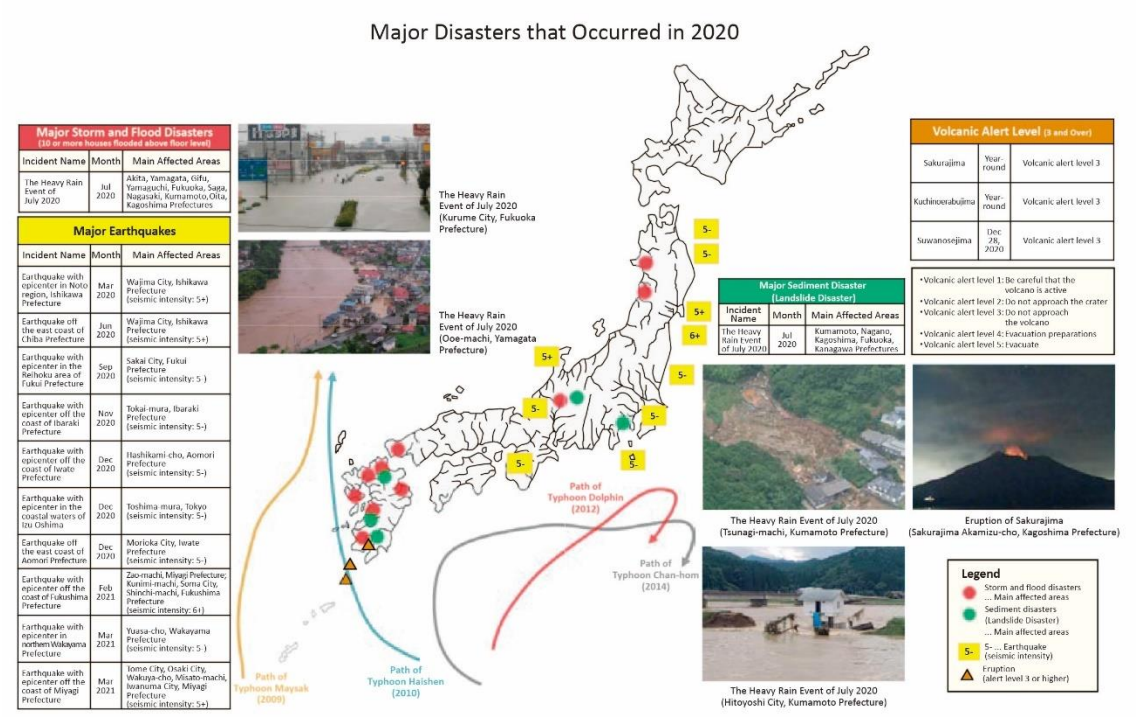
Section 2 Major Disasters in FY 2020

Japan is prone to various types of disasters due to its natural conditions, and natural disasters such as floods, Sediment Disaster (Landslide Disaster), earthquakes, and tsunamis occur almost every year. In recent years, the area was severely damaged by the Great East Japan Earthquake in 2011, the Kumamoto Earthquake in 2016, the Heavy Rain Event of July 2018, and the Typhoon Faxai in 2019 (T1915) and Typhoon Hagibis in 2019 (T1919). In FY 2020, notable damage was caused by the Heavy Rain Event of July 2020, heavy snow from December 2020 to January 2021, and the Earthquake Centered Off the Coast of Fukushima Prefecture in 2021. In particular, the Heavy Rain Event of July 2020 caused extensive damage to not only lives and homes but also lifelines and local industries in the Kyushu, Chubu, and Tohoku regions. In addition, since December, intermittent heavy snow fell mainly on the Sea of Japan side from northern to western Japan, and some areas in Kyushu and Shikoku, where snowfall is usually scarce, also received snowfall.



Source: Flood Disaster Report 2020 (Ministry of Land, Infrastructure, Transport and Tourism, Japan)

2-1 Disasters Caused by the Heavy Rain Event of July 2020

(1) Overview

The seasonal rain front expanded and almost stagnated from central China through around the Kyushu region to East Japan from July 3 to July 8, 2020. The rain front was very active, which caused heavy rain in West and East Japan. Especially in the Kyushu region, there was record heavy rain from July 4 to 7. There was also intermittent heavy rain around Gifu Prefecture from July 6, and record heavy rain from July 7 to 8. The Japan Meteorological Agency disseminated a heavy rain emergency warning to seven prefectures: Kumamoto, Kagoshima, Fukuoka, Saga, Nagasaki, Gifu, and Nagano Prefectures, expressing the maximum level of alert.

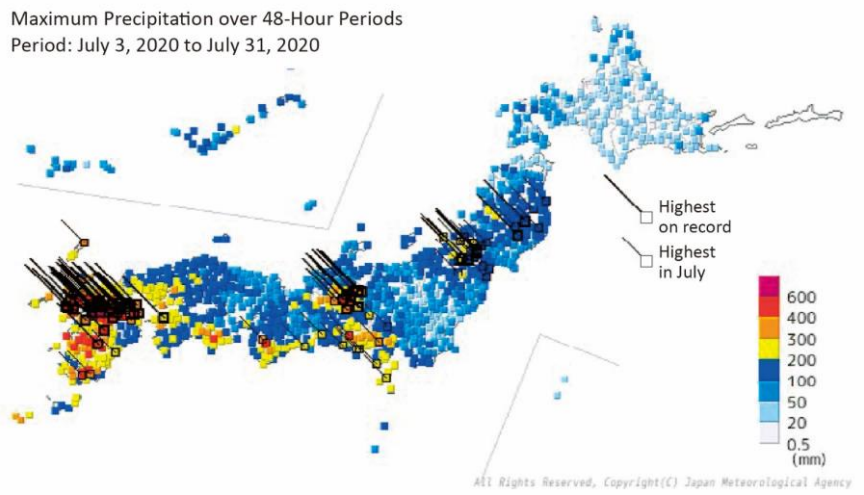
After that, the rain front stagnated around the main island of Japan, with many rainy days across a large region

from West Japan to the Tohoku region. Particularly, there was heavy rain in mainly based around the Chugoku region from July 13 to 14 and mainly around the Tohoku region from July 27 to 28.

The total precipitation from July 3 to 31 was more than 2,000 mm in some locations across Nagano Prefecture and Kochi Prefecture. The 24-, 48-, and 72-hour precipitation amounts exceeded the highest values in recorded history at many locations in the southern and northern Kyushu regions, the Tokai region, and the Tohoku region.

Taking this into account, the Heavy Rain Event of July 2020 became the first event that caused large scale disasters under COVID-19 crisis.

Maximum Precipitation over 48-Hour Periods (July 3 to 31)



Major Precipitation Events (July 3 to 31)

Prefecture	Municipality	Location Name	Precipitation amount (mm)
Nagano Prefecture	Otaki-mura, Kiso-gun	Ontakesan	2135. 5
Kochi Prefecture	Umaji-mura, Aki-gun	Yanase	2032. 5
Gifu Prefecture	Gero City	Hagiwara	1810. 0
Oita Prefecture	Hita City	Tsubakigahara	1714. 5
Wakayama Prefecture	Tanabe City	Gomadanzan	1672. 0

Source: Compiled by the Cabinet Office from the website of the Japan Meteorological Agency

(2) State of Damage

The Heavy Rain Event of July 2020 resulted in 84 deaths (1 in Toyama Prefecture, 1 in Nagano Prefecture, 1 in Shizuoka Prefecture, 2 in Hiroshima Prefecture, 2 in Ehime Prefecture, 2 in Fukuoka Prefecture, 3 in Nagasaki Prefecture, 65 in Kumamoto Prefecture, 6 in Oita Prefecture, 1 in Kagoshima Prefecture), 2 missing (2 in Kumamoto Prefecture), 25 seriously injured (1 in Yamagata Prefecture, 2 in Nagano Prefecture, 1 in Gifu Prefecture, 2 in Hiroshima Prefecture, 5 in Fukuoka Prefecture, 1 in Nagasaki Prefecture, 12 in Kumamoto Prefecture, 1 in Oita Prefecture), and 55 slightly injured. As for damage to homes, 1,620 were completely destroyed, 8,103 were half or partially destroyed, and 6,825 were flooded above or below floor level (Fire and Disaster Management Agency information, as of February 26, 2021).

(Reference: https://www.fdma.go.jp/disaster/info/items/210226_ooame56.pdf)

Human and Housing Damage (as of February 26, 2021)

■ Human Damage

Prefecture	Deaths	Missing Persons	Major and Minor Injuries
Hiroshima	2	0	3
Fukuoka	2	0	9
Nagasaki	3	0	1
Kumamoto	65	2	47
Oita	6	0	2
Other	6	0	18
Total	84	2	80

■ Housing Damage

Prefecture	Completely destroyed	Half destroyed	Partial damage	inundation above floor level	inundation below floor level
Yamagata	1	62	7	150	555
Gifu	6	36	85	31	304
Fukuoka	14	992	977	681	1, 920
Kumamoto	1, 489	3, 097	2, 031	301	441
Oita	68	209	202	129	469
Other	42	113	292	360	1, 484
Total	1, 620	4, 509	3, 594	1, 652	5, 173

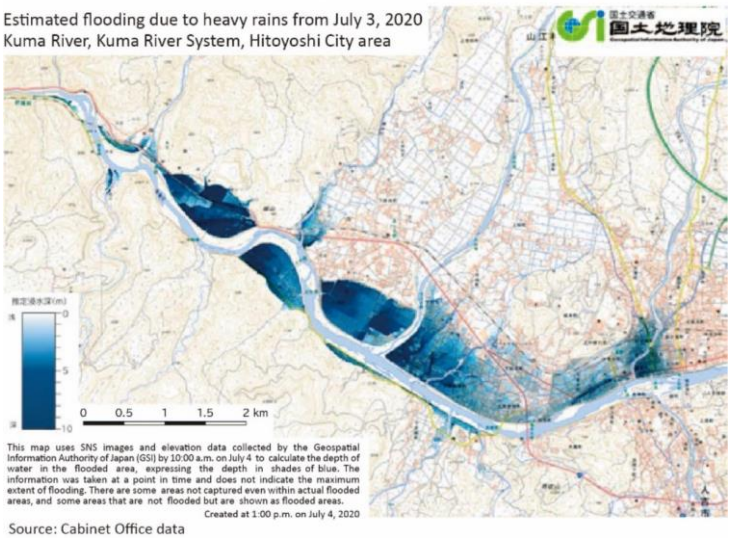
Source: Cabinet Office data

Also, electrical blackout and suspension of water supply occurred mainly in Kyushu, Tokai, and Tohoku regions. In Kumamoto Prefecture, there were approximately 8,800 households (at most) with electrical blackout and 27,000 households (at most) with suspension of water supply. In addition, lifelines such as communication systems failed, there was also severe damage to transportation infrastructure such as roads and railroads, and crops.

10 rivers in 7 water systems managed by the national government and 193 rivers in 58 water systems managed by prefectural governments overflowed due to collapse (embankments were collapsed in 2 places in 1 river managed by the national government and 3 places in 3 rivers managed by the prefectural government), and 961 cases of Sediment Disaster (Landslide Disaster) such as slope failure and debris flows occurred.

In Kuma Village, Kumamoto Prefecture, 14 residents of Senjuen, a special nursing home for the elderly, died due to flood damage. Eighty percent of the people who died due to this disaster were over the age 65, with a high percentage of elderly people affected.

Estimated Flooding Due to the Heavy Rain Event of July 2020
[Kuma River (near Hitoyoshi City)]



Source: Cabinet Office data

Damage caused by the Heavy Rain Event of July 2020

Flooding damage in Kumamoto Prefecture (Kuma Village) (Cabinet Office data)

Flooding damage in Kumamoto Prefecture (Kuma Village) (Cabinet Office data)

Flooding damage in Kumamoto Prefecture (Hitoyoshi City) (Cabinet Office data)

Flooding damage in Kumamoto Prefecture (Kuma Village) (Cabinet Office data)

In addition, the Disaster Relief Act was applied to 98 municipalities in 9 prefectures. Evacuation instruction (emergency) and evacuation recommendation were issued in a total of 34 prefectures, mainly in municipalities of Kumamoto Prefecture. The number of evacuees in shelters reached more than 10,963 at the peak (the Cabinet Office and the Fire and Disaster Management Agency information).

(3) Response by the Government

When the first heavy rain emergency warning was issued at 4:50 A.M. on July 4, 2020, the government gave instructions on the "timely and accurate information sharing with the public," "evacuation support and other pre-disaster measures," and "government-wide disaster response measures in the event of damage" from then Prime Minister Abe. Since the same day, a Ministerial Meeting had been held, and Cabinet Office Survey Teams had been dispatched to the Kumamoto and Kagoshima prefectural governments. The police, the fire department, Self-Defense Forces, the Ministry of Land, Infrastructure, Transport and Tourism, and other organizations dispatched units from all over Japan to the affected areas immediately after the disaster to conduct rescue and relief activities, secondary disaster prevention activities, and livelihood support.

On July 5, the first meeting of “the Major Disaster Management Headquarters of the Heavy Rain Event of July 2020" was held with Prime Minister Abe in attendance (the same meeting was held 12 times through July 30).

On July 13, then Prime Minister Abe and then Minister of State for Disaster Management from the Cabinet Office Takeda conducted a site visit to Kumamoto Prefecture. In addition, then Minister of State for Disaster Management from the Cabinet Office Takeda conducted a site visit to 5 prefectures (Kumamoto Prefecture on July 4, 5, and 8, Fukuoka Prefecture on July 7, 15, and 16, Kagoshima Prefecture on July 9, Oita Prefecture on July 16, and Gifu Prefecture on July 23), and Minister of State for Disaster Management from the Cabinet Office Okonogi conducted a site visit to Kumamoto Prefecture (September 26).

On July 6, the " Team to Support the Daily Lives and Livelihood Restoration of Affected People" was established under the direction of then Prime Minister Abe, consisting of officials at the level of vice-ministers from various ministries and agencies. On July 30, the team decided on the "Package for the Restoration of Lives and Livelihoods of the Affected," as a set of urgent measures to be taken, based on the needs of the affected areas and the characteristics of each area. In addition, on July 14, the Cabinet Office decided to use reserve funds of approximately 2.21 billion yen, and on July 31, 101.7 billion yen together with the formulation of this Package of Measures.

For the affected local governments, the government procured and shipped supplies necessary for daily life and anti-infectious disease (masks, antiseptic solution, and partitions), and provided support for those affected (push-mode support). In this case, the "Relief Goods Procurement and Transport Coordination Support System," which had been in operation since April 2020, was used to transport relief supplies more efficiently than in the past, based on inventory information registered in advance by the affected local governments.

On August 25, 2020, the Cabinet approved a cabinet order to designate disasters caused by torrential rain during the period from May 15 to July 31, 2020 as severe disasters (See APPENDIX 14-1 (A-33～A-35)).

In addition, support staff were dispatched to the affected local governments based on the "Staff allocation system to support local governments in affected areas." General Adviser Teams from 10 prefectures and cities consisting of a total of approximately 460 members were dispatched, and supported the operation of the disaster management headquarters to support disaster management in the 8 affected municipalities of Kumamoto Prefecture. Also, a total of approximately 5,900 support staff from 11 prefectures and cities were dispatched to provide aid, such as house surveying for disaster certification, after deciding on counterpart local governments to provide support to the affected cities, towns, and villages.

The Major Disaster Management Headquarters for the Heavy Rain Event of July 2020 (1st)

The site visit by then Prime Minister Abe and then Minister of State for Disaster Management from the Cabinet Office Takeda

2-2 Response at Shelters under the Heavy Rain Event of July 2020

To utilize the experience and know-how gained from the Heavy Rain Event of July 2020 in the affected areas for future disaster response, such information, including the perspective of response under COVID-19 crisis, was compiled, and notified to local governments nationwide.

(1) Shelter Management under COVID-19 crisis

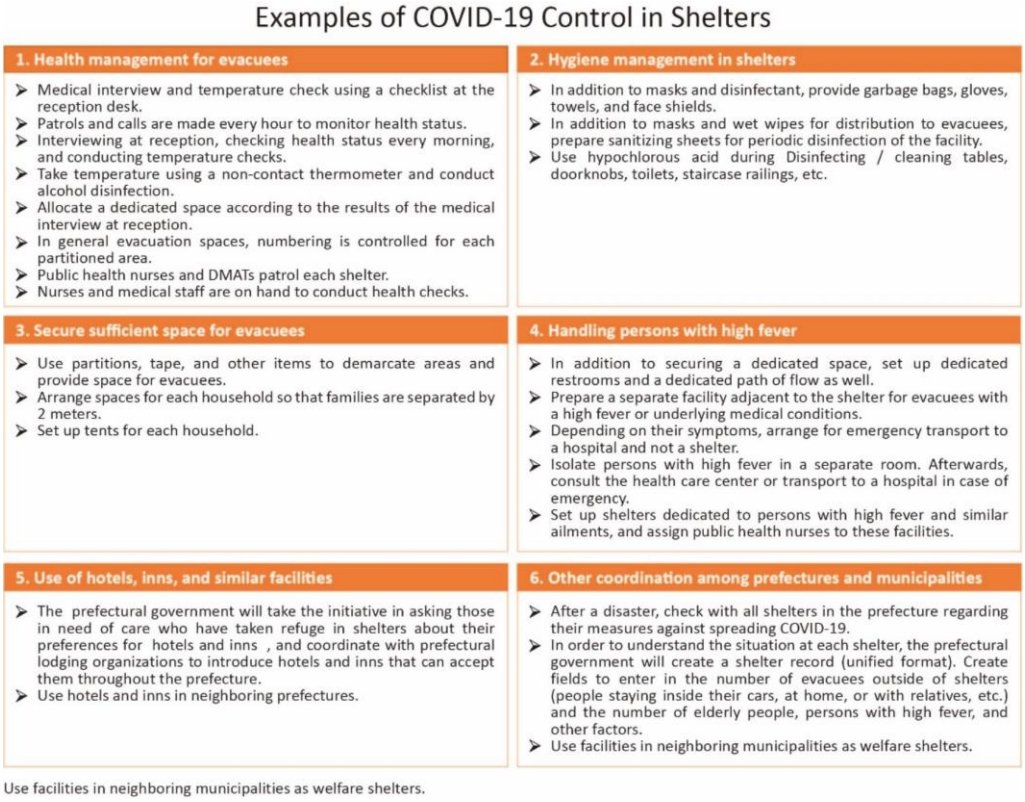
The Heavy Rain Event of July 2020 was the first large-scale disaster under COVID-19 crisis. Regarding countermeasures against COVID-19 in shelters, local governments have been urged to take measures necessary under COVID-19 crisis through notifications and other means. In order to avoid the three Cs, based on the examples of layouts in shelters and the Q & A and other notifications, health management and response to those with a fever were carried out, not only by hygiene management with masks and disinfectant at the shelters and securing sufficient space for evacuees with partitions and cardboard beds, but also by conducting temperature checks and medical interviews at the reception desk and allocating dedicated space according to the results. The government provided push-mode support such as non-contact thermometers and partitions based on the needs of the affected areas.

To cope with COVID-19 countermeasures, it became necessary to secure a larger space per person in shelters than in past cases. Due to this inevitable coordination, the capacity at each evacuation decreased to a level much lower than expected, and some facilities provided spaces as shelters which had not been planned at the time of disaster. However, countermeasures against infectious diseases in the shelters were mostly taken in an appropriate manner.

In addition, since the Heavy Rain Event of July 2020 were a summer disaster, it was urged that heat-related measures should be taken to prevent heat stroke in shelters.

Use of cardboard beds (Cabinet Office data)

Use of partitions (Cabinet Office data)



(2) Use of Hotels and Inns as Shelters

During the Heavy Rain Event of July 2020, damage was concentrated in the cities and towns along the Kuma River in Kumamoto Prefecture, and measures were taken to rent facilities (such as old school buildings) outside the cities and towns to secure shelters.

In addition, based on an agreement with the Kumamoto Prefectural Ryokan Hotel Association, Kumamoto Prefecture secured hotels and inns throughout the prefecture that were able to accept the evacuees, and decided to cover the costs of this rented space using national treasury's sharing under the Disaster Relief Act. At the same time, Kumamoto Prefecture took the initiative in securing shelters for people with special needs. In addition, with the cooperation of the Kumamoto Prefectural Ryokan Hotel Association, measures were takento temporarily repair damaged hotels and inns and utilize them as shelters.

(3) Support for Evacuees outside Shelters

Preparation is necessary so that an appropriate response can be taken because shelters will not only serve as a place to disseminate information to evacuees, including those who are outside of shelters, but will also be places to gather information and receive necessary supplies as local hubs for support.

During the Heavy Rain Event of July 2020, there were a considerable number of evacuees outside the shelters because people were urged to evacuate to their homes or the homes of relatives or acquaintances from the perspective of countermeasures against COVID-19, and isolated settlements occurred. In the affected municipalities in Kumamoto Prefecture, efforts were made to identify evacuees outside of the shelters, and support was provided in the form of necessary supplies, medical care, nursing care and other services by many ways as possible by cooperating with neighborhood associations and medical and welfare related organizations, in

addition to the government. Specifically, circumstances of the evacuees were grasped and support were provided according to their state, as follows:

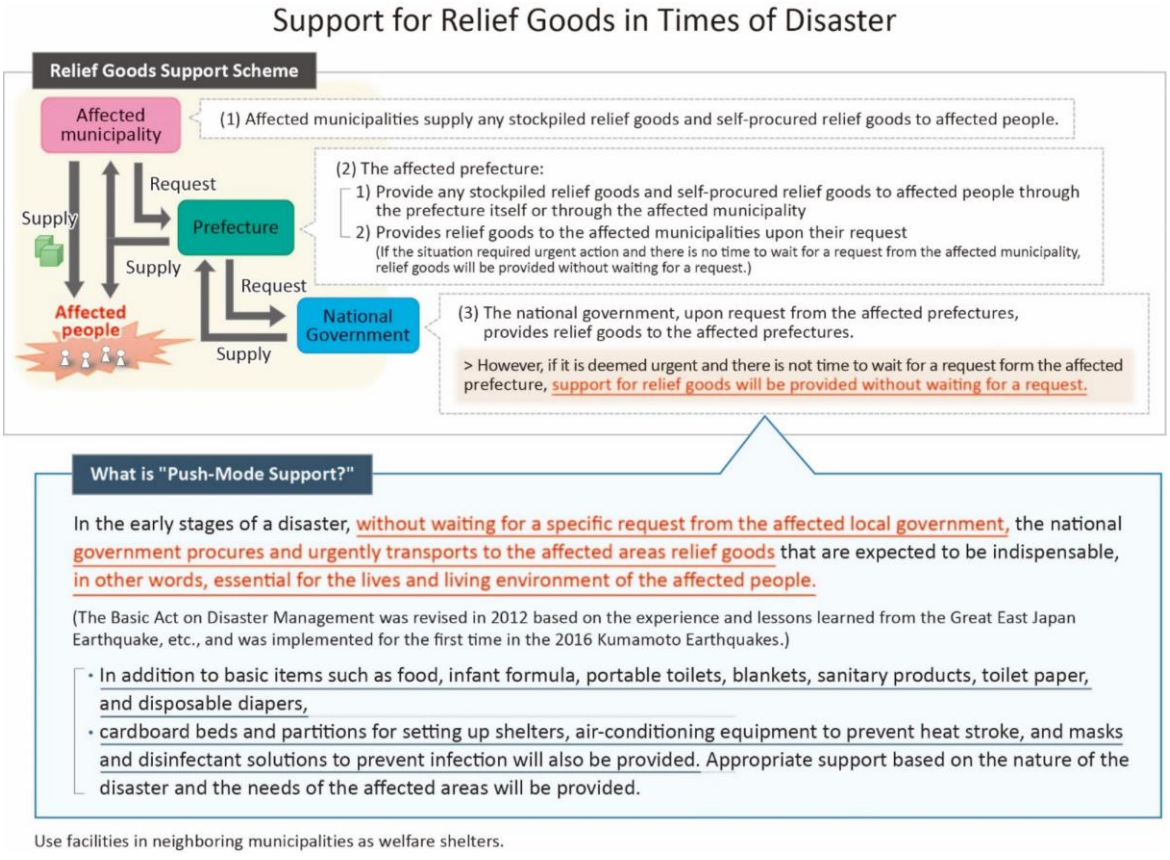
1. For those who require assistance evacuating such as the elderly and people with special needs who require nursing care, monitoring the state of safety and health by care managers.
2. For elderly and people with disabilities households, conducting home visits by health centers based on information provided by welfare volunteers.
3. For other households, identifying evacuees and their support needs at the time of application for disaster affected certificate.

2-3 Measures for Push-Mode Support during the Heavy Rain Event of July 2020

(1) Push-Mode Support

In the event of a large-scale disaster, it is difficult for the affected local governments to quickly procure necessary supplies on their own, as it takes time for them to obtain accurate information and the capacity of private sector supply is reduced.

In such cases, the national government should not wait for specific requests from the affected prefectures. Instead, relief supplies are being provided to shelters through a push-mode support that procures relief supplies that are expected to be essential, mainly for evacuees in shelters, and urgently transports the relief supplies to the affected areas (push-mode support has been implemented for the 2016 Kumamoto Earthquake, the Heavy Rain Event of July 2018, the Hokkaido Eastern Iburi Earthquake, the Typhoon Hagibis in 2019 (T1919), and the Heavy Rain Event of July 2020.).



In the Heavy Rain Event of July 2020, approximately 1.37 million items of relief supplies were provided to Kumamoto Prefecture. Specifically, in addition to food and beverages, necessary material support was provided based on the needs of the affected areas, including cardboard beds to improve the environment of shelters, cooling equipment to prevent heat stroke, and partitions and non-contact thermometers for COVID-19 countermeasures.

Push-Mode Support Items for Kumamoto Prefecture after the Heavy Rain Event of July 2020

Location Name	Quantity (arrived)
Food (packed rice, retort food)	118,679
Beverages (water, tea, sports drinks, vegetable juices)	199,554
Cardboard beds	1,500
Cooling equipment (air-conditionning units, portable AC units)	316
Temporary and portable toilets (temporary toilets include western type and multipurpose)	80
Childcare and nursing supplies (wipes, diapers, baby bottles, wheelchairs, etc.)	5,460
Emergency materials (sandbags, dust masks/ goggles, blue tarps, etc.)	747,790
Electrical appliances (refrigerators, washing machines, LED lanterns, etc.)	2,968
Other household goods (clothing, underwear, bedding, sanitary products, cleaning products, various miscellaneous goods)	271,138

Location Name	Quantity (arrived)
Fabric partitions	1,939
Tent-type partitions	120
Non-contact thermometers, body temperature measurement devices	208
Other infection prevention supplies (masks for adults and children, disinfectant, face shields)	17,860

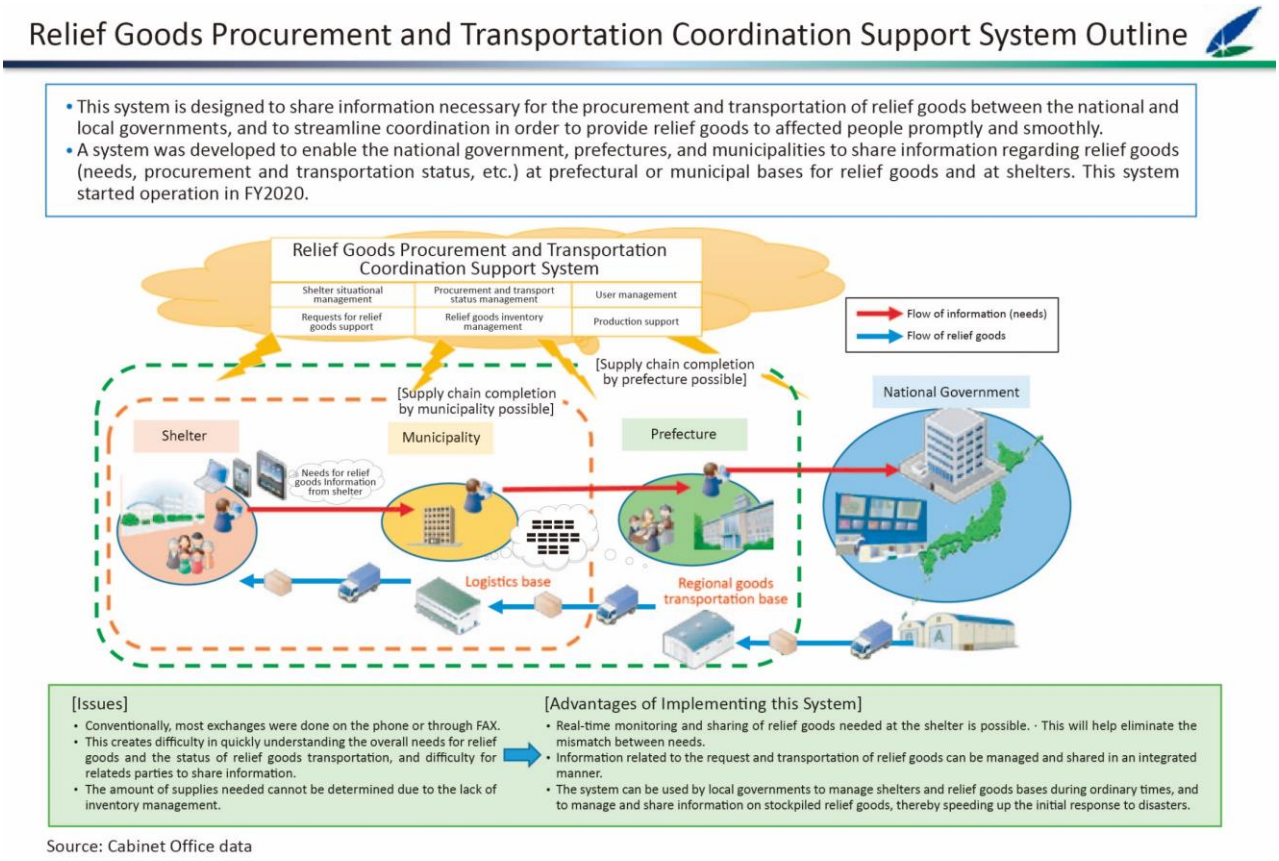
Contribute to rapid environmental improvement and prevention of infectious diseases in shelters

Source: Cabinet Office data

(2) Support System for Coordinating Relief Supplies and Transportation

The Cabinet Office shared necessary information on coordinating the relief supplies and transport with the national government, prefectures, and municipalities in real time, and developed a support system for coordinating the relief supplies and transport, which enables efficient coordination, and put the system into operation since FY 2020.

In addition, in March 2021, operation and information transmission training for the "Relief Goods Procurement and Transport Coordination Support System" on the assumption of Nankai Trough earthquake was conducted to help local government officials learn to operate the system for prefectures and municipalities that fall under the "Municipalities Designated as Areas for the Promotion of Nankai Trough Earthquake Disaster Risk Reduction Countermeasures."



Source: Cabinet Office data

2-4 Response by Volunteers, NPO and Others

(1) Volunteer Response to the Major Disasters that Occurred in 2020

During the Heavy Rain Event of July 2020, 28 disaster volunteer centers (hereinafter referred to as "Disaster VCs" in this section) were set up by Social Welfare Councils in Yamagata, Gifu, Shimane, Fukuoka, Nagasaki, Oita, and Kumamoto Prefectures, and a cumulative total of 48,000 volunteers worked through these Disaster VCs (as of April 15, 2021). At the beginning of a disaster, the volunteers carried out activities such as removing mud from houses and clearing away furniture. During the recovery and reconstruction period, support activities for affected people were carried out according to local conditions, such as “looking after” activities, which included watching over the elderly and people with disabilities. In order to prevent the spread of COVID-19, volunteers were recruited only within the affected prefecture and municipalities. The volunteers were asked to take basic infection prevention measures such as wearing masks, washing their hands, and keeping a safe distance between themselves and others. In Kumamoto Prefecture, to compensate for the decrease in the number of volunteers and to provide support through reconstructing livelihoods of the affected people, removal of disaster waste and sediment from the affected houses, which was previously normally carried out by volunteers, was outsourced to local private business operators through the city's disaster waste disposal project. In implementing the project, there was coordination for the division of labor with volunteer activities. In this way, the government, private business operators, and volunteers worked together to implement the project.

In addition to the support provided by volunteers through the Disaster VCs, NPOs and other organizations with expertise provided support in a wide range of fields, including technical assistance to homes of the affected, such as removal of mud and collision of debris, handling of disaster waste in the affected areas, support for the operation of shelters, support for evacuees at home, support for temporary housing, and support for livelihoods.

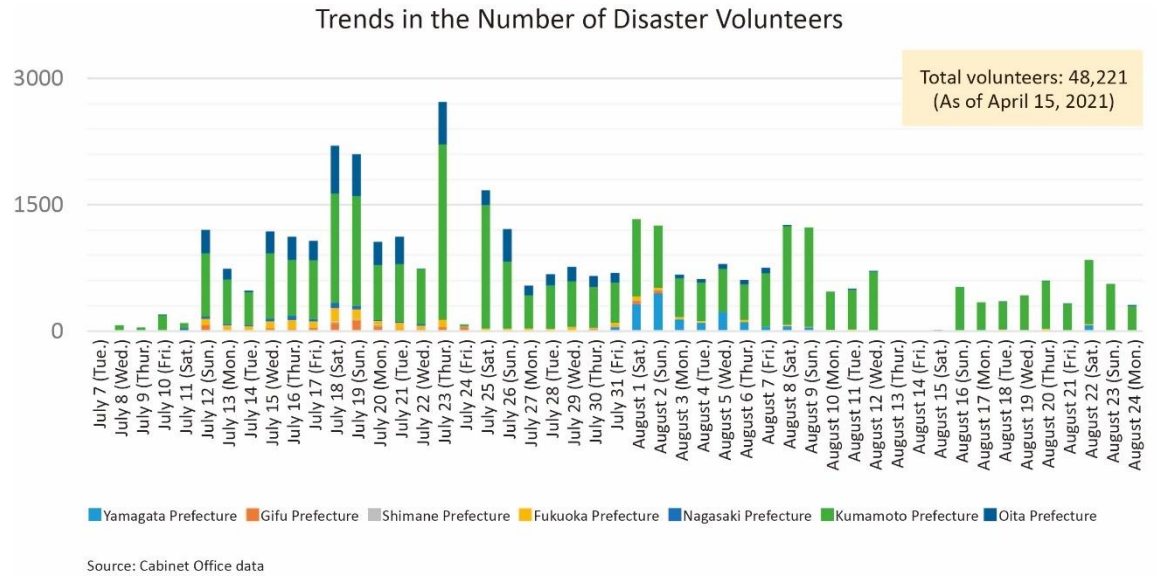
Activity Status of Disaster Volunteer and Information Sharing Meetings

	The Heavy Rain Event of July 2020 (as of April 15, 2021)
Number of disaster VCs	28
Number of disaster volunteers (total) *1	48,221
Number of NPOs and other organizations engaged in volunteer activities *2	196

*1: Number of volunteers managed by a disaster VC

*2: Number of organizations that participated in information sharing meetings in Fukuoka, Kumamoto, and Oita Prefectures

Source: Cabinet Office survey



Source: Cabinet Office data

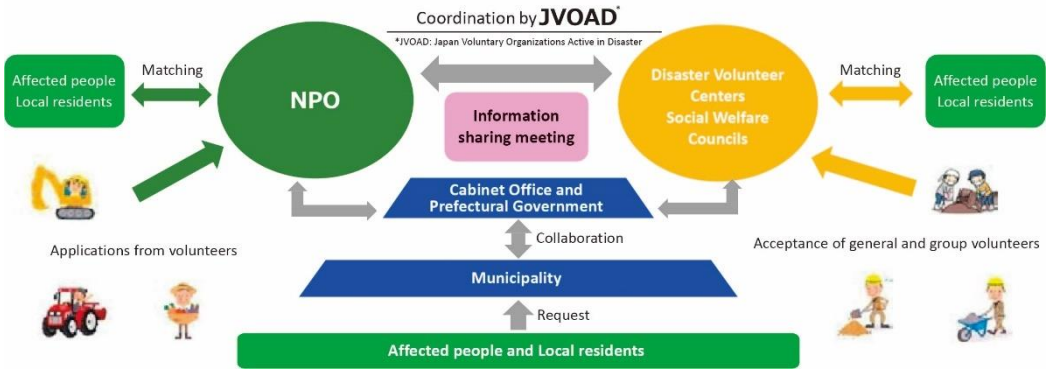
Volunteer activities at the time of the Heavy Rain Event of July 2020

(2) Development of Cooperation Among Various Entities for Disaster Relief Such as Government, Volunteers, and NPOs

Since the 2016 Kumamoto Earthquake, it has become a well-established practice that, in the event of large-scale disasters, various support entities for disaster relief such as the government, Social Welfare Councils, and NPOs in the affected areas set up information sharing meetings to share information on support activities and coordinate their activities.

Regarding the Heavy Rain Event of July 2020, regular information sharing meetings were held in each affected area (Gifu, Fukuoka, Saga, Kumamoto, and Oita Prefectures) after July 7, 2020, and coordinated support was provided by the government, volunteers, and NPOs to address the shortage of volunteers and to support evacuees at home. Particularly in Kumamoto Prefecture, collaboration and coordination was achieved in Hitoyoshi City and Kuma Village, where NPOs supported the operation of shelters.

Cooperation Among Various Entities Supporting Affected People - Government, Disaster VCs, NPOs, etc.



Status of Information Sharing Meetings held in Each Affected Prefecture

Gifu Prefecture	Gifu Prefecture disaster volunteer liaison and coordination meetings (7/13, 7/21)
Fukuoka Prefecture	Fukuoka Prefecture information sharing meetings on the Heavy Rain Event of July 2020 (7/11, 7/21, 7/30, 8/6)
Saga Prefecture	"Hagakure" meetings (7/17, 7/24)
Kumamoto Prefecture	Fire Nation meetings (daily from 7/7~, every Tuesday and Thursday from 8/4~) *Held periodically since the Kumamoto Earthquake, but from July 8, 2020, discussions related to the Heavy Rain Event of July 2020.
Oita Prefecture	Let's Think Together about the Affected Areas in Oita! (7/11, 7/16, 7/22, 7/29, 8/5, 8/12, 9/2)

A regular information sharing meeting in Kumamoto Prefecture

As a nationwide measure, the Cabinet Office, JVOAD, the Japan National Council of Social Welfare, the Project Meeting for Supporting Disaster Volunteer Activities (Support P), and other organizations held a "National Core Meeting for Information Sharing" to study ways to support the affected areas without a major migration of people, due to fears of spreading COVID-19.

The National Information Sharing Core Conference

【Column】

Manual on Disaster Waste Management Developed

Between the Ministry of the Environment and the Self-Defense Forces

In recent large-scale disasters such as the 2016 Kumamoto Earthquake, the Heavy Rain Event of July 2018, the Typhoon Hagibis in 2019 (T1919), and the Heavy Rain Event of July 2020, enormous amounts of disaster waste were generated over wide areas, and there were cases where this waste accumulated on the streets because municipalities and private business operators alone could not establish an adequate collection and transportation system. For this reason, the affected local governments have established collection and transportation systems with the support of assisting municipalities and private business operators, and related ministries and agencies, including the Ministry of the Environment (MOE), the Self-Defense Forces, and volunteer organizations.

Based on the know-how accumulated through these efforts, and in accordance with the Basic Disaster Management Plan, MOE and the Ministry of Defense (MOD) formulated the "Manual for Coordinated Response for Removal of Disaster Waste" in August 2020. The manual outlines the division of roles among the parties involved, including MOE, MOD, local governments, and NPOs, as well as measures to be taken in normal times and in the event of a disaster.

In the manual, it is assumed that the municipalities are in principle responsible for the disposal of disaster waste, and that these municipalities will work together with related organizations to address the problem. Based on this, MOE will be responsible for the overall coordination of the division of roles at the time of the disaster, informing municipalities of financial support measures, and providing advice, including promoting the conclusion of agreements with private business operators. On the other hand, MOD, the Self-Defense Forces, upon request from the affected prefectures, will carry out "emergency measures in cases where the situation is deemed unavoidable," after clarifying the purpose of removing disaster waste, as well as the scope and the duration of operations.

In the manual, the "One NAGANO" initiative in Nagano City, Nagano Prefecture is discussed as a concrete example of good practices for collaboration among stakeholders. This initiative realized effective removal of the waste generated by the Typhoon Hagibis in 2019 (T1919) by dividing roles among stakeholders so that all involved, including citizens, volunteers, prefectural and municipal governments, MOE, the Self-Defense Forces, and private businesses, could work together efficiently.

The "Manual for Coordinated Response for Removal of Disaster Waste" can be found on MOE's Disaster Waste Management Information Website and other sites. We will continue to strengthen cooperation in order to respond smoothly and promptly to the generation of disaster waste.

(Source: http://kouikishori.env.go.jp/action/cooperation/pdf/cooperation_01.pdf (Japanese only))

Before and after the Self-Defense Forces work (July 16, Kuma Village, Kumamoto Prefecture)

【Column】

Cooperation with the Self-Defense Forces and Utilization of Civilian Power in Handling Disaster Waste from Houses in Hitoyoshi City

The Heavy Rain Event of July 2020 caused damage in Kumamoto Prefecture and other parts of Kyushu and Chubu regions of Japan, resulting in the generation of considerable amounts of disaster waste. MOE dispatched a local support team consisting of MOE staffs, staffs from supporting local governments, and experts from the Disaster Waste Treatment Support Network (D.Waste-Net). In addition, it dispatched garbage and waste collection vehicles from local governments and private business operators in and outside of the prefecture in cooperation with the Japan Waste Management Association and private organizations, and provided in-depth technical support via regional environmental offices, as well as financial support for disaster waste processing and facility restoration.

In Hitoyoshi City, Kumamoto Prefecture, one of the municipalities severely affected by disaster waste, support for the removal of large disaster waste was provided to those who had difficulty disposing of it during the initial phase of the disaster. While tatami mats, furniture, home appliances, and metals are heavy and sometimes difficult to handle in the removal of waste, through smooth cooperation with the Self-Defense Forces and private business operators, these four items were removed and cleanup work made progress due to the removal of sorted bulky waste, thus strongly contributing to the rebuilding of people's lives. Specifically, taking into account the fact that the disaster occurred under COVID-19 crisis, local companies and volunteers were informed in advance and they first carried out the removal of waste from houses in the city area. After transporting bulky disaster waste from houses to the collection points, Self-Defense Forces personnel loaded tatami mats, furniture, home appliances, and metals from the collection point onto trucks, unloaded them at special temporary storage sites, and had them transported to disposal sites by private business operators under the supervision of local government employees. In addition, MOE, in cooperation with supporting local governments and related organizations in the private sector, implemented steadily wide-area treatment of disaster waste by road and sea transport, and established a system for demolishing damaged houses.

In the event of a large-scale disaster, assistance and cooperation from a variety of parties, including private business operators and volunteer groups, is essential for waste management, so we will continue to build a system of cooperation in preparation for such an event at ordinary time.

Support for removal of bulky disaster waste (Hitoyoshi City, Kumamoto Prefecture)

1. Before the removal of bulky disaster waste (July 11)

2. Self-Defense Forces at work (July 11)

3. After the SDF operations (July 11)

4. Clean-up operation in progress (July 12)

5. After all operations (July 12)

【Column】

About Typhoon Haishen in 2020 (T2010)

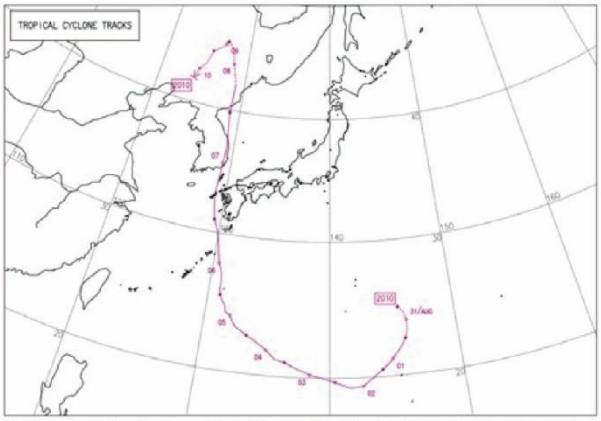
Typhoon Haishen in 2020 (T2010), a large and very strong typhoon, developed to an emergency warning level from September 5 to 7, 2020, and approached the Okinawa and Amami regions. It continued to move northward while maintaining its emergency warning level, and there was a possibility that it would approach or make landfall in Kyushu. At the time, it was expected that areas possibly hit by the typhoon would need to take the greatest precautions against record-breaking rainfall, windstorms, high waves, and storm surges. On September 4 and 6, the Minister of State for Disaster Management, Takeda, issued a call for the early evacuation of the people. On September 5, the Cabinet Office, the Fire and Disaster Management Agency, the Ministry of Health, Labour and Welfare, the Ministry of Land, Infrastructure, Transport and Tourism, and the Japan Meteorological Agency sent a message to the prefectures concerned, asking governors and vice governors to call on their residents to evacuate urgently, to do what is needed for disaster prevention and evacuation, and to send the same message to the mayors of their municipalities.

Typhoon Haishen in 2020 (T2010) approached the Nansei Islands and Kyushu with extremely strong force from September 5 to 7, and then made landfall on the Korean Peninsula, changing to an extratropical storm at 3:00 a.m.

on September 8. The maximum wind speed was 44.2 meters per second and the maximum wind gust speed was 59.4 meters per second at Nomozaki in Nagasaki Prefecture, while violent or extreme windstorms were observed mainly in the Nansei Islands and Kyushu, exceeding the highest values in recorded history. In addition, a severe storm across the Nansei Islands and Kyushu caused high waves of 11.4 meters were observed off Hyuga, Miyazaki Prefecture, and 10.4 meters off Yakushima Island, Kagoshima Prefecture. The total precipitation in Mikado, Miyazaki Prefecture from the 4th to the 7th was 599.0 mm, and the 24-hour precipitation exceeded 400 mm at four locations in Miyazaki Prefecture. The 24-hour precipitation exceeded 200 mm in western Japan and the Pacific Ocean coast of eastern Japan, which were far from the center of the typhoon.

Typhoon Haishen in 2020 (T2010) caused human casualties, including 3 deaths and 3 missing persons, as well as damage to 7 houses that were completely destroyed, 40 houses that were partially destroyed, and 1,637 houses that were partially damaged, mainly in the Kyushu region centered on Kagoshima Prefecture. In addition, Sediment Disaster (Landslide Disaster) occurred and approximately 530,000 households with electrical black out, 4,600 households with suspension of water supply, and roads, railroads, and other transportation infrastructure, as well as crops, were damaged.

Route Map of Typhoon Haishen in 2020 (T2010)



The "○" symbols on the path indicates position at 9:00 a.m. and the "●" symbols indicates the position at 9:00 p.m. (both times are Japan Standard Time) on the day indicated there-beside, and the →| symbol indicates dissipation. The solid line indicates the path of the typhoon, and any dashed lines indicate periods of tropical and extratropical cyclones.

Source: Cabinet Office data

Human Casualties and Housing Damage (as of December 10, 2020)

■ Human casualties

Prefecture	Fatality	Missing Persons	Injured
Saga	1	0	7
Nagasaki	0	0	16
Kumamoto	0	0	22
Miyagi	1	3	7
Kagoshima	1	0	14
Other	0	0	55
Total	3	3	110

■ Housing damage

Prefecture	Completely destroyed	Half-destroyed	Partially damaged	Above-floor flooding	Below-floor flooding
Mie	0	0	1	7	83
Fukuoka	0	1	195	0	0
Nagasaki	4	15	24	0	0
Miyagi	2	0	6	0	5
Kagoshima	1	20	1,276	1	3
Other	0	4	135	23	145
Total	7	40	1,637	31	236

Source: Cabinet Office data

2-5 Facilitating Evacuation in Future Tropical Cyclones based on Typhoon Haishen in 2020 (T2010)

Typhoon Haishen in 2020 (T2010) was expected to approach or make landfall on Kyushu while maintaining strong wind forces. As such, the highest level of caution was required. However, there were many cases where shelters reached their capacity, requiring residents to be referred to other shelters. This occurred even though relevant local governments urged residents for immediate evacuation, and many acted for early evacuation with a sense of crisis.

The Cabinet Office conducted a survey on the actual operation of shelters in regions which had many evacuees due to Typhoon Haishen in 2020 (T2010), summarizing important points for local governments to be aware of both at ordinary time and during a potential future tropical cyclone approach, and sent them to local governments all over Japan. The following are the main points to keep in mind.

(1) Publicity and Public Relations to Promote the Securing of Various Evacuation Sites

To consider effective means of disseminating information even at ordinary time, for example, to utilize services such as distributing evacuation information to household wireless radio receivers and landlines and providing information on local governments' websites. This is for spreading information to residents such as which evacuation sites to go to, timely details including how congested shelters are, and so on. This is an important point because it has been made aware that the municipal disaster management radio communications system can become difficult to hear during a tropical cyclone.

(2) Publicity of Capacity for Facilitating Evacuation

During Typhoon Haishen in 2020 (T2010), shelters were required to avoid the "three Cs" as COVID-19 countermeasures, and the capacity at each shelter was limited. They were over their capacity in many municipalities. This led to the following types of responses:

1. Referring residents to other shelters (when weather permits).
2. Opening additional evacuation spaces inside shelters which were not originally intended for that purpose.
3. Establishing additional shelters in haste.

Based on the above types of responses, we announced the following to local governments.

1. At ordinary time, prepare to urge residents to evacuate at early stages of a disaster.
2. Spread information to decentralize evacuation by telling residents to evacuate to safe locations such as the homes of relatives or acquaintances, hotels, inns, and so on. In addition, make an announcement that those that are already in safe locations are not required to evacuate.
3. Many municipalities, to inform residents that the capacity at shelters had been exceeded, posted announcements on bulletin boards or provided information directly from staff at the shelters. On the other hand, some municipalities spread or publicized the status of newly established shelters and their capacities to the residents using their local government website, disaster prevention emails /apps, disaster prevention radio services.

4. To prevent evacuees from concentrating in specific shelters, updating the status of shelters on the Internet enabled residents to evacuate based on appropriate information and was an effective method because it prevented the evacuees from moving between shelters.

(3) Opening of Necessary Shelters at the Outset of Disaster

As some shelters reached their capacity, residents were referred to other shelters. As much as possible, it is important to establish any necessary shelters from the outset of a disaster by judging the magnitude of the disaster appropriately. While some municipalities were able to open shelters as necessary, information of new shelter may not reach residents quickly enough, which may lead to risks as residents must be moved from one shelter to another.

2-6 Disasters Caused by Heavy Snow from December 2020 to January 2021

(1) Overview

Heavy snowfall from December 2020 to January 2021 caused heavy damage such as stranded vehicles and fatalities due to accidents during snow-removal work.

As for the Heavy Snowfall since December 16, 2020, a strong winter pressure system from December 14 to 21 caused intermittent snowfall mainly on the Sea of Japan side from northern to western Japan, and the total amount of snowfall for the period (December 14 to 21) was 291 cm at Fujiwara, Gunma Prefecture. In addition, snowfall rose to 278 cm in Tsunan, Niigata Prefecture, and 243 cm in Sukayu, Aomori Prefecture, and heavy snowfall occurred mainly in the mountainous areas of the Kanto, Hokuriku, and Tohoku regions. Also, in Fujiwara, Gunma Prefecture, the maximum snowfall for periods of 48 and 72 hours were the highest ever recorded in Japan (based on Automated Meteorological Data Acquisition System (AMeDAS) observations). This heavy snowfall caused road closures, suspension of operations of rail services, stopped flight and ship services, and other traffic disruptions from northern to western Japan, as well as accidents during snow-removal work. In particular, more than 2,000 vehicles were stranded on the Kan-etsu Expressway in Niigata Prefecture and Gunma Prefecture, and it took more than two days to move the vehicles and lift the road closure. During this heavy snowfall, the Disaster Relief Act was applied to a city and a town in Niigata Prefecture.

In the heavy snowfall that began on January 7, 2021, a rapidly developing low pressure system and a strong winter-type pressure system caused intermittent heavy snowfall mainly on the Sea of Japan side from northern to western Japan. There were places where snow accumulated even in Kyushu, where snowfall is usually rare. Snowfall amounts for the period from the 7th to the 11th were 213 cm in Takada, Niigata Prefecture, 192 cm in Shirakawa, Gifu Prefecture, 158 cm in Ono, Fukui Prefecture, and 21 cm in Nagasaki, Nagasaki Prefecture. In addition, as snow clouds continued to move in from the 7th to the 9th, a significant snowfall of over 20 cm per 3 hours was observed in the general Hokuriku region. Also, on January 9, in Takada, Niigata Prefecture, 103 cm of snowfall for 24 hours was observed, recording the highest amount of snowfall in history. This heavy snowfall and other factors caused electrical blackout across a wide area of Akita and Niigata prefectures, as well as accidents during snow-removal work. In addition, traffic disruptions such as road closures, suspension of operations of rail services, and stopped aircraft and ship services occurred from northern to western Japan, and vehicles were

stranded in Fukui Prefecture and other areas (on the Hokuriku Expressway, approximately 1,600 vehicles were delayed due to large vehicles getting stuck in the snow, etc.). In this heavy snowfall, the Disaster Relief Act was applied to 4 cities, 2 towns, and a village in Akita Prefecture, 6 cities in Niigata Prefecture, 5 cities in Fukui Prefecture, and 4 cities in Toyama Prefecture.

On January 19, the Tohoku Expressway off-ramp (northbound) in Osaki City, Miyagi Prefecture, a traffic accident in which first, a large-sized vehicle crashed with a passenger vehicle, was followed by the accident of multiple collisions over a total distance of approximately 7 km in 5 locations (175 vehicles (approximately 200 people) were involved). At the time of the accident, the site was reportedly in whiteout conditions due to a snowstorm, and the accident resulted in a fatality, 4 serious injuries, and 14 slight injuries.

The number of fatalities due to snow this winter (up to April 30, 2021) was 110, with 675 seriously injured and 1,030 slightly injured (Fire and Disaster Management Agency information, as of May 14, 2021).

(2) Response by the National Government

In response to the Heavy Snowfall since December 16, 2020, the national government held Inter-Agency Disaster Alert Meetings from 1:00 p.m. on December 16, 2020. The next day, at 6:55 a.m. on the 17th, the liaison office was established, and at 7:45 a.m. on the same day, it was reorganized as the Emergency Response Office in the Prime Minister's Office. In addition, a Ministerial Meeting on the Heavy Snowfall was held at 3:35 p.m. on the same day.

In response to the heavy snowfall that began on January 7, the national government held Inter-Agency Disaster Alert Meetings from 1:15 p.m. on January 6, 2021. Then, at 3:30 p.m. on the 8th of the same month, a Ministerial Meeting on the Heavy Snowfall was held. Also, on the 14th of the same month, Minister of State for Disaster Management, Japan, Okonogi, visited the sites of Niigata and Toyama Prefectures.

In addition to ensuring the safety and security of the affected people, on January 22, the national government compiled a list of measures, including support for the affected people and affected local governments, so that the affected local governments can tackle snow removal and other rehabilitation measures without hesitation.

Stranded vehicles on the Kan-etsu Expressway (December 18, 2020)
(Ministry of Land, Infrastructure, Transport and Tourism data)

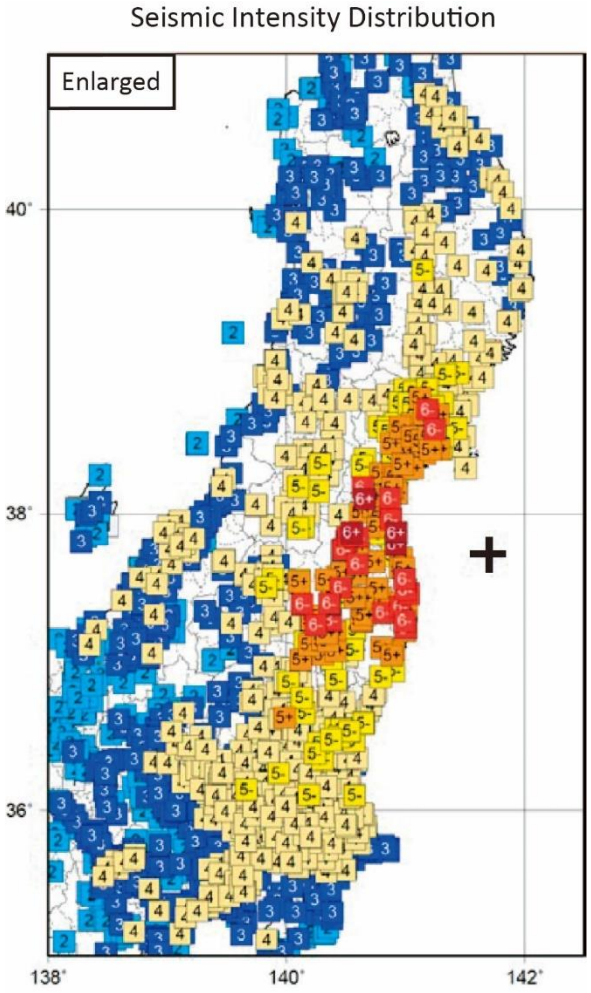
2-7 Disasters Caused by Earthquake Centered Off the Coast of Fukushima Prefecture in 2021

(1) Overview

At 11:07 p.m. on February 13, 2021, a magnitude 7.3 earthquake occurred at a depth of 55 km offshore of Fukushima Prefecture. The seismic intensity was 6+ in Kunimi-machi, Soma City, and Shinchi-machi, Fukushima Prefecture, and Zao-machi, Miyagi Prefecture, and 6- to 1 in the area through Hokkaido to Chugoku region, and the Tohoku region was mainly affected.

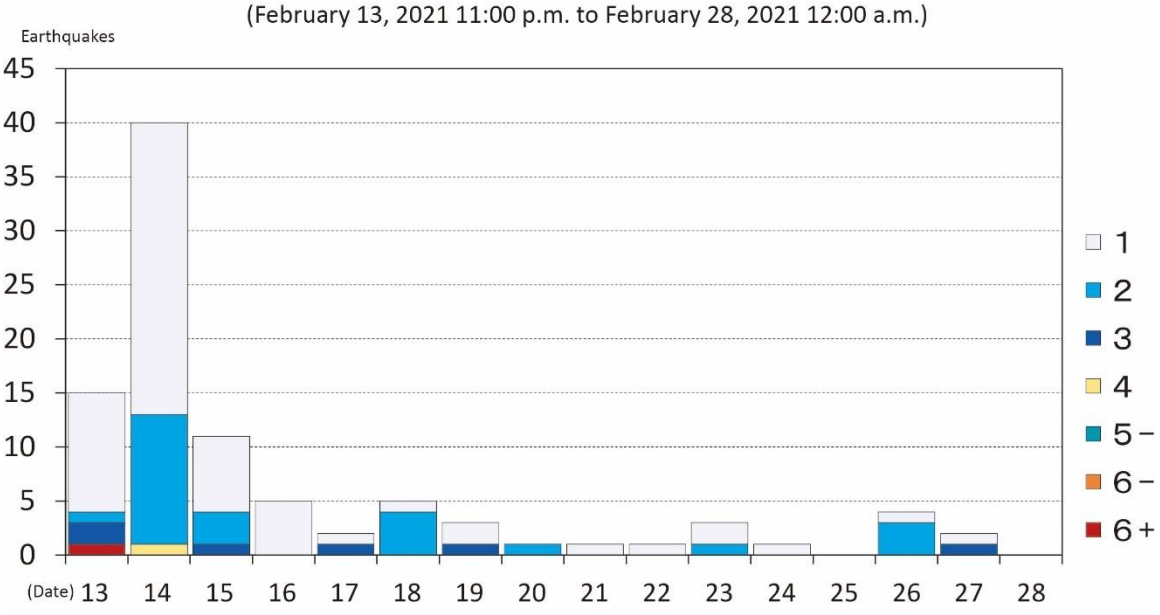
As a result of this earthquake, a 0.2 m tsunami was observed at the Ishinomaki Port in Miyagi Prefecture, and a 0.1 m tsunami was observed at Ayukawa, Ishinomaki City, the Sendai Port in Miyagi Prefecture, and Soma City in Fukushima Prefecture (tsunami observation values are preliminary).

Since this earthquake occurred, earthquake activity remained active near the epicenter, with 93 earthquakes of seismic intensity 1 or higher recorded by February 28, including 7 earthquakes of seismic intensity 3 or higher.



Source: Compiled by the Cabinet Office from the website of the Japan Meteorological Agency

Graph of the Number of Earthquakes with a Seismic Intensity of 1 or Higher, by Day
(February 13, 2021 11:00 p.m. to February 28, 2021 12:00 a.m.)



Source: Compiled by the Cabinet Office from the website of the Japan Meteorological Agency

(2) State of Damages

The earthquake killed 1 person (in Fukushima Prefecture), seriously injured 16 (1 in Iwate Prefecture, 6 in Miyagi Prefecture, 4 in Fukushima Prefecture, 3 in Tochigi Prefecture, 1 in Saitama Prefecture, and 1 in Chiba Prefecture), and slightly injured 170 (Fire and Disaster Management Agency information, as of May 21, 2021).

Human Casualties (as of May 21, 2021)

	Fatality	Seriously Injured	Lightly Injured
Miyagi Prefecture	0	6	58
Fukushima Prefecture	1	4	95
Other	0	6	17
Total	1	16	170

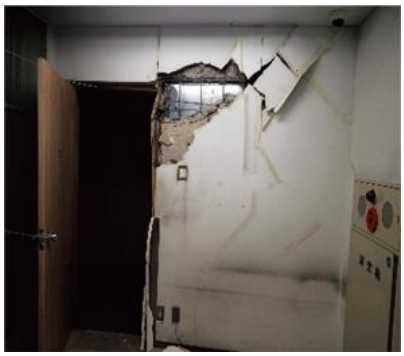
Source: Cabinet Office data

As for damage to houses, 96 houses were completely destroyed and 28,985 houses were half or partially destroyed (Fire and Disaster Management Agency information, as of May 21, 2021).

As a result of this earthquake, up to 950,000 households in the areas served by Tokyo Electric Power Company Holdings and Tohoku Electric Power Company experienced electrical blackout, and over 26,000 households in Miyagi, Fukushima, Ibaraki, and Tochigi Prefectures experienced suspension of water supply. In addition to such damage to lifelines, there was also damage to transportation infrastructure such as road closures due to slope failure and suspension of operations of rail services.

In addition, the Disaster Relief Act was applied to 8 cities and 9 towns in Fukushima Prefecture.

Cracks in the road surface
(Nihonmatsu City, Fukushima Prefecture)



Cracks in the wall of a hotel
(Koriyama City, Fukushima Prefecture)

(3) Response by the National Government

The national government established an Emergency Response Office in the Prime Minister's Office at 11:09 p.m. on February 13, 2021, and at the same time, Prime Minister Suga gave instructions on "early assessment of damages," "all-out efforts for disaster response measures such as lifesaving and rescue," and "timely and accurate information sharing with the public." On the following day, at 1:05 a.m., the Cabinet Office Survey Team departed for Fukushima Prefecture Government Office, and at 9:00 a.m. on the same day, a Ministerial Meeting (the first meeting) was held.

On February 16, Minister of State for Disaster Management, Japan, Okonogi, visited sites in Fukushima Prefecture.

On February 26, based on the needs and characteristics of the areas affected by the Great East Japan Earthquake, the government compiled the "Set of Support Measures for the Earthquake Centered Off the Coast of Fukushima Prefecture in 2021" to urgently implement measures to help affected people rebuild their lives and livelihoods.

Minister of State for Disaster Management, Cabinet Office, Mr. Okonogi, making a site visit