulated and published by the Cabinet Office in August 2013) and published 3 guidelines based on these guidelines: "Shelter Management Guidelines," "Guidelines for Securing and Managing Toilets at Shelters," and "Guidelines for Securing and Managing Welfare Shelters" (FIG. 2-3-5).

In addition, the “Sub-Working Group Concerning Evacuation of the Elderly and people with special needs Based on Typhoon Hagibis in 2019 (T1919)” held in FY 2020, stated that it would be appropriate to establish a system to clarify that each welfare shelter is a facility for evacuation of acceptees and their families, by specifying the target population and publicly announcing it at the time of designation. In light of this, in May of 2021, the Ordinance for Enforcement of the Basic Act on Disaster Management and the "Guidelines for Securing and Managing Welfare Shelters" were revised.

FIG. 2-3-5 "Shelter Management Guidelines" (April, 2016)



Source: Cabinet Office website
(Reference: http://www.bousai.go.jp/taisaku/hinanjo/index.html)

2-4 Utilization of ICT in Disaster Management

In the Initial Response Verification Report for the 2016 Kumamoto Earthquakes (Cabinet Secretariat and Cabinet Office, 2016) and the Working Group for Emergency Response and Livelihood Support Measures (Cabinet

Office, 2016), it was pointed out that the situation in the affected municipalities was difficult to wholly understand, including the movements of evacuees and the status of relief supplies during the disaster response. Therefore, it was pointed out that it is necessary to establish a system for a disaster information hub among relevant organizations in advance, such as setting rules for handling, sharing, and utilizing various types of information.

(Reference: http://www.bousai.go.jp/updates/h280414jishin/h28kumamoto/shodotaio.html)

(http://www.bousai.go.jp/updates/h280414jishin/h28kumamoto/okyuseikatu_wg.html)

To this end, the Cabinet Office has established the National and Local Government Public-Private Disaster Information Hub Promotion Team and has been conducting studies a disaster information hub (hereinafter referred to as the "hub" (see FIG. 2-4-1)) to facilitate the use of information and communication technology (ICT), which is considered to be an effective means of information sharing, as well as rules on the method and period of information sharing among relevant organizations through under the Disaster Management Committee of the National Disaster Management Council Working Group for the Promotion of Standardization of Disaster Measures since 2017.

(Reference: http://www.bousai.go.jp/kaigirep/saigaijyouhouhub/index.html)

Based on these studies, in FY 2019, the Information Support Team (ISUT) was set up on a trial basis to support the disaster response of local governments by aggregating, mapping, and providing information on disaster damage and shelters in the event of a large-scale disaster. And it began full-scale operation in FY 2019. At the site of a disaster, some information, such as information on damage and disaster waste, changes from moment to moment and cannot be shared in advance (dynamic information). In order for disaster responders to make accurate decisions, it is very important to superimpose this information on a map and systematically understand the situation. The ISUT can collect, organize, and map such information, and share it with relevant organizations (government agencies and designated public corporations) to support quick and accurate decision-making by disaster responders.

The ISUT has responded to disasters a total of 8 times, including the Heavy Rain Event of July 2018, the Typhoon Hagibis in 2019 (T1919), and most recently, the Heavy Rain Event of July 2020. During the Heavy Rain Event of July 2020, ISUT was dispatched to Kumamoto and Kagoshima Prefectures to assist in the collection and organization of information, and the maps prepared by the ISUT (FIG. 2-4-2) were used to explain the situation at the disaster management headquarters of the affected prefectures and municipalities, and to explain the situation to the actual organizations and supporting staff from other local governments, thus contributing to effective disaster response by local governments (FIG. 2-4-3). For example, in Kumamoto Prefecture, in order to support the elimination of isolated villages, a map was created to monitor the restoration status of lifelines such as roads, electricity, and communications for each village, which was used to manage the progress of daily disaster response.

In addition, based on the challenges in consolidating and organizing information up to the previous fiscal year, the ISUT strengthened its structure by outsourcing some of its work, such as mapping, to the private business operators, which enabled the organization to conduct support activities more smoothly. This program will continue to be implemented moving forward.

In addition, in order for the ISUT to carry out its activities more quickly and effectively, we will continue to coordinate with related organizations to develop tools for more rapid information collection and sharing of disaster

information, such as photos of field activities, and to develop training programs on the use of the ISUT website.

FIG. 2-4-1 **Image of a "Disaster Information Hub"**

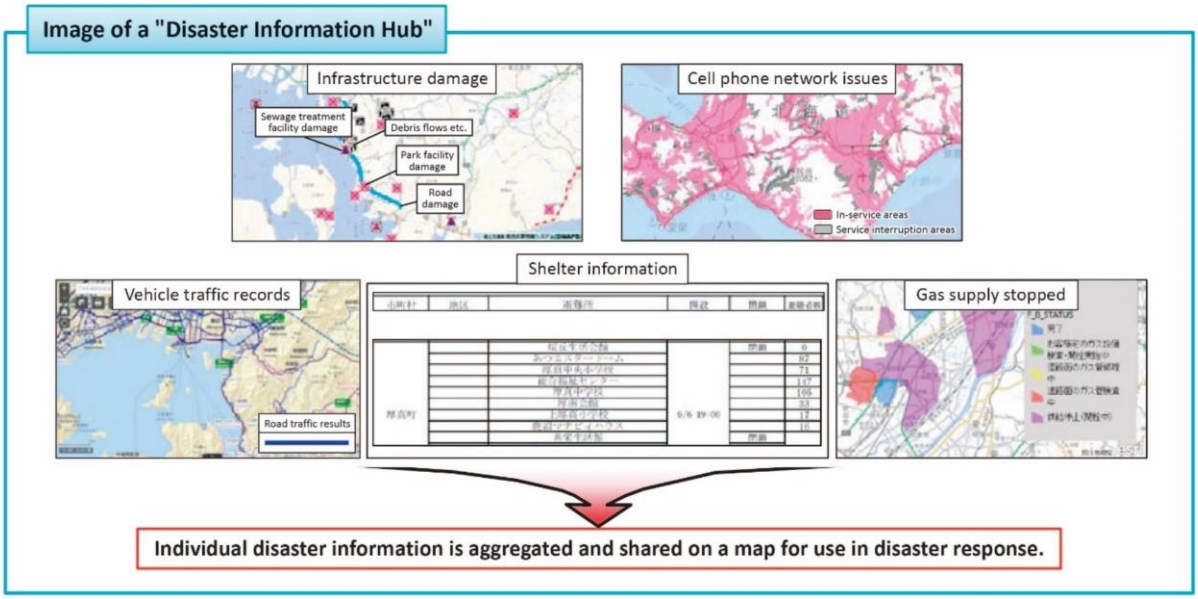


FIG. 2-4-2 **Example of a map based on the Heavy Rain Event of July 2020**
(supporting map for eliminating isolated communities).

Road conditions in the affected area.
- Cleared (vehicle access allowed)
- Currently clearing (vehicle traffic not allowed)
- Unresearched (unknown)

Recovery of lifelines by communities.

Roads: Unable to access the community, Electric power: Blackout, Communication: Normal

Electric power: Partially recovered

Roads: Able to access the community, Electric power: Blackout recovered, Communication: Opened

Roads not passable/ expected to be cleared
- Expected to be cleared in early August
- Expected to be cleared in mid-August
- Expected to be cleared in late August
- Expected to be cleared in early September
- Full-scale recovery required

FIG. 2-4-3 Usage of ISUT site and map during the Heavy Rain Event of July 2020
(Kumamoto Prefectural Government)

Usage at the Disaster Management. Headquarters Meeting of Kumamoto Prefecture

Usage at a meeting of officials in charge of eliminating isolated communities (hosted by the prefecture).

Usage at the aviation coordination team

Usage at the coordination meeting of working organizations (hosted by the prefecture)

Source: Cabinet Office documents

2-5 Holding Meetings for Natural Disaster Immediate Disaster Response and Cooperation Team etc.

The government's swift and smooth initial response and emergency measures immediately after the occurrence of a large-scale disaster in recent years can be attributed to the fact that the Deputy Chief Cabinet Secretary for Crisis Management and other government directors in charge of disaster management have been able to share their experience and knowledge through successive disaster responses, enhance their sense of unity through repeated systematic learning, and build a "face-to-face relationship." Such relationship plays a big role to realize the appropriate division of roles and mutual cooperation.

In order to sustain this organizational strength, "Meetings for Natural Immediate Disaster Response and Cooperation Team" have been held periodically since FY 2020 as a meeting for exchanging and sharing information among related parties not only after the occurrence of a natural disaster but also during ordinary times.

In addition, when large-scale disasters such as the Heavy Rain Event of July 2018 and Typhoon Hagibis in 2019 (T1919) occurred, the government organized a cross-ministry Team to Support the Daily Lives of Affected People under the supervision of the Deputy Chief Cabinet Secretary (Administrative Affairs) in order to provide more detailed, prompt, and powerful livelihood support to the affected people. Through this team, the government has been able to quickly restore power and water services, assess the needs of the affected people, provide push-type support such as water, food, cardboard beds, partitions, improve the living environment in shelters, dispatch staff to the affected local governments, and secure housing. The government has been working as one to quickly provide support for the livelihoods of the affected people by putting together a package of measures to rebuild the life and livelihood of the affected areas.

Based on these experiences, since FY 2020, the Basic Disaster Management Plan has clearly stated that in the event of a large-scale disaster in the future, a "Team to Support the Daily Lives and Livelihood Restoration of Affected People" will be established to provide prompt and smooth support for the life and livelihood of affected

people, and the establishment of such a team has been made a rule.

In the aftermath of the Heavy Rain Event of July 2020, the Team to Support the Daily Lives and Livelihood Restoration of Affected People was set up on July 5, and on July 30, the team compiled a "package of measures for the reconstruction of the life and livelihoods of the affected people" as an urgent response to rebuild the life and livelihoods of the affected areas.

2-6 Publication of Case Studies of Ensuring Evacuation Operation/Implementation Plan for Facilities for Attracting Visitors in the Event of an Eruption

The “Act on Special Measures for Active Volcanoes” was amended in the wake of the Mt. Ontake Eruption disaster that occurred in September 2014. In order to ensure the smooth and swift evacuation of facility users when volcanic phenomena occur, owners of facilities designated by municipalities for attracting visitors and facilities for persons requiring special care (evacuation promotion facilities) are required to prepare an evacuation plan and conduct drills based on the plan as obligation.

The Cabinet Office prepared and published the "Guide to Preparing Volcanic Eruption Evacuation Plans for Facilities for Attracting Visitors" in 2016 to support the preparation of evacuation security plans for evacuation promotion facilities.

(Reference: http://www.bousai.go.jp/kazan/tebikisakusei/index.html)

Since FY 2019, in order to encourage the creation of evacuation operation plans for each evacuation promotion facility, evacuation plans have been collaboratively studied with prefectures and municipalities using different types and conditions of facilities as model facilities. Specific issues and solutions in the preparation of evacuation operation plans have been compiled and published in the form of "Case Studies on Preparing Volcanic Evacuation Plans for facilities for Attracting Visitors" (FIG. 2-6-1).

(Reference: http://www.bousai.go.jp/kazan/tebikisakusei/kakuhokeikaku/index.html)

FIG. 2-6-1 Case Studies on the Formulation of Volcanic Eruption Evacuation Plans for facilities

2-7 Survey and Consideration of the Use of Hospital Ships

Regarding hospital ships (ships whose main function is to provide medical services on board in times of disaster, the same applies hereinafter) in the investigations and considerations conducted by the Cabinet Office in FY 2011

and FY 2012 after the Great East Japan Earthquake, the following issues were pointed out as main issues: (1) enormous construction costs, (2) difficulty in securing medical and related staff, and (3) low potential for use during ordinary times. It was also pointed out that demonstration training using existing ships can be an effective measure. Based on this, since FY 2013, the Cabinet Office has been conducting demonstration drills for disaster medical activities using existing vessels.

In FY 2020, a collaborative effort maximizing the expertise of the Cabinet Office, the Ministry of Health, Labour and Welfare, the Ministry of Defense, and the Ministry of Land, Infrastructure, Transport and Tourism, utilizing the first supplementary budget, conducted investigations and considerations on the utilization of hospital ships to secure a place to provide medical care, based on the urgent economic measures for COVID-19 (decided by the Cabinet on April 7, 2020).

Specifically, the Ministry of Health, Labour and Welfare conducted investigations and considerations on the positioning of hospital ships in disaster medical care and infectious disease response, their required functions and necessary equipment, and methods of carrying in and out patients; the Ministry of Defense, on the ability of foreign militaries, including naval ships, to respond to infectious diseases; and the Ministry of Land, Infrastructure, Transport and Tourism, on the optimization of onboard systems for hospital ships. The Cabinet Office reviewed the necessity of hospital ships and summarized the results of the study based on the content of the investigations and considerations conducted by the ministries, focusing on the following issues: (1) the role that hospital ships should play, (2) securing personnel in times of disaster, and (3) measures to utilize hospital ships during ordinary times.

After these investigations and considerations, the Cabinet Office, Ministry of Health, Labour and Welfare, Ministry of Defense, and Ministry of Land, Infrastructure, Transport and Tourism jointly compiled and announced the government's viewpoint based on the investigations and considerations on the utilization of hospital ships on March 30, 2021. The following is a summary of this viewpoint.

In the event of a large-scale disaster such as the Nankai Trough Earthquake, a vast number of medical needs are expected to arise over a wide area. Hospital ships are expected to supplement land-based medical institutions, especially in areas where land routes are cut off and on remote islands, by taking advantage of the characteristics of ships that can operate on the sea in a self-contained manner.

On the other hand, there are three major issues that need to be addressed in order to utilize hospital ships: (1) securing medical personnel, (2) securing operating personnel, and (3) measures to utilize hospital ships during ordinary times.

In light of the current situation where these issues have not yet been resolved, for the time being, instead of starting to build new hospital ships, disaster medical activities will be realized using existing ships.

The following is a list of specific action items in using existing ships.

- Enhancing the training that has been conducted so far, in cooperation with relevant government ministries and agencies, full-scale training will be conducted on disaster medical operations on ships, from initial response (gathering of personnel) to completion (removal of patients), with the assumption that medical beds on Self-Defense Force ships will be used as well.
- Private entities that are capable of securing their own vessels and conducting disaster medical activities will also be monitored and measures for cooperation and support will be considered.

In addition, the following studies will be conducted to address the issues identified in these investigations and considerations.

- With regard to securing medical personnel, while considering the status of control over COVID-19, specific consideration will be given to the establishment of cooperative relationships with medical-related organizations, and efforts will be made to enhance medical care provision systems in times of disaster.
- Clarifying the skills and number of operating personnel required through training and consider how to secure them to respond immediately in the event of a disaster.
- In addition to paying attention to immediate response and cost-effectiveness in times of disaster, measures for use during ordinary times will continue to be considered, considering future changes in socio-economic conditions.
- The use of ships in the response to infectious diseases will also continue to be considered, based on the response to COVID-19, while fully listening to the opinions of medical personnel.

In Japan, which is surrounded by the sea, there are high expectations for the use of ships to ensure medical care in times of disaster and infectious disease outbreaks. Therefore, the government will continue to work on improving medical care provision systems in times of disaster and infectious disease outbreaks, while listening carefully to the opinions of medical organizations.

【Column】

"Ten Years After the Great East Japan Earthquake: Major Efforts by the Japan Meteorological Agency"

This year marks the 10th anniversary of the Great East Japan Earthquake. This section will introduce the main efforts that the JMA has made since the earthquake, namely the improvement of tsunami warnings and earthquake early warnings.

(1) Improvement of Tsunami Warnings

In the Great East Japan Earthquake, a very high tsunami of over 9 meters was observed in Soma, Fukushima Prefecture, and waves of tsunamis hit the Pacific coast all along the coasts from Hokkaido to Okinawa, specifically from the Tohoku region to the northern Kanto region. The Japan Meteorological Agency issues a tsunami warning about 3 minutes after an earthquake when a tsunami is predicted. However, as it can be difficult to appropriate grasp the scale of a massive earthquake that exceeds a magnitude of 8, the initial magnitude was estimated smaller than it actually was. This led to an underestimation of the expected tsunami height in tsunami warnings. In light of this, the Japan Meteorological Agency has revised the tsunami warning system so that evacuation from the area will not be hindered. When there is a possibility of a huge earthquake with a magnitude exceeding 8, in the first tsunami warning, qualitative expressions such as "huge" and "high" are used to encourage people to evacuate, and when the scale of the earthquake is accurately determined, the expected tsunami height is announced numerically. The agency started using this type of expression in 2013.

Notation of Tsunami Warnings, etc. and Expected Tsunami Heights in Light of the Great East Japan Earthquake

Information Type		Tsunami Advisory	Tsunami Warning	Major Tsunami Warning		
Expected tsunami height	Qualitative	No expression	"High"	Huge		
	Quantitative	1m (0.2m-1m)	3m (1m-3m)	5m (3m-5m)	10m (5m-10m)	over 10m (10m-)

(2) Improvement of the Earthquake Early Warning System

In the Great East Japan Earthquake, Kurihara City in Miyagi Prefecture experienced a seismic intensity of 7 and a wide area from Hokkaido to the Kyushu region, mainly in eastern Japan, experienced a seismic intensity of 6+ to 1. The Japan Meteorological Agency issued an earthquake early warning immediately after the quake but estimated the magnitude to be smaller than it actually was, and thus predicted a smaller seismic intensity. Later, when multiple earthquakes occurred simultaneously due to extremely active seismic activity, there were cases where the magnitude of the earthquake was overestimated and announced because the multiple earthquakes could not be properly identified, and the magnitude estimated. In light of the above, the Japan Meteorological Agency has been working on technical improvements to the Earthquake Early Warning System, and has introduced a method that can accurately estimate the epicenters of multiple earthquakes at the same time (IPF method, December 2016: a method that integrates data and previously used separately), and a method that can accurately predict the seismic intensity of a huge earthquake (PLUM method, March 2018: a method that predicts the seismic intensity based on the observed values of tremors in the surrounding area).