2022

White Paper
Disaster Management in Japan

Cabinet Office

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APPENDIX

Special Feature. To Protect Our Lives from Large-Scale Disasters

In recent years, there have been a series of large-scale natural disasters in Japan. Especially since the Kumamoto Earthquake in 2016 (hereinafter referred to as the “2016 Kumamoto Earthquake”), large-scale disasters, such as the Heavy Rain Event of July 2018, Typhoon Hagibis in 2019 (T1919), and the Heavy Rain Event of July 2020, have occurred almost every year. In light of those disasters, starting with the amendments of various laws and regulations, several measures have been taken in order to further strengthen the disaster management system. Nevertheless, last year, the heavy rain from July 1 of 2021 caused a massive debris flow in Atami City, Shizuoka Prefecture, which resulted in tragic disaster with many victims.

One of the things which was fully recognized through a series of disaster responses is the importance of “protecting lives.” Indeed, it is of significant importance to mitigate damage to homes and infrastructure, and maintain social and economic activities. However, the importance of connecting lives saved from disasters toward the future as well as protecting precious lives from disasters through a series of disaster responses was fully recognized: appropriate evacuation actions by residents, supplying necessary information regarding disasters for such evacuation, prompt life rescue measures right after a disaster occurs, improvement of evacuation shelter conditions to prevent disaster-related deaths, and COVID-19 countermeasures.

Therefore, the White Paper of 2022 starts with the theme of “To Protect Our Lives from Large-Scale Disasters” in its first section of “Special Feature,” reviewing the major disasters that occurred in FY2021, the damages from each disaster, and the measures taken by the government (Chapter 1). In the next chapter, there is a summary of the progress concerning measures which the government has been undertaking in response to the debris flow disaster in Atami City, which marked a turning point for the government to give a series of considerations such as the prevention of disasters caused by embarkment, the disclosure of personal information including the names of missing people at times of disaster, and measures to encourage residents to evacuate appropriately (Chapter 2). The last chapter of this section introduces an outline of the latest efforts being taken by the government to strengthen disaster management systems. For instance, the Revised Basic Act on Disaster Management was enforced in May 2021 (“Act for Partial Amendment of the Basic Act on Disaster Management” (Act No. 30 of 2021)). This Act obliges municipalities to make a sincere effort to prepare individual evacuation plans for those who require assistance evacuating, and the current status in response to this amendment is reported. In addition, the damage estimation caused by the Megaquake in the Vicinity of the Japan and Chishima Trenches, and other points are described (Chapter 3).

Chapter 1 Major Disasters in FY2021

Natural conditions in Japan are characterized by features promoting various types of disasters. Due to such conditions, a lot of natural disasters including flood, sediment disaster (landslide disaster), and "earthquake/ tsunami" occur almost every single year. In recent years, Japan has suffered greatly from large-scale disasters, such as the 2011 off the Pacific coast of Tohoku Earthquake (hereinafter referred to as the “Great East Japan

Earthquake”), the 2016 Kumamoto Earthquake, the Heavy Rain Event of July 2018, Typhoon Hagibis in 2019 (T1919), and the Heavy Rain Event of July 2020. In FY2021, Japan suffered damages from heavy rain from July 1 of 2021, heavy rain in August of 2021, the Earthquake Centered Off the North-West region of Chiba Prefecture on October 7 of 2021, the Earthquake Centered Off the Coast of Fukushima Prefecture on March 16 of 2022, and so on. In particular, the heavy rain event from July 1 to 3, 2021 caused many fatalities in Shizuoka Prefecture and damaged numerous houses and infrastructures in several prefectures throughout Japan. Notably, damage due to debris flow in Atami City, Shizuoka Prefecture was significant.

Major Disasters in FY 2021

Major Storm and Flood Disasters (10 or more houses inundated above floor level)

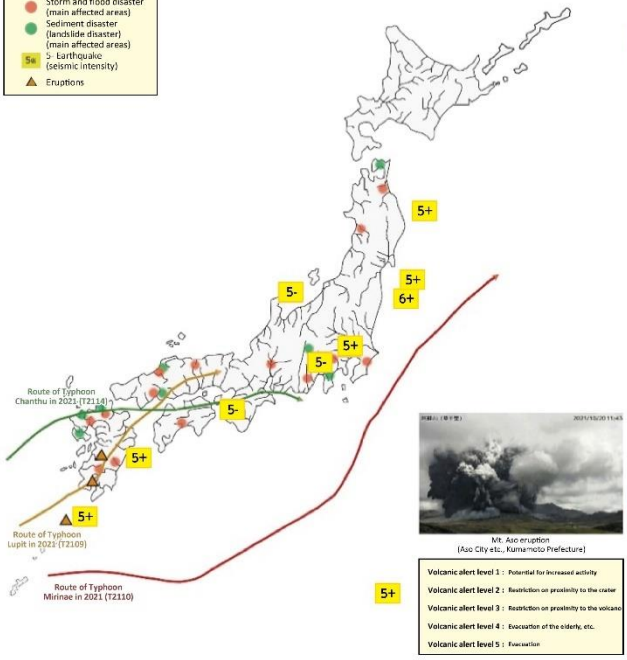
Incident Name	Month	Main Affected Areas
Heavy Rain from July 1 of 2021	July	Akita, Kanagawa, Shizuoka, Tottori, Shimane, Hiroshima and Kagoshima Prefectures
Typhoon Lupit (T2109) and Mirinae (T2110) in 2021	August	Aomori and Chiba Prefectures
Heavy Rain from August 11 of 2021	August	Gifu, Hiroshima, Fukuoka and Saga Prefecture
Typhoon Chanthu in 20212021 (T2114)	September	Kochi and Miyazaki Prefectures

Heavy rain from August 11 of 2021 (Takeo City, Saga Prefecture)

Major sediment disaster (5 or more houses damaged)

Incident Name	Month	Main Affected Areas
Heavy Rain from July 1 of 2021	July	Shizuoka, Tottori and Hiroshima Prefectures
Typhoon Lupit (T2109) and Mirinae(T2110) in 2021	August	Aomori Prefecture
Heavy Rain from August 11 of 2021	August	Nagano, Hiroshima, Fukuoka, Saga and Nagasaki Prefectures

Debris flow occurred in Izusan of Atami City, Shizuoka Prefecture (Atami City, Shizuoka Prefecture)



Mt. Aso eruption (Aso City etc., Kumamoto Prefecture)

Volcanic alert level 1 : Potential for increased activity
Volcanic alert level 2 : Restriction on proximity to the crater
Volcanic alert level 3 : Restriction on proximity to the volcano
Volcanic alert level 4 : Evacuation of the elderly, etc.
Volcanic alert level 5 : Evacuation

Major Earthquakes (maximum seismic intensity of 5- or higher)

Incident Name	Month	Main Affected Areas
Off the coast of Miyagi Prefecture	May	Ishinomaki and Osaki Cities and Watuya Town in Miyagi Prefecture
Noto region, Ishikawa Prefecture	September	Suzu City, Ishikawa Prefecture
Off the coast of Iwate Prefecture	October	Hashikami Town, Aomori Prefecture
Off the north-west region of Chiba Prefecture	October	Kawaguchi City and Miyashiro Town in Saitama Prefecture, and Adachi Ward in Tokyo
Fujigoko, Eastern region of Yamanashi Prefecture	December	Otsuki City, Yamanashi Prefecture
Kii Channel	December	Goko City, Wakayama Prefecture
Inshore of Tokara Islands	December	Toshima Village, Kagoshima Prefecture
Inshore of Chichijima	January	Ogasawara Village, Tokyo
Hyuganada	January	Oita , Saiki and Taketa Cities in Oita Prefecture, and Nobeoka City, Takachiho Town in Miyazaki Prefecture
Off the coast of Fukushima Prefecture	March	Tome City, Zao Town in Miyagi Prefecture,Soma and Minamisoma Cities and Kunimi Town in Fukushima Prefecture

Major Eruptions (volcanic alert level 3 or higher)

Incident Name	Month	Main Affected Areas
Sakurajima	April	Kagoshima City, Kagoshima Prefecture
Suwanose Island	June, September, October, November and December	Toshima Village, Kagoshima Prefecture
Mt. Aso	October	Aso City, Takamori Town and Minamiaso Village in Kumamoto Prefecture

Source: Formulated by Cabinet Office on the basis of "Report of Water-Related Disaster in 2021” conducted by Ministry of Land, Infrastructure, Transport and Tourism

Section 1 Disasters due to Heavy Rain from July 1 of 2021

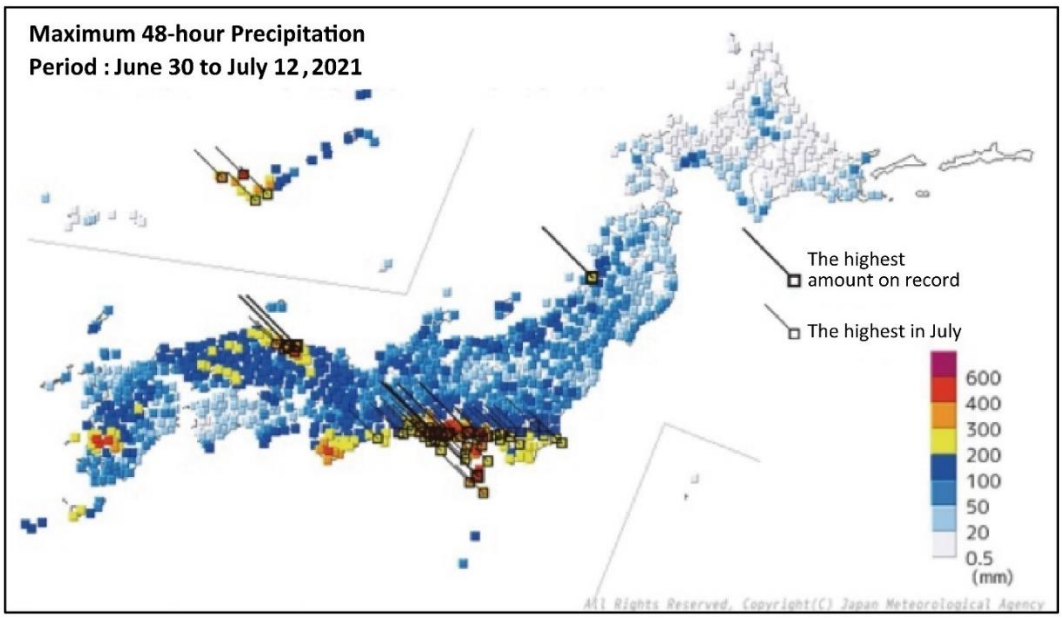
(1) Overview

The seasonal rain front stagnated over west to east Japan from the end of June to early July in 2021. A constant flow of warm and humid air toward the seasonal rain front caused unsettled atmospheric conditions, bringing about heavy rain over a wide area from west Japan to the Tohoku region.

From July 1 to 3, the seasonal rain front stagnated in the southern coast of the main island of Japan. On July 1, stationary linear mesoscale convective systems occurred over Izu Islands, resulting in rainfall exceeding 300 mm/day. From July 2 to 3, there was intermittent rain mainly in the Tokai and southern area of the Kanto region, which became the highest 72-hour precipitation on record at several sites in Shizuoka Prefecture.

Since July 4, the seasonal rain front gradually moved northward, and this brought rain to the Sea of Japan side from west to east Japan. In particular, on July 7, stationary linear mesoscale convective systems occurred over the Sea of Japan side of Chugoku region, resulting in rainfall exceeding 300 mm/day. On July 8, there was rainfall exceeding 200 mm/day mainly in Hiroshima Prefecture. From the night of July 9 to 10, hazardous and very violent rains fell intermittently with thunder, centering on the southern Kyushu region. This caused record-breaking rainfall as the total amount of rainfall from July 9 exceeded 500 mm in Satsuma Town and Isa City in Kagoshima Prefecture. In response to such heavy rains, the Japan Meteorological Agency issued a heavy rain emergency warning for Kagoshima, Miyazaki and Kumamoto Prefectures. On July 12, the heavy rains became widespread across Japan, resulting in the highest 1-hour precipitation on record in Aomori, Mie, Shimane, and Tottori Prefectures.

Maximum 48-hour Precipitation (June 30 to July12 , 2021)



Major Precipitation during the Period (June 30 - July 12, 2021)

Prefectures	Municipalities	Location Name	Precipitation (mm)
Kanagawa	Hakone-machi, Ashigarashimo County	Hakone	911.5
Kagoshima	Satsuma-cho, Satsuma County	Shibisan	631.0
Kagoshima	Satsuma-cho, Satsuma County	Satsumakashiwabaru	619.5
Shizuoka	Gotenba City	Gotenba	611.5
Kagoshima	Isa City	Okuchi	607.0

Source : Formulated by the Cabinet Office from the Japan Meteorological Agency website

(2) State of Damage

The heavy rain from July 1 of 2021 caused damage due to debris flow mainly in Atami City, Shizuoka Prefecture and other kinds of disasters in different regions, which resulted in 27 deaths (Shizuoka Prefecture), 2 missing (1 in Kanagawa Prefecture and 1 in Shizuoka Prefecture), 2 seriously injured (1 in Shizuoka Prefecture and 1 in Tottori Prefecture) and 10 slightly injured. As for damage to homes, 59 were completely destroyed, 440 were half or partially destroyed, and 2,945 were flooded above or below floor level (Source: Fire and Disaster Management Agency information, as of March 25, 2022).

(Reference: https://www.fdma.go.jp/disaster/info/items/210701baiuzennsenn36.pdf)

Human and Housing Damage (as of March 25, 2022)

■ Human Damage

	Death	Missing Persons	Major and Minor Injuries
Gunma	0	0	1
Kanagawa	0	1	1
Shizuoka	27	1	4
Tottori	0	0	4
Okayama	0	0	1
Kagawa	0	0	1
Total	27	2	12

■ Housing Damage

	Completely Destroyed	Half Destroyed	Partial Damage	Inundation above Floor Level	Inundation below Floor Level
Kanagawa	2	1	12	21	438
Shizuoka(*1)	54	13	42	147	205
Hiroshima	0	78	155	98	512
Shimane	3	26	86	81	611
Kagoshima	0	0	3	64	182
Other	0	1	23	88	498
Total	59	119	321	499	2,446

(*1) In Atami City, 98 residential homes were reported damaged (as of March 25 by the Fire and Disaster Management Agency), and 128 including non-residential buildings (as of Sep 3 by Atami City).

Source: Prepared by the Cabinet Office from the Fire and Disaster Management Agency website.

This heavy rain caused damage to lifelines such as electrical blackouts and suspension of water supply, and 274 sediment disaster (landslide disaster) cases, including debris flow in Atami City.

In addition, the “Disaster Relief Act” (Act No. 118 of 1947) was applied to 9 cities and 2 towns in 4 prefectures due to this heavy rain.

Damage due to the Heavy Rain from July 1 of 2021

Damage of debris flow in Atami City, Shizuoka Prefecture (Source: Cabinet Office data)

Headwater of debris flow in Atami City, Shizuoka Prefecture (Source: Cabinet Office data)

(3) Response by the Government

The government held an Inter-Agency Disaster Alert Meeting at 12:30 p.m. of July 1, 2021. Then, after debris flow disaster in Atami City, Shizuoka Prefecture occurred around 10:30 a.m. of July 3, an Emergency Response Office in the Prime Minister’s Office was set up at 1:10 p.m. and a Cabinet Office Survey Team was dispatched to the Shizuoka Prefecture Government Office at 2:45 p.m. Furthermore, at 5:00 p.m. on the same day, a Ministerial Meeting (the first meeting) was held in the presence of then Prime Minister Suga, who instructed them “to pay attention to the secondary disasters, proceed with flexible and thorough correspondence, and promptly provide necessary support to shelters and other measures.” On the same day at 5:30 p.m., the Authorized Disaster Management Headquarters for Heavy Rain from July 1 of 2021 was established, and at 7:00 p.m., its first meeting was held. The same meeting was held twice in total by July 5.

At 11:00 a.m. on July 5, the Authorized Disaster Management Headquarters was reorganized into the Extreme Disaster Management Headquarters to reinforce the system, and its first meeting, “Disaster Management Headquarters for Heavy Rain from July 1 of 2021” (the first meeting) was held. At 11:30 a.m. in the presence of then Prime Minister Suga, the same meeting was held three times in total by July 30.

On July 6, then Minister of State for Disaster Management Tanahashi, and on July 12, then Prime Minister Suga visited the affected site in Shizuoka Prefecture respectively. In addition, then State-Minister of the Cabinet Office Akazawa conducted a site visit to 3 prefectures (Shimane Prefecture on July 20, Tottori Prefecture on July 21 and Kagoshima Prefecture on 28), and Minister of State for Disaster Management Ninoyu visited the affected site in Shizuoka Prefecture on November 22.

On July 6, the “Team to Support for Reconstructing Livelihoods of the Affected due to Heavy Rain from July 1 of 2021” was established under the direction of then Prime Minister Suga, consisting of officials at the level of vice-ministers from various ministries and agencies. On July 30, for the purpose of restoring the lives and livelihoods of the affected, the team established a “Set of Support Measures for the Heavy Rain from July 1 of 2021,” as a set of urgent measures to be taken, based on the needs of the affected areas and the characteristics of each area.

On August 31, 2021, the Cabinet approved a cabinet order to designate disasters caused by Heavy Rain from May 7 to July 14 in 2021 as a disaster of extreme severity, and on March 11, it admitted partially amending the cabinet order (See APPENDIX 14-1).

Extreme Disaster Management Headquarters for Heavy Rain from July 1 of 2021 (the second meeting)

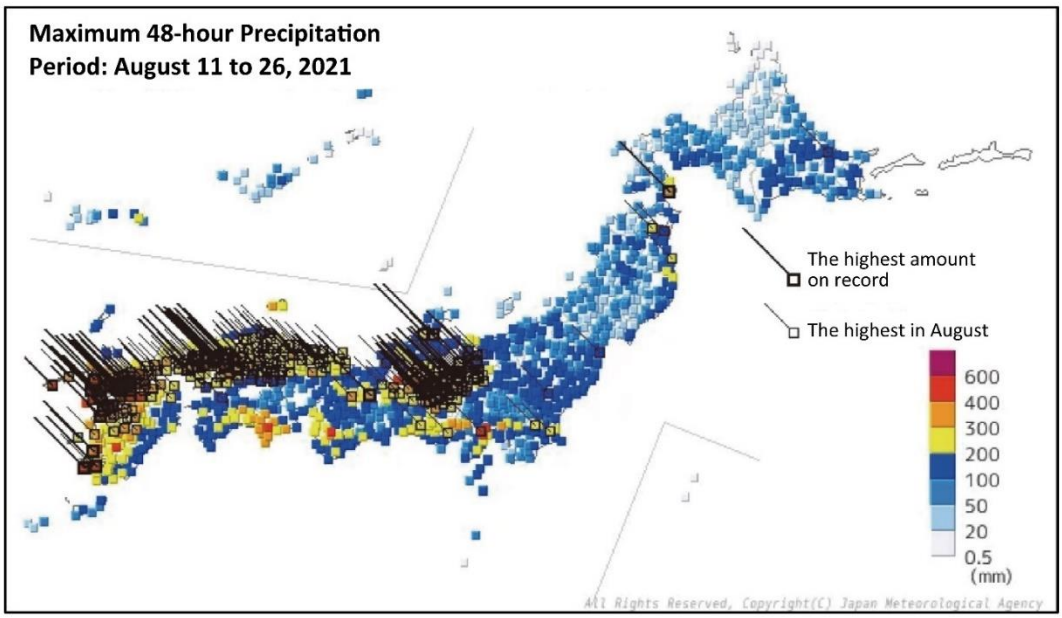
The affected site visit to Shizuoka Prefecture by then Minister of State for Disaster Management from the Cabinet Office Tanahashi (Source: Cabinet Office)

Section 2 Disaster due to Heavy Rain in August of 2021

(1) Overview

From August 11, 2021, the warm and humid air flowed into the front that had been lingering near Japan, causing the front to become active. This resulted in rainfall over a wide area from west to east Japan, and the total precipitation from August 11 to 26 exceeded 1,400 mm at most, which was record-breaking. On August 12, a stationary linear mesoscale convective system occurred over the northern Kyushu region, with rainfall exceeding 400 mm/24h at most. On August 13, a stationary linear mesoscale convective system developed over the Chugoku region, resulting in record daily precipitation marking the highest value of August at several locations. In response to this rainfall, the Japan Meteorological Agency issued a heavy rain emergency warning for Hiroshima Prefecture. On August 14, rainfall occurred over a wide area from west to east Japan. In particular, in the northern Kyushu region, the hazardous and very violent rains continued due to stationary linear mesoscale convective systems, and rainfall with 555.5 mm/ 24h was observed in Ureshino City, Saga Prefecture, the highest value on record. In response to this rainfall, the Japan Meteorological Agency issued heavy rain emergency warning for Nagasaki, Saga, Fukuoka, and Hiroshima Prefectures. From August 16 to 18, rain fell over a wide area, mainly on the Pacific side of west to east Japan, with precipitation exceeding 200 mm/24h at most in southern Kyushu, Shikoku, and Kinki regions. From August 19 to 22, hazardous and very violent rains continued intermittently mainly on the Pacific side of the Shikoku region with precipitation per day exceeding 200 mm at most. From August 22, Typhoon Omais in 2021 (T2112) and the low pressure system that changed from the tropical cyclone caused rainfall in some areas.

Maximum 48-hour Precipitation (August 11 to 26, 2021)



Major Precipitation during the Period (August 11, 2021 - 26, 2021)

Prefectures	Municipalities	Location name	Precipitation (mm)
Kochi	Umaji Village, Aki County	Yanase	1431.0
Miyazaki	Ebino City	Ebino	1426.0
Nagasaki	Unzen City	Unzendake	1360.0
Saga	Ureshino City	Ureshino	1334.5
Kochi	Kami City	Shigeto	1270.5

Source: Prepared by the Cabinet Office from the Japan Meteorological Agency website.

(2) Overview of Damage

The Heavy Rain in August of 2021 caused debris flow in Okaya City, Nagano Prefecture, slope failure in Unzen City, Nagasaki Prefecture and flooding along the Rokkaku River in Saga Prefecture, resulting in 13 deaths (3 in Nagano, 3 in Hiroshima, 5 in Nagasaki, 1 in Kumamoto, and 1 in Kagoshima Prefectures), 4 seriously injured (1 in Nagano, 2 in Fukuoka and 1 in Nagasaki Prefectures) and 13 slightly injured. Forty-five houses were completely destroyed, 1,534 were half or partially destroyed, and 4,887 were flooded above or below floor level (Source: Fire and Disaster Management Agency, as of March 25, 2022).

(Reference: https://www.fdma.go.jp/disaster/info/items/20210811ooame25.pdf)

Human and Housing Damage (as of March 25, 2022)

■ Human Damage

	Death	Major Injuries	Minor Injuries
Nagano	3	1	4
Hiroshima	3	0	1
Fukuoka	0	2	1
Saga	0	0	4
Nagasaki	5	1	0
Other	2	0	3
Total	13	4	13

■ Housing Damage

	Completely Destroyed	Half Destroyed	Partial Destroyed	Inundation above Floor Level	Inundation below Floor Level
Nagano	7	4	40	1	463
Gifu	0	2	42	24	54
Hiroshima	11	78	37	120	343
Fukuoka	10	53	56	346	970
Saga	5	1,083	14	271	2,045
Other	12	14	11	34	216
Total	45	1,234	300	796	4,091

Source: Prepared by the Cabinet Office from the Fire and Disaster Management Agency website.

This heavy rain caused damage to lifelines, including suspension of water supply as well as 414 cases of sediment disaster (landslide disaster) and flooding in 68 rivers in 26 water systems.

In addition, the "Disaster Relief Act" was applied to 13 cities, 7 towns and 1 village in 6 prefectures due to this heavy rain.

Damage from Heavy Rain in August of 2021

Slope failure damage in Okaya City, Nagano Prefecture (Source: Cabinet Office data)

Slope failure damage in Unzen City, Nagasaki Prefecture (Source: Cabinet Office data)

Flooding damage at Rokkaku River in Takeo City, Saga Prefecture (Source: Cabinet Office data)

(3) Response by the Government

At 11:00 a.m. of August 12, 2021, the government established an Information Contact Office in the Prime Minister's Office and held an Inter-Agency Disaster Alert Meeting. At 8:45 a.m. on August 13, a heavy rain emergency warning was issued for Hiroshima Prefecture (at the same time, the Information Contact Office was reorganized into the Emergency Contact Office in the Prime Minister's Office), and at 8:46 a.m., then Prime Minister Suga ordered the following instructions: (1) "to provide the public with information on evacuation, rainfall and river conditions timely and accurately," (2) "to take all possible precautionary measures for evacuation assistance by working in close cooperation with local governments so that the residents who live in inundation areas can be sure to evacuate," and (3) "to promptly understand the situation and implement all necessary disaster response measures under the policy of putting human life first with the government's acting in one body in case of disasters." At 9:50 a.m., the Emergency Contact Office was reorganized into the Emergency Response Office in the Prime Minister's Office, and the first Ministerial Meeting was held with then Prime Minister Suga. Furthermore, at 11:30 a.m., the Authorized Disaster Management Headquarters was established and at 3:00 p.m., and its first meeting was held. These meeting were held nine times in total until August 24. At 9:15 a.m. of the August 15, a Cabinet Office Survey Team was dispatched to the Saga Prefecture Government Office.

On August 21, then Minister of State for Disaster Management Tanahashi visited affected sites in Saga and

Nagasaki Prefectures, and on August 24, then State Minister of the Cabinet Office Akazawa inspected the affected area in Nagano Prefecture.

On September 28, 2021, the Cabinet approved a cabinet order to designate disasters caused by storm and heavy rain during the period from August 7 to 23 as a Disaster of Extreme Severity (see Appendix 14-2).

The first Ministerial Meeting (the first meeting) concerned with the Heavy Rain from August 11 of 2021
(Source: Cabinet Office data)

Then Minister of State for Disaster Management Tanahashi who visited affected sites in Saga and Nagasaki Prefectures
(Source: Cabinet Office data)

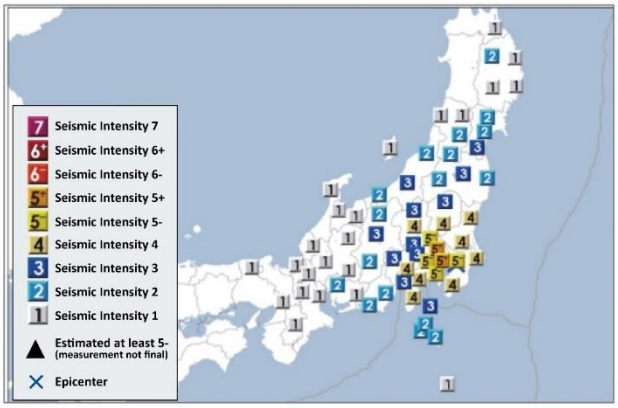
The 6th meeting of Authorized Disaster Management Headquarters for the heavy rain in August of 2021 (Source: Cabinet Office data)

Section 3 Disaster due to Earthquake Centered Off North-West Region of Chiba Prefecture in 2021

(1) Overview

At 10:41 p.m. of October 7, 2021, an earthquake of magnitude 5.9 (provisional figure) occurred at a depth of 75 km (provisional figure) in the north-west region of Chiba Prefecture. The seismic intensity was 5+ in Kawaguchi City and Miyashiro Town in Saitama Prefecture and Adachi Ward in Tokyo, and 5- to 1 in the Tohoku through Kinki regions mainly in the Kanto region.

Seismic Intensity in Each Area



Source: Japan Meteorological Agency website

(2) Overview of Damage

This earthquake caused 6 seriously injured (3 in Saitama Prefecture, 2 in Chiba Prefecture and 1 in Tokyo) and 44 slightly injured (Source: Fire and Disaster Management Agency information, as of March 25, 2022).

(Reference: https://www.fdma.go.jp/disaster/info/items/20211007chibakenhokuseibu9.pdf)

Human Damage (as of March 25, 2022)

■ **Human Damage**

	Deaths	Major Injuries	Minor Injuries
Ibaraki	0	0	1
Saitama	0	3	10
Chiba	0	2	13
Tokyo	0	1	4
Kanagawa	0	0	16
Total	0	6	44

Source: Prepared by the Cabinet Office from the Fire and Disaster Management Agency website.

The earthquake struck nearing the time of the last train around the Tokyo metropolitan area, and many people were forced to wait in front of stations due to suspension of train operations.

(3) Response by the Government

The government set up an Emergency Response Office in the Prime Minister's Office at 10:43 p.m. of October 7 in 2021. At the same time, Prime Minister Kishida instructed to: (1) "grasp the state of damage immediately," (2) "work in close collaboration with local governments in order to make the best effort for disaster response measures including lifesaving and rescue of affected people" (3) "provide information on evacuation and damage to the public in a timely and accurate manner," and (4) "take thorough measures in order to prevent the spread of damage" (see Annex 14-3).

Section 4 Disaster caused by Heavy Snowfall since December 25 of 2021

(1) Overview

From December 25 to 28, 2021, a strong winter pressure pattern around Japan caused heavy snowfall from north to east Japan on the Sea of Japan side and some parts of the Pacific Ocean side – for example, 162 cm of periodic snowfall (from midnight of December 25 to 7:00 a.m. of December 28, 2021) in Tadami Town, Minamiaizu County, Fukushima Prefecture, 136 cm in Minakami Town, Tone County, Gunma Prefecture, and 135 cm in Tsunan Town, Nakauonuma County in Niigata Prefecture.

The heavy snowfall caused 2 deaths (1 in Hokkaido, 1 in Niigata Prefecture), 6 seriously injured (2 in Iwate, 2 in Niigata, 2 in Gifu Prefectures) and 20 slightly injured (2 in Aomori, 5 in Niigata, 3 in Toyama, 2 in Fukui, 2 in Mie, 4 in Shiga, 1 in Tottori, 1 in Shimane Prefectures) (Source: Fire and Disaster Management Agency information, as of December 30, 2021).

In addition, there was damage to transportation infrastructure such as the Hokuriku Expressway, Tohoku Expressway, and other expressways were closed, and railroad operations were suspended (Source: Ministry of Land, Infrastructure, Transport and Tourism, as of December 28, 2021).

In winter of 2021 (from November 1, 2021 to March 31, 2022), snowfall caused 97 deaths, 580 seriously injured and 1,014 slightly injured (Source: Fire and Disaster Management Agency information, as of April 12, 2022).

(2) Response by the Government

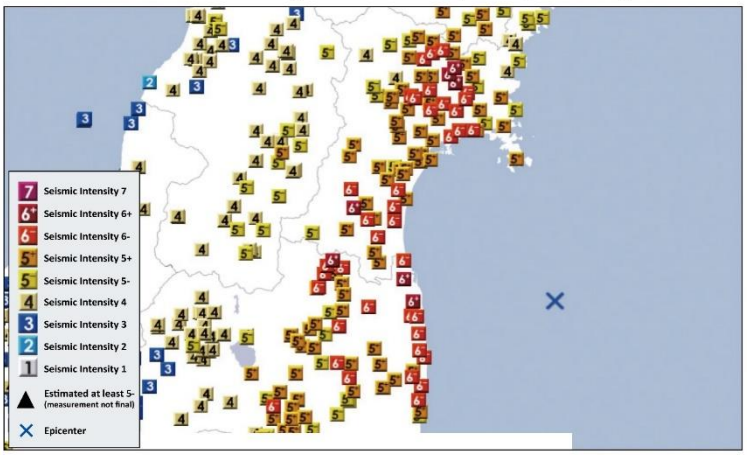
The government established an Information Contact Office in the Prime Minister's Office at 12:00 p.m. of December 24, 2021, and held an Inter-Agency Disaster Alert Meeting.

Section 5 Earthquake Centered Off the Coast of Fukushima Prefecture in 2022

(1) Overview

At 11:36 p.m. of March 16, 2022, an earthquake of magnitude 7.4 (provisional figure) occurred at a depth of 57 km (provisional figure) off the coast of Fukushima Prefecture. The seismic intensity was 6+ in Tome City and Zao Town in Miyagi Prefecture, and Soma City, Minamisoma City and Kunimi Town in Fukushima Prefecture, and 6- to 1 from Hokkaido through the Chugoku region, mainly in the Tohoku region.

Seismic Intensity in Each Area (Enlarged View)



Source: Japan Meteorological Agency website

(2) Overview of Damage

The earthquake caused 3 deaths (2 in Miyagi (including 1 disaster-related death) and 1 in Fukushima Prefectures), 28 seriously injured and 217 slightly injured (Source: Cabinet Office information as of April 19, 2022).

As for damage to homes, 111 were completely destroyed, 1,285 were half destroyed, and 19,048 were partially destroyed (Source: Cabinet Office information as of April 19, 2022).

(Reference: https://www.bousai.go.jp/updates/r4fukushima_eq_0317/pdf/r4fukushima_eq_0317_ 08.pdf)

Human and Housing Damage (as of April 19, 2022)

■ Human Damage

	Death	Disaster-Related Deaths (included in deaths)	Major Injuries	Minor Injuries
Miyagi	2	1	10	96
Fukushima	1		9	92
Other	0		9	29
Total	3	1	28	217

■ Housing Damage

	Completely Destroyed	Half Destroyed	Partial Damage
Miyagi	30	189	7,668
Fukushima	81	1,095	11,372
Others	0	1	8
Total	111	1,285	19,048

Source: Prepared by the Cabinet Office from the Fire and Disaster Management Agency website.

As a result of this earthquake, up to 2.23 million households in the areas served by Tokyo Electric Power Company and Tohoku Electric Power Company experienced blackouts, and over 69,999 households in Iwate, Miyagi, Fukushima, Saitama, and Chiba Prefectures suffered from suspension of water supply. In addition to such damage to lifelines, there was also damage to transportation infrastructure such as suspension of operations of Tohoku bullet train due to derailment between Fukushima and Shiroishizao Stations.

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

(3) Response by the Government

At 11:38 p.m. of March 16, 2022, Prime Minister Kishida instructed to: (1) “grasp the state of damage immediately,” (2) “make the best effort for disaster response measures including lifesaving and rescue of affected people” and (3) “provide information on evacuation and damage to the public in a timely and accurate manner.” In light of these instructions, at 11:39 p.m., an Emergency Response Office in the Prime Minister’s Office was established.

On March 19, Minister of State for Disaster Management Ninoyu visited the affected site in Fukushima Prefecture.

In addition, on March 28, Prime Minister Kishida instructed Minister of State for Disaster Management Ninoyu to take the initiative in forming support plans, taking into account the state of damage and requests from local governments (prefectures, municipalities). In response to this, on April 8, the “Set of Support Measures for the Earthquake Centered Off the Coast of Fukushima Prefecture in 2022” was compiled as an urgent measure for the purpose of rebuilding lives and livelihoods of the affected people.

The referenced support measures covered not only exceptional support through subsidies for small and medium-sized companies and support of demolishing half destroyed houses which had not originally been included in the support coverage, but also measures of restoration work for Date Bridge in Fukushima Prefecture in place of the government authority because recovering Date Bridge requires high technical competence.

With regard to designation as a disaster of extreme severity, it was disclosed that disasters in the area of Shinchi Town, Soma County in Fukushima Prefecture was assumed to be designated as disaster of extreme severity on April 8, 2022in accordance with Article 5 and Article 24 of the “Act on Special Financial Support to Deal with Extremely Severe Disasters” (Act No. 150 of 1962) (See Annex 14-4).

Minister of State for Disaster Management Ninoyu visiting an affected site

[Column]

“Pumice due to Eruption of Submarine Volcano ‘Fukutoku-Oka-no-Ba’”

The sea surface was filled with a great amount of pumice like floating rafts after the eruption of a submarine volcano occurred in “Fukutoku-Oka-no-Ba,” Ogasawara region from August 13 to 15 in 2021. These “Pumice Rafts” moved westward, being extended by the current, and there were many cases to be observed where pumice was floating and drifting along the coasts of Japan since October of the same year. This pumice was thought to originate from the eruption of “Fukutoku-Oka-no-Ba,” which caused various effects on vessels in harbors and fishing ports such as engine troubles on their way as well as preventing them from coming in and out. As of the end of FY2021, pumice was seen floating and drifting at a total of 91 harbors, 154 fishing ports and the coasts of 62 municipalities from Okinawa and Kagoshima (Nansei Islands) to Ibaraki Prefectures. This caused ferry services to be suspended and fishing boats to be unable to sail due to engine troubles.

On October 28, 2021, the government established the “Inter-Agency Countermeasure Meeting on Eruption of Submarine Volcano ‘Fukutoku-Oka-no-Ba’” under the Deputy Chief Cabinet Secretary, and have been working in cooperation with related ministries and agencies to promptly respond to the situation. In order to prevent damages due to pumice, the related ministries and agencies have cautioned prefectures and shipping business operators. Measures, including setting and preparing oil fences to prevent pumice inflow, have been taken in harbors and fishing ports along the Pacific Ocean side of Japan since it was assumed that pumice had been floating and drifting into those areas. In order to collect and dispose of pumice that had already drifted into the harbors and fishing ports, the government has provided financial support including through disaster rehabilitation operations and the like. In addition, the Ports and Harbours Bureau from the Ministry of Land, Infrastructure, Transport and the Tourism (MLIT) and the Fisheries Agency established the “Working Group on Technologies to Collect Floating Pumice,” to work together, disclosed a collection of case studies regarding technologies to collect pumice, and provided technical support including through liaisons. As for Unten Port in Okinawa Prefecture, the Minister of MLIT partially manages harbor facilities in Unten Port as deputy of the port management body, or Okinawa Prefecture, in accordance with the “Port and Harbour Act” (Act No. 218 of 1950). And the Minister also provides various assistance such as developing overall plans for pumice removal from the sea. In addition, the MLIT is taking necessary measures to prevent damage to vessels and continuously ensure safe operation of vessels by publishing "Key Points for Safe Operation to Prevent Pumice Damage" and "Case Studies of Pumice Countermeasures by Shipping Business Operators," which compiles information to help shipping business operators implement countermeasures against pumice. Moreover, as a response to damage to the fishing industry, such as voluntary restraint on operations, vessel breakdowns and the loss of income consequent to them, fisheries mutual aid and other programs are being used to compensate for the loss of income and providing support for vessel repair costs.

Fukutoku-Oka-no-Ba (August 26, 2021)

(Source: Japan Coast Guard)

Pumice removal at Unten Port

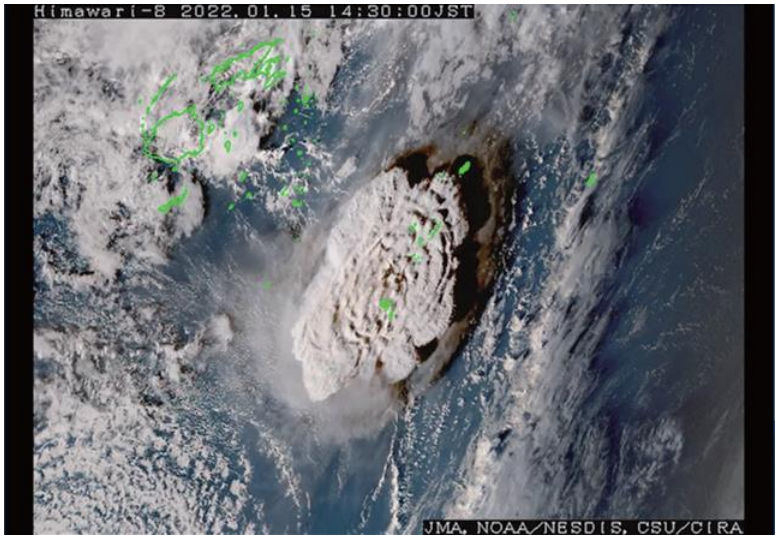
(Source: MLIT)

[Column]

"Change of Tide Level Associated with the Eruption of Hunga Tonga-Hunga Ha'apai Volcano and the Response by the Government"

An eruption occurred from the Hunga Tonga-Hunga Ha'apai volcano near the Tongan Islands from December 2021 to January 2022. A series of eruptive activities began with an explosive eruption on December 20, and although the eruptive activity temporarily slowed down in January, a large scale of eruptions occurred on January 14 and 15. The plumes from these eruptions were observed by the Japanese geostationary meteorological satellite Himawari (see figure below). In particular, the eruption on January 15 was so large that the plumes reached an altitude of about 52,000 feet (approx. 16,000 m), and the upper part of the plumes in diameter extended more than 600 km, according to New Zealand's Wellington Volcanic Ash Advisory Center (VAAC). According to the Smithsonian National Museum of Natural History in the U.S., it is reported that there was a great deal of ashfall on islands 70 to 100 km east from the Hunga Tonga-Hunga Ha'apai volcano.

Satellite image of the large-scale eruption of Hunga Tonga-Hunga Ha'apai volcano on January 15, 2022



Source: Japan Meteorological Agency

Changes of tide level were observed at Nuku'alofa (Kingdom of Tonga) near the Hunga Tonga-Hunga Ha'apai volcano at 1:25 p.m. (Japanese Standard Time) of January 15, 2022, likely due to the volcanic eruption. Since the possibility of the tide change was anticipated in Japan as well, the Japan Meteorological Agency issued information on the distant earthquake (investigating whether or not a tsunami would reach Japan) at 6:00 p.m. of the same day. Since the level of the tide change at overseas tide observation stations along the propagation path to Japan was small, information on the distant earthquake that the sea level will slightly change along the coast of Japan and tsunami forecast with the slight sea level changes were announced at 7:01 and 7:03 p.m. respectively, of the same day. Subsequently, the changes of the tide level began to be observed at tide observation stations in Japan two hours earlier than the expected normal arrival time of tsunami due to an earthquake, with tide level changes tending high. Therefore, because of the possibility of disasters and the need to urge alert and advisory, Tsunami Warnings were issued for the Amami Islands and the Tokara Islands at 0:15 a.m. of the 16th of the same month,

and Tsunami Advisories were issued for the Pacific coast from the eastern part of Hokkaido to Miyako Island and the Yaeyama regions. Furthermore, at 2:54 a.m. on the same day, the Tsunami Advisory for Iwate Prefecture was switched to Tsunami Warning, and at 4:07 a.m. on the same day, Tsunami Advisories were issued for western Nagasaki and western Kagoshima Prefectures (thereafter, Tsunami Warnings and Advisories were sequentially switched and cancelled according to decaying tide level change). When this change in tide height was measured by a tsunami height measurement method, changes in tide level were observed throughout the country. For instance, a height of 134 cm was observed at Kominato, Amami City in Kagoshima Prefecture (Source: Japan Meteorological Agency) and 107 cm at Kuji Port in Iwate Prefecture (MLIT).

In light of these situations, the government established an Emergency Contact Office in the Prime Minister's Office at 0:15 a.m. of January 16 to collect information on the damages.

As a result of these tide changes, it was reported that 30 fishing vessels had capsized or sank, with damage to 158 fishing gear, aquaculture facilities, and common facilities in total, and 143 fish farms. (As of April 15, 2022)

This tide change was different from those caused by normal earthquakes in that the tide level changed more than two hours earlier than the normal arrival time of tsunamis caused by earthquakes, and the level of tide change at observation points was small along the route from Tonga to Japan. However, the tsunami warning system was used in order to encourage the public to take proactive disaster risk reduction behavior. At the time when the tide level change was observed, a change in atmospheric pressure of about 2 hectopascals was observed at ground meteorological stations in Japan.

In a series of responses to the tide level change, there were some issues that: (1) it took a while before the Tsunami Warnings were announced because the mechanism of the tide level change was not clear at the time the change was observed, and (2) the provision of information was insufficient between the eruption and the announcement of the Tsunami Warnings. In light of these issues, the Japan Meteorological Agency has been taking measures since February 2022 to notify, for the time being, that tide changes may be observed in Japan due to overseas volcanic eruptions under the "information on distant earthquakes." This is in case where (1) a large-scale eruption occurs overseas or (2) after a large-scale eruption, tide changes are observed at overseas tsunami monitoring stations which are located along the tsunami transmission route to Japan. This information was announced at the time of the eruption of the Manam volcano (Independent State of Papua New Guinea) on March 8, 2022. In addition, the "Study Group on Tsunami Prediction Technology" examined what mechanism was thought to have caused the tidal level changes in order to contribute to the discussion on how information should be shared regarding tide level changes due to volcanic eruptions based on the recent eruption. A report was compiled in April 2022, including the assumption that the tidal changes were thought to have been caused by an interaction between the ocean and the atmosphere. Based on this report, since May 2022, a study group has been discussing how information on changes in tide levels should be shared in the event of a large-scale eruption, with the participation of experts on tsunami, volcanoes, and disaster prevention information, local government disaster management officials, and the media to convey information.

Also, based on this change in tide levels, the Cabinet Office and the Fire and Disaster Management Agency issued a notice to the municipalities through prefectures in order to urge them to take appropriate measures such as issuing evacuation instructions in the event of tsunami.

[Column]

Support Grants for Reconstructing Livelihoods of the Affected Households with Minor Destruction Newly Eligible for Payments

The Act on Support for Reconstructing Livelihoods of Disaster Victims (Act No. 66 of 1998) is the act to provide assistance to affected people who suffer from significant damage to the foundation of their livelihood in the event of natural disasters. In case where the natural disasters occur and it is difficult for the affected municipalities or prefectures to respond on their own, the funds contributed by prefectures in the context of mutual assistance are utilized to provide assistance payments under this Act, and it has been amended continuously several times so far.

A fact-finding survey conducted in June 2019 by the "Working-level Conference on the System on Support for Reconstructing Livelihoods of the Affected due to Disaster," which was established by the Cabinet Office, the National Governors' Association, and others in order to discuss the ideal System on Support for Reconstructing Livelihoods of the Affected due to Disaster. According to this survey, it turned out that, out of the houses designated as half destroyed (damage ratio of 20% to less than 40%), some of the houses that were not damaged enough to be designated as largely destroyed (damage ratio in the 30% range) costed less than 5 million yen on average for repairs, indicating that people could not live without large-scale repairs for their main rooms, functions and others.

Therefore, the “Bill for Partial Amendment of the Act on Support for Reconstructing Livelihoods of Disaster Victims” was submitted to the extraordinary diet session in November 2020 in order to add some of the houses designated as half destroyed (damage ratio in the 30% range) newly called ‘moderately destroyed’ to the object of the subsidy and eligible to receive assistance payments. According to this act, 1,000,000 yen is to be provided for building or purchasing a house, 500,000 yen for repairs, and 250,000 yen for renting. After deliberations by both the House of Representatives and House of Councilors, the act was unanimously passed and enacted on December 2, 2020, and was promulgated and enforced on December 4, 2020.

This amended act applied to the Heavy Rain Event of July 2020 and disasters after that. As of the end of February 2022, in case of 5 disasters which were applied to the Act on Support for Reconstructing Livelihoods of the Affected Disaster Victims, 2,660 houses (31.7% out of houses with half destroyed under the previous criteria (damage ratio between 20% and 40%)) have been newly eligible for payments.

Damage to residential homes affected by the disasters covered by the amended Act on Support for Reconstructing Livelihoods of Disaster Victims (as of the end of February 2022)

※Based on Disaster Affected Certificates

Completely Destroyed	Largely Destroyed (50 to 70%)	Moderately Destroyed (A)	Half Destroyed (B)	Quasi-Half Destroyed	Partially but Non-Quasi-Half Destroyed
2,096 Buildings	1,700 Buildings	2,660 Buildings	5,733 Buildings	10,455 Buildings	26,603 Buildings

※ The list only covers the damage to residential homes in municipalities covered by Act on Support for Reconstructing Livelihoods of Disaster Victims.

※ Disasters to which the amended Act on Support for Reconstructing Livelihoods of Disaster Victims applies.
- Disaster caused by the Heavy Rain Event of July 2020, Earthquake Centered Off the Coast of Fukushima Prefecture in 2021 and Gale on April 1 of 2021
- Heavy Rain from July 1 and from August 11 of 2021

※ Out of half-destroyed houses, the percentage of moderately destroyed is 31.7% (=A/(A+B))

*Only damage to houses in municipalities applicable under the Act on Support for Reconstructing Livelihoods of the Affected Disaster Victims is listed.

*Disasters applicable under the Act on Support for Reconstructing Livelihoods of the Affected Disaster Victims are as follows:

- The Heavy Rain Event of July 2020, Earthquake Centered Off the Coast of Fukushima Prefecture in 2021
- Disaster caused by strong winds on April 1, 2021,The Heavy Rain from July 1 of 2021
- The Heavy Rain from August 11 of 2021

*The percentage of moderately destroyed houses out of half destroyed houses is 31.7% (=A/(A+B)).

Section 6 Response to the Heavy Rain in July and August 2021, and COVID-19 Countermeasures

In the current situation of COVID-19, sufficient attention must be paid to prevent infection of COVID-19, including the avoidance of the three Cs (Closed spaces, Crowded places and Close-contact settings) in shelters. The Cabinet Office has been providing advice and guidance about operation at shelters under the COVID-19 crisis to local governments on (1) securing as many shelters as possible, such as taking safe refuge in homes of relatives and friends in addition to evacuating to shelters, (2) hygiene management in shelters such as preparation of masks and disinfectants, and (3) securing enough space for evacuees by using partitions and others.

The compiled case studies were notified to all local governments in Japan for their disaster responses in the future. The contents covered the experiences and know-how related to the operation at shelters in the affected areas which had been gained from disaster responses during the Heavy Rain in July and August of 2021, including measures against COVID-19.

(1) Compilation of Case Studies

The following measures taken by some local governments were shared with others as references for disaster response in the future.

1. Confirmation by Experts at COVID-19 Countermeasures to Implement at Shelters

Experts (including public health nurses and the Medical Association. The same applies hereinafter) and NPOs with high skills in supporting evacuation life confirmed specific details of COVID-19 countermeasures and the sanitary environment during the ordinary times and the phase just after opening a shelter at every single shelter.

Examples of a Checklist for countermeasures against COVID-19 in shelters

Shelter Sanitary Environment Checklist

Date : year month day Name :

Shelter Name : Contact information :

		Points to Check	Yes / No
Shelter—General	(1)	Are there places to remove mud and dust before entering the shelter?	□ Yes □ No
	(2)	Should people take off their shoes in a shelter and is the boundary between the inside and the outside of the shelter clear?	□ Yes □ No
	(3)	Are non-contact thermometers prepared for use at the reception and for health management in the shelter?	□ Yes □ No
	(4)	Are infection prevention posters displayed in prominent places (such as bulletin boards and entrances) in the shelter and in places where the risk of infection is high, such as restrooms?	□ Yes □ No
	(5)	Are areas for pets separated from the one for people? (If pets are accepted)	□ Yes □ No
	(6)	Are hand sanitizers installed in high-traffic areas (entrances, restrooms, cafeterias, etc.)?	□ Yes □ No
	(7)	Are there rooms reserved in advance in order to isolate people with fever, and respiratory and digestive symptoms? (Isolated restrooms recommended)	□ Yes □ No
	(8)	Are there set persons and frequency of cleaning, and is the shelter regularly ventilated?	□ Yes □ No
	(9)	Are the locations of trash cans set so that they are not mixed with clean areas, such as eating areas? (Preferably with lids, if possible)	□ Yes □ No
	(10)	Are the storage areas for garbage located in separate areas from living spaces, and are they collected regularly in order not to generate odors, etc.?	□ Yes □ No
	(11)	Are the expiration dates and storage locations for chemicals used for hand hygiene and environmental disinfection appropriate?	□ Yes □ No
Residence	(12)	Are there 2-meter distances between families? (If it is not possible to keep the distance, use partitions etc.)	□ Yes □ No
	(13)	If each household is sheltered in their own rooms, are they encouraged to ventilate their rooms regularly?	□ Yes □ No
	(14)	Are measures taken to prevent dust inhalation from the floor, such as the use of cardboard beds? (In the case of using mattresses, keep them clean thoroughly and take measures not to make ashes near sleepers' heads)	□ Yes □ No
	(15)	Are the placements of cardboard beds and mattresses arranged alternately to help avoid airborne droplets?	□ Yes □ No
Food	(16)	Is the environment to keep hands clean before eating (such as hand washing stations, soap and hand sanitizer)ensured?	□ Yes □ No
	(17)	Are tables prepared in accordance with the number of evacuees and laid out in consideration of avoiding three Cs?	□ Yes □ No
	(18)	Are meals eaten at the table (not set on the floor directly)?	□ Yes □ No
	(19)	Is an environment prepared where people can wipe the table before eating?	□ Yes □ No
	(20)	Are leftover food and garbage collected immediately after meals?	□ Yes □ No
Restroom	(21)	Are the number of restrooms and their male/female ratio proper for the number of evacuees? (At least one restroom for every 50 people, preferably one for every 20 people and more for women than men)	□ Yes □ No
	(22)	Are soap (or hand sanitizer) and paper towels prepared and kept clean for hand washing? (Note that foam-type hand sanitizers are difficult for the elderly to distinguish from soap)	□ Yes □ No
	(23)	Are locations for regular cleaning and general disinfection (i.e. high-frequency contact surfaces) and persons in charge of such tasks set?	□ Yes □ No
	(24)	Are personal protective equipment and disinfectants necessary for cleaning and general disinfection prepared?	□ Yes □ No
	(25)	Are there designated areas for changing diapers for infants? (e.g. a corner separated as a changing area in a one-floor shelter)	□ Yes □ No

Source: documents provided by Infection Control Practice and Conference Saga Prefecture

A Checklist for Countermeasures Against COVID-19 in Shelters

1. Informing residents of evacuation actions
- ☐ Trying to let the residents know the selection of proper evacuation locations.
- ☐ Encouraging residents to bring their necessary supplies to the shelter.

2. Securing a shelter
- ☐ Securing as many shelters as possible.
- ☐ Reviewing spaces to be utilized as shelters.
- ☐ Securing places to receive persons requiring special care

3. Advance preparations for opening a shelter
- ☐ Considering to ensure enough space at the shelter.
- ☐ Establishing a system of consultation and collaboration with local health centers.
- ☐ Securing effective supplies and materials for infection prevention measures.
- ☐ Considering taking care of persons requiring special care
- ☐ Conducting training and drills for staff in charge of shelter operations.

4. Infection prevention measures in the shelter
- ☐ Upon entry, hand sanitization and temperature measurement are conducted, and health conditions are carefully confirmed through answering items on the reception sheet and through interviewing.
- ☐ Regular ventilation is conducted and enough space between evacuees are kept by partitions or other means.
- ☐ In principle, masks are worn in the shelter, and basic infection countermeasures such as hand washing and cough etiquette are thoroughly implemented.
- ☐ Hand sanitizers are equipped at entrances and exits of evacuation centers and around restrooms, etc., to ensure that hands are thoroughly disinfected.
- ☐ The shelter is regularly cleaned, and items, etc. are cleaned regularly or when they are visibly dirty by using household detergent to maintain a sanitary environment in the shelter.
- ☐ Crowding and close-contact are avoided within the shelter by making it careful to coordinate the time of distribution of supplies and the like.
- ☐ The shelter is divided into areas for inside shoes and outside shoes.
- ☐ Posters and other materials related to infection prevention measures are displayed in the shelter to raise awareness.

5. Health care of evacuees
- ☐ Public health nurses, etc. are stationed at or visit the shelter to regularly check the health status of evacuees.

6. Working with evacuees outside of the shelter, such as those staying in cars
- ☐ Working to secure a centralized location and establish an efficient system for identifying evacuees.

Source: documents provided by Kumamoto Prefecture

2. COVID-19 Countermeasures in Shelters

・Evacuees with fever and other symptoms in shelters were separated in an extra room, and health checks were provided in cooperation with health care centers and local medical institutions.

・Cots made of polycarbonate or other materials were used in shelters to facilitate disinfection and cleaning.

3. Improvement of Living Environment in Shelters

・From the viewpoint of measures against heatstroke and cold weather, shelters fully equipped with air-conditioning and heating facilities were provided on a priority basis. In schools where the gymnasiums were not equipped with air conditioning and heating facilities, classrooms with those facilities were used according to circumstances.

・Even in facilities that were normally used with shoes on, when they were utilized as shelters, the flow lines between outdoor and indoor zones were separated from the perspective of hygiene management. For instance, entering shelters with shoes on was prohibited and shoes boxes (such as simple ones made of cardboard) were installed. In the restrooms, special slippers were provided to ensure thorough hygiene management.

・In order to secure the cardboard beds needed in shelters where persons requiring special care stayed, the prefectural government arranged for the procurement of these beds through other cities in the same prefecture.

・Immediately after a disaster strikes, evacuees normally sleep on cushions or simple mats on top of cardboard beds, but when evacuation life was prolonged, extra mattresses, futons, linen goods were arranged later on.

・For evacuees, immediately after a disaster, stockpiled foods (e.g. instant steamed rice called alpha rice, cup-type instant noodle, etc.) are mainly provided at shelters, but when evacuation life was prolonged, lunch boxes were supplied in cooperation with local restaurants out of consideration for nutritional aspects.

(2) Coordination among Relevant Departments and Information Sharing with Home Care Patients and People who Have a Close Contact with an Infected Person

In light of the current infection status of COVID-19, it is particularly important that the relevant departments of prefectures and municipalities cooperate with each other from ordinary times, consider how they provide information for home care patients and people who have a close contact with an infected person (hereinafter referred to as "patients at home care, etc."), and take any necessary measures.

Therefore, based on notices issued in the past, in preparation for patients at home care, etc. to be affected, disaster management bureaus, health and welfare departments, and health care centers in prefectures and municipalities were notified that they should have a detailed set of contents and methods for information sharing. This can be done by these parties cooperating with each other from ordinary times and by determining the responsible parties and division of roles for securing evacuation sites for patients at home care, etc. and informing evacuation procedures. In addition, they were also notified that they must determine in advance what to do for patients at home care, etc. and how to help them evacuate in the event of a disaster and inform them of these issues.

(3) Evacuation of People Who Have a Close Contact with an Infected Person

An additional notice was sent on the evacuation of people who have a close contact with an infected person: When such persons are evacuated, they are to be kept in private rooms as much as possible. If it is difficult to keep them in private rooms, special spaces are to be ensured, and if it is unavoidable to keep them in the same room, partitions are to be used to separate them. Also, in light of the current infection status of COVID-19, a notice was sent to consider to set up shelters dedicated for people who have a close contact with an infected person.

(4) Management of Compartmentalization Between Households in a Shelter

A notice was sent that in case a positive case of COVID-19 occurs in shelters, the compartments where each household stayed were to be managed by numbering so that it could be used to identify people who have a close contact with an infected person.

Section 7 Response by Volunteers and NPOs

(1) Volunteer Response to Major Disasters in 2021

In the disaster caused by the heavy rain from July 1 of 2021, Disaster Volunteer Centers (hereinafter referred to as "Disaster VCs") were established in seven cities in Shizuoka, Shimane, Hiroshima and Kagoshima Prefectures by the Council of Social Welfare. And a total of approximately 2,800 volunteers provided support through the Disaster VCs (as of September 30, 2021).

In the disaster of the heavy rain in August of 2021, Disaster VCs were set up in 11 cities and towns in Nagano, Hiroshima, Fukuoka, Saga and Nagasaki Prefectures by the Council of Social Welfare. And a total of approximately 4,700 volunteers worked through the Disaster VCs (as of November 30, 2021).

In the affected areas, disaster relief activities for the affected people were carried out according to the local conditions such as cleaning up and clearing out affected houses, carrying away garbage generated from the disasters, removing soil and sand from inside houses and waterways, distributing goods at shelters, and helping them move out of shelters.

In order to prevent the spread of COVID-19, volunteers were recruited only within the affected prefecture and relevant municipalities, and they were asked to implement basic infection prevention measures such as wearing masks, washing hands and keeping safe distance from others. In Atami City, Shizuoka Prefecture, a pre-registration form was opened on the Web for volunteer applicants, and the area of activity and the number of volunteers were adjusted in advance.

In addition to the support provided by volunteers through the Disaster VCs, NPOs and other organizations with expertise provided a broad range of support to give technical assistance to damaged houses such as removing soil and collecting debris, respond to disaster waste, help evacuees at home, support temporary housing, and assist livelihoods. In Saga Prefecture, the "Saga Disaster Support Platform (SPF)" of the coordinating organization within the prefecture prepared the "Guidelines for Assistance Requests" to carry out the support initiatives giving the most priority to ensuring the safety for affected people and supporters.

Disaster Volunteer Activities

	Heavy Rain from July 1 of 2021 (as of September 30 of 2021)	Heavy Rain in August of 2021 (as of November 30 of 2021)
The number of disaster VCs established	7 cities	11 municipalities
The number of disaster volunteers (cumulative total) *1	2,822 people	4,711 people
The number of NPOs and other organizations that conduct volunteer activities *2	51 organizations	131 organizations

***1: The number of volunteers via disaster VCs**

***2: The number of organizations that participated in information sharing meetings in Shizuoka, Fukuoka, and Saga Prefectures.**

Source: Prepared by Cabinet Office from the website of Japan National Council of Social Welfare

*1: The number of volunteers that worked via the Disaster VCs

*2: The number of organizations that participated in information sharing meetings in Shizuoka, Fukuoka and Saga Prefectures.

Source: Prepared by the Cabinet Office from the website of the Japan National Council of Social Welfare


Volunteer activities after the heavy rain from July 1 of 2021

(Source: Council of Social Welfare in Atami City)


Disaster volunteer activities after the Heavy Rain in August of 2021

(Source: Council of Social Welfare in Omachi Town (left) /

Council of Social Welfare in Saga City (right))

(2) Cooperation among the Administration, Volunteers and NPOs

In the affected areas in Shizuoka, Fukuoka and Saga Prefectures, various support entities such as the administration, the Council of Social Welfare and NPOs held “Information Sharing Meetings” to share information on support activities and to coordinate various activities. It allowed the administration, volunteers and NPOs to provide cooperative support including understanding the needs of affected people and assistance to evacuees at home.

In addition, “national information sharing meetings (Core Conference)” was held by the Cabinet Office, the Japan Voluntary Organizations Active in Disaster (hereinafter referred to as “JVOAD”), the Japan National Council of Social Welfare and the Disaster Relief Volunteer Activity Support Project Meeting (hereinafter referred to as “Support P”). They shared information on the affected areas and discussed ways to support the affected areas in the future.

Information Sharing Meetings Held in Affected Areas

Shizuoka Prefecture	○ "Information Sharing Meetings of the Shizuoka Prefecture Volunteer Headquarters and Information Center" *Held as meetings for information sharing between in-prefecture organizations and some out-of-prefecture organizations. (July 3,4,7) ○ "Liaison and Coordination Meetings" *Held as meetings for information sharing among organizations active in the prefecture. (July 5, 6, 7, 8, 12, 13, 14, 15, 16, 19, 21, 26, August 2, 10, 17, 23, 30) ○ "Fuji-no-kuni Disaster Supporters Meetings" *Held as meetings for information sharing among all organizations, both in and out of the prefecture. (July 9) ○ "Information Exchange Meetings for Support organizations in the Izusan area" *Held as meetings for information sharing among organizations active in Atami City, Shizuoka Prefecture. (July 18, August 2, 5, 12, 19, 25, September 3, 9)
Fukuoka Prefecture	Information Sharing Meetings on Heavy Rain Disaster in Fukuoka Prefecture (August 16, 17, 19, 20, 21, 23, 25, 27, 30, September 3, 6, 9, 13, 16)
Saga Prefecture	Hagakure Meetings (August 15, 16, 17, 18, 19, 20, 21, 25, 28, September 1, 4, 8, 11, 18, 25, October 2, 9, 23 November 12, December 18, January 22)

Information sharing meeting in Shizuoka Prefecture (Source: Shizuoka Prefecture)

Information sharing meeting in Fukuoka Prefecture (Source: Disaster Relief Network Fukuoka)

(3) Support for Shelter Operations in Saga Prefecture

As a collaborative project between the Cabinet Office and the JVOAD, assessments of shelters were conducted in Takeo City and Omachi Town in Saga Prefecture to confirm the environments in shelters and give assistance on improving such environments. With the cooperation of two NPOs with expertise in improving the evacuation life environment, staff from both NPOs were asked to act as "evacuation life support advisors," and the following things were conducted.

- Creation of a living environment assessment sheet for prolonged shelter life under the COVID-19 Crisis.
- Interviews with organizations involved in shelter support (i.e. administrative divisions, Saga branch of the Japanese Red Cross Society and health care centers).
- Assessment and support for improving the evacuation environment at shelters in Takeo City and Omachi Town.
- Reporting assessment results to relevant parties and exchanging opinions on future improvements.

A series of efforts from assessment to shelter improvement were undertaken in conjunction with local support groups, which led to the development of a system for local support groups to continuously involve in improving evacuation life. These activities are going to be utilized for specifically building of the "Ecosystem of Supporting

Evacuation Life and Human Resource Development against Disasters" which is described later in Section 4, Chapter 3.

Activities of "evacuation life support advisors" (Source: NPO in disaster relief RESCUE STOCK YARD)

[Column]

Establishment of the "Disaster Relief SONAE Reiwa Fund " by JVOAD

In recent years, the needs of affected people have become more diverse and the scope of activities of volunteers and NPOs in times of disaster has expanded. Under these situations, the need for collaboration and cooperation among the administration, NPOs and volunteers has been growing.

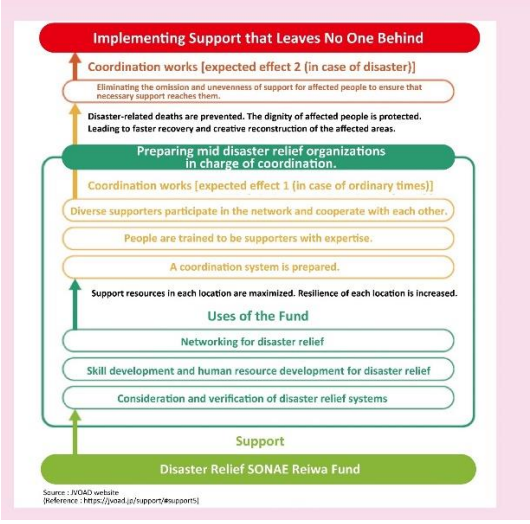
The Japan Voluntary Organizations Active in Disaster (JVOAD) established in 2016 is the only nationwide coordinating organization that coordinates and supports the activities of different organizations such as NPOs and volunteers during disasters. The Cabinet Office declared a tie-up with JVOAD in 2019 and has cooperated with JVOAD to promote collaboration and cooperation among the administration, NPOs and volunteers such as by jointly hosting nationwide information sharing meetings in the event of disasters.

In order to provide more effective support to affected people, it is important to build a system of cooperation among supporters from ordinary times and to strengthen local disaster response capabilities. Therefore, on November 1, 2021, the fifth anniversary of JVOAD, JVOAD established the "Disaster Relief SONAE Reiwa Fund " with a portion of the donation given by the Japanese Emperor. This donation was given on the occasion of the Japanese Emperor's enthronement and was used to maintain and train the "coordinating organizations" in each area which coordinate several supporting initiatives by NPOs and volunteers during disasters.

The fund calls for wide cooperation and donation from corporations, organizations and individuals. JVOAD plans to promote the following projects in each region of Japan by utilizing the fund.

- Networking among disaster relief workers (holding forums and liaison meetings in prefectures)
- Skill and human resource development for disaster relief (training to develop human resources and coordinators of disaster relief)
- Consideration and verification of a system for disaster relief (e.g. verifications on establishing a specific system for disasters)

The Cabinet Office will continue to promote collaboration and cooperation with JVOAD, and hopes that the regional collaboration system will be further strengthened through the Disaster Relief SONAE Reiwa Fund.



Source: JVOAD website

(Reference: https://jvoad.jp/support/#support5)

Chapter 2 Consideration of Disasters in FY2021

Section 1 Consideration of the Prevention of Disasters Caused by Embankments

The heavy rain from July 1 of 2021 caused sediment disasters (landslide disasters) and flood damage in many parts of Japan, largely debris flow disaster in Atami City, Shizuoka Prefecture, which brought about extensive damage.

The government compiled a "Package of Support Measures for the Heavy Rain from July 1 of 2021" on July 30, 2021. In the package, in order to take all possible measures against disasters likely to occur again and to minimize damage, they decided to "conduct a general inspection of embankments that seem dangerous, and establish a liaison conference of experts and related ministries and agencies. In light of this inspection, necessary measures, including the way to respond to dangerous areas and land use regulations, are considered to ensure safety."

In response to this, first of all, it was necessary to ascertain the actual condition of embankments affecting residential areas and to take immediate measures for parts that were considered dangerous. Therefore, from August 2021, under the cooperation of related organizations, a nationwide general inspection of embankments was initiated.

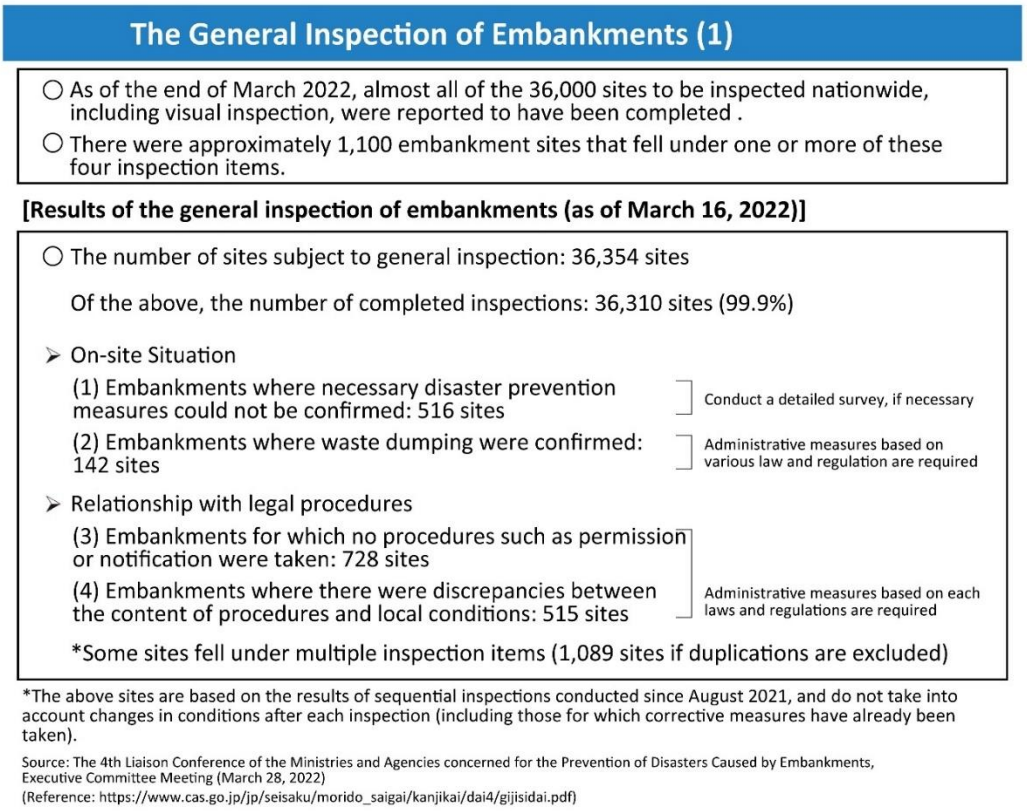
In addition, on August 10, 2021, we established the "Liaison Conference of Related Ministries for the Prevention of Disasters by Embankments" (hereinafter referred to as the "Liaison Conference of Related Ministries" in this section), which consists of related ministries and agencies. On September 30, 2021, a committee on the prevention of disasters by embankments (hereinafter referred to as the "Committee of Experts" in this section), consisting of experts from the private sector, was established to discuss measures to prevent disasters by embankments.

（Reference: https://www.cas.go.jp/jp/seisaku/morido_saigai/index.html
https://www.bousai.go.jp/kaigirep/kentokai/moridosaigai/）

(1) General Inspection of Embankments

On August 11, 2021, the relevant Directors-General of the Ministry of Agriculture, Forestry and Fisheries (MAFF), the Forestry Agency, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT), and the Ministry of the Environment jointly issued a document requesting prefectural governors to conduct a comprehensive inspection, and each prefecture proceeded with a general inspection of embankments, including visual checks at each site.

In December 2021, the relevant ministries and agencies organized the status of inspections at that time and reported them to the Committee of Experts. Furthermore, the inspections of almost all of the 36,000 embankment sites nationwide, including visual inspections, (as of the end of March 2022) were reported to have been completed, and the results of these inspections were announced to the public.



(2) Suggestion by the Committee of Experts

The Committee of Experts held discussions four times from September to December 2021 from the viewpoint of experts in each field, and based on the situation regarding the general inspection of embankments that was organized by the government, the committee summarized its recommendations on December 24, 2021.
(Reference: https://www.bousai.go.jp/kaigirep/kentokai/moridosaigai/pdf/teigen_honbun.pdf)

The recommendations included the direction of measures regarding existing dangerous embankment sites and the future direction of mechanisms to prevent the occurrence of dangerous embankments, which should be addressed by the agencies concerned.

As for measures to be taken regarding existing dangerous embankment sites:

- It was proposed that "embankments with high disaster risk" identified in the general inspection of them should be set in motion to ensure their safety as soon as possible.
- While the basic policy is that the embankment builder should impose corrective measures, if it is difficult to do so, the local government will implement measures to deal with the hazardous parts. At the same time, the government should support the local government.

Specific measures were proposed for "thorough implementation of legal measures for the actors including embankment builders," "measures to be taken at dangerous sites" and "measures to be taken until solutions at dangerous sites are completed."

In addition, mechanisms for preventing a future occurrence of hazardous embankments include:

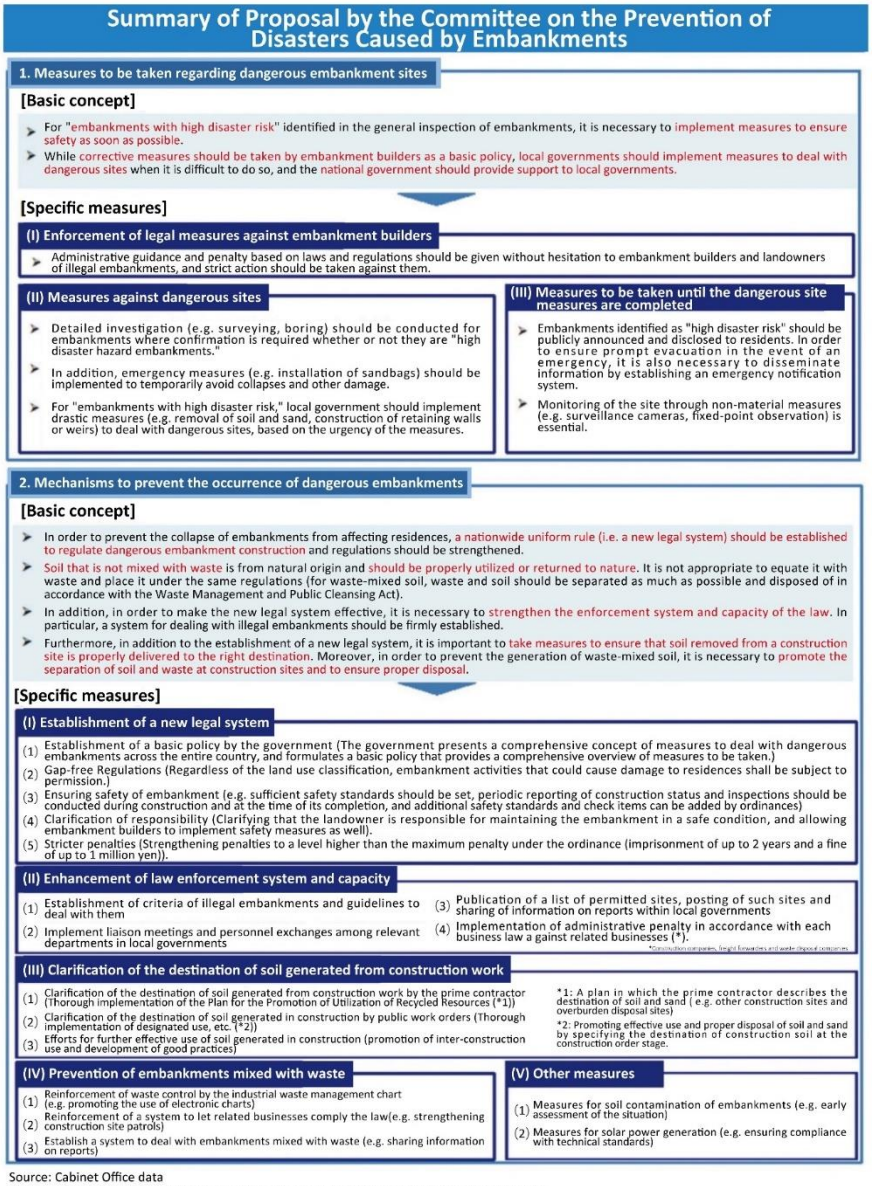
・Uniform rules should be established (a new legal system), and regulations should be strengthened to control dangerous embankment construction, etc.

・In order for the new legal system to be effective, the law enforcement system and capacity must be strengthened.

・Along with the establishment of a new legal system, it is important to take measures to ensure that soil discharged from construction sites is disposed of to appropriate destinations.

・In order to prevent the generation of soil mixed with waste, it is necessary to promote the separation and proper disposal of soil and waste at construction sites.

Fundamental concepts such as the above were presented. And the report proposed specific measures to "create a new legal system to regulate dangerous embankments," "strengthen the enforcement system and capacity," "clarify the destination of soil generated from construction work" and "prevent the generation of embankments mixed with waste."

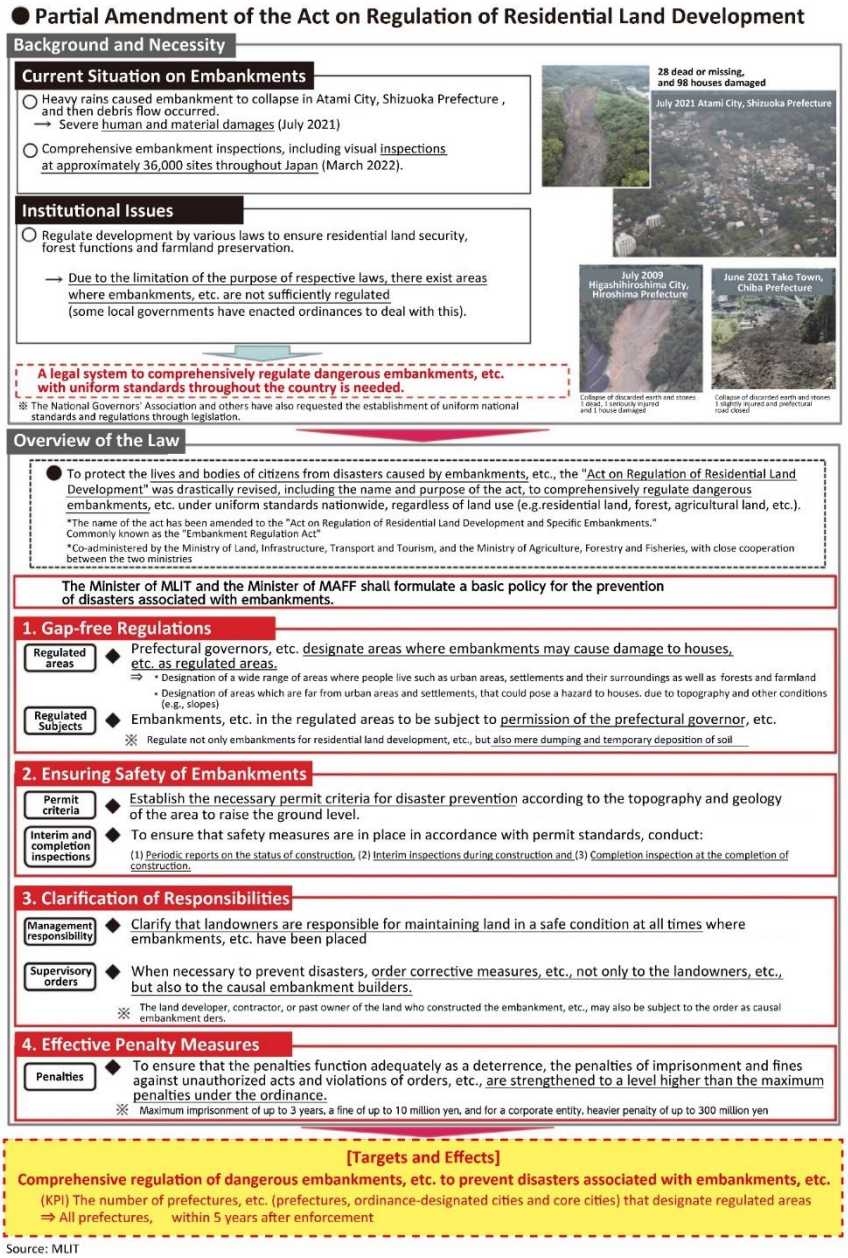


Source: Cabinet Office data
(Reference: https://www.bousai.go.jp/kaigirep/kentokai/moridosaigai/pdf/teigen_gaiyou.pdf)

(3) Actions based on the Recommendations

Based on the recommendations of the Committee of Experts, the Liaison Conference of the Related Ministries decided on "Measures to Prevent Disasters Caused by Embankments" on December 27, 2021. These measures are to respect "the recommendations of the Committee of Experts to the maximum extent and promptly embody all matters described in the recommendations in the relevant ministries and agencies."

In response, MLIT and MAFF considered a new legal system to regulate dangerous embankments with uniform standards nationwide to prevent damage to residences and others caused by collapsing embankments. In March 2022, they submitted a "Bill for Partial Amendment of the Act on Regulation of Residential Land Development" to the 208th session of the Diet. The bill was passed and enacted on May 20 after deliberations in both houses of the Diet.



Source: MLIT

Section 2 Publication of Names and other information of Persons Whose Safety is Unknown at the Time of Disaster

In the event of a disaster, in order to contribute to the efficiency and facilitation of rescue activities, in some cases, local governments will publicize the names of persons whose safety is unknown (hereinafter referred to as "publication of names and other information") and seek information on their safety widely in order to narrow down the list of persons to be rescued. Since names and other information are personal information, with taking into consideration their own personal information protection ordinances, each local government determines whether or not to disclose names and other information according to the circumstances of the disaster, affected persons and other factors.

On July 3, 2021, a massive debris flow occurred in the Izusan area of Atami City, Shizuoka Prefecture. Since it was initially difficult to accurately assess the extent of damage, Atami City identified 130 damaged buildings based on maps and field checks and recognized 217 residents from 128 households in the affected area by checking with the Basic Resident Register, which led them to confirm their safety. Based on the results, on the evening of the 5th, the Shizuoka Prefecture Disaster Management Headquarters announced the names of 64 people whose safety was unknown and solicited information from a wide range of sources. Thereafter, contact was made by the missing persons themselves or their acquaintances, and the number of missing persons decreased to 25 on the morning of the 6th. Sequentially thereafter, the addresses of persons whose safety was unknown were identified and plotted on a map to focus the area of rescue and search activities.

Based on this case, on September 16, 2021, the Cabinet Office, jointly with the Fire and Disaster Management Agency, issued a notice entitled "Publication of Names and other information of Persons Whose Safety is Unknown at the Time of Disaster" to the chief of each prefectural disaster management department. This informed local governments of the matters they should keep in mind when they publicize names and other information. The main contents of the notice were as follows.

- In the event of a disaster, the publication of names and other information may contribute to the efficiency and facilitation of lifesaving activities, and the first 72 hours since the occurrence of disaster are extremely important. Accordingly, a series of procedures for the publication of names and other information should be considered from ordinary times in cooperation with municipalities and relevant organizations.
- It is basically prefectures that should publicize the names and other information. However, in case where it is considered useful to have municipalities collect safety information, it may be possible for municipalities to do so based on the prior coordination.
- In case where it is important to improve the efficiency of rescue operations by publicizing names and other information, personal information is considered to be provided when it is urgently necessary for the protection of human life or body. From this perspective, consideration should be given to the application of the exceptions to the restrictions on the use and provision of personal information as stipulated in the Ordinance on the Protection of Personal Information.
- To prevent disadvantage to those who need to keep their whereabouts confidential, such as victims of spousal violence or stalking, confirmation must be made with the municipality concerned before a public announcement.

As of December 1, 2021, 30 of the prefectures have established policies for the publication of names and other information.

For the purpose of formulating "Guidelines for the Handling of Personal Information in the Field of Disaster Risk Reduction" that outline the scope of use and points to be noted by the end of FY2022 in case personal information is handled by local governments in disaster response and in preparations during ordinary-time, the committee of experts has been in operation since March 2022 (See Special Feature, Chapter 3, Section 4, 4-1 (2) 2.). And it has also been discussing the publication of names and other information.

Section 3 Study Group on Evacuation Concerning the Series of Heavy Rain Disasters from July 2021

(1) Background of the Study

By the amendment of the "Basic Act on Disaster Management" (Act No. 223 of 1961) in May 2021, reconsiderations such as merging evacuation recommendation and evacuation instruction into "evacuation instruction," and clarifying the timing of evacuation were made to inform the public of evacuation information simply. However, a series of heavy rains from July 2021 caused debris flow which killed many people, floods and inundation which gave damages successively. Based on this series of heavy rain disasters, the Cabinet Office established the "Study Group on Evacuation Concerning the Series of Heavy Rain Disasters since July 2021" (hereafter referred to as the "study group" in this section) to discuss proper evacuation actions for residents and appropriate announcements of evacuation information by the municipality. In light of the discussion in the study group, "Regarding the Way of Evacuation Concerning the Series of Heavy Rain Disasters since July 2021 (Report)" was published on February 4, 2022.

(Reference: https://www.bousai.go.jp/fusuigai/r3hinanworking/index.html)

(2) Summary of the Report

In this report, the main direction of correspondence has been shown as follows:

1. Regarding the Direction of Correspondence for Promoting Residents to Proper Evacuation Actions

Since it is difficult to announce evacuation information according to each individual's situation as disaster has been getting extremely severe and more frequent, and a final decision of evacuation is left to the individual's judgment, the public needs to be aware of protecting their lives on their own and take evacuation actions with their own judgment.

A shift to such resident-initiated disaster countermeasures cannot be achieved overnight but it is necessary to continue education and awareness building for disaster risk reduction tenaciously in each region, which is to foster a “culture of disaster risk reduction.”

[Enhancement of the Public Awareness of Protecting Their Lives on Their Own]

When we study cases where proper evacuation saved people in past disasters, we learn that conducting disaster preparedness activities regularly in their regions initiated by disaster risk reduction leaders has enhanced the public awareness of disaster risk reduction. Hence, the development of local disaster risk reduction leaders is essential. Also, residents must take the initiative to join participative, experiential and practical disaster preparedness activities to strengthen regional disaster resilience.

In addition, in disaster risk reduction education for children, although the school safety promotion plan and the National Curriculum Standards have been revised and disaster risk reduction education has successively been developed, some of these programs have become a mere formality. Local communities and schools need to collaborate to consistently promote practical education for disaster risk reduction so that children can learn the awareness of protecting their lives on their own and become future players in local disaster management.

It is expected that reinforcing the collaboration between regional residents and the municipality by the Community Disaster Management Planning System and utilizing the strengths of self-help, mutual support and public support lead to effective evacuation actions. In regions where people are proactively working on improving community disaster resilience through participative, experiential disaster preparedness activities and practical education for disaster risk reduction, it is key to make community disaster management plans to enhance and establish further awareness of disaster risk reduction.

[Communicating the Urgency and Realism of Disaster with the Public to Encourage Evacuation Actions]

To save as many lives as possible from disaster, along with consistent measures to have the disaster risk reduction culture take root, measures that encourage evacuation based on characteristics of human behavior are keys as well to enhance the effectiveness of evacuation in an early phase of a disaster. Utilizing digital technologies is also important so that residents can recognize an urgency and a realistic sensation of disaster and recognize its danger.

2. The Direction of Correspondence for Proper Announcements of Evacuation Information by the Municipality

The administration is required to ensure that the public has the awareness of protecting their lives on their own through disaster risk reduction education and awareness building in ordinary times as well as fully support residents in evacuating with their own judgment when a disaster occurs. An evacuation announcement is particularly a critical duty of a mayor of a municipality to protect their lives during a disaster.

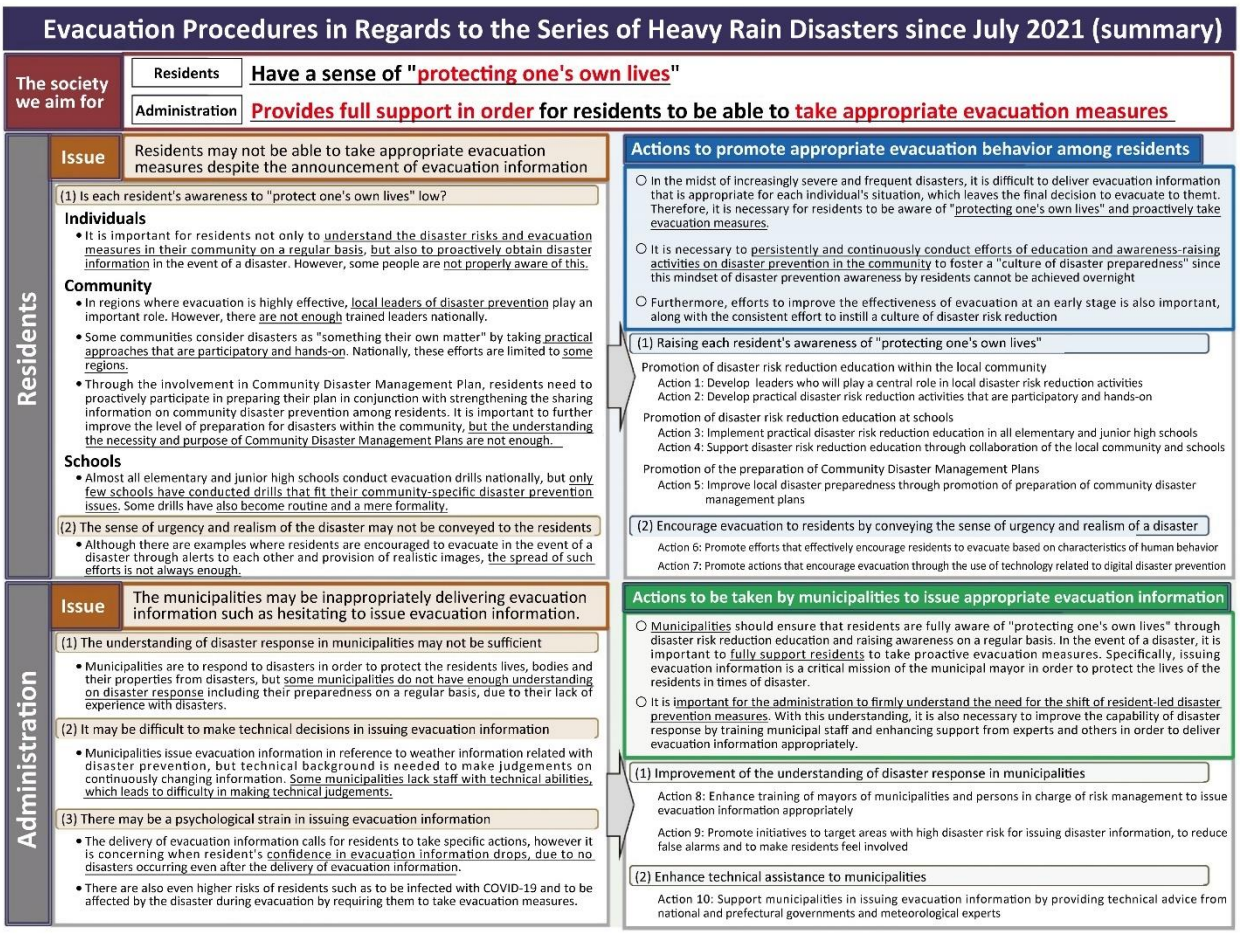
The administration needs to understand the necessity of the shift to this resident-initiated disaster management very well. On top of this understanding, it is essential to improve the disaster response-ability through human resource development in the municipality and enhancement of expert support for the municipality to enable proper evacuation announcements.

[Enhancement of Understanding Disaster Response in the Municipality]

Municipalities must deepen their understanding of disaster response by developing human resources with knowledge and establish rules of evacuation announcement before a disaster occurs so that they can smoothly respond to a disaster whether or not they have experience of disaster.

[Improvement of Technical Support for the Municipality]

Along with reinforcement of the disaster response-ability of the municipality, it is critical to improve support such as technical advice from experts for the municipality so that they can judge based on advanced and experts' information.



Source: Cabinet Office data
(Reference: https://www.bousai.go.jp/fusuigai/r3hinanworking/pdf/hokoku_gaiyo.pdf)

Recently, heavy rain disasters have become extremely severe and more frequent. To protect our important lives against disaster, it is key that we always recognize that disaster can happen anywhere, anytime as well as foster the culture of disaster risk reduction by making disaster preparation natural in our daily lives. On the other hand, the administration must do everything to support the people in acting to protect their lives against disaster.

In response to the conclusion of the study group, this report shows their high expectations that the public and the administration work together on the measures to achieve a disaster-aware society so that as few people as possible will be affected by disaster. For establishing the resident-initiated disaster prepardness measures, correspondences shown in this report will be promoted.

Chapter 3 Further Expansion and Improvement of Disaster Management

Section 1 Formulation of Individual Evacuation Plans and Building Affected People Supporting Systems

(1) Formulation of Individual Evacuation Plans

In recent years, a large number of the elderly and persons with disabilities have been affected by disaster. Therefore, in the final reports of "Sub-Working Group Concerning Evacuation of the Elderly and Persons with Disabilities Based on Typhoon Hagibis in 2019" (hereafter referred to as “SWG for the Elderly and Persons with disabilities” in this section), the Sub-Working Group indicated that creating individual evacuation plans should be accelerated more, and it was necessary for the elderly and persons with disabilities to evacuate smoothly and promptly by such plans. Individual evacuation plans were designed to support those who require assistance evacuating such as the elderly and persons with disabilities who have difficulty in evacuating on their own. From the viewpoint of encouraging more municipalities across the country to formulate these plans which had already been under formulation in some municipalities, it was considered appropriate to obligate them to make efforts.

Based on suggestions by SWG for the Elderly and Persons with disabilities, and under the amendment and enforcement of the "Basic Act on Disaster Management" in May 2021, "Guidelines for Measures for Residents in Need of Assistance in Evacuation" were revised and published to promote the smooth formulation of individual evacuation plans in municipalities. The guidelines suggest the municipalities to formulate plans for those who are deemed as high priority that require assistance evacuating within around five years and showed the formulation steps.

For required costs to formulate these plans, new local allocation tax measures were taken in FY2021, and they will continue in FY2022.

Since regional circumstances, such as disaster states, hazard situations, climates, as well as population sizes, age distributions and shelter securement statuses, vary depending on the municipality, each municipality faces different challenges when creating these plans.

In order to address this concern, pilot projects of individual evacuation plan formulation with designated organizations were conducted in 34 cities, wards, towns, and villages as well as 18 prefectures to build an effective, efficient method for formulating these plans, and the process and knowledge were shared with local governments across Japan.

Summary of Pilot Projects of Individual Evacuation Plan Formulation

○ **Accumulation of Best Practices for formulating effective individual evacuation plans**

- Accumulate best practices which achieve effective individual evacuation plans responding to various issues in each region.
- Aim for establishing an efficient formulation process. To do so, municipalities need coaching and advice from experts who are knowledgeable about the formulation of individual evacuation plans. Also, the entire process of formulation should be done in a pilot project with participation from welfare specialists and local experts.

○ **Offer of Opportunities to Share Know-How among Municipalities**

- Offer opportunities where municipalities across the country can share knowledge and skills from projects effectively by creating events to share their current situation and exchange their opinions.

○ **Spread Information about the Results**

- Spread the knowledge and skills from pilot projects via web portal, presentations, reports and case study books, and support municipalities nationwide.

Source: the Cabinet Office document

Summary of the Report on Pilot Projects of Individual Evacuation Plan Formulation in FY2021

In FY2021, to build an effective, efficient method for the formulation of individual evacuation plans by municipality, events such as know-how sharing meetings were held to ask for advice and exchange opinions. At these events, municipalities effectively shared their knowledge and skills with each other while sharing the progress of other municipalities in developing individual evacuation plans. At the same time, pilot projects were conducted with best practices being shared among municipalities nationwide. (Pilot project participating organizations: 34 municipalities and 18 Prefectures)

■ Important Points on Formulating Individual Evacuation Plans

- To share the awareness of the need for countermeasures with stakeholders
- For municipal mayors to take the initiative
- For the administration to provide "full support so that the public can take appropriate evacuation actions"
- For prefectures to support measures taken by the municipalities by sharing their know-how of formulation, conducting training and building systems to share information on patients with incurable diseases
- To start with small measures
- Over the next five years from FY 2021, to collaborate with stake holders to formulate individual evacuation plans for persons with high priority
- To formulate individual evacuation plans for persons with high priority by mayor of a municipality , but at the same time, the residents in need of assistance in evacuation will formulate individual evacuation plans by themselves, or the neighbors will help
- To utilize existing organizations, and systems of disaster management and welfare such as voluntary disaster management organizations and Social Welfare Councils
- Through formulating plans, for all residents, including the healthy elderly, to participate in creating a society where "everyone feels safe to get old" to lead to a coexistence community

■ Points of Attention for Each Step in the Formulation of Individual Evacuation Plans

It is important to work on specific procedures and operations about formulating individual evacuation plans according to the circumstances of municipalities

Preparation of Promotion Systems	● Establish a system that the Disaster Management Department and Welfare Department can cooperate with each other ● Set up a project team, etc. in the local government
Discuss Priority of Plan Formulation	● Proceed promptly as promptly as the discussion is a tool to formulate plans early, etc.
Gaining Understanding from Welfare Specialists	● In response to the mandate to formulate Business Continuity Plans, cooperate with care manager offices proactively, etc.
Gaining Understanding from People Involved in Local Organizations such as Residents' Associations and Voluntary Disaster Management Organizations	● Make a sustainable system to share the workload ● Avoid forcing the administrative work on local residents involved but inform them that these measures can help protect their lives, etc.
Asking for Cooperation from Candidates of Evacuation Support Implementer	● Prevent concentrating the workload on one person ● Create an evacuation support system with cooperation in the region, etc.
Plan Formulation by Individuals of the Residents in Need of Assistance in Evacuation, People involved and the Municipality	● Formulate plans with participation of relevant welfare and medical workers in addition to relevant personnel of disaster management
Implementation of Measures to Ensure Effectiveness	● Start with small evacuation drills such as evacuating upstairs in emergency, etc.

■ Points of Attention for Each Kind of Measures

Regarding the preparation of Welfare Shelters and Direct Evacuation	• It is easier to obtain cooperation from facilities by utilizing a system to identify whom to accept and announce it to them, which makes it clear for them to see who will evacuate • Not only complete matching evacuation shelters with the residents in need of assistance in evacuation but simulate evacuation on a map, etc.
Regarding securing Evacuation Support Implementer	• Reduce their burden (For example, ask them to do only what they can) • Clarifying plans makes it clear to understand what to ask for Evacuation Support Implementer, which enables to obtain cooperation from them easier • Helping those who require assistance is just like helping oneself in the future (resident education), etc.
Regarding collaboration with District Disaster Management Plan	• Discussion about District Disaster Management Plan enhances residents' interest in those who require assistance and makes it easier to obtain cooperation for the formulation of individual evacuation plans and the support

Regional Arrangement Meeting for arranging evacuation support between the Residents in Need of Assistance in Evacuation and the stakeholders

Evacuation training to check hazardous spots, etc.

■ Positive Feedback about Formulating Individual Evacuation Plans from Those Who Require Assistance Evacuating

○ I was able to check my shelter and evacuation route as well as learn hazardous spots by formulating my individual evacuation plan.
○ It was great to know that I was able to go to a shelter.
○ I felt safer.
○ I was glad that my neighbors began talking to me more than before.
○ I'd like to "be mindful of what I could do by myself," such as preparing my belongings to take in evacuation.

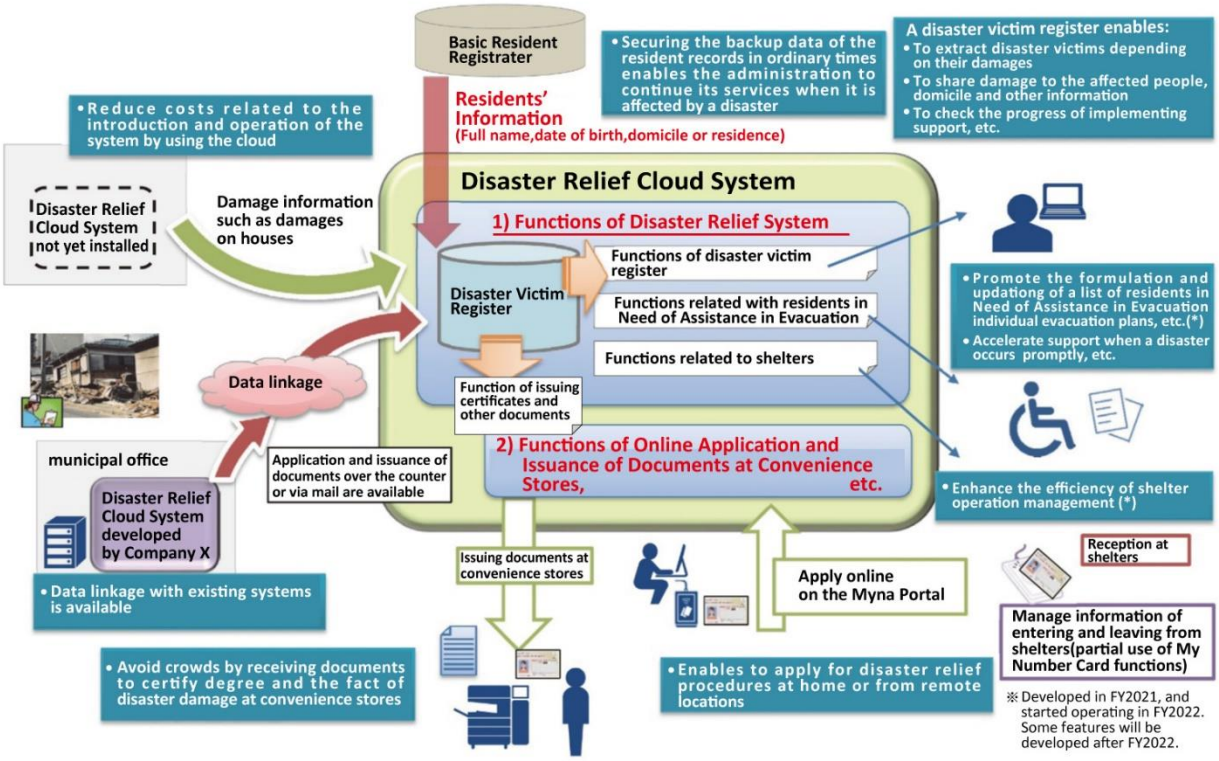
Source: the Cabinet Office document

These projects ensured the effectiveness of evacuation of residents in need of assistance in evacuation and encouraged the formulation of individual evacuation plans nationwide.

(2) Building Disaster Victims Supporting Cloud Systems

The Cabinet Office developed the "Disaster victims Supporting Cloud System" in FY2021, and held briefings for municipalities. This system enables not only municipal offices to obtain support in formulating individual evacuation plans in ordinary times and prepare disaster victim register based on Resident Registration data in times of disaster, but also affected people to apply for a Disaster Affected Certificate and other governmental documents online and receive them at convenience stores by using their My Number Card once a disaster occurs. The Japan Agency for Local Authority Information Systems (J-LIS) is scheduled to start operating it in FY2022.

Overview of Disaster victims Supporting Cloud Systems



Source: the Cabinet Office document

In addition, to restore the lives of affected people smoothly, it is essential to conduct so-called "Disaster Case Management," which is a measure that the authorized personnel collaboratively provide these people with necessary support by hearing each situation of affected people carefully to solve their problems.

In FY2021, the following statement was added to the Basic Disaster Management Plan: "in order that affected people may work on recovering their lives with suitable support systems, the national and local governments are expected to offer sufficient support by utilizing the victim's registry as well as opportunities for monitoring and counseling. At the same time, an environment should be put in place where the affected people can easily learn the support systems." In light of this revision, the Cabinet Office formulated and published a case study book of advanced measures to share with municipalities.

Besides, in FY2022, a schedule is set to formulate and publish an instruction about a standard method of Disaster Case Management measures to distribute so that every municipality throughout the country can implement these measures.

Section 2 Study of Measures against Megathrust Earthquake in the Vicinity of the Japan and the Chishima Trenches

(1) Background of the Study

The government has focused on disaster risk reduction measures against Subduction Zone Earthquakes along the Japan and Chishima Trenches based on the "Basic Plan for Promotion of Disaster Management for Trench-type Earthquakes in the Vicinity of the Japan and Chishima Trenches" and other plans. Based on the recommendation of the National Disaster Management Council's, the "Committee for Technical Investigation on Earthquake and Tsunami Measures Based on Lessons Learned from the 2011 off the Pacific coast of Tohoku Earthquake" (September 28, 2011), the government reviewed its measures with the assumption of a maximum-class earthquake and tsunami, taking all possibilities into account. This is for the purpose of establishing comprehensive tsunami measures to give top priority to protect the lives of residents and others and to take all available measures.

In February 2015, the "Study Group on a Megaquake Model in the Vicinity of the Japan and Chishima Trenches" (hereinafter referred to as " Study Group" in this section) was established in the Cabinet Office. In April 2020, the Study Group published the results of its study after studying the seismic intensity distribution and tsunami height due to the largest class of earthquakes and tsunamis. In the same month, the "Working Group for Studying Megaquake Countermeasures in the Vicinity of the Japan and Chishima Trenches (hereinafter in this section referred to as "Japan and Chishima Trenches WG") was established under the Disaster Management Implementation Committee. In December 2021, the Japan Chishima Trenches WG compiled and published the results of the estimated human life, material, and economic damages due to a maximum-class earthquake and tsunami. In March 2022, the Working Group compiled and published disaster risk reduction measures in response to these estimated damages.

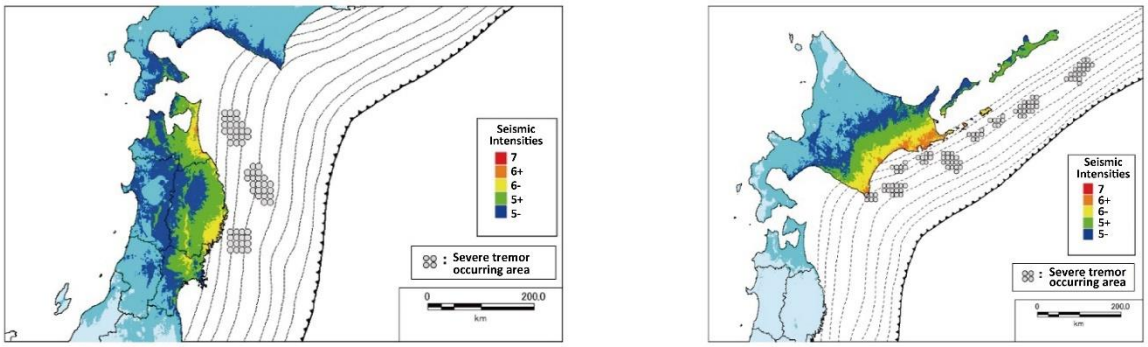
(2) Estimation results of the epicentral area, seismic intensity distribution and tsunami height for the largest class of earthquake

The Study Group examined the tsunami fault model of the largest class in the large slip zone of the north area due to the 2011 off the Pacific coast of Tohoku Earthquake (the area along the Japan Trench and the Chishima Trench north of Iwate Prefecture) based on the estimation from tsunami sediment data for the past 6,000 years. The Japan Trench model covered the area along the Japan Trench in the offshore region from Iwate Prefecture to the Hidaka region of Hokkaido, while the Chishima Trench model included the area along the Chishima Trench from Cape Erimo to the east part of Chishima Trench.

The magnitudes of the earthquake estimated from these tsunami fault models are 9.1 on the moment magnitude scale (Mw) for the Japan Trench model and 9.3 on the Mw for the Chishima Trench model. When this tsunami fault shifts, strong shaking is expected over a wide area from Iwate Prefecture to the Pacific side of Hokkaido (FIG. 3-2-1).

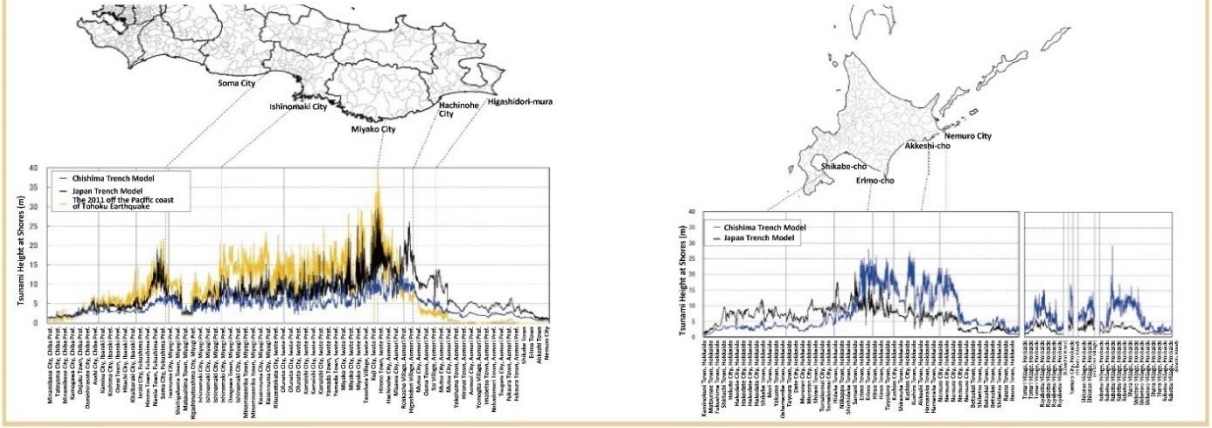
Compared to the 2011 off the Pacific coast of Tohoku Earthquake, the tsunami heights estimated in this study are higher in north of Aomori Prefecture. In Iwate Prefecture, the tsunami heights estimated in this study are higher in north of Miyako City, depending on the coastal topography (FIG. 3-2-2).

FIG. 3-2-1 Distribution of Seismic Intensities (Left: Japan Trench Model, Right: Chishima Trench Model)



Source: Summary Report Reference Charts of Study Group on Megaquake Model in the Vicinity of the Japan and Chishima Trenches
(Reference: https://www.bousai.go.jp/jishin/nihonkaiko_chishima/model/index.html)

FIG. 3-2-2 Caluculated Height of Tsunami at Shores



Source: Summary Report Reference Charts of Study Group on Megaquake Model in the Vicinity of the Japan and Chishima Trenches
(Reference: https://www.bousai.go.jp/jishin/nihonkaiko_chishima/model/index.html)

(3) The Results of Estimated Damages

The results of estimated damages vary greatly depending on the assumptions made for the timing and period of the earthquake, but the points for both the Japan Trench Model and the Chishima Trench Model are summarized respectively (FIG. 3-2-3).

In the estimated damages, since the disaster area is in a snowy and cold region, after surviving the tsunami, some people would be exposed to cold conditions outdoors for a long time and become unable to evacuate to a secondary location. They are defined as those who need to deal with hypothermia, and the number of such people is newly calculated as the number of those at risk of death from hypothermia.

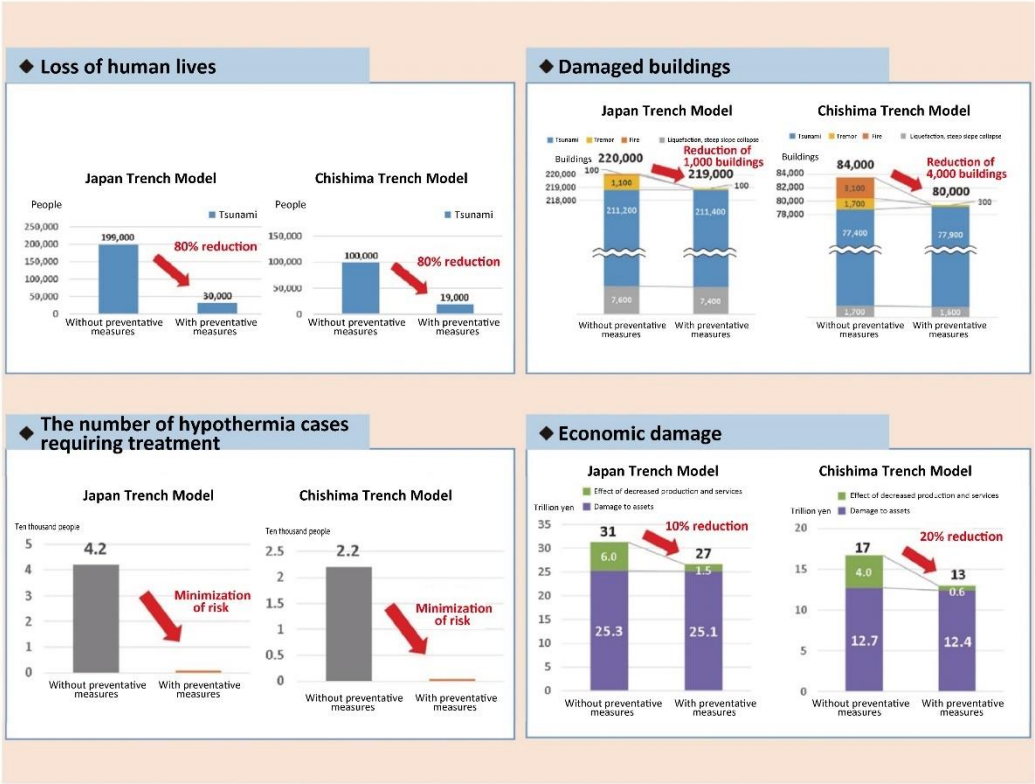
The estimated damages also indicate that thorough disaster risk reduction measures can reduce the number of fatalities by 80%, minimize the risk of hypothermia cases and reduce the amount of damage (FIG. 3-2-4).

FIG. 3-2-3 Summary of Calculation Results of Damage by Megaquake in the Vicinity of the Japan and Chishima Trenches

	Japan Trench Model	Chishima Trench Model
Buildings Totally Lost	Approx. 220,000 to 220,000 buildings	Approx. 81,000 to 84,000 buildings
Fatalities	Approx. 6,000 to 199,000 individuals	Approx. 22,000 to 100,000 individuals
Injured	Approx. 3,300 to 22,000 individuals	Approx. 2,600 to 10,000 individuals
Individuals Requiring Rescue due to Tsunami Damage	Approx. 66,000 to 69,000 individuals	Approx. 32,000 to 41,000 individuals
Individuals Requiring Treatment for Hypothermia	Approx. 42,000 individuals	Approx. 22,000 individuals
Economic Damage	Approx. 31 trillion yen	Approx. 17 trillion yen

Source: the Cabinet Office document

FIG. 3-2-4 Effect of Disaster Risk Management Measures on a Megaquake in the Vicinity of the Japan and Chishima Trenches



Source: Cabinet Office data

Not only the government, but also local communities, residents, companies and all other parties are required to calmly accept the estimated damages as their own and act without any pessimism.

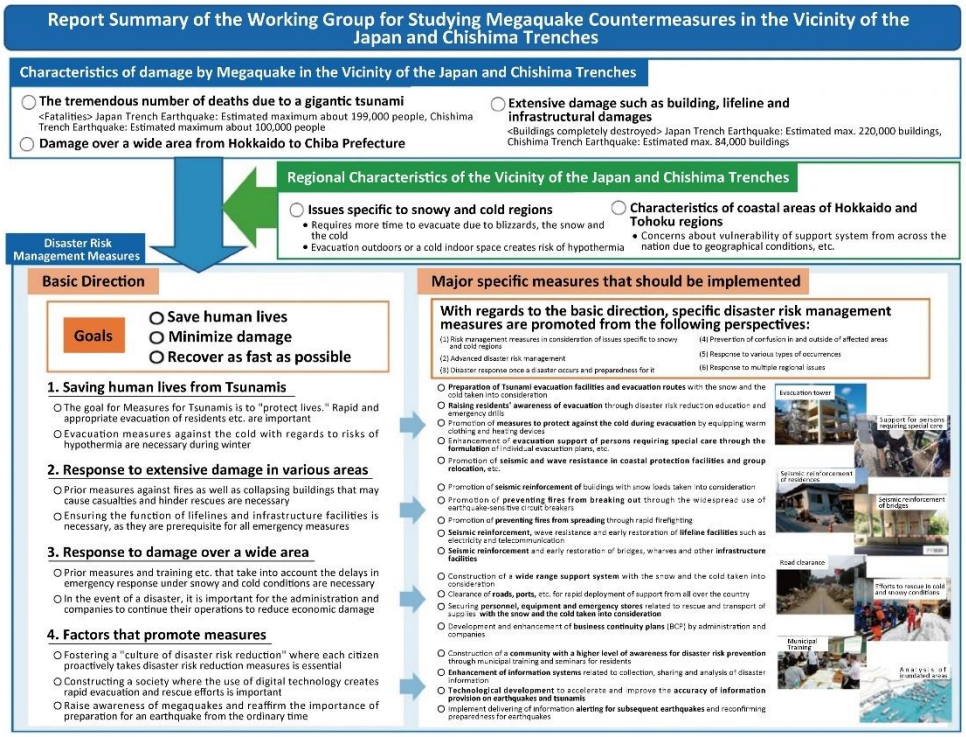
1. Evacuating quickly and proactively in the event of either strong tremors or weak but long tremors.
2. For a strong quake, conducting diagnosis of earthquake resistance and seismic reinforcement of buildings in advance, and securing furniture in place.
3. Focusing on extinguishing fires in the initial phase.

The measures as above are requested to implement for decreasing the number of victims as much as possible.

(4) Final Report

Based on the results of estimated damages, the Japan and Chishima Trenches WG summarized the characteristics and issues of the relevant earthquake, clarified the basic direction of countermeasures and compiled specific measures to be implemented in the final report (FIG. 3-2-5).

FIG. 3-2-5 Final Report on Preventative Measures on a Megaquake Model in the Vicinity of the Japan and Chishima Trenches (Summary)



Source: Cabinet Office data (Published March 22, 2022)
(Reference: https://www.bousai.go.jp/jishin/nihonkaiko_chishima/WG/index.html)

The damage due to a major earthquake along the Japan and Chishima Trenches is characterized by "an enormous number of fatalities caused by a massive tsunami," "extensive damage to buildings, lifelines and infrastructure" and "damage over a wide area from Hokkaido to Chiba Prefecture." In addition to these characteristics, the following basic directions were presented by taking into consideration the impact of "issues unique to snowy and cold regions" and "characteristics of Hokkaido and the coastal areas of the Tohoku region," which were the characteristics of the regions where the damage was expected to occur.

1. Securing Human Life from Tsunami

The goal of measures against tsunami is to "save lives" from tsunami. It is possible to reduce damage by improving evacuation awareness and utilizing / improving evacuation towers and other facilities. It is necessary to take measures on (1) improving residents' evacuation awareness through disaster risk reduction education and drills, (2) shortening evacuation distances and time by developing tsunami evacuation towers and evacuation routes and (3) mitigating risk of hypothermia at evacuation sites and shelters.

2. Responding to Extensive Damage

While the main cause of casualties is tsunami, fires and collapsed buildings are the second most frequent cause of deaths, and occurrences of people with difficulties in escaping by themselves, blocked roads, fires and evacuees also become cause of the spread of damage. To respond to these factors, it is necessary to promote earthquake resistance of buildings, measures to prevent fires from breaking out and spreading, and earthquake resistance and fire-resistance of lifelines and infrastructure facilities.

3. Response to Damage over a Wide Area

A massive earthquake along the Japan and the Chishima Trenches will cause damage over a wide area, such as a tsunami of 3 meters or more in height from Chiba Prefecture to Hokkaido according to both the Japan Trench model and the Chishima Trench model. However, there are concerns that wide-area support from Honshu and other regions will not be sufficiently effective, for rescue and relief supply transport activities will take time under snowy and cold conditions. Therefore, it is necessary to promote the establishment of a wide-area support system by considering the snowy and cold climate, to ensure the stockpiling of personnel and equipment for rescue and relief supplies distribution, and to formulate and enhance business continuity plans (BCP) for the administration and companies.

4. Matters to Promote Measures

In promoting measures, it is necessary to comprehensively promote efforts such as building local communities with high disaster awareness, accumulating scientific knowledge and utilizing digital technology. In addition, when an earthquake of Mw 7.0 or greater occurs in the vicinity of the assumed epicentral area of a major earthquake along the Japan and the Chishima Trenches, the possibility of the occurrence of a major earthquake will be higher than usual. Therefore, information should be disseminated to encourage caution in preparation for a subsequent massive earthquake. In response to this information, the administrations, companies, and citizens should check to make sure they are prepared for this type of earthquake from ordinary times, and it is necessary for them to prepare to mitigate damage, including smooth evacuation in the event of a subsequent earthquake.

In addition, based on the estimated damages, the "Bill for Partial Amendment of the Act on Special Measures concerning Advancement of Countermeasures against Earthquake Disaster in Relation to Subduction Zone Earthquake Around Japan and Chishima Trenches" was submitted to the Diet under the legislation introduced by Diet members, and it was passed and enacted on May 13, 2022 after deliberation by both the House of Representatives and the House of Councilors.

Section 3 Study on Measures for Dealing with Stranded Persons due to a Tokyo Inland Earthquake

Measures for stranded persons due to a Tokyo Inland Earthquake attracted social attention when approximately 5.15 million people in the Tokyo metropolitan area had difficulties getting home after the Great East Japan Earthquake on March 11, 2011, and the need for measures was reaffirmed. To this end, the Disaster Management Council on Stranded Persons for the Tokyo Inland Earthquake was established in 2011 and has formulated a "Basic Policy for Preventing People from Getting Home All Together" and five guidelines in order to work on measures to ensure their effectiveness such as to secure temporary stay facilities.

In recent years, the way to provide information to individuals has become more diverse due to the progress of earthquake resistance measures in public transportation such as railroads and the progress of digitalization such as the popularization of smart phones. In addition, the Earthquake Centered Off North-West Region of Chiba Prefecture in October 7 of 2021 forced many to stay near train stations until late at night, underscoring the importance of measures for stranded persons.

Considering these circumstances, the Cabinet Office decided to convene the "Investigative Committee on Measures for Stranded Persons due to a Tokyo Inland Earthquake." The Committee began its deliberations on November 19, 2021 and is currently discussing the future of measures for persons who have difficulties getting home.

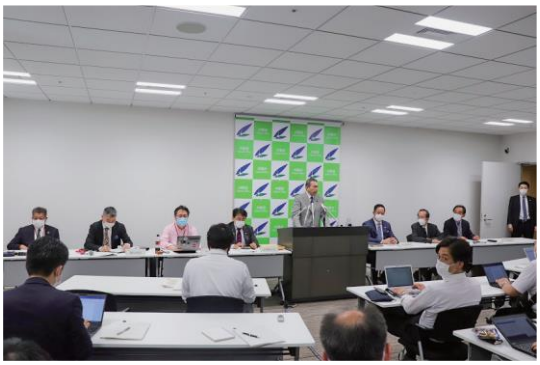
At the first and second meetings, the committee members expressed their opinions on the importance of considering measures for stranded persons according to the changes in social conditions and on the importance of spreading awareness of such measures.

(Reference: https://www.bousai.go.jp/jishin/syuto/kitaku/kento_index.html)

Section 4 Recommendation for Disaster Prevention, Mitigation and Realization of a New Era of National Resilience

In recent years, natural disasters have become more severe and frequent, and mega-disasters such as the Nankai Trough Earthquake and Tokyo Inland Earthquake are also imminent. The year 2021 is also a milestone year, marking five years since the 2016 Kumamoto Earthquake, ten years since the Great East Japan Earthquake and a quarter of a century since the Great Hanshin-Awaji Earthquake. Therefore, in December 2020, the Cabinet Office, with the participation of experts and related ministries and agencies, convened a working group under the private advisory body of the Minister of State for Disaster Management or the Advisory Committee on National Resilience (Disaster Prevention and Mitigation) to discuss new measures to drastically reduce the number of lives lost due to a major natural disaster in the three areas of: (1) digitalization and technologies for DRM, (2) reducing the disaster risk in advance and complex disasters, and (3) disaster risk reduction education and public awareness.

Based on the discussions of the working groups, each of them presented its recommendations to then Minister of State for Disaster Management Okonogi, on May 25, 2021.



Press Conference on Recommendation
for Disaster Prevention and Mitigation and Realization of a New Era of National Resilience
(Source: Cabinet Office Data)

Source: Cabinet Office data

4-1 Working Group on Digitalization and Technologies for DRM

Currently, much of the data that could be useful for reducing disaster risk in advance or for rescuing lives after a disaster is scattered and buried. It is necessary to support decision-making, which is worthwhile taking the initiative, with promoting the digitization of such data, and detecting and eliminating problems by analyzing the data.

The Cabinet Office has convened a “Digitalization and Disaster Management Technology Working Group” to study these issues. In this working group, two types of teams have been set up: one is called the "Future Vision Team,” which focuses on discussing the future concepts of digitalization and disaster management technology by assuming future technological innovations in the mid to long term (10 years or more) even if it is difficult to achieve with the current technology. The other is known as the "Social Implementation Team," which aims at figuring out the direction to improve and issues about technologies that are already being used from both perspectives of technology and institution by assuming implementation in the medium to short term period (within about 5 years). Based on the recommendations compiled by these two teams, it has been decided that relevant government ministries and agencies should take initiative through collaboration and consultation in various measures to

promote the digitalization of disaster management.

*Working Group on Digitalization and Technologies for DRM (Future Vision Team)

（Reference：https://www.bousai.go.jp/kaigirep/digitalWG.html）

*Working Group on Digitalization and Technologies for DRM (Social Implementation Team)

（Reference：https://www.bousai.go.jp/kaigirep/digitalWG2.html）

(1) Main Content of Recommendations

The Future Vision Team recommended setting goals that could be achieved by digitalization for the case of reducing disaster risk in advance and rescuing lives. The specific points are as follows.

・Making use of digital twin technology to simulate disaster and response to each case of disaster.

・Collecting and sharing information about spaces and infrastructures on real-time basis by using drones or sensors.

・Shifting administrative functions such as meetings and administrative procedures into the digital space so that those functions can be completed by online.

Other recommendations were given by the Social Implementation Team, focusing on the issues raised by digitalization in the disaster management field and the plans to make the current systems user-friendly or more advanced as follows.

・Standardizing information items and acquisition time required in the event of a disaster.

・Organizing the way for local governments to handle personal information related to disaster response.

・Developing networks that allow related organizations to collect, analyze, process and share necessary information without using the human resources.

※Recommendation by Working Group on Digitalization and Technologies for DRM (Future Vision Team)

(Reference：https://www.bousai.go.jp/kaigirep/teigen/pdf/teigen_03.pdf)

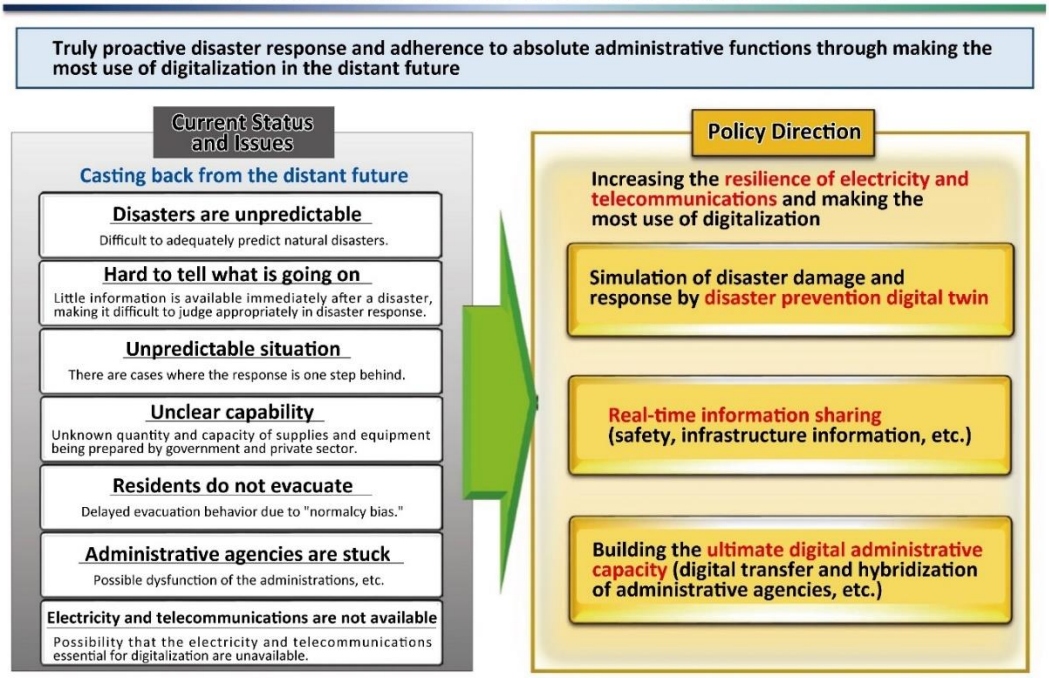
※Recommendation by Working Group on Digitalization and Technologies for DRM

(Social Implementation Team)

(Reference：https://www.bousai.go.jp/kaigirep/teigen/pdf/teigen_04.pdf)

Summary of Recommendations from Digital and Disaster Management Technology Working Group (Future Vision Team)

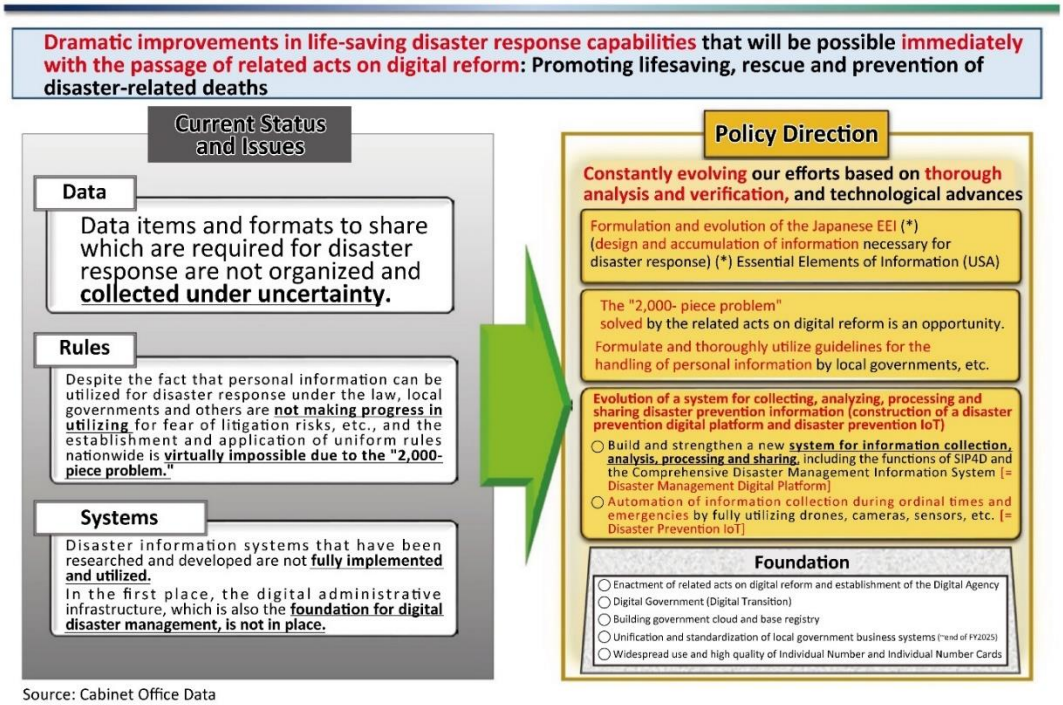
[New Era of Disaster Prevention, Disaster Mitigation and Building National Resilience] Recommendations on Digital and Disaster Management Technology Working Group (Future Vision Team)



Source: Cabinet Office data

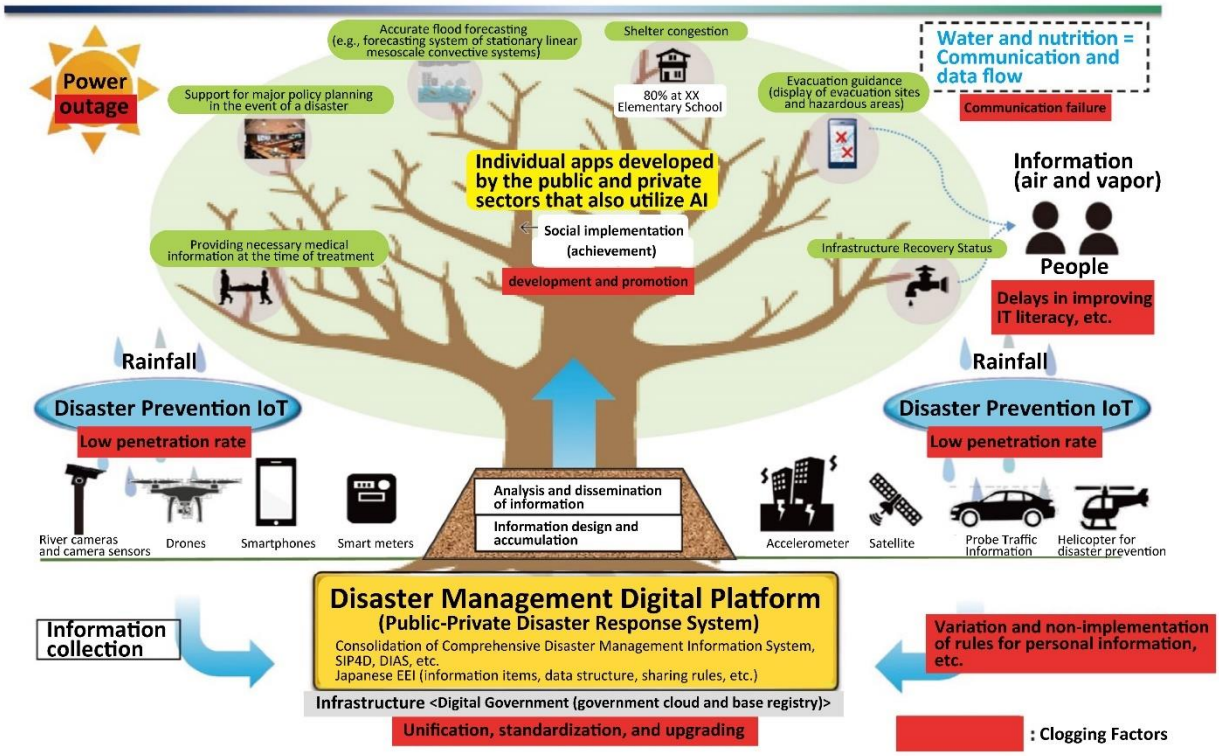
Summary of Recommendations from Digital and Disaster Management Technology Working Group (Social Implementation Team)

[New Era of Disaster Prevention, Disaster Mitigation and Building National Resilience] Recommendations from Digital and Disaster Management Technology Working Group (Social Implementation Team)



Source: Cabinet Office Data

Disaster Management Digital Information and Data Flow Chart



Source: Cabinet Office data

(2) Actions based on Recommendation

1. Measures to Enhance Disaster Response with "Disaster Management IoT" data (e.g. drone cameras)

At disaster sites, the situation is confirmed with not only various types of cameras and disaster management helicopters, but also aerial photographs taken by drones. Investigations into the actual situation are being conducted to help with technical standardization for data formats and device norms to be used so that each disaster management-related organization, including affected municipalities, can appropriately acquire and share the vast and diverse data from IoT used at disaster sites as above.

2. Measures to Establish Guidelines for Handling Personal Information in the Field of Disaster Management

In the past, personal information protection ordinances in each municipality had different rules for handling personal information (the so-called "2,000-piece problem"), but the Related Acts on Digital Reform* will set up common rules, and a system to monitor and supervise the way to handle personal information will also be established in a centralized manner. Taking this opportunity, a study group of experts is currently in progress to establish guidelines for handling personal information by the end of FY2022. The guidelines stipulate the scope of use and points to keep in mind for local governments when they handle personal information during preparation in ordinary times as well as during disaster response.

*The "Basic Act on the Formation of a Digital Society" (Act No. 35 of 2021), the "Act on the Establishment of

the Digital Agency" (Act No. 36 of 2021), the "Act on the Arrangement of Related Laws for the Formation of a Digital Society" (Act No. 37 of 2021), the "Act on the Registration of Deposit and Savings Accounts for Prompt and Secure Implementation of Public Benefit Payment" (Act No. 38 of 2021), the "Act on Management of Deposit and Savings Accounts by Using Personal Numbers Based on the Will of Depositors" ((Act No.39 of 2021)), and the "Act on Standardization of Local Government Information Systems" ((Act No.40 of 2021)).

3. Development of Comprehensive Disaster Management Information System

The Comprehensive Disaster Management Information System is a system designed to share disaster information as geospatial information and support prompt and accurate decision-making by the government in the event of a disaster. However, it is essential to further enhance its information collection and other functions. After reorganizing the role and ideal state of the systems such as SIP4D (Shared Information Platform for Disaster Management), which is operated by the National Research Institute for Earth Science and Disaster Resilience as part of its research and development activities, the next system is going to be operational in FY2024. Currently, the ideal form of this system is being studied by standardizing the information items and acquisition time required in the event of a disaster in conjunction with taking into account the opinions of local governments and other organizations involved in disaster response in order to realize and strengthen functions such as information collection, analysis, processing and sharing.

4-2 Working Group on Reducing Disaster Risk in Advance and Complex Disasters

A five-year acceleration plan has been developed for measures of disaster risk reduction, and national resilience. The measures are about to be accelerated and deepened. In order to discuss the future direction of those measures, the "Working Group on Reducing Disaster Risk in Advance and Complex Disasters" was convened under the Advisory Committee on National Resilience (Disaster Prevention and Mitigation) and the group considered the issues and the options to take for them.

Based on the recommendations compiled from a series of consideration results, the group decided to promote various initiatives related to reducing disaster risk in advance and complex disasters in cooperation and consultation with relevant government ministries and agencies.

（Reference：https://www.cas.go.jp/jp/seisaku/resilience/jizen_fukugou_wg/index.html)

(1) Main Contents of Recommendations

[Measures on Reducing Disaster Risk in Advance]

○ Promoting the Five-Year Acceleration Plan for Disaster Risk Reduction and National Resilience and implementing new vulnerability assessment

The measures on disaster prevention, disaster mitigation and national resilience are to be promoted by the

five-year acceleration plan, and the vulnerability assessment methods for each disaster type are to be considered according to local conditions.

○ Strongly promoting measures against storm surge in Tokyo Bay and against Trench-type Earthquakes in the Vicinity of the Japan and Chishima Trenches

The occurrence of a storm surge indicates that the scale of the disaster will be serious. Therefore, measures should be promoted in the same manner as major earthquake and flood measures. For the case of earthquakes along the Japan and Chishima Trenches, consideration of disaster prevention measures should be promoted by assuming the largest class of earthquake and the damage due to tsunami.

○ Promoting wide-area evacuation at the threat stage based on the Basic Act on Disaster Management

The National Disaster Management Headquarters should be allowed to set up at the threat stage in the near future. The specific studies for the smooth implementation of wide-area evacuation from floods should be promoted.

○ Accelerating river basin management measures through collaborative measures by all stakeholders

Strengthening cooperation between the national government and local governments, improving the rainwater storage function of agricultural land and guiding long-term land use can be raised as examples to achieve river basin management measures.

○ Promoting measures on reducing disaster risk in advance for large-scale earthquake disasters

The following measures have to be taken: (1) securing resources such as equipment and personnel for response to Nankai Trough Earthquake, and (2) promoting measures to prevent fire and elevator entrapment in the event of Tokyo Inland Earthquake.

[Measures on Complex Disasters]

○ Studying complex disaster scenarios such as post-earthquake flooding, and recovery and reconstruction scenarios in the event of a large-scale earthquake

The measures against complex disasters would be supported by disposing disaster debris, setting and providing temporary housing, planning town reconstruction and others.

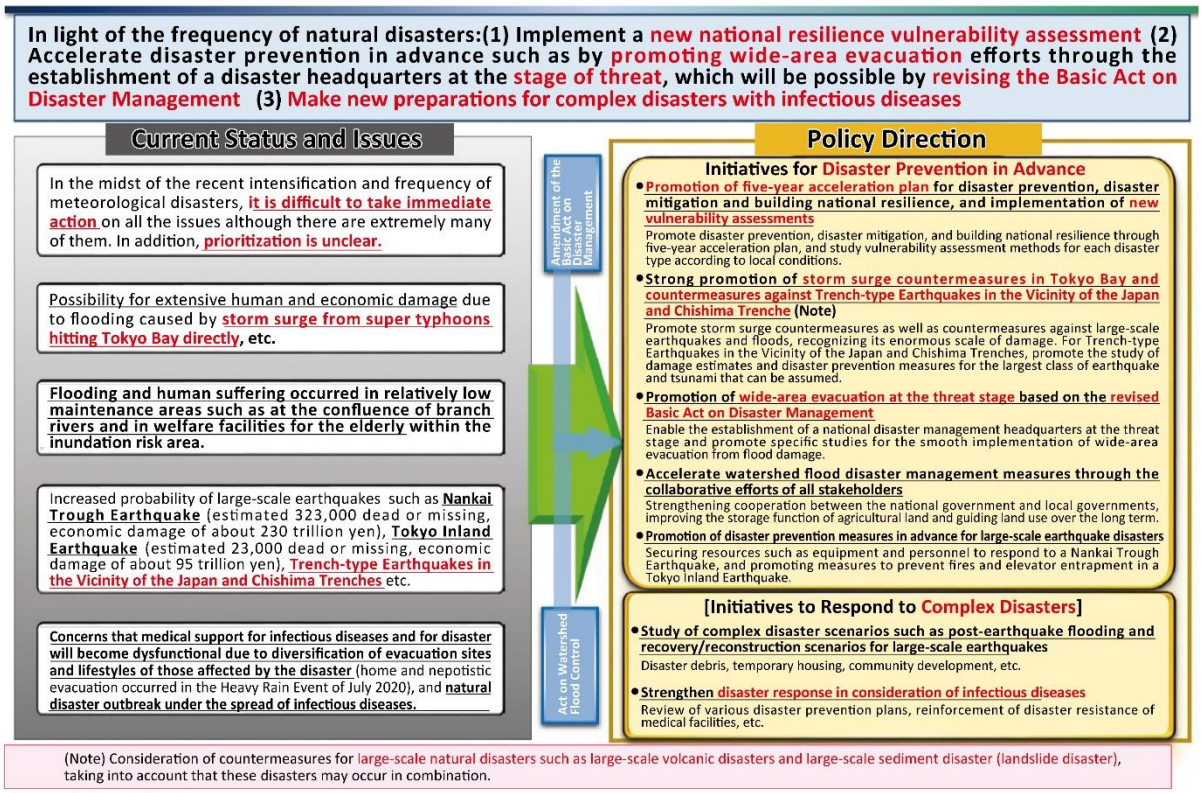
○ Strengthening disaster response in consideration of infectious diseases

The various plans on disaster risk reduction should be reviewed. Medical facilities need reinforcing for disaster resistance, and other measures should be carried out as well.

（Reference：https://www.bousai.go.jp/kaigirep/teigen/pdf/teigen_05.pdf）

Summary of Recommendations from Working Group on Reducing Disaster Risk in Advance and Complex Disasters

[New Era of Disaster Prevention, Disaster Mitigation and Building National Resilience]
Working Group on Reducing Disaster Risk in Advance and Complex Disasters



Source: Cabinet Office Data

(2) Actions based on recommendations

1. To implement a New Vulnerability Assessment

The current vulnerability assessment is conducted based on a flowchart analysis that assumes the worst-case scenario and on an evaluation of key performance indicators (KPIs) of National Resilience Measures. However, there are several issues with these assessment methods. For example, they do not define the level of importance of the flows or the lack of measures along with the differences in vulnerability by region. Thus, it is necessary to study about how to improve the current vulnerability assessment as much as possible before conducting one in the next term. The improvement involves comparing KPIs for resilience measures by region so as to analyze the progress of measures to cope with expected disasters in each region and quantitatively demonstrating the effects of disaster mitigation through the promotion of National Resilience Measures. As such, further study is being carried out for the implementation of the next vulnerability assessment.

2. Promotion of Wide-area Evacuation at the Threat Stage based on the Basic Act on Disaster Management

In May 2021, the "Basic Act on Disaster Management" was partially amended, and the provisions have been

stipulated including: (1) the establishment of National Disaster Management Headquarters at the stage when a disaster is likely to occur, (2) consultations on wide-area evacuation by mayors of municipalities and prefectural governors and (3) requests for transportation by prefectural governors. In June of the same year, following the outcome of the investigation by the "Study Group on Extensive Evacuation from Large-Scale Flood Disasters in Metropolitan Areas", a report titled the "Concept of Resident Evacuation in the Event of Large-Scale Flooding and Future Action Policies: Study Case of the Lower Arakawa River Area and Its Vicinity" was published. This report has manifested some directions in terms of: (1) the concept of evacuating residents in the event of a large-scale flood, (2) the establishment and operation of wide-area evacuation sites prepared by the administration, (3) securing evacuation means and guidance by the administration, (4) spreading awareness to the residents about the concept of evacuation in the event of a large-scale flood, (5) the concept of cost burden for wide-area evacuation, and (6) inter-agency collaboration and role sharing in the consideration of future wide-area evacuation.

（Reference: https://www.bousai.go.jp/fusuigai/suigaiworking/pdf/suigaiworking/dai6kai/shiryo.pdf)

3. Enhancement of Disaster Response in consideration of Infectious Diseases

Since the spring of 2020, Japan has been under a nationwide outbreak of COVID-19 as well as other countries, and has been forced to respond to natural disasters in such a situation. In order to facilitate such disaster response, the government has organized and publicized various guidelines and notices. Specifically, the "Guidelines for the Establishment and Management of Shelters with Consideration for COVID-19 Countermeasures (Third Edition)" (June 2021, the Cabinet Office, the Fire and Disaster Management Agency, the Ministry of Health, Labour and Welfare, and the Ministry of the Environment) provides local governments with specific procedures for managing shelters and promotes them to conduct drills, securing safety. In addition, in the Notice titled "Securing Shelters from the Stage of Threat of Disaster under COVID-19 (August 2021)" (the Cabinet Office, the Fire and Disaster Management Agency, the Ministry of Health, Labour and Welfare, and Japan Tourism Agency), it was announced and disseminated that the local governments likely to be affected by the disaster need to secure as many shelters as possible according to the circumstances. By this Notice, actions were taken for issues such as securing shelters from ordinary times, providing information on shelters and taking measures against infectious diseases at shelters. Further, in the Public Notice "Future Countermeasures against COVID-19 in Shelters Based on the Responses to the Heavy Rain Event in July and August of 2021 and the Current Situation of COVID-19" (September 2021) (the Cabinet Office, the Fire and Disaster Management Agency, and the Ministry of Health, Labour and Welfare), the experiences and know-how gained in affected areas in response to the heavy rainfall event, and actions have been shared. For example, the following actions have been taken to settle issues: confirming the latest status of COVID-19 countermeasures in shelters by experts, and implementing COVID-19 countermeasures in shelters and improving living environments in conjunction with responding to housebound patients in the event of a disaster.

*Guidelines for the Establishment and Management of Shelters with Consideration for COVID-19 Countermeasures

(Third edition)

(Reference: https://www.bousai.go.jp/taisaku/pdf/corona_hinanjo03.pdf)

*Securing Shelters from the Stage of "Threat of Disaster" under COVID-19 (Notice)

(Reference: https://www.bousai.go.jp/pdf/210803_corona_hinanjo.pdf)

*Future Measures against COVID-19 in Shelters Based on the Responses to the Heavy Rain Event in July and August of 2021 and the Current Situation of COVID-19 (Public Notice)

(Reference: https://www.bousai.go.jp/pdf/210927_corona_hinanjo.pdf)

4-3 Working Group on Disaster Risk Reduction Education and Public Awareness

In order for all citizens to protect their own lives from disasters, it is extremely important that each citizen is able to take appropriate actions in the event of a disaster. Therefore, in order for children to acquire the necessary disaster risk reduction knowledge and proactive disaster risk reduction behavior from childhood, it is necessary to develop practical disaster risk reduction education throughout the country. In addition, in order to ensure that lives saved from disasters are not lost as disaster-related deaths during post-disaster evacuation life and for affected people to live a dignified evacuation life, it is effective to raise awareness of mutual assistance among the public and organize an improved evacuation life environment by enhancing support from motivated disaster volunteers.

In order to study these issues, which are related to disaster risk reduction education and disaster volunteers, the Cabinet Office held a "Working Group on Disaster Risk Reduction Education and Public Awareness." In this working group, two teams were established: one is the "Disaster Risk Reduction Education Team" to study the contents to be developed and the effectiveness of disaster risk reduction education, and how to spread the educational contents. The other is the "Disaster Volunteer Team" to study a mechanism to motivate local disaster volunteers for improving their skills necessary for the support of evacuation life such as the management of local shelters so that evacuation life can be improved. Based on the recommendations compiled by each team, it was decided that measures related to disaster risk reduction education and disaster volunteerism would be promoted in cooperation and consultation with relevant government ministries and agencies.

*Working Group on Disaster Risk Reduction Education and Public Awareness (Disaster Risk Reduction Education Team)

(Reference: https://www.bousai.go.jp/kaigirep/kyoikuWG.html)

*Working Group on Disaster Risk Reduction Education and Public Awareness (Disaster Volunteer Team)

(Reference: https://www.bousai.go.jp/kaigirep/wg/kyoikuWG_sgteam/kyoikuWG_sgteam.html)

(1) Disaster Risk Reduction Education Team

1. Outline of the Recommendation

Based on good practical examples as well as the present conditions and issues surrounding disaster risk reduction education at schools and communities, the following educational programs were listed to be achieved in the future in order for all children to acquire the capability to protect their lives from disasters:

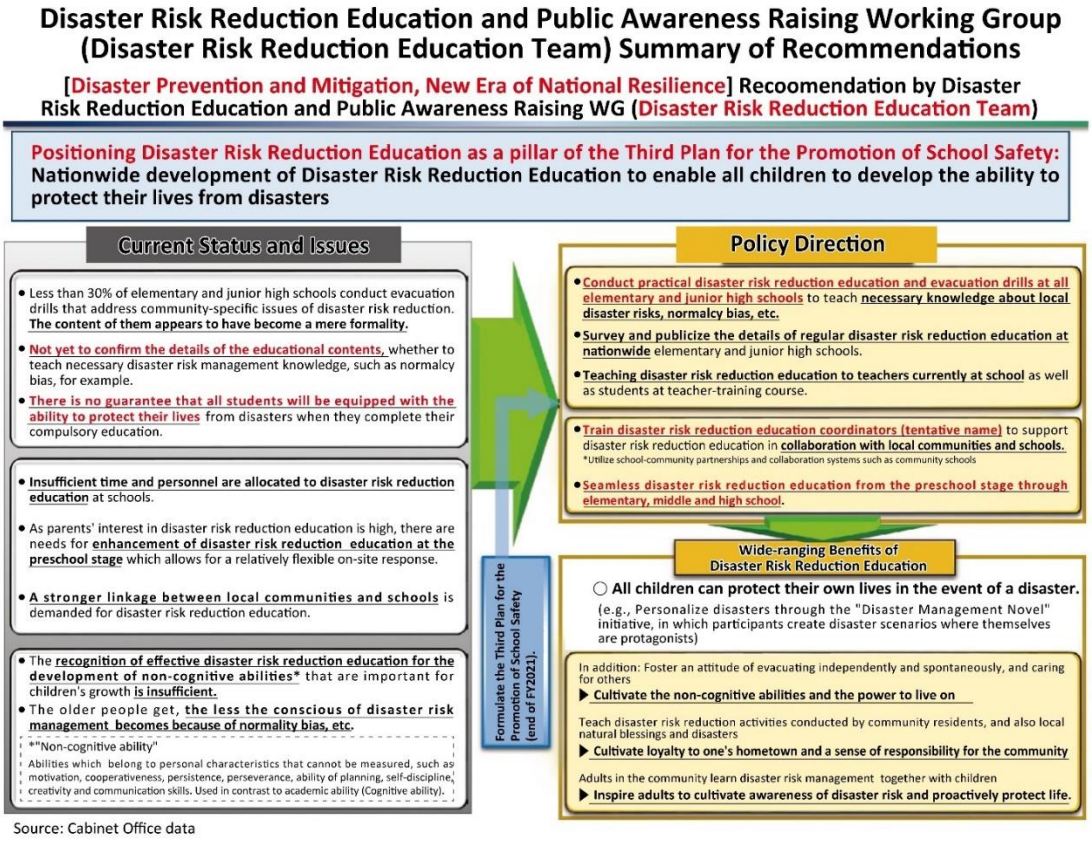
- Implementing practical disaster risk reduction education and evacuation drills in all elementary and junior high schools to teach necessary knowledge such as local disaster risks and normality bias.
- Conducting evacuation drills which place the highest priority on saving lives that lead people to respond to unexpected situations.
- Disaster risk reduction education to assume oneself concerned.
- Cultivating an attitude to evacuate independently and spontaneously, and a charity for others through disaster risk reduction education.

Also, in order to deliver the above programs, the following methods were listed:

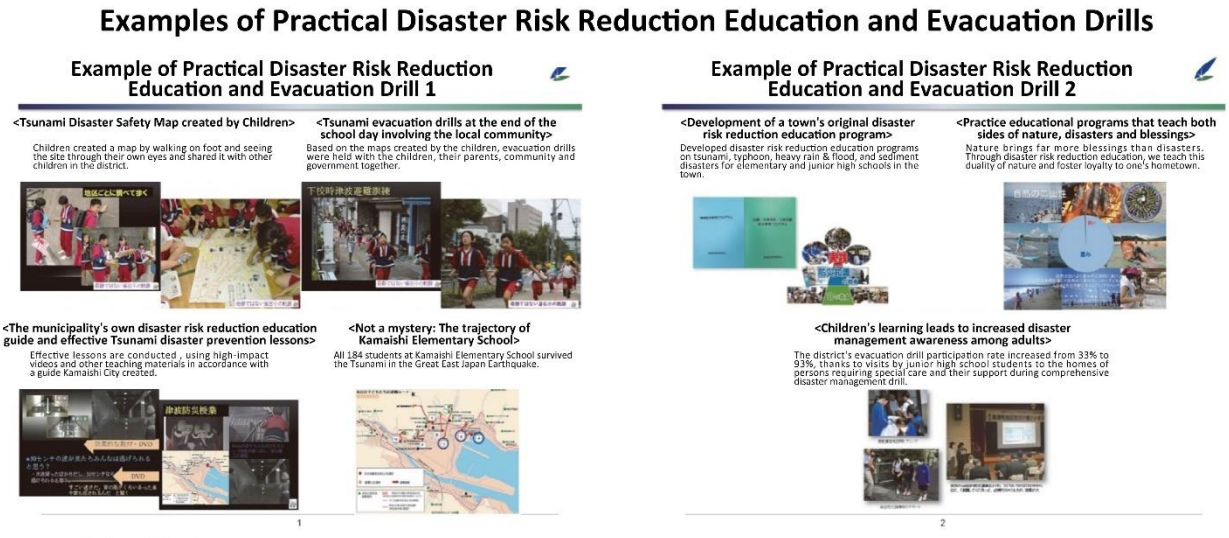
- Visualizing efforts through periodic surveys on the implementation status of disaster risk reduction education and evacuation drills.
- Preparing a guide on disaster risk reduction education and teaching materials with high-impact on various disasters for teachers and teacher-training programs.
- Promoting the implementation of disaster risk reduction education through collaboration between local communities and schools.
- Enhancing disaster risk reduction education at a preschool stage when parents are highly interested in it and comparatively flexible for on-site responses. Also, implementing disaster risk reduction education seamlessly at preschool, elementary school, junior high school and high school.

Meanwhile, the wide-ranging effects of disaster risk reduction education are being investigated such as non-cognitive abilities including humanity and the power to live on, the loyalty for one's hometown and the sense of responsibility for the community, all of which can be fostered through disaster risk reduction education. Also, the significance and necessity of disaster risk reduction education are currently reviewed and summarized.

(Reference: https://www.bousai.go.jp/kaigirep/teigen/pdf/teigen_06.pdf)



Source: Cabinet Office data



Source: Cabinet Office data

2. Actions based on Recommendation

The contents of the recommendation above were reflected on the "Third Plan for the Promotion of School Safety," which was approved by the cabinet decision in March 2022. The government has started working on the preparation of the guidelines so that the practical disaster risk reduction education and evacuation drills can be implemented to teach the necessary knowledge such as local disaster risks and normality bias. Some guidelines are going to be provided to teachers who are approaching future goals in disaster risk reduction education, and

other guidelines will cover the contents to promote disaster risk reduction education in cooperation between local communities and schools.

(2) Disaster Volunteer Team

1. Outline of the Recommendation

In recent years, natural disasters have become more severe and more frequent, and disaster-related deaths accounted for 80% of the deaths in the 2016 Kumamoto Earthquake. Thus, improving the evacuation living environment is an urgent issue in our super-aged society.

Under these circumstances, disaster volunteers and NPOs with excellent skills of disaster relief are increasing little by little to assist affected people. They usually rush to the affected areas to provide support on evacuation life and play a major role in improving the functions of shelters and living environments. However, the number of such NPOs in Japan is still small, and their activities are not necessarily well known. In addition, local governments and local residents do not fully understand such NPOs or other organizations.

In the event of a large-scale disaster, municipalities that are responsible for setting up and operating shelters face a variety of tasks, which makes it difficult to secure sufficient human resources to support evacuation life. And some members of staff with limited experience in disaster response do not always possess sufficient skills to support evacuation life. Furthermore, in the event of a large-scale disaster, it is difficult to gather disaster volunteers from wide areas, and it is also anticipated that there would be difficulty in accepting disaster volunteers from outside the affected area due to infectious diseases or other factors.

Based on the current situations, in order to enhance support for evacuation life and improve the evacuation living environment, it is important to build a system to collaborate and cooperate with capable disaster volunteers and NPOs that can appropriately support evacuation life as municipalities encourage evacuees (residents) to manage shelters on their initiative. To achieve this, it is necessary to increase the number of disaster volunteers in each region who are highly skilled in assisting evacuation life.

Considering the above, it was suggested that an "Ecosystem of Supporting Evacuation Life and Human Resource Development against Disasters" with the following pillars be buiilt:

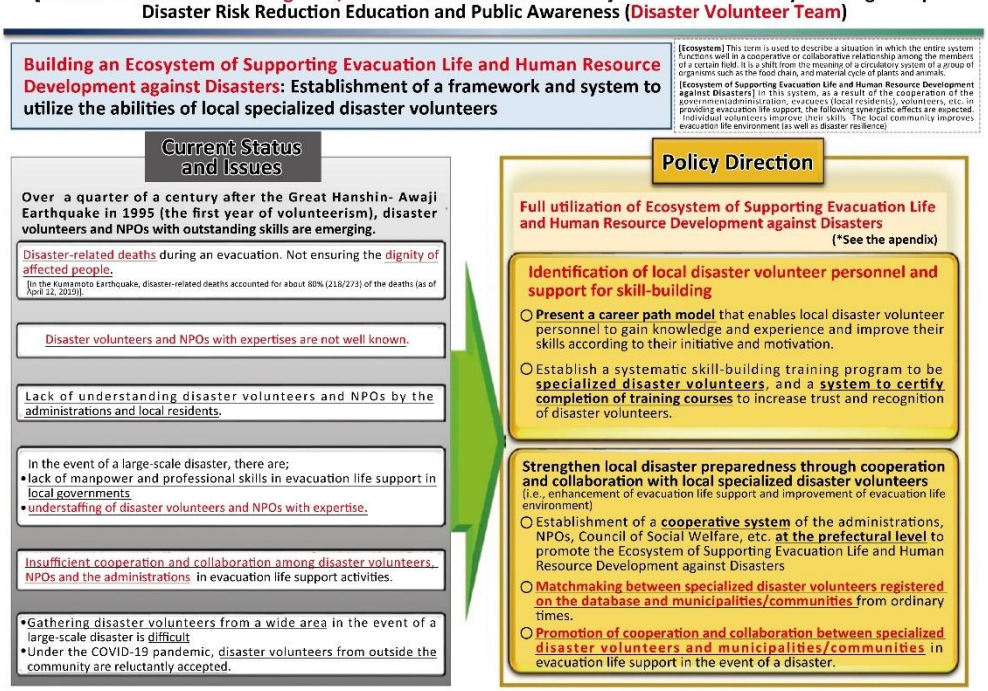
- Introducing a systematic skill-building training system to identify human resources for local disaster volunteers, and enhance trust and recognition of disaster volunteerism.
- Identifying where volunteer disaster personnel with certain skills are and matching them with local municipalities in order to set the occasion for volunteer activities.
- Improving community disaster resilience through collaboration and cooperation among local skilled disaster volunteers, municipalities and local residents.

By introducing these above, it is expected that the government, evacuees (local residents), volunteers and others involved will collaborate in providing support for evacuation life. This will lead a synergistic effect where

individual personnel improve their skills, and local communities improve the evacuation living environment and community disaster resilience.

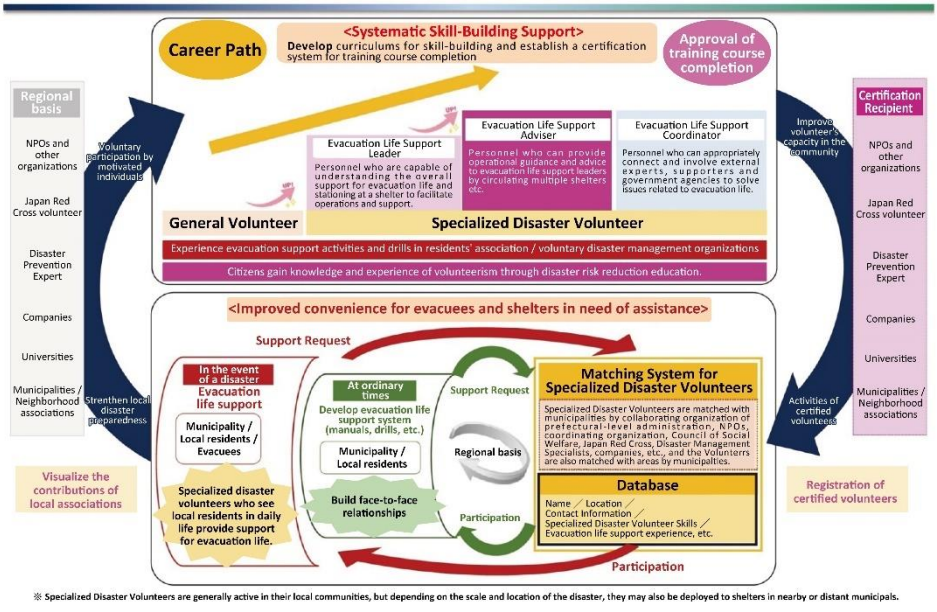
(Reference: https://www.bousai.go.jp/kaigirep/teigen/pdf/teigen_07.pdf)

Summary of Recommendations: Working Group on Disaster Risk Reduction Education and Public Awareness (Disaster Volunteer Team)



Source: Cabinet Office Data

Ecosystem of Supporting Evacuation Life and Human Resource Development against Disasters



Source: Cabinet Office data

2. Actions based on Recommendation

In October 2021, in order to buildt an "Ecosystem of Supporting Evacuation Life and Human Resource Development against Disasters," a study group was established to give concrete form to this recommendation. The group is working to develop a training curriculum and other materials through interviewing NPOs, experts, local governments, related organizations and others who are familiar with evacuation support. The group is also discussing the possibility of implementing model training programs for motivated prefectures during FY2022. Through the concretization of this recommendation, the skill of local volunteer human resources and community disaster resilience will improve to make the living environment in shelters and other such facilities better.

【Column】

Recommendation of the Women's Association for Disaster Management

Regarding disaster response from gender perspectives, women have been involved in the management of shelters and the provision of relief supplies according to woman's needs, and the national government has also strengthened measures to support such efforts. However, the current situation about caring for women in the affected area is not enough, and the national and local governments have very few female officials in disaster management. In order to improve this situation, the "Women's Association for Disaster Management" was formed in the Cabinet Office in December 2020 by female employees from Disaster Management Bureau and the Gender Equality Bureau.

The Women's Association for Disaster Management collected materials, interviewed local government officials and NPOs and conducted a survey with the staff at the Cabinet Office's Disaster Management Bureau. Through these efforts, the Women's Association for Disaster Management made a recommendation to implement disaster management from women's perspectives and brought it up to the former Minister of State for Disaster Management Okonogi in May 2021.

The recommendation is composed of two chapters. In Chapter 1, to enhance support for affected people from women's perspectives, it points out important measures in "Women's Perspective for Strengthening Disaster Response Capabilities - Guidelines for disaster preparedness and reconstruction from the perspective of gender equality -" by the Cabinet Office's Gender Equality Bureau such as prevention of sexual violence and domestic violence at shelters along with active engagement of female members in making Disaster Management Plans in the National and Local Disaster Management Councils. It also requests to amend the "Shelter Management Guidelines" written about the services in shelter management. Chapter 2, to enhance the disaster management system so as to incorporate gender perspectives, emphasizes the importance of: (1) encouragement for improving the work environment of disaster management officials, (2) increasing the percentage of female officials responsible for disaster management in the national and local governments, (3) helping all disaster management officials including males to deepen understanding of disaster management from gender perspectives, (4) urging cooperation and coordination of the departments of the Disaster Management and Gender Equality, and (5) making a stronger network among disaster management human resources in various organizations.

Reflecting the recommendation, the national government added the item of prevention of sexual violence and domestic violence at shelters along with the item of increasing the proportions of women in Local Disaster Management Councils to the Basic Disaster Management Plan (National Disaster Management Council Resolution, May 25, 2021). Also, the proportions of women was raised to 33% (three out of nine members) and female expert ratio to 56% (five out of nine members) in the National Disaster Management Council and Disaster Management Implementation Committee (except for ministerial members) respectively. Furthermore, in June 2021, the Minister of State for Disaster Management and Minister of State for Gender Equality delivered a joint message about

promoting disaster management and mitigation from gender perspectives to local governments nationwide.
（Reference： https://www.bousai.go.jp/kyoiku/joshi/index.html
https://www.bousai.go.jp/r30611message.html)

Section 5 Further Enhancement of Disaster Risk Reduction Education in Schools

In March 2021, the Central Council for Education was consulted on the "Third Plan for the Promotion of School Safety." In response to this, the School Safety Subcommittee of the Subdivision on Primary and Secondary Education of the Central Council for Education, based on the recommendations of the Cabinet Office's Working Group on Disaster Risk Reduction Education and Public Awareness (Disaster Risk Reduction Education Team), held numerous discussions on school safety, including disaster risk reduction, from a professional standpoint. On February 7, 2022, the "Third Plan for the Promotion of School Safety (Report)" was compiled. Based on this report, the "Third Plan for the Promotion of School Safety" (hereinafter referred to as "Third Plan") was approved by the Cabinet on March 25, 2022.

(Reference: https://www.mext.go.jp/a_menu/kenko/anzen/1419593_00001.htm)

The Third Plan suggests that the Government should take specific measures as shown below. These measures are to be taken by considering the current situation where the approach and recognition of school safety differ depending on schools, and the necessity that practical education for disaster risk reduction should be promoted nationwide to prepare for the large-scale disasters which are likely to occur in the future without letting the memory of the Great East Japan Earthquake fade away. In particular, with regard to education for disaster risk reduction, one of the basic directions of the policy is to “implement practical disaster risk reduction education and training based on local disaster risks.” The government’s efforts include:

- In order that practical disaster risk reduction education and evacuation drills may be conducted in all schools in Japan to teach the necessary knowledge such as local disaster risks and normality biases, a new guide for disaster risk reduction education and evacuation drills considering developmental stages of children should be prepared and announced.
- Useful educational materials and data for schools should be prepared and distributed. Particularly regarding disaster risk reduction education from early childhood, including making a model for communicating information and raising awareness at home, educational materials for infants should be prepared. And disaster risk reduction education should be enhanced among infants and their parents.
- Regular and specific surveys should be conducted to examine the implementation of disaster risk reduction education in schools nationwide, including the status of implementation of practical evacuation drills and their revisions. Key indicators should be set on the surveys, and the status should be publicized.

And, as local governments efforts, based on local disaster risks, in cooperation with boards of education and schools, promotion of disaster risk reduction education was mentioned such as lectures, hands-on learning, and disaster drills by members of Fire Corps and local voluntary disaster management organizations so that students become future leaders of community disaster resilience.

In addition, necessary measures for disaster preparedness were pointed out, including shelter management in the event of a disaster and the safety assurance at school facilities that were used as shelters for residents in the event of a major disaster.

The Third Plan for the Promotion of School Safety (Summary)

- The Plan for the Promotion of School Safety: The plan formulated by the national government to comprehensively and effectively promote efforts at safety in each school (School Health and Safety Act Article 3, paragraph 2))
- Based on the "Third Plan for the Promotion of School Safety (the Central Council for Education's Report, February 7, 2022)," it was approved by the Cabinet on March 25, 2022 (Plan period: 5 years, from FY 2022 to FY 2026)

I Overall Concept

Recognition of issues for making the Third Plan

- ○ Effectiveness of measures based on plans / manuals made by individual schools
- ○ Differences in the approach and recognition of school safety depending on schools
- ○ Necessity that practical education for disaster risk reduction should be promoted nationwide to prepare for large-scale disasters which are likely to occur in the future without letting the memory of the Great East Japan Earthquake fade away etc.

Basic direction of measures

- ○ Increase effectiveness of school safety by setting periodic opportunities for review of school safety plans and risk management manuals
- ○ Promote safety measures including kids' perspectives in tight cooperation with various local entities and residents
- ○ Promote practical and effective safety education in all schools
- ○ Implement practical disaster prevention education and training based on local disaster risks
- ○ Make school safety visible, using data such as accidents and measures taken by the school
- ○ Help to raise awareness of school safety (foster safety culture in schools)

Visions to be achieved

- ○ All students will have the quality and ability of safety to make their own good decision, and to move independently
- ○ To reduce the number of fatal accidents of students under school supervision to as close to 0 as possible
- ○ To decrease the incidence rate of student injuries and illnesses under school supervision with the focus on accidents that involve disabilities and serious injuries

Ⅱ Promotion measures

Five promotion measures were set up to promote practical measures and to raise social awareness as a whole on school safety

1. Promote organizational effors on school safety	2. Promote school safety with cooperation from households, local people and relevant agencies	3. Enhance safety education in schools	4. Enhance measures for safety management in schools

5. Implement crosscutting tasks on promotion measures for school safety

Reference: Documents from Ministry of Education, Culture, Sports, Science and Technology

Promotion measure 1: Promote organizational effors on school safety

- ○ Position school safety clearly in school management
- ○ Bring in the idea of safety promotion schools, establish periodic review opportunities on school safety plans
- ○ Make a risk management manual and revise it, assuming various risks including local natural environment around schools
- ○ Clarify core teachers' positions in charge of school safety in schools / Enhance training and drills for school safety
- ○ Enhance school safety education in teacher training

Promotion measure 2: Promote school safety with cooperation from households, local people and relevant agencies

- ○ Promote efforts for school safety using a system of cooperation between schools and local organizations such as community schools
- ○ Building a local promotion system for ensuring safe commutes to school, strengthening and revitalizing efforts in cooperation with related organizations based on the school road traffic safety program
- ○ Promote anti-crime measures for eradication of injuries and sexual assault to children and students via social media

Promotion measure 3: Enhance safety education in schools

- ○ Enhance safety education to raise children and students such that they can predict and avoid risks / Secure time for safety education / Improve safety education methods in schools
- ○ Enhance practical disaster prevention education based on local disaster risks / Cooperate futher with related agencies (fire corps volunteers, etc.)
- ○ Collect good practices of safety education in early childhood and special-needs schools
- ○ Regarding the education of contemporary issues, such as measures for harmful info on the internet (injuries which arise from social media) and for sexual assault and violence (safety education for human life),promote to put those issues into the school safety plans

Promotion measure 4: Enhance measures for safety management in schools

- ○ Improve methods of safety checks in schools (clarify judgmental standards, add children's perspective) / Enhance inspections and measures by school administrators (cooperation with specialists)
- ○ Aging-management measures for school facilities / Earthquake resistant measures for non-structual elements / Promotion for maintenance of disaster prevention functions
- ○ Utilize examples of near miss incidents to prevent serious accidents
- ○ Investigate accidents under school supervision and take preventive steps (consider revision of the guidelines concerning school accident measures)

Promotion measure 5: Implement crosscutting-tasks on promotion measures for school safety

- ○ Promote visibility of school safety info, shareing and leverageing it (re-evaluate the survey items and the methods)
- ○ Give information on materials to build awareness, using data regarding the Injury and accident mutual aid system, and use them effectively
- ○ Provide information and opportunities for training concerning school safety, regardless of types of schools (i.e. national, public or private)
- ○ Promote efforts for the prevention of accidents with a scientific approach, using AI and digital technology
- ○ Promote opportunities for school safety awareness (set a day or a week when school teachers in each school can raise their consciousness for school safety)
- ○ Follow up with the government measures regarding school safety

Source: Documents from Ministry of Education, Culture, Sports, Science and Technology

Section 6 Disaster Risk Reduction x Technology Public-Private Partnership Platform

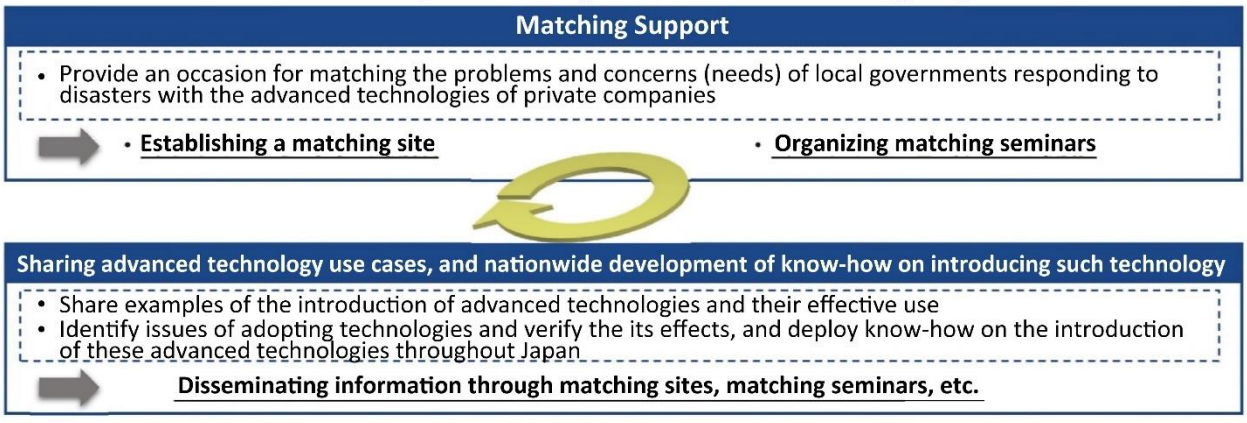
In order to respond more effectively and efficiently to the increasingly severe and frequent disasters that have occurred in recent years, it is essential for local governments to actively utilize advanced technologies, including digital technologies. Some local governments have already started using advanced technologies and demonstrated their effectiveness in disaster response. However, many local governments have not yet introduced such technologies due to limited opportunities to collect information on advanced technologies and introduce them.

For this reason, in FY2021, the Cabinet Office established the "Disaster Risk Reduction x Technology Public-Private Partnership Platform" (hereinafter referred to as "Prevention Technology PF"). This platform was designed as a forum for matching the needs of local governments in disaster response and private companies with advanced technologies and for the horizontal deployment of examples of effective use of advanced technologies by local governments.

As a part of its efforts, the Prevention Technology PF has established a permanent website (hereinafter referred to as the "Matching Site" in this section) and seminars (hereinafter referred to as the "Matching Seminars" in this section) to provide a venue for interaction between local governments and private companies, etc. An overview of the Matching Site is provided as below.

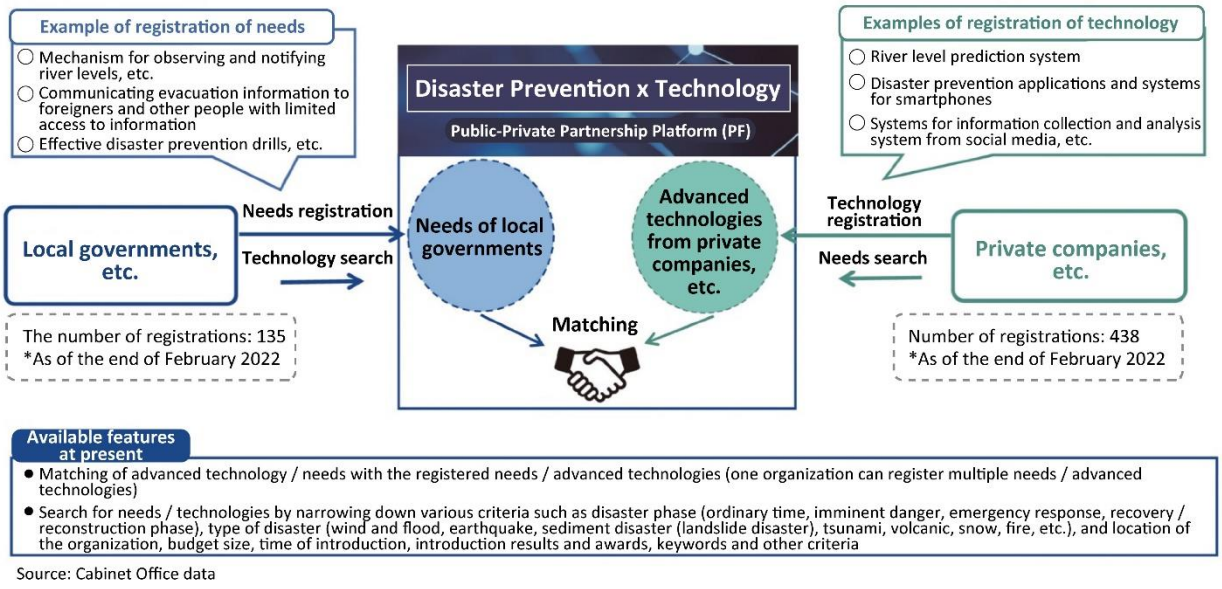
The Matching Site has been in operation since July 2021, allowing local governments to register their disaster risk reduction issues and needs in conjunction with private companies to register their useful technologies for disaster risk reduction. As of the end of February 2022, approximately 580 organizations (around 140 local governments and 440 private companies, etc.) have registered on the Matching Site (hereinafter referred to as "registered organizations" in this section).

Overview of Disaster Risk Reduction x Technology Public-Private Partnership Platform (Prevention Technology PF)



Source: Cabinet Office data

Overview of Matching Site



Source: Cabinet Office data

Registered technologies are automatically matched with potential needs. They can also be freely searched by narrowing down criteria such as disaster phases from "ordinary times" to "recovery and reconstruction period," disaster types such as "storm and flood disaster" and "earthquake," and the costs and results of introducing these technologies. In addition, registered organizations can contact other parties with useful information using the contact information registered on the Matching Site. Some private companies have used these functions to make technical proposals to local governments, and discussions on the introduction of advanced technologies have progressed.

(Reference: https://www.bosaitech-pf.go.jp/)

Matching Seminars were held three times during FY2021, attended by approximately 300 to 400 organizations from the public and private sectors at each seminar. The first seminar was held on August 31, 2021, in a completely online format. It included an overview of the Prevention Technology PF project and case reports of advanced technologies introduced by local governments. The second seminar was held on November 5, 2021, in Kamaishi City, Iwate Prefecture, as a pre-event of the "National Conference on Promoting Disaster Risk Reduction (Bosai Kokutai) 2021," using both online and face-to-face formats. In the second seminar, in addition to examples of the introduction of advanced technologies, the presentation also included information on local governments' own measures for disaster management. Furthermore, an "Individual Consultation Session" was held, where private companies could introduce their technologies and local governments could discuss their issues and needs with their counterparts on a one-on-one basis. The third seminar was held on February 10, 2022, in a completely online format, with the same case reports and individual consultations as the second seminar.

Through these efforts, local governments are provided with opportunities to learn about advanced technologies, private companies introduce their technologies to local governments, and local governments share issues with companies, creating new opportunities for introducing these technologies.

In FY2022, in order to solve the problems and needs of local governments and improve their disaster resilience

through the use of advanced technologies owned by the private sector, the Cabinet Office will promote the introduction of advanced technologies by operating the Matching Site and Matching Seminars as well as by providing support for local governments to materialize their needs and make contact with companies.

Matching Seminars Organized

Date of event	1st meeting (August 31, 2021)	2nd meeting (November 5, 2021)	3rd meeting (February 10, 2022)
Venue	Online	Kamaishi City, Iwate Prefecture (held as a pre-event of the "National Conference on Promoting Disaster Risk Reduction (Bosai Kokutai) 2021")	Online
The number of applicants	Local governments, etc.: 144 Private companies, etc.: 414	Local governments, etc.: 97 Private companies, etc.: 199	Local governments, etc.: 86 Private companies, etc.: 279
Agenda	○ Opening remarks by then Minister of State for Disaster Management Tanahashi ○ Explanation of Disaster Prevention Technology PF ○ Case reports on initiatives by local governments and companies 1) Example: Fukuchiyama City, Kyoto Prefecture 2) Example: Hiroshima City, Hiroshima Prefecture 3) Example: Hita City, Oita Prefecture ○ Introduction to Matching Site	**[Part 1]** ○ Opening remarks ○ Case reports on initiatives by local governments and companies 1) Example: Kimobetsu Town, Hokkaido 2) Example: Shinjuku Ward, Tokyo 3) Example: Fujieda City, Shizuoka Prefecture 4) Example: Yatsushiro City, Kumamoto Prefecture ○ Introduction of local governments' own measures for disaster management 1) Initiatives in Niigata Prefecture 2) Initiatives in Sendai City, Miyagi Prefecture ○ Information provided by the Cabinet Office **[Part 2]** ○ Individual consultation sessions with local governments	**[Part 1]** ○ Opening remarks ○ Case reports on initiatives by local governments and companies 1) Example: Fukuoka City, Fukuoka Prefecture 2) Example: Omuta City, Fukuoka Prefecture 3) Example: Atami City, Shizuoka Prefecture ○ Case reports on matching through the Disaster Prevention Technology PF ○ Disaster Prevention Technology PF projects for the coming fiscal year **[Part 2]** ○ Individual consultation sessions with local governments

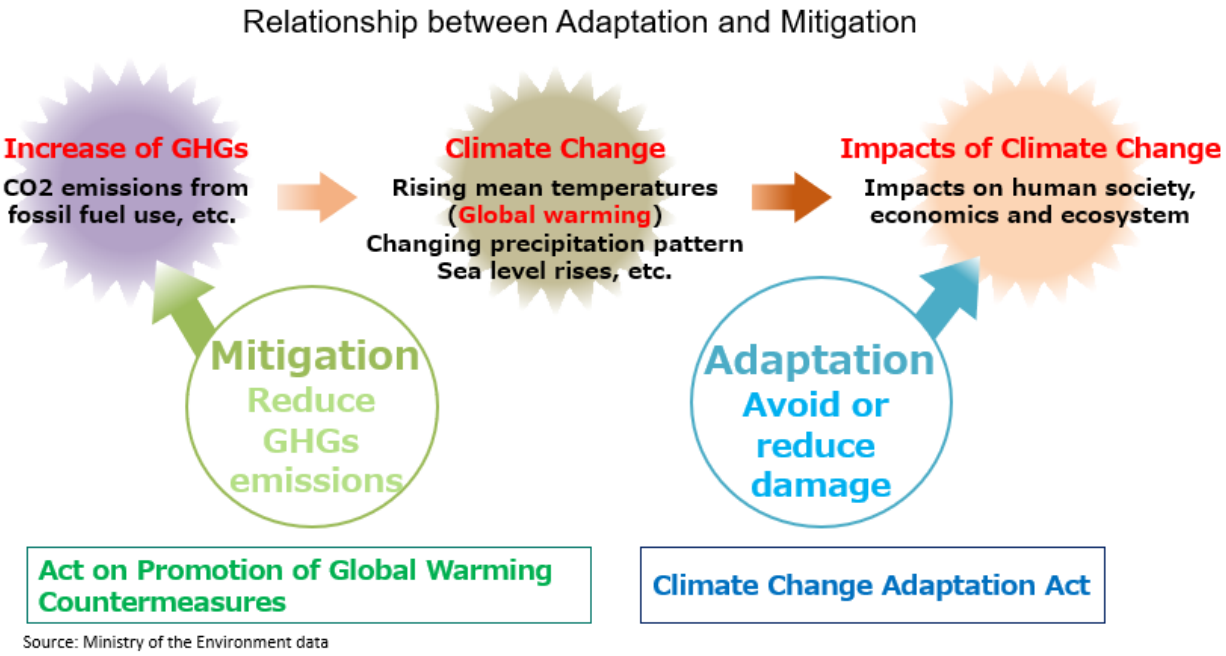
Source: Cabinet Office data

Section 7 Disaster Prevention and Mitigation Measures Based on Climate Change Risks

(1) Mitigation and Adaptation Measures Are Inseparable

Climate change and its impacts, such as rising mean temperatures and more frequent heavy rainfall in recent years, are appearing in many parts of the world. Such negative impacts of climate change are called a “climate crisis” that shakes the foundations of human survival and the survival of all other living things. Although it is not easy to determine how each of these weather events is linked to global warming, the risk of such extreme heat and rainfall is projected to increase as global warming progresses further.

As an ambitious goal consistent with net-zero by 2050, Japan aims to achieve a 46% reduction of greenhouse gas emissions in FY2030 from levels seen in FY2013 and will continue strenuous efforts in its challenge to meet the lofty goal of cutting its emission by 50%. However, even if we steadily promote climate change countermeasures to achieve net-zero by 2050 and limit the temperature increase to about 1.5°C, changes such as extreme heat events (e.g., heat waves) and heavy rains will be unavoidable. Therefore, adaptation efforts are necessary to avoid or reduce observed or projected damage.



Source: Ministry of the Environment data

(2) Revision of Climate Change Adaptation Plan

The "Climate Change Adaptation Act" (Act No. 50 of 2018) (hereinafter the "Adaptation Act") was promulgated on June 13, 2018, and came into force on December 1 of the same year to set a legal framework for climate change adaptation and to promote climate change adaptation more extensively. In November 2018, just before the implementation of the Adaptation Act, the "Climate Change Adaptation Plan" (hereinafter r the "Adaptation Plan") was formulated in accordance with the provisions of that law.

Furthermore, in December 2020, the government published an "Assessment Report on Climate Change

Impacts in Japan " based on the latest scientific findings from the observation, monitoring, projection, and assessment of climate change and its impacts in various sectors. Based on scientific findings, this report assessed the impacts of climate change on 71 categories in seven sectors, including natural disasters and coastal areas, from the three perspectives of significance, urgency and confidence.
(Reference: http://www.env.go.jp/earth/tekiou.html)

In October 2021, the Adaptation Plan was revised, taking into consideration the latest scientific findings provided in the Climate Change Impact Assessment Report. The Plan incorporates the concept of "climate action and DRR into this action" (see below) and expands adaptation measures in many sectors.
(Reference: https://www.env.go.jp/press/110115.html)

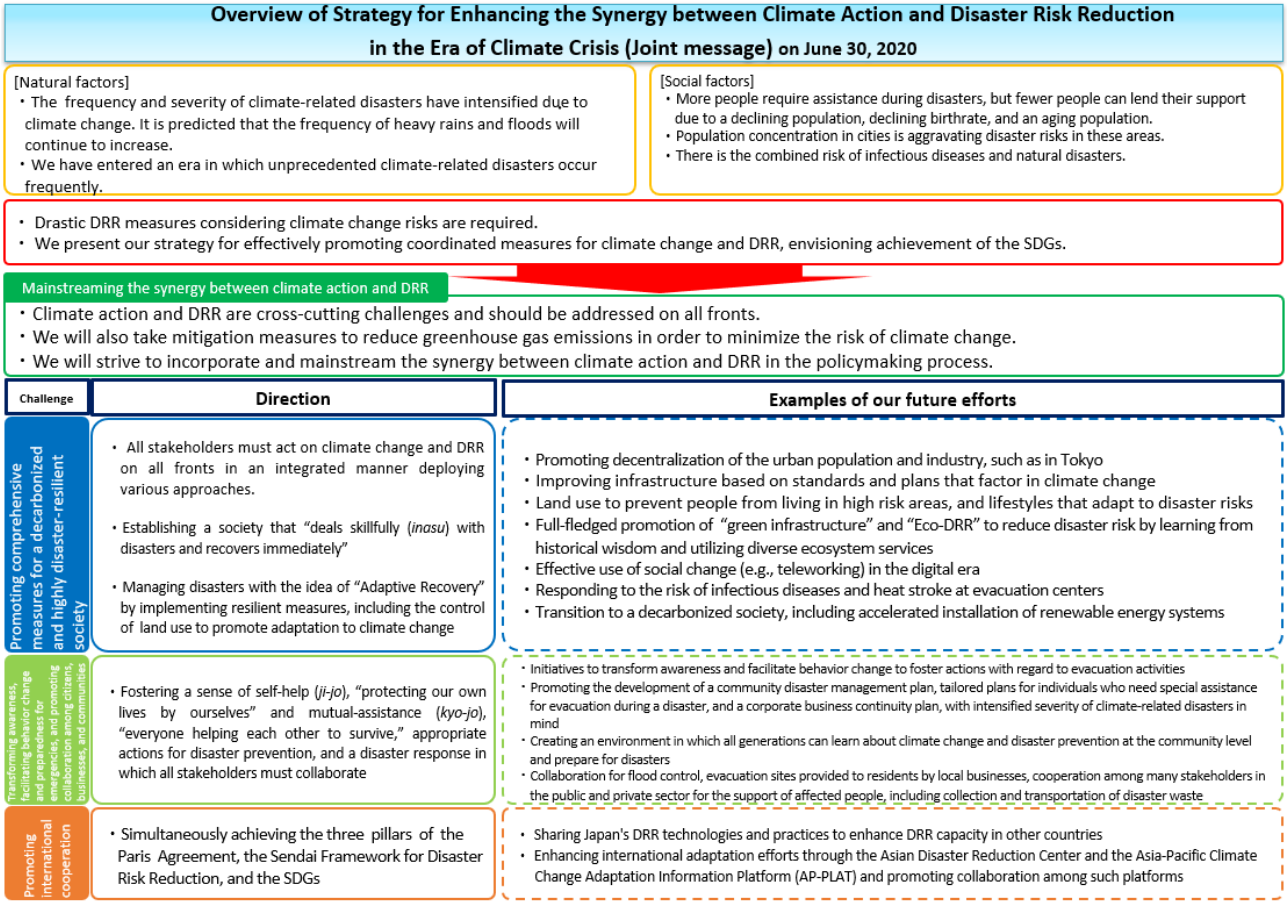
(3) "Strategy for Enhancing the Synergy between Climate Action and Disaster Risk Reduction" and "Adaptation Recovery" Initiatives

In June 2020, the Ministry of the Environment and the Cabinet Office publicly announced the "Strategy for Enhancing the Synergy between 'Climate Action and Disaster Risk Reduction' in the Era of Climate Crisis," a strategy to effectively coordinate climate change adaptation, and disaster prevention and mitigation measures. The contents of this Strategy are as follows.

・The Strategy is based on the concept of synergy between climate action and DRR into this action, which refers to the state where every actor in every sector comprehensively takes climate change measures and DRR measures.

・Rather than simply restoring the affected areas to its pre-disaster state, Japan aims to build a society that can skillfully deal with disaster and recover quickly. This is reflected in the concept called "Adaptive Recovery," which involves adaptation to climate change by implementing resilient measures including land-use controls while learning from traditional wisdom that has taken advantage of nature's characteristics to cope with natural disasters. To this end, the Ministry of the Environment will promote pre-disaster recovery planning to "build back better" which specifically refers to an approach in which communities discuss and share the vision for a post-disaster society or town, even before a disaster occurs, from forward-looking perspectives to be better prepared to quickly act after a disaster.

The Ministry of the Environment is promoting efforts to effectively link climate change adaptation and DRR measures, including the preparation of a manual for local governments to help them mainstream the concept of the synergy between climate action and DRR and accelerate their efforts toward "Adaptive Recovery" into policies in various fields and make it a mainstream policy.



Source: Materials from Cabinet Office and Ministry of the Environment

(https://www.bousai.go.jp/pdf/0630_kikohendo.pdf)

Part I. Status of Disaster Management Measures in Japan

Chapter 1 Status of Initiatives for Disaster Management Measures

Section 1 Promotion of Disaster Risk Reduction in Advance through Self-Help and Mutual Support and Disaster Risk Reduction Activities through Collaboration Among Diverse Entities

1-1 Raising Public Awareness of Disaster Risk Reduction

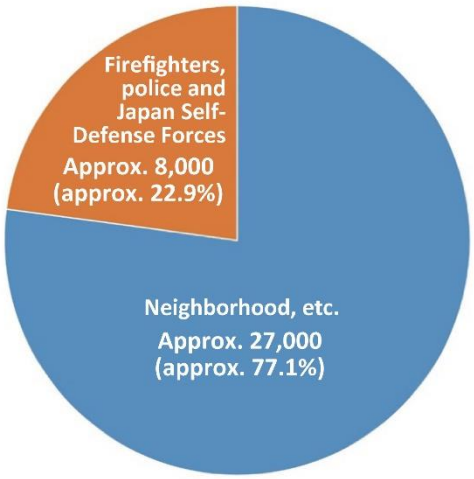
Japan has traditionally experienced many natural disasters due to its topography, weather, and other natural conditions. Therefore, in order to prepare for the eventuality of a disaster, our country takes structural measures to prevent or mitigate damage from disasters, such as the construction of embankments and improvement of earthquake resistance capacities during the ordinal period, and non-structural measures as well to realize appropriate actions in the event of a disaster, such as hazard mapping and education for disaster risk reduction. When a disaster strikes, the government of Japan continues to provide "public support" in many forms. This includes rescue and lifesaving measures for affected people immediately after the disaster strikes and dispatching national and local government officials to the affected areas to provide personnel support. This public support also covers providing push-type support to transport relief supplies to shelters and evacuees without waiting for a request from the affected areas, and providing financial support through designation as a Disaster of Extreme Severity and the "Act on Support for Reconstructing Livelihoods of Disaster Victims."

However, there are concerns about the limits of public support in the event of large-scale and wide-area disasters, such as Nankai Trough Earthquake, Megaquake in the Vicinity of the Japan and Chishima Trenches, or meteorological disasters that have become more severe and frequent in recent years.

In the 1995 Southern Hyogo Earthquake (hereinafter referred to as the "Great Hanshin-Awaji Earthquake"), about 80% of those buried alive were rescued by "self-help" including family members and "mutual support" by neighbors, and only about 20% were rescued by "public support" such as rescue teams (FIG. 1-1-1). As for the case of the Heavy Rain Event of July 2020 that caused damage in Kumamoto and other prefectures, many residents of Kuma village responded to a survey that the "trigger" for them to consider evacuating outside their homes was not only the surrounding conditions such as rainfall and evacuation information or disaster prevention weather information including evacuation instruction (emergency) , but also evacuation calls from family, friends, acquaintances, neighborhood associations and neighbors. This indicates that "self-help" and "mutual support" are as important as "public support" (FIG. 1-1-2).

The environment for local governments is getting severe since the areas under their jurisdiction have widened due to municipal mergers, and the number of local government officials has decreased, while the number of persons requiring special care in an aging society is increasing. Therefore, it is important for each citizen to view disasters as “their own matter” rather than “someone else’s matter,” to raise their awareness of disaster prevention and mitigation, and to take concrete actions to build a community that fosters a disaster awareness of “protecting one’s own life” and “helping among local residents."

FIG. 1-1-1 The Number of Rescuers and Those who were rescued in the Great Hanshin-Awaji Earthquake



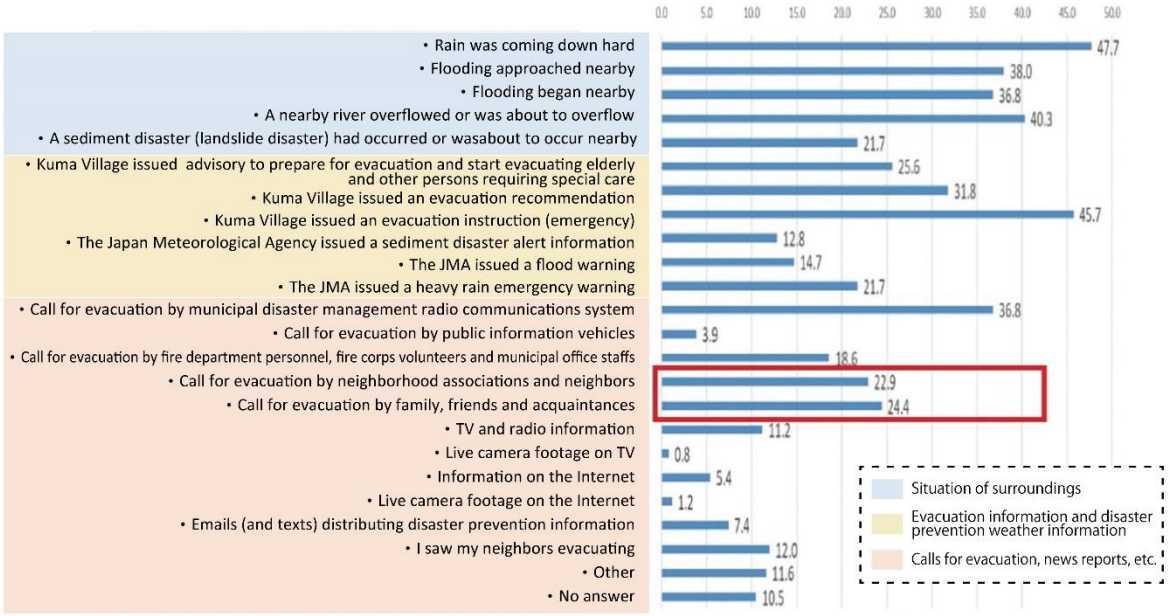
Source: prepared by the Cabinet Office (published in the 2008 edition of the White Paper on Disaster Management, Special Feature on "Future Disaster Management"), data taken from Kawata Yoshiaki' s "Prediction of Loss of Human Lives Due to Large-Scale Earthquake Disaster" Natural Science and Technology, Vol. 16, No. 1,(1997) .

FIG. 1-1-2 Examples of Areas Affected by the Heavy Rain Event of July 2020 (Kuma Village, Kumamoto Prefecture)

Results of a questionnaire survey of residents in the areas affected by the Heavy Rain Event of July 2020

Survey target: All residents of Kuma Village
Survey period: January 7 to February 22, 2021
n = 629 (Distributed: 1,099; Collected: 57.2%)

Q: What "prompted" you to consider evacuating outside your home (multiple responses allowed)? n=258



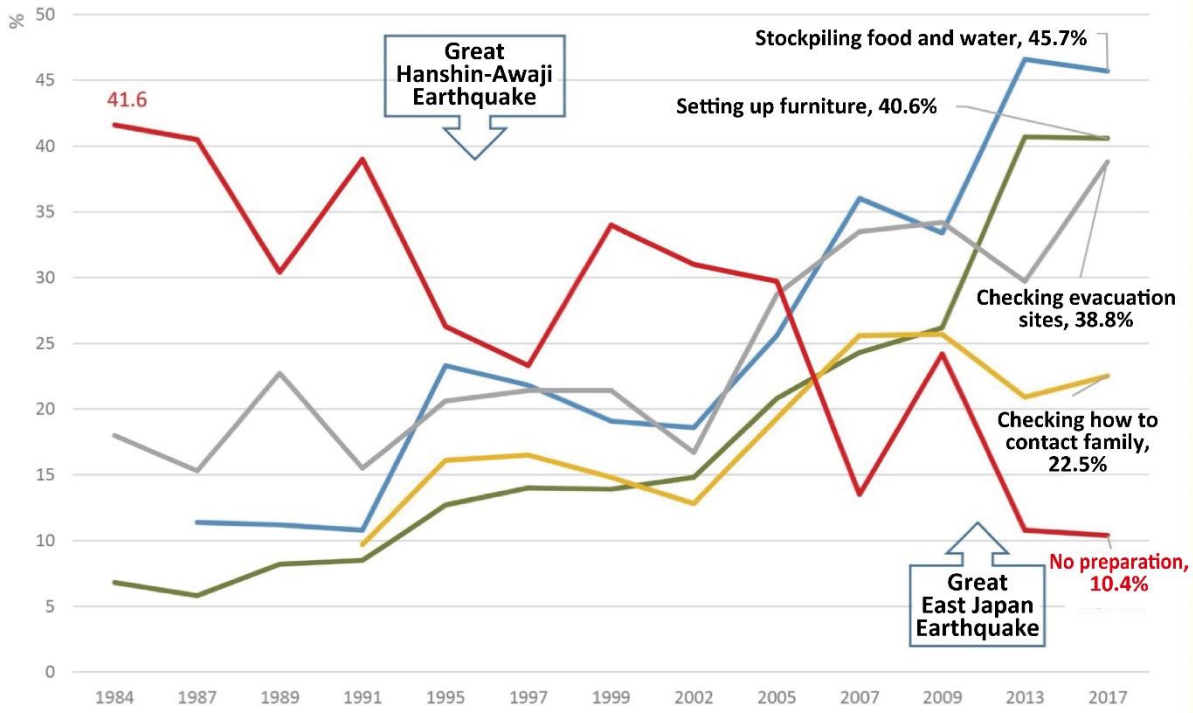
Source: Prepared by the Cabinet Office based on "Results of Questionnaire Survey of Kuma Village Residents," Kuma Village, Kumamoto Prefecture, and the CeMI Crisis & Environment Management Policy Institute (May 2021).

Specific actions for disaster prevention and mitigation may include, first of all, "self-help," such as understanding the disaster risks in the community, "preparing" in advance by securing furniture and stockpiling food and other supplies, and participating in evacuation drills to be prepared to take appropriate evacuation actions. In addition, it is necessary to make efforts to mitigate damage from disasters through "mutual support,"

such as neighbors helping each other at the time of a disaster.

Recognition of the importance of "self-help" and the movement to take concrete measures have been steadily spreading among the public after the great disasters such as the Great Hanshin-Awaji Earthquake and the Great East Japan Earthquake (FIG. 1-1-3). The importance of "mutual support" has also been recognized once again since some evacuation cases were effective in the areas where local disaster risk reduction leaders took the initiative in preparing evacuation plans and conducting evacuation drills, and the mutual support measures were taken during the ordinal times like the case in the Naganuma area of Nagano City, Nagano Prefecture after Typhoon Hagibis in 2019 (T1919).

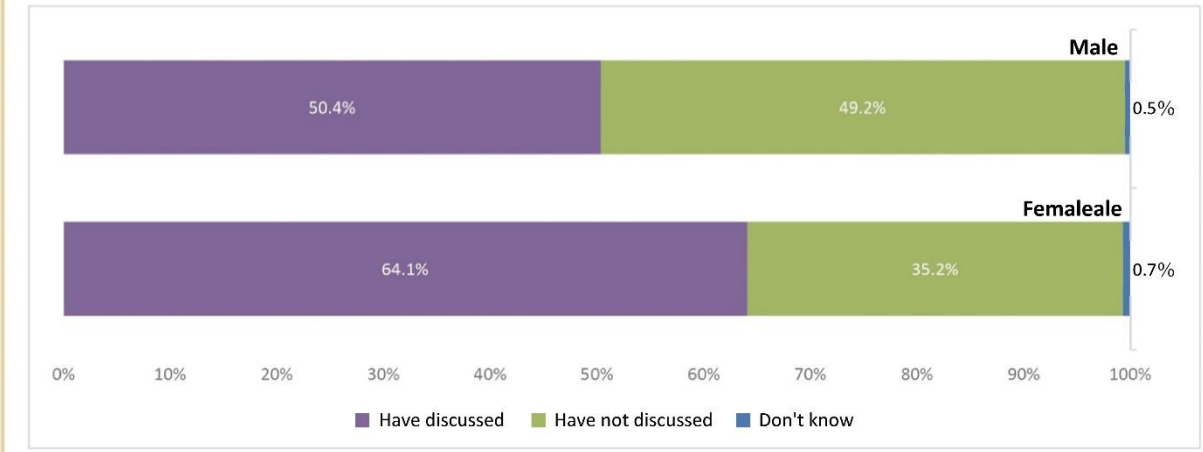
FIG. 1-1-3 Progress of Self-help Efforts



Source: Public Relations Office, Cabinet Office, "Public Opinion Survey on Disaster Prevention," prepared by the Cabinet Office

In considering "self-help" and "mutual support," it is important to have discussions with family members and those who are close to you. The survey conducted in 2017 shows that 50.4% of men and 64.1% of women had discussed what they would do if a disaster occurred with family members or others who were close to them in the past year or two (FIG. 1-1-4).

FIG. 1-1-4 Discussions about Disasters with Family Members and Close Ones (by gender)

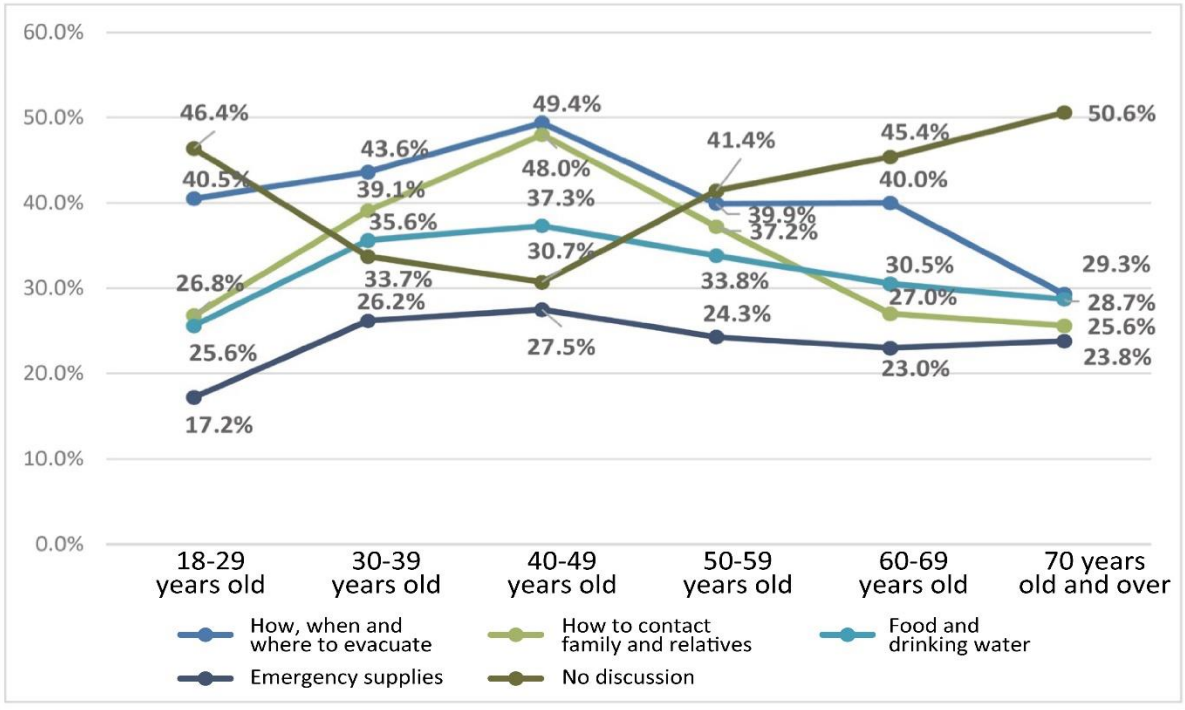


Source: Public Relations Office, Cabinet Office, "Public Opinion Survey on Disaster Reduction (November 2017 survey, 1,839 valid responses)," prepared by the Cabinet Office.

Of those who "have discussed it before," those who discussed “how, when and where to evacuate” accounted for the highest figure, 68.2%," followed by the discussion of "how to contact family and relatives" (57.8%), "food and drinking water" (55.3%), and "emergency supplies" (41.7%).

By age group, the percentage of respondents who answered they "had never discussed it" that were 70 years old and over was 50.6%, the highest, while the percentage of those who indicated they had discussed "how, when, and where to evacuate" was approximately 30% (FIG. 1-1-5).

FIG. 1-1-5 Top 5 Items Discussed with Family and Close Ones about Disasters (by age)



Source: Public Relations Office, Cabinet Office, "Public Opinion Survey on Disaster Reduction (November 2017 survey, 1,839 valid responses)," prepared by the Cabinet Office

Although the administrations make constant efforts to enrich "public support," it is getting more difficult to prevent disasters with only structural measures such as existing disaster prevention facilities and non-structural measures led by the administrations against sudden and severe disasters. This is due to the severe and frequent occurrence of meteorological disasters caused by global warming and the increase in the number of elderly people who need support in an aging society. It is necessary not only to maintain disaster risk management mainly by the administrations, but also to shift to the policies that focus on residents' "self-help" and "mutual support" based on a common understanding among the entire nation. Currently, as the disaster resilience differs depending on regions, there is a need to build a society that can effectively respond to disasters by developing nationwide measures of "local communities" that are highly aware of disaster risk reduction.

The Cabinet Office and related ministries and agencies have been addressing measures to further strengthen public relations and policies to link public “awareness” with “preparedness” (concrete actions) by referring data collected from surveys. This section focuses on "the disaster risk reduction in advance" through "self-help" and "mutual support" and introduces various measures taken in cooperation with various sectors.

1-2 National Council for Promoting Disaster Risk Reduction and National Conference on Promoting Disaster Risk Reduction

The “National Council for Promoting Disaster Risk Reduction” consists of experts from various fields such as six local administrative associations, the business community, the educational community, and the medical and welfare sectors. It was established in 2015 and has been promoting public relations in cooperation with the National Disaster Management Council so that various sectors are able to exchange information and opinions each other and collaborate according to circumstance for the purpose of raising public awareness of disaster risk reduction.

(1) National Conference on Promoting Disaster Risk Reduction (Bosai-Kokutai) 2021

The "National Conference on Promoting Disaster Risk Reduction (Bosai-Kokutai) 2021" was held from November 6 to 7, 2021 in Kamaishi City, Iwate Prefecture, when it had passed 10 years since the Great East Japan Earthquake. This conference was collaboratively hosted by the Cabinet Office, the National Council for Promoting Disaster Risk Reduction, and the Council for Promoting Disaster Risk Reduction (an organization consisting of industry groups which work to promote a national movement for disaster mitigation). In this conference, disaster prevention measures usually taken by government agencies, public organizations, the academic community, private corporations, NPOs, and other groups were presented on a national scale. The conference set the theme of "10 Years after the Great East Japan Earthquake: Recovery and Disaster Resilience through Connections," and aimed at looking back on the time period of 10 years after the Great East Japan Earthquake and giving opportunities to consider the way for recovery and disaster risk reduction in the future with passing the experience and lessons through the Earthquake to many people and to the next generation. In light of the infection status of COVID-19, the conference was held in a hybrid format, combining on-site and online access.

In the opening remarks, Minister of State for Disaster Management, Ninoyu was on behalf of the hosts and expressed the hope that the circle of disaster risk reductiont would spread throughout Japan and further strengthen Japanese disaster resilience capabilities. Afterwards, Mr. Otsuka, the Chairman of the National Council for Promoting Disaster Risk Reduction (the President of the Japanese Red Cross Society) delivered the address as

host side, and Governor of Iwate Prefecture, Tatsumasu, and Mayor of Kamaishi City, Noda, delivered the opening addresses on behalf of the site of the conference. In the opening discussion, participants exchanged opinions on from what they had learned lessons and how to hand them down to generation to generation under the theme of "Passing on the lessons of the Great East Japan Earthquake and disaster risk reduction." For instance, they discussed several different efforts of the "Tsunami Memorial Hall" (disaster risk reduction learning center for children who will lead the next generation), the "3.11 Densho Road" (networking of facilities to pass on lessons) and the Mt. Unzen Disaster Memorial Museum.

A total of 187 participants presented 40 sessions, 24 workshops, 100 presentations and 23 outdoor exhibits. In thematic sessions by the Cabinet Office and various organizations, discussions focused on self-help and mutual support efforts, which are getting more important in light of the Great East Japan Earthquake in 2011. The Cabinet Office organized the high-level session of the "Reconstruction and Disaster Resilience through Connections: Experiences from the Great East Japan Earthquake," and gave an occasion to the mayor of Kamaishi City and other leaders in and outside of the Tohoku region who had been responsible for reconstruction and disaster resilience to communicate each other. In this session, they talked about their experience in the past and the future vision in view of "Build Back Better," including reconstruction, raising the disaster risk reduction awareness among residents and fostering reconstruction leaders. In the workshops, various programs were delivered for the diverse players in disaster management all over Japan to share examples of daily efforts for disaster prevention and mitigation and their concerns and challenges. During the presentations, many actions in disaster prevention and mitigation were introduced by sharing their stories from the Great East Japan Earthquake and the latest technologies in disaster risk reduction.

In the closing remarks, Mr. Akimoto, Vice-Chairman of the National Council for Promoting Disaster Risk Reduction, delivered the host address, and Mr. Koshiya, Professor and Director of the Research Center for Regional Disaster Management, Iwate University, gave a summary of the conference. Then, State Minister of Cabinet Office (Disaster Management), Ohno thanked the participants and expressed his expectations for the next conference (scheduled to be held in Kobe, Hyogo Prefecture from October 22 to 23, 2022). The conference was attended by approximately 5,800 people on-site and viewed 18,000 times online. It was confirmed that increasing the disaster resilience of the country as a whole was important through not only "public support" by the government(s), but also "self-help;" each citizen gains preparedness against disaster with the awareness that they must protect their own lives, and "mutual support;" communities, schools, businesses and volunteers help each other.

Opening remarks by Minister of State for Disaster Management Ninoyu

Host address by Chairperson Otsuka (opening)

Opening discussion

High level session

Session by the Cabinet Office and Team Bosai Japan

Host address by Vice-Chairperson Akimoto (Closing Remarks)

(2) The 7th National Council for Promoting Disaster Risk Reduction

The 7th National Council for Promoting Disaster Risk Reduction was held on December 23, 2021 with the participation of five newly added constituent organizations. The meeting was held in a hybrid format combining on-site and online access in the Prime Minister's Office meeting room, in light of the infection status of COVID-19. At the beginning of the meeting, Prime Minister Kishida expressed his appreciation for the efforts of the member organizations of the National Council for Promoting Disaster Risk Reduction and then he noted his expectations for the plenary session saying, "With disaster response, it is important to take various and diverse perspectives, including those of women and those who need support, such as people with disabilities and the elderly. As disasters become more frequent and severe, measures taken by people from all walks of life are indispensable in enhancing Japan's disaster resilience, and we would like to ask for your continued cooperation in enhancing the disaster resilience of each and every citizen."

Following this, reports on activities such as the "National Conference on Promoting Disaster Risk Reduction (Bosai Kokutai) 2021" were shared, and the Japanese Trade Union Confederation and the All Japan Junior High School Principals' Association introduced their efforts to raise awareness of disaster risk reduction through self-help and mutual support.

The 7th National Council for Promoting Disaster Risk Reduction
(Attended by Prime Minister Kishida)

1-3 Measures on Disaster Management Drill

In the event of a disaster, as national government agencies, local governments, designated public corporations, and other disaster management-related organizations must work in unison to take appropriate measures in cooperation with residents, it is important for the related organizations to make disaster risk reduction efforts such as drills in cooperation with each other from ordinary times. Therefore, in accordance with the "Basic Act on Disaster Management," the Basic Disaster Management Plan and other various regulations, disaster management-related organizations are required to conduct disaster drills to verify and confirm emergency countermeasures in the event of a disaster, and to raise disaster risk reduction awareness among residents.

In FY2021, based on the "FY2021 Comprehensive Disaster Management Drill Framework" (decided by the National Disaster Management Council on May 25, 2021), which stipulates the basic policy for conducting disaster risk reduction drills and comprehensive disaster management drills by the government, the following various drills were conducted.

(1) "Disaster Preparedness Day" Comprehensive Disaster Management Drill

On September 1, 2021, Disaster Preparednee Day, a government headquarters operation drill was conducted under the assumption in the aftermath of the earthquake, taking COVID-19 countermeasures into consideration. First, then Prime Minister Suga and other cabinet members gathered on foot at the Prime Minister's Office and various government ministries and agencies to conduct an online drill for operating the Extreme Disaster Management Headquarters meeting. At the same meeting, the Council ascertained the state of damages and requests for assistance through videoconference with Yokohama Mayor Yamanaka, received reports on the damage and response from each cabinet minister, confirmed the policy for responding to the situation by putting human lives first, dispatched a government investigation team, and established an on-site disaster management headquarters. With these steps and more, the Council secured a system for implementing emergency countermeasures immediately after the earthquake and confirmed procedures in cooperation with local governments. In addition, a portion of the meeting was made available to the press. After the meeting, then Prime Minister Suga held a press conference to urge the public via NHK to take action to protect their lives and to provide information on the government's initial response, such as support for the operation of shelters including prevention of the spread of COVID-19.

(2) Drills in Collaboration with a Joint Disaster Management Drill Involving Nine Prefectures and Cities

On November 7, 2021, a joint disaster management drill involving nine prefectures and cities was held mainly in Yokohama City, Kanagawa Prefecture, with the participation of Prime Minister Kishida and related cabinet members. Prime Minister Kishida flew by helicopter from the Prime Minister's Office to the training site to inspect and experience rescue drills conducted by the police, fire department, and Self-Defense Forces, initial firefighting drills using water extinguishers, and shelter management drills including the display of cardboard beds and electric vehicles as power sources.

Government Headquarters Operation Training (online)
(Source: Prime Minister's Office website)

Prime Minister Kishida participating in firefighting drills in a joint disaster management drill involving nine prefectures and cities
(Source: Prime Minister's Office website)

(3) Government tabletop exercises

In June 2021, an Extreme Disaster Management Headquarters operation drill was conducted on the assumption of a Nankai Trough Earthquake. In this drill, staff members of relevant government ministries and agencies and local governments in the Nankai Trough Earthquake Disaster Management Measures Promotion Area participated in requesting and distributing relief supplies using an online, as if in practice, Relief Goods Procurement and Transport Coordination Support System.

In March 2022, another Extreme Disaster Management Headquarters operation drill was conducted in cooperation with On-site Extreme Disaster Management Headquarters drill (Tokyo) on the assumption of a Tokyo Inland Earthquake. In this drill, officials from relevant government ministries and agencies, as well as from Tokyo, Saitama, Chiba, and Kanagawa Prefectures, participated in a discussion-type exercise to discuss issues requiring cooperation with related organizations for COVID-19 countermeasures in the exercise utilizing online tools.

Extreme Disaster Management Headquarters Operation Drill assuming Nankai Trough Earthquake

Extreme Disaster Management Headquarters Operation Drill assuming Tokyo Inland Earthquake

In the regional block drills, in cooperation with prefectures that are considered to be affected, On-site Extreme Disaster Management Headquarters drills were conducted on the assumption of a Nankai Trough Earthquake. In the Shikoku and Kyushu regions, officials assembled in December 2021, and conducted an on-site situation-setting drill simulating an actual disaster and a discussion-type drill to discuss issues that require collaboration among related organizations in the event of a disaster. In the Kinki and Chubu regions, due to the rapid spread of COVID-19, the participants did not gather on-site, but only conducted an online discussion-type drill in February 2022.

State Minister of the Cabinet Office, Ohno, participating online in On-site Extreme Disaster Management Headquarters drill (Shikoku)

On-site Extreme Disaster Management Headquarters drill assuming a Nankai Trough Earthquake (Kyushu)

These drills improved the knowledge and skills of relevant government officials and strengthened cooperation with related agencies, and based on these drills, the effectiveness of the emergency countermeasures stipulated in the various plans and manuals was verified.

1-4 Measures for Tsunami Disaster Prevention

November 5 is "Tsunami Disaster Prevention Day" derived from the story of the "Fire of Rice Sheaves" and "World Tsunami Awareness Day" established by the United Nations General Assembly. Because tsunamis are disasters where we can considerably reduce human casualties through immediate and appropriate evacuation, it

is particularly important to understand the characteristics of tsunamis and appropriate responses, and to be able to act appropriately. Therefore, on and around November 5, the Cabinet Office, related ministries and agencies, local governments, private companies, and the like take actions to raise awareness of tsunami disaster prevention in various places.

(1) Evacuation Drills against Tsunami

During the period before and after "Tsunami Disaster Prevention Day (November 5)" in FY2021, disaster drills against earthquake and tsunami were held nationwide by the national government (10 ministries and agencies), local governments (123 organizations), and private companies (48 organizations) with approximately 1.14 million people participating.

Mainly during the period mentioned above, the Cabinet Office collaborated with local governments and provided support for planning and implementation of drills with the participation of residents in nine places nationwide (Kikonai Town and Shikabe Town, Hokkaido Prefecture; Iwaki City, Fukushima Prefecture; Tateyama City and Futtsu City, Chiba Prefecture; Kochi City and Shimanto Town, Kochi Prefecture; Buzen City, Fukuoka Prefecture; and Shibushi City, Kagoshima Prefecture). These drills included drills to protect oneself in the event of an earthquake (shakeout drills) and drills to evacuate to the nearest shelter after the shaking subsided (evacuation drills) as well as drills to confirm safety, set up shelters and operate them according to the local disaster management plan. In total, 25 drills, study sessions and lectures were held, for instance, study sessions on evacuation planning and lectures which took damage estimation and geographical conditions into account, with approximately 3,000 residents participating as a whole.

Drill to protect oneself
(Shikabe Town, Hokkaido Prefecture)

Evacuation drill to higher ground
(Shibushi City, Kagoshima Prefecture)

Lecture on disaster management
(Tateyama City, Chiba Prefecture)

Study session on evacuation planning
(Iwaki City, Fukushima Prefecture)

(2) Activities to Raise Public Awareness

1. Activities to raise public awareness on tsunami disaster

In order to publicize "Tsunami Disaster Prevention Day" and "World Tsunami Awareness Day" and promote awareness and activities of disaster prevention against tsunami, efforts to raise public awareness through various media, for instance, posters at nationwide companies and local governments, and cash register screens at major convenience stores and supermarkets in FY 2021 were taken.

2. "Tsunami Disaster Prevention Day" Special Event in FY2021

On November 5, "Tsunami Disaster Prevention Day" and "World Tsunami Awareness Day", the Cabinet Office, National Council for Promoting Disaster Risk Reduction, and Council for Promoting Disaster Risk Reduction organized "Tsunami Disaster Prevention Day" Special Event in Kamaishi City, Iwate Prefecture through both on-site and online.

At the event, Minister of State for Disaster Management, Ninoyu, first spoke about the significance of holding this event in Kamaishi City on the 10th anniversary of The Great East Japan Earthquake in order not to forget the lessons from the tsunami disaster.

Next, in the keynote speech of the first part, Mr. Imamura, Director of International Research Institute of Disaster Science, Tohoku University, reviewed the experiences and lessons learned from the Great East Japan Earthquake 10 years after its occurrence, and explained how to respond to new risks such as climate change and COVID-19 in the current society where uncertain incidents occur.

In the panel discussion of the second part whose theme was "Toward 'Tsunami Disaster Management in which No One is Sacrificed'", five panelists who worked on disaster management against tsunami from various entities and perspectives, including local governments, researchers, NPOs, and neighborhood associations, introduced their activities and exchanged opinions.

Archived movies of the event is available on the "special website for disaster prevention against tsunami."

(Reference: https://tsunamibousai.jp/)

Opening remarks by Minister of State for Disaster Management, Ninoyu (video message)

Scenes from "Tsunami Disaster Prevention Day" Special Event

1-5 Resident-led Initiatives (Promotion of Community Disaster Management Plans)

The Community Disaster Management Planning System was established following the amendment of the "Basic Act on Disaster Management" in 2013 to promote voluntary disaster risk reduction activities through self-help and mutual support and to enhance regional disaster resilience as community residents (including business operators in the area) and municipalities cooperate each other. This allows community residents to prepare Community Disaster Management Plan (draft) and make a proposal to the Municipal Disaster Management Council that the Community Disaster Management Plan be stipulated in the Municipal Disaster Management Plan.

Community Disaster Management Plans are designed to link mutual support and public support following discussions by various entities in the community, including residents, business establishments and welfare personnel to freely define the contents of the draft plan, which is then set in the Municipal Disaster Management Plan. The topic in the discussion covers local disaster risks, disaster risk reduction actions and activities during ordinal times and disasters. In addition to the content of the plan, the process of creating the plan, including repeated discussions among district residents and others, is also important for strengthening the power of mutual support.

As of April 1, 2021, the Community Disaster Management Plans were stipulated under the local disaster management plans in 2,030 districts from 140 cities, towns and villages in 37 prefectures, and the actions for developing the Community Disaster Management Plans have been taken in 5,181 districts from 310 cities, towns and villages in 47 prefectures. Eight years have passed since the system was established, and it is expected that Community Disaster Management Plans will become even more widespread (FIG. 1-5-1, FIG. 1-5-2).

FIG. 1-5-1 Status of Community Disaster Management Plan as Defined in Local Disaster Management Plans (as of April 1, 2021)

◆Reflected in the local disaster management plans:
37 prefectures, **140** municipalities, **2,030** districts
(316 districts with new plans reflected in FY 2020)

※ Surveyed: Municipalities
※ Total as of April 1, 2021
(updated as of April 1, 2022)

Prefecture Name	The number of municipalities	The number of districts
Hokkaido	9	39
Aomori Prefecture	0	0
Iwate Prefecture	4	32
Miyagi Prefecture	1	11
Akita Prefecture	2	16
Yamagata Prefecture	1	38
Fukushima Prefecture	2	3
Ibaraki Prefecture	6	82
Tochigi Prefecture	4	5
Gunma Prefecture	1	16
Saitama Prefecture	6	28
Chiba Prefecture	1	2
Tokyo	11	168
Kanagawa Prefecture	5	284
Niigata Prefecture	3	22
Toyama Prefecture	1	2
Ishikawa Prefecture	1	1
Fukui Prefecture	0	0
Yamanashi Prefecture	5	529
Nagano Prefecture	11	163
Gifu Prefecture	4	16
Shizuoka Prefecture	6	23
Aichi Prefecture	8	12
Mie Prefecture	3	14
Shiga Prefecture	0	0
Kyoto Prefecture	2	41
Osaka Prefecture	2	11
Hyogo Prefecture	3	133
Nara Prefecture	2	5
Wakayama Prefecture	0	0
Tottori Prefecture	1	4
Shimane Prefecture	0	0
Okayama Prefecture	3	3
Hiroshima Prefecture	0	0
Yamaguchi Prefecture	1	7
Tokushima Prefecture	0	0
Kagawa Prefecture	4	21
Ehime Prefecture	4	32
Kochi Prefecture	3	42
Fukuoka Prefecture	2	18
Saga Prefecture	0	0
Nagasaki Prefecture	1	9
Kumamoto Prefecture	6	158
Oita Prefecture	0	0
Miyazaki Prefecture	1	1
Kagoshima Prefecture	10	39
Okinawa Prefecture	0	0
Total	140	2,030

Source: Cabinet Office data

FIG. 1-5-2 Status of Activities Toward the Formulation of a Community Disaster Management Plan (as of April 1, 2021)

◆ Working toward the formulation of Community Disaster Management Plans (Note): **47** prefectures, **310** municipalities, **5,181** districts

(Note) Including those that have been proposed to municipalities but not yet reflected in the local disaster management plans (1,143 districts newly started activities in fiscal 2020)

※ Surveyed: Municipalities
※ Values as of April 1, 2021 (updated on April 1, 2022)

Prefecture Name	The number of municipalities	The number of districts
Hokkaido	8	67
Aomori Prefecture	3	59
Iwate Prefecture	6	36
Miyagi Prefecture	7	372
Akita Prefecture	2	2
Yamagata Prefecture	2	87
Fukushima Prefecture	7	24
Ibaraki Prefecture	8	30
Tochigi Prefecture	21	59
Gunma Prefecture	6	33
Saitama Prefecture	9	149
Chiba Prefecture	2	6
Tokyo	8	75
Kanagawa Prefecture	3	22
Niigata Prefecture	5	165
Toyama Prefecture	5	11
Ishikawa Prefecture	5	140
Fukui Prefecture	16	806
Yamanashi Prefecture	13	93
Nagano Prefecture	13	66
Gifu Prefecture	8	86
Shizuoka Prefecture	4	123
Aichi Prefecture	10	32
Mie Prefecture	10	79
Shiga Prefecture	7	170
Kyoto Prefecture	6	17
Osaka Prefecture	10	354
Hyogo Prefecture	12	372
Nara Prefecture	5	7
Wakayama Prefecture	1	1
Tottori Prefecture	3	10
Shimane Prefecture	4	18
Okayama Prefecture	6	101
Hiroshima Prefecture	4	120
Yamaguchi Prefecture	4	107
Tokushima Prefecture	4	16
Kagawa Prefecture	9	24
Ehime Prefecture	7	66
Kochi Prefecture	3	60
Fukuoka Prefecture	7	72
Saga Prefecture	1	2
Nagasaki Prefecture	2	177
Kumamoto Prefecture	10	369
Oita Prefecture	2	367
Miyazaki Prefecture	5	23
Kagoshima Prefecture	12	99
Okinawa Prefecture	5	7
Total	310	5,181

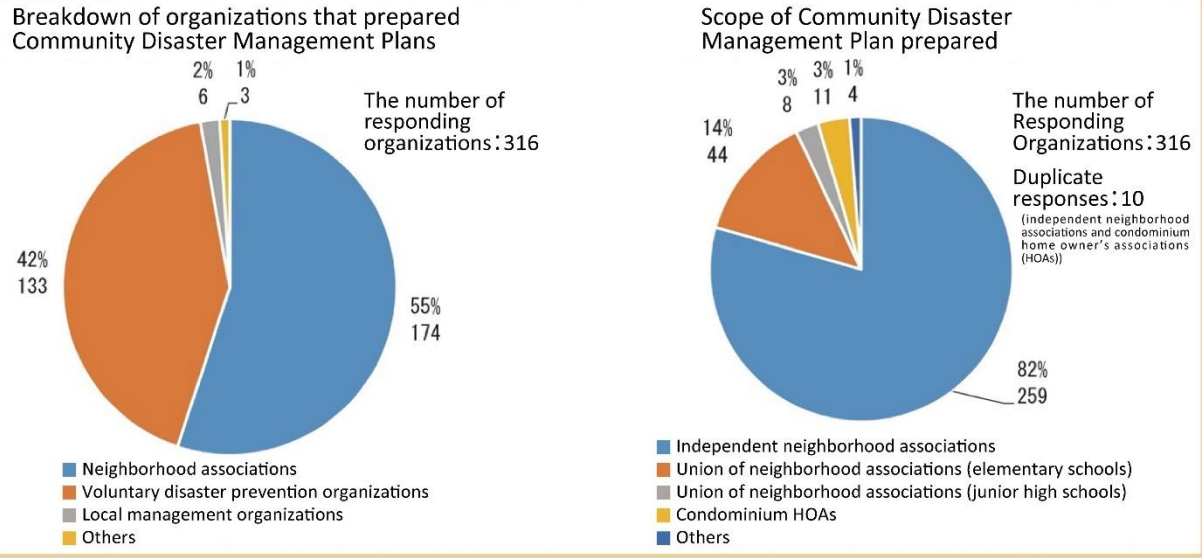
Source: Cabinet Office data

(1) Trends in Community Disaster Management Plans

The Cabinet Office analyzed case studies of 316 districts in 56 cities, towns and villages with Community Disaster Management Plans stipulated in FY2020 under the local disaster management plans, and found the following characteristics (FIG. 1-5-3 to FIG. 1-5-6).

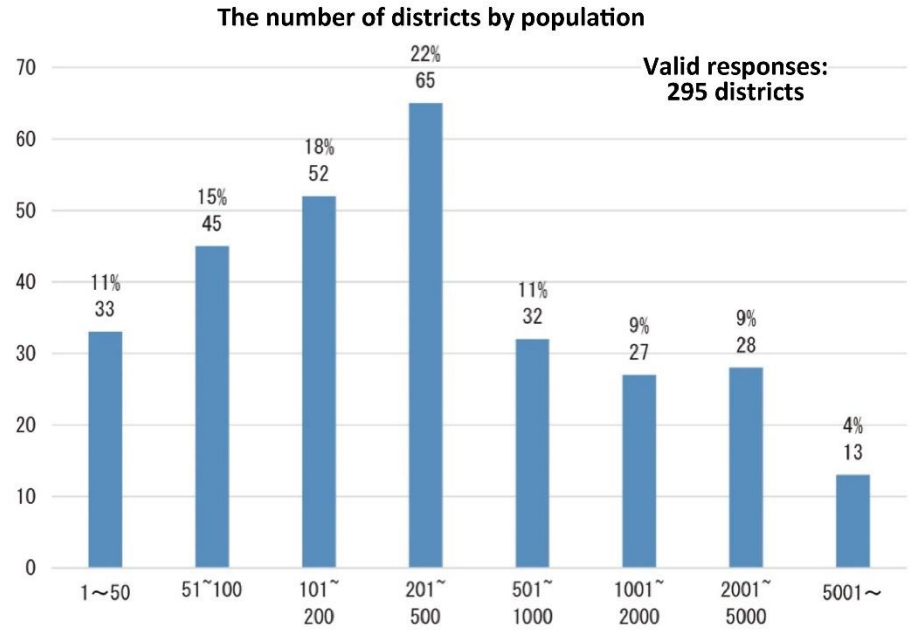
1. The Community Disaster Management Plans were prepared by the community association in 55%, and the voluntary disaster management organizations in 42% of all the respondents.
2. As for the scope managed by the plan, the single community association accounted for 82% of all the respondents' scopes, and the union of community associations which was nearly equivalent to the elementary school district 14%. Regarding the populations in each community, 66% respondents showed that there were 500 residents or less in the community, and 77% respondents indicated that 1,000 residents or less were in the community. However, there were also cases of communities with populations exceeding 20,000.
3. As for the trigger to establish the Community Disaster Management Plan, 86% of the respondents started to formulate the plan following the "encouragement by the administrations." This suggests that it is important for the administrations to encourage for the development of Community Disaster Management Plans.
4. In addition to the basic information such as "scope of community," "basic policy" and "disaster risks in the district," many communities included "ways of information collection and communication," "organization and structure in case of disaster," "stockpiling of relief supplies and materials," "support and guidance during evacuation" and "disaster drills" in their plan details.

FIG. 1-5-3 Organizations that Prepared Community Disaster Management Plans as Defined in Local Disaster Prevention Plans During FY 2020 and Scope of Said Plans



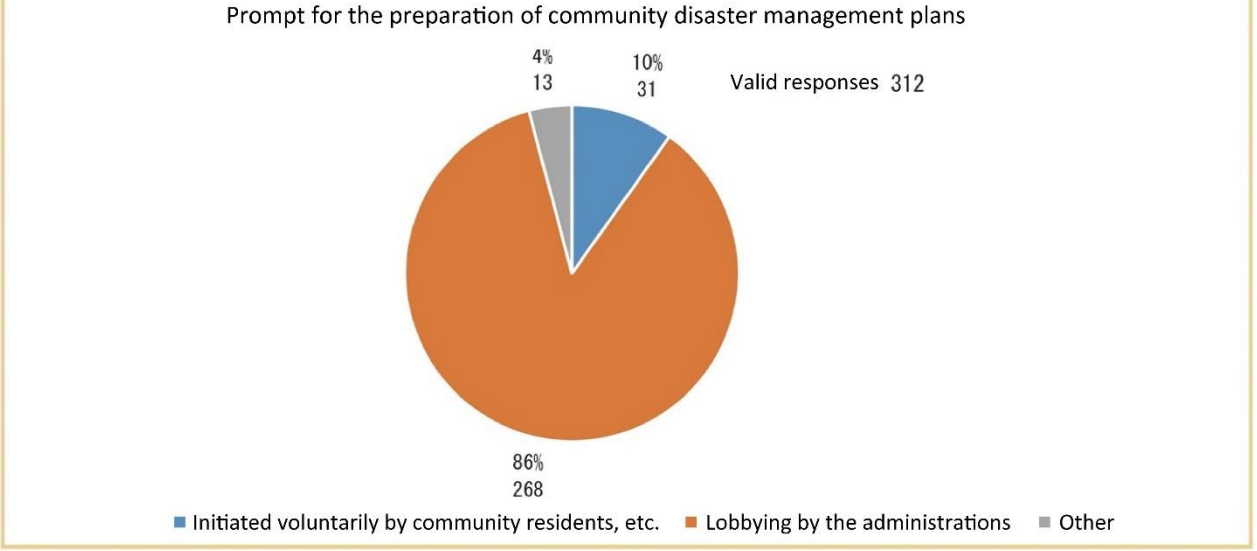
Source: Cabinet Office data

FIG. 1-5-4 The Number of Districts by Population in Community Disaster Management Plan Defined in Local Disaster Management Plans During FY2020



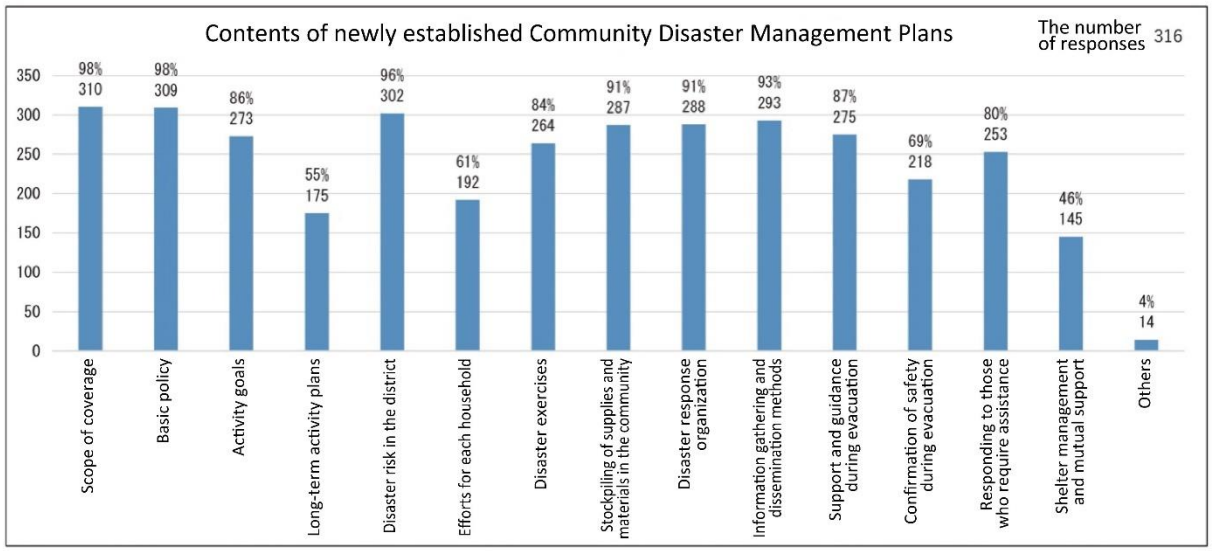
Source: Cabinet Office data

FIG. 1-5-5 Prompt for the Preparation of a Community Disaster Management Plan as Defined in Local Disaster Management Plans During FY2020



Source: Cabinet Office data

FIG. 1-5-6 Contents of Community Disaster Management Plans Established by Local Disaster Management Plans During FY 2020



Source: Cabinet Office data

(2) Efforts by the Cabinet Office

1. Holding the Community Disaster Management Plan Forum in 2022

The Cabinet Office held the "Community Disaster Management Plan Forum in 2022" on March 20, 2022 to promote the development of Community Disaster Management Plans by sharing examples and experiences of the plans. The Forum started with opening remarks by Minister of State for Disaster Management, Ninoyu, followed by a presentation by the Cabinet Office on the status of measures taken for Community Disaster Management Plans. Then, representatives from the Nagayama district of Asagiri Town, Kumamoto Prefecture; the Takahama district of Matsuyama City, Ehime Prefecture; and the Seiwadai district of Kawanishi City, Hyogo Prefecture

introduced their Community Disaster Management Plans under the theme of "Collaboration between Community Disaster Management Plans and Individual Evacuation Plans." Also, the representatives of three districts, Mihama District, Chatan Town, Okinawa Prefecture; Sophia Stasia Voluntary Disaster Prevention Association, Yokosuka Seaside New Town, Yokosuka City, Kanagawa Prefecture; and Wakasa Hyonosen District, Wakasa Town, Tottori Prefecture, introduced their respective efforts under the theme of "Community Disaster Management Plan Initiatives by Diverse Actors." Afterwards, the representatives had a lively exchange of ideas regarding each theme. An archived video of this forum is now available.
(Reference: https://www.bousai.go.jp/kyoiku/chikubousai/pdf/220411_forum.pdf)

2. National Conference on Promoting Disaster Risk Reduction (Bosai Kokutai) 2021 "Considering the Further Possibility of Community Disaster Management Plans" Session

At the "National Conference on Promoting Disaster Risk Reduction (Bosai Kokutai) 2021" on November 6 and 7, 2021, a session on Community Disaster Management Plans was held via livestream.

In this session, under the theme of "Considering the Further Possibilities of Community Disaster Management Plans," three speakers who were involved in Community Disaster Management Planning at the Toi district in Izu City, Shizuoka Prefecture, the Sapporo Clock Tower Building and the Council for Area Development and Management of Otemachi, Marunouchi, and Yurakucho, introduced and exchanged opinions on "planning that is not just about disaster risk reduction but also incorporates other perspectives" and "planning by entities other than residents." An archived video of this session is available.
(Reference: https://bosai-kokutai.jp/)

3. Basic Workshop on the Preparation of Community Disaster Management Plans

The "Basic Workshop on the Preparation of Community Disaster Management Plans" was held twice on December 24, 2021, and January 12, 2022, via livestream to promote the preparation and support for Community Disaster Management Plans by introducing different viewpoints and approaches to those who are involved in the preparation of such plans.

At the workshop, researchers, local government officials, and others involved in supporting the preparation of Community Disaster Management Plans shared their experiences and answered questions from the participants. Archived videos are now available for these two workshops.
(Reference: https://www.bousai.go.jp/kyoiku/chikubousai/pdf/220202_kenshu-movie.pdf)

4. Support for activities of Chikubo'z, a network of local governments promoting Community Disaster Management Plans

"Chikubo'z" is a platform for local government officials who are engaged in supporting the preparation of Community Disaster Management Plans to exchange information and share experiences on issues related to the preparation for such plans on a daily basis. On February 21 and March 1, 2022, " Chikubo'z Online Meetups" were held online for local government officials, mainly members of Chikubo'z, to exchange opinions and provide

consultation regarding support for Community Disaster Management Plan.

5. Updating the Community Disaster Management Plan Library

In order to promote activities for the formulation of Community Disaster Management Plans, a library which enables the users to see case studies by region or theme of Community Disaster Management Plans under the local disaster management plans was created and published on the website of the Cabinet Office in April 2019. This library was made for those who are planning to formulate Community Disaster Management Plans and those who are seeking further improvement of plans already formulated. The Cabinet Office is continuing to update and add information to this library.
(Reference: https://www.bousai.go.jp/kyoiku/chikubousai/chikubo/chikubo/index.html)

1-6 Environmental Improvement for Volunteer Activities

At the time of a disaster, volunteers, NPOs and various other organizations rush to the affected areas to provide detailed disaster support and play an important role. The Cabinet Office has been working to make environmental improvements to facilitate activities by volunteers and NPOs to support affected people. In recent years, it has become a well-established practice for various affected people supporting entities, such as government agencies, volunteers, NPOs and others, to collaborate, share information, and coordinate their activities in the event of a large-scale disaster.

(1) Promotion of collaboration among various affected people supporting entities such as governments, volunteers, NPOs and others

According to the "Survey on Collaboration and Coordination Among Various Affected People Supporting Entities FY2021" conducted by the Cabinet Office on April 1, 2022, all 42 of the surveyed prefectures have systems in place for information sharing and other forms of cooperation in the event of a disaster. However, although a coordination system is in place, the state of coordination varies from one prefecture to another. A survey found that the prefectures feel the roles of government agencies, volunteers, NPOs and others in disaster relief activities need to be organized, and that the roles of governments in particular are not well organized and understood within the governments.

(2) Disaster Risk Reduction and Volunteer Meeting

On February 6, 2022, the Cabinet Office held online the "Disaster Risk Reduction and Volunteer Meeting: Considering Volunteer Collaboration and Cooperation after the Noto Hanto Earthquake and the Earthquake Off the Coast of Chuetsu in Niigata Prefecture." In the first part, under the theme of "Looking back on the collaboration and cooperation of volunteer activities at that time," a panel discussion on the collaboration and cooperation efforts made in the areas affected after the "Noto Hanto Earthquake" and the "Earthquake Off the Coast of Chuetsu in Niigata Prefecture," which occurred 15 years ago, was delivered by people who made efforts in Ishikawa and Niigata Prefectures respectively.

In the second part, under the theme of "Collaboration and Cooperation in Volunteer Activities after the Mid

Niigata Prefecture Earthquake in 2004 and the Earthquake Off the Coast of Chuetsu in Niigata Prefecture in 2007," a panel discussion on what kind of collaboration and cooperation is taking place in Niigata Prefecture after the Mid Niigata Prefecture Earthquake in 2004 and the Earthquake Off the Coast of Chuetsu in Niigata Prefecture in 2007, and any current nationwide collaboration or cooperation efforts was held among the governments, the Council of Social Welfare and NPOs.

Disaster Risk Reduction and Volunteer Meeting

Part 1

Part 2

(3) Training sessions to promote cooperation among various affected people supporting entities such as governments, volunteers, and NPOs

In order to ensure smooth collaboration and cooperation among governments, volunteers and NPOs in the event of a disaster, it is necessary to promote exchange and mutual understanding through training and other means from ordinary times. The Cabinet Office holds training sessions where governments, the Council of Social Welfare and other personnel from disaster volunteer centers and NPOs meet to discuss various issues in collaboration and cooperation, and deepen mutual understanding.

In FY2021, based on the current situation in which the construction of collaborative systems has been progressing in various parts of Japan, the "Training Course on Promoting Collaboration among Various Affected People Supporting Entities" was held with three levels of participants. The "Basic Training" was held as a livestream and attended by approximately 250 participants from 34 prefectures. The "Building Collaborative Relationships Training" was attended by three prefectures, with approximately 20 participants from the governments, the Council of Social Welfare, NPOs and others at each site (some participants participated online due to COVID-19 countermeasures). The "Training Course on Core Human Resource Development " was attended by three prefectures and consisted of three training sessions. This training was attended by 20 participants from the governments, the Council of Social Welfare, NPOs and others at each site (some participants participated online due to COVID-19 countermeasures). The purpose of the training was to understand the necessity of collaboration and cooperation among various affected people supporting entities such as governments, volunteers, NPOs and others, to build a system of collaboration and cooperation within the community, and to revitalize their activities so that they can provide smooth support to affected people in the event of a disaster. During the training, local governments, the Council of Social Welfare, NPOs (including coordinating organizations) and others that had already worked to build a system of collaboration and cooperation gave lectures on the necessity of collaboration and cooperation among various affected people supporting entities in times of disaster. In the "Building

Collaborative Relationships Training" and "Training Course on Core Human Resource Development," exercises were conducted to further build collaborative and cooperative systems according to the state of participating local governments, and opinions were exchanged among local governments who participated in.

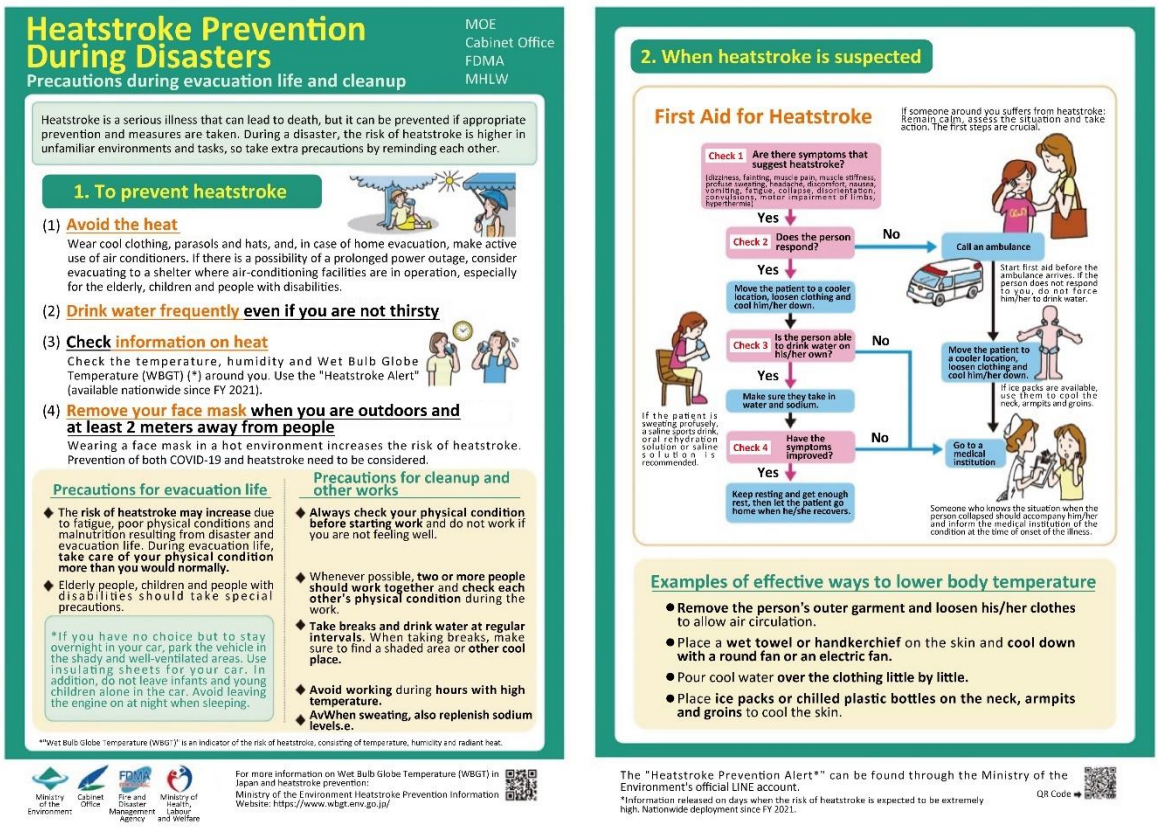
Training Course on Promoting Collaboration among Various Affected People Supporting Entities (Building Collaborative Relationships Training)

Training Course on Promoting Collaboration among Various Affected People Supporting Entities (Training Course on Core Human Resource)

1-7 Heatstroke Prevention in Evacuation Life and Cleanup Work during Disasters

When natural disasters occur during the summer, infrastructure failures and shortages of relief supplies immediately after the disaster may increase the risk of heatstroke during evacuation life and cleanup operations. The Ministry of the Environment, the Cabinet Office, the Fire and Disaster Management Agency, the Ministry of Health, Labour and Welfare, and the Japan Meteorological Agency collaborated to prepare a leaflet on measures against heatstroke in evacuation life and cleanup operations during disasters, which was published in March 2021, and sent out to local governments in June of the same year through relevant government ministries and agencies (FIG. 1-7-1). The leaflets were delivered again to affected local governments where disasters occurred.

FIG. 1-7-1 Leaflet for Heatstroke Prevention During Disaster



Source: Ministry of the Environment website
(Reference: https://www.wbgt.env.go.jp/pdf/20210315_heatillness_leaflet_saigai.pdf)

1-8 Establishment of a Business Continuity System

(1) Establishment of a Business Continuity System for the National Government's Ministries and Agencies

In the past, the national government's ministries and agencies, which are the administrative organs of the nation, have formulated business continuity plans for each of them, and have promoted initiatives for business continuity from the perspective of ensuring that pivotal functions of the capital continue to function in the event of a Tokyo Inland Earthquake or other disaster. In March 2014, the Cabinet approved the "Business Continuity Plan of the Central Government (Measures against a Tokyo Inland Earthquake)" (hereinafter referred to as the "Government Business Continuity Plan") based on the "Act on Special Measures against Tokyo Inland Earthquake (Act No. 88 of 2013), where the national government's ministries and agencies reevaluated their business continuity plans that they had in place up to that point in time.

Based on the Government Business Continuity Plan, the Cabinet Office conducts annual evaluations with experts and other knowledgeable persons and conducts drills in cooperation with ministries and agencies for the purpose of improving the effectiveness of their business continuity plans. The national government's ministries and agencies use this in order to improve the effectiveness of their business continuity plans as necessary.

In April 2016, the Cabinet Office formulated the "Business Continuity Plan Guidelines for the National Government's Ministries and Agencies" (hereinafter referred to as the "Guidelines" in this section) (second edition) to support the implementation and review of ministry and agency business continuity plans. And in response to recent changes in social conditions and newly identified issues, the Cabinet Office reviewed the Guidelines and

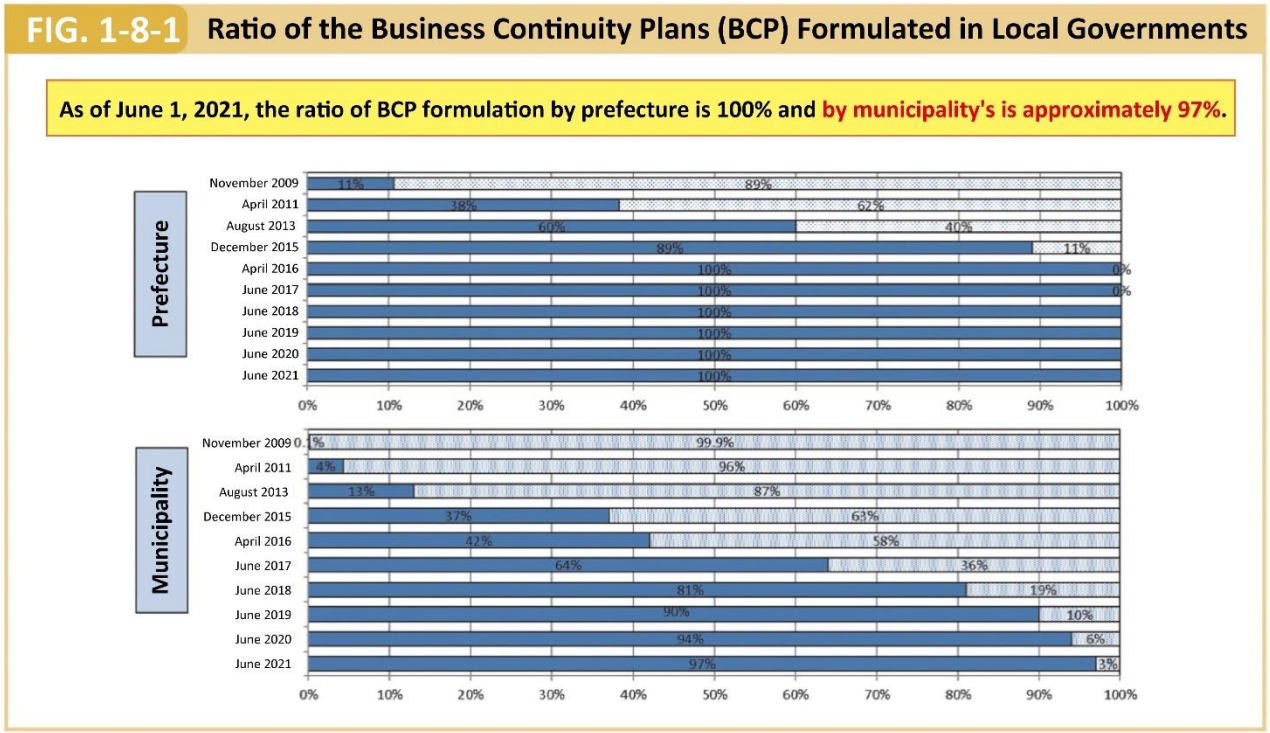
formulated their third edition in April 2022.

Through these efforts, the government intends to establish a business continuity system that will enable smooth continuation of business operations even in the event of a Tokyo Inland Earthquake.

(2) Establishment of a Business Continuity System for Local Governments

Local governments must secure administrative functions and continue operations even in the event of a disaster. Therefore, it is extremely important for local governments to formulate a business continuity plan and establish a business continuity system. The percentage of local governments with business continuity plans in place reached 100% of all prefectures in FY2016, and approximately 97% of all municipalities as of June 2021, up 3percentage points from the previous year (FIG. 1-8-1).

FIG. 1-8-1 Ratio of the Business Continuity Plans (BCP) Formulated in Local Governments



Source: November 2009: Survey on the Status of Business Continuity Systems in the Event of an Earthquake (survey by the Cabinet Office Disaster Prevention and Fire and Disaster Management Agency, Ministry of Internal Affairs and Communications)

August 2013: Preliminary Figures for the Rate of BCP Formulation for Matural Disasters such as Large-Scale Earthquakes (Fire and Disaster Management Agency survey, Ministry of Internal Affairs and Communications)

December 2015: Survey on the "Status of Formulation of Business Continuity Plans" and "Status of Formulation of Specific Standards for Issuing Evacuation Recommendations" in Local Governments (Fire and Disaster Management Agency survey, Ministry of Internal Affairs and Communications)

April 2016, June 2017, June 2018, June 2019, June 2020 and June 2021: Results of a Survey on the Status of Business Continuity Planning in Local Governments (Fire and Disaster Management Agency survey, Ministry of Internal Affairs and Communications)

In order to support municipalities in formulating business continuity plans, the Cabinet Office developed the "Business Continuity Plan Formulation Guidelines for Municipalities" in May 2015 so that even small municipalities can easily formulate business continuity plans. In February 2016, based on past disaster examples, the "Guide and Explanation for Business Continuity of Local Governments in the Event of an Earthquake" was revised as the "Guidelines for Business Continuity of Local Governments in the Event of a Major Disaster," which was then sent to local governments.

In the event of a large-scale disaster, it is difficult for the affected municipalities to handle the enormous amount of disaster response work on their own. Therefore, in establishing a business continuity system, local governments

must have a business continuity plan as well as a support receiving system to quickly and accurately receive support from the national government, local governments, private companies, volunteer groups, and others, to share information, and make various adjustments. In April 2020, the Cabinet Office formulated the "Guide to Formulate Aid Acceptance Plans Regarding the Receipt of Human Support for Municipalities" to help municipalities with concerns about their disaster management systems, such as the lack of full-time disaster management staff, and to help them understand how to develop a support receiving system and prepare a support receiving plan with as little burden as possible. And in June 2021, a revised and expanded version of this guide was published.

Furthermore, to support the establishment of a business continuity system in local governments, the Cabinet Office and the Fire and Disaster Management Agency have jointly hosted a training seminar for officials in charge of disaster management in municipalities every year since FY2015.

Through these efforts, in addition to the formulation of business continuity plans, we will continue to support its establishment in local governments in cooperation with the Ministry of Internal Affairs and Communications and the Fire and Disaster Management Agency, including the six critical elements* in the formulated business continuity plans and the development of support receiving systems.

*Six critical elements (Source: Cabinet Office, "Guidelines for Business Continuity of Local Governments in the Event of a Major Disaster"):

<1> Clear order of succession and staff assembly system in absence of the head of organization

<2> Identification of alternative government buildings in the event that the main government building is no longer available

<3> Securing electricity, water, food, etc. (for staff to carry out their duties)

<4> Ensure a variety of communication means that are easy to access even in times of disaster

<5> Backup of important administrative data

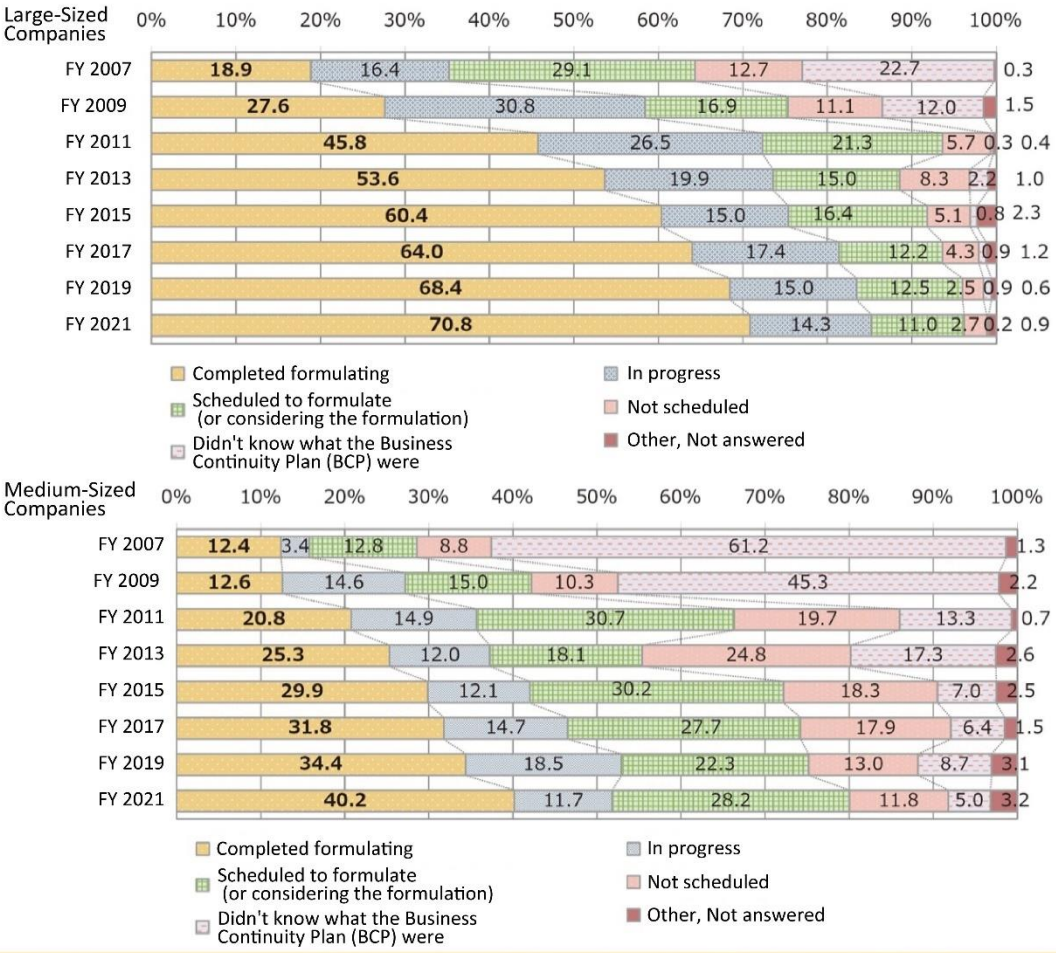
<6> Organization of priority tasks in case of emergency

(3) State of Business Continuity Systems of Private Companies

In 2005, the Cabinet Office established the "Business Continuity Guidelines" to promote the formulation of business continuity plans (BCP) by companies, and in 2013, the Guidelines were revised to incorporate the concept of business continuity management (BCM), taking into account changes in social conditions and other factors. In April 2021, a revised version of the "Business Continuity Guidelines - Strategies and Responses to Overcome All Types of Crisis Incidents" was published to promote the spread of the guidelines and to encourage the formulation of BCPs in accordance with the guidelines.

The Cabinet Office has conducted a fact-finding survey on the private sector's initiatives, including the rate of BCP formulation, on a biannual basis. According to the "Survey on Business Continuity and Disaster Risk Reduction Efforts of Corporations," conducted in January 2022, there was an observed increase of the formulation of a BCP where 70.8% of large companies (68.4% in the previous survey conducted in January 2020) and 40.2% of medium-sized companies (34.4% in the previous survey) had formulated a BCP. Including those in the process of formulating a BCP, about 85% of large companies and 52% of medium-sized companies have it (FIG. 1-8-2, FIG. 1-8-3).

FIG. 1-8-2 Progress of BCP Formulation in Large and Medium-Sized Companies



Source: Cabinet Office using "The Fact-Finding Survey for Business Continuity and Disaster Management in Companies in FY 2021."

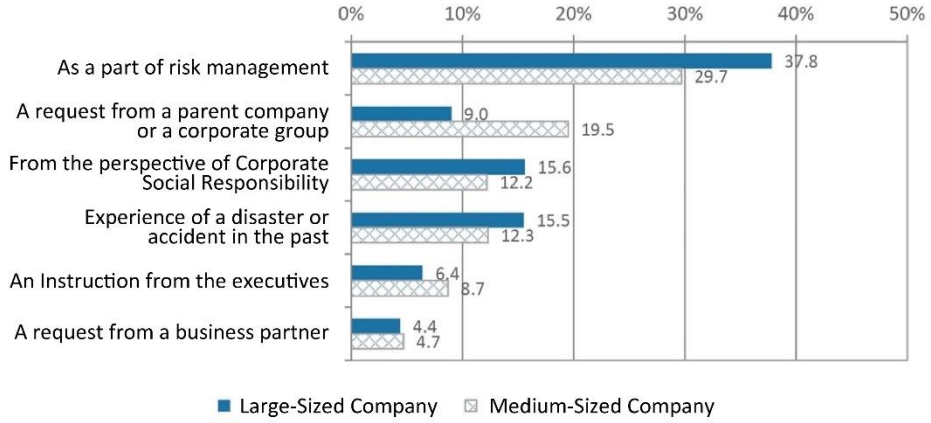
FIG. 1-8-3 Questionnaire Results of Company Survey (FY2021)

			Total	Large-Sized Companies (Capital stock of more than one billion yen and have over 50 regular employees)	Medium-Sized Companies (Capital stock of under one billion yen and have over 50 regular employees)	Other Companies (Capital stock over 100 million yen, excluding large and medium-sized companies)
Total		The Number of Companies	1,839	608	607	624
		BCP Formulation Rate	**45.7%**	**70.8%**	**40.2%**	**41.9%**
Experience of Being Affected by Disaster	Have Experience	The Number of Companies	1058	421	355	282
		BCP Formulation Rate	**47.7%**	**70.9%**	**38.9%**	**44.2%**
	No Experience	The Number of Companies	772	185	247	340
		BCP Formulation Rate	**43.6%**	**70.2%**	**41.2%**	**40.5%**

Source: Cabinet Office using "The Fact-Finding Survey for Business Continuity and Disaster Management in Companies in FY 2021."

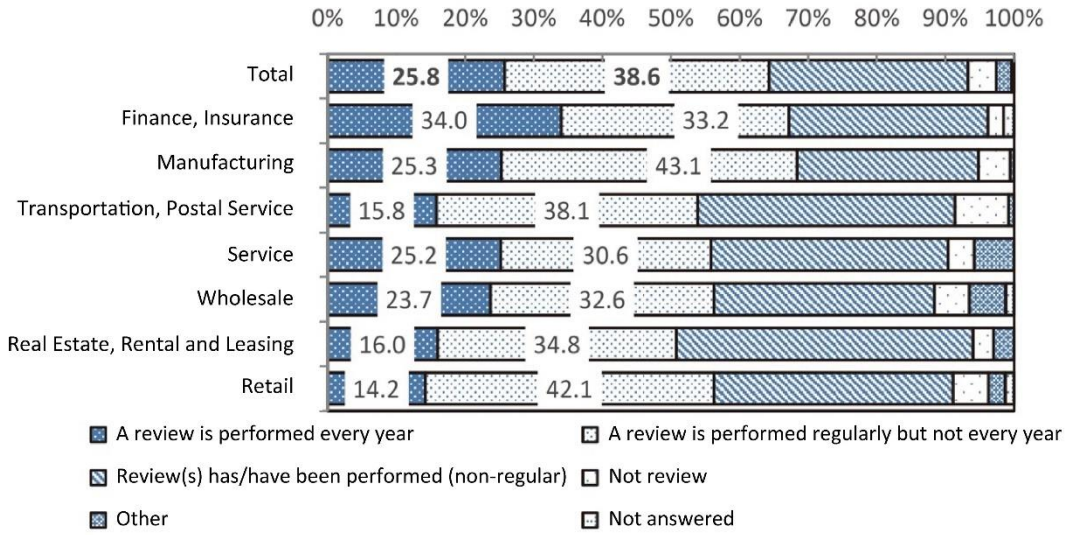
In addition to the percentage of respondents who have a BCP in place, the main findings of the survey are as follows (FIG. 1-8-4 to FIG. 1-8-6).

FIG. 1-8-4 The Most Important Reasons for Formulating or Scheduling to Formulate a BCP



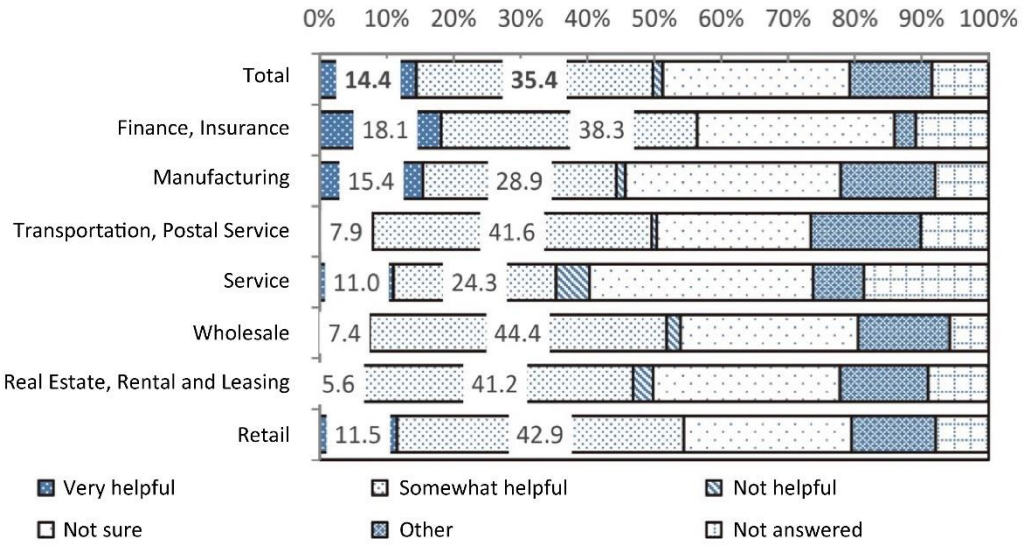
n: 585 Large-Sized Companies, 492 Medium-Sized Companies
Target: Companies that formulated a Business Continuity Plan (BCP) or are in process or scheduled to formulate a plan. The top answers are extracted.
Source: Cabinet Office using "The Fact-Finding Survey for Business Continuity and Disaster Management in Companies in FY 2021."

FIG. 1-8-5 Responses Regarding BCP Review



n: 954
Target: Companies that completed the formulation of Business Continuity Plans (BCP). This chart only shows industries that have the most answers.
Source: Cabinet Office using "The Fact-Finding Survey for Business Continuity and Disaster Management in Companies in FY 2021."

FIG. 1-8-6 Responses Regarding Whether Having a BCP was Helpful during a Disaster



n: 954
Target: Companies that completed the formulation of Business Continuity Plan (BCP). This chart only shows industries with the most responses.
Source: Cabinet Office using "The Fact-Finding Survey for Business Continuity and Disaster Management in Companies in FY 2021."

1-9 Collaboration with Industry

In order to improve the disaster risk management capacity of society as a whole, there is a need for business operators to improve their advance preparedness for large-scale natural disasters. For this purpose, the "Disaster Risk Management Economic Consortium" was established on March 23, 2018, as a forum for business operators to exchange views and ideas (FIG. 1-9-1).

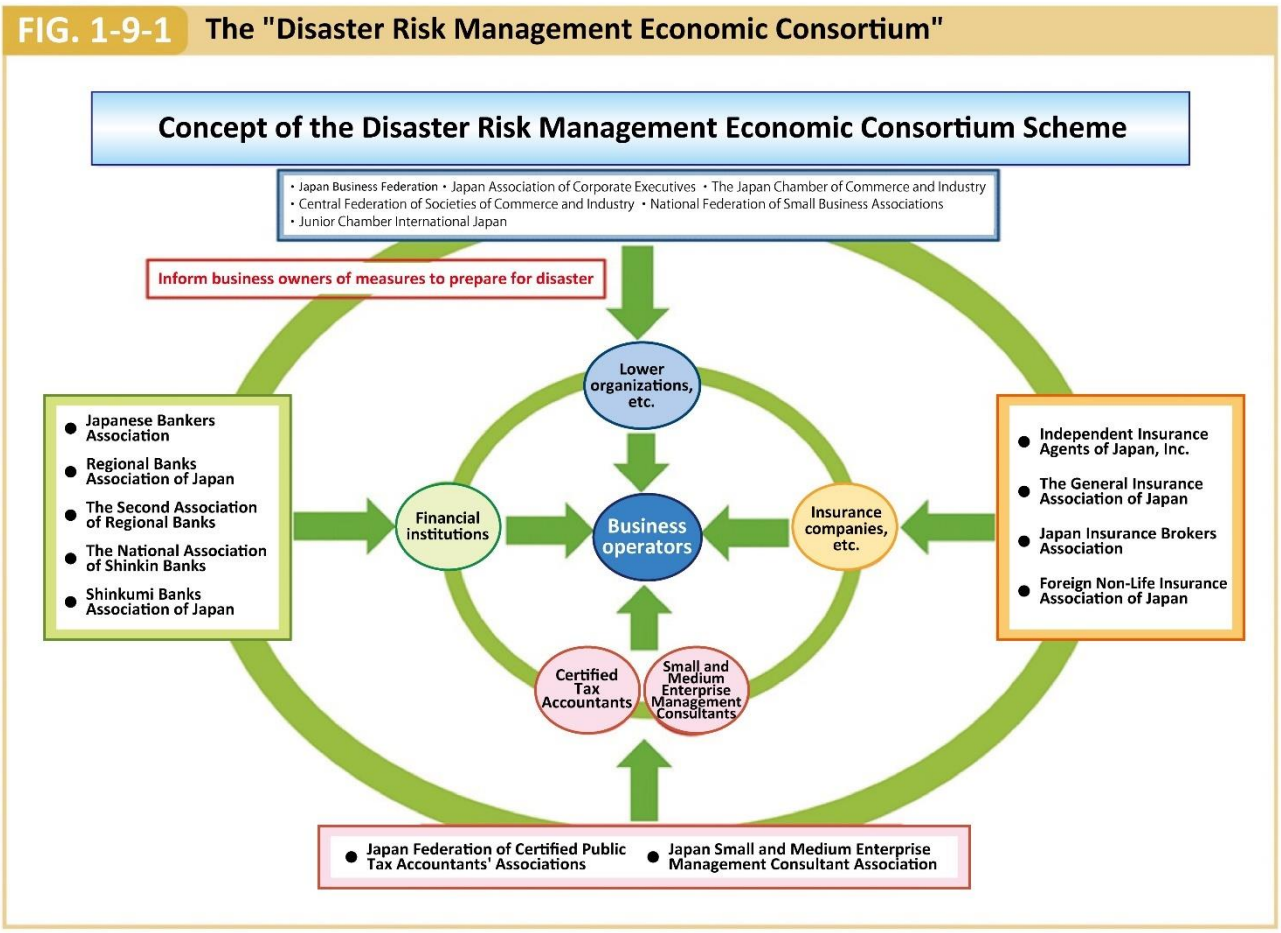
The Cabinet Office provides appropriate support, including information exchange so that the public and private sectors can cooperatively promote such industry measures.

(Reference: https://www.bousai.go.jp/kyoiku/consortium/index.html)

The "Disaster Risk Management Economic Consortium" has formulated the "Principles of Disaster Management Economic Action" (FIG. 1-9-2) as a common philosophy for business operators to prepare for disasters in advance.

In FY2021, members of 17 organizations were mainly engaged in activities for spreading and raising awareness of these principles to their respective subsidiary organizations. In addition to the exchange of opinions among the members, three administrative subcommittee meetings were held, including various government agencies providing information on disaster risk reduction and lectures by experts.

FIG. 1-9-1 The "Disaster Risk Management Economic Consortium"



Source: Cabinet Office data

FIG. 1-9-2 The "Principles of Disaster Management Economic Action"

Principles of Disaster Management Economic Action

March 23, 2018
Disaster Risk Management
Economic Consortium

Preamble

Due to its natural conditions, Japan is prone to disasters. Therefore, it is important for business operators to take actions such as making decisions based on the recognition that disaster risk management is fundamental for their business management. Since public support is limited especially during a large-scale disaster, it is key for them to make advanced preparations of (1) to (4) below through self-help and mutual support.

(1) For business operators to recognize and understand their disaster risks properly.

(2) Depending on their disaster risks, for business operators to take disaster management measures by effective disaster risk management combining risk control (seismic reinforcement, BCP, etc.) and risk finance (insurance, loan, cash preparation, etc.)

(3) So that business operators take action proactively, to improve the awareness by enhancing disaster management education for their executives.

(4) For business operators to take disaster management measures by self-help and mutual support, collaborating and communicating with relevant organizations that are essential for their business, such as business partners, financial institutions and trade associations.

Members of the Disaster Risk Management Economic Consortium should respect the Principles of Disaster Management Economic Action in their activities so that business operators' preparations through self-help and mutual support will improve the disaster risk management capacity of the society as a whole.

Principles of Disaster Management Economic Action

1. For the Members of the Disaster Risk Management Economic Consortium to promote measures to achieve (1) to (4) as written in the preamble.
2. By sharing obtained information with the Disaster Risk Management Economic Consortium and giving back to business operators as much as possible, for members of the Consortium to develop the disaster risk management capacity of the society as a whole.
3. For members of the Disaster Risk Management Economic Consortium to aim for the spreading of knowledge and education to improve business operators' disaster risk management capacity through their creativity that makes the best use of the strengths of their industries.

End of the document

Source: Cabinet Office website
(Reference: https://www.bousai.go.jp/kyoiku/consortium/index.html)

1-10 Initiatives in the Academic Field

In Japan, research is being performed on disaster risk reduction in various fields, including natural phenomena such as earthquakes, tsunamis, volcanoes and heavy rain; structures such as civil engineering and architecture; medicine and hygiene such as emergency medicine and environmental sanitation; human activities such as the economy, geography, and history; and other various fields such as information and energy. In the wake of the Great East Japan Earthquake, there was a recognition that research on disaster prevention and mitigation from a comprehensive and multidisciplinary perspective in these fields is essential. And it was also recognized that the promotion of information sharing and exchange with different disciplines beyond the boundaries of specialized fields and engagement in interdisciplinary collaboration is needed. To this end, after discussions at the Science Council of Japan and related academic societies, the “Japan Academic Network for Disaster Reduction” was established in January 2016 as a network of academic societies involved in disaster prevention, mitigation and recovery, bringing together 47 academic societies. As of the end of February 2022, 62 academic societies (59 groups of regular members and 3 associations of special members) participate in this academic network.

In August 2021, the academic network held the third "Liaison Conference on Disaster Management among the Science Council of Japan, Academic Societies, and Government Ministries and Agencies" under the theme of "Preparing for Intensifying Meteorological Disasters," at which both the national government's ministries and agencies and academic circles presented their respective efforts. In November 2021, the 12th Academic Network for Disaster Reduction Symposium, "Education for Disaster Risk Reduction and Disaster Culture," a forum sponsored by the Science Council of Japan was held online. And the Special Symposium on "Diverse Perspectives on Education for Disaster Risk Reduction and Disaster Culture - 10 years after the Great East Japan Earthquake -," hosted by the Japan Academic Network for Disaster Reduction, was also conducted online. Based on the experiences and education during the 10 years after the Great East Japan Earthquake, presentations were made on future measures for education for disaster risk reduction and disaster culture.

The 3rd "Liaison Conference on Disaster Management among the Science Council of Japan, Academic Societies, and Government Ministries and Agencies" commemorative photo

1-11 Strengthening Disaster Response Efforts from Gender Equality Perspectives

Large-scale disasters threaten the lives of all people. While women account for 51.4% of the population (Population Estimates, the Ministry of Internal Affairs and Communications, as of August 1, 2021), it is essential to sufficiently take into account the differences in the impact of disasters on women and men when implementing a disaster response and disaster risk reduction and for the realization of a resilient society. Based on this recognition, the government has been promoting disaster risk reduction and recovery efforts from a gender equality perspective in accordance with the Fifth Basic Plan for Gender Equality (approved by the Cabinet on December 25, 2020) * and the Basic Disaster Management Plan.

In the 2021 revision of the Basic Disaster Management Plan, some new provisions were included. One new provision is that local governments should work to increase the percentage of women on Local Disaster Management Councils. The plan also includes a new provision for municipalities to prevent sexual violence and domestic violence in shelters. On the national level as well, the number of women on the National Disaster

Management Council (excluding cabinet ministers) went up from one to three.

In addition, " Women's Perspectives to Strengthening Disaster Response Capabilities - Guidelines for disaster preparedness and recovery from the perspective of gender equality -" (prepared in May 2020, hereinafter referred to as the "Guidelines" in this section) summarizes the issues to be addressed at the stages of preparation during normal time, initial response, life in shelters, and recovery and reconstruction, for local governments to refer to when promoting disaster response efforts from the gender perspective. In May 2021, the "Practical Learning Program" was developed to further promote awareness of and thoroughly utilize the Guidelines. Itis designed to help local government officials better understand the content of the guidelines and plan and implement measures for disaster response from the gender perspective. And it also provides lectures and video materials for use at various opportunities such as training and events.

(Reference: https://www.gender.go.jp/policy/saigai/program/index.html)

In order to incorporate gender equality into disaster response, the Director-General of Gender Equality Bureau of the Cabinet Office was appointed* for the first time as a member of the Authorized Disaster Management Headquarters for the Heavy Rain from July 1 of 2021, and the Authorized Disaster Management Headquarters for the Heavy Rain in August of 2021, and attended these meetings. In addition, when a sediment disaster (landslide disaster) occurred in Atami City, Shizuoka Prefecture in July, the bureau dispatched its staff to the site to check on the situation at shelters and provide disaster response form a gender perspective. Furthermore, the "Mutual Support Network for Gender Equality Promotion Centers at the Time of Disaster" has begun operation. This is in order to "promote mutual support among centers for promotion of gender equality by utilizing the mutual support system operated by the National Council of Women's Centers so that centers for promotion of gender equality can play an effective role in times of disaster," as stated in the Fifth Basic Plan for Gender Equality.

(Reference: https://saigai-network.j-kaikan.jp/)

*The Director-General of Gender Equality Bureau of the Cabinet Office was appointed as a member of the government's disaster management headquarters for the first time in case of the Authorized Disaster Management Headquarters for the Heavy Rainfall from July 1 of 2021.

Recognizing that the private sector is indispensable in disaster response as well as the government, the Cabinet Office is also working to strengthen cooperation between the government and the private sector, for example, by compiling a collection of case studies and know-how on how women can work as disaster management leaders in communities. We will continue to work for the active engagement of women in the decision-making process of disaster risk reduction and recovery and in disaster management, and for disaster response from a gender equality perspective to spread through all regions of Japan.

*Main measures in the Fifth Basic Plan for Gender Equality:

- Promote the government and local governments to lead disaster risk reduction and recovery efforts from a gender perspective through closer collaboration and cooperation between disaster/ risk management departments and gender equality departments from the normal time.
- Request each prefecture to promote increase the engagement of women in Prefectural Disaster Management Councils with regard to the percentage of female members of such councils. In addition,

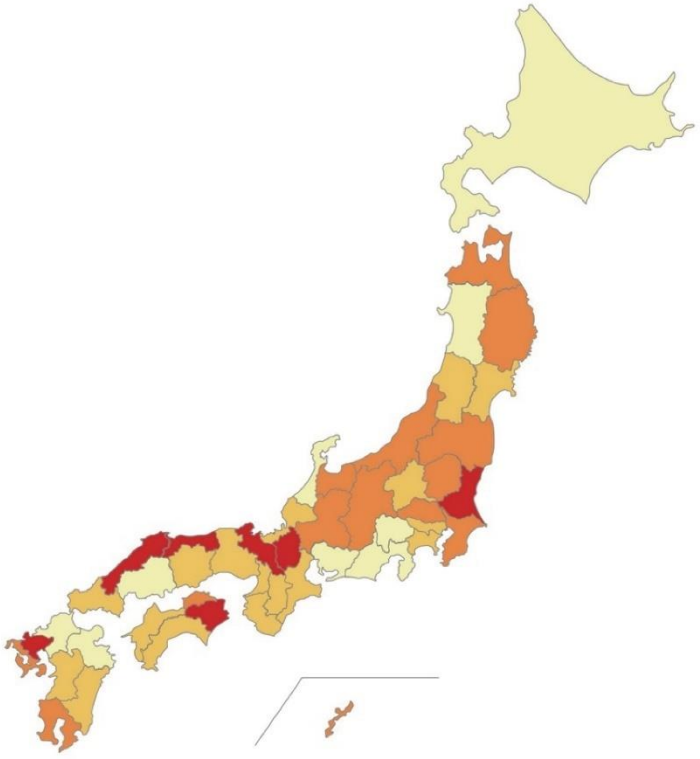
in order to quickly eliminate the number of Municipal Disaster Management Councils without female members and to promote to increase the ratio of female council members, collaborate with prefectures to develop good practices in municipalities where women are actively appointed to these councils. (FIG. 1.11-1, FIG. 1.11-2)

- Encourage local governments to assign female and gender equality staff to the local Disaster Management Headquarters and promote understanding of a gender perspective among male members of the headquarters from normal time.
- Follow up and "visualize" the state of efforts of gender equality in disaster risk reduction by local governments based on the guidelines.

(Reference: https://www.gender.go.jp/about_danjo/basic_plans/5th/pdf/2-08.pdf)

FIG. 1-11-1 Performance Targets for Prefectural and Municipal Disaster Management Councils under the Fifth Basic Plan for Gender Equality

Prefecture	The total number of committee members (persons)	Women (persons)	Ratio of women (%)	
Tokushima	81	39	48.1	20% or more, 7 organizations
Tottori	67	27	40.3	
Shimane	72	29	40.3	
Saga	70	19	27.1	
Ibaraki	52	14	26.9	
Shiga	62	16	25.8	
Kyoto	66	14	21.2	
Gifu	61	12	19.7	15% or more to less than 20%, 14 organizations
Chiba	52	10	19.2	
Nagano	80	15	18.8	
Fukushima	54	10	18.5	
Aomori	60	11	18.3	
Niigata	77	14	18.2	
Okinawa	55	10	18.2	
Tochigi	56	10	17.9	
Toyama	67	12	17.9	
Iwate	77	13	16.9	
Nagasaki	68	11	16.2	
Kagoshima	63	10	15.9	
Saitama	73	11	15.1	
Kagawa	60	9	15.0	
Gunma	48	7	14.6	10% or more to less than 15%, 17 organizations
Kumamoto	57	8	14.0	
Okayama	59	8	13.6	
Wakayama	55	7	12.7	
Miyazaki	55	7	12.7	
Fukui	56	7	12.5	
Mie	64	8	12.5	
Hyogo	56	7	12.5	
Kanagawa	57	7	12.3	
Miyagi	59	7	11.9	
Yamaguchi	60	7	11.7	
Ehime	60	7	11.7	
Osaka	61	7	11.5	
Tokyo	74	8	10.8	
Kochi	59	6	10.2	
Yamagata	60	6	10.0	
Nara	60	6	10.0	
Fukuoka	61	6	9.8	Less than 10%, 9 organizations
Oita	59	5	8.5	
Ishikawa	70	5	7.1	
Shizuoka	60	4	6.7	
Akita	61	4	6.6	
Hokkaido	68	4	5.9	
Aichi	69	4	5.8	
Hiroshima	59	3	5.1	
Yamanashi	64	3	4.7	
Total	2,944	474	16.1	



(Remarks) 1. The source of the data is the Cabinet Office's "Progress of Local Government Measures Focused on Women or the Promotion of a Gender-Equal Society" (FY2021).
2. In principle, the survey data was as of April 1, 2021, but may differ depending on the circumstances of each local government in some cases.
3. Ratio of women was rounded off to the one decimal place.
4. Some islands have been omitted for the convenience of data notation.

Source: Cabinet Office data

FIG. 1-11-2 Performance Targets for Prefectural and Municipal Disaster Management Councils under the Fifth Basic Plan for Gender Equality

Item		Present Status	Performance Target (Deadline)
Proportion of Women among Prefectural Disaster Management Councils' committee members		16.1% (2021)	30% (2025)
Proportion of Women among Municipal Disaster Management Councils' committee members			
	The number of organizations with no women in committee members	328 (2021)	0 (2025)
	Proportion of Women among committee members	9.3% (2021)	Aiming for 15% (in early stage), and even for 30% (by 2025)

Source: Compiled from "The Fifth Basic Plan for Gender Equality 'Toward a Reiwa Society Where All Women and Girls Can Thrive and Achieve Their Full Potential' " (Cabinet decision on December 25, 2020).

【Column】

National Conference on Promoting Disaster Risk Reduction, 2021

Let's Gather together! Female Disaster Management Officials and Their Supporters

On November 7, 2021, the Gender Equality Bureau of the Cabinet Office hosted one of the sessions for the first time at the "National Conference on Promoting Disaster Risk Reduction, 2021" (online) held in Kamaishi, Iwate Prefecture.

One of the goals of the session, " Let's Gather! Female Disaster Management Officials and Their Supporters" was to help female disaster management officials "connect" each other. Since the role of local government is very important in disaster response, and it is essential for each local government to promote measures from a gender perspective, one of the specific measures is to "assign female staff to disaster management departments." At present, however, the number of female employees in disaster management departments is limited, and some say that female employees often feel lonely in their departments, for example, they find it difficult to express their opinions in the organization or to discuss their problems in disaster response. Therefore, a workshop was held to hear female disaster management staff openly about the questions and concerns they had in their daily work and actual disaster response in order to think together about the solutions.

Another objective is to "connect" the governments and the private sector. In light of the importance of cooperation with the private sector in disaster response, people involved in disaster risk reduction in the community were invited to participate as "Support Groups" to introduce case studies of how to connect the governments and private sector from normal time.

The session was attended by about 100 participants, including female officials from national and local governments in disaster management and gender equality department, as well as local disaster management leaders and disaster management specialists. With the cooperation of the co-sponsored organizations, "Women's Department of Yonnana (or 47) Disaster Risk Reduction Association" and "Illustration and *Gurareco* (or graphic recording) Section, Design Department, Online City Office," workshops were held on three themes after introducing case studies based on the experiences of city office employees who performed disaster response duties and information provided by the Cabinet Office on disaster response from the gender perspective.

On theme 1, "Disaster Management x Female Administrative Staff," participants discussed their concerns caused by the lack of women in disaster management departments, and some participants commented that they are encouraged by finding others who were in the same position and working hard. On theme 2, which dealt with "Disaster Management and Child Care/Caregiving," participants were introduced to the "Emergency Attendance Support System" by the Self-Defense Forces and they shared difficulties they had in disaster response duties, which led to raise their awareness of the importance of speaking up about the need for employees who have to take care of their family or children in their daily life. On theme 3, "Disaster Preparedness and Gender Equality/Welfare," based on the role of government officials as coordinators in the community, there was a discussion led to conclusion that cooperation through dialogue with various stakeholders was important to solve local problems.

Through the sessions, the participants shared the importance of expanding connections and networking among female disaster management officials and ones between the administration and local disaster management leaders.

Here is the URL for further information:

https://www.gender.go.jp/public/kyodosankaku/2021/202112/202112.html

Section 2 Disaster Management System, Disaster Response and Preparedness

2-1 Amendment of Basic Disaster Management Plan

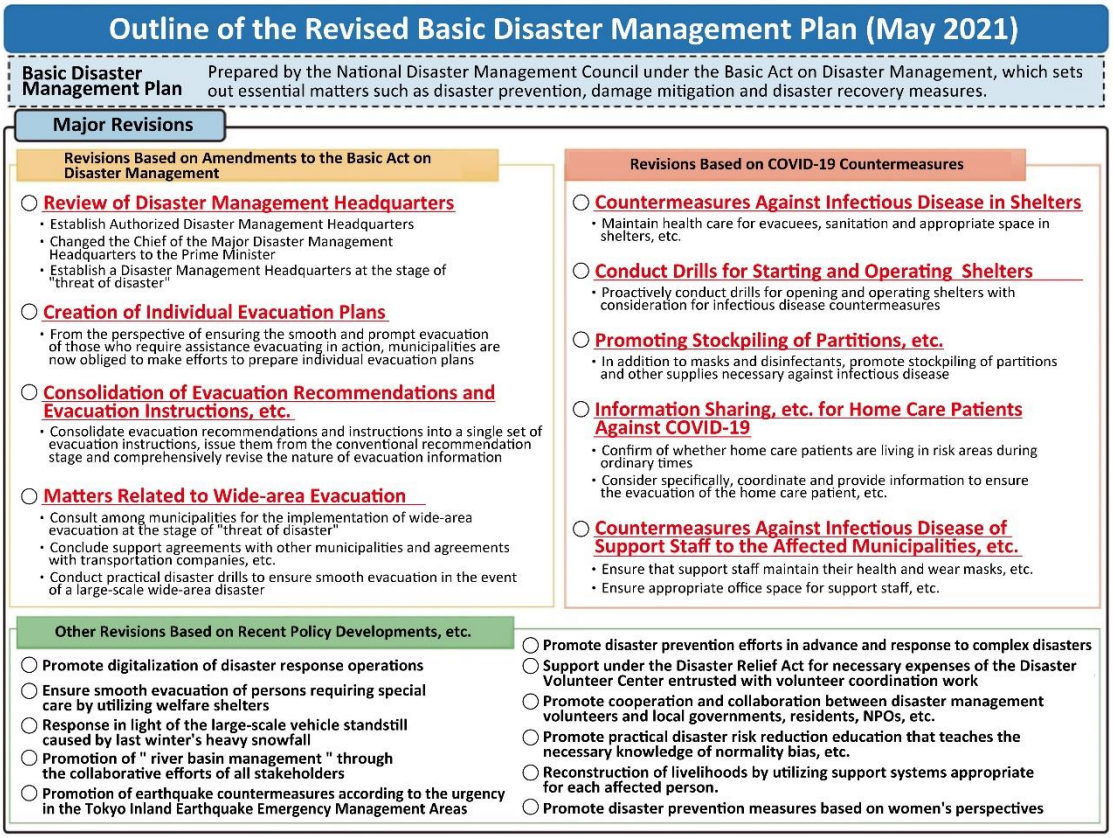
The Basic Disaster Management Plan is a basic plan for disaster management in Japan that is prepared by the National Disaster Management Council in accordance with Article 34, Paragraph 1 of the Basic Act on Disaster Management, and "must be reviewed each year in the light of the findings of scientific research pertaining to disasters and disaster management, conditions of disasters that have occurred, and the effect of emergency disaster control measures taken against the disasters, and… when found necessary," the Council is to revise it. 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 disaster management operational plans.
(Reference: https://www.bousai.go.jp/taisaku/keikaku/kihon.html#syusei)

In May 2021, the Basic Disaster Management Plan was revised based on the amendment of the “Basic Act on Disaster Management” (FIG. 2-1-1).

Concretely, it reflects (1) a review of the Major Disaster Management Headquarters such as the rule to designate the Prime Minister as its Chief, (2) integration of evacuation recommendation and evacuation instruction into a single evacuation instruction, (3) a duty of effort to prepare individual evacuation plans and so on.

It also reflects the progress of the recent measures concerning disaster management. According to the know-how gained through disaster response based on the recent measures against COVID-19, measures against infectious disease at shelters and the facilitation of stocking partitions are included, and the promotion of disaster response from the perspective of women is also covered in the revised plan.

FIG. 2-1-1 Outline of the Revised Basic Disaster Management Plan (May 2021)



Source: Cabinet Office data

2-2 Enrichment of Training Programs for the Head and Staff of Local Governments

Prompt and accurate disaster response depends on the knowledge and experiences of the head and staff of local governments. Based on this, the Cabinet Office has planned and put into operation the “Training of Disaster Prevention Specialists” for the staff of local governments from FY2013 to develop human resources who are able to “respond to crisis situations promptly and accurately” and “form networks between the national and local governments.”

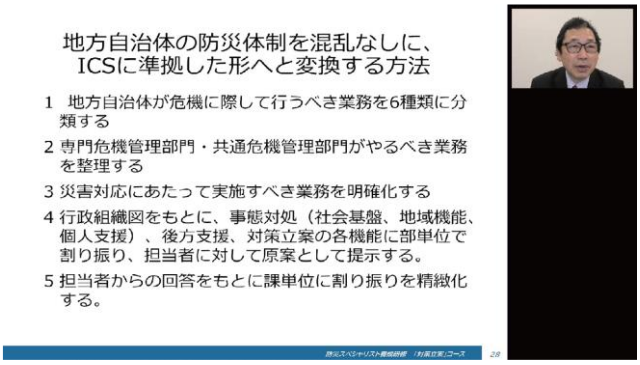
In FY2021, the “Training Program at Ariake Hill” was put into operation from September to October in 2021 and from January to March in 2022. This training program covers knowledge and skills in overall disaster management operations from the basics of disaster management related with laws and regulations to disaster management governance. In addition, the “Training Program for Local Governments” was delivered in 7 locations around Japan for the purpose of facilitating independent human resource development in local governments. This program meets the demands and actual situations in local regions, which are considered by the hosting prefectures. Furthermore, the “Follow-Up Training Program” was given in March for those who completed the Training Program at Ariake Hill to further improve their skill and to strengthen the human network.

In addition, the “e-Learning for Disaster Management Specialists” was launched on an exclusive website for support staff, who implement disaster management operations on-site for disaster response, to learn basic skills related to their position in a short time period. In planning and operating these training programs, a study group on planning consisted of experts in disaster management was established, and the programs were reviewed and

improved through advice based on social conditions and needs.

In the event of a large-scale disaster, the heads of local governments and those responsible for crisis and disaster management need to take sufficient initiatives and deliver a prompt and accurate disaster response as they work closely with the national government and other local governments. Therefore, the Cabinet Office and the Fire and Disaster Management Agency jointly hosted the “National Seminar on Disaster and Crisis Management for Heads of Local Government” for mayors of towns and villages nationwide (the seminars for mayors of cities and wards were cancelled in FY2021 due to the spread of COVID-19) to support the improvement of accurate decision-making to take initiative at disaster sites. At the same time, the Cabinet Secretariat, the Cabinet Office, and the Fire and Disaster Management Agency jointly hosted the “Special Training Program in Disaster and Crisis Management” for heads of departments and chiefs of crisis management departments of prefectures. In addition, they hosted the “Training Programs for Supervisors at Local Governments in Crisis and Disaster Management” for supervisors in municipalities so they could learn about crisis and disaster management to deepen their skills and specialties necessary at each phase including the initial response and disaster response. This contributes to forming a “face-to-face relationship” from ordinary times.

In planning and operating these overall training programs, both online and onsite methods were taken, taking into account the situation of the spread of COVID-19 since it is advantageous to expand the number of participants with online resources, while it is easier for participants to communicate on site. Training programs were delivered reasonably and effectively through such hybrid style.



"Online Training Program for Training of Disaster Management Specialists (Training Program at Ariake Hill)" in FY2021

"National Seminar on Disaster and Crisis Management for Heads of Local Government" in FY2021

2-3 Securing Designated Emergency Evacuation Sites and Designated Shelters

A "designated emergency evacuation site" is a facility or place where residents evacuate in an emergency to ensure the safety of their lives under imminent danger of a tsunami or flood. And a "designated shelter" is a facility designed to allow evacuees to stay for a necessary time period until the danger of disaster is over, or to temporarily let residents who are unable to return home stay due to disaster.

At the time of the Great East Japan Earthquake, evacuation sites and shelters were not always clearly distinguished, which unfortunately became a factor in the spread of damage. Therefore, the Cabinet Office amended the "Basic Act on Disaster Management" in 2013, requiring the mayors of municipalities to designate designated emergency evacuation sites and designated shelters separately in advance and to inform (publicly

notify) residents of these details. The status of the designated emergency evacuation sites as of April 1, 2021, is shown in FIG. 2-3-1.

FIG. 2-3-1 Designation of Designated Emergency Evacuation Sites

	Designation of designated emergency evacuation sites							
	Floods	Slope failure, debris flow and landslide	Storm surge	Earthquakes	Tsunami	Large-scale fire	Inundation by Heavy Rain	Volcanic Phenomenon
The number of designated sites	70,323	66,253	21,701	85,035	38,365	39,286	37,993	10,329
Estimated accommodation capacity (10,000 people)	11,808	13,236	5,874	22,970	8,569	16,753	7,208	2,279

Source: Prepared by the Cabinet Office based on the Fire and Disaster Management Agency's "Status of Regional Disaster Management Administration" (with multiple responses for each category)

The designated emergency evacuation sites are also available on the Geospatial Information Authority of Japan's web map, "GSI Maps" (FIG. 2-3-2).

FIG. 2-3-2 Example Map Showing Indications of Designated Emergency Evacuation Sites

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

The Cabinet Office, together with the Fire and Disaster Management Agency, is urging local governments to designate their designated emergency evacuation sites. In addition, since the designated emergency evacuation sites are to be designated for each type of disaster, the local governments nationwide are being called to begin work on a project to organize information boards with the "Hazard Specific Evacuation Guidance Sign System (JISZ 9098) (March, 2016)" as soon as possible (FIG. 2-3-3, FIG. 2-3-4).

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

FIG. 2-3-3 Example of Information Board Using the Hazard Specific Evacuation Guidance Sign System

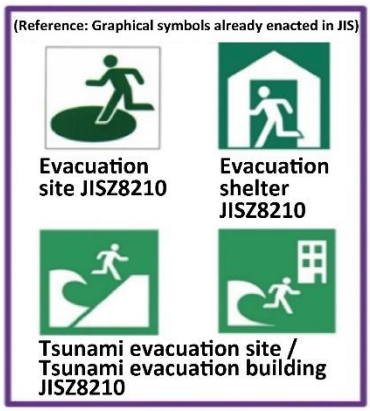
- Graphical symbol indicating evacuation site (required)
- General graphic symbols for disaster types (required)
- A mark indicating whether evacuation is suitable or not (A "○" mark indicates a site is suitable for that type of disaster, and a "×" mark indicates it is not.)
- Indication of evacuation site (example of how to show its name)
- It is desirable to indicate in both Japanese and foreign language(s) (example in English).

Source: Cabinet Office data

FIG. 2-3-4 Example of Information Board Using the Hazard Specific Evacuation Guidance Sign System

Disaster Types in the Basic Act on Disaster Management	JIS-established graphical symbols by disaster type
Tsunami	Tsunami and storm surge (conventional symbols are also used and general symbols are created)
Storm surge	
Floods	Floods/Inundation by Heavy Rain
Inundation by Heavy Rain	
Slope failure Debris flow Landslide	Slope failure/ Landslide
	Debris flow
Large-scale fire	Large-scale fire
Earthquakes	Covered by disasters that occur (tsunamis, large-scale fire, etc.)
Volcano	Disclose shelters and other places to the public for evacuation.

- Set up the evacuation sites according to the type of disasters.
- In order to standardize graphic symbols for evacuation sites, etc., relevant government ministries and agencies established a liaison meeting and decided to promote standardization. The JIS Drafting Committee prepared a draft and reported it to the Minister of Economy, Trade and Industry.
  The graphical symbols and other symbols were enacted in JIS on March 22, 2016.



Source: Cabinet Office data

In addition, the number of designated shelters in accordance with Article 49-7 of the "Basic Act on Disaster Management" has increased from 48,014 as of October 1, 2014, to 81,978 as of December 1, 2021. This is partly because municipalities that had not completed their designations since April 2014, when the designation system had been established, were encouraged to promptly complete their designations.

In response to the situation in recent disasters, various problems related to securing the living environment in shelters and issues related to improving the toilets in shelters were pointed out. It is considered important to improve the quality of life and ensure a good living environment even under conditions where people are forced to live inconveniently in shelters during a disaster. For this reason, the Cabinet Office has held the "Study Group on Securing Shelters and Improving their Quality" since July 2015 in order to broadly examine issues related to the promotion of designation of shelters and welfare shelters in municipalities, the improvement of toilets in shelters, and the development of support systems and consultation services for persons requiring special care. In April 2016,

the "Guidelines for Ensuring Satisfactory Living Conditions at Shelters" (formulated and published by the Cabinet Office in August 2013) was partially revised. In addition, based on this guideline, three guidelines were published: (1) "Shelter Management Guidelines," (2) "Guidelines for Securing and Managing Toilets at Shelters," and (3) "Guidelines for Securing and Managing Welfare Shelters."

Moreover, the "Sub-Working Group Concerning Evacuation of the Elderly and people with special needs Based on Typhoon Hagibis in 2019" was held in FY2020, and in this sub-working group, it was considered to be appropriate that new system should be established to specify the recipients by welfare shelter, and by disclosing the referenced information in advance at the time of designating the welfare shelters, to clarify that they are the facilities where only they and their family can evacuate.. In light of this, the "Regulation for Enforcement of the Basic Act on Disaster Management" (Prime Minister's Office Order No. 52 1962) and the "Guidelines for Securing and Managing Welfare Shelters" and others were revised in May 2021.

In April 2022, the "Guidelines for Ensuring Satisfactory Living Conditions at Shelters," the "Shelter Management Guidelines" and the "Guidelines for Securing and Managing Toilets at Shelters" based on the said guidelines were revised and published (FIG. 2-3-5). This is because there have been needs at shelters in recent years such as measures to prevent infectious disease, to improve living conditions, to ensure appropriate opening and disaster prevention functional facilities according to the location and to manage shelters from a female perspective.

FIG. 2-3-5 Guidelines and other Information on Shelters

"Shelter Management Guidelines" (April 2016) (Revised April 2022)
In each stage of disaster response (preparation, initial response, emergency response and recovery), the report emphasizes the importance of establishing a cooperative system of coordination in and out of the government in ordinal times and maintaining evacuees' health. The report also identifies detailed tasks that are often forgotten, such as toilets, sleeping quarters, bathing and pets, with a specific checklist of 19 tasks to perform.

"Guidelines for Securing and Managing Toilets at Shelters" (April 2016) (revised April 2022)
More of affected people feel uncomfortable since restrooms at shelters are insanitary in times of disaster. As they hold back on relieving themselves and refrain from consuming water and foods with hesitation to use restrooms, this can lead them to worsen their health or, in the worst case, life-threatening consequences. Therefore, the guideline emphasizes the importance of securing restroom provision and management.

"Guidelines for Securing and Managing Welfare Shelters" (April 2016) (revised May 2021)
Considering the lessons from the Great East Japan Earthquake, the "Guidelines for Welfare Shelters' Establishment and Management" (June 2008) were revised and amended substantively. Furthermore, based on the recognition that it is impossible to provide emergency response in times of disaster without efforts in ordinary times, the Guidelines emphasize that municipalities should also take the lead in promoting welfare shelters from ordinary times.

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

2-4 Use of Digital Technology in Disaster Management

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

To this end, the Cabinet Office has established a disaster information hub (hereinafter referred to as the "hub" (see FIG. 2-4-1)) to facilitate the use of digital technologies. To promote the act of exchanging information through rules of the method and period of information sharing among relevant organizations, a study has been conducted through the National and Local Governments and the Private Sector Disaster Information Hub Promotion Team. This team has worked since 2019 under the Working Group for the Promotion of Standardization of Disaster Measures in the Disaster Management Implementation Committee of the National Disaster Management Council.

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

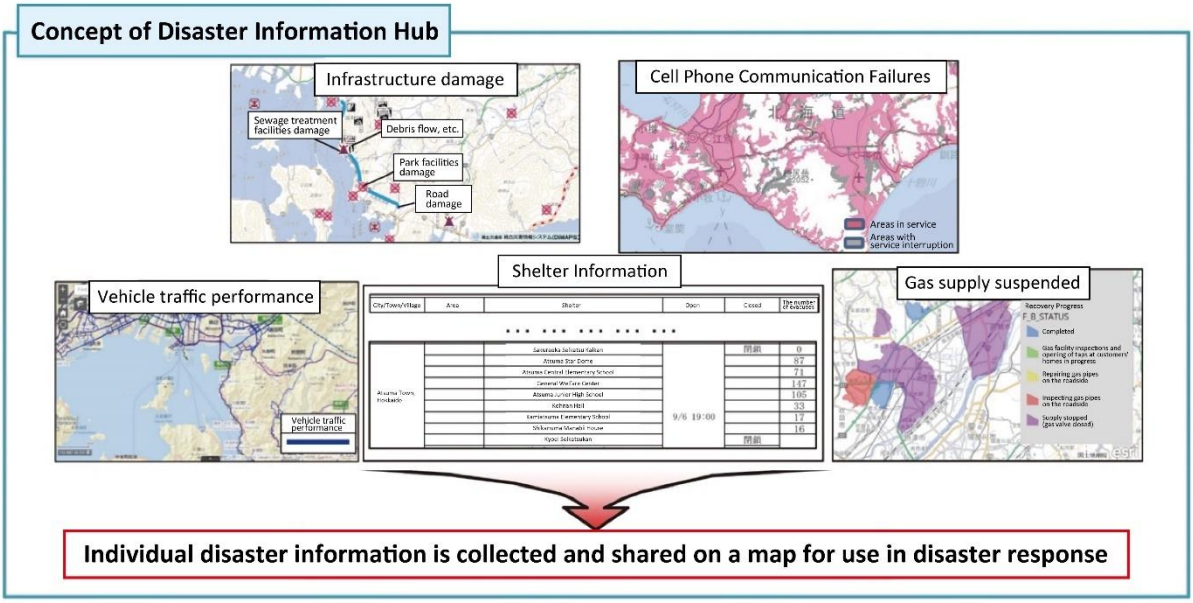
Based on these studies, in FY2018, the ISUT (Information Support Team) was set up on a trial basis to support the disaster response of local governments by aggregating, mapping, and providing information on disaster damage and shelters in the event of a large-scale disaster, and it began full-scale operation in FY2019. At the site of a disaster, some information, such as information on damage and disaster waste, changes from moment to moment that cannot be shared in advance (i.e. dynamic information) exists. In order for disaster response organizations to make accurate decisions, it is very important to superimpose this information on a map and systematically understand the situation. The ISUT will collect, organize, and map such information, and establish the ISUT website for displaying an electronic map, and share this with relevant organizations (i.e. government agencies and designated public corporations) so that it can support quick and accurate decision-making by disaster response organizations.

So far, the ISUT has responded to disasters such as the Heavy Rain Event of July 2018, Typhoon Hagibis in 2019, the Heavy Rain of July 2020, and the debris flow in Atami caused by the rains from July 1, 2021. During the Heavy Rain 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 ISUT (FIG. 2-4-2) were used to explain the situation at the Disaster Management Headquarters of the affected prefectures and municipalities (FIG. 2-4-3). They were also used to explain the situation to the actual organizations and supporting staff from other local governments, thus contributing to effective disaster response by local governments. For example, in Kumamoto Prefecture, in order to support the resolution of isolated villages, a map was created to monitor the recovery 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, the ISUT was dispatched to Shizuoka Prefecture in the wake of the debris flow disaster in Atami caused by heavy rain from July 1, 2021. Drone footage taken by various organizations is compiled and posted on the ISUT website (FIG. 2-4-4). This allowed it to be checked by the other agencies involved.

In response to these disasters, the ISUT continued to strengthen its systems by outsourcing some of its operations, such as mapping, to private business operators, which enabled it to provide smoother support activities.

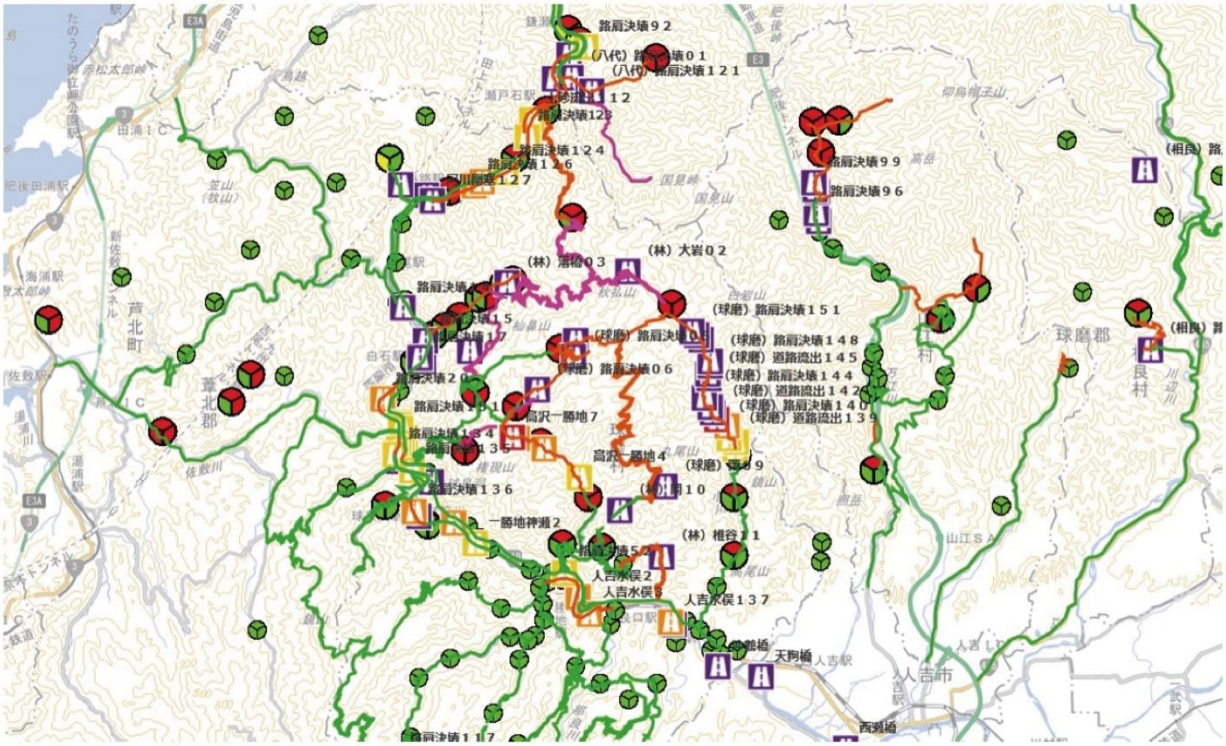
Furthermore, in order for the ISUT to conduct its activities more quickly and effectively, tools were developed to collect and share information on disaster damage more quickly, such as photos of field activities. In addition, a training program on the use of the ISUT website was developed and implemented.

FIG. 2-4-1 "Disaster Information Hub" Conceptual Diagram



Source: Cabinet Office data

FIG. 2-4-2 Sample Map Created in the Aftermath of the Heavy Rain Event in July 2020 (Supporting Map for Eliminating Isolated Communities)



Source: Cabinet Office data

FIG. 2-4-3 **Utilization of ISUT website and maps for the Heavy Rain Event of July 2020 (Kumamoto Prefecture Government Office)**

Utilization at Meeting of the Headquarters for Disaster Management in Kumamoto Prefecture

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

Utilization by the aviation coodination team

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

Source: Cabinet Office documents

FIG. 2-4-4 **Drone video showing debris flow disaster in Atami caused by the Heavy Rain from July 1 of 2021**

Source: Cabinet Office document

2-5 Holding Meetings for Immediate Natural Disaster Response and Coordination Team

In order for the government to quickly and smoothly carry out initial response and emergency measures immediately after a large-scale disaster strikes, it is important for the Deputy Chief Cabinet Secretary for Crisis Management and the Director General of government in charge of disaster management to establish a "face-to-face relationship" from a regular basis, and to ensure appropriate role-sharing and mutual collaboration and cooperation.

For this purpose, the "Meetings for Immediate Natural Disaster Response and Coordination Team" have been held since 2020 to exchange and share information among related parties.

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 lives of the affected 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 was basically

able to quickly restore power and water services at the initial phase, assess the needs of the affected people and provide push-mode support such as water, food, cardboard beds and partitions. The government has improved the living environment in shelters, dispatched staffs to the affected municipalities, and secured housing and worked 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 FY2020, 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 lives and livelihood restoration of affected" would be established to provide prompt and smooth support for the lives and livelihood of the affected people, and the establishment of such a team has been made a rule.

In the aftermath of the heavy rains of July 1, 2021, a "team to support the lives and livelihood restoration of the affected for the Heavy Rain in July 1 of 2021" was set up on July 6th, and on July 30th, the team compiled a "Set of Support Measures Concerning the Heavy Rains of July 1st, 2021" as an urgent response to rebuild the lives and livelihood of the affected areas.

2-6 Revision of the Guide to Preparing Volcanic Evacuation Operation/ Implementation Plans for Facilities for Attracting Visitors

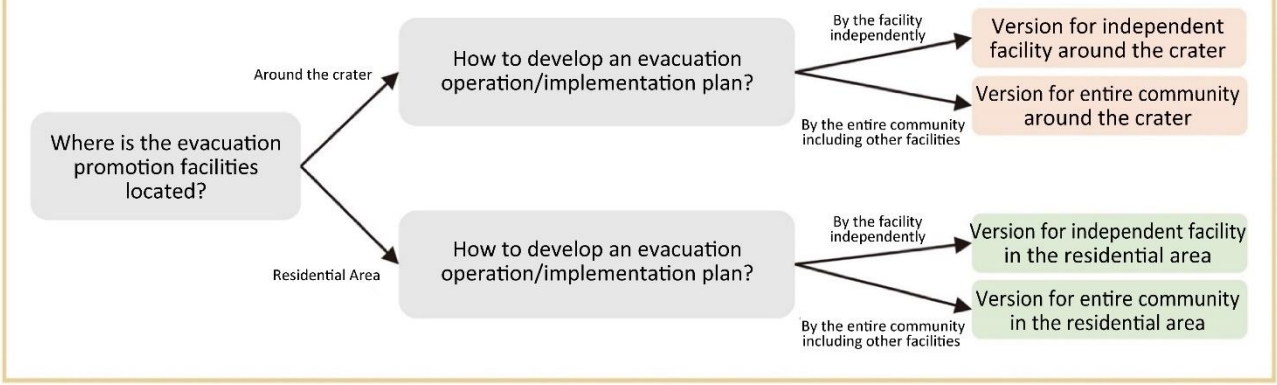
The Act on Special Measures for Active Volcanoes (Act No. 61 of 1973) was amended in the wake of the Mt. Ontake eruption disaster that occurred in September 2014. Owners of facilities for attracting visitors and facilities for persons requiring special care designated by municipalities in local disaster management plans are required to prepare evacuation operation/implementation plans and conduct drills based on the plan.

In order to support the preparation of evacuation operation/implementation plans to ensure the smooth and prompt evacuation of facility users in the event of volcanic phenomena, the Cabinet Office published the "Guide to Preparing Evacuation Operation/ Implementation Plans for Facilities for Attracting Visitors" in 2016, which has since been revised in 2021.

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

In the 2021 revision, the Guide was revised to include measures to be taken "in the event of an eruption affecting residential areas where volcanic alert levels had not been raised." In addition, the creation guides and templates were reorganized to enable facility personnel to appropriately prepare an evacuation operation/implementation plan for the areas around the crater and residential areas where the assumed volcanic phenomena and evacuation methods differ (FIG. 2-6-1).

FIG. 2-6-1 How to Choose Creation Guide or Template



Source: Cabinet Office data

2-7 Consideration of Ships Utilization Medical Care Provision System in Times of Disaster

Regarding hospital ships (ships whose main function is to provide medical services on board in times of disaster, etc., the same applies hereinafter), the government has conducted research, study and demonstration trainings using existing ships.

In FY2020, the Cabinet Office, the Ministry of Health, Labour and Welfare, the Ministry of Defense, and the Ministry of Land, Infrastructure, Transport and Tourism jointly researched and considered the use of hospital ships as a way to secure a place to provide medical care in the wake of the COVID-19 epidemic, and in March of 2021, issued a report summarizing the government's reasoning on it. The government's approach is that hospital ships are expected to complement land-based medical institutions in the event of a major disaster, especially in areas where land routes are disrupted or on remote islands. In light of the current situation where issues such as (1) securing medical personnel, (2) securing ships operating personnel, and (3) the use of these ships during normal times continue to be addressed, and considering the fact that they have not yet been resolved, it was decided that for the time being, efforts would be made to develop disaster medical activities using existing ships instead of starting to construct new hospital ships.

In response to this, in FY2021, we prepared for a full-scale training exercise using a Self-Defense Force vessel, in which approximately 150 medical personnel participated to demonstrate activities from initial response (gathering of personnel) to completion (removal of patients), based on the opinions of medical organizations. Due to the spread of COVID-19 in January 2022, the actual training was cancelled, but the findings from the preparatory stage of the training and from the tabletop exercises will be utilized in future studies.

In June 2021, the "Act on Promotion of Development of Ships Utilization Medical Care Provision System in Times of Disaster, etc." (Act No. 79 of 2021) was passed through legislation introduced by a Diet member and is scheduled to be enforced within three years from the date of promulgation.

The Act aims to promote the development of ships utilization medical care provision system in preparation for disasters or the outbreak or spread of infection or the threat of such outbreaks. The basic policies include: (1) role-sharing and collaboration with land-based medical services, (2) ownership of ships (including those owned by parties other than the national government) to be used primarily for providing medical care in times of disaster, etc., (3) securing personnel, (4) human resource development, (5) securing supplies, (6) utilization during normal times, and (7) private sector utilization. Based on these basic policies, the government is to take any necessary

legislative or financial measures and to formulate a plan to promote development.

In October of the same year, the government held a liaison conference of relevant ministries and agencies and began to prepare for the enforcement of the Act in a unified government-wide effort. While taking advantage of the government's measures to date, we will continue to work to enhance the medical care provision system in the event of a disaster, while continuing to listen carefully to the opinions of medical- organizations.

Section 3 Responding to Disaster Threats

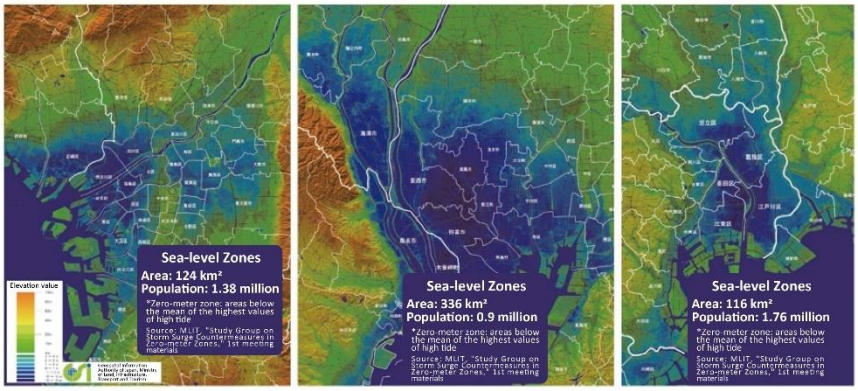
3-1 Consideration of Wide-area Evacuation due to Overflow from Floods and Storm Surges in the Tokyo Metropolitan Area and Other Big City Areas

Due to global warming, there are concerns that the proportion of intense tropical cyclones is projected to increase, and it is predicted that there will be large-scale floods in the future that will require large-scale and wide-area evacuation. Each of the 3 major metropolitan areas in Japan have wide "sea-level zones," and in the event of a large-scale flood due to a levee burst or similar disaster, it is expected that a large number of residents will have to evacuate, resulting in heavy congestion and a large number of isolated people due to delayed escape (FIG. 3-1-1).

For this reason, the “Working Group on Large-Scale and Wide-Area Evacuation from Floods and Storm Surge Flooding,” which was established in June 2016 under the Disaster Management Implementation Committee of the National Disaster Management Council, studied how large-scale and wide-area evacuation from floods and storm surge flooding should be carried out in the 3 major metropolitan areas. In March 2018, the "Fundamental Thought Process on Large-Scale and Wide-Area Evacuation from Floods and Storm Surge Flooding (Report)" was compiled.

(Reference：https://www.bousai.go.jp/fusuigai/kozuiworking/)

FIG. 3-1-1 Sea-level Zones in Three Major Metropolitan Areas



Source: Compiled by the Cabinet Office from the Geospatial Information Authority of Japan website

Based on this report, the Cabinet Office compiled issues on that relevant organizations including government agencies should work together for the implementation of large-scale wide-area evacuation in the event of a large-scale flood. Also, the Cabinet Office established the "Study Group on Extensive Evacuation from Large-Scale Flood Disasters in the Tokyo Metropolitan Area" in June 2018 in cooperation with the Tokyo Metropolitan Government. The study group was held 7 times through FY2021 with the aim of the nature of cooperation and role sharing among relevant organizations. The study group made “Guidelines for supporting to plan for Wide-area Evacuation (Report)” in March 2022. Moving forward, more discussions will continue for concretization of the guidelines.

（Reference：https://www.bousai.go.jp/fusuigai/suigaiworking/suigaiworking.html）

Typhoon Hagibis in 2019 (T1919) caused extensive and widespread damage. Since it revealed issues about wide-area evacuation, discussions were held in the "Working Group on Evacuation from Disasters Caused by the Typhoon Hagibis in 2019 (T1919)" established under the National Disaster Management Council and in the "Sub-

Working Group Concerning Evacuation Information and Wide-area Evacuation Based on Typhoon Hagibis in 2019 (T1919)." Based on their recommendation, the "Basic Act on Disaster Management" was revised in May 2021. It includes stipulations about establishment of a national Disaster Management Headquarters at the stage when a disaster is likely to occur, consultations on wide-area evacuation between mayors and prefectural governors and requests for transportation by prefectural governors.

In addition, when the revised "Basic Act on Disaster Management" was executed, local governments were notified of the "Fundamental Thought Process on Wide-Area Evacuation from Flood Disaster," which describes basic ideas, procedures and case examples of wide-area evacuation to promote the measures for the smooth implementation of wide-area evacuation.

（Reference：https://www.bousai.go.jp/fusuigai/suigai_kouikihinan/index.html）

Section 4 International Cooperation for Disaster Risk Reduction

Japan has accumulated a lot of experience and knowledge regarding disasters and disaster reduction measures. By sharing them, Japan is leading global discussions in the field of disaster risk reduction as well as contributing to strengthening disaster risk reduction measures in countries across the world. Particularly, since the 3rd UN World Conference on Disaster Risk Reduction was held in Sendai, Miyagi Prefecture in March 2015, and the Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR2015-2030) (hereinafter referred to as the "Sendai Framework") was adopted at the conference, countries around the world expect Japan to play a leading role in its implementation. For this reason, the Cabinet Office and the Ministry of Foreign Affairs are actively promoting disaster risk reduction cooperation through the United Nations and other international organizations, and the bilateral and multilateral one.

4-1 Cooperation for Disaster Risk Reduction through the United Nations and Other International Organizations

(1) Cooperation through the United Nations Office for Disaster Risk Reduction (UNDRR)

To promote the Sendai Framework, the United Nations Office for Disaster Risk Reduction (UNDRR) is responsible for monitoring, coordinating, and assisting regions and countries in implementing the Framework. In order to support these activities, the Cabinet Office and the Ministry of Foreign Affairs contributed a total of approximately US $5.29 million (approximately 570 million yen) in FY2021.

Japan led the adoption of the United Nations General Assembly Resolution in 2015 to designate November 5th of every year as "World Tsunami Awareness Day." The UNDRR and Japan have jointly organized informative events to raise awareness of the threat of tsunamis since the following year, 2016 onward. An online event of the "World Tsunami Awareness Day" was held on November 5, 2021, and under the theme of "Using Science and Technology to Reduce Tsunami Risk for Present and Future Generations," experts from related countries and organizations, as well as young researchers, engaged in lively discussions.

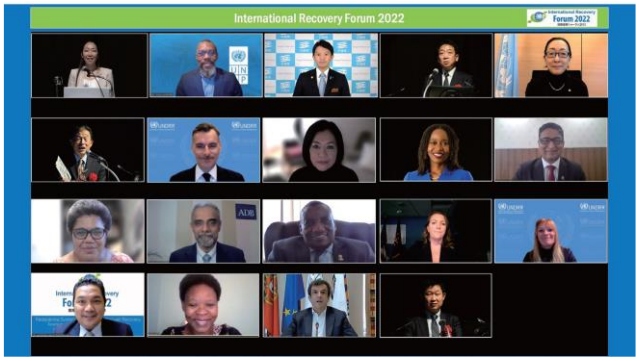
The UNDRR also held the "Asia-Pacific Partnership for Disaster Risk Reduction (APP-DRR) Forum" online from December 8 to 9, 2021. At the forum, participants shared the status of disaster risk reduction measures in the Asia-Pacific region and discussed priority issues to be addressed in the region as the Sendai Framework approaches the halfway point in 2023.

(2) International Recovery Platform (IRP)

The International Recovery Platform (IRP) was established in Kobe, Hyogo Prefecture in March 2005. This platform was established in response to the Hyogo Framework for Action adopted at the Second United Nations World Conference on DRR held in Kobe to: (1) enhance the network to support smooth recovery and the implementation of the Hyogo Framework for Action, (2) spread awareness of lessons learned from recovery and develop common methods and mechanisms for recovery, and (3) provide advice and support for the development of recovery plans and initiatives. The Sendai Framework calls for the strengthening of the IRP as one of the international mechanisms to promote "Build Back Better." As co-chair of the Steering Committee, the Japanese government (the Cabinet Office) is contributing to laying the groundwork for its development and support of IRP activities.

In FY 2021, the "International Recovery Forum 2022" was held in Kobe City on January 19, 2022, in a hybrid

format that combined on-site and online sessions. The theme of the forum was "Redesigning Systems for Resilience through Recovery: Assessing Progress and Unfinished Agenda at the Midpoint of the Sendai Framework", and the event was attended by 400 participants from 65 countries, including Deputy Director General for the Cabinet Office UCHIDA, Governor of Hyogo SAITO, United Nations Special Representative of the Secretary-General for Disaster Risk Reduction and Head of the United Nations Office for Disaster Risk Reduction MIZUTORI, and Distinguished Technical Advisor on Disaster Risk Reduction at Japan International Cooperation Agency (JICA) TAKEYA. The forum reviewed the implementation of the Sendai Framework, and participants discussed remaining issues. At the same time, keynote speeches and panel discussions were given on agenda setting and priority themes to further promote "Build Back Better. "



International Recovery Forum 2022

(3) Cooperation in DRR through Joint Activities with the Asian Disaster Reduction Center (ADRC)

The Asian Disaster Reduction Center (ADRC) was established in Kobe City, Hyogo Prefecture in 1998 to share lessons from disaster with the Asia region. As of March 2022, 31 Asian countries have joined. The ADRC is based on four principles: (1) sharing disaster information, (2) developing human resources in member countries, (3) improving disaster preparedness of communities, and (4) collaborating with member countries, international and regional organizations, and NGOs. Visiting researchers are invited from member countries (121 visiting researchers in total as of December 2021), and through research on DRR policies, human resources are trained to contribute to the planning and formulation of DRR policies in member countries. The ADRC also collects and provides information on disaster management systems and the latest disaster information in each country on its website and provides information on disaster damage through satellite observations when disasters occur.

The Cabinet Office co-hosted the "Asian Conference on Disaster Reduction (ACDR) 2021" with the ADRC. With the participation of member countries, international organizations and others, the conference was a place to share information, exchange opinions, and promote collaboration on issues related to disaster prevention and mitigation in Asia. It was the 17th conference and held online from December 14 to 16, 2021 under the theme "Time for Change and Transformation: the Road to a Resilient Asia." 264 officials and experts from 22 of the 31 member countries as well as from UNDRR, JICA and other related organizations attended, and Minister of State for Disaster Management NINOYU delivered opening remarks via video message. At the conference, Information was shared and opinions were exchanged on topics such as the development of disaster risk reduction technology adapted to local needs for a safe and secure society, the education and awareness-raising promoting proactive

disaster risk reduction behavior and the investment in disaster risk reduction for a resilient society.

As a pre-event of the conference, five thematic seminars were held from June to October 2021. In addition, on December 15, 2021, the Cabinet Office and the ADRC hosted a public-private seminar for disaster risk reduction, presented by "Japan International Public-Private Association for Disaster Risk Reduction (JIPAD)" as side event. The seminar was attended by about 70 participants from the attendance of the Asian Conference on Disaster Reduction and JIPAD member organizations. Twelve Japanese private-sector companies gave presentations on their disaster risk reduction technologies.

Asian Conference on Disaster Reduction

4-2 Bilateral and Multilateral Disaster Risk Reduction Cooperation

The Cabinet Office is deepening its collaboration with departments in charge of disaster management in governments around the world by not only cooperation through international organizations, but also sharing experiences in disaster risk reduction policy through opportunities for ministerial-level officials in charge of disaster management from abroad to pay a visit.

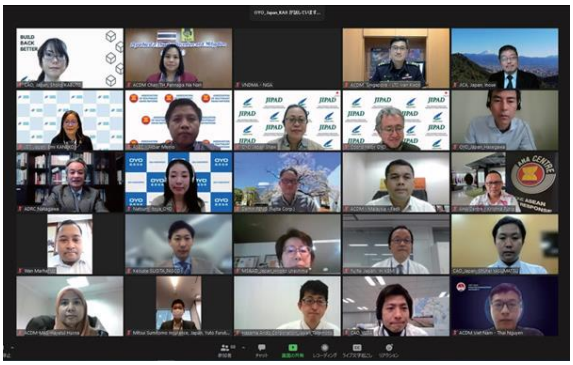
(1) Cooperation with ASEAN through the ASEAN-Japan Ministerial Meeting on Disaster Management

At the 22nd ASEAN+3 (China, Korea and Japan) Summit Meeting, with the attendance of then Prime Minister ABE in November 2019, the Chairman's Statement included the launch of the "ASEAN-Japan Ministerial Meeting on Disaster Management." In response to this, on October 14, 2021, the Japanese government (the Cabinet Office) and the departments in charge of disaster management of the 10 ASEAN member countries held the "First ASEAN-Japan Ministerial Meeting on Disaster Management" online with Minister of State for Disaster Management NINOYU as co-chairing the meeting. During the meeting, opinions were exchanged on how Japan and ASEAN should cooperate in the field of disaster management, and future policies were agreed upon in the form of a joint statement that was adopted.

On March 29, 2022, the Cabinet Office and the ASEAN Secretariat hosted the "Japan-ASEAN Public-Private Seminar on Innovative Policies and Technologies for Disaster Risk Reduction" together. The seminar was attended by related organizations including the Cabinet Office, JICA, ADRC, the National Institute of Environmental Studies (NIES), the Japan Science and Technology Agency (JST), 33 organizations from JIPAD member organizations and the departments in charge of disaster management in 10 ASEAN member countries, with a total of about 100 participants. The participants mutually shared information on disaster risk reduction policies and the latest approaches in Japan and ASEAN. And 3 Japanese private companies also gave presentations on their disaster risk

reduction technologies.

Minister of State for Disaster Management NINOYU, speaking
at the First ASEAN-Japan Ministerial Meeting on Disaster Management



Japan-ASEAN Public-Private Disaster Risk Reduction Seminar

(2) Cooperation between the U.S. Federal Emergency Management Agency (FEMA) and the Cabinet Office

Based on the memorandum of cooperation signed in December 2014 with the U.S. Federal Emergency Management Agency (FEMA), FEMA and the Cabinet Office share information and exchange opinions through international conferences and videoconferences. A video conference was held in February 2022 to exchange information on: (1) evacuation support for persons requiring special care, (2) measures related to shelters, and (3) development of professional human resources for evacuation life support.

(3) Exchanges with Western Balkan Countries for Disaster Risk Reduction

In the "Western Balkans Cooperation Initiative" announced by then Prime Minister ABE during his visit to the Western Balkans in January 2018, the disaster risk reduction field is positioned as a pillar of cooperation between Japan and the Western Balkan countries. Based on this, the "Second Seminar on Disaster Risk Reduction in the Western Balkans" was held in Veliko Tarnovo, Bulgaria from November 8 to 11, 2021 in a hybrid format that combined on-site and online sessions. The seminar was attended by representatives from Japan, Bulgaria, the Western Balkans and international organizations involved in disaster management. They exchanged views on earthquake countermeasures, an issue of growing concern in the region. In addition, three Japanese private companies, mostly JIPAD members, gave presentations on the latest technologies for earthquake countermeasures.

Section 5 Measures to Promote National Resilience

5-1 Formulation of the National Resilience Annual Plans

The government finalized the "National Resilience Annual Plans 2021" (hereafter referred to as the "Annual Plans 2021") on June 17th, 2021 (decided by the Headquarters of National Resilience Promotion). Based on the "Five-Year Acceleration Plan for Disaster Risk Reduction, and National Resilience" (hereafter referred to as the "Five-Year Acceleration Plan" in this section), which was formulated in December 2020, the Annual Plans 2021 included the following goals:

1) Water control measures in watershed areas, countermeasures for earthquakes and tsunamis, as well as ensuring the road network function and such for storms, flood disasters, and large-scale earthquakes.

2) Measures for earthquake resistance, tsunamis, and facility aging-management in infrastructures such as road facilities and schools.

3) Encouragement of digitalization such as sophisticating prediction, collection, amassment, and relay of disaster-related information.

Also, the cost of the Five-Year Acceleration Plan in FY 2021, which is its first fiscal year, was estimated. The Acceleration Plan would amount to approximately 4.2 trillion yen, of which the national expense would be around 2.0 trillion yen, while its whole cost would amount to approximately 15 trillion yen.

The "Three-Year Emergency Countermeasures for Disaster Prevention and Mitigation and National Resilience" (decided by the Cabinet Office on December 14th, 2018) was also followed up in the Annual plan. An evaluation was made that its goals were generally achieved as approximately 6.9 trillion yen was ensured for the expected plans of around 7 trillion yen, and 153 out of 160 emergency response measures met their goals or almost reached them with the budget through FY 2020.

In addition, to enhance each citizen's understanding and interest in the necessity of reducing the disaster risk in advance and the effects that follow, specific cases which effectively worked using these measures in disasters were put together to raise public awareness.

Besides, in response to the recommendations for realizing a new era of disaster prevention, disaster mitigation, and national resilience as well as the latest lessons from the Heavy Rain Event of July 2020 and heavy snowfall between December 2020 and February 2021, a determination was made to promote required measures from the perspective of national resilience.

Furthermore, in FY 2021, the "Advisory Committee on National Resilience (Disaster Prevention and Mitigation)" (Chairperson: Satoshi Fujii, Professor of Kyoto University) (hereafter referred to as the "Advisory Committee" in this section) discussed the formulation of the Annual Plans 2021. (FIG. 5-1-1)

FIG. 5-1-1 Summary of Annual Plan for National Resilience, 2021 (Jun, 2021)

Summary of Annual Plan for National Resilience, 2021—1

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Based on the " Fundamental Plan for National Resilience," the annual plan outlines the main measures to be undertaken for each of the 45 programs during the fiscal year, manages progress using quantitative indicators and steadily promotes measures through the PDCA cycle.

1. Key Points of National Resilience Efforts in FY2021

(1) Promotion of Five-Year Acceleration Plan

■ In recent years, weather-related disasters have become more severe and frequent, and the occurrence of large-scale earthquakes is imminent. In order to protect the lives and property of citizens and maintain the important functions of society, we have decided to further accelerate and deepen the efforts for national resilience based on the Fundamental Plan for National Resilience, and have set medium- and long-term targets and will implement them intensively, bringing forward the target achievement year.

■ Further accelerate and deepen efforts in 123 measures of the three areas.

(Response to storm and flood disasters and large-scale of earthquakes, etc.)

- In addition to river management, river basin management that integrates structural and non-structural measures, such as prior flow from dams and disaster prevention town planning to reduce flood damage
- Tsunami countermeasures in ports and harbors, countermeasures for densely inhabited areas that are extremely dangerous during earthquakes, etc. and countermeasures to create disaster-resilient urban areas.
- Eliminate the missing link of high-standard roads to ensure disaster-resilient national main road network functions, etc.

(Measures to address aging infrastructure)

- Measures against earthquakes and tsunamis, and aging of road facilities, school facilities, other infrastructure facilities, etc.

(Promotion of digitization, etc.)

- Enhancement of disaster-related information forecasting, collection, accumulation, and dissemination, such as by strengthening observation systems and improving forecast accuracy for intense heavy rain, utilizing robot and drone technology, providing evacuation information via smartphones, and accelerating social implementation of disaster prevention chatbots that collect information on disaster damage, etc.
- Implement digitization measures efficiently through collaboration with ministries and agencies. (Watershed flood disaster management, the establishment of a coordinated infrastructure data platform, etc.)

(2) Promotion of regional resilience

■ Regional plans have made significant progress, with all prefectures and 1,398 municipalities (approximately 80%) having completed their formulation. (As of May 1, 2021).

■ Content has been enhanced by incorporating medium- and long-term goals of the five-year accelerated plans into each regional plan and showing the future image of the region to be aimed for. Focused promotion and support of initiatives based on regional plans. (From FY 2022 onward, the budget will be focused on initiatives based on regional plans with this enhanced content.)

■ Promoted the establishment of a system for municipalities to quickly and accurately accept support staff, etc., according to the threat of disaster for the purpose of sharing information and making various adjustments, etc.

(3) Promotion of public awareness

■ In order to increase the understanding and interest of each citizen in disaster prevention, including the necessity and effectiveness of disaster prevention in advance, related parties will work together to clarify the target audience for public awareness and strategically implement them. A strategy for public awareness for national resilience (tentative name) will be compiled by the end of this year.

(4) Strategic Policy Issues, WG recommendations on realizations for a new era of disaster prevention and mitigation, and national resilience, and efforts based on lessons learned from disasters in FY 2020.

■ National resilience that meets climate and natural conditions: Promote green infrastructure and land use that takes disaster risk into account. Resilience of People and Communities: Promote the use of the power of diverse actors, etc.

■ Reflected recommendations of WG on reducing disaster risk in advance and complex disasters, the future vision and social implementation team of WG on the digital and disaster prevention technology, and disaster risk reduction education and disaster volunteer team of WG on DRR education and public awareness.

■ Based on the experience gained through the Heavy Rain Event of July 2020 (disaster response under the influence of COVID-19) and heavy snow disasters, as well as the results obtained from the study, necessary measures will be promoted.

Summary of Annual Plan for National Resilience 2021—2

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2. Examples of Key Measures in the Annual Plan 2021

Promote measures for 45 programs in the Basic Plan, taking into account the five-year acceleration plan

■ Formulate the "Watershed Flood Control Project" as the big picture of flood control measures to be implemented through the collaboration of all parties concerned for the 109 first-class water systems across the country. In addition to river management, watershed flood control is being promoted through the integration of structural and non-structural measures, such as prior flow from dams, community development to reduce flood damage and the elimination of flood risk information gaps.

■ Promote measures against earthquakes and tsunamis, and aging of infrastructures facilities such as roads, bridges and school facilities.

■ Eliminate the missing link of high-standard roads to ensure disaster-resilient national main road network functions, etc.

■ Enhancement of disaster-related information forecasting, collection, accumulation and dissemination such as by strengthening observation systems and improving forecast accuracy for intense heavy rain, utilizing robot and drone technology, providing evacuation information via smartphones, and accelerating social implementation of disaster prevention chatbots that collect information on disaster damage.

■ Training of DMAT and DPAT, enhancement and reinforcement of TEC-FORCE

■ Promotion of snow damage prevention measures on roads, such as maintaining snow protection facilities, snow melting facilities, median openings, U-turn roads etc., and creation of timelines

■ Promote the creation of individual evacuation plans for the evacuation of those who require assistance evacuating

■ Respond to COVID-19 in shelters etc.

3. Progress Management of Five-Year Acceleration Plan

(1) Progress (based on project cost)

■ The total project size was targeted to be approximately 15 trillion yen (including the use of fiscal investment and loan program (FILP) and projects by the private sector), but the amount for FY2021, the first year of the project, was approximately 4.2 trillion yen.

(2) Progress on 123 measures

■ Track and manage progress to ensure steady progress on medium- and long-term goals set for each of the 123 measures.

■ Based on the implementation of the measures during the fiscal year, follow up on the progress in the annual plan to be developed in the following fiscal year.

Category	Projected scale of business (at the time of Cabinet decision)	Scale of business (for the first fiscal year)	Of which, government funds (for the first fiscal year)
Five-Year Acceleration Plan for Disaster Risk Reduction and National Resilience	Approx. 15 trillion yen	Approx. 4.2 trillion yen	Approx. 2.0 trillion yen
1 Measures to cope with increasingly severe wind and flood damage and imminent large-scale earthquakes	Approx. 12.3 trillion yen	Approx. 3.5 trillion yen	Approx. 1.5 trillion yen
2 Aging Management for a shift to preventive maintenance	Approx. 2.7 trillion yen	Approx. 0.7 trillion yen	Approx. 0.4 trillion yen
3 Promotion of digitization, etc. for efficient implementation of measures related to national resilience	Approx. 0.2 trillion yen	Approx. 0.03 trillion yen	Approx. 0.03 trillion yen

*The amount of some projects that utilize FILP are funded in the first fiscal year, exceeding the annual average of the five-year project size (approximately 15 trillion yen in total) in consideration of the current low-interest rate environment. This is because the loan amount is collectively financed in the first fiscal year or they are a part of the economic stimulus measures.

*Of the total project size of the five-year accelerated plans, which is approximately 15 trillion yen, the government expenditures are generally in the mid-7 trillion yen range.

*Some of the totals do not add up due to rounding.

Summary of Annual Plan for National Resilience, 2021—3

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4. Results of implementation of Three-Year Emergency Countermeasures for Disaster Prevention and Reduction, and National Resilience

(1) Implementation results (based on project cost)

■ The project size was targeted to be approximately 7 trillion yen in total (including the use of fiscal investment and loan program (FILP) and projects by the private sector). After a detailed examination of the local situation, approximately 6.9 trillion yen was secured by FY 2020, which is the period of the project, and the project is progressing smoothly.

Category	Project Scale (Initial Assumption)	Project Scale (as of FY2020, the period of the project)
Three-Year Emergency Countermeasures for Disaster Prevention and Reduction, and National Resilience	Approx. 7 trillion yen	Approx. 6.9 trillion yen
I. Maintain functions of critical infrastructure and others for disaster prevention	Approx. 3.5 trillion yen	Approx. 3.4 trillion yen
(1) Prevention and minimization of damage caused by large-scale flooding, sediment disaster (landslide disaster), earthquakes, tsunamis, etc.	Approx. 2.8 trillion yen	Approx. 2.8 trillion yen
(2) Ensure disaster response capabilities such as rescue, first aid and medical activities	Approx. 0.5 trillion yen	Approx. 0.5 trillion yen
(3) Secure information necessary for evacuation actions, etc.	Approx. 0.2 trillion yen	Approx. 0.1 trillion yen
II. Maintain the functions of critical infrastructure and other assets that support the national economy and livelihoods	Approx. 3.5 trillion yen	Approx. 3.5 trillion yen
(1) Secure electricity and other energy supplies	Approx. 0.3 trillion yen	Approx. 0.3 trillion yen
(2) Secure food supply, lifelines, supply chains, etc.	Approx. 1.1 trillion yen	Approx. 1.1 trillion yen
(3) Secure land, sea and air transportation networks	Approx. 2.0 trillion yen	Approx. 2.0 trillion yen
(4) Ensure information and communication functions, and services necessary for daily life, etc.	Approx. 0.02 trillion yen	Approx. 0.03 trillion yen

Some of the totals do not add up due to rounding.

(2) Results of implementation of 160 emergency measures

■ The budget up to FY2020 resulted in the achievement of 141 items. Although there are some delays due to the impact of the spread of COVID-19 and changes in plans and processes due to site conditions and other factors, 12 items are on track to achieve their targets, and it is estimated that targets have been almost achieved as a whole.

Achieve targets through budget by FY2020	141 items
Targets are on track to be achieved in FY2021 and beyond. (*1)	12 items
Needs to be considered to achieve the goal. (*2)	7 items
Overall measures	160 items

■ Necessity of securing financial resources for local governments and private facility providers and adjusting rights with related parties, etc. has been arised, and 7 items need to be considered for achieving the target. For these items, the relevant ministries and agencies will study the measures to be taken to achieve the target, reach a conclusion as soon as possible and promptly implement the measures.

(3) Cases of effectiveness in times of disaster, etc.

<Prevention and minimization of damage caused by large-scale flooding, sediment disaster (landslide disaster), earthquakes, tsunamis, etc.>
- Emergency measures for flood hazards in rivers
- Emergency measures regarding the danger of internal flooding
- Emergency measures for earthquake resilience of structures of school facilities and others

<Ensure disaster response capabilities, including rescue and first aid, and medical activities>
- Emergency measures to secure fuel for in-house power generation facilities at disaster base hospitals, etc.

<Securing electricity and other energy supplies>
- Emergency measures for seismic reinforcement of high-pressure gas facilities

<Secure food supply, lifelines, supply chains, etc.>
- Emergency measures to prevent disaster damage to agricultural greenhouses

<Securing land, sea and air transportation networks>
- Emergency measures for road slopes and embankments

*1 Some parts of the project have not been completed due to the impact of COVID-19, coordination with other related plans, and changes in the project plan and construction process originated from site conditions and other factors. However, a high percentage of the work has been completed and is on schedule for completion.
*2 Items that require consideration in order to achieve the target, such as the need to secure financial resources for the facility provider or local government, or to adjust rights with related parties.

Examples of Disaster Prevention by Projects Related to National Resilience

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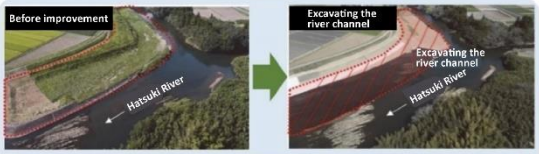
River improvement in the Sendai River Area (Isa City and Satsuma Town, Kagoshima Prefecture, etc.)

By building levees and excavating the river channel, the water level was reduced by approximately 3.1 m, and overflow from the main stream of the Sendai River was avoided during the heavy rain in July of 2021. Damage of flooding was reduced.



Major projects	Details of measures	Project cost	Period of measures
Special emergency projects to deal with extremely severe disasters	Building levees, excavating the river channel and diversion channel improvement	Approx. 37.5 billion yen	2006 – 2011
3 years emergency response	Building levees and excavating the river channel	Approx. 10.1 billion yen	2018 – 2020
Tsuruda Dam	Increase of flood control capacity (effective use of dams)	Approx. 71.1 billion yen	2007 – 2018

Heavy rain in July of 2006
297 mm/12 h

Damage and effect

Inundated area: approx. 2,800 ha
Inundated houses: approx. 2,350
Fatalities: 2
Damage amount: 37.85 billion yen

Heavy rain in July of 2021
354 mm/12 h
(Precipitation at Miyanojo Rainfall Observatory (Satsuma Town, Kagoshima Prefecture))

Inundated area: approx. 1,260 ha*
Inundated houses: approx. 140*
Fatalities: 0
Damage amount: (calculation in progress)

*Based on local government interviews as of August, 2021

Road flooding prevention project (Hichisou Town, Gifu Prefecture)

Road flooding was prevented during the heavy rain in August of 2021 by installing drainage structures such as crossing culverts and gutters.

Route	Contents of measures	Project cost	Period of measures
National route 41	Drainage structures (crossing culverts and gutters, etc.)	Approx. 2.7 billion yen*	2018 - 2020

*Total amount of emergency response project cost (flooding) for disaster prevention and mitigation, and national resilience in the improvement of Gifu Prefecture's national route 41.

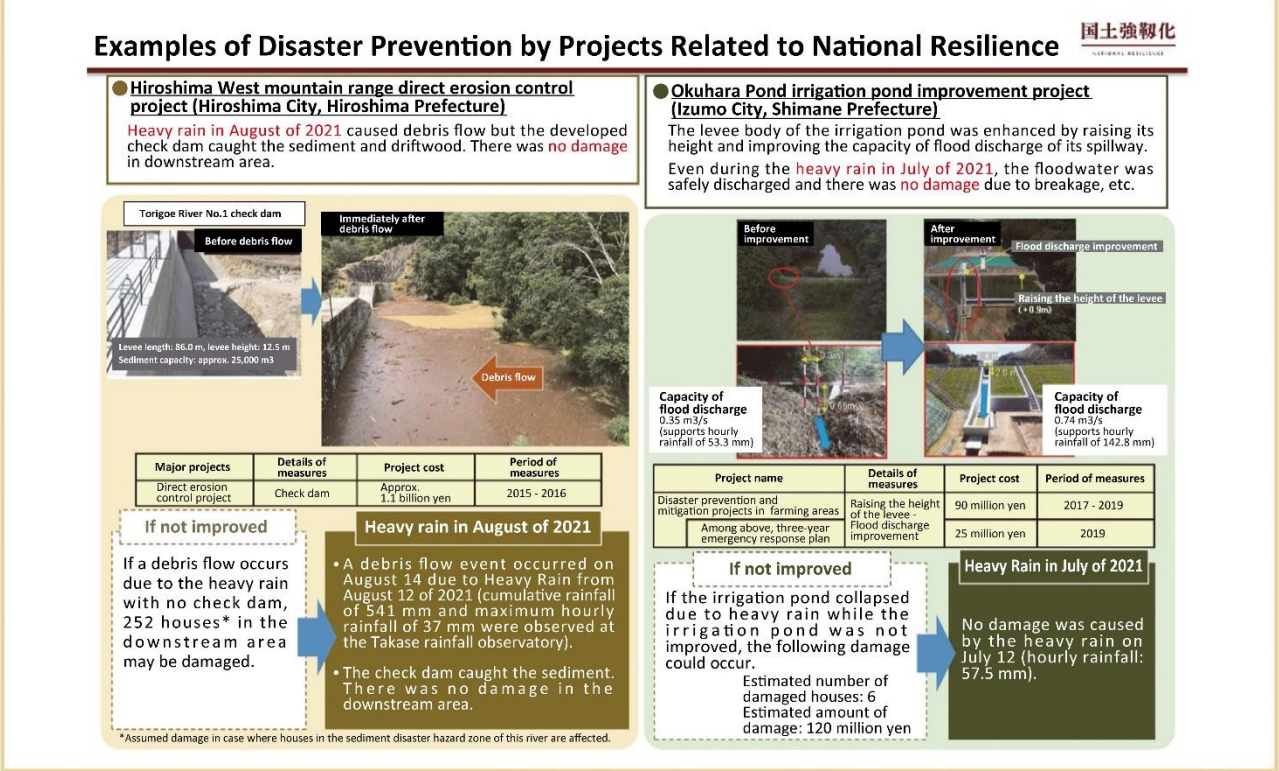
Localized heavy rain in September of 2018:
163 mm (continuous rainfall)

Damage and effect

Road flooding occurred in a section exceeding 100 m

Heavy rain in August of 2021:
358 mm (continuous rainfall)

No damage



Source: Website of National Resilience Promotion Office, Cabinet Secretariat
(Reference: https://www.cas.go.jp/jp/seisaku/kokudo_kyoujinka/pdf/nenjikeikaku2021_01.pdf)

5-2 The National Resilience Related Budgets and Revision of Tax Systems Contributing to National Resilience

In the FY 2021 supplemental budget, a national expense of approximately 1.5 trillion yen was booked as a cost to accelerate and deepen the Five-Year Acceleration Plan, along with another national expense of around 0.3 trillion yen as a cost to promote measures for national resilience consistently based on the Fundamental Plan for National Resilience. In the original budget for FY 2022, a national expense of approximately 4.6 trillion yen was also booked as a national resilience-related budget.

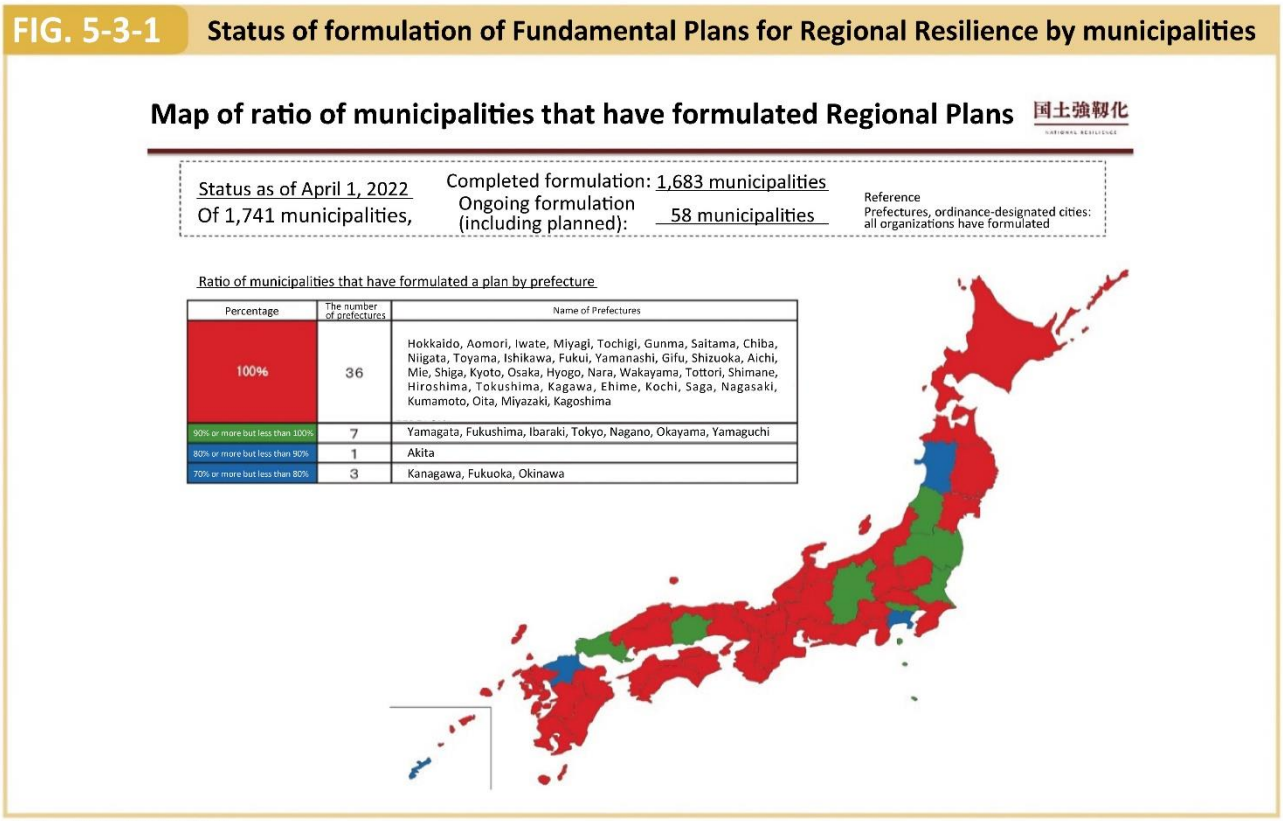
To encourage private business operators to work on national resilience by way of the tax system, the related ministries and agencies have been collaborating to further improve the tax system contribution to national resilience. 8 revisions, including 1 new item and 2 expansions and improvements, were completed in the FY 2022 tax system revisions.

5-3 Support in the Formulation of Fundamental Plans for Regional Resilience

To proceed with national resilience effectively, the promotion of regional resilience with a focus on local governments is extremely important. Local governments moved forward with formulating the Fundamental Plans for Regional Resilience (hereafter referred to as the "Regional Plans" in this section). The national government sent officers to hold briefings and supported by 57 grants and subsidies from relevant government ministries and agencies for measures that local governments conducted based on the Regional Plans. As a result, as of April 1st, 2022, 47 prefectures and 1,683 municipalities completed their formulation, while the rest of the 58 municipalities are in discussion to formulate plans as soon as possible (FIG. 5-3-1). Regarding the support of the grants and subsidies, based on the situations of each Regional Plan formulation, a determination was made from FY 2022 to promote the improvement of the content in these Regional Plans by focusing on projects that clarify project

locations, implementation periods, and other details in their plans.

FIG. 5-3-1 Status of formulation of Fundamental Plans for Regional Resilience by municipalities



Source: Cabinet Secretariat data

5-4 Encouragement of Measures for National Resilience by Private Sectors, Promotion of Public Relations, and Raising Public Awareness

(1) Encouragement of Measures for National Resilience by Private Sectors

To encourage private sectors to work on measures contributing to national resilience, the government has been operating an initiative where the third party organization approves organizations that proactively continue their projects to enhance resilience as "Organizations Contributing to National Resilience" since FY 2016. During large-scale disasters, maximizing both the self-help of each organization and the mutual support of the entire society is critical. Therefore, the government started another system to approve organizations that take the initiative in social actions as "Organizations Contributing to National Resilience (+Mutual Support)" among "Organizations Contributing to National Resilience" in FY 2018. By the end of November FY 2021, 257 organizations, including 156 "+Mutual Support" organizations, were approved in total. Advanced measures for national resilience by private sectors are spread via publishing the " Collection of Private Sector Efforts to Contribute to National Resilience" every year and introducing them on the website and social media (FIG. 5-4-1).

Furthermore, to spread individual and local activities for national resilience, the "National Resilience Work Shop" are held online for the general public, and it has been held 4 times in total in FY 2021. In addition, pilot projects for industrial parks are also conducted to promote collaboration between the government and private sectors for national resilience. In January 2022, a symposium was held to share the results in Kyoto City, Kyoto Prefecture.

FIG. 5-4-1 Encouragement of Measures for National Resilience by Private Sectors

Certification system for "Organizations Contributing to National Resilience"

A third-party certification structure for companies, etc. that positively take measures for business continuity as "organizations contributing to national resilience" was established in FY 2016.
In addition, a system was added to certify companies, etc. that are engaged in social contribution among these organizations as (+ mutual support).
☆ Certified organizations: 257 (including 156 + mutual support organizations)

Collection of Private Sector Efforts to Contribute to National Resilience

As a reference for those who are going to take measures related to national resilience, leading activities have been collected and published in a booklet and on a website every fiscal year since FY 2014 (A total of 705 cases).

Source: Website of National Resilience Promotion Office, Cabinet Secretariat
(Reference: https://www.cas.go.jp/jp/seisaku/kokudo_kyoujinka/torikumi_minkan.html)

(2) Promotion of Public Relations and Raising of Public Awareness for National Resilience

To promote public relations and to raise public awareness for national resilience, a determination was made to formulate the Strategy for Public Relations and Public Awareness for National Resilience (tentative) in the Annual Plans 2021. Therefore a new study group on public relations and public awareness was established and it made an interim report in January 2022. In this report, based on the review and the analysis of problems in the past measures, the directionality for improvement and following basic policies for public relations and public awareness were mentioned:

a) Show clear, specific information on the philosophy of national resilience, its effects, etc.

b) Offer information from the receivers' perspective, and use suitable media.

c) Encourage related agencies to take the initiative and have a positive manner in conducting measures, and enhance the collaboration.

Based on this report, the Cabinet Secretariat will formulate the Strategy for Public Relations and Public Awareness for National Resilience with cooperation between related ministries and agencies, and work harder on public relations and public awareness measures for national resilience.

5-5 Reconsideration of the Fundamental Plan for National Resilience

Under the philosophy that "we have to proceed with measures for national resilience as a part of the 100-year-national development based on 'the Grand National Plan' looking far ahead to 1,000 years" (the Fundamental Plan Chapter 1), the current Fundamental Plan for National Resilience (hereafter referred to as the "Fundamental Plan" in this section) establishes the basic guidelines regarding the formulation of measures for national resilience as the basic plans to aim to promote them comprehensively and systematically. It also determines to "review contents of the plans approximately every five years considering future changes of the socio-economic status surrounding national resilience and the future situation of promoting national resilience measures" (the Fundamental Plan Chapter 4). Considering that the last revision of the current Fundamental Plan was completed in December 2018, which is three years prior to FY 2021, the Advisory Committee began to discuss its reconsideration.

In light of past measures for national resilience, the philosophy of national resilience, and knowledge from changes in the latest social circumstances and disasters, the Advisory Committee is discussing the general issues

on national resilience in the future, including the Regional Plans, the Annual Plans, how to stimulate private sectors into taking their measures, and systems of national resilience plans such as each national resilience measure in order to promote national resilience even further. The Advisory Committee will proceed with a revision of the Fundamental Plan based on these discussions.

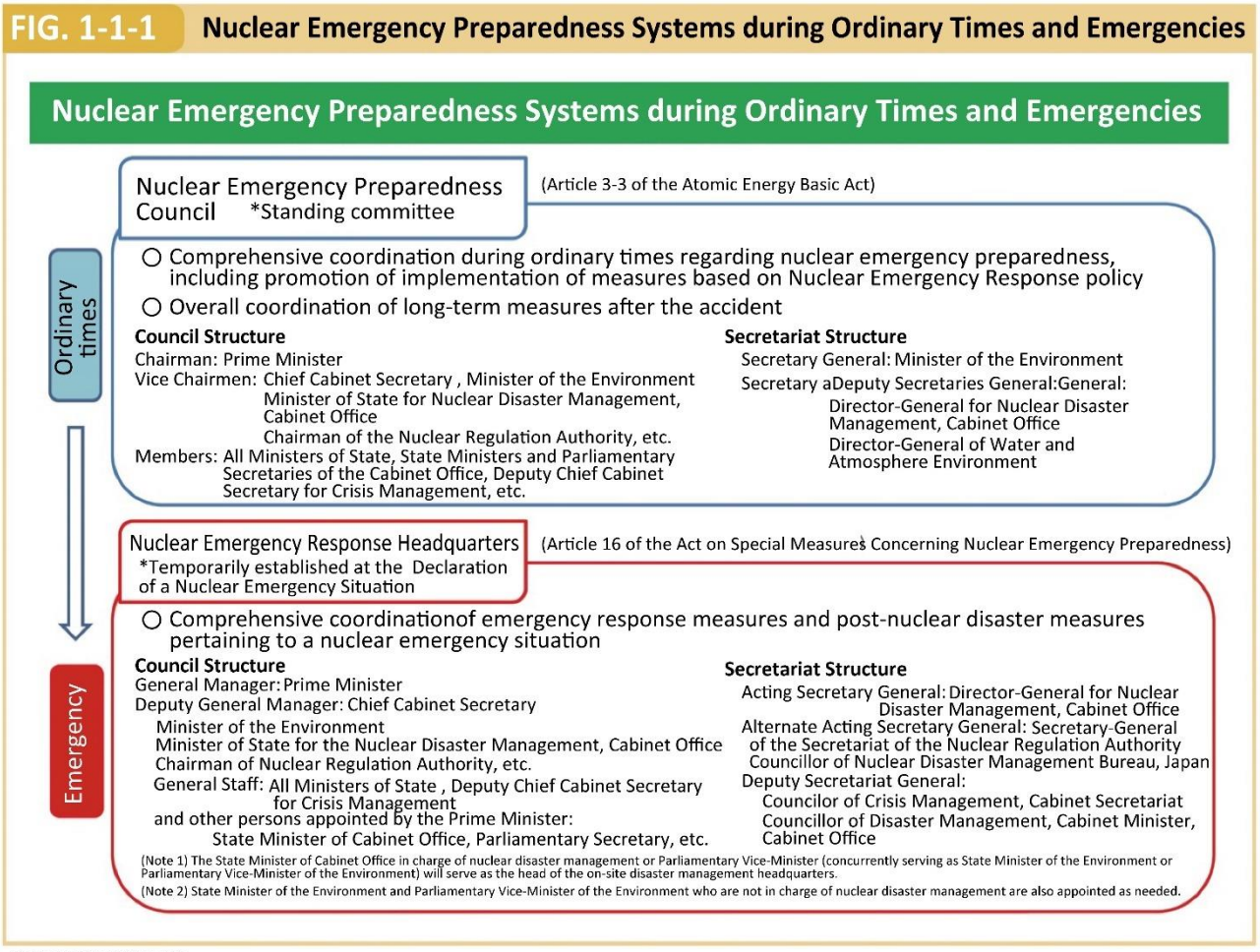
Chapter 2 Status of Countermeasures against Nuclear Emergency

Section 1 Nuclear Emergency Preparedness Systems

1-1 Nuclear Emergency Preparedness System in Ordinary Times

Measures related to nuclear disaster emergencies must be taken and promoted by the entire government in an integrated manner since the damage in the unlikely event of a nuclear emergency would be enormous and extensive. For this reason, to promote nuclear emergency preparedness measures by the entire government during ordinary times, the Cabinet has established an agency, the "Nuclear Emergency Preparedness Council." The main role of this Council is to approve a Regional Emergency Response, which are confirmed to be concrete and reasonable in light of the NRA Guide for Emergency Preparedness and Response (NRA EPR Guide), by the Regional Nuclear Disaster Management Councils in each region with the participation of the Cabinet Office, other relevant ministries and agencies along with relevant local governments. The Nuclear Emergency Preparedness Council is chaired by the Prime Minister, vice-chaired by the Chief Cabinet Secretary, the Minister of the Environment, Minister of State for Disaster Management, and the Chairman of the Nuclear Regulation Authority. The members of this Council include the Ministers of State and the Deputy Chief Cabinet Secretary for Crisis Management (FIG. 1-1-1).

FIG. 1-1-1 Nuclear Emergency Preparedness Systems during Ordinary Times and Emergencies



Source: Cabinet Office data

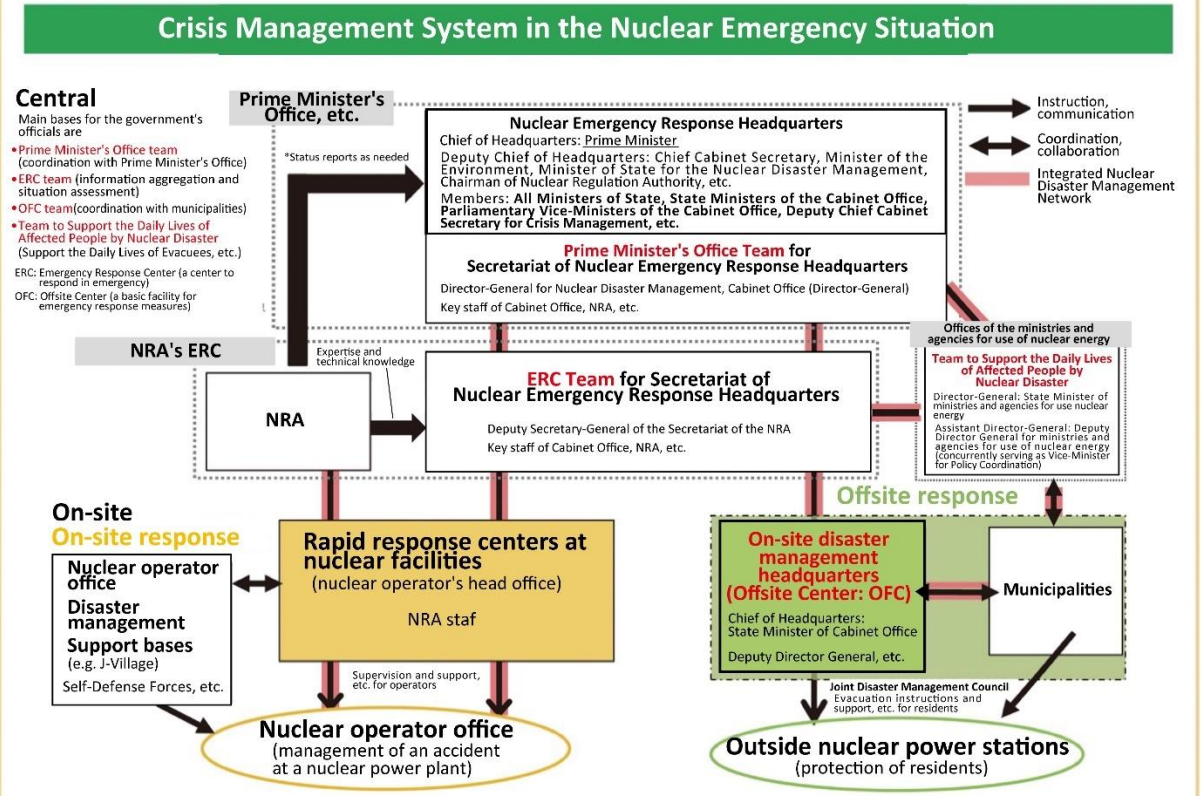
1-2 Nuclear Emergency Preparedness System in a time of Emergency

In the event of a nuclear emergency due to the release of a vast amount of radioactive materials, a Nuclear Emergency Response Headquarters will be established. The main role of this headquarters is to comprehend the current situation and damage at the site and to accurately and promptly implement emergency response measures appropriate to the situation. To this end, the Headquarters coordinates comprehensively with relevant national agencies and local governments. The Chief of Headquarters is headed by the Prime Minister, with the role of Deputy Chief taken up by the Chief Cabinet Secretary, the Minister of the Environment, Minister of State for Disaster Management, and the Chairman of the Nuclear Regulation Authority. Other members of this Headquarters include the Ministers of State and the Deputy Chief Cabinet Secretary for Crisis Management (FIG. 1-1-1).

Regarding the separation of roles at this Headquarters, the Nuclear Regulation Authority will be solely responsible for making decisions on technical and specialized matters, while the relevant ministries and agencies will be responsible for procurement of equipment necessary for response to nuclear facilities and off-site response in general based on instructions from the Chief of Headquarters (Prime Minister). The secretariat of the Headquarters will be the Director-General for Nuclear Disaster Management, the Cabinet Office, which was established on October 14, 2014.

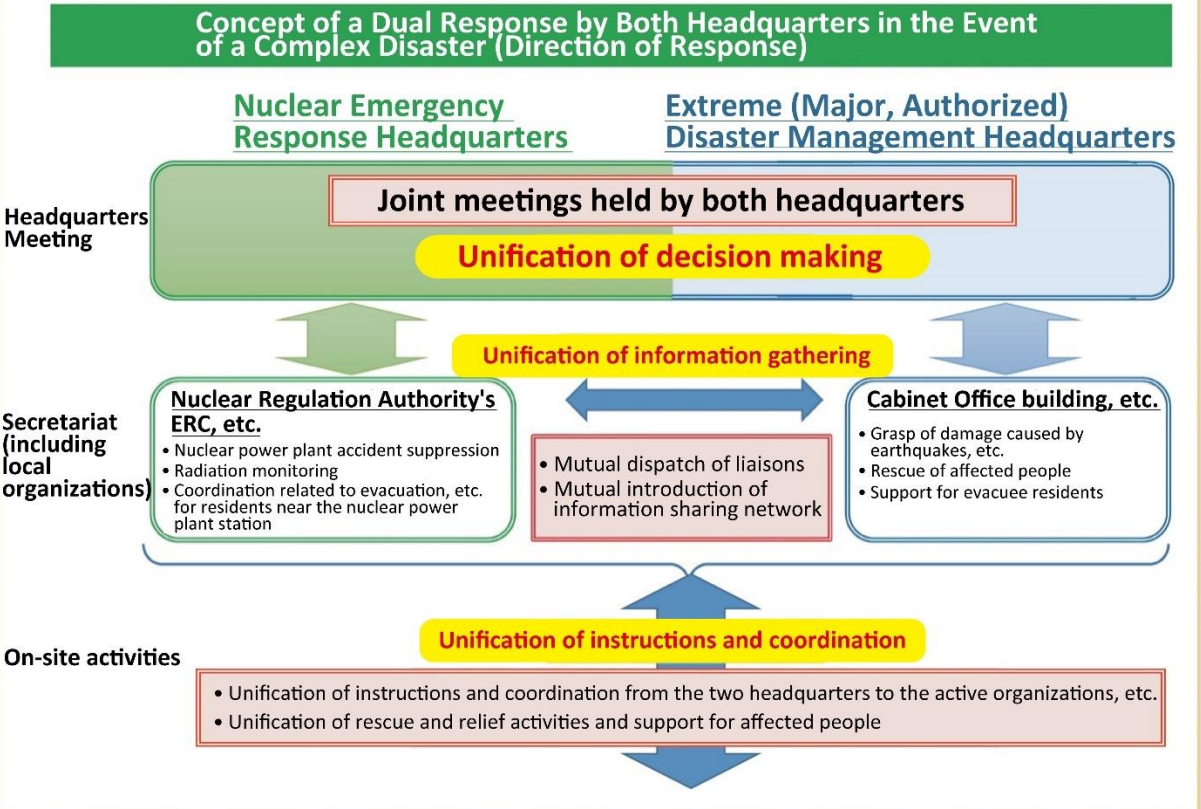
In addition, concerning complex disasters, the Basic Disaster Management Plan was revised in July 2015 to establish a coordinated system that enables the “Extreme Disaster Management Headquarters,” which responds to natural disasters, and the “Nuclear Emergency Response Headquarters,” which responds to nuclear disasters, to collect information, make decisions, and provide instructions and coordination in an integrated manner for strengthening the system to respond complex disasters (FIG. 1-2-1, FIG 1-2-2).

FIG. 1-2-1 Crisis Management System in the Nuclear Emergency Situation



Source: Cabinet Office data

FIG. 1-2-2 Concept of a Dual Response by Both Headquarters in the Event of a Complex Disaster (Direction of Response)



Source: Cabinet Office data

Section 2 Nuclear Emergency Measures at the Nuclear Regulation Authority (NRA)

Based on the lessons learned from the accident at Tokyo Electric Power Company (TEPCO)'s Fukushima Daiichi Nuclear Power Station (FDNPS), it is extremely important to continue efforts to ensure trust in nuclear regulatory administration. In order to fulfill its mission to protect people and the environment through sound regulation of nuclear energy, the Nuclear Regulation Authority (NRA) addresses various policy issues based on the following organizational principles: Independent decision-making, effective action, a transparent and open organization, ambition and responsibility, and responsiveness to emergencies.

2-1 Efforts Related to Nuclear Emergency Measures

The NRA has been working to improve the NRA EPR Guide to ensure that the criteria used in disaster management planning are always the most appropriate, including actively incorporating the latest international knowledge.

At the 21st FY2021 NRA Commission Meeting (July 21, 2021), the NRA decided a partial revision of the NRA EPR Guide. This revision clarified the applicable persons who must evacuate in the site area emergency phase, based on the actual situation of "emergency response in the region, including evacuation plans" compiled by Regional Nuclear Disaster Management Councils, and the status of facilities for sheltering where radiation protection measures have been taken.

Regarding medical structure in case of a nuclear emergency, the steady improvement of the medical care in case of a nuclear emergency is being promoted, including support for Advanced Radiation Emergency Medical Support Center, etc.

2-2 Efforts for Emergency Response

In FY2021, the NRA established a basic drill policy for emergency response and its detailed operation rules in order to maintain and improve the emergency response capabilities of emergency response personnel, and to ensure that emergency response personnel are steadily engaged in drills and training. Based on this, necessary management was conducted in the second half of FY 2021, including preparation of drills and training plans and evaluation of their implementation. The NRA also conducted drills in conjunction with the nuclear operators' disaster prevention drills in pursuit of smoother information sharing between the NRA Emergency Response Center (ERC) Plant Team and the nuclear operator's nuclear facility contingency response center to improve emergency response capabilities.

Also, regarding commercial power reactor facilities and nuclear fuel facilities, the result of evaluations for nuclear operators' disaster prevention drills conducted at each nuclear facility was reported at the FY 2021 the Debriefing Session of Emergency Drills by Nuclear Operators. In addition, based on the drill scenarios developed in FY 2019 and 2020, the drill scenario development working group established under the Debriefing Session of Emergency Drills by Nuclear Operators has conducted drills to improve the judgment capability of commanders together with 5 nuclear operators and 6 nuclear operators, respectively. Furthermore, based on the exercise scenarios prepared in FY 2020, drills were conducted with 9 nuclear operators to improve their on-site response capabilities. Based on the results of these drills, work has begun on a new scenario for drills in FY 2021.

2-3 Efforts Related to Emergency Monitoring

The NRA has established "emergency monitoring centers" in all regions where nuclear facilities are located in order to conduct effective emergency monitoring based on the NRA EPR Guide. For each regional emergency monitoring center, necessary materials and equipment are maintained and managed to ensure that they function reliably in the event of a nuclear disaster. Furthermore, the emergency monitoring system is being enhanced and strengthened through the placement of staff in charge of radiation monitoring at the NRA regional office. As for the "Radiation Monitoring Information Sharing and Publication System", it is designed to consolidate, share among persons concerned, and promptly publish the results of emergency monitoring in the event of a nuclear disaster. And the NRA publicizes monitoring information from ordinary times through the system so that it can contribute to the smooth communication of information to the public in the event of an emergency.

2-4 Accidents and breakdowns, etc.

The "Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors" (Act No. 166 of 1957) requires nuclear operators, etc., and the "Act on the Regulation of Radioisotopes, etc." (Act No. 167 of 1957) requires licensed users to report accidents, breakdowns, etc. to the NRA. In FY 2021, we received 3 reports from nuclear operators based on the "Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors" and 1 report from a licensed user based on the "Act on the Regulation of Radioisotopes, etc."

Section 3 Enhancement and Strengthening of Local Nuclear Emergency Preparedness System

3-1 Development and Support of Local Disaster Management Plans and Evacuation Plans

Local governments are required to prepare a local disaster management plan (Nuclear Disaster Risk Management edition) (hereinafter referred to as "local disaster management plan" in this chapter) based on the "Basic Act on Disaster Management" to specify basic measures to be taken by prefectures and municipalities in response to nuclear disasters.

Currently, based on the Basic Disaster Management Plan and the NRA EPR Guide, local disaster management plans are formulated by relevant local governments within an approximate 30 km radius from nuclear power plants (FIG. 3-1-1). It is important to make local disaster management plans more concrete and comprehensive, and the government actively help the local governments with issues that are difficult to solve on their own as they proceed to embody evacuation plans and measures for persons requiring special care.

FIG. 3-1-1 Status of Local Disaster Management Plans and Evacuation plans (as of March 31, 2022)

	Target municipalities	The number of disaster management plans formulated	The number of evacuation plans formulated
Tomari Region	13	13	13
Higashidori Region	5	5	5
Onagawa Region	7	7	7
Fukushima Region	13	13	11
Kashiawazaki-Kariwa Region	9	9	9
Tokai Dai-ni Region	14	14	5
Hamaoka Region	11	11	11
Shiga Region	9	9	9
Fukui Area	23	23	23
Shimane Region	6	6	6
Ikata Region	8	8	8
Genkai Region	8	8	8
Sendai Region	9	9	9
Total 13 Regions	135	135	124

Source: Cabinet Office

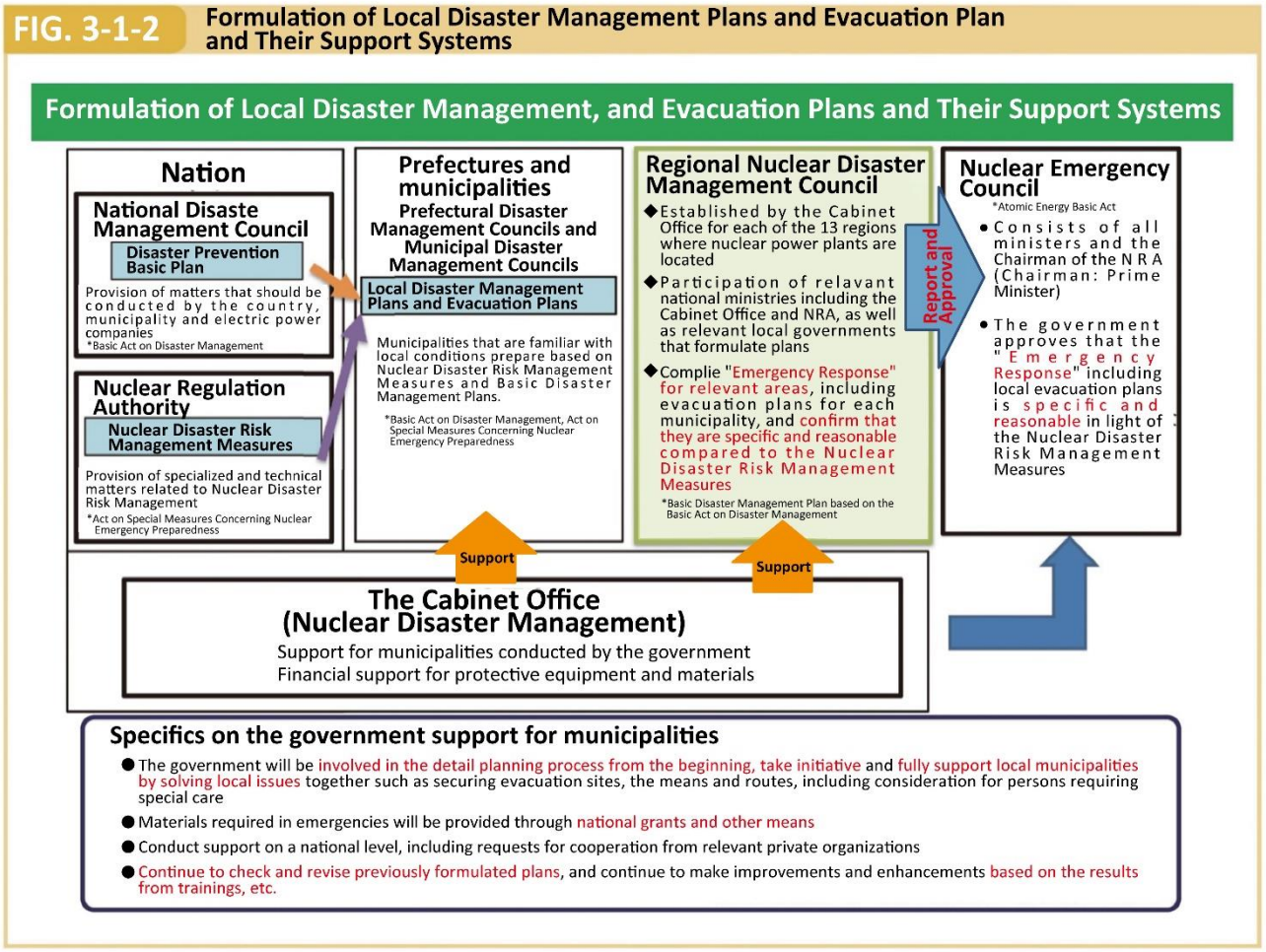
The national government addresses and promotes the establishment and enhancement of the Nuclear Emergency Preparedness System, including the securing of evacuation routes through road construction and other measures.

The Cabinet Office established the Regional Nuclear Disaster Management Council (hereinafter referred to as "Council") as a working team to solve issues raised at each of districts where nuclear power plants are located, and set a working group under this Council based on the "Future Actions to Enhance Local Disaster Management Plan" (decided by the Nuclear Disaster Management Council in September 2013) to support the implementation and

enhancement of local disaster management plans and evacuation plans prepared by prefectures and municipalities. Each regional working group considers support on developing evacuation plans, wide-area coordination, and support from the national government's working groups. The national government and relevant local governments work together to realize and enhance local disaster management plans and evacuation plans (FIG.3-1-2).

The "Emergency Response" including evacuation plans are compiled for regions where local disaster management plans and evacuation plans have been made specific and enhanced, and the Council confirms that these plans are specific and reasonable in light of the NRA EPR Guide. In addition, the Cabinet Office makes it a rule to report the confirmation results at the Council to the Nuclear Disaster Management Council for its approval. For regions whose "emergency response" is confirmed, the PDCA cycle has been introduced to continuously enhance and strengthen the local Nuclear Emergency Preparedness System with these steps: (1) "Plan" that those regions are provided support for the concrete formulation and enhancement of their "emergency response" and have the Council confirm this emergency response, (2) "Do" emergency drills based on the "emergency response" confirmed by the Council, (3) "Check" that the points to improve are identified from the drill results, and then (4) take "Action" to make improvements on the "Emergency Response" in the said regions based on the points learned from (3) "Check."

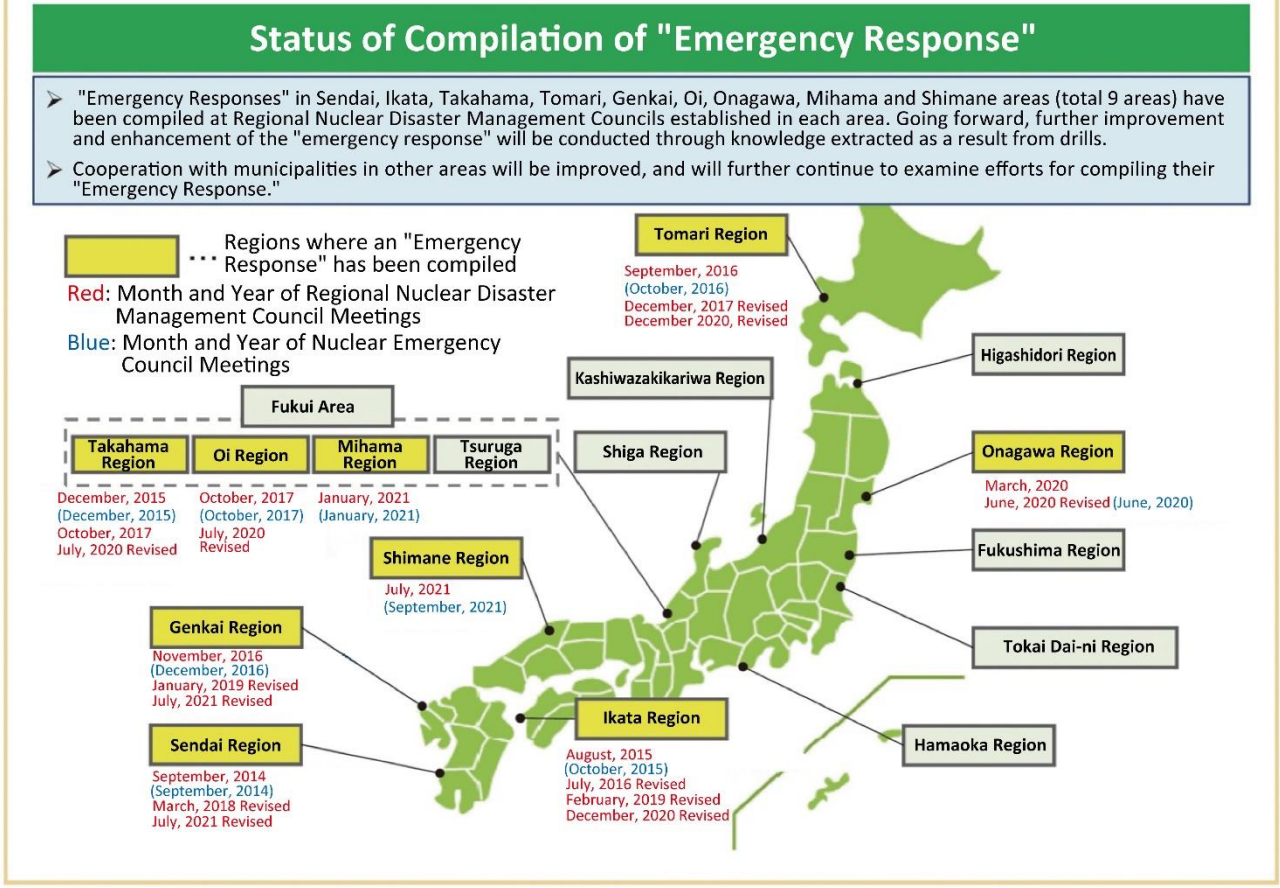
FIG. 3-1-2 Formulation of Local Disaster Management Plans and Evacuation Plan and Their Support Systems



Source: Cabinet Office data

As for the example of "emergency response" in each region, in FY 2021, the "Emergency Response in the Shimane Region" plan was compiled at the first meeting of Shimane Regional Nuclear Disaster Management Council and its contents were confirmed (FIG.3-1-3).

FIG. 3-1-3 Status of Compilation of "Emergency Response"



Source: Cabinet Office data

Note that for the Fukui area, subcommittees will be set up in Tsuruga, Mihama, Ohi and Takahama regions to discuss specific issues that need to be resolved in each region.

(1) Shimane Region

In the Shimane Region, the Working Group of the Shimane Regional Nuclear Disaster Management Council which was established under the Shimane Regional Nuclear Disaster Management Council was held 33 times during the period from March 2015 to July 2021 to discuss emergency response in the event of a nuclear disaster. Subsequently, the "Emergency Response in the Shimane Region" plan was compiled at the first meeting of the Shimane Regional Nuclear Disaster Management Council which was held on July 30, 2021.

(Reference: https://www8.cao.go.jp/genshiryoku_bousai/kyougikai/02_shimane.html)

The following 4 points are important for "Emergency Response in the Shimane Region."

1. The PAZ (Precautionary Action Zone, within a 5-km radius of the power plant, or 9,487 people in 4,250 households) is where people will be evacuated in the event of a facility site emergency or a total emergency. Secure evacuation sites outside the 30 km radius.
2. The UPZ (Urgent Protective Action Planning Zone, within a 5 to 30 km radius of the power plant, or approximately 450,000 people in 190,000 households) is where people will be evacuated indoors under a total emergency situation. As a result of emergency monitoring, people in areas with radiation levels above a certain level will be temporarily relocated. Secure evacuation sites for approximately 450,000 people in the

UPZ.

3. Reflect protective measures such as implementing infection control in evacuations vehicles or shelters during an infection epidemic.
4. Implement measures to facilitate evacuation such as the introduction of a system that can control signals along evacuation routes and the provision of information on routes to evacuation facilities and road congestion by district via websites and apps.

At the first meeting of the Shimane Regional Nuclear Disaster Management Council, the Council confirmed the status of measures to secure evacuation sites and means of transportation and the status of the maintenance of indoor evacuation facilities. Under unforeseen circumstances, the 4 ministries and agencies involved in the actual response: the National Police Agency, the Fire and Disaster Management Agency, the Japan Coast Guard, and the Ministry of Defense will provide necessary support upon request from related organizations. In addition, Chugoku Electric Power Company indicated that it would do its best to respond as a business operator by securing welfare vehicles, mobilizing personnel and equipment for contamination screening and simple decontamination. Based on the above, it was confirmed that the response from Shimane and Tottori Prefectures and other relevant local governments as well as relevant government ministries and agencies were concrete and reasonable in light of the NRA EPR Guide.

In addition, at the 12th meeting of the Nuclear Disaster Management Council held on September 7, 2021, the results of the confirmation at the 1st meeting of the Shimane Regional Nuclear Disaster Management Council were reported and approved.

(2) Genkai and Sendai Regions

Based on the "basic concept of protective measures under the epidemic of infectious diseases based on the spread of COVID-19," the "Emergency Response in the Genkai Region" and "Emergency Response in the Sendai Region" plans were revised at the Genkai Regional Nuclear Disaster Management Council (3rd meeting) and Sendai Regional Nuclear Disaster Management Council (2nd meeting) in July 2021, respectively.

(Reference: https://www8.cao.go.jp/genshiryoku_bousai/kyougikai/02_genkai.html
https://www8.cao.go.jp/genshiryoku_bousai/kyougikai/02_sendai.html)

3-2 Other Support and Measures for Related Prefectures

(1) Stockpiling and Distribution of Stable Iodine Agents

Stable iodine agents, which are taken to prevent or reduce internal exposure of the thyroid gland to radioactive iodine (I), are stockpiled and distributed in advance by local governments with financial support from the government in the PAZ (Precautionary Action Zone) and the UPZ (Urgent Protective Action Planning Zone). And the Cabinet Office has been stockpiling stable iodine agents for residents outside the UPZ.

With regard to advanced distribution, considering the burden of receiving stable iodine agents through emergency distribution, local governments are given support to operate advanced distribution appropriately for the residents in the UPZ where advanced distribution is expected to facilitate evacuation. As a part of limited and exceptional response to COVID-19 since 2020, local governments are encouraged to remotely hold the pre-distribution town-hall meetings by medical doctors, instead of in-person format, Remote format still complies with the NRA EPR Guide and NRA's manual regarding distribution and taking of stable iodine agents.

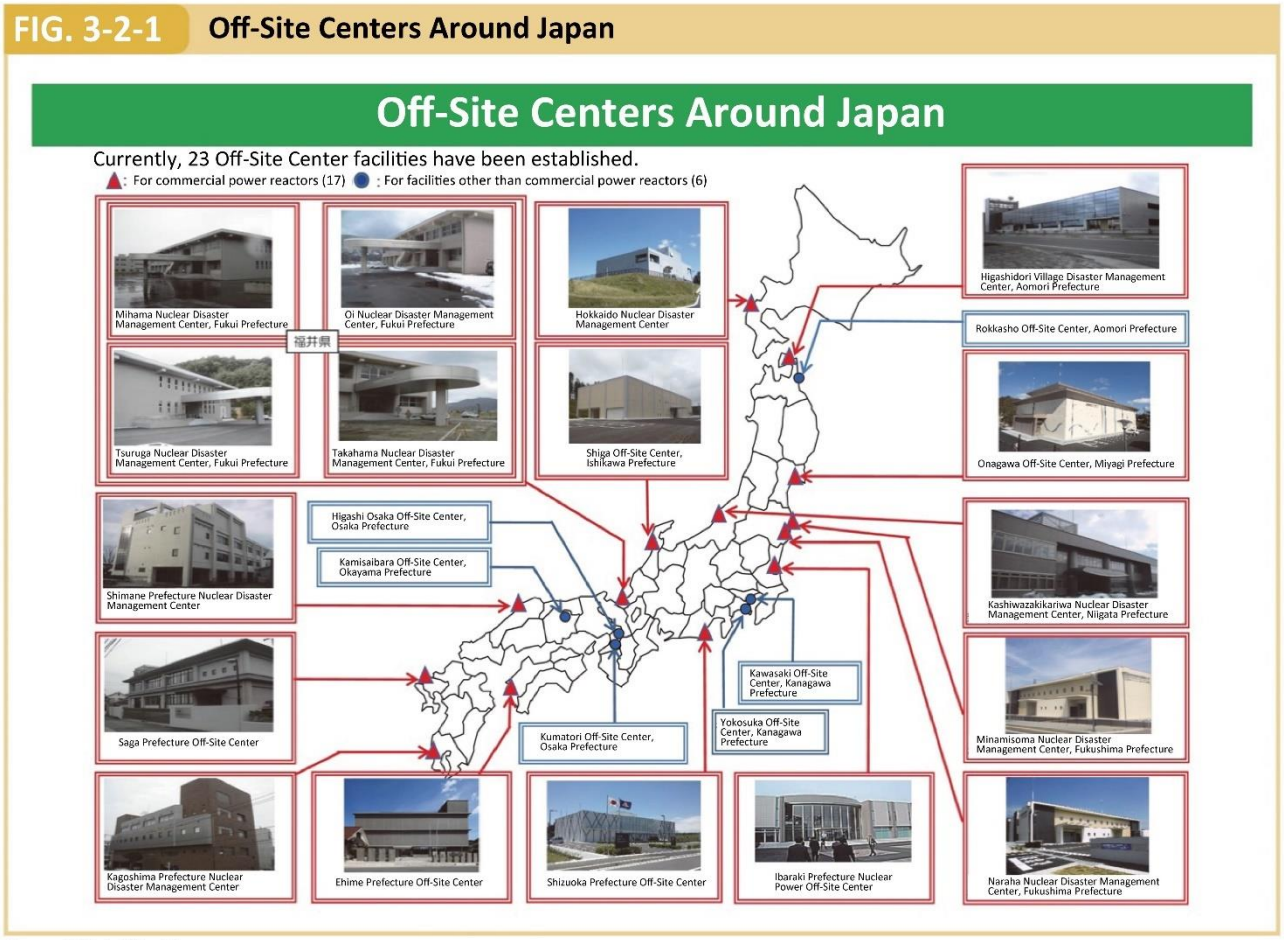
(2) Designation of an Off-Site Center

Under Article 12, paragraph 1 of the "Act on Special Measures Concerning Nuclear Emergency Preparedness" (Act No. 156 of 1999), the Prime Minister is required to designate an emergency response center (off-site center) for each nuclear site (FIG. 3-2-1).

The requirement for off-site centers is set forth by a Cabinet Office Ordinance on Off-Site Centers pursuant to the "Act on Special Measures Concerning Nuclear Emergency Preparedness." However, based on the lessons learned from the accident at the Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Station, the location of Off-Site Centers for commercial power reactors was revised in September 2012 to be within a 5 to 30 km-radius (within the UPZ). Subsequently, in March 2017, the Nuclear Regulation Authority (NRA) revised the NRA EPR Guide and set the scope of priority areas for Nuclear Disaster Risk Management for nuclear fuel facilities. In August 2019, the requirements to be met by Off-Site Centers for nuclear fuel facilities were revised to be basically the same as those for power generation reactor facilities.

As for the Onagawa Off-Site Center, the former Off-Site Center was damaged by the tsunami brought on by the Great East Japan Earthquake, and the Fire Academy in Sendai City, Miyagi Prefecture was used as a temporary Off-Site Center. However, a new Off-Site Center was constructed in Onagawa Town in the same prefecture and designated in April 2020.

FIG. 3-2-1 Off-Site Centers Around Japan



Source: Cabinet Office data

(3) Improving Nuclear Disaster Countermeasures

At the Inter-Ministerial Council for Nuclear Power held in March 2016, the "Stance on Enhancing Nuclear Emergency Response Measures" was compiled as a response to the request from the National Governors' Association in order to respond to the voices of local governments responsible for regional disaster management regarding nuclear energy policy. In April of the same year, a Committee of Relevant Ministries and Agencies on Nuclear Emergency Response Measures was held to address the enhancement of Nuclear Disaster Risk Management in a unified manner, and a decision was made to establish 3 subcommittees. These subcommittees operated on 3 different themes, or the cooperation of operational organizations (Subcommittee 1), the cooperation of private business operators (Subcommittee 2), and how to provide information including diffusion calculation (Subcommittee 3). In each subcommittee, related ministries and agencies collaborated and cooperated with each other, while listening to the opinions of local governments, to conduct specialized and practical studies, and the results were reported to the Inter-Ministerial Council for Nuclear Power held in July 2017 (FIG. 3-2-2).

(4) Protective Measures in the Event of a Nuclear Disaster Under the Prevalence of Infectious Diseases based on the Spread of COVID-19

In light of the COVID-19 pandemic, protective measures against a nuclear disaster under infectious disease epidemic conditions must be given the highest priority to protect the lives and health of the public from the dual risks of radiation exposure and infection. Therefore, on 2nd June, 2020, the Cabinet Office announced the "Basic

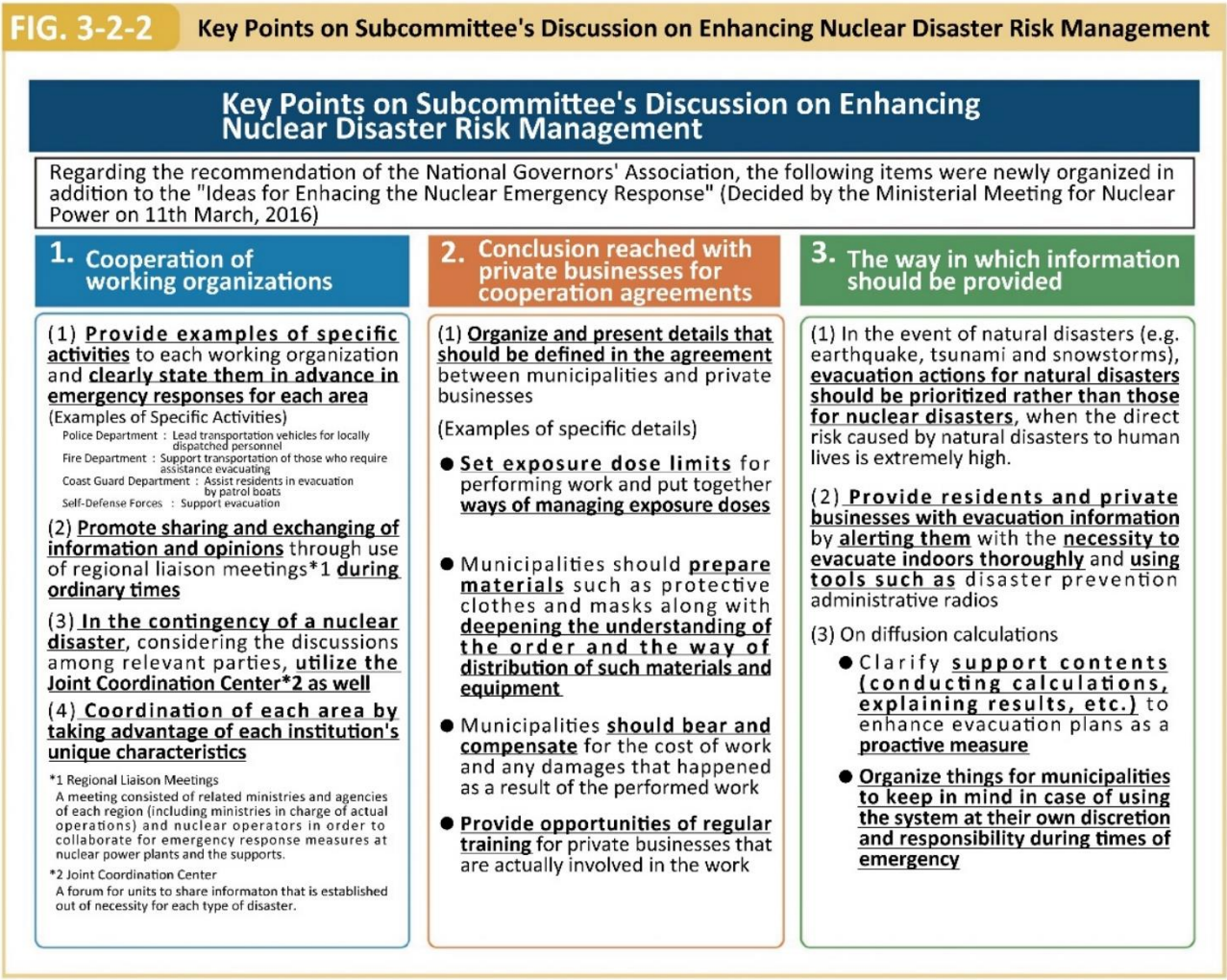
Concept of Protective Measures in Case of Nuclear Disasters during an Epidemic of Infectious Diseases Due to the Spread of the Novel Coronavirus" In a nuclear disaster, it was decided that protective measures under local emergency response and infection prevention measures stemming from the action plan from the "Act on Special Measures for Pandemic Influenza and New Infectious Diseases Preparedness and Response" will be employed to the extents possible to provide the best nuclear disaster risk management measures possible in case of concurrent infectious disease outbreak. In addition, on 2nd November, 2020, the "Guidelines for the Implementation of Protective Measures in Case of Nuclear Disasters during an Epidemic of Infectious Diseases Due to the Spread of the Novel Coronavirus" was specified to protect life and health reasonably, taking into consideration various risks, including the possibility of COVID-19 aggravation among the elderly. Here are some of the points listed in the guidelines:

- At shelters and in evacuation vehicles, infection control measures, such as maintaining adequate physical distance, wearing masks, and thoroughly disinfecting hands, must be implemented
- Efforts must be made to prevent infection by trying to separate and isolate close contacts with positive patients, symptomatic people with fevers, coughs, etc., and other asymptomatic people.
- In the cases of sheltering-in-place in avoidance of exposure to radioactive materials, shared ventilation should be avoided. However, from the viewpoint of countermeasures against infectious diseases, efforts should be made to ventilate the area for a few minutes every 30 minutes or so, while paying close attention to the release of radioactive materials.

In addition, local governments were instructed to take appropriate measures in consideration of the situation at the site, and to prepare nuclear disaster countermeasures in accordance with the specific situation of each region.

(Reference: https://www8.cao.go.jp/genshiryoku_bousai/pdf/08_sonota_bougosochi.pdf
https://www8.cao.go.jp/genshiryoku_bousai/pdf/08_sonota_guidelines.pdf)

FIG. 3-2-2 Key Points on Subcommittee's Discussion on Enhancing Nuclear Disaster Risk Management



Source: Cabinet Office data

3-3 Drills and Training Related to Local Nuclear Emergency Preparedness Systems

(1) Support for Nuclear Emergency Drills in Local Governments

Local governments are required to conduct nuclear emergency response drills on a regular basis based on the "Basic Act on Disaster Management" and other relevant laws. In the drills organized by the prefectures, normally, prefectural governors, local governments, and relevant national and regional operational organizations such as the police, fire department, coast guard, and Self-Defense Forces will participate. There are some practical drills conducted for the evacuation of residents and contamination screening (FIG. 3-3-1).

Each Regional Nuclear Disaster Management Council provides necessary support for regions where the local disaster management plan and evacuation plan have been concretized and enhanced, such as planning and implementation of drills, dissemination of evaluation methods, and implementation of the PDCA cycle through drills, with the aim of verifying the concreteness and effectiveness of the local disaster management plan and evacuation plan.

In addition, in March 2018, the Cabinet Office formulated the "Guidance for Planning, Implementation and Evaluation of Nuclear Emergency Response Drills," which provides basic guidelines for all aspects of drills, from planning, implementation, to evaluation of drills led by prefectures, and revised it in March 2019.

(Reference: https://www8.cao.go.jp/genshiryoku_bousai/kunren/kunren.html)

FIG. 3-3-1 Status of Nuclear Emergency Response Exercises in All Areas Conducted by Local Governments in FY 2021

Regions/ Areas	Exercise Name	Date
Tomari	Hokkaido Nuclear Emergency Response Exercise	October 28, 2021
Higashidori	Aomori Prefecture Nuclear Emergency Response Exercise	November 1, 2021
Onagawa	Miyagi Prefecture Nuclear Emergency Response Exercise	February 10 to 12, 2022 (*Comprehensive Nuclear Emergency Response Exercise with the government)
Fukushima	Fukushima Prefecture Nuclear Emergency Response Exercise	November 24 and 27, 2021
Kashiwazakikariwa	Niigata Prefecture Nuclear Emergency Response Exercise	November 9 and 13, 2021
Shiga	Ishikawa Prefecture Nuclear Emergency Response Exercise	November 23, 2021
	Toyama Prefecutre Nuclear Emergency Response Exercise	
Fukui	Fukui Prefecture Comprehensive Nuclear Emergency Response Exercise	October 29 and 30, 2021
	Shiga Prefecture Nuclear Emergency Response Exercise	October 29 and November 20, 2021
	Gifu Prefecture Nuclear Emergency Response Exercise	October 29, November 20, November 24, November 28, 2021
	Kyoto Prefecture Nuclear Emergency Response Exercise	November 28, 2021
Hamaoka	Shizuoka Prefecture Nuclear Emergency Response Exercise	Exercise canceled due to rapid spread of COVID-19
Shimane	Shimane Prefecture Nuclear Emergency Response Exercise	February 2, 2022
	Tottori Prefecture Nuclear Emergency Response Exercise	February 2, 2022
Ikata	Ehime Prefecture Nuclear Emergency Response Exercise	October 15, 2021
	Yamaguchi Prefecture Nuclear Emergency Response Exercise	
Genkai	Saga Prefecture Nuclear Emergency Response Exercise	February 26, 2022
	Nagasaki Prefecture Nuclear Emergency Response Exercise	December 4, 2021
	Fukuoka Prefecture Nuclear Emergency Response Exercise	February 26, 2022
Sendai	Kagoshima Prefecture Nuclear Emergency Response Exercise	February 11, 2022

Source: Cabinet Office data

(2) Training for Employees of National and Local Governments, Operational Organizations, etc.

(Training program by the Government)

The Cabinet Office conducted a training course for nuclear disaster response personnel and tabletop exercises of on-site nuclear disaster management headquarters for those involved in disaster prevention work at the national and local governments, with the aim of helping them understand the concept of protective measures in the NRA EPR Guide and improve their ability to respond to a nuclear disaster.

In addition, a training course for core personnel was conducted for those who play a central role in disaster management to promote their understanding of the operation of a national headquarters in response to the developments of a nuclear disaster. Also, a training course for practical personnel was conducted for those involved in disaster management in local governments to improve their ability to share the information of protective measures necessary for smooth evacuation of residents in the event of a nuclear disaster.

Furthermore, a basic training course on nuclear disaster prevention was conducted for those involved in disaster prevention operations in the national government, with the aim of providing them with the basic knowledge necessary for radiation protection.

1. Training for nuclear disaster response personnel

Training for personnel involved in disaster prevention operations of the government and local governments who respond to nuclear disasters is conducted for the purpose of acquiring basic knowledge about nuclear disaster risk management measures based on laws and regulations, NRA EPR Guide, and lessons learned from the accident at the Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Station. In FY 2021, 36 sessions were held,

and their main contents are as follows.

- Overview of laws and regulations related to nuclear emergency preparedness (classroom lecture).
- Basic concept of radiation protection based on the Nuclear Disaster Risk Management Emergency Response Measures (classroom lecture)
- Lessons learned from the accident at the Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Station (classroom lecture), etc.

2. On-site nuclear disaster management headquarters tabletop exercises

For personnel involved in disaster prevention operations of the government and local governments who respond to nuclear disasters, these exercises are implemented for the purpose of acquiring the ability to respond to nuclear disasters, and to verify and improve local disaster management plans and evacuation plans formulated by local governments. In FY 2021, 13 sessions were held, and its main contents are as follows.

- Activities at the emergency response base facility (classroom lecture)
- Functional group exercises
- Tabletop exercises based on scenarios, etc.

3. Core human resource development training

In order to develop human resources who can play a central role in responding to a nuclear disaster, a training course for core human resources development is conducted for personnel who play a central role in nuclear disaster in the national government and local governments, with the aim of acquiring necessary knowledge and improving their abilities. In FY 2021, 2 sessions were held for each of national and prefectural personnel, and their main contents of these training sessions are as follows.

- Emergencies in power reactors (classroom lecture)
- Nuclear emergencies and health effects (classroom lecture)
- Protective measures in nuclear emergencies (classroom lecture)
- Tabletop exercises

4. Practical human resource training

a. Response to contamination screening

This training is for local government personnel in charge of implementation plans for contamination screening and simple decontamination. The purpose of this training is to develop personnel who will be in charge of preparing specific plans and manuals for contamination screening, as well as personnel who will be in charge of the screening sites. In FY 2021, 4 sessions were held, and their main contents are as follows.

- Basic concept of contamination screening (classroom lecture)
- Exercises on planning and operation of contamination screening

b. Evacuation by bus, etc.

For local government officials in charge of bus evacuation plans, practical human resources training is conducted with the aim of developing human resources who can prepare specific plans and manuals for bus evacuation. In FY 2021, 4 sessions were held, and their main contents are as follows.

· Business procedures and preparations in advance for securing and arranging evacuation buses for residents (classroom lecture)

· Sharing of information on preparations for evacuation of residents by bus in each prefecture, identification of issues and consideration of improvements

c. Sharing of the status of protective measures and others

This training is designed for local government officials who are in charge of compiling and sharing information on the "status of protective measures," with the aim of helping them understand how to understand the situations surrounding a disaster and share information among related parties, which is necessary for the concrete implementation of protective measures in each situation. In FY 2021, 2 sessions were held, and their main contents are as follows.

· Operation of compiling and sharing information necessary for "sharing the status of protective measures" (classroom lecture)

· Organization of items to be confirmed in each situation, and examination of the confirmation method.

(Training programs by local governments)

Training courses for disaster prevention officials and basic training courses on nuclear disaster prevention were planned and implemented by prefectures on their own initiative, with support from the Cabinet Office as necessary.

1. Training for those involved in disaster prevention

This training program for disaster prevention workers was conducted for private business operators who will be involved in the protection of residents in the event of a nuclear disaster, with the aim of providing them with the basic knowledge necessary for radiation protection, the basic concept of protection of residents, and the flow of protection activities for residents.

2. Basic training on nuclear disaster prevention

Basic training on nuclear emergency preparedness was conducted for those involved in disaster prevention operations at local governments and other organizations that respond to nuclear disasters, with the aim of providing them with the basic knowledge necessary for radiation protection.

At a classroom for lecture (Training for nuclear emergency response personnel)

At a classroom during tabletop exercises (tabletop exercises at the nuclear disaster on-site disaster management headquarters)

At a classroom for lecture (Core human resources development training)

At a classroom for lecture (Practical human resources training)

3-4 Reinforcement of International Collaboration

International organizations such as the International Atomic Energy Agency (IAEA) and other countries have been making various efforts for off-site nuclear emergency preparedness, and it is necessary to incorporate their advanced knowledge in order to improve the level of nuclear emergency preparedness in Japan.

In order to achieve this goal, cooperation has been strengthened with the departments in charge of nuclear emergency preparedness in various countries, opinions are exchanged on a regular basis, and the sharing of international knowledge and experience on nuclear emergency preparedness is promoted by mutual invitation to drills and other events. In addition, surveys have been conducted on IAEA standards for off-site nuclear emergency preparedness and the systems and operations of major nuclear power user countries.

(1) Bilateral Cooperation on Nuclear Emergency Preparedness System

1. Cooperation with the United States of America (USA)

Based on the framework of the Emergency Management Working Group (EMWG) established under the U.S.-Japan Bilateral Commission on Civil Nuclear Cooperation established in 2012, the U.S. Department of Energy (DOE), the Federal Emergency Management Agency (FEMA), the U.S. Nuclear Regulatory Commission (NRC), and other relevant U.S. agencies and Japan have been engaged in cooperation regarding Nuclear Emergency Preparedness Systems through regular exchanges of views and mutual invitation to drills. In FY 2021, following meetings were held online due to the pandemic: one EMWG co-chairs' meeting and two technical workshops on protective measures, training and professional human resources development.

2. Cooperation with the French Republic (France)

Based on the "Memorandum of Understanding on Cooperation for Crisis Management in Case of Nuclear Accident" concluded in 2015 between the Parliamentary Secretary for the Cabinet Office and the Director-General of the National Safety and Crisis Management Directorate of the French Ministry of the Interior, collaboration on nuclear emergency preparedness systems has been deepened through regular exchanges of opinions with relevant organizations in France, such as the French Ministry of the Interior, and mutual invitations to drills. In July 2021, based on the action plan of the "Cooperation Committee for Planning and Crisis Management in Case of Nuclear Accident," which was initiated in 2019, we held its second meeting online.

3. Invitation to observe drills

Regarding the Nuclear Energy Disaster Prevention Drill, the aforementioned U.S., France, and other foreign countries and international organizations are invited to observe the exercises. During this observation, we remained at the site throughout the entire period, including pre-briefings and opinion exchange meetings, and introduced the nuclear emergency core hospitals, evacuation of residents, and the declaration of a nuclear emergency situation. In the opinion exchange meetings, there has been a deepened mutual understanding on Nuclear Energy Disaster Prevention Drills and emergency systems. Visitors from the U.S. and French embassies in Tokyo were accepted to the drill held in November 2020.

4. Other international cooperation

In addition to the above, information and opinions are exchanged, and visitors are accepted from overseas upon requested. In FY 2020, we discussed remotely with the United Kingdom, Canada, Germany, Taiwan, Sweden, and other countries, on issues including modifications of protective measures under the pandemic, nuclear emergency preparedness system, etc.

(2) Cooperation with International Agencies and Investigation of Overseas Trends

There has also been active engagement in cooperation and information exchange with the International Atomic Energy Agency (IAEA) and the Nuclear Energy Agency of the Organization for Economic Co-operation and Development (OECD/NEA). With regard to the IAEA, in order to cooperate in the preparation of standards for offsite nuclear disaster prevention and to collect information, we regularly attend the Emergency Preparedness and Response Standards Committee (EPReSC). We also cooperate in various information exchange and human resources development activities. At meetings related to nuclear emergency preparedness, such as the Working Party on Nuclear Emergency Matters (WPNEM) held by the OECD/NEA, information is exchanged on the systems and operations related to nuclear emergency preparedness in major nuclear power user countries.

In FY 2021, we attended various international meetings remotely. The participants exchanged opinions on nuclear emergency preparedness under the epidemic of COVID-19. The IAEA issued a questionnaire on nuclear emergencies under COVID-19, and the Cabinet Office cooperated with the NRA in answering the questionnaire. At the WPNEM regular meeting, presentations were made by each country, and the Cabinet Office presented Japan's measures.

Section 4 FY 2021 Nuclear Energy Disaster Prevention Drill

4-1 Implementation Overview

(1) Definition and Purpose

The purpose of the Nuclear Energy Disaster Prevention Drill is to evaluate the response system in the event of a nuclear disaster. Based on the Act on Special Measures Concerning Nuclear Emergency Preparedness, this is a joint exercise conducted by the national government, local governments, and nuclear operators to prepare for a nuclear emergency. In FY 2021, the Nuclear Energy Disaster Prevention Drill was conducted at the Onagawa Nuclear Power Station of Tohoku Electric Power Company for the following purposes.

(Reference: https://www8.cao.go.jp/genshiryoku_bousai/kunren/kunren.html)

· To confirm the effectiveness of the disaster prevention systems of the national government, local governments, and nuclear operators, and the cooperative systems of related organizations.

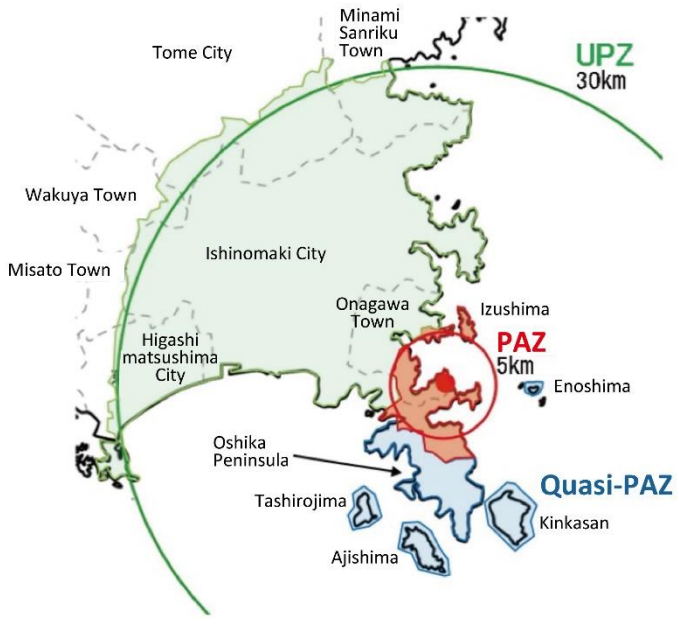
· To confirm the central and local systems and the procedures stipulated in the manuals for nuclear emergencies.

· To verify the evacuation plan specified in the "Emergency Response in the Onagawa Region " (FIG. 4-1-1).

· To identify lessons learned based on the results of the exercise, and to consider emergency response measures.

· To develop the skills of personnel involved in Nuclear Emergency Preparedness Measures, and to promote public understanding of nuclear disaster prevention.

FIG. 4-1-1 Priority Zones for Nuclear Disaster Risk Management in Onagawa Region



*PAZ (Precautionary Action Zone)
*UPZ (Urgent Protective Action Planning Zone)
*Quasi-PAZ: Areas in the UPZ where evacuation and other protective measures are to be prepared pursuant to PAZ

Source: Cabinet Office data

(2) Implementation Period and Subjected Power Plant

Exercises were conducted at the Onagawa Nuclear Power Station from February 10 to 12, 2022.

(3) Participating Organizations

(Number of participating organizations: 130, Number of participants: approx. 2,700)

· Government agencies: Cabinet Secretariat, the Cabinet Office, Nuclear Regulation Authority, and other relevant ministries and agencies

·Local governments: Miyagi Prefecture, Onagawa Town, Ishinomaki City, Tome City, Higashimatsushima City, Wakuya Town, Misato Town, Minamisanriku Town, and other related municipalities

· Operator: Tohoku Electric Power Company

· Related organizations: National Institutes for Quantum Science and Technology, Japan Atomic Energy Agency, etc.

(4) Assumed Accident Scenario

An earthquake and tsunami with an epicenter off the coast of Miyagi Prefecture occur. As a result, Onagawa Nuclear Power Station Unit 2, which is in operation, will undergo emergency shutdown. In addition, a series of equipment failures will cause loss of residual heat removal and reactor water injection functions, leading to a facility site emergency and an overall emergency situation.

(5) Drill Details

Based on the objectives of the drill, the 3 items listed below were the main focus, which ranged from initial response drills to actual drills in response to a full-scale emergency situation, depending on the situational changes.

4-2 Overview of Drill Results

(1) Establishment of a Prompt Initial Response System

The national government, local governments, and nuclear operators gathered personnel and ascertained the current situation in order to establish their respective initial response systems, and shared information with each other using videoconferencing systems and other means. In addition, the State Minister of the Cabinet Office (in charge of nuclear emergency preparedness), government officials, and experts were dispatched to the emergency preparedness base facility (Onagawa Off-site Center in Miyagi Prefecture) and rapid response centers at nuclear facilities (the head office of Tohoku Electric Power Company)

Collecting information by the gathered personnel

(Onagawa Off-site Center)

(2) Decision-making on Protective Action Implementation Policies through Coordination between the Central and Local organizations

An emergency response system was established at the Prime Minister's official residence, the NRA's Emergency Response Center, the off-site center, the Miyagi Prefectural Office, and other locations. Assuming the occurrence of a combined natural and nuclear disaster, a joint meeting of both headquarters for natural and nuclear disasters was held at the government. Along with this, information sharing, decision making, instructions and coordination, including local organizations, were carried out centrally. And they also made a decision on the implementation of protective action, and gave instructions concerning the content of the decision to the targeted local governments.

Exercise at the Joint Meeting of the Nuclear Emergency Response Headquarters and Major Disaster Management Headquarters with the participation of Prime Minister Kishida and related cabinet ministers
(Prime Minister's Office)

(3) Resident Evacuation and Indoor Evacuation

1. In response to a facility site emergency and a full-scale emergency, residents were evacuated within the Precautionary Action Zone (PAZ) and a zone for preparing protective measures such as evacuation similar to a PAZ (quasi-PAZ) with the assistance of private transportation and other organizations. Also, residents in the Urgent Protection action planning zone (UPZ) were evacuated indoors, and efforts were made to promote understanding of the significance of the indoor evacuation and other related matters.

2. Emergency monitoring was conducted in accordance with the emergency monitoring implementation plan.

3. Assuming that radioactive materials were released and the OIL2 level was exceeded based on the Operational Intervention Level (OIL), emergency distribution of stabilized iodine agents, temporary relocation, and contamination screening were conducted for residents in some areas within the UPZ.

*In order to prevent the spread of COVID-19 infection, local government officials played the role of residents during the evacuation exercise.

Temporary relocation and contamination screening

4-3 Efforts after the Drill

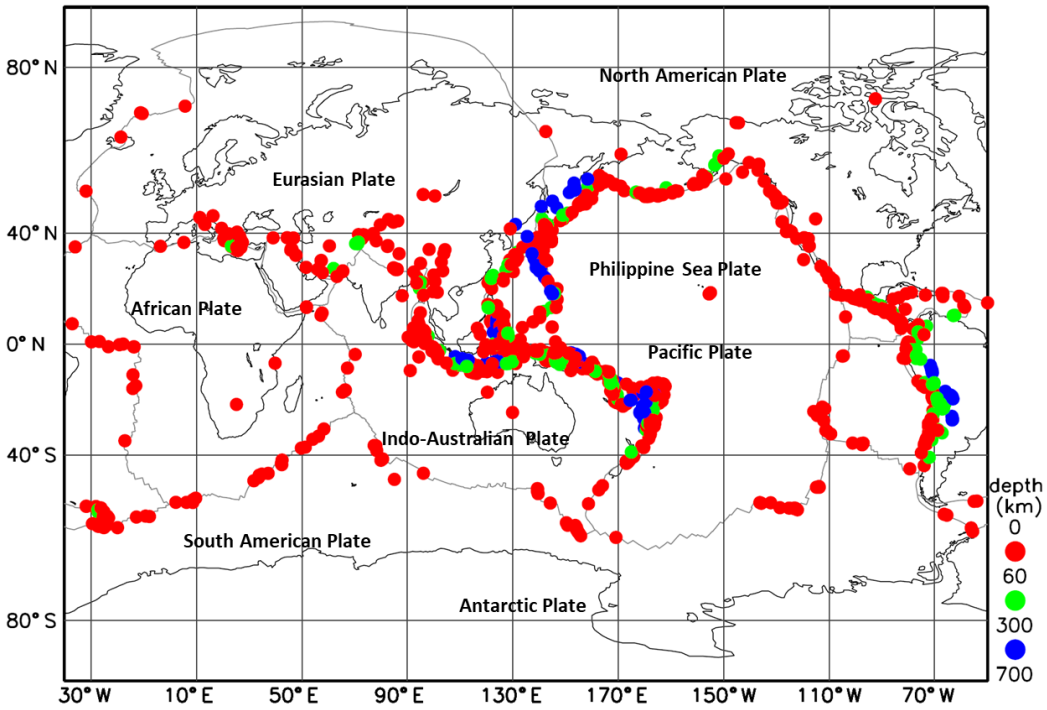
Based on the lessons learned from this drill, we will strive to continuously improve the nuclear disaster prevention system by enhancing the content of future drills and improving various plans and manuals. This will also be utilized to improve the "Onagawa Region Emergency Response" in the Regional Nuclear Disaster Management Council.

APPENDIX

TABLE OF CONTENTS: APPENDIX

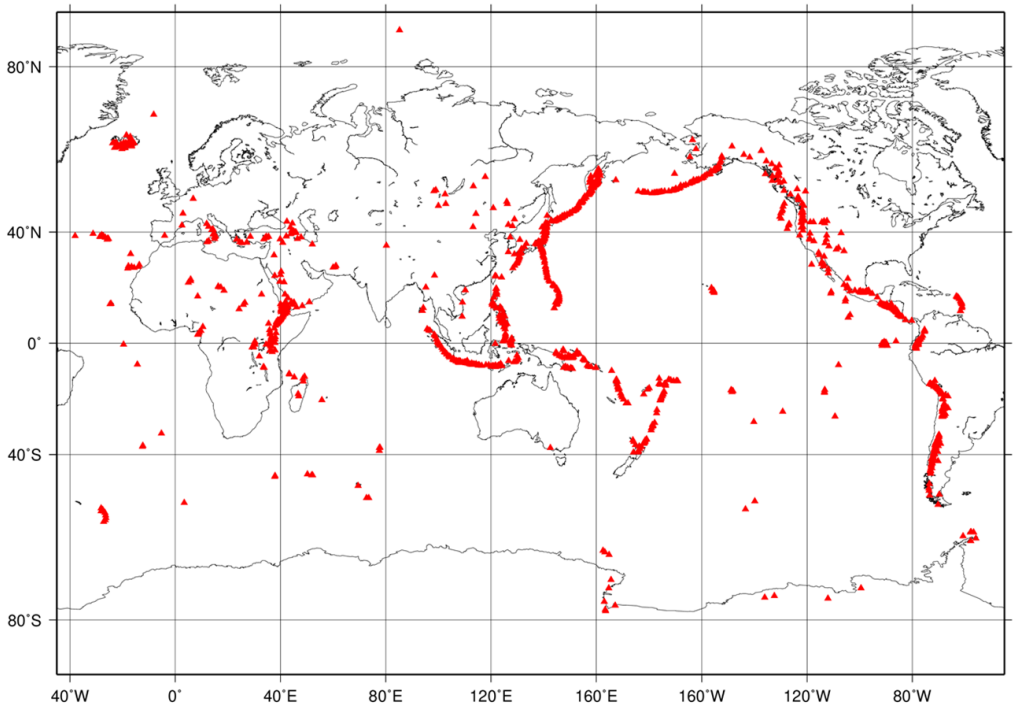
1. Overview of Japan's National Land

Fig. A-1 **Worldwide Hypocenter Distribution (for Magnitude 6 and Higher Earthquakes) and Plate Boundaries**



Note: 2012 - 2021
Source: Formulated by the Japan Meteorological Agency based on earthquake data from the U.S. Geological Survey (as of March 14, 2022)

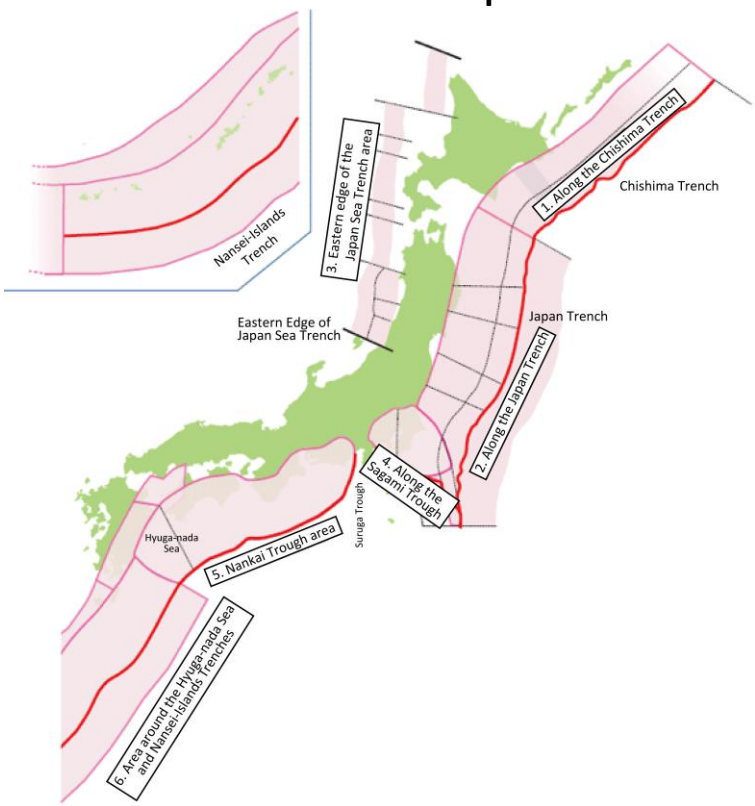
Fig. A-2 **Distribution of Volcanoes Worldwide**



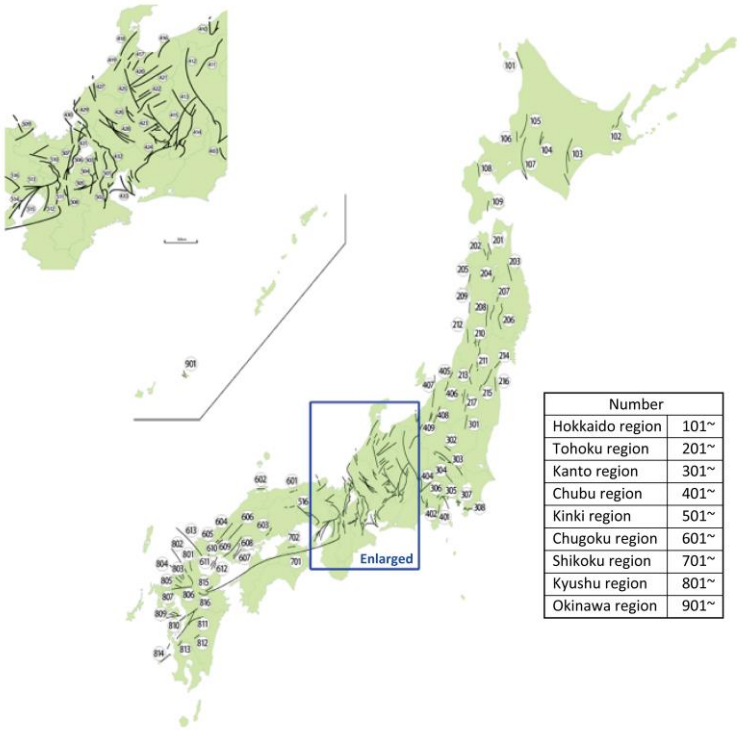
Source: Prepared by the Japan Meteorological Agency

Fig. A-3 **Subduction Zone Earthquake Areas and Major Active Faults in Japan**

Subduction Zone Earthquake Areas



Major Active Faults



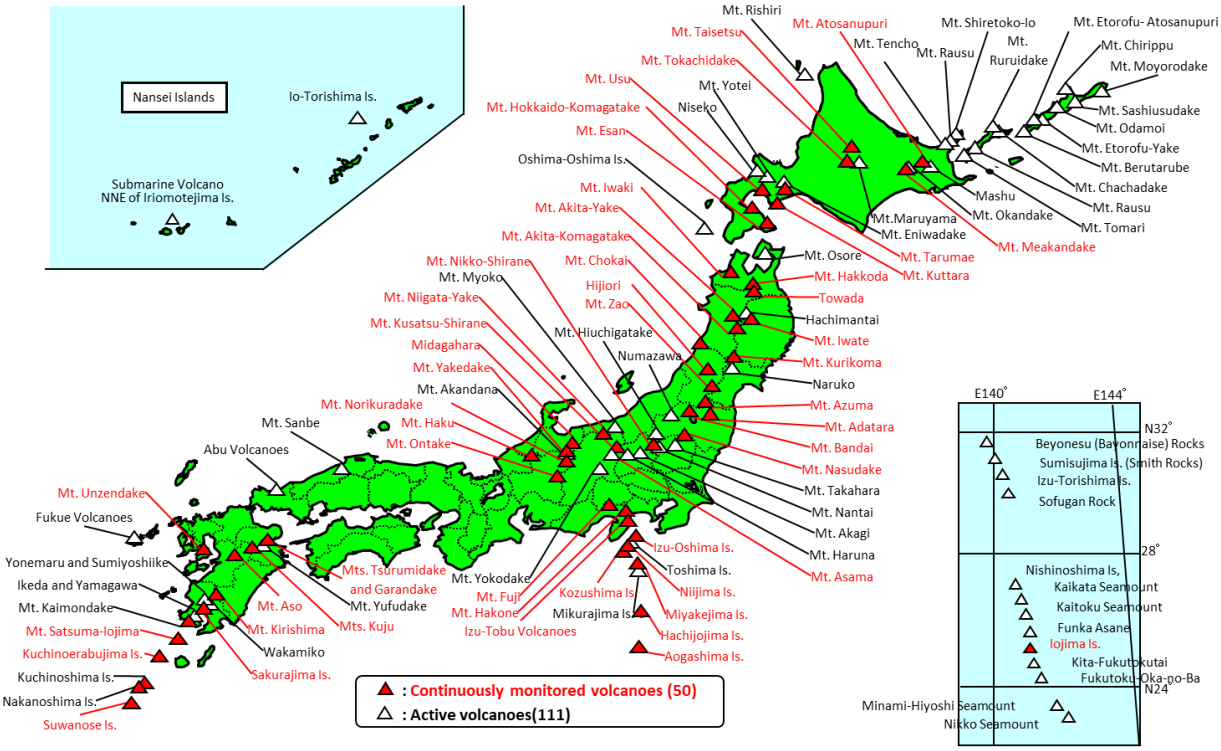
Number	
Hokkaido region	101~
Tohoku region	201~
Kanto region	301~
Chubu region	401~
Kinki region	501~
Chugoku region	601~
Shikoku region	701~
Kyushu region	801~
Okinawa region	901~

Source: Headquarters for Earthquake Research Promotion

No.	Name of Fault	No.	Name of Fault
101	Sarobetsu Fault Zone	424	Byoubuyama Enasan Fault Zones and Sanageyama Fault Zone
102	Shibetsu Fault Zone	425	Shogawa Fault Zone
103	Tokachi Plains Fault Zone	426	The Upper Stream of Nagara River Fault Zone
104	Furano Fault Zone	427	The Eastern Edge Fukui Plains Fault Zone
105	The Eastern Edge of Mashike Mountains Fault Zone, Numata-Sunagawa Fault Zone	428	Nobi Fault Zone
106	Toubetsu Fault	429	Yanagase Sekigahara Fault Zone
107	The Eastern Edge of Ishikari Lowlands Fault Zone	430	Nosaka Shufukuji Fault Zone
108	Kuromatsunai Lowlands Fault Zone	431	Kohoku Mountains Fault Zone
109	The Western Edge of Hakodate Plains Fault Zone	432	Yoro-Kuwana-Yokkaichi Fault Zone
201	The Western Edge of Aomori Bay Fault Zone	433	Isewan Fault Zone
202	The Western Edge of Tsugaru Mountains Fault Zone	501	The Eastern Edge of Suzuka Fault Zone
203	Oritsume Fault	502	The Eastern Edge of Nunobiki Mountains Fault Zone
204	Hanawa-higashi Fault Zone	503	The Western Edge of Suzuka Fault Zone
205	Noshiro Fault Zone	504	Tongu Fault
206	The Western Edge of Kitakami Lowlands Fault Zone	505	Kizugawa Fault Zone
207	The Western Edge of Shizukuishi Basin Fault Zone - The Eastern Edge of Mahiru Mountains Fault Zone	506	The Western Edge of Lake Biwa Fault Zone
208	The Eastern Edge of Yokote Basin Fault Zone	507	Mikata Hanaore Fault Zone
209	Kitayuri Fault	508	The Southern Part of Kyoto and Nara Basins Fault Zones (the Eastern Edge of Nara Basin Fault Zone)
210	Shinjo Basin Fault Zone	509	Yamada Fault Zone
211	Yamagata Basin Fault Zone	510	Mitoke Kyoto Nishiyama Fault Zone
212	The Eastern Edge of Shonai Plains Fault Zone	511	Ikoma Fault Zone
213	The Western Edge of Nagai Basin Fault Zone	512	Uemachi Fault Zone
214	Nagamachi-Rifu Line Fault Zone	513	Arima-Takatsuki Fault Zone
215	The Western Edge of Fukushima Basin Fault Zone	514	Rokko Awajishima Fault Zone
216	Futaba fault	515	Osaka Bay Fault Zone
217	The Western and Eastern Edges of Aizu Basin Fault Zones	516	Yamasaki Fault Zone
301	Sekiya Fault	601	Shikano-Yoshioka Fault
302	Okubo Fault	602	Shinji (Kashima) Fault
303	Fukaya Fault Zone and Ayasegawa Fault Zone (the North-Western Edge of Kanto Plains Fault Zone and Motoarakawa Fault Zone)	603	Chojagahara-Yoshii Fault
304	Tachikawa Fault Zone	604	Yasaka Fault
305	Isehara Fault	605	Jifuku Fault
306	Shiozawa Fault Zone, Hirayama-Matsuda-kita Fault Zone and Kouzu-Matsuda Fault Zone (Kannawa Kozu-Matsuda Fault Zone)	606	Tsutsuga Fault
307	Miura Peninsula Fault Group	607	Hiroshima Bay - off Iwakuni Fault Zones
308	Kamogawa Lowlands Fault Zone	608	Akinada Fault Zone
401	Kitaizu Fault Zone	609	Iwakuni-Itsukaichi Fault Zone
402	Fujikawa River Mouth Fault Zone	610	Lake Ohara Fault
403	Minobu Fault	611	Ogori Fault
404	Sone Hill Fault Zone	612	Suonada Fault Zone
405	Kushigata Mountain Chain Fault Zone	613	Kikugawa Fault Zone
406	Tsukioka Fault Zone	701	The Median Tectonic Line Fault Zone (the Eastern Edge of Kongo Mountains – Yufuin)
407	The Western Edge of Nagaoka Plains Fault Zone	702	Nagao Fault Zone
408	Muikamachi Fault Zone	801	Fukuchiyama Fault Zone
409	Tokamachi Fault Zone	802	Nishiyama Fault Zone
410	Takada Plains Fault Zone	803	Umi Fault
411	The Western Edge of Nagano Plains Fault Zone (Shinanogawa Fault Zone)	804	Kego Fault Zone
412	Itoigawa-Shizuoka Tectonic Line Fault Zone	805	Fault ZoneHinata – Okasagi Peaks Fault Zone
413	Sakaitoge Kamiya Fault Zone	806	Mino Fault Zone
414	Inadani Fault Zone	807	The Northern Edge of Saga Plains Fault Zone
415	The Western Edge of Kiso Mountain Chain Fault Zone	809	Unzen Fault Group
416	Uozu Fault Zone	810	FutagawaFault zone, Hinagu Fault Zone
417	Tonami Plains Fault Zone, Kurehayama Fault Zone	811	Midorikawa Fault Zone
418	Ochigata Fault Zone	812	The Southern Edge of Hitoyoshi Basin Fault
419	Morimoto Togashi Fault Zone	813	Izumi Fault Zone
420	Ushikubi Fault Zone	814	Koshiki Fault Zone
421	Atotsugawa Fault Zone	815	Hijiu Fault Zone
422	Takayama Oppara Fault Zone	816	Haneyama-Kuenohirayama Fault Zone
423	Atera Fault Zone	901	Miyako Island Fault Zone

Source: Headquarters for Earthquake Research Promotion

Fig. A-4 Distribution of Active Volcanoes in Japan



Source: Formulated by the Cabinet Office from the Japan Meteorological Agency website (As of March 2022)

2. Disasters in Japan

Fig. A-5 Major Earthquake Damage in Japan (Since the Meiji Period)

Disaster		Date	Number of Fatalities and Missing Persons
Nobi Earthquake	(M8.0)	October 28, 1891	7,273
Meiji Sanriku Earthquake and Tsunami	(M8.25)	June 15, 1896	Approx. 22,000
Great Kanto Earthquake	(M7.9)	September 1, 1923	Approx. 105,000
North Tango Earthquake	(M7.3)	March 7, 1927	2,925
Showa Sanriku Earthquake and Tsunami	(M8.1)	March 3, 1933	3,064
Tottori Earthquake	(M7.2)	September 10, 1943	1,083
Tonankai Earthquake	(M7.9)	December 7, 1944	1,251
Mikawa Earthquake	(M6.8)	January 13, 1945	2,306
Nankai Earthquake	(M8.0)	December 21, 1946	1,443
Fukui Earthquake	(M7.1)	June 28, 1948	3,769
Earthquake Off the Coast of Tokachi	(M8.2)	March 4, 1952	33
Chile Earthquake and Tsunami in 1960	(Mw9.5)	May 23, 1960	142
Niigata Earthquake	(M7.5)	June 16, 1964	26
Earthquake Off the Coast of Tokachi in 1968	(M7.9)	May 16, 1968	52
Earthquake Off the Coast of Izu Peninsula in 1974	(M6.9)	May 9, 1974	30
Earthquake Inshore of Izu-Oshima Island in 1978	(M7.0)	January 14, 1978	25
Earthquake Off the Coast of Miyagi Prefecture in 1978	(M7.4)	June 12, 1978	28
The Center Part of the Japan Sea Earthquake in 1983	(M7.7)	May 26, 1983	104
The Western Part of Nagano Prefecture Earthquake in 1984	(M6.8)	September 14, 1984	29
Earthquake Off the Coast of the Southwestern Part of Hokkaido in 1993	(M7.8)	July 12, 1993	230
Great Hanshin-Awaji Earthquake in 1995	(M7.3)	January 17, 1995	6,437
Mid Niigata Prefecture Earthquake in 2004	(M6.8)	October 23, 2004	68
The Earthquake Inland of Iwate and Miyagi Prefectures in 2008	(M7.2)	June 14, 2008	23
Great East Japan Earthquake in 2011 *	(Mw9.0)	March 11, 2011	22,312
Kumamoto Earthquake in 2016	(M6.5) (M7.3)	April 14, 2016 April 16	273
The East Part of Hokkaido Iburi Earthquake in 2018	(M6.7)	September 6, 2018	43

*Mw: Moment magnitude

Notes:

1. The earthquakes listed before World War II are those with more than 1,000 fatalities and missing persons, while the earthquakes listed after World War II are those with more than 20 fatalities and missing persons.
2. The number of fatalities and missing persons from the Great Kanto Earthquake are based on the revised Chronological Scientific Table (2006), which changed the number from approximately 142,000 to approximately 105,000.
3. The number of fatalities and missing persons from the Southern Hyogo Prefecture Earthquake (Great Hanshin-Awaji Earthquake) is the current figure as of May 19, 2006. The number of fatalities directly caused by structures collapsing, fire, and other factors caused by seismic shaking on the day of the earthquake, excluding so-called “related deaths,” is 5,515.
4. The number of fatalities (including disaster-related fatalities) and missing persons from the 2011 Tohoku Earthquake and Tsunami (Great East Japan Earthquake) is the current figure as of March 8, 2022.
5. The details given for the 2016 Kumamoto Earthquake is the current figure as of April 12, 2019 (including disaster-related fatalities).

Source: Chronological Scientific Tables, Fire and Disaster Management Agency materials, National Police Agency materials, Comprehensive List of Destructive Earthquakes in Japan, Extreme Disaster Management Headquarters materials, Major Disaster Management Headquarters materials

Fig. A-6 Major Natural Disasters in Japan Since 1945

Date	Disaster	Main Affected Areas	Number of Fatalities and Missing
January 13, 1945	Mikawa Earthquake (M6.8)	Southern Aichi Prefecture	2,306
September 17-18, 1945	Typhoon Makurazaki	Western Japan (Especially in Hiroshima Prefecture)	3,756
December 21, 1946	Nankai Earthquake (M8.0)	Various places in and to Western Chubu region	1,443
August 14, 1947	Mt. Asama Eruption	Around Mt. Asama	11
September 14-15, 1947	Typhoon Kathleen	In and to Northern Tokai area	1,930
June 28, 1948	Fukui Earthquake (M7.1)	In and around the Fukui Plains	3,769
September 15-17, 1948	Typhoon Ione	From Shikoku into Tohoku regions (Especially in Iwate Prefecture)	838
September 2-4, 1950	Typhoon Jane	In and to Northern Shikoku region (Especially in Osaka Prefecture)	539
October 13-15, 1951	Typhoon RUTH (5115)	Nationwide (Especially in Yamaguchi Prefecture)	943
March 4, 1952	Earthquake Off the Coast of Tokachi (M8.2)	Southern Hokkaido and Northern Tohoku region	33
June 25-29, 1953	Heavy Rains	Kyushu, Shikoku and Chugoku regions (Especially in Kitakyushu)	1,013
July 16-24, 1953	Torrential Rains	In and to Western Tohoku region (Especially in Wakayama Prefecture)	1,124
May 8-12, 1954	Storm Disaster	Northern Japan, Kinki region	670
September 25-27, 1954	Typhoon MARIE (5415)	Nationwide (Especially in Hokkaido and Shikoku region)	1,761
July 25-28, 1957	Torrential Rains	Kyushu region (Especially around Isahaya area)	722
June 24, 1958	Mt. Aso Eruption	Around Mt. Aso	12
September 26-28, 1958	Typhoon IDA (5822)	In and to Eastern Kinki region (Especially in Shizuoka Prefecture)	1,269
September 26-27, 1959	Typhoon VERA (5915)	Nationwide (Except for Kyushu region, especially in Aichi Prefecture)	5,098
May 23, 1960	Chile Earthquake and Tsunami	Southern Coast of Hokkaido, Sanriku and Shima Coasts	142
January 1963	Heavy snowfall	Hokuriku and Sanin areas, and Yamagata, Shiga and Gifu Prefectures	231
June 16, 1964	Niigata Earthquake (M7.5)	Niigata, Akita and Yamagata Prefectures	26
September 10-18, 1965	Typhoons SHIRLEY (6523), TRIX (6524), VIRGINIA (6525)	Nationwide (Especially in Tokushima, Hyogo and Fukui Prefectures)	181
September 23-25, 1966	Typhoons HELEN (6624), IDA (6626)	Chubu, Kanto and Tohoku regions (Especially in Shizuoka and Yamanashi Prefectures)	317
July to August 1967	Torrential Rains	Western Chubu and Shouthern Tohoku regions	256
May 16, 1968	Earthquake Off the Coast of Tokachi (M7.9)	Shouthern Hokkaido and Tohoku region mainly in Aomori Prefecture	52
July 3-15, 1972	Typhoons PHYLLIS (7206), RITA (7207), TESS (7209) and Torrential Rains	Nationwide (Especially in Kitakyushu area, and Shimane and Hiroshima Prefectures)	447
May 9, 1974	Earthquake Off the Coast of Izu Peninsula (M6.9)	Southern Tip of Izu Peninsula	30
September 8-14, 1976	Typhoon FRAN (7617) and Torrential Rains	Nationwide (Especially in Kagawa and Okayama Prefectures)	171
January 1977	Snow Disasters	Tohoku and Northern Kinki regions and Hokuriku area	101
August 7, 1977- October 1978	Mt. Usu Eruption	Hokkaido	3
January 14, 1978	Earthquake Inshore of Izu-Oshima Island (M7.0)	Izu Peninsula	25
June 12, 1978	Earthquake Off the Coast of Miyagi Prefecture (M7.4)	Miyagi Prefecture	28
October 17-20, 1979	Typhoon TIP (7920)	Nationwide (Especially in Tokai area, and Kanto and Tohoku regions)	115
December 1980 - March 1981	Snow Disasters	Tohoku region and Hokuriku area	152
July to August 1982	Torrential Rains and Typhoon BESS (8210)	Nationwide (Especially in Nagasaki, Kumamoto and Mie Prefectures)	439
May 26, 1983	The Center Part of the Japan Sea Earthquake (M7.7)	Akita and Aomori Prefectures	104
July 20-29, 1983	Torrential Rains	In and to Eastern San-in area (Especially in Shimane Prefecture)	117
October 3, 1983	Miyake Is. Eruption	Around Miyake-jima Island	—
December 1983 - March 1984	Snow Disasters	Tohoku region and Hokuriku area (Especially in Niigata and Toyama Prefectures)	131
September 14, 1984	The Western Part of Nagano Prefecture Earthquake (M6.8)	Western Nagano Prefecture	29
November 15 - December 18, 1986	Izu-Oshima Eruption	Izu-Oshima Island	—
November 17, 1990 – June 3, 1995	Mt. Unzen Eruption	Nagasaki Prefecture	44
July 12, 1993	Earthquake Off the Coast of the Southwestern Part of Hokkaido (M7.8)	Hokkaido	230

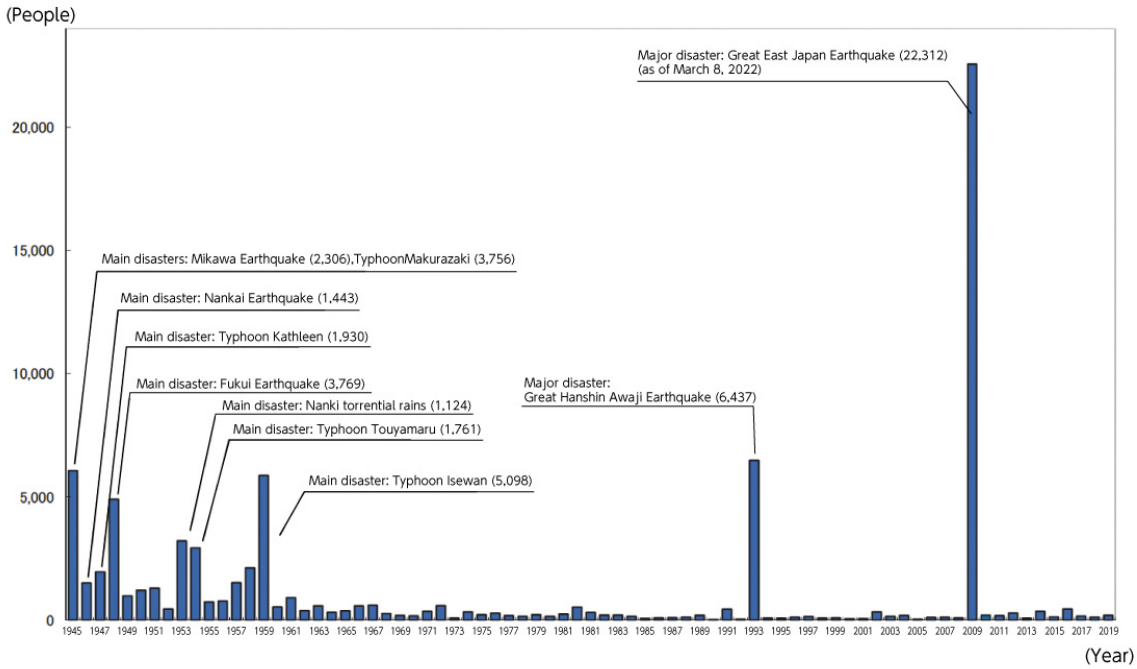
Date	Disaster	Main Affected Areas	Number of Fatalities and Missing
July 31 - August7, 1993	Torrential Rains	Nationwide	79
January 17, 1995	1995 Southern Hyogo Prefecture Earthquake (Great Hanshin-Awaji Earthquake) (M7.3)	Hyogo Prefecture	6,437
March 31, 2000 - June 28, 2001	Mt. Usu Eruption	Hokkaido	—
June 25, 2001 - March 31, 2005	Miyake Is. Eruption and Niijima and Kozushima Is. Earthquake (M6.5)	Tokyo	1
October 20-21, 2004	Typhoon TOKAGE (0423)	Nationwide	98
October 23, 2004	Mid Niigata Prefecture Earthquake (M6.8)	Niigata Prefecture	68
December 2005 - March 2006	Heavy Snowfall	The Coast of the Japan Sea mainly in Hokuriku area	152
July 16, 2007	Earthquake Off the Coast of Chuetsu in Niigata Prefecture (M6.8)	Niigata Prefecture	15
June 14, 2008	Earthquake Inland of Iwate and Miyagi Prefectures (M7.2)	Tohoku region (Especially in Miyagi and Iwate Prefectures)	23
December 2010 - March 2011	Snow disaster	From Northern to Western Japan on the Japan Sea Coast	131
March 11, 2011	2011 Tohoku Earthquake and Tsunami (Great East Japan Earthquake) (Mw9.0)	Eastern Japan (Especially in Miyagi, Iwate and Fukushima Prefectures)	22,312
August 30 - September 5, 2011	Typhoon TALAS (1112)	Kinki and Shikoku regions	98
November 2011 - March 2012	Heavy Snow in 2011	From Northern to Western Japan on the Japan Sea Coast	133
November 2012 - March 2013	Heavy Snow in 2012	From Northern to Western Japan on the Japan Sea Coast	104
November 2013 - May 2014	Heavy Snow in 2013	From Northern Japan to Kanto-Koshinetsu area (Especially in Yamanashi Prefecture)	95
August 20, 2014	Torrential Rains of August 2014 (Sediment Disaster in Hiroshima Prefecture)	Hiroshima Prefecture	77
September 27, 2014	2014 Eruption of Mt. Ontake	Nagano and Gifu Prefectures	63
April 14 and 16, 2016	Kumamoto Earthquake in 2016 (M7.3)	Kyushu area (Especially in Kumamoto Prefecture)	273
June 28 - July 8, 2018	The Heavy Rain Event of July 2018	Nationwide (Especially in Hiroshima, Okayama and Ehime Prefectures)	271
September 6, 2018	The East Part of Hokkaido Iburi Earthquake in 2018 (M6.7)	Hokkaido	43
October 10 – 13, 2019	Typhoon Hagibis in 2019 (T1919)	Kanto and Tohoku regions	108
July 3-31, 2020	The Heavy Rain Event of July 2020	Nationwide (Especially in Kyushu region)	88
July 1 – July 14, 2021	The Heavy Rain from July 1 of 2021	Nationwide (Especially in Shizuoka Prefecure)	29
August 7 – August 23, 2021	The Heavy Rain in August of 2021	Nationwide (Especially in Nagano, Hiroshima and Nagasaki Prefectures)	13

Notes:

1. The disasters listed resulted in fatalities and missing persons as follows: 500 or more for storm and flood disasters, 100 or more for snow disasters, and 10 or more for earthquakes, tsunamis, and volcanic eruptions. It also includes disasters for which governmental Major Disaster Management Headquarters were established based on the Basic Act on Disaster Management.
2. The number of fatalities and missing persons from the Southern Hyogo Prefecture Earthquake (Great Hanshin-Awaji Earthquake) is the current figure as of May 19, 2006. The number of fatalities directly caused by structures collapsing, fire, and other factors caused by seismic shaking on the day of the earthquake, excluding so-called “related deaths,” is 5,515.
3. The numbers of fatalities from the Miyake Is. Eruption and Niijima and Kozushima Is. Earthquake are from the earthquake of July 1, 2000.
4. The number of fatalities (including disaster-related fatalities) and missing persons resulting from the 2011 Tohoku Earthquake and Tsunami (Great East Japan Earthquake) is the current figure as of March 1, 2022 (including disaster-related fatalities).
5. Disasters caused by Typhoon Hagibis in 2019 (T1919), which affected wide areas chiefly in eastern Japan are as of April 10, 2020
6. As of November 26, 2021
7. Damage from the Heavy Rain from July 1 of 2021 is as of March 25, 2022.
8. Damage from the Heavy Rain in August of 2021 is as of March 25, 2022.

Source: Formulated by the Cabinet Office based on the meteorological almanac of Japan, Chronological Scientific Tables, National Police Agency materials, Fire and Disaster Management Agency materials, Extreme Disaster Management Headquarters materials, Major Disaster Management Headquarters materials, and Hyogo Prefecture materials

Fig. A-7 Number of Fatalities and Missing Persons Due to Natural Disasters



Year	People	Year	People	Year	People	Year	People	Year	People
1945	6,062	1962	381	1979	208	1996	84	2013	173
1946	1,504	1963	575	1980	148	1997	71	2014	283
1947	1,950	1964	307	1981	232	1998	109	2015	77
1948	4,897	1965	367	1982	524	1999	141	2016	344
1949	975	1966	578	1983	301	2000	78	2017	129
1950	1,210	1967	607	1984	199	2001	90	2018	444
1951	1,291	1968	259	1985	199	2002	48	2019	155
1952	449	1969	183	1986	148	2003	62	2020	119
1953	3,212	1970	163	1987	69	2004	327	2021	186
1954	2,926	1971	350	1988	93	2005	148		
1955	727	1972	587	1989	96	2006	177		
1956	765	1973	85	1990	123	2007	39		
1957	1,515	1974	324	1991	190	2008	101		
1958	2,120	1975	213	1992	19	2009	115		
1959	5,868	1976	273	1993	438	2010	89		
1960	528	1977	174	1994	39	2011	22,575		
1961	902	1978	153	1995	6,482	2012	190		

Note: Of the fatalities in 1995, the deaths from the Southern Hyogo Earthquake (Great Hanshin-Awaji Earthquake) include 919 so-called "related deaths" (Hyogo Prefecture).
The fatalities and missing persons in 2021 are based on flash bulletins from the Cabinet Office.

Source: Fatalities and missing persons for the year 1945 came only from major disasters (source: Chronological Scientific Table). Years 1946–1952 use the Japanese Meteorological Disasters Annual Report; years 1953–1962 use National Police Agency documents; years 1963 and after formulated by Cabinet Office based on Fire and Disaster Management Agency materials.

Fig. A-8 Breakdown of the Number of Fatalities and Missing Persons Due to Natural Disasters

(Unit: persons)

Year	Storm/Flood	Earthquake/ Tsunami	Volcano	Snow	Other	Total
1993	183	234	1	9	11	438
1994	8	3	0	21	7	39
1995	19	6,437	4	14	8	6,482
1996	21	0	0	28	35	84
1997	51	0	0	16	4	71
1998	80	0	0	28	1	109
1999	109	0	0	29	3	141
2000	19	1	0	52	6	78
2001	27	2	0	59	2	90
2002	20	0	0	26	2	48
2003	48	2	0	12	0	62
2004	240	68	0	16	3	327
2005	43	1	0	98	6	148
2006	87	0	0	88	2	177
2007	14	16	0	5	4	39
2008	22	24	0	48	7	101
2009	76	1	0	35	3	115
2010	31	0	0	57	1	89
2011	136	22,312	0	125	2	22,575
2012	52	0	0	138	0	190
2013	75	0	0	92	6	173
2014	112	0	63	108	0	283
2015	28	0	0	49	0	77
2016	45	267	0	32	0	344
2017	60	0	0	68	1	129
2018	285	49	1	103	6	444
2019	123	0	0	32	0	155
2020	89	0	0	30	0	119
2021	41	0	0	145	0	186

Notes: This table shows the number of fatalities and missing persons between Jan. 1 and Dec. 31.
Fatalities and missing persons in 2021 are based on flash bulletins from the Cabinet Office.
The earthquake/tsunami disaster figures for 2011 include 22,312 fatalities (including disaster-related fatalities) and missing persons from the 2011 Tohoku Earthquake and Tsunami (Great East Japan Earthquake) (March 8, 2022).

Source: Formulated by Cabinet Office based on Fire and Disaster Management Agency report "Status of Regional Disaster Management Administration"

Fig. A-9 Recent Major Natural Disasters (Since the Great Hanshin-Awaji Earthquake)

(Total: As of April 19, 2022)

Name of Disaster	Major Events	Human Casualties (persons)		Houses Damaged (houses)			Remarks
		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
The Great Hanshin-Awaji Earthquake (January 17, 1995)	Maximum seismic intensity of 7. Unprecedented major disaster in Western Japan. Became a turning point in DRR measures for national and local governments, with various DRR measures developed and strengthened.	6,437	43,792	104,906	144,274	—	・Establishment of Extreme Disaster Management Headquarters[*1] ・Establishment of Major Disaster Management Headquarters ・Site inspection by Prime Minister ・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Special Measures Act for Specified Disaster ・Designation as an extremely severe disaster
The Great East Japan Earthquake (March 11, 2011)	Maximum seismic intensity of 7. Tsunami caused extreme damage mainly along the coast of Eastern Japan, including Iwate, Miyagi, and Fukushima Prefectures.	22,312	6,242	122,006	283,160	1,490	・Establishment of Extreme Disaster Management Headquarters ・Establishment of On-site Extreme Disaster Management Headquarters ・Site inspection by Prime Minister ・Dispatchment of government investigation team ・Site inspection by Minister of State for Disaster Management ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Invocation of Special Measures Act for Specified Disaster ・Designation as an extremely severe disaster
2000 Eruption of Mt. Usu (March 31, 2000 - June 28, 2001)	The Japan Meteorological Agency announced emergency volcano information and residents evacuated before the eruption began, resulting in no human casualties.	—	—	119	355	—	・Establishment of Major Disaster Management Headquarters ・Establishment of On-site Major Disaster Management Headquarters ・Site inspection by Prime Minister ・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
2000 Miyake Is. Eruption and Niijima and Kozushima Is. Earthquake (June 25, 2000 - March 31, 2005)	A caldera was formed along with the summit eruption. Large amounts of volcanic gases were emitted over an extended period, and evacuation instructions were issued to all residents of the town of Miyake, which forced all residents to evacuate and live off the island.	1	15	15	20	—	・Establishment of Major Disaster Management Headquarters ・Site inspection by Prime Minister ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Typhoon TOKAGE (0423) (October 18-21, 2004)	Very large number of human casualties due to rising river levels, sediment disasters, and high waves nationally, but concentrated in the Kinki and Shikoku regions. The Maruyama River, Izushi River, and other Maruyama River system rivers overflowed their banks and flooded.	98	555	909	7,776	14,323	・Establishment of Major Disaster Management Headquarters ・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
2004 Mid Niigata Prefecture Earthquake (October 23, 2004)	Maximum seismic intensity of 7. Homes were destroyed, slope failure and other disasters caused many human casualties, communities were isolated, people were forced to evacuate, and there was massive damage to homes, lifelines, transportation, and agricultural land.	68	4,805	3,175	13,810	—	・Establishment of Major Disaster Management Headquarters ・Site inspection by Prime Minister ・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Fukuoka-ken-Seihouoki Earthquake (March 20, 2005)	Maximum seismic intensity of Lower 6. Homes were destroyed on Genkai Island and elsewhere, and window glass fell from buildings in Fukuoka City.	1	1,204	144	353	—	・Site inspection by Prime Minister ・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Invocation of Remote Islands Development Act
Typhoon NABI (0514) (September 4-8, 2005)	Record-breaking rains fell, mainly in the Kyushu region, and sediment disasters caused many human casualties.	29	177	1,217	3,896	3,551	・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
2006 Heavy Snows (December 2005 - March 2006)	Following 1963, the second-largest number of fatalities and missing persons since WW II (on par with 1981.)	152	2,145	18	28	12	・Invocation of Disaster Relief Act
2006 Torrential Rains Due to Seasonal Rain Front (June 10–July 29, 2006)	Many fatalities due to sediment disasters in Nagano and Kagoshima Prefectures.	33	64	313	1,457	1,971	・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Typhoon SHANSHAN (0613) (September 15–20, 2006)	Damage due to strong winds from the Okinawa region to the Kyushu region, and a tornado in Nobeoka City, Miyazaki Prefecture.	10	446	121	518	251	・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Tornado in Saroma Hokkaido Prefecture (November 7, 2006)	Highest number of fatalities on record attributed to a tornado.	9	31	7	7	—	・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims

Name of Disaster	Major Events	Human Casualties (persons)		Houses Damaged (houses)			Remarks
		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
2007 Noto Hanto Earthquake (March 25, 2007)	Maximum seismic intensity of Upper 6. Disaster in mountainous regions with a high percentage of aging population and advancing depopulation.	1	356	686	1,740	—	・Site inspection by Prime Minister ・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
2007 Heavy Rains from Typhoon MAN-YI (0704) and Seasonal Rain Front (July 5-31, 2007)	The typhoon made landfall in Japan in July with the strongest intensity in 57 years from 1951 to 2007. Record rainfalls in various regions.	7	75	33	33	434	・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Designation as an extremely severe disaster
2007 Earthquake Off the Coast of Chuetsu in Niigata Prefecture (July 16, 2007)	Maximum seismic intensity of Upper 6. Many human causalities due to homes collapsing. Damage to homes, lifelines, transportation, and nuclear power plants.	15	2,346	1,331	5,710	—	・Site inspection by Prime Minister ・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Invocation of Special Measures Act for Specified Disaster ・Designation as an extremely severe disaster
2008 Iwate-Miyagi Nairiku Earthquake (June 14, 2008)	Maximum seismic intensity of Upper 6. Many human causalities due to landslides and other sediment disasters. Many river channels became blocked (natural dams) in rivers in mountainous areas.	23	426	30	146	—	・Site inspection by Prime Minister ・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Earthquake epicentered on Northern Coast of Iwate Prefecture (July 24, 2008)	Maximum seismic intensity of Lower 6. Earthquake with a deep hypocenter occurring inside a plate. Seismic intensity of Lower 5 and higher recorded in affected areas of inland Iwate and Miyagi Prefectures.	1	210	1	0	—	・Dispatchment of government investigation team
Heavy Rains from July 28 (July 28-29, 2008)	Localized heavy rains in the Hokuriku and Kinki regions. Human casualties along the Toga River in Kobe City.	6	13	6	16	585	・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Torrential Rains at the End of August 2008 (August 26-31, 2008)	Record heavy rains in various regions, especially extensive flood damage in Aichi Prefecture.	2	7	6	7	3,106	・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims
July 2009 Torrential Rains in Chugoku and Northern Kyushu (July 19-26, 2009)	Record heavy rains in Yamaguchi and Fukuoka Prefectures due to seasonal rain front. Numerous fatalities from sediment disasters in Yamaguchi Prefecture and other prefectures.	36	59	52	102	2,139	・Site inspection by Prime Minister ・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Typhoon ETAU (0909) (August 8-11, 2009)	Heavy rains from the Chugoku and Shikoku regions to the Tohoku region due to the effects of the typhoon. Human casualties and homes damaged due to flooding in Hyogo Prefecture.	27	23	183	1,130	974	・Site inspection by Prime Minister ・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Earthquake epicentered in Suruga Bay (August 11, 2009)	Maximum seismic intensity of Lower 6. Tomei Expressway closed due to slope collapse.	1	319	0	6	—	
Typhoon MELOR (0918) (October 6-8, 2009)	Destructive storm and heavy rains over a wide area from the Okinawa region to Hokkaido due to the effects of the typhoon. Winds and rains in Aichi Prefecture caused partial damage and flood damage to many homes.	5	139	9	86	571	・Designation as an extremely severe disaster
Tsunami from Earthquake epicentered in Central Chilean Coast (February 27-28, 2010)	An earthquake struck the central coast of Chile just after noon on Feb. 27. A tsunami was approaching Japan the next day on the 28th, and a major tsunami warning and tsunami warning were issued at 9:33 a.m. on the 28th. Extensive fishery damage to aquaculture facilities.	0	0	0	0	6	・Designation as an extremely severe disaster
2010 Heavy Rains Due to Seasonal Rain Front (June 11 - July 19, 2010)	The seasonal rain front stalled over the region from Kyushu to Honshu regions from mid-June, with intermittent bursts of activity. The southern part of Kyushu region received more than twice its average annual rainfall. There were large-scale slope failure in Kagoshima Prefecture, and fatalities and missing persons mainly in Hiroshima and Gifu Prefectures.	22	21	43	91	1,844	・Site inspection by Prime Minister ・Site inspection by Minister of State for Disaster Management ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Heavy Rains in Amami Region of Kagoshima Prefecture (October 18-25, 2010)	The rain front stalled over the Amami region, with moist air flowing in from the south toward this rain front, creating unstable atmospheric conditions. The Amami region received hazardous rain of more than 120 mm per hour, with more than 800 mm of rainfall since the rains began.	3	2	10	443	116	・Site inspection by Minister of State for Disaster Management ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Heavy Snow in 2010 (November 2010 - March 2011)	Record snows fell from the end of the year to the beginning of the following year in some areas of the Japan Sea side of Western Japan. Fishing boats overturned and sank along with other damage in Tottori and Shimane Prefectures.	131	1,537	9	14	6	・Ministerial meeting ・Site inspection by Minister of State for Disaster Management ・Invocation of Disaster Relief Act

Name of Disaster	Major Events	Human Casualties (persons)		Houses Damaged (houses)			Remarks
		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
The Kirishima Volcanic Group (Mt. Shinmoedake) Eruption (January 26 - September 7, 2011)	Following a small eruption on January 19, a medium-sized eruption occurred at Mt. Shinmoedake on January 26 and the volcanic alert level was raised to 3 (Do not approach the volcano). Eruptions continued repeatedly thereafter until early September, with air waves and cinders breaking windows and causing other damage. In addition, falling ash from the eruptions was recorded over a wide area mainly to the southeast of the mountain, including Kirishima City, Kagoshima Prefecture, and Miyakonojo City, Miyazaki Prefecture.	0	52	0	0	—	・Ministerial meeting (twice) ・Site inspection by Minister of State for Disaster Management ・Designation as an area requiring the emergency development of evacuation facilities and an ash prevention area ・Invocation of Disaster Relief Act
Typhoon MA-ON (1106) (July 12-24, 2011)	The typhoon made landfall on the southern part of Tokushima Prefecture around 11:00 p.m. on July 19, maintaining its strong intensity, with maximum winds of 40m/s, and its large scale. Record heavy rains were recorded in Western Japan, with rainfall of more than 1,000 mm recorded in some parts of the Shikoku region since the rains began.	3	54	0	1	28	・Designation as an extremely severe disaster
July 2011 Niigata and Fukushima Torrential Rains (July 27-30, 2011)	Rain began falling in Niigata Prefecture and Aizu, Fukushima Prefecture, from around noon on the 27th. Intermittent hazardous rains of more than 80 mm per hour fell starting on the 28th. In Niigata and Fukushima Prefectures, record heavy rains exceeding the July 2004 Niigata and Fukushima Torrential Rains were recorded.	6	13	74	1,000	1,082	・Dispatchment of government investigation team (twice) ・Site inspection by Minister of State for Disaster Management ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Typhoon TALAS (1112) (August 30 - September 5, 2011)	Record rains were recorded across a wide area from Western Japan to Northern Japan. Especially on the Kii Peninsula, the highest amount of rainfall since the rains began at 5:00 p.m. on August 30 exceeded 1,800 mm, and many river channels became blocked.	98	113	380	3,159	5,500	・Establishment of Major Disaster Management Headquarters ・Site inspection by Prime Minister ・Dispatchment of government investigation team (twice) ・Site inspection by Minister of State for Disaster Management ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster (national)
Typhoon ROKE (1115) (September 15-22, 2011)	Strong winds and record rains were recorded across a wide area from Western Japan to Northern Japan. Total rainfall from 12:00 a.m., September 15 to 9:00 a.m., September 22 exceeded 1,000 mm in some parts of Kyushu and Shikoku regions, with many points recording rainfall of more than double the average rainfall for September.	20	425	34	1,524	2,270	・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Heavy Snow in 2011 (November 2011 - March 2012)	Record snows fell mainly on the Japan Sea side, with cumulative snowfall of more than 28% higher than the average for the past 5 years. In addition, in some regions the depth of the snowfall was more than double the average for the past 30 years.	133	1,990	13	12	3	・Ministerial meeting (twice) ・Site inspection by Minister of State for Disaster Management (twice) ・Invocation of Disaster Relief Act
Wind Gusts in May 2012 (May 6, 2012)	Lightning strikes, wind gusts, and hail were recorded from the Tokai region to the Tohoku region. From Joso City to Tsukuba City, Ibaraki Prefecture, a tornado formed that was estimated to be one of the strongest (F3) recorded in Japan. Multiple tornadoes were recorded in the region from Mooka City, Tochigi Prefecture, to Hitachi-Omiya City, Ibaraki Prefecture, including a destructive tornado of approx. 32 km, the second longest recorded since statistics have been kept.	3	61	103	234	—	・Dispatchment of government investigation team ・Site inspection by Minister of State for Disaster Management ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims
Typhoon GUCHOL (1204) (June 18-20, 2012)	Heavy rains fell across a wide area from the Okinawa region to the Tohoku region due to the typhoon and seasonal rain front. Following the track of the typhoon, strong winds, high waves, and a storm surge were recorded across a wide area from the Okinawa region to the Tohoku region.	1	85	1	3	49	・Designation as an extremely severe disaster
Heavy Rains from June 21 to July 7, 2012 (June 21 - July 7, 2012)	Due to the effects of the seasonal rain front and a low-pressure system in the Yellow Sea forming above the seasonal rain front, from June 21 to July 7, rains were recorded from Western to Eastern Japan, and Northern Japan, with heavy rains in parts of Kyushu region and other locations.	2	7	36 (*2)	180 (*2)	1,131 (*2)	・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
July 2012 Northern Kyushu Torrential Rains (July 11-14, 2012)	From July 11 to 14, moist air from the south flowed in toward the seasonal rain front that was stalled near Honshu Island, and heavy rains were recorded across a wide area from Western to Eastern Japan. Very violent rain fell intermittently with thunder especially in the northern part of Kyushu region.	33	34	276 (*3)	2,306 (*3)	2,574 (*3)	・Site inspection by Prime Minister ・Dispatchment of government investigation team (twice) ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Heavy Snow from November2012 (November 2012 - March 2013)	Due to the cold, there was a long stretch of low-temperature days in Northern Japan, with a large amount of snow falling mainly on the Japan Sea side. This resulted in record snowfall recorded mainly on the Japan Sea side of Northern Japan, including snowfall with a depth of 566 cm recorded at Sukayu, Aomori Prefecture.	104	1,517	5	7	2	・Ministerial meeting held ・Dispatchment of government investigation team ・Invocation of Disaster Relief Act

Name of Disaster	Major Events	Human Casualties (persons)		Houses Damaged (houses)			Remarks
		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
Earthquake epicentered Near Awajishima Island (April 13, 2013)	Maximum seismic intensity of Lower 6.	0	34	8	97	—	・Designation as an extremely severe disaster
Heavy Rains in 2013 Seasonal Rain Front (Disaster due to torrential rains and destructive storms between June 8 and August 9, 2013)	・From June 8 to August 9, the seasonal rain front stalled from Kyushu region to the vicinity of Honshu Island with intermittent bursts of activity. In addition, warm and very moist air surrounding a high-pressure ridge flowed in even after the rainy season ended. During this time, Typhoons LEEPI (1304) and SOULIK (1307) approached Japan, causing heavy rains in various regions.	17	50	73	222	1,845	・Site inspection by Prime Minister ・Dispatchment of government investigation team (seven times) ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Heavy Rains from August 23, 2013 (August 23-28, 2013)	Warm, moist air flowed in toward the rain front, creating extremely unstable atmospheric conditions and heavy rains mainly on the Japan Sea side of Eastern Japan, and Western Japan. On August 24, record heavy rains on par with the torrential rains of July 28 were recorded, especially in Shimane Prefecture. Some areas of Hokkaido also received heavy rains.	2	4	9	53	243	・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Tornadoes on September 2 and 4, 2013 (September 2, 4, & 7, 2013)	・On September 2, F2 tornadoes were recorded in Saitama City, Koshigaya City, and Matsubushi Town, Saitama Prefecture, Noda City, Chiba Prefecture, and Bando City, Ibaraki Prefecture. ・On September 4, an F0 tornado was recorded in Sukumo City, Kochi Prefecture, an F0 tornado in Aki City, Kochi Prefecture, F1 tornadoes respectively from Kanuma City to Utsunomiya City, and from Shioya Town, Shioya County to Yaita City, Tochigi Prefecture, and F0 tornadoes from Ise City to Obata Town, Mie Prefecture. ・On September 7, F0 wind gusts were recorded in Komaki City, Hokkaido Prefecture.	0	67	13	38	0	・Dispatchment of government investigation team (twice) ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims
Heavy Rains from Typhoon MAN-YI (1318) (September 15-16, 2013)	On September 15, localized intense rains fell in Eastern Japan and Northern Japan. On the 16th, heavy rains fell across a wide area from Shikoku region to Hokkaido. Record heavy rains fell especially in Fukui, Shiga, and Kyoto Prefectures. A total of ten F0–F1 tornadoes also occurred.	6	136	40	967	2,453	・Dispatchment of government investigation team (five times) ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Typhoons WIPHA (1326) & FRANCISCO (1327) (October 14-16, 2013) (October 24-26, 2013)	Heavy rains fell mainly on the Pacific Ocean side of Eastern Japan and Northern Japan. Hazardous rain of more than 100 mm per hour fell especially in Oshima Town, Tokyo, with record rainfall of 824 mm recorded in 24 hours.	45	140	65	63	2,011	・Site inspection by Prime Minister ・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Heavy Snow from 2013 (November 2013 - March 2014)	・Record heavy snowfall was recorded across a wide area from Northern Japan to Kanto-Koshinetsu area. ・Especially from February 14 to 16, record heavy snows fell, substantially surpassing past snowfall depths mainly in the Kanto-Koshinetsu region, including Kofu City (Yamanashi Prefecture) with 114 cm, Chichibu City (Saitama Prefecture) with 98 cm, and Maebashi City (Gunma Prefecture) with 73 cm of snowfall.	95	1,770	28	40	3	・Establishment of Major Disaster Management Headquarters ・Establishment of On-site Major Disaster Management Headquarters ・Site inspection by Prime Minister ・Dispatchment of government investigation team (five times) ・Invocation of Disaster Relief Act
Typhoon NEOGURI (1408) (July 6-11, 2014)	・Record heavy rains were recorded on Okinawa Island. ・Due to the effects of the moist southerly wind surrounding the typhoon and the seasonal rain front, some regions even far from the typhoon received localized hazardous rains.	3	70	14	12	409	・Dispatchment of government investigation team (three times) ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as a disaster of extreme severity ・Appeal to the public by the Minister of State for Disaster Management
Torrential Rains of August 2014							
Typhoons NAKRI (1412) & HALONG (1411) (July 30 - August 11, 2014)	<Typhoon NAKRI (1412)> ・From the night of the 5th, heavy rains were recorded in the Chugoku and Tohoku regions. Especially in Yamaguchi Prefecture, localized hazardous rains of more than 100 mm per hour were recorded in some places. <Typhoon HALONG (1411)> Heavy rains fell across a wide area from Western Japan to Northern Japan. Especially in Kochi Prefecture, total rainfall from the 7th to the 11th, when the heaviest rains fell, was more than 1,000 mm. Total rainfall from the Shikoku region to the Tokai region was more than 600 mm. Atmospheric conditions were extremely unstable, with extremely strong winds including tornadoes in Tochigi Prefecture and other areas.	5	93	22	374	1,529	・Dispatchment of government investigation team (twice) ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster

Name of Disaster	Major Events	Human Casualties (persons)		Houses Damaged (houses)			Remarks
		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
Heavy Rains from August 15, 2014 (August 15-26, 2014) *Excludes Hiroshima Sediment Disaster on August 20	・Thelocalized and very violent rains with thunder occureed. The amount of rainfall that fell during the 2 days of the 16th and 17th set new records in places such as Fukuchiyama City, Kyoto Prefecture, and Takayama City, Gifu Prefecture, with heavy rains mainly in the Kinki, Hokuriku, and Tokai regions.	8	7	38	332	2,240	・Dispatchment of government investigation team (twice) ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Hiroshima Sediment Disaster on August 20, 2014 (Disaster in Hiroshima Prefecture due to heavy rains from August 19, 2014)	・ Warm, moist air flowed in toward the rain front, and extremely unstable atmospheric conditions were recorded mainly in the Chugoku region and the northern Kyushu region. ・At 3:30 a.m. on the 20th, hazardous rains of approx. 120 mm per hour were recorded in Hiroshima Prefecture, and heavy rains, including a new record set for the highest recorded rainfall in a 24-hour period, were recorded.	77	68	179	217	1,086	・Establishment of Major Disaster Management Headquarters ・Establishment of On-site Major Disaster Management Headquarters ・Site inspection by Prime Minister ・Dispatchment of government investigation team (three times) ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
2014 Eruption of Mt. Ontake (September 27, 2014)	・Volcanic tremors started at 11:41 a.m. on September 27, with an eruption on the same day around 11:52 a.m. ・Plumes descended the southern slope and was recorded for more than 3 km. Therefore, a level 3 volcano warning (Do not approach the volcano) was issued. ・Entry within 4 km of the crater was restricted. ・Many mountain climbers suffered casualties due to this eruption.	63	69	0	0	0	・Establishment of Major Disaster Management Headquarters ・Establishment of On-site Major Disaster Management Headquarters ・Dispatchment of government investigation team (twice) ・Invocation of Disaster Relief Act
Earthquake with a Seismic Source in Northern Nagano Prefecture (November 22, 2014)	Maximum seismic intensity of Lower 6.	0	46	81	133	—	・Site inspection by Prime Minister ・Dispatchment of government investigation team (twice) ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Heavy Snow in 2014 (November 2014 - March 2015)	Due to the effects of a strong winter air-pressure pattern as well as a low-pressure system and cold air, heavy snows fell on the mountainous areas of the Japan Sea side from Northern Japan to Eastern Japan.	83	1,029	9	12	5	・Ministerial meeting ・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Appeal to the public by the Minister of State for Disaster Management (four times)
Kuchinoerabu-jima Island Eruption [Volcanic Alert Level 5] (May 29, 2015)	・An explosive eruption occurred at Shindake at 9:59 am on May 29. This eruption triggered plumes of black-gray smoke that rose 9,000m above the crater rim and a pyroclastic flow that reached the northwestern coast (Mukaehama district). ・At 10:07 am, the JMA raised the Volcanic Alert Level from 3 to 5 (evacuate). ・The municipal ferry, Ferry-Taiyo, and other vessels were used to evacuate all those on the island at the time of the eruption to Yakushima Island (all individuals were confirmed to be safe)	0	1	To be confirmed			・Installation of government on-site communications office (Yakushima Town, Kagoshima) ・Site inspection by Prime Minister ・Dispatchment of government investigation team ・Invocation of Disaster Relief Act
Eruption of Mt. Hakone [Volcanic Alert Level 3] (June 30, 2015)	・A very small amount of volcanic ash was observed inside the crater, which was thought to have been the result of a very small eruption, so the JMA raised the volcanic alert level from 2 to 3 (Do not approach the volcano) at 12:30 on June 30 ・At the same time, Hakone Town imposed a ban on entering the area within around 1km of the crater and issued an evacuation instruction for parts of the Ubako, Kamiyuba, Shimoyuba and Hakone Sounkyo Bessochi areas as well as evacuating residents, etc. from those areas	0	0	0	0	0	・Deployment of a Cabinet Office advance information-gathering team
Typhoon NANGKA (1511) (July 16-18, 2015)	The typhoon and warm, moist air heading toward the typhoon caused increased rainfall, primarily over West and East Japan. The Kinki region in particular saw the highest rainfall in 24 hours since records began, with heavy rain in excess of the usual rainfall for the entire month of July in an ordinary year. This caused river flooding, damage to public civil engineering works, and suspension of transport services, mainly in West Japan.	2	57	5	10	85	・Appeal to the public by the Minister of State for Disaster Management

Name of Disaster	Major Events	Human Casualties (persons)		Houses Damaged (houses)			Remarks
		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
Volcanic activity at Sakurajima Island [Volcanic Alert Level 4] (August 15, 2015)	・At around 07:00 on August 15, a series of volcanic earthquakes centered on the island occurred. Rapid crustal movement indicative of inflation of the volcanic edifice was also observed. ・At 10:15 that day, the JMA raised the volcanic alert level from 3 to 4 (Prepare to evacuate) (caution required in Arimura Town and Furusato Town, within 3km of the Showa crater and the Minamidake summit crater). ・At 16:50 that day, Kagoshima City issued evacuation advisories to the residents of the Arimura district of Arimura Town, the Furusato district of Furusato Town (areas within 3km of the crater), and the Shioyagamoto district of Kurokami Town. ・At 18:10 that day, evacuation of all residents (77 people from 51 households) in the areas subject to evacuation was completed.	0	0	0	0	0	・Site inspection by Parliamentary Vice Minister ・Deployment of a Cabinet Office liaison team
Typhoon GONI (1515) (August 22-26, 2015)	・The typhoon that made landfall near Arao City in Kumamoto Prefecture after 06:00 on the 25th moved northward to the northern Kyushu region, maintaining its strong intensity, and reached the Japan Sea during the daylight hours of the 25th. ・A maximum instantaneous wind speed of 71.0m was observed at 21:16 on the 23rd on Ishigaki Island, Okinawa Prefecture. In addition, the typhoon and warm, moist air flowing in from the south resulted in heavy rain over the Ryukyu Islands, West Japan, and the Tokai region, with more than 500mm of rain falling on Mie Prefecture in a single day on the 25th.	1	147	12	138	53	・Designation as an extremely severe disaster
Torrential Rain of September 2015 in the Kanto and Tohoku Regions [Including Typhoon ETAU (1518)] (September 9-11, 2015)	・After making landfall near Nishio City, Aichi Prefecture at around 09:30 on September 9, 2015 Typhoon ETAU (1518) moved on to the Japan Sea and transformed into an extra-tropical cyclone at 15:00 that day. ・As a result of Typhoon ETAU (1518) and weather fronts, heavy rain fell over a wide area from western to northern Japan. In particular, between the 9th and the 11th, a southerly wind flowing into the extra-tropical cyclone into which Typhoon ETAU (1518) transformed and, subsequently, a southeasterly wind from the vicinity of Typhoon KILO (1517) supplied flows of moist air that triggered a succession of stationary linear mesoscale convectivesystems, causing record-breaking rainfall in the Kanto and Tohoku regions and prompting the issue of emergency heavy rain warnings for Tochigi, Ibaraki and Miyagi Prefectures.	20	82	81	7,090	2,523	・Minister of State for Disaster Management issues a list of requests to relevant ministries and agencies ・Deployment of a Cabinet Office advance information-gathering team ・Dispatchment of government investigation team ・Ministerial meeting (twice) ・Site inspection by Prime Minister (once) ・Site inspection by Minister of State for Disaster Management (twice) ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Mt. Aso Eruption [Volcanic Alert Level 3] (September 14, 2015)	・At 09:43 on September 14, an eruption occurred at Mt. Nakadake 1st Crater. At 09:50, the Japan Meteorological Agency (JMA) issued a preliminary eruption report (the first issuing since the report system was established in August 2015). ・At 10:10, the JMA raised the volcanic alert level from 2 to 3 (Do not approach the volcano) (caution required in the area within 2 km of the crater). ・At 11:00, the local government confirmed that all tourists in the restricted area (2 km from the crater) had been evacuated.	—	—	—	—	—	
Typhoon DUJUAN (1521) (September 27-28, 2015)	・Typhoon DUJUAN (1521) approached the Ishigaki and Yonaguni island areas with violent intensity during the day on the 28th. ・On Yonaguni Island, a maximum instantaneous wind speed of 81.1m was observed at 15:41 on the 28th, the highest figure since statistics began to be compiled. A severe gale buffeted Yaeyama Islands, while the Sakishima Islands saw stormy seas with high swells and the Okinawa Island area was also battered by rough seas.	0	0	5	23	0	・Dispatchment of government investigation team ・Invocation of Disaster Relief Act

Name of Disaster	Major Events	Human Casualties (persons)		Houses Damaged (houses)			Remarks
		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
Heavy Snowfall since November, 2015 (November, 2015 - March, 2016)	In January 2016, a rapidly developing low pressure system caused heavy snowfall over a wide area, even in the plains of Kantoregion. The pace of snowfall was faster than usual due to the strong winter pressure system, which caused damage even in areas that normally receive little snowfall. In Amami-Oshima Island, Kagoshima Prefecture, the first snowfall in 115 years was observed since February 12, 1901.	27	631	—	3	—	
The 2016 Kumamoto Earthquake (April 14 and 16, 2016)	・At 09:26 p.m. on April 14, 2016 Maximum seismic intensity of 7 ・At 01:25 a.m. on April 16, 2016 Maximum seismic intensity of 7	273	2,809	8,667	34,719	0	・Establishment of Major Disaster Management Headquarters ・Establishment of On-site Major Disaster Management Headquarters ・Site inspection by Prime Minister (three times) ・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Invocation of Special Measures Act for Specified Disaster ・Partial invocation of the Act on Reconstruction from Large-Scale Disasters ・Designation as an extremely severe disaster
Heavy Rains from Seasonal Rain Front Starting June 20, 2016 (June 20-25, 2016)	・Warm, moist air flowed in toward the seasonal rain front having stalled over Western to Eastern Japan and a low-pressure system above the seasonal rain front, creating extremely unstable atmospheric conditions. ・Rainfall from 00:00 on 19 onward exceeded 300 mm over a wide area of Kyushu region, as well as Chugoku and Shikoku regions and part of the Izu Islands, while rain in some parts of Kumamoto, Oita and Miyazaki Prefectures exceeded 500 mm.	7	12	37	165	520	・Designation as an extremely severe disaster
Typhoon CHANTHU (1607) (August 16-18, 2016)	・Typhoon CHANTHU (1607) moved northward along the Pacific coast of the Kanto and Tohoku regions, making landfall near Cape Erimo at around 17:30 on August 17. It then continued up through Hokkaido and transformed into an extra-tropical cyclone near Sakhalin Island at 03:00 on the 18th. ・The passage of the cold front of the extra-tropical cyclone that was formerly Typhoon CHANTHU (1607) caused localized hazardous rains in the Kanto region, with 83 mm per hour of rain recorded in Utsunomiya City, Tochigi Prefecture up to 03:14 on the 18th. ・The total rainfall between 00:00 on August 16 and 06:00 on August 18 exceeded 100 mm over an extensive area in the Kanto, Tohoku and Hokkaido regions.	0	5	0	9	67	・Designation as an extremely severe disaster
Typhoons KOMPASU (1611) & MINDULLE (1609) (August 20-23, 2016)	・Typhoon KOMPASU (1611) formed as a tropical storm over the sea east of Japan at 09:00 on August 20 and approached the Tohoku region before making landfall near Kushiro City, Hokkaido after 23:00 on the 21st. It then continued up through Hokkaido and transformed into an extra-tropical cyclone over the Okhotsk Sea at 03:00 on the 22nd. ・Typhoon MINDULLE (1609) made landfall near Tateyama City, Chiba Prefecture at around 12:30 on August 22 and continued up through the Kanto and Tohoku regions, making landfall once more on the central part of Hidaka District of Hokkaido before 06:00 on the 23rd. It then continued up through Hokkaido before transforming into an extra-tropical cyclone over the Okhotsk Sea at 12:00 on the 23rd. ・These typhoons and weather fronts caused heavy rain in eastern and northern Japan. Between 00:00 on August 20 and 24:00 on the 23rd, there was 448.5 mm of rainfall at Mt. Amagi in Izu City, Shizuoka Prefecture; 297.5 mm at Ome in Ome City, Tokyo; and 296.0 mm at Itokushibetsu in Shibetsu Town, Hokkaido. Hokkaido experienced particularly heavy rain, receiving double the average rainfall for August.	2	76	6	19	665	・Dispatchment of government investigation team ・Designation as an extremely severe disaster

Name of Disaster	Major Events	Human Casualties (persons)		Houses Damaged (houses)			Remarks
		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
Typhoon LIONROCK (1610) (August 26-31, 2016)	・Typhoon LIONROCK (1610) approached the Kanto region in the morning of August 30 and made landfall near Ofunato City, Iwate Prefecture around 17:30 on the 30th, accompanied by a storm area. It then accelerated on a peculiar course that saw it pass through the Tohoku region and enter the Japan Sea, and it transformed into an extra-tropical cyclone on the 31st. ・This was the first time that a typhoon had made landfall on the Pacific coast of the Tohoku region since the Japan Meteorological Agency began recording statistics in 1951.	29	14	518	2,281	279	・Installation of government on-site communications office ・Appeal to the public by the Minister of State for Disaster Management ・Site inspection by Prime Minister (twice) ・Dispatchment of government investigation team (twice) ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Typhoon NAMTHEUN in 2016(1612) (September 1 - 5, 2016)	Typhoon NAMTHEUN in 2016 (1612) made landfall near Nagasaki City, Nagasaki Prefecture, just after 1:00 on September 5. At 9:00 on September 5, it weakened to tropical depression intensity off Tsushima Island.	—	1	—	—	—	
Typhoon MALOU in 2016 (1613) (September 6 - 8, 2016)	Typhoon MALOU in 2016 (1613), after moving from south to northeastward of Japan, turned into an extratropical cyclone off the coast of Hokkaido.	1	2	15	42	112	
Typhoon MALAKAS (1616) (September 16-20, 2016)	・With strong intensity, Typhoon MALAKAS (1616) made landfall on the Osumi Peninsula, Kagoshima Prefecture after 00:00 on September 20 and then headed northeast across the waters off the coast of Shikoku region before making landfall once more near Tanabe City, Wakayama Prefecture around 13:30 the same day. After making landfall yet again after 17:00 that day near Tokoname City, Aichi Prefecture, it transformed into an extra-tropical cyclone at 21:00 the same day off the coast of the Tokai region.	1	47	8	65	509	・Designation as an extremely severe disaster
Typhoon CHABA in 2016 (1618) (September 30 - October 5, 2016)	・Typhoon CHABA in 2016 (1618) approached Kume Island on October 3 with violent typhoon intensity. Then it moved northward across the East China Sea and then northeastward across the Japan Sea. And it became an extratropical cyclone off Sado Island at 21:00 on October 5. *At 19:02 on October 3, an emergency warning (for storms, waves, heavy rain, and storm surge) was issued for the Okinawa Island area. All warnings were cancelled at 05:42 on October 4.	—	14	—	1	—	・Appeal to the public by the Minister of State for Disaster Management (once)
2016 Earthquake centered in the central Tottori Prefecture (October 21, 2016)	Maximum seismic intensity of Lower 6	0	32	18	312	—	・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Earthquake centered in the northern Ibaraki Prefecture (December 28, 2016)	Maximum seismic intensity of Lower 6	0	2	0	1	—	—
March 27, 2017Avalanche in Nasu, Tochigi Prefecture on (March 27, 2017)	An avalanche hit the Nasu Onsen Family Ski Resort, affecting high-school students during a mountain climbing workshop.	8	40	—	—	—	—
Heavy rains from Seasonal Rain Front starting June 30, 2017and Typhoon NANMADOL (1703) (including Northern Kyushu Heavy Rain) (June 30 - July 10, 2017)	Localized intense rain caused by a seasonal rain front and Typhoon NANMADOL (1703) fell mainly in the northern Kyushu region. Especially from July 5 to 6, record heavy rain hit the northern Kyushu region due to warm and very moist air flowing in toward the rain front stalling in the vicinity of the Tsushima Straits.	44	39	338	1,101	223	・Ministerial meeting (three times) ・Site inspection by Prime Minister ・Deployment of a Cabinet Office advance information gathering team ・Dispatchment of government investigation team (twice) ・Installation of government on-site communications office ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster ・Appeal to the public by the Minister of State for Disaster Management
Heavy Rains from Seasonal Rain Front Starting July 22, 2017 (July 22 - 26, 2017)	Warm and moist air flowed in towards the rain front stalling over Tohoku and Hokuriku regions; stimulating it and causing heavy rain, concentrated in these regions, from July 22.	0	0	3	44	618	・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster

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		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
Typhoon NORU in 2017 (1705) (August 4 - 9, 2017)	Typhoon NORU in 2017 (1705), which developed on July 21 around the sea near Minamitori Island, approached the Amami region. After that, it made landfall in northern Wakayama Prefecture and moved up through the Kinki region. It then moved northeastward across the Japan Sea, and at 3:00 a.m. on August 9, it turned into an extratropical cyclone off Yamagata Prefecture. Due to the slow movement of the typhoon, heavy rains were recorded in the Amami region, western Japan, and eastern Japan. In addition to heavy rainfall, gusty winds were observed. The typhoon caused damage to a wide area.	2	51	5	6	47	・Designation as a disaster of extreme severity
Typhoon TALIM (1718) (September 13 - 18, 2017)	Typhoon TALIM (1718), heading north near Miyako Island from September 13 to 14, crossed the Satsuma Peninsula, Kagoshima Prefecture around 11:30 on 17th and made landfall on Tarumizu City, Kagoshima Prefercture around 12:00 the same day. It continued to move north along the Japanese islands with a storm area and transformed into an extra-tropical cyclone at 03:00 on 18th around Sado Island. The typhoon and active rain front caused hazardous rains from Western to Northern Japan.	5	73	5	615	1,553	・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Typhoon LAN (1721) (October 21 - 23, 2017)	Typhoon LAN (1721) moved northward over the south of Japan during October 21-22 and made landfall around Omaezaki City in Shizuoka Prefecture around 3 a.m. on 23rd with its very large scale and strong intensity. Afterward, it headed northeast with its large storm zone and transformed into an extra-tropical cyclone around the sea east of Hokkaido at 3 p.m. on 23rd. This brought about heavy rain over the wide area in Western and Eastern Japan and Tohoku region due to well-developed rain clouds surrounding the typhoon and the rain front stalling near Honshu.	8	245	13	485	2,794	・Dispatchment of government investigation team ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Heavy Snow from 2017 (November 2017 - March 2018)	Due to the effects of a strong winter air-pressure pattern, heavy snowfalls were observed in some areas on the Japan Sea side. Especially large amounts of well-developed snow clouds flowed in from the Japan Sea side from early to mid-February. In Fukui, Fukui Prefecture, the daily maximum snow depth exceeded 140 cm for the first time in 37 years. The Hokuriku region observed heavy snowfalls overall, with some areas recording snow exceeding six times the average.	116	1,539	9	18	13	・Dispatchment of government investigation team ・Invocation of Disaster Relief Act
Eruption of Mt. Kusatsu-Shirane (January 23, 2018)	・An eruption occurred at 10:02 a.m., January 23. Volcanic rocks travelled farther than 1 km from the crater near Pond Kagami, Mt. Motoshirane. ・At 11:05 a.m., the volcanic alert level was raised from 1 to 2 (Do not approach the crater). ・At 11:50 a.m., the volcanic alert level was raised from 2 to 3 (Do not approach the volcano) (caution required within a 2 km radius from the crater near Pond Kagami).	1	11	0	0	0	—
Earthquake centered in the western Shimane Prefecture (April 9, 2018)	Maximum seismic intensity of Upper 5	0	9	16	58	0	・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims
Sediment Disaster in Nakatsu City, Oita Prefecture (April 14, 2018)	A landslide in Yabakeimachi, Nakatsu City	6	0	4	0	0	—
Earthquake centered in the northern Osaka Prefecture (June 18, 2018)	Maximum seismic intensity of Lower 6	6	462	21	483	0	・Deployment of a Cabinet Office advance information gathering team ・Ministerial meeting (once) ・Site inspection by Prime Minister ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims

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		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
The Heavy Rain Events of July 2018 (June 28 – July 8, 2018)	Due to the effects of the rain front and Typhoon PRAPIROON (1807), warm and highly humid air was continuously supplied into the vicinity of Japan, resulting in record rainfalls in western Japan and other areas. The rains caused some serious disasters, including river overflows, floods, and landslides, leaving more than 200 people dead or missing. The lifelines were also affected such as the suspension of water supply and telephone service in various areas across Japan, while rail and road transportation was also disrupted.	271	449	6,783	11,342	6,982	・Establishment of Major Disaster Management Headquarters ・Ministerial meeting (once) ・Deployment of a Cabinet Office advance information gathering team ・Dispatchment of government investigation team ・Site inspection by Prime Minister (four times) ・Site inspection by Minister of State for Disaster Management (three times) ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Invocation of Special Measures Act for Specified Disaster ・Designation as an extremely severe disaster
Volcanic activity at Kuchinoerabu-jima Island [Volcanic Alert Level 4] (August 15, 2018)	From around August 8, many volcanic earthquakes and large amounts of volcanic gases were observed. From around midnight on August 15, an increasing number of volcanic earthquakes were observed at deeper spots. In the small hours of the same day, an earthquake with a maximum magnitude of 1.9 (preliminary) was observed. At 10:30 a.m., the volcanic alert level was raised to 4 (prepare to evacuate).	—	—	—	—	—	—
Typhoon JEBI (1821) (September 4 - 5, 2018)	With very strong intensity, Typhoon JEBI (1821) made landfall on the southern part of Tokushima Prefecture before noon on September 4. It then made landfall again around Kobe City, Hyogo Prefecture before 2 p.m. and continued up through the Kinki region while accelerating. At 9 a.m. on the 5th, it transformed into an extra-tropical cyclone at Tatar Strait. During the approach and passage of the typhoon, very intense winds and very violent rains hit western to northern Japan. The Shikoku and Kinki regions experienced particularly strong winds and rains, with some areas observing record high waves.	14	980	68	833	244	・Ministerial meeting (once) ・Dispatchment of government investigation team ・Designation as an extremely severe disaster
The 2018 Hokkaido Eastern Iburi Earthquake (September 6, 2018)	Maximum seismic intensity of 7 A major power outage occurred across the prefecture.	43	782	469	1,660	—	・Deployment of a Cabinet Office advance information gathering team ・Ministerial meeting (nine times) ・Installation of government on-site communications office ・Dispatchment of government investigation team ・Site inspection by Prime Minister (once) ・Site inspection by Minister of State for Disaster Management ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Typhoon TRAMI (1824) (September 29 - October 1, 2018)	From September 29 to dawn on the 30th, Typhoon TRAMI (1824) approached the Okinawa region with very strong intensity. It made landfall near Tanabe City, Wakayama Prefecture around 8 p.m. on the 30th while rapidly accelerating. After crossing eastern and northern Japan, it transformed into an extra-tropical cyclone over the sea east of Japan atnoon on October 1.	4	231	62	404	326	・Designation as an extremely severe disaster ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims
Earthquake centered in the Kumamoto region of Kumamoto Prefecture (January 3, 2019)	Maximum seismic intensity of Lower 6	1	3	0	0	—	—
Earthquake centered in the Central-Eastern Iburi region of Hokkaido (February 21, 2019)	Maximum seismic intensity of Lower 6	0	6	0	0	—	—
Earthquake centered offshore of Yamagata Prefecture (June 18, 2019)	Maximum seismic intensity of Upper 6	0	43	0	28	—	・Ministerial meeting (two times) ・Dispatchment of government investigation team

Name of Disaster	Major Events	Human Casualties (persons)		Houses Damaged (houses)			Remarks
		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
Heavy Rain since Late June (June 28 -July 5, 2019)	Since late June, seasonal rain front was stalling in western and around eastern Japan and warm moist air flowing toward the front has increased its activity. The total precipitation from June 28 to July 8 reached 1,089.5 mm in Ebino, Ebino City, Miyazaki Prefecture, exceeded 500 mm in Kagoshima, Miyazaki, and Kumamoto Prefectures. Resulting in the record-breaking heavy rainfalls.	2	5	11	9	92	・Ministerial meeting (three times) ・Deployment of a Cabinet Office advance information gathering team ・Designation as an extremely severe disaster
Heavy rains from Seasonal Rain Front and 2019 Typhoon Danas (1905) (July 17 – 22, 2019)	Warm and humid air around Typhoon Danas (1905) and the North Pacific High brought localized hazardous rain in western Japan from 20 to 21. From the night of 19 to the afternoon of 20, Goto and Tsushima in Nagasaki Prefecture experienced the record-breaking heaviest rain in decades, and at 10:05 a.m. on 20, an emergency heavy rain warning was issued (all warnings were cancelled by 4:10 p.m. on the same day). In addition, developed rain clouds stalled over Saga and Fukuoka Prefectures on the early morning of 21, resulting in record-breaking heavy rain in some areas, exceeding the July average rainfall in 24 hours. Typhoon Danas transformed into an extra-tropical cyclone at 9:00 p.m. On 21.	1	6	0	1	216	・Ministerial meeting (once) ・Dispatchment of government investigation team ・Designation as an extremely severe disaster
Typhoon FRANCISCO in 2019 (1908) (August 5 – 7, 2019)	Typhoon FRANCISCO in 2019 (1908) made landfall near Miyazaki City at around 5:00 on the 6th, and continued to move northwestward and weakened to tropical depression intensity in the Japan Sea at 9:00 on the 7th. In Nobeoka City, Miyazaki Prefecture, and Saiki City, Oita Prefecture, it brought about hazardous rains of about 110 to 120 millimeters per hour. The total rainfall from the 5th to the 7th 12:00 a.m. was 467 millimeters in Kigashira, Naga Town, Tokushima Prefecture. In addition, the Pacific side of Kyushu and Shikoku regions experienced heavy rainfall of around 300 mm.	1	5	1	0	1	
Typhoon KROSA in 2019 (1910) (August 12 – 16, 2019)	Typhoon KROSA in 2019 (1910) made landfall near Kure City in Hiroshima Prefecture around 3:00 p.m. on 15 and brought very violent rain with strong winds over the wide range of western and eastern Japan on the Pacific side, with total rainfall exceeding 800 mm in some places. Though it transformed into an extratropical cyclone in western Hokkaido at 9 p.m. on 16, it approached Hokkaido with its strength maintained, and very violent rains with strong wind hit Hokkaido and other areas until the dawn of 17.	2	58	1	0	2	・Ministerial meeting (two times) ・Designation as an extremely severe disaster
Heavy Rain Event of August 2019 related to the rain front (August 26 – 29, 2019)	The front and humid air resulted in record-breaking heavy rainfall, with total rainfall exceeding 600 mm in the northern Kyushu region and other areas since August 26. In particular, as the threat of serious disasters significantly increased, with record-breaking heavy rainfalls of at least100 mm per hour recorded at dawn on August 28, an emergency heavy rain warning was issued for Saga, Fukuoka and Nagasaki Prefectures at 5:50 a.m. on 28.	4	4	95	890	918	・Ministerial meeting (three times) ・Deployment of a Cabinet Office advance information gathering team ・Dispatchment of government investigation team ・Site inspection by Minister of State for Disaster Management ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Typhoon FAXAI in 2019 (T1915) (September 7 – 9, 2019)	From July 7 to 8, the typhoon moved northward from the ocean surrounding the Ogasawara Islands to the Izu Islands, passed near the Miura Peninsula before 3:00 a.m. on 9, and made powerful landfall near Chiba City before 5:00 a.m. As the typhoon approached and passed Japan, hazardous wind and rain hit the Izu Islands, the southern Kanto region, and others. The storm was a record-breaking one, with many points having the highest maximum wind speeds and the highest maximum instantaneous wind speeds ever recorded in Japan. In particular, the maximum wind velocity of 35.9 m and the maximum instantaneous wind speed of 57.5 m were observed in Chiba City.	9	160	457	4,806	125	・Deployment of a Cabinet Office advance information gathering team ・Site inspection by Minister of State for Disaster Management (three times) ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designation as an extremely severe disaster

Name of Disaster	Major Events	Human Casualties (persons)		Houses Damaged (houses)			Remarks
		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
Typhoon HAGIBIS in 2019 (T1919) (October 10 – 13, 2019)	Before 7 p.m. on 12, the large typhoon with strong power made landfall on the Izu Peninsula. It passed through the Kanto region and blew out to the east sea of the Tohoku region before dawn on 13. The typhoon caused record rainfall over a wide area in Shizuoka and Niigata Prefectures, as well as in the Kanto-Koshin and the Tohoku regions, due to the typhoon's developed rain clouds and moist air around it.	108	375	3,229	28,107	7,524	・Establishment of Major Disaster Management Headquarters ・Ministerial meeting (twice) ・Deployment of a Cabinet Office Survey Team ・Dispatchment of government investigation team ・Site inspection by Prime Minister (twice) ・Site inspection by Minister of State for Disaster Management (six times) ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Specified disaster designation ・Designation as an extremely severe disaster ・Major disaster designation
The Heavy Rain Event of July 2020 (July 3 - 31, 2020)	Total precipitation from July 3 to 14 exceeded half of the normal annual precipitation at some points. The rainfall was heavy for a long period of time over a wide area of western and eastern Japan, mainly in the Kyushu region. Especially in the northern Kyushu region, the 48-hour rainfall was 1.4 times more than the previous record, and several locations set new records. As a result of this record-breaking rainfall, a special warning for heavy rain was issued in Kumamoto and Kagoshima Prefectures at 4:50 on the 4th, and Fukuoka, Saga and Nagasaki Prefectures at4:30 p.m. on the 6th. It was also issued in Gifu Prefecture at 6:30 on the 8th, and at 6:43 on the same day in Nagano Prefecture.	88	82	1,627	4,535	1,741	・Establishment of Major Disaster Management Headquarters ・Ministerial meeting ・Establishment of National On-site Disaster Management Office ・Deployment of a Cabinet Office Survey Team ・Site inspection by Prime Minister ・Site inspection by Minister of State for Disaster Management (six times) ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Specified disaster designation ・Extreme disaster designation ・Disaster of extreme severity designation
Typhoon HAISHEN in 2020 (T2010) (September 5 - 7, 2020)	Typhoon HAISHEN in 2020 (T2010) approached the Nansei Islands and Kyushu region from September 5 to 7 with a large and very strong storm. It then made landfall on the Korean Peninsula and turned into an extratropical cyclone at 3:00 on September 8. The maximum wind speed was 44.2 m/s and the maximum wind gust speed was 59.4 m/s at Nomozaki, Nagasaki Prefecture. Violent storm or storm winds were observed mainly in the Nansei Islands and Kyushu region, exceeding the first value in the history of observation, making it a record-breaking storm.	6	110	7	40	31	・Ministerial meeting (twice) ・Appeal to the public by the Minister of State for Disaster Management (twice)
Typhoon CHAN-HOM in 2020 (2014) (October 7 - 12, 2020)	Typhoon CHAN-HOM in 2020 (2014) brought record-breaking rainfall to the southern Izu Islands, exceeding 700 millimeters in many places due to the effects of the stationary front and typhoon. A heavy rain emergency warning was announced at 5 p.m. on the 10th in Miyake Village and Mikurajima Village in Tokyo.	0	3	0	0	0	・Ministerial meeting ・Invocation of Disaster Relief Act
Heavy Snowfall since December 16 (December 16 - 18, 2020)	Due to a strong winter pressure system, it snowed intermittently from northern Japan to western Japan, mainly on the Japan Sea side. Heavy snowfall occurred mainly in the mountainous areas of the Kanto, Hokuriku and Tohoku regions. In particular, Fujiwara, Minakami Town, Tone County, Gunma Prefecture, experienced a record-breaking snowfall, with the maximum snowfall amounts per 48 and 72 hours, ranking the first in Japan (based on observations by Automated Meteorological Data Acquisition System).	6 (*5)	63 (*4)	0	0	0	・Ministerial meeting ・Invocation of Disaster Relief Act
Heavy Snowfall since January 7 (January 7 - 11, 2021)	A low pressure system developed rapidly from January 7 to 8 in the morning. It moved from the Japan Sea through northern Japan to the waters near the Chishima Islands. After that, strong cold air flowed into the sky over Japan, and a strong winter-type pressure pattern continued through the 11th. These factors resulted in heavy snow and wind storms over a wide area from northern Japan to western Japan. In particular, Takada, Joetsu City, Niigata Prefecture, observed 103 cm of snowfall in 24 hours on the 9th, setting a new record for the most snowfall in the history of observation. Many locations experienced record-breaking snow and wind storms.	35 (*5)	382 (*4)	1	2	2	・Ministerial meetin ・Deployment of a Cabinet Office Survey Team ・Site inspection by Minister of State for Disaster Management ・Invocation of Disaster Relief Act
Earthquake Centered off the Coast of Fukushima Prefecture in 2021 (February 13, 2021)	Maximum intensity of 6.0 earthquake	2	184	144	3,065	0	・Ministerial meeting （twice） ・Deployment of a Cabinet Office Survey Team ・Site inspection by Minister of State for Disaster Management (six times) ・Invocation of Disaster Relief Act ・Invocation of Act on Support for Reconstructing Livelihoods of Disaster Victims
Heavy Rain from July 1 of 2021 (July 1 - July 14, 2021)	The seasonal rain front stalled over West and East Japan from the end of June to early July, resulting in wide-area heavy rains from West Japan to the Tohoku region. From July 2 to 3, 72-hour-precipitation was the highest on record at several sites in Shizuoka Prefecture. In Atami City, Shizuoka Prefecture, a large debris flow caused numerous human damages. On 10, a heavy rain emergency warning was issued for Kagoshima, Miyazaki and Kumamoto Prefectures, and on 12, Aomori, Mie, Shimane and Tottori Prefectures experienced the highest one-hour	29	12	59	119	499	・Establishment of Major Disaster Management Headquarters ・Establishment of Authorized Disaster Management Headquarters ・Ministerial Meetings (twice) ・Dispatch of Cabinet Office Survey Team ・Prime Minister's site visit ・Minister of State for Disaster Management, Japan on-site inspection (2 times) ・Application of Disaster Relief Act ・Application of Act on Support for Reconstructing Livelihoods of Disaster Victims

	precipitation on record.						・Designated as Disaster of Extreme Severity
Heavy Rain in August of 2021 (August 7 - August 23, 2021)	From August 11, warm and humid air flowed toward a front that had been stalled near Japan, causing prolonged heavy rains over a wide area from West to East Japan as the front became more active. Slope failure in Unzen City, Nagasaki Prefecture and debris flow in Okaya City, Nagano Prefecture brought about human suffering. A heavy rain emergency warning was issued for Hiroshima Prefecture on 13, and Nagasaki, Saga, Fukuoka and Hiroshima Prefectures on 14. The Rokkaku River in Saga Prefecture flooded again, following its flooding in August 2019.	13	17	45	1,234	796	・Establishment of Authorized Disaster Management Headquarters ・Ministerial Meetings (twice) ・Dispatch of Cabinet Office Survey Team ・Minister of State for Disaster Management, Japan on-site inspection (2 times) ・Application of Disaster Relief Act ・Application of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designated as Disaster of Extreme Severity
Earthquake Centered Off the North-West of Chiba Region (October 7, 2021)	Maximum seismic intensity 5+ Suspension of train services in the Tokyo metropolitan area caused people not to be able to return home.	0	50	0	0	0	-
Earthquake Centered off the Coast of Fukushima Prefecture (March 16, 2022)	Maximum seismic intensity 6+	3	245	111	1,285	0	・Dispatch of Cabinet Office Survey Team ・Minister of State for Disaster Management, Japan on-site inspection ・Application of Disaster Relief Act ・Application of Act on Support for Reconstructing Livelihoods of Disaster Victims ・Designated as Disaster of Extreme Severity

*1 Established by a Ministerial meeting decision, and therefore not based on the Basic Act on Disaster Management.
*2 The number of damaged houses in the July 2012 Northern Kyushu Torrential Rains contains some duplications.
*3 The number of damaged houses due to heavy rains from June 21 to July 7, 2012 contains some duplications.
*4 The total of those caused by stranded vehicles and those caused by accidents during snow removal.
*5 Due to accidents during snow removal.
Source: Cabinet Office, Fire and Disaster Management Agency Materials, Major Disaster Management Headquarters materials

Fig. A-10 Establishment of Extreme Disaster Management Headquarters, Major Disaster Management Headquarters and Authorized Disaster Management Headquarters

As of March 1, 2021

	Name of Headquarters	Period of Establishment	Manager of Headquarters
1	Heavy Snowfall Major Disaster Management Headquarters	Jan. 29 - May 31, 1963	Minister of State
2	Niigata Earthquake Major Disaster Management Headquarters	Jun. 16 - Oct. 31, 1964	Minister of State
3	Typhoons SHIRLEY (6523), TRIX (6524), and VIRGINIA (6525) Major Disaster Management Headquarters	Sep. 17 - Dec. 17, 1965	Minister of State
4	Typhoons HELEN (6624) and IDA (6626) Major Disaster Management Headquarters	Sep. 26 - Dec. 27, 1966	Minister of State
5	1967 July and August Torrential Rains Major Disaster Management Headquarters	Jul. 9 - Dec. 26, 1967	Minister of State
6	1968 Earthquake Off the Coast of Tokachi Major Disaster Management Headquarters	May 16, 1968 - May 2, 1969	Minister of State
7	July 1972 Torrential Rains Major Disaster Management Headquarters	Jul. 8 - Dec. 19, 1972	Minister of State
8	Typhoon FRAN (7617) Major Disaster Management Headquarters	Sep. 13 - Dec. 10, 1976	Director General of National Land Agency (NLA)
9	1977 Mt. Usu Eruption Major Disaster Management Headquarters	Aug. 11, 1977 - Dec. 4, 1979	Director General of NLA
10	1978 Off Izu-Oshima Island Earthquake Major Disaster Management Headquarters	Jan. 15 - Aug. 4, 1978	Director General of NLA
11	1978 Earthquake Off the Coast of Miyagi Prefecture Major Disaster Management Headquarters	Jun. 13 - Nov. 28, 1978	Director General of NLA
12	Typhoon TIP (7920) Major Disaster Management Headquarters	Oct. 20 - Dec. 4, 1979	Director General of NLA
13	July and August 1982 Torrential Rains Major Disaster Management Headquarters	Jul. 24 - Dec. 24, 1982	Director General of NLA
14	1983 Central Japan Sea Earthquake Major Disaster Management Headquarters	May 26 - Dec. 23, 1983	Director General of NLA
15	July 1983 Torrential Rains Major Disaster Management Headquarters	Jul. 23 - Dec. 23, 1983	Director General of NLA
16	1983 Miyake Island Eruption Major Disaster Management Headquarters	Oct. 4, 1983 - Jun. 5, 1984	Director General of NLA
17	1984 Western Nagano Prefecture Earthquake Major Disaster Management Headquarters	Sep. 16, 1984 - Feb. 19, 1985	Director General of NLA
18	1991 Mt. Unzen Eruption Major Disaster Management Headquarters	Jun. 4, 1991 - Jun. 4, 1996	Director General of NLA
19	1993 Earthquake Off the Coast of Sounthren Hokkaido Major Disaster Management Headquarters	Jul. 13, 1993 - Mar. 31, 1996	Director General of NLA
20	August 1993 Torrential Rains Major Disaster Management Headquarters	Aug. 9, 1993 - Mar. 15, 1994	Director General of NLA
21	1995 Great Hanshin-Awaji Earthquake Major Disaster Management Headquarters	Jan. 17, 1995 - Apr. 21, 2002	Director General of NLA ↓ Minister of Great Hanshin-Awaji Earthquake Measures ↓ Director General of NLA ↓ Minister of State for Disaster Management
	Great Hanshin-Awaji Earthquake Extreme Disaster Management Headquarters*1	Jan. 19 - Apr. 28, 1995	Prime Minister
22	1997 Diamond Grace Oil Spill Major Disaster Management Headquarters	Jul. 2-11, 1997	Minister of Transport
23	2000 Mt. Usu Eruption Major Disaster Management Headquarters	Mar. 31, 2000 - Jun. 28, 2001 *2	Director General of NLA ↓ Minister of State for Disaster Management
24	2000 Miyake Island Eruption and Niijima and Kozushima Islands Earthquake Emergency Management Headquarters	Aug. 29, 2000 - May 15, 2002	Director General of NLA ↓ Minister of State for Disaster Management
	2000 Miyake Island Eruption Major Disaster Management Headquarters*3	May 16, 2002 - Mar. 31, 2005	
25	Typhoon TOKAGE (0423) Major Disaster Management Headquarters	Oct. 21, 2004 - Mar. 31, 2007	Minister of State for Disaster Management
26	2004 Mid Niigata Prefecture Earthquake Major Disaster Management Headquarters	Oct. 24, 2004 - Mar. 31, 2008	Minister of State for Disaster Management
27	2011 Great East Japan Earthquake Extreme Disaster Management Headquarters	Mar. 11, 2011 -	Prime Minister
28	Typhoon TALAS (1112) Major Disaster Management Headquarters	Sep. 4, 2011 - Dec. 26, 2014	Minister of State for Disaster Management
29	2014 Torrential Rains Major Disaster Management Headquarters	Feb. 18 - May 30, 2014	Minister of State for Disaster Management
30	August 2014 Torrential Rains Major Disaster Management Headquarters	Aug. 22, 2014 - Jan. 9, 2015	Minister of State for Disaster Management
31	2014 Mt. Ontake Eruption Major Disaster Management Headquarters	Sep. 28, 2014 - Nov. 9, 2015	Minister of State for Disaster Management
32	2016 Emergency Response Headquarters for the Earthquake Centered in the Kumamoto Region of Kumamoto Prefecture	Apr. 14, 2016 - Nov. 30, 2018	Minister of State for Disaster Management
33	Emergency Response Headquarters for the Heavy Rain in July 2018	Jul. 8 - Nov. 30, 2018	Minister of State for Disaster Management
34	Typhoon Hagibis in 2019 (T1919) Major Disaster Management Headquarters	Oct. 13, 2019 – Mar. 31, 2020	Minister of State for Disaster Management
35	Major Disaster Management Headquarters for the Heavy Rain Event of July 2020	Jul. 5 - Dec. 25, 2020	Minister of State for Disaster Management
36	Authorized Disaster Management Headquarters for Heavy Rain from July 1 of 2021	July 3, – July 5, 2021	Minister of State for Disaster Management
	Extreme Disaster Management Headquarters for Heavy Rain from July 1 of 2021	July 5 - November 30, 2021	Prime Minister
37	Authorized Disaster Management Headquarters for Heavy Rain in August of 2021	August 13 – November 30, 2021	Minister of State for Disaster Management

Notes: The above are Extreme Disaster Management Headquarters and Major Disaster Management Headquarters based on the Basic Act on

Disaster Management (Act No. 223 of 1961).

*1 Established within the Cabinet Office based on a Ministerial meeting resolution, not based on the Basic Act on Disaster Management.

*2 Based on reports that the eruption had subsided. Upon dissolution of the Headquarters, the Mt. Usu Eruption Disaster Restoration and Recovery Measures Council was established.

*3 The names of Niijima Island and Kozushima Island were changed with the conclusion of response measures.

Source: Cabinet Office

Fig. A-11 Dispatchment of Government Investigation Teams (Since the Great Hanshin-Awaji Earthquake)

As of March 1, 2021

Year	Name of Disaster	Deployment Dates	Prefecture Surveyed	Team Leader
1995	1995 Southern Hyogo Earthquake (Great Hanshin-Awaji Earthquake)	Jan. 17-18	Hyogo	Director General of National Land Agency (NLA)
1997	July 1997 Torrential Rains from Seasonal Rain Front	Jul. 11-12	Kagoshima, Kumamoto	Director General of NLA
1998	End of August 1998 Torrential Rains	Aug. 28	Tochigi, Fukushima	Parliamentary Vice-Minister of National Land
1999	Heavy Rains Starting June 23, 1999	Jun. 30 - Jul. 1	Hiroshima	Director General of NLA
	Heavy Rains from Typhoon BART (9918) and Rain Front	Sep. 25	Kumamoto	Director General of NLA
2000	2000 Eruption of Mt. Usu	Mar. 31 - Apr. 1	Hokkaido	Director General of NLA
	2000 Western Tottori Prefecture Earthquake	Oct. 7	Tottori	Director General of NLA
2001	2001 Geiyo Earthquake	Mar. 29	Hiroshima, Ehime	Parliamentary Vice-Minister of Cabinet Office
2003	July Seasonal Rain Front Torrential Rains	Jul. 22	Kumamoto, Kagoshima	Minister of State for Disaster Management
	Northern Miyagi Prefecture Earthquake	Jul. 27	Miyagi	Minister of State for Disaster Management
	2003 Earthquake Off the Coast of Tokachi	Sep. 26-27	Hokkaido	State-Minister of the Cabinet Office
2004	July 2004 Niigata and Fukushima Torrential Rains	Jul. 14	Niigata	Minister of State for Disaster Management
		Jul. 15	Fukushima	State-Minister of the Cabinet Office
	July 2004 Fukui Torrential Rains	Jul. 20	Fukui	State-Minister of the Cabinet Office
	Typhoon MEARI (0421)	Oct. 1	Mie	Minister of State for Disaster Management
	Typhoon MA-ON (0422)	Oct. 14	Shizuoka	State Minister of the Cabinet Office
	Typhoon TOKAGE (0423)	Oct. 22	Hyogo, Kyoto	Minister of State for Disaster Management
		Oct. 22	Kagawa, Okayama	State-Minister of the Cabinet Office
	2004 Mid Niigata Prefecture Earthquake	Oct. 24	Niigata	Minister of State for Disaster Management
2005	Earthquake Off the Coast to the West of Fukuoka Prefecture	Mar. 20-21	Fukuoka	State-Minister of the Cabinet Office
	Earthquake Off the Coast of Miyagi Prefecture	Aug. 16-17	Miyagi	Parliamentary Vice-Minister of Cabinet Office
	Typhoon NABI (0514)	Sep. 9	Miyazaki	Minister of State for Disaster Management
2006	Heavy Rains from Seasonal Rain Front Starting July 4	Jul. 21	Nagano	Minister of State for Disaster Management
		Jul. 25	Kagoshima	State-Minister of the Cabinet Office
	Typhoon SHANSHAN (0613)	Sep. 19	Miyazaki	Minister of State for Disaster Management
	Tornado in Saroma Town, Hokkaido	Nov. 7-8	Hokkaido	Minister of State for Disaster Management
2007	2007 Noto Peninsula Earthquake	Mar. 25-26	Ishikawa	Minister of State for Disaster Management
	Heavy Rains from Typhoon MAN-YI (0704) and Seasonal Rain Front	Jul. 13	Kumamoto	State-Minister of the Cabinet Office
	2007 Earthquake Off the Coast of Chuetsu in Niigata Prefecture	Jul. 16	Niigata	Minister of State for Disaster Management
2008	2008 Earthquake Inland of Iwate and Miyagi Prefectures	Jun. 14-15	Iwate, Miyagi	Minister of State for Disaster Management
	Earthquake Epicentered Along Northern Coast of Iwate Prefecture	Jul. 24	Iwate, Aomori	Minister of State for Disaster Management
	End of August 2008 Torrential Rains	Aug. 29	Aichi	Minister of State for Disaster Management
2009	July 2009 Torrential Rains in Chugoku and Northern Kyushu	Jul. 22	Yamaguchi	Minister of State for Disaster Management
		Jul. 27	Fukuoka	Minister of State for Disaster Management
	Typhoon ETAU (0909)	Aug. 11	Hyogo, Okayama	Minister of State for Disaster Management
2011	2011 Tohoku Earthquake and Tsunami (Great East Japan Earthquake)	Mar. 11	Miyagi	State-Minister of the Cabinet Office
		Mar. 12	Iwate	State-Minister of the Cabinet Office
		Mar. 12	Fukushima	Parliamentary Vice-Minister of Finance
	July 2011 Niigata and Fukushima Torrential Rains	Jul. 31	Niigata, Fukushima	Minister of State for Disaster Management
		Aug. 2	Fukushima	State-Minister of the Cabinet Office
	Typhoon TALAS (1112)	Sep. 4-7	Wakayama, Nara, Mie	Parliamentary Vice-Minister of Cabinet Office
		Sep. 6	Nara	Minister of Land, Infrastructure, Transport and Tourism
2012	May 2012 Gust	May 7	Ibaraki, Tochigi	State-Minister of the Cabinet Office
	July 2012 Torrential Rains in Northern Kyushu	Jul. 13-14	Kumamoto, Oita	Minister of State for Disaster Management
		Jul. 21-22	Fukuoka, Oita, Kagoshima	Minister of State for Disaster Management

Year	Name of Disaster	Deployment Dates	Prefecture Surveyed	Team Leader
2013	Heavy Snow in2012	Mar. 4-5	Hokkaido	Parliamentary Vice-Minister of Cabinet Office, Special Advisor to the Prime Minister
	Heavy Rains with Seasonal Rain Front	Jul. 29-30	Shimane, Yamaguchi	State-Minister of the Cabinet Office
		Aug. 3	Yamagata, Fukushima	Parliamentary Vice-Minister of Cabinet Office
		Aug. 3	Niigata	Parliamentary Vice-Minister of Agriculture, Forestry and Fisheries
		Aug. 3	Iwate, Miyagi	Parliamentary Vice-Minister of Land, Infrastructure, Transport and Tourism
		Aug. 9	Shimane, Yamaguchi	Minister of State for Disaster Management
		Aug. 13	Akita	State-Minister of the Cabinet Office
		Aug. 13	Iwate, Akita	Parliamentary Vice-Minister of Cabinet Office
	Tornadoes on September 2 and 4	Sep. 3	Saitama	Parliamentary Vice-Minister of Cabinet Office
		Sep. 4	Chiba	Parliamentary Vice-Minister of Cabinet Office
	Heavy Rains from Typhoon MAN-YI (1318)	Sep. 17	Saitama	Parliamentary Vice-Minister of Cabinet Office
		Sep. 18	Kyoto	Acting Minister of State for Disaster Management
		Sep. 18	Shiga, Fukui	State-Minister of the Cabinet Office
		Sep. 19	Mie	Parliamentary Vice-Minister of Cabinet Office
		Sep. 19-20	Aomori, Iwate, Akita	Special Advisor to the Prime Minister
	Typhoon WIPHA (1326)	Oct. 19	Oshimacho (Tokyo)	Minister of State for Disaster Management
2014	Heavy Snow in 2013	Feb. 6	Akita	State-Minister of the Cabinet Office
		Feb. 17	Yamanashi	Parliamentary Vice-Minister of Cabinet Office
		Mar. 7	Tokyo, Yamanashi	State-Minister of the Cabinet Office, State-Minister of the Environment
		Mar. 10	Saitama	State-Minister of the Cabinet Office
		Mar. 15	Nagano, Gunma	State-Minister of the Cabinet Office
	Typhoon NEOGURI (1408) and Seasonal Rain Front	Jul. 11	Nagano	Parliamentary Vice-Minister of Cabinet Office
		Jul. 12	Yamagata	Parliamentary Vice-Minister of Cabinet Office
		Jul. 14-15	Okinawa	Parliamentary Vice-Minister of Cabinet Office
	Typhoons NAKRI (1412) & HALONG (1411)	Aug. 11-13	Tokushima, Kochi	State-Minister of the Cabinet Office
		Aug. 11	Tochigi	Parliamentary Vice-Minister of Cabinet Office
	Heavy Rains Starting August 15	Aug. 18-19	Hyogo, Kyoto	State-Minister of the Cabinet Office
		Aug. 19	Gifu	Parliamentary Vice-Minister of Cabinet Office
	Heavy Rains in Hiroshima Prefecture Starting August 19	Aug. 20-21	Hiroshima	Minister of State for Disaster Management
		Sep. 6	Hiroshima	Minister of State for Disaster Management
		Sep. 17	Hiroshima	Parliamentary Vice-Minister of Cabinet Office
	Mt. Ontake Eruption	Sep. 28	Nagano	State-Minister of the Cabinet Office
		Oct. 11	Nagano	Minister of State for Disaster Management
	Earthquake Epicentered in Northern Nagano Prefecture	Nov. 23	Nagano	Parliamentary Vice-Minister of Cabinet Office
		Dec. 2	Nagano	Minister of State for Disaster Management
	Heavy Snow in 2014	Dec. 9	Tokushima	Minister of State for Disaster Management
2015	Eruption of Kuchinoerabu-jima Island	May 29-30	Kagoshima	State-Minister of the Cabinet Office
	Torrential Rain of September 2015 in the Kanto and Tohoku Regions	Sep. 11	Ibaraki, Tochigi	State-Minister of the Cabinet Office
	Typhoon DUJUAN (1521)	Sep. 30-Oct. 1	Okinawa	Parliamentary Vice-Minister of Cabinet Office
2016	The 2016 Kumamoto Earthquake	Apr. 15	Kumamoto	State-Minister of the Cabinet Office
	Typhoons KOMPASU (1611) & MINDULLE (1609)	Aug. 28-29	Hokkaido	Parliamentary Vice-Minister of Cabinet Office
	Typhoon LIONROCK (1610)	Aug. 31-Sep. 1	Iwate	Parliamentary Vice-Minister of Cabinet Office
		Sep. 5	Hokkaido	Minister of State for Disaster Management
	Earthquake centered in the central Tottori Prefecture	Oct. 29	Tottori	State-Minister of the Cabinet Office
2017	Heavy Rains from Seasonal Rain Front Starting June 30, 2017 and Typhoon NANMADOL (1703)	Jul. 7	Fukuoka	State-Minister of the Cabinet Office
		Jul. 9	Oita, Fukuoka	Minister of State for Disaster Management
	Typhoon LAN (1721)	Oct. 27	Osaka, Wakayama	Minister of State for Disaster Management
2018	Heavy Snow in 2017	Feb. 24	Fukui	Minister of State for Disaster Management
	The Heavy Rain Event of July 2018	Jul. 9	Okayama, Hiroshima	Minister of State for Disaster Management
	Typhoon JEBI (1821)	Sep. 11	Hyogo Osaka	Minister of State for Disaster Management
	The 2018 Hokkaido Eastern Iburi Earthquake	Sep. 19	Hokkaido	Minister of State for Disaster Management

2019	Earthquake centered offshore of Yamagata Prefecture	Jul. 1	Niigata, Yamagata	Minister of State for Disaster Management
	Heavy Rains from Seasonal Rain Front and Typhoon Danas (1905)	Jul. 24 - 25	Nagasaki, Kagoshima	Minister of State for Disaster Management
	Heavy rainfall associated with the Seasonal Rain Front in August 2019	Aug. 31	Saga	Minister of State for Disaster Management
	Typhoon Hagibis in 2019 (T1919)	Oct. 14	Fukushima	Minister of State for Disaster Management

Source: Cabinet Office

Fig. A-12 Application of the Disaster Relief Act (Since the Great Hanshin-Awaji Earthquake)

As of April 1, 2022

Year	Name of Disaster	Date of Invocation	Prefecture	No. of Municipalities to which the Act was applied
1995	1995 Southern Hyogo Earthquake (Great Hanshin-Awaji Earthquake)	Jan. 17	Hyogo	20
			Osaka	5
	Northern Niigata Prefecture Earthquake	Apr. 1	Niigata	1
	Heavy Rain Starting on July 3	Jul. 5	Ehime	1
	July 1995 Seasonal Rain Front Torrential Rains	Jul. 11	Niigata	2
		Jul. 11, Jul. 12	Nagano	2
	Heavy Rain Starting on August 10	Aug. 10	Niigata	1
1996	Typhoon VIOLET (9617)	Sep. 22	Saitama	1
		Sep. 22	Chiba	2
1997	July 1997 Seasonal Rain Front Torrential Rains	Jul. 10	Kagoshima	1
	Typhoon OLIWA (9719)	Sep. 16	Oita	1
			Miyazaki	4
			Kagoshima	1
1998	Early August 1998 Torrential Rains	Aug. 4	Niigata	3
	End of August 1998 Torrential Rains	Aug. 27	Fukushima	3
		Aug. 28	Ibaraki	1
		Aug. 27, Aug. 30	Tochigi	4
		Aug. 28	Saitama	1
		Aug. 30	Shizuoka	1
	Typhoon STELLA (9805)	Sep. 16	Saitama	1
	Typhoon VICKI (9807)	Sep. 22	Fukui	1
			Hyogo	1
			Nara	1
	Heavy Rains of September 23–25, 1998	Sep. 25	Kochi	6
	Typhoon ZEB (9810)	Oct. 17	Okayama	4
1999	Heavy Rains Starting June 23, 1999	Jun. 29	Hiroshima	2
			Fukuoka	1
	Torrential Rains in Tsushima Region on August 27–28, 1999	Aug. 27	Nagasaki	1
	Heavy Rains from Typhoon BART (9918) and Rain Front	Sep. 24	Yamaguchi	9
			Fukuoka	1
			Kumamoto	9
	Tokaimura Criticality Accident	Sep. 3	Ibaraki	2
	Heavy Rains Starting October 27, 1999	Oct. 28	Aomori	1
			Iwate	1
2000	2000 Eruption of Mt. Usu	Mar. 29	Hokkaido	3
	2000 Miyake Is. Eruption	Jun. 26	Tokyo	1
	2000 Niijima and Kozushima Isls. Earthquake	Jul. 1, Jul. 15	Tokyo	2
	Typhoon KIROGI (0003)	Jul. 8	Saitama	1
	Heavy Rains from 2000 Autumn Rain Front and Typhoon SAOMAI (0014)	Sep. 11	Aichi	21
			Gifu	1
	2000 Western Tottori Prefecture Earthquake	Oct. 6	Tottori	6
			Shimane	2
2001	2001 Geiyo Earthquake	Mar. 24	Hiroshima	13
			Ehime	1
	Heavy Rains of September 6, 2001	Sep. 6	Kochi	2
	Typhoon NARI (0116)	Sep. 8, Sep. 11	Okinawa	2
2002	Typhoon CHATAAN (026)	Jul. 10	Iwate	1
		Jul. 11	Gifu	1
2003	July Seasonal Rain Front Torrential Rains	Jul. 19	Fukuoka	5
		Jul. 20	Kumamoto	1
	Northern Miyagi Prefecture Earthquake	Jul. 26	Miyagi	5
	Typhoon ETAU (0310)	Aug. 9	Hokkaido	3
2004	July 2004 Niigata and Fukushima Torrential Rains	Jul. 13	Niigata	7
	July 2004 Fukui Torrential Rains	Jul. 18	Fukui	5
	Typhoon NAMTHEUN (0410), Typhoon MALOU (0411), and Related Heavy Rains	Jul. 31	Tokushima	2

Year	Name of Disaster	Date of Invocation	Prefecture	No. of Municipalities to which the Act was applied
2004	Typhoon MEGI (0415) and Heavy Rains from Rain Front	Aug. 17	Ehime	1
			Kochi	1
	Typhoon CHABA (0416)	Aug. 30	Okayama	9
			Kagawa	13
			Ehime	1
			Miyazaki	2
	Typhoon SONGDA (0418)	Sep. 7	Hiroshima	2
	Typhoon MEARI (0421)	Sep. 29	Mie	5
			Ehime	4
			Hyogo	2
	Typhoon MA-ON (0422)	Oct. 9	Shizuoka	1
	Typhoon TOKAGE (0423)	Oct. 2	Miyazaki	1
			Tokushima	4
			Kagawa	9
			Hyogo	18
			Gifu	1
			Kyoto	7
	2004 Mid Niigata Prefecture Earthquake	Oct. 23	Niigata	54
2005	2005 Earthquake Off the Coast of Western Fukuoka Prefecture	Mar. 20	Fukuoka	1
	Typhoon NABI (0514)	Sep. 4	Tokyo	2
		Sep. 6	Yamaguchi	2
			Kochi	1
			Miyazaki	13
		Sep. 4	Kagoshima	1
2006	2006 Heavy Snowfall	Jan. 6, Jan. 8, Jan. 11, Jan. 13	Niigata	11
		Jan. 7, Jan. 12	Nagano	8
	June 2006 Extended Rain Landslide Disaster	Jun. 15	Okinawa	2
	Heavy Rains from Seasonal Rain Front Starting July 4	Jul. 19	Nagano	3
		Jul. 22	Kagoshima	6
			Miyazaki	1
	Typhoon SHANSHAN (0613)	Sep. 17	Miyazaki	1
	Tornado in Saroma, Hokkaido	Nov. 7	Hokkaido	1
2007	2007 Noto Peninsula Earthquake	Mar. 25	Ishikawa	7
	Heavy Rains from Typhoon MAN-YI (0704) and Seasonal Rain Front	Jul. 6	Kumamoto	1
	2007 Earthquake Off the Coast of Chuetsu in Niigata Prefecture	Jul. 16	Niigata	10
	Typhoon USAGI (0705)	Aug. 2	Miyazaki	1
	2007 Heavy Rains from Typhoon NARI (0711) and Rain Front	Sep. 17	Akita	2
2008	Low-Pressure System from February 23 to 24	Feb. 24	Toyama	1
	2008 Earthquake Inland of Iwate and Miyagi Prefectures	Jun. 14	Iwate	5
			Miyagi	2
	Heavy Rains Starting July 28	Jul. 28	Toyama	1
			Ishikawa	1
	End of August 2008 Torrential Rains	Aug. 28	Aichi	2
2009	July 2009 Torrential Rains in Chubu and Northern Kyushu Regions	Jul. 21	Yamaguchi	2
		Jul. 24	Fukuoka	1
	Typhoon ETAU (0909)	Aug. 9	Hyogo	3
			Okayama	1
2010	2010 Heavy Rains from Seasonal Rain Front	Jul. 14	Hiroshima	2
		Jul. 15	Yamaguchi	1
		Jul. 16	Hiroshima	1
	Heavy Rains in Amami Region, Kagoshima Prefecture	Oct. 20	Kagoshima	3
2011	Heavy Snow Starting November 2010	Jan. 27	Niigata	4
		Jan. 30	Niigata	2
		Jan. 31	Niigata	3

Year	Name of Disaster	Date of Invocation	Prefecture	No. of Municipalities to which the Act was applied
2011	The Kirishima Volcanic Group (Mt. Shinmoedake) Eruption	Jan. 30	Miyazaki	1
		Feb. 10	Miyazaki	1
	2011 Great East Japan Earthquake	Mar. 11	Aomori	2
			Iwate	34
			Miyagi	35
			Fukushima	59
			Ibaraki	37
			Tochigi	15
			Chiba	8
			Tokyo	47
	July 2011 Niigata and Fukushima Torrential Rains	Jul. 29	Niigata	15
			Fukushima	9
	Typhoon TALAS (1112)	Sep. 2	Mie	3
			Nara	10
			Wakayama	5
			Okayama	1
		Sep. 3	Tottori	2
	Typhoon ROKE (1115)	Sep. 21	Aomori	1
			Fukushima	1
2012	Heavy Winter Snowfall	Jan. 14	Niigata	2
		Jan. 28	Niigata	4
		Jan.31	Niigata	1
		Feb. 1	Aomori	2
			Nagano	5
		Feb. 3	Niigata	4
		Feb. 4	Niigata	1
	May 2012 Gust	May 6	Ibaraki	4
			Tochigi	3
	Heavy Rains Starting July 3	Jul. 3	Fukuoka	1
			Oita	2
	Heavy Rains from Seasonal Rain Front Starting July 11	Jul. 12	Kumamoto	5
			Oita	1
		Jul. 13	Fukuoka	7
	Heavy Rains Starting August 13	Aug. 14	Kyoto	1
	Typhoon SANBA (1216)	Sep. 15	Kagoshima	1
	November 27 Snowstorm	Nov. 27	Hokkaido	7
2013	Heavy Winter Snowfall	Feb. 22	Niigata	8
		Feb. 25	Niigata	1
		Feb. 26	Yamagata	1
		Feb. 28	Yamagata	1
	Snow Melt Landslide	May 1	Yamagata	1
	Heavy Rains Starting July 22, 2013	Jul. 22	Yamagata	4
	Heavy Rains Starting July 28, 2013	Jul. 28	Yamaguchi	3
			Shimane	1
	Heavy Rains Starting August 9, 2013	Aug. 9	Akita	3
			Iwate	1
	Heavy Rains Starting August 23, 2013	Aug. 23	Shimane	1
	September 2 Gust	Sep. 2	Saitama	2
	Typhoon MAN-YI (1318)	Sep. 16	Saitama	1
			Kyoto	2
	Typhoon DANAS (1324)	Oct. 7	Kagoshima	1
	Typhoon WIPHA (1326)	Oct. 16	Tokyo	1
			Chiba	1

Year	Name of Disaster	Date of Invocation	Prefecture	No. of Municipalities to which the Act was applied
2014	Heavy Winter Snowfall	Feb. 15	Nagano	4
			Gunma	1
			Yamanashi	16
		Feb. 17	Gunma	7
			Saitama	7
		Feb. 18	Gunma	1
			Yamanashi	3
		Feb. 21	Yamanashi	2
	Heavy Rains from Typhoon NEOGURI (1408)	Jul. 9	Nagano	1
			Yamagata	1
	Typhoon NAKRI (1412)	Aug. 3	Kochi	1
	Typhoon HALONG (1411)	Aug. 9	Kochi	3
			Tokushima	1
	Heavy Rains Starting August 15, 2014	Aug. 17	Kyoto	1
			Hyogo	1
	Heavy Rains Starting August 19, 2014	Aug. 20	Hiroshima	1
	Damage Related to Mt. Ontake Eruption	Sep. 27	Nagano	2
	Nagano Prefecture Kamishiro Fault Earthquake	Nov. 22	Nagano	3
	Heavy Snow Starting December 5	Dec. 8	Tokushima	3
2015	Eruption of Kuchinoerabujima Island	May 29	Kagoshima	1
	Torrential Rain of September 2015 in the Kanto and Tohoku Regions	Sep. 9	Ibaraki	10
			Tochigi	8
		Sep. 10	Miyagi	8
	Typhoon DUJUAN (1521)	Sep. 28	Okinawa	1
2016	2016 Kumamoto Earthquake	Apr. 14	Kumamoto	45
	Typhoon LIONROCK (1610)	Aug. 30	Hokkaido	20
			Iwate	12
	2016 Earthquake centered in the Central Tottori Prefecture	Oct. 21	Tottori	4
	2016 Large-Scale Fire in Itoigawa City, Niigata Prefecture	Dec. 22	Niigata	1
2017	July 2017 Northern Kyushu Heavy Rain	Jul. 5	Fukuoka	3
		Jul. 5	Oita	2
	Heavy Rain Starting on July 22, 2017	Jul. 22	Akita	1
	Typhoon TALIM (1718)	Sep. 17	Oita	2
	Typhoon LAN (1721)	Oct. 22	Mie	2
		Oct. 22	Kyoto	1
		Oct. 21	Wakayama	1
2018	Heavy Snow Starting February 4, 2018	Feb. 6	Fukui	8
		Feb. 13	Fukui	1
	Heavy Snowfall in FY2017	Feb. 14	Niigata	5
	2018 Earthquake centered in the Northern Osaka Prefecture	Jun. 18	Osaka	13
	The Heavy Rain Event of July 2018	Jul. 5	Kyoto	9
			Hyogo	6
			Okayama	19
			Hiroshima	15
			Ehime	7
			Fukuoka	2
		Jul. 6	Gifu	17
			Hyogo	5
			Tottori	10
			Shimane	2
			Okayama	2
			Yamaguchi	1
			Kochi	3
		Jul. 7	Hyogo	4
			Kochi	1
		Jul. 8	Gifu	4
			Kochi	3
	Heavy Rain Starting on August 30, 2018	Aug. 31	Yamagata	7
	The 2018 Hokkaido Eastern Iburi Earthquake	Sep. 6	Hokkaido	179

Year	Name of Disaster	Date of Invocation	Prefecture	No. of Municipalities to which the Act was applied
2019	Heavy rainfall associated with Seasonal Rain Front in August 2019	Aug. 28	Saga	20
	Disasters caused by Typhoon Faxai in 2019 (T1915)	Sep. 8	Tokyo	1
	Electrical blackout due to the influence of Typhoon Faxai in 2019 (T1915)	Sep. 9	Chiba	41
	Disasters caused by Typhoon HAGIBIS in 2019 (T1919)	Oct. 12	Iwate	14
			Miyagi	34
			Sendai City	1
			Fukushima	55
			Ibaraki	30
			Tochigi	21
			Gunma	30
			Saitama	48
			Tokyo	28
			Kanagawa	17
			Kawasaki City	1
			Sagamihara City	1
			Niigata	3
			Yamanashi	20
			Nagano	43
			Shizuoka	2
		—	(Tokyo)	Aforementioned (1)
			(Chiba)	Aforementioned (41)
2020	The Heavy Rain Event of July 3, 2020	Jul. 4	Kumamoto	16
			Kagoshima	11
		Jul. 6	Fukuoka	4
			Saga	1
			Kumamoto	10
			Oita	4
		Jul. 8	Nagano	14
			Gifu	6
		Jul. 13	Shimane	1
		Jul. 28	Yamagata	31
	Disasters Associated with Typhoon Chan-Hom in 2020	Oct. 10	Tokyo	2
	Disaster Caused by Heavy Snowfall since December 16, 2020	Dec. 17	Niigata	2
2021	Disaster Caused by Heavy Snowfall since January 7, 2021	Jan. 7	Akita	7
		Jan. 9	Toyama	4
			Fukui	3
		Jan. 10	Niigata	6
			Fukui	2
	Disaster Caused by Earthquake centered off the coast of Fukushima Prefecture in 2021	Feb. 13	Fukushima	17
	Large-Scale Fire in Ashikaga City, Tochigi Prefecture in 2021	Feb. 23	Tochigi	1
	Landslide in Itoigawa City, Niigata Prefecture, 2021	Mar. 4	Niigata	1
	Large-Scale Fire in Matsue City, Shimane Prefecture	4.1	Shimane	1
	Disaster due to Heavy Rain from July 1, 2021	7.3	Shizuoka	1
		7.7	Tottori	1
			Shimane	2
		7.10	Kagoshima	5
		7.12	Shimane	2
	Heavy rain disaster caused by an extratropical cyclone that changed from Typhoon Lupit (T2109)	8.10	Aomori	3
	Disaster due to Heavy Rain from August 11, 2021	8.12	Shimane	1
			Hiroshima	4
			Fukuoka	3
			Saga	3
			Nagasaki	2
	Debris flow in Chino City, Nagano Prefecture in 2021	9.5	Nagano	1

2022	Earthquake centered off the coast of Fukushima Prefecture in 2022	3.16	Miyagi	34
			Fukushima	59
			Sendai	1

Source: Cabinet Office

Fig. A-13 Designations of Extremely Severe Disasters in the Past Five Years

Title of Legislation	Disaster Name	Main Affected Areas	Main Applicable Measures								Other Applicable Measures
			Art. 3, 4	Art. 5	Art. 6	Art. 7	Art. 12	Art. 16	Art. 17	Art. 19	Art. 24	
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Torrential Rains and Rainstorms from June 2 to July 26, 2015	Seasonal Rain Front/Typhoon CHAN-HOM (1509)/ Typhoon ANGKA (1511)/ Typhoon HALOLA (1512)	Kumamoto Pref.	●	○							○ *1	
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for the Districts of Odai Town, Taki County and Kihoku Town, Kitamuro County, Mie Prefecture Due to Rainstorms on August 24 and 26, 2015	Typhoon GONI (1515)	Mie Pref.		●							●	
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Rainstorms and Torrential Rains from September 7 to 11, 2015	Typhoon ETAU (1518), etc.	Miyagi, Fukushima, Ibaraki, and Tochigi Pref.	●	○	○		●				○ *1	
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Specified Regions in 2015	2015 Regional Disasters	—	●	●							●	
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for the 2016 Kumamoto Earthquake	The 2016 Kumamoto Earthquake	Kumamoto Pref., etc.	○	○	○		○	○	○	○	○	○
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Torrential Rains from June 6 to July 15, 2016	Seasonal Rain Front	Kumamoto and Miyazaki Pref.	●	○							○ *1	
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Rainstorms and Torrential Rains from August 16 to September 1, 2016	Typhoon CHANTHU (1607)/ Typhoon MINDULLE (1609)/ Typhoon LIONROCK (1610)/ Typhoon KOMPASU (1611), etc.	Hokkaido and Iwate Pref.	○	○	○	○ *2	●	○	○	○	○	
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Rainstorms and Torrential Rains from September 17 to 21, 2016	Typhoon MALAKAS (1616)	Miyazaki and Kagoshima Pref.	●	○	○						○ *1	
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Specified Regions in 2016	2016 Regional Disasters	—	●	●							●	
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Torrential Rains and Rainstorms on June 7 - July 27, 2017	Seasonal Rain Front (Northern Kyushu Heavy Rain, etc.)/ Typhoon NANMADOL (1703)	Fukuoka and Oita Pref.	●	○	○		●				○ *1	
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Rainstorms and Torrential Rains on September 15 - 19, 2017	Typhoon TALIM (1718)	Kyoto, Ehime, and Oita Pref.	●	○							○ * 1	
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Rainstorms on October 21 - 23, 2017	Typhoon LAN (1721)	Niigata and Mie Pref., Kinki region	●	○	○						○ * 1	○
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Specified Regions in 2017	2017 Regional Disasters	—	●	●							●	
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Torrential Rains and Rainstorms from May 20 to July 10, 2018	Seasonal Rain Front (The Heavy Rain Event of July 2018, etc.)/ Typhoon MALIKSI (1805)/ Typhoon GAEMI (1806)/ Typhoon PRAPIROON (1807)/ Typhoon MARIA (1808)	Okayama, Hiroshima and Ehime Pref.	○	○	○		○	○	○	○	○	○

Title of Legislation	Disaster Name	Main Disaster-Affected Regions	Main Applicable Measures									Other Applicable Measures
			Art. 3, 4	Art. 5	Art. 6	Art. 7	Art. 12	Art. 16	Art. 17	Art. 19	Art. 24	
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for the Districts of Awashimaura Village, Iwafune County, Niigata Prefecture Due to Rainstorms and Torrential Rains from August 20 to September 5, 2018	Typhoons SOULIK (1819), CIMARON (1820), and JEBI (1821)	Wakayama, Nara, Osaka, Nagano and Niigata Pref.	●	●	●						●	●
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for the 2018 Hokkaido Eastern Iburi Earthquake	The 2018 Hokkaido Eastern Iburi Earthquake	Hokkaido	○	○	○		●	○	○	○	○	○
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Rainstorms from September 28 to October 1, 2018	Typhoon TRAMI (1824)	Tottori, Miyazaki and Kagoshima Pref.	●	○	○						○ *1	
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Specified Regions in 2018	2018 Regional Disasters	—	●	●	●						●	●
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Torrential Rains and Rainstorms from June 6 to July 24, 2019	Seasonal Rain Front/ Typhoon SEPAT (1903) and DANAS (1905)	Kagoshima and Kumamoto Pref.		○							○	
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for due to Rainstorms and Torrential Rains from August 13 to September 24, 2018	Heavy Rains from Rain Front and Typhoons KROSA (1910), LINGLING (1913), FAXAI (1915), and TAPAH (1917)	Saga and Chiba Pref.	●	○	○		●				○ *1	
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for due to Rainstorms and Torrential Rains from October 11 to 26, 2019	Typhoons HAGIBIS (1919), NEOGURI (1920) and BUALOI (1921)	Iwate, Miyagi, Fukushima, Ibaraki, Tochigi, Gunma, Saitama, Chiba, Tokyo, Kanagawa, Niigata, Yamanashi, Nagano and Shizuoka Pref.	○	○	○		○	○	○	○	○	○
Cabinet Order on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Specified Regions in 2019	2019 Regional Disasters	—	●	●							●	
Cabinet Order on Disaster of Extreme Severity due to torrential rain during the period from May 15 to July 31, 2020 and the designation of measures to be applied to this.	Rainy season front (the Heavy Rain Event of July 2020, etc.)	Yamagata, Nagano, Gifu, Shimane, Fukuoka, Saga, Kumamoto, Oita, Kagoshima Pref.	○	○	○		○	○	○	○	○	○
Cabinet Order on Disaster of Extreme Severity pertaining to specified areas in 2020 and the designation of measures to be applied to this.	2020 Regional Disasters	-	●	●							●	
Cabinet Order on the designation of the Disaster of Extreme Severity and the measures to be applied to the disaster caused by heavy rain during the period from May 7 to July 14, 2021	Seasonal Rain Front	Tottori, Shimane and Kagoshima Pref.	●	○							○ *1	
Cabinet Order on the designation of Disaster of Extreme Severity and measures to be applied to disasters caused by rainstorms and heavy rain during the period from August 7 to August 23, 2021	Heavy rain caused by the front, Typhoon Lupit (T2109) and Typhoon Mirinae (T2110)	Aomori, Nagano, Shimane, Hiroshima, Fukuoka, Saga and Nagasaki Pref.	●	○			●				○ *1	○
Cabinet Order on the designation of Disaster of Extreme Severity and measures to be applied for specified areas in 2021, etc.	Disaster of Extreme Severity in certain areas in 2021	-	●	●							●	

*1 Public works facilities were considered as regional disaster
*2 Limited to portions concerning item 3
[Legend]
○: Indicates a national disaster (Region is not specified, the disaster itself is specified).
●: Indicates a regional disaster (Disaster is specified at the municipal level.).
The applicable measures are the measures listed below prescribed in the Act on Special Financial Support to Deal with Extremely Severe Disasters.

[Main applicable measures]
Art. 3, 4: Special financial support for disaster recovery projects for public works facilities
Art. 5: Special measures on subsidies for disaster recovery projects for agricultural land
Art. 6: Special cases of subsidies for disaster recovery projects for agricultural, forestry, and fisheries shared-used facilities
Art. 7 (iii): Special financial support for disaster recovery projects for plant

[Other applicable measures]
Art. 8: Application of interim measures related to financing for agricultural, forestry, and fishery operators who are victims of natural disasters
Art. 9: Subsidies for projects to remove deposited earth and sand conducted by forestry associations
Art. 10: Subsidies for projects to remove floodwater conducted by land improvement districts
Art. 11: Subsidies for construction expenses for shared-use small fishing

and animal aquaculture facilities
Art. 12: Special provision concerning disaster-related credit guarantees under the Small and Medium-sized Enterprise Credit Insurance Act
Art 16: Subsidies for disaster recovery projects for public social and educational facilities
Art. 17: Subsidies for disaster recovery projects for private school facilities
Art. 19: Special cases of cost coverage for projects implemented by municipalities to prevent infectious diseases
Art. 24: Inclusion of funds for the redemption of principal and interest related to small disaster bonds in the standard budget request

Source: Cabinet Office

boats
Art. 11-2: Subsidies for disaster recovery projects for forests
Art. 14: Subsidies for disaster reconstruction projects for facilities including business cooperatives
Art. 20: Special cases of government loans based on the Act for the Welfare of Fatherless Families, motherless families and Widows
Art. 22: Special cases of subsidies for public housing construction projects for victims
Art. 25: Special cases of paying job seeker benefits based on the Employment Insurance Act

Fig. A-14 Response of Government Ministries and Agencies to Major Disasters Since 2021

14-1 The Heavy Rain from July 1 of 2021

(1) Situation of the Disaster

From the end of June to the beginning of July 2021, a seasonal rain front remained stagnant over western and eastern Japan, and warm and humid air flowed toward the front in succession, resulting in unstable atmospheric conditions. This caused heavy rains over a wide area from western Japan to the Tohoku region. From July 2 to 3, heavy rains occurred with the highest 72-hour precipitation on record at several locations in Shizuoka Prefecture. In addition, after July 4, the seasonal rain front gradually moved northward, and a stationary linear mesoscale convective system developed on the Japan Sea side of the Chugoku region, resulting in heavy rains mainly in Hiroshima Prefecture. From the night of the 9th to the 10th, hazardous rains with thunder and very violent rains fell intermittently mainly in southern Kyushu, and the total rainfall from the 9th to the 10th exceeded 500 mm in Satsuma Town and Isa City, Kagoshima Prefecture, reaching a record-setting level. The Japan Meteorological Agency issued a heavy rain emergency warning for Kagoshima, Miyazaki and Kumamoto Prefectures on the 10th. Subsequently, heavy rains were widespread throughout Japan on the 12th with the highest one-hour precipitation on record in Aomori, Mie, Shimane and Tottori Prefectures.

This heavy rain caused many rivers to overflow or erode their banks, resulting in damage to 59 rivers in 29 river systems administered by the government or prefectural governments, as well as sediment disaster (landslide disaster) in 267 locations in 9 prefectures. This series of disasters caused 29 deaths and missing persons (including one disaster-related death), 12 injuries with 59 residences totally destroyed, 119 half-destroyed, 321 partially damaged, and 2,945 houses flooded above or below floor level. Of these, 27 people (including one disaster-related death) were killed and one person is missing in the Izusan district of Atami City, Shizuoka Prefecture, as a result of a large-scale debris flow disaster. In addition, 98 residences were damaged (* figures as of March 25, 2022).

(2) Response by Government Ministries and Agencies

The government held Inter-Agency Disaster Alert Meetings on July 1 since heavy rains were expected over a wide area throughout Japan. During this meeting, then Minister of State for Disaster Management, Tanahashi asked the relevant ministries and agencies to take action, such as alerting local governments and others and providing advice on evacuation decisions. He also requested local governments to place the highest priority on human life, to issue evacuation orders, etc. without fear of going for nothing and to take appropriate actions in consideration of the COVID-19 pandemic, and asked the public to ensure their safety as soon as possible.

On March 3, a Cabinet Office Survey Team was dispatched to the Shizuoka Prefecture Government Office and Atami City in response to the debris flow disaster that occurred in Atami City, Shizuoka Prefecture, which built a system to collect local information, report to the government and support the affected municipalities in their emergency response measures.

At 5:00 p.m. on the same day, a Ministerial Meeting was held, at which then Prime Minister Suga instructed to proceed with a flexible and thorough response as they paid attention to secondary disasters and to promptly provide necessary support to shelters and other facilities. In response, the "Authorized Disaster Management Headquarters for Heavy Rain from July 1 of 2021" was established on the same day (the headquarters meeting was held twice in total).

The police, the fire department, the Self-Defense Forces, the Japan Coast Guard and the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) dispatched their units across the country to the affected areas immediately after the disaster to carry out rescue and relief activities, secondary disaster prevention activities and livelihood support. The total number of Police Disaster Response Units, Emergency Fire Response Teams, the Self-Defense Forces and the Technical Emergency Control Force (TEC-FORCE) of the MLIT was 4,152, 7,961, approximately 23,000 and 1,300, respectively.

On July 5, the Authorized Disaster Management Headquarters was renamed as the "Major Disaster Management Headquarters of Heavy Rain from July 1 of 2021" and its structure was strengthened (the headquarters held three meetings in total). The reason for this was that the debris flow disaster in Atami City had resulted in a large number of people being searched and rescued and that the heavy rains up to that point had made it necessary to maintain a high level of alertness. In addition, on July 6, a "Team to Support for Reconstructing Livelihoods of Disaster Victims" was established, consisting of officials at the vice-

ministerial level from various ministries and agencies to provide prompt and strong livelihood support. Then Prime Minister Suga (Shizuoka Prefecture, on July 12), then Minister of State for Disaster Management, Tanahashi (Shizuoka Prefecture, on July 6) and others* visited the affected areas to directly assess the damage, identify the needs in the affected areas and provide government support as a whole to the affected people.

At the third meeting of the Major Disaster Management

Headquarters on 30 July, the ''Set of Support Measures for the Heavy Rain from July 1 of 2021'' compiled by the ''Team to Support for Reconstructing Livelihoods of Disaster Victims'' was reported, and the expected designation as a disaster of extreme severity for the series of disasters was announced, indicating that the government will do its best to support recovery and reconstruction in the affected areas.

*Then State Minister of Cabinet Office, Japan, Akazawa

July 20: Shimane Prefecture, July 21: Tottori Prefecture, July 28: Kagoshima Prefecture

Minister of State for Disaster Management, Ninoyu

November 22: Shizuoka Prefecture

As a result of this heavy rain disaster, the Disaster Relief Act was applied to 11 municipalities in 4 prefectures, and the Act on Support for Reconstructing Livelihoods of Disaster Victims was applied to 1 municipality in 1 prefecture.

[Invocation of the Disaster Relief Act]

[Shizuoka Prefecture]	Atami City (Date of invocation: July 3)
[Tottori Prefecture]	Tottori City (Date of invocation: July 7)
[Shimane Prefecture]	Matsue City, Izumo City (Date of invocation: July 7), Yasugi City, Unnan City (Date of invocation: July 12)
[Kagoshima Prefecture]	Izumi City, Satsumasendai City, Isa City, Satsuma Town, Yusui Town (Date of invocation: July 10)

[Invocation of the Act on Support for Reconstructing Livelihoods of Disaster Victims]

[Shizuoka Prefecture]	Atami City (Date of occurrence: July 3)

On August 31, the Cabinet meeting designated the disaster as Disaster of Extreme Severity, and also decided on a Cabinet order designating the applicable measures for the disaster.

The status of the designation of this disaster as Disaster of Extreme Severity is as follows.

Disasters caused by heavy rains from May 11 to July 14, 2021.

Estimated designation announcement: July 30, Cabinet decision: August 31, Promulgation and enforcement: September 3

Area	Applicable Measures
Nationwide	Special Measures for Subsidies for Project to Recover Lands for Agriculture Damaged by Disaster Including Principal and Interest Redemption Money related to Small Disaster Bond into Baseline Financial Needs
Unnan City and Iinan Town, Shimane Prefecture and Satsuma Town, Kagoshima Prefecture	Special Financial Support for Project to Recover Public Civil Engineering Works Damaged by Disaster Including Principal and Interest Redemption Money related to Small Disaster Bond into Baseline Financial Needs

14-2 Heavy Rain in August of 2021

(1) Situation of the Disaster

Since August 11, 2021, warm and moist air flowed toward a front stalled near Japan, which made it active, and as a result, heavy rain occurred over a wide area from western to eastern Japan. This heavy rain was kept on record, and in some locations, the total precipitation since August 11 exceeded 1,400 mm at most. On August 13, a stationary linear mesoscale convective system developed in the Chugoku region, bringing about the highest daily precipitation on record for August. As a result, the JMA issued a heavy rain emergency

warning for Hiroshima City, Hiroshima Prefecture. Then, on August 14, heavy rain occurred over a wide area from western to eastern Japan, especially in the northern Kyushu region, with hazardous and very violent rains due to the stationary linear mesoscale convective system. Ureshino City, Saga Prefecture, recorded 555.5 mm of 24-hour precipitation, the highest value on record. In response to this heavy rain, the JMA issued a heavy rain emergency warning for Nagasaki, Saga, Fukuoka and Hiroshima Prefectures. From the 16th to the 18th, rain fell over a wide area, mainly on the Pacific side of western and eastern Japan. From the 19th to the 22nd, hazardous and very violent rains continued to fall intermittently, mainly on the Pacific side of the Shikoku region. On the 22nd and onward, Typhoon Omais (T2112) and the low-pressure system derived from tropical cyclone caused heavy rain in some areas.

The heavy rains caused debris flow in Okaya City, Nagano Prefecture, and landslides in Unzen City, Nagasaki Prefecture. In addition, the Rokkaku River in Saga Prefecture flooded again following the "heavy rain associated with the front in August 2019." The heavy rain caused damage like flooding to 68 rivers administered by the national or prefectural governments. In addition, 414 landslides occurred in 32 prefectures. As a result of this series of disasters, there were 13 fatalities and 17 injured, 45 houses were completely destroyed, 1,234 half-destroyed, 300 partially damaged and 4,887 houses flooded above or below floor level (*figures as of March 25, 2022).

(2) Response by Each Government Ministry and Agency

On August 12, 2021, the government held an Inter-Agency Disaster Alert Meeting with the attendance of then Minister of State for Disaster Management of the Cabinet Office, Tanahashi. On August 13, immediately after the announcement of the heavy rain emergency warning in Hiroshima Prefecture, then Prime Minister Suga ordered the relevant ministries and agencies: (1) to provide the nation with timely and accurate information on evacuation, heavy rain, river conditions, etc.; (2) to work closely with local governments to ensure evacuation of residents in areas likely to be inundated and to take all possible measures in advance to provide evacuation support, etc.; and (3) in the event of damage, to quickly assess the extent of damage as well as to take all possible measures as a whole to respond to the disaster with the utmost priority on human life.

At 11:00 a.m. on August 13, the government held a Ministerial Meeting and, on the same day, established the "Authorized Disaster Management Headquarters for the Heavy Rainfall in August of 2021" (the headquarters meeting was held nine times in total). Under the policy of "human life first," the government decided to collect information, ensure a complete system for immediate response in the event of a disaster, and work closely with local governments and related organizations to respond with the utmost sense of urgency.

In addition, the police dispatched Inter-Prefectural Emergency Rescue Units near the Kyushu area to respond a disaster immediately whenever it occurs. The Fire Department, the Self-Defense Forces, the Japan Coast Guard, the Ministry of Land, Infrastructure, Transport and Tourism, etc., also dispatched units to establish a framework for rescue and relief activities, secondary disaster prevention activities, livelihood support, etc. On August 15, following the flooding of the Rokkaku River in Saga Prefecture, a Cabinet Office Survey Team was dispatched to the Saga Prefecture Government Office to gather local information.

Then Minister of State for Disaster Management, Tanahashi and other officials went to the affected areas (August 21: Saga and Nagasaki Prefectures) (*) to assess the extent of the damage directly.

* Then State Minister of the Cabinet Office Akazawa on August 24: Nagano Prefecture.

As a result of this heavy rain, the Disaster Relief Act was applied to 21 municipalities in 6 prefectures, and the Natural Disaster Victims Relief Act was applied to 11 cities and towns in 6 prefectures.

[Disaster Relief Act applied to]
[Nagano Prefecture] Okaya City, Suwa City, Tatsuno Town, Agematsu Town, Otaki Town, Kiso Town (Date of invocation: August 15)
[Shimane Prefecture] Gotsu City (applied on August 12), Kawamoto Town, Misato Town (Date of invocation: August 13)
[Hiroshima Prefecture] Hiroshima City, Miyoshi City, Akitakata City, Kitahiroshima Town (Date of invocation: August 12)
[Fukuoka Prefecture] Kurume City, Yame City, Miyama City (Date of invocation: August 12)
[Saga Prefecture] Takeo City, Ureshino City, Omachi Town (Date of invocation: August 12)
[Nagasaki Prefecture] Unzen City, Minamishimabara City (Date of invocation: August 12)

[Act on Support for Livelihood Recovery of Disaster Victims applied to]
[Nagano Prefecture] Kiso Town (Date of occurrence: August 14)
[Hiroshima Prefecture] Akitakata City (occurred on August 12)
[Fukuoka Prefecture] Kurume City, Tagawa City (occurred on August 12)
[Saga Prefecture] Takeo City, Omachi Town, Kanzaki City, Ureshino City (occurred on August 11)
[Nagasaki Prefecture] Unzen City, Hasami Town (occurred on August 11)
[Oita Prefecture] Kusu Town (occurred on August 14)

On September 28, a cabinet meeting designated the disaster as a "Disaster of Extreme Severity" and also decided on a cabinet order specifying the applicable measures for the disaster.

The status of the Disaster of Extreme Severity designation of this disaster is as follows.

Disasters caused by rainstorms and heavy rains during the period from August 7, 2021 to August 23, 2021

Announcement of prospective designation: August 31, cabinet decision: September 28, promulgation and enforcement: October 1

Disasters caused by rainstorms and heavy rains during the period from August 7, 2021 to August 23, 2021

Announcement of prospective designation: August 31, cabinet decision: September 28 and promulgation and enforcement: October 1

Applicable Areas	Applicable measures
Nationwide	Special Measures for Subsidies for Project to Recover Lands for Agriculture Damaged by Disaster Subsidies for projects to remove floodwater conducted by land improvement districts Including Principal and Interest Redemption Money related to Small Disaster Bond into Baseline Financial Needs
Nishinoshima Town and Okinoshima Town, Shimane Prefecture	Special Financial Support for Project to Recover Public Civil Engineering Works Damaged by Disaster Including Principal and Interest Redemption Money related to Small Disaster Bond into Baseline Financial Needs
Takeo City and Omachi Town, Saga Prefecture	Special Provisions for Disaster-Related Guarantees by Small and Medium-sized Enterprise Credit Insurance Act

14-3 Earthquake with an Epicenter in the Northwest Part of Chiba Prefecture [Seismic Intensity 5+]

(1) Situation of the Disaster

At 10:41 p.m. on October 7, 2021, an earthquake of magnitude 5.9 occurred with its epicenter in northwestern Chiba Prefecture. A seismic intensity of 5+ was observed in Kawaguchi City, Miyashiro Town, Saitama Prefecture, and Adachi Ward, Tokyo. The seismic intensity ranged from 5- down to 1 throughout the Tohoku and Kinki regions. The earthquake caused 6 severe injuries and 44 minor injuries (*figures as of March 25, 2022) and it occurred when the last train time was approaching in the Tokyo metropolitan area, causing crowds of people unable to head home due to suspended train services.

(2) Response by Each Government Ministry and Agency

Immediately after the earthquake occurred on October 7, the government convened an emergency meeting team at the Crisis Management Center of the Prime Minister's Office. Prime Minister Kishida instructed the team to:

1. assess the damage immediately,
2. work closely with local governments and implement emergency disaster response measures together at all cost, including lifesaving and rescue measures for disaster victims,
3. provide information to the public promptly and accurately regarding evacuation and damage, and
4. thoroughly implement measures to prevent the spread of damage.

In light of these instructions, the relevant government ministries and agencies assessed the damage, shared and confirmed the government's response, etc.

The relevant railroad companies in the Tokyo metropolitan area progressively restored the suspended train services by early morning on August 8, and some lines remained in operation until early morning. In addition, some Shinkansen trains were opened to passengers for temporary stay and accommodation.

14-4 Earthquake Centered Off the Coast of Fukushima Prefecture [Seismic Intensity of 6+]

(1) Situation of the Disaster

At 11:36 p.m. on March 16, 2022, an earthquake of magnitude 7.4, whose epicenter was off the coast of Fukushima Prefecture, occurred. A seismic intensity of 6+ was observed in Tome City and Zao Town in Miyagi Prefecture, and Soma City, Minamisoma City and Kunimi Town in Fukushima Prefecture. In addition, an intensity of 6- down to 1 was observed over a wide area, mainly in Miyagi and Fukushima Prefectures. There were 3fatalities (including 1 disaster-related death), 28 severe injuries and 217 minor injuries, and 111 houses were completely destroyed, 1,285 half-destroyed and 19,048 partially damaged (*Figures as of April 19, 2022). In addition to damage to lifelines such as electrical blackout and suspension of water supply, there was also damage to the transportation infrastructure, including railroad cancellations.

(2) Response by Each Government Ministry and Agency

After the earthquake on March 16, the government immediately convened an emergency meeting team at the Crisis Management Center of the Prime Minister's Office to collect information on the damage under the direction of Prime Minister Kishida, and dispatched a Cabinet Office Survey Team to Miyagi and Fukushima Prefectures by the Self-Defense Force's helicopter. On the following day, the 17th, an Inter-Agency Disaster Management Meeting was held to share information on the damage situation and the response of each ministry and agency. In response to requests from Miyagi and Fukushima Prefectures, the SDF conducted water supply support activities in 3 cities and towns in Miyagi Prefecture and 6 cities, towns, and villages in Fukushima Prefecture. On the 19th, the Minister of State for Disaster Management, Ninoyu, made an inspection tour of Fukushima Prefecture. Furthermore, on April 28, Prime Minister Kishida instructed the ministers concerned, under the initiative by Ninoyu, to work together to promptly compile a support plan based on the damage situation and requests from local governments. Based on this instruction, on April 8, the "Set of Support Measures for the Earthquake Centered Off the Coast of Fukushima Prefecture in 2022" was compiled to provide urgent measures for the restoration of lives and livelihoods of the affected.

As a result of the earthquake, the government applied the Disaster Relief Act to all municipalities (94 municipalities) in Miyagi and Fukushima Prefectures and the Act on Support for Reconstructing Livelihoods of Disaster Victims to 65 municipalities in Fukushima and Miyagi prefectures.

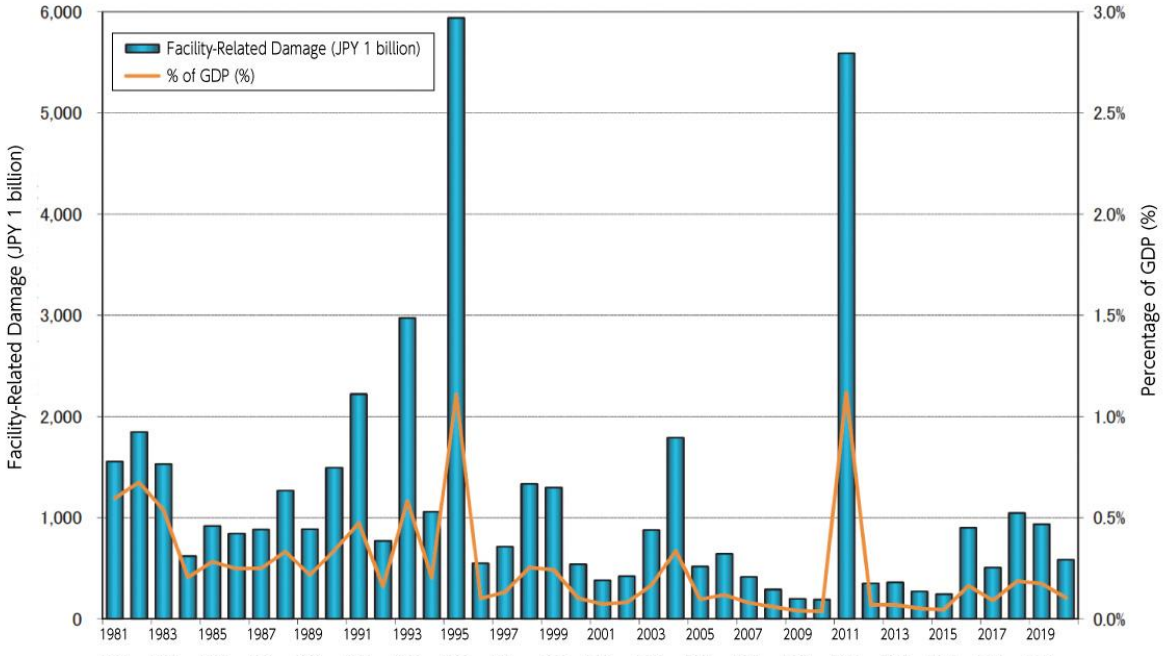
[Invocation of the Disaster Relief Act]
[Miyagi Prefecture] Sendai City, Ishinomaki City, Shiogama City, Kesennuma City, Shiroishi City, Natori City, Kakuda City, Tagajo City, Iwanuma City, Tome City, Kurihara City, Higashimatsushima City, Osaki City, Tomiya City, Zao Town, Shichikashuku Town, Ogawara Town, Murata Town, Shibata Town, Kawasaki Town, Marumori Town, Watari Town, Yamamoto Town, Matsushima Town, Shichigahama Town, Rifu Town, Taiwa Town, Osato Town, Ohira Village, Shikama Town, Kami Town, Wakuya Town, Misato Town, Onagawa Town, Minamisanriku Town (Effective date: March 16)
[Fukushima Prefecture] Fukushima City, Aizuwakamatsu City, Koriyama City, Iwaki City, Shirakawa City, Sukagawa City, Kitakata City, Soma City, Nihonmatsu City, Tamura City, Minamisoma City, Date City, Motomiya City, Koori Town, Kunimi Town, Kawamata Town, Otama Village, Kagamiishi Town, Tenei Village, Shimogo Town, Hinoemata Village, Tadami Town, Minamiaizu Town, Kitashiobara Village, Nishiaizu Town, Bandai Town, Inawashiro Town, Aizubange Town, Yugawa Village, Yanaizu Town, Mishima Town, Kaneyama Town, Showa Village, Aizumisato Town, Nishigo Village, Izumizaki Village, Nakajima Village, Yabuki Town, Tanagura Town, Yamatsuri Town, Hanawa Town, Samegawa Village, Ishikawa Town, Tamakawa Village, Hirata Village, Asakawa Town, Furudono Town, Miharu Town, Ono Town, Hirono Town, Naraha Town, Tomioka Town, Kawauchi Village, Okuma Town, Futaba Town, Namie Town, Katsurao Village, Shinchi Town, Iitate Village (applied on March 16)

[Invocation of the Act on Support for Reconstructing Livelihoods of Disaster Victims]
[Fukushima Prefecture] All areas in Fukushima Prefecture (occurred on March 16)
[Miyagi Prefecture] Yamamoto Town, Kakuda City, Shiroishi City, Zao Town, Watari Town, Shibata Town (occurred on March 16)

Concerning the earthquake disaster in Shinchi Town, Fukushima Prefecture, on March 16, 2022, the Cabinet decided to designate the disaster as a Disaster of Extreme Severity. Furthermore, the cabinet decision included Special Measures for Subsidies for Project to Recover Lands for Agriculture Damaged by Disaster and Including

Principal and Interest Redemption Money related to Small Disaster Bond into Baseline Financial Needs.
The Cabinet announced the prospective designation on April 8, 2022, made the cabinet decision on April 22 and the promulgation and enforcement on April 27.

Fig. A-15 Trends in Facility Damage and the Amount and as a Percentage of Gross Domestic Product (GDP)



Note: Gross domestic product (GDP) figures up to 1993 are based on the 2000 standard (SNA 1993), while those for 1994 onward are based on the 2011 standard (SNA 2008)

Source: Formulated by the Cabinet Office based on materials from various ministries and agencies

Fig. A-16 Facility Damage Due to Disasters in 2020, by Hazard

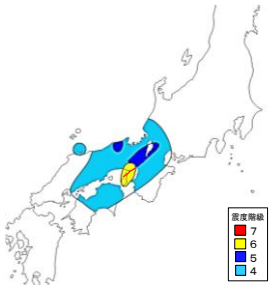
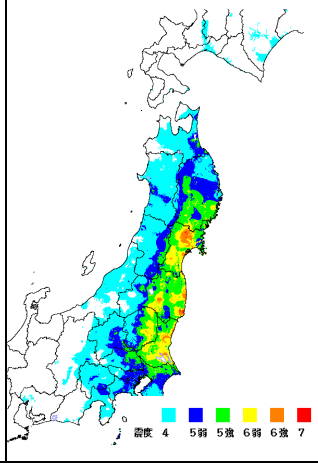
(Unit: JPY 1 million)

Facility type	Typhoon	Torrential rain	Earthquake	Heavy snowfall	Other	Total	Notes
Public works	16,884	274,406	74	0	13,973	305,337	Rivers, forestry conservation facilities, ports, etc.
Agriculture, forest, and fisheries industry	6,299	210,774	140	35	5,393	222,641	Farmland, agricultural facilities, forestry roads, fishing facilities, etc.
Educational facilities	1,003	4,306	789	0	150	6,248	School facilities, cultural properties, etc.
Public welfare facilities	3,037	28,979	14	0	10	32,039	Social welfare facilities, waterworks facilities, etc.
Other facilities	4,236	15,028	40	151	152	19,607	Nature parks, telegraph/telephone, urban facilities, etc.
Total	31,459	533,493	1,057	185	19,677	585,872	

Note: Totals may not agree due to rounding.

Source: Formulated by the Cabinet Office based on materials from various ministries and agencies

Fig. A-17 Comparison of the Great Hanshin-Awaji Earthquake, the Great East Japan Earthquake, and the Sumatra Earthquake

	Great Hanshin-Awaji Earthquake (Japan)	Great East Japan Earthquake (Japan)	Sumatra Earthquake (Indonesia)
Date & time	5:46 a.m., Jan. 17, 1995	2:46 p.m., March 11, 2011	9:58 a.m., Dec. 26, 2004
Magnitude	M7.3	*Mw9.0	*Mw9.1
Earthquake type	Inland	Oceanic trench	Oceanic trench
Affected area	City center	Mainly agricultural, forestry, and fishery regions	Mainly agricultural, forestry, and fishery regions
No. of prefectures with seismic intensity of Lower 6 or higher	1 (Hyogo)	8 (Miyagi, Fukushima, Ibaraki, Tochigi, Iwate, Countryma, Saitama, Chiba)	—
Tsunami	Reports of tsunami measuring tens of centimeters, no damage	Large tsunami observed in various regions (max. wave height of more than 9.3 m in Soma, more than 8.5 m in Miyako, more than 8.0 m in Ofunato)	Large tsunami observed in Indonesia as well as other countries with coastline along the Indian Ocean
Damage characteristics	Structures destroyed, large fires erupted mainly in Nagata-ku	Large tsunami caused massive damage in coastal areas, destruction across many districts	Large tsunami caused damage to countries with coastline along the Indian Ocean, with Indonesia suffering particularly massive damage
Fatalities Missing persons	Fatalities: 6,437 Missing persons: 3 (May 19, 2006)	Fatalities: 19,747 Missing persons: 2,556 (as of March 1, 2021)	Fatalities: 126,732 Missing persons: 93,662 (as of March 30, 2005)
Homes damaged (totally destroyed)	104,906	122,005 (as of March 1, 2021)	Unknown*
Invocation of the Disaster Relief Act	25 municipalities (2 prefectures)	241 municipalities (10 prefectures) *Including 4 municipalities (2 prefectures) that invoked the Act for an earthquake centered in northern Nagano prefecture in2011	—
Seismic intensity distribution map (showing seismic intensity of 4 and above)			—

* Mw: Moment magnitude

Note: The seismic intensity levels were revised in 1996 to newly add Lower 5, Upper 5, Lower 6, and Upper 6.

Source: Formulated by Cabinet Office from Cabinet Office materials, Fire and Disaster Management Agency materials, and UNOCHA materials.

Fig. A-18 Damage Estimate for the Great East Japan Earthquake

June 24, 2011

Category	Damage (Approx. Value)
Structures (Homes/housing sites, stores/offices, factories, machines, etc.)	JPY 10.4 trillion
Lifeline facilities (Water, gas, electricity, communications/broadcasting facilities)	JPY 1.3 trillion
Infrastructure facilities (Rivers, roads, ports, sewers, airports, etc.)	JPY 2.2 trillion
Agriculture, forest, and fisheries-related facilities (Farmland/agricultural facilities, forests and fields, fisheries-related facilities, etc.)	JPY 1.9 trillion
Other (Educational facilities, healthcare/social welfare facilities, waste treatment facilities, other public facilities)	JPY 1.1 trillion
Total	JPY 16.9 trillion

Note: This information has been compiled by Disaster Management Bureau of the Cabinet Office based on information provided by individual prefectures and relevant ministries and agencies regarding damage to property (including buildings, lifeline facilities, and infrastructure facilities). Information is subject to change as the details become clear.

Source: Cabinet Office

Fig. A-19 Main Volcanic Eruptions and Volcanic Disasters in Japan

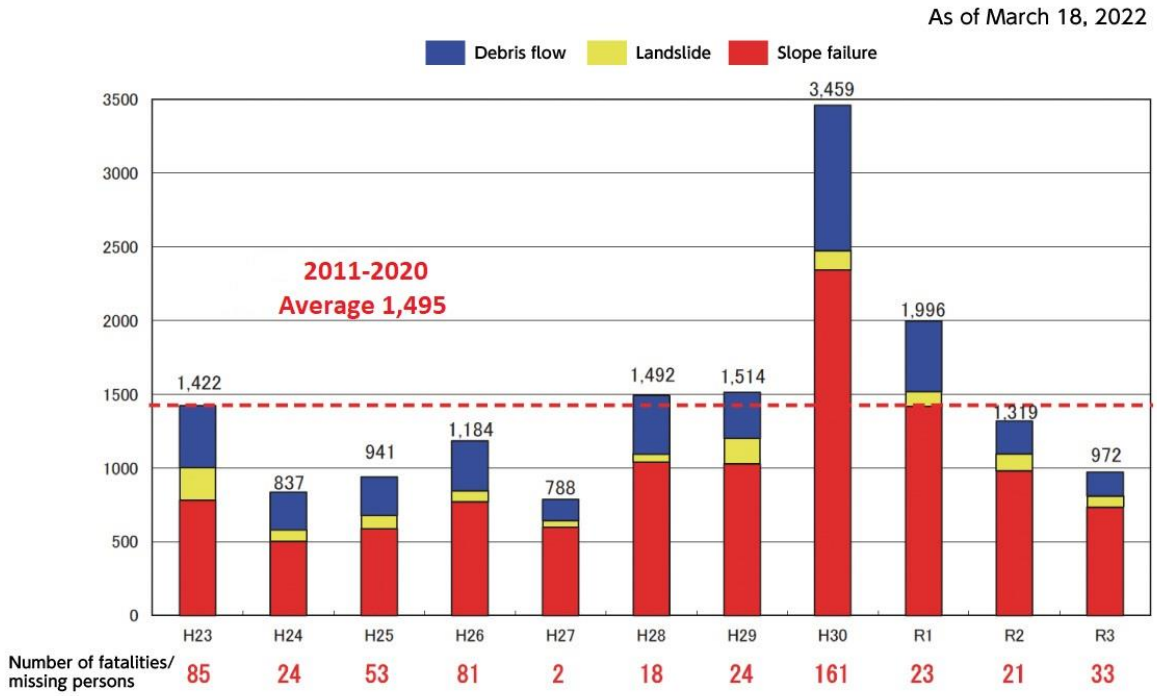
Year of Eruption	Name of Volcano	No. of Victims	Eruption and Damage Characteristics
1640	Mt. Hokkaido-Komagatake*	At least 700	Sector collapse, debris flow, tsunami, large amount of falling ash, pyroclastic flow
1663	Mt. Usu*	5	Nearby homes disappeared or were buried
1664	Mt. Unzendake	At least 30	Lava flow, flood of water from crater
1667	Mt. Tarumae*		Pyroclastic flow, large amount of falling ash/pumice
1694	Mt. Hokkaido-Komagatake		Eruption with earthquake/volcanic thunder, falling pumice stone, pyroclastic flow
1707	Mt. Fuji *		"Great Hoei eruption," large amount of falling ash, landslide disaster after eruption
1721	Mt. Asama	15	Cinders
1739	Mt. Tarumae *		Pyroclastic flow, large amount of falling ash/pumice
1741	Oshima-Oshima Island	1,467	Sector collapse, large tsunami occurred due to debris avalanche
1769	Mt. Usu		Large amount of falling ash/pumice, pyroclastic flow
1777	Izu-Oshima Island		"Great Anei eruption," lava flow, scoria fall
1779	Sakurajima Island*	At least 150	"Great Anei eruption," cinders, lava flow
1781	Sakurajima Island	15	Eruption on an island off of Komen, tsunami
1783	Mt. Asama	1,151	"Great Tenmei eruption," pyroclastic flow, lava flow, flooding of Agatsuma River and Tone River
1785	Aogashima Island	130–140	Cinders, mud, more than one-third of islanders became victims. Uninhabited island for more than 50 years thereafter
1792	Mt. Unzendake	15,000	"Shimabara taihen, Higo meiwaku," tsunami on opposing shore due to collapse of Mt. Mayuyama
1822	Mt. Usu	50–103	Pyroclastic flow, former Abuta village totally destroyed
1853	Mt. Usu		Large amount of volcanic ash/pumice, formation of lava dome, pyroclastic flow
1856	Mt. Hokkaido-Komagatake	21–29	Falling pumice, pyroclastic flow
1888	Mt. Bandai*	461–477	5 towns and 11 villages buried in debris avalanche, debris flow (volcanic mud flow)
1900	Mt. Adatara	72	Cinders, sulfur mine at crater totally destroyed
1902	Izu-Torishima Island	125	All islanders became victims
1914	Sakurajima Island*	58	"Great Taisho eruption," volcanic thunder, lava flow, earthquake, air wave, villages buried, large amount of falling ash
1926	Mt. Tokachidake	144	Larger mudflow, towns of Kamifurano and Biei buried
1929	Mt. Hokkaido-Komagatake	2	Large amount of falling ash/pumice, pyroclastic flow, volcanic gas damage
1940	Miyakejima Island	11	Large amount of volcanic ash/volcanic bombs, lava flow
1952	Beyonesu (Bayonnaise) Rocks (Myojin Reef)	31	Pyroclastic surge
1943–45	Mt. Usu	1	Large amount of volcanic ash, cinders, formation of Showa-shinzan (new mountain)
1958	Mt. Aso	12	Cinders
1991	Mt. Unzendake	43	Pyroclastic flow, debris flow
2014	Mt. Ontake	63	Cinders

*Indicates eruptions with apparent volume of ejecta of more than 1 km^3

Note: Lists "Eruption disasters with 10 or more fatalities and/or missing persons" and "Large eruptions with an apparent volume of ejecta of 0.1 km^3 or more"

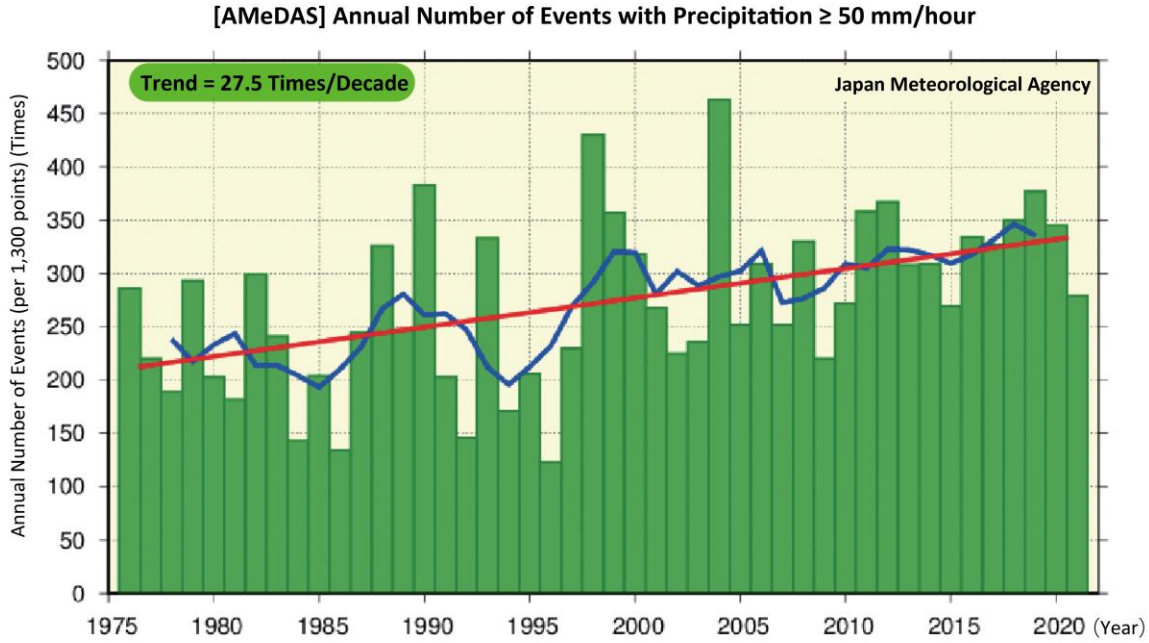
Source: Formulated by the Cabinet Office based on the National Catalogue of the Active Volcanoes in Japan (4th Edition) (edited by the Japan Meteorological Agency, 2013).

Fig. A-20 Number of Sediment Disasters



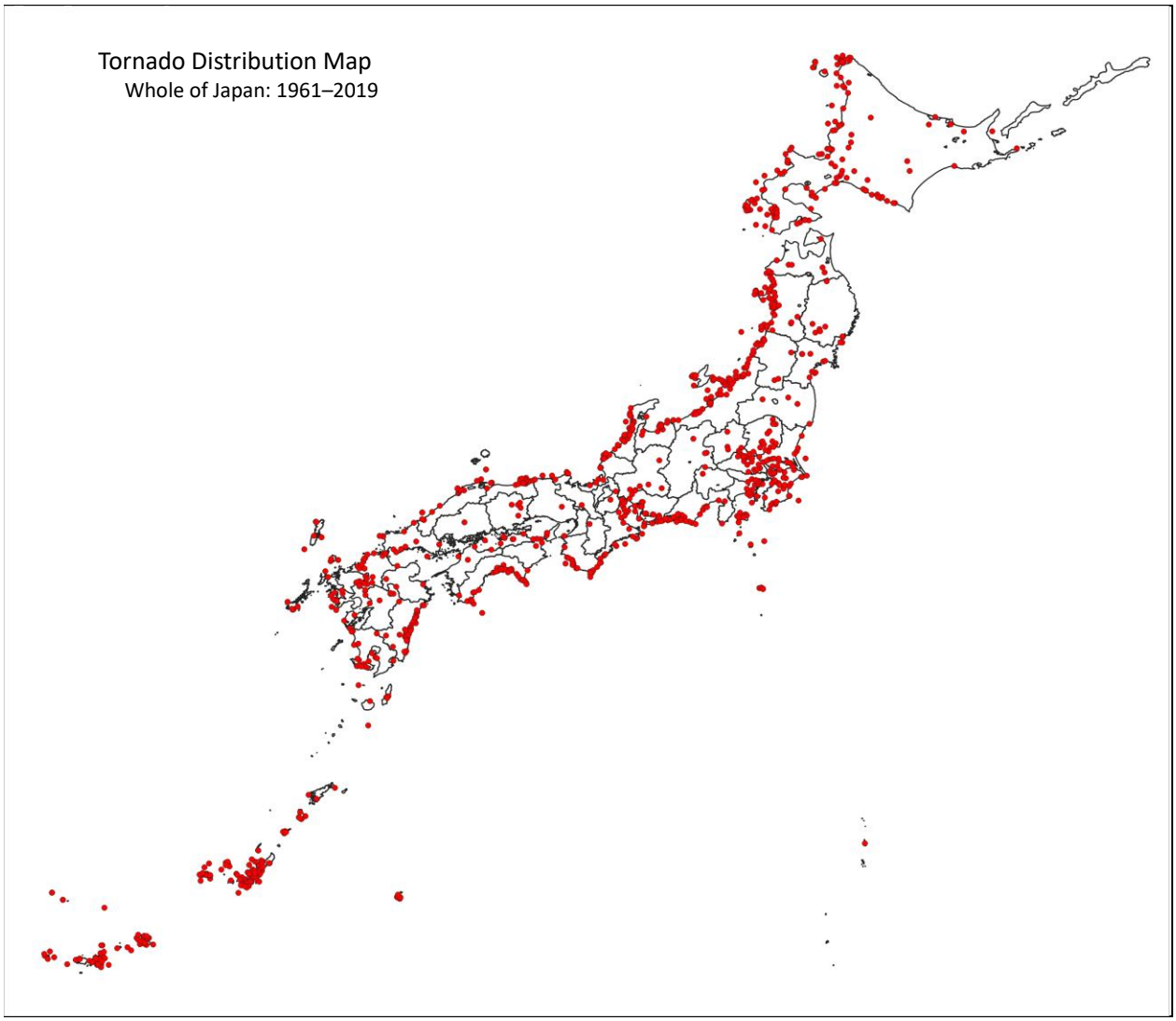
Source: Ministry of Land, Infrastructure, Transport and Tourism

Fig. A-21 Increase in the frequency of hourly extreme precipitation



The green bars indicate the annual number of events per 1,300 AMeDAS stations for each year. The blue line indicates the five-year running mean, and the straight red line indicates the long-term liner trend.

Fig. A-22 Number of Tornados



Source: Japan Meteorological Agency.

Fig. A-23 Major Natural Disasters in the World Since 1900

Year	Disaster Type	GLIDE number	Country (Areas)	Fatalities/Missing Persons (approx.)
1900	Hurricane Galveston		Texas, USA	6,000
1902	Volcanic Eruption		Martinique (West Indies, Mt. Pelée)	29,000
1902	Volcanic Eruption		Santa Maria Volcano, Guatemala	6,000
1905	Earthquake		Northern India	20,000
1906	Earthquake (Chiayi earthquake)		Taiwan	6,000
1906	Earthquake/Fire		San Francisco, USA	1,500
1906	Earthquake		Chile	20,000
1906	Typhoon		Hong Kong	10,000
1907	Earthquake		Tianshan, China	12,000
1907	Earthquake		Uzbekistan (former Soviet Union)	12,000
1908	Earthquake (Messina earthquake)		Sicily, Italy	75,000
1911	Flood		China	100,000
1911	Volcanic Eruption		Taal Volcano, Philippines	1,300
1912	Typhoon		Wenzhou, China	50,000
1915	Earthquake		Central Italy	30,000
1916	Landslide		Italy, Austria	10,000
1917	Earthquake		Bali, Indonesia	15,000
1918	Earthquake		Guangdong, China	10,000
1919	Volcanic Eruption		Kelut Volcano, Indonesia	5,200
1920	Earthquake/Landslide (Haiyuan earthquake)		Gansu, China	180,000
1922	Typhoon		Shantou, China	100,000
1923	Earthquake/Fire (Great Kanto earthquake)		Southeast Kanto region, Japan	143,000
1927	Earthquake (Kitatango earthquake)		Northern Kyoto, Japan	2,930
1927	Earthquake		Nanchang, China	200,000
1928	Hurricane/Flood		Florida, USA	2,000
1930	Volcanic Eruption		Merapi volcano, Indonesia	1,400
1931	Flood		Coastal areas of the Yangtze River and other rivers in China	3,700,000
1932	Earthquake (Gansu earthquake)		Gansu, China	70,000
1933	Flood		Henan, China	18,000
1933	Tsunami (Showa Sanriku Tsunami)		Sanriku, Japan	3,000
1933	Earthquake		China	10,000
1935	Flood		China	142,000
1935	Earthquake (Quetta Earthquake)		Baltistan, Pakistan	60,000
1939	Earthquake/Tsunami		Chile	30,000
1939	Flood		Hunan, China	500,000
1939	Earthquake		Eastern Turkey	32,962
1942	Cyclone		Bangladesh	61,000
1942	Cyclone		Orissa, India	40,000
1943	Earthquake		Tottori, Japan	1,083
1944	Earthquake (Showa Tonankai Earthquake)		Tonankai, Japan	1,200
1944	Earthquake		Midwestern Argentina	10,000
1945	Earthquake (Mikawa Earthquake)		Aichi, Japan	2,300
1945	Typhoon (Typhoon Makurazaki)		Western Japan	3,700
1946	Earthquake/Tsunami (Showa Nankai Earthquake)		Nankai, Japan	1,400
1947	Typhoon (Typhoon Kathleen)		North of Tohoku, Japan	1,900
1948	Earthquake (Fukui Earthquake)		Fukui, Japan	3,900
1948	Earthquake (Ashgabat Earthquake)		Turkmenistan (former Soviet Union)	110,000
1949	Earthquake/Landslide		Tajikistan (former Soviet Union)	12,000
1949	Flood		China	57,000
1949	Flood		Guatemala	40,000
1951	Volcanic Eruption		Mt. Lamington, Papua New Guinea	2,900
1953	Flood		Coastal areas of the North Sea	1,800
1953	Flood		Kyushu, Japan	1,000
1953	Flood		Honshu, Japan	1,100
1954	Flood		China	40,000
1954	Typhoon (Typhoon MARIE (5415))		Japan	1,700
1959	Flood		China	2,000,000
1959	Typhoon (Typhoon VERA (5915))		Japan	5,100
1960	Flood		Bangladesh	10,000
1960	Earthquake		Southwestern Morocco	12,000
1960	Earthquake/Tsunami		Chile	6,000

Year	Disaster Type	GLIDE number	Country (Areas)	Fatalities/Missing Persons (approx.)
1961	Cyclone		Bangladesh	11,000
1962	Earthquake		Northwestern Iran	12,000
1963	Cyclone		Bangladesh	22,000
1965	Cyclone		Bangladesh	36,000
1965	Cyclone		Southern Pakistan	10,000
1968	Earthquake		Northwestern Iran	12,000
1970	Earthquake		Yunnan, China	10,000
1970	Earthquake/Landslide		Northern Peru	70,000
1970	Cyclone Bhola		Bangladesh	300,000
1971	Cyclone		Orissa, India	10,000
1972	Earthquake (Managua earthquake)		Nicaragua	10,000
1974	Earthquake		Yunnan and Sichuan, China	20,000
1974	Flood		Bangladesh	28,700
1975	Earthquake		Liaoning, China	10,000
1976	Earthquake (Guatemala earthquake)		Guatemala	24,000
1976	Earthquake (Tangshan earthquake)		Tianjin, China	242,000
1977	Cyclone		Andhra Pradesh, India	20,000
1978	Earthquake		Northeastern Iran	25,000
1982	Volcanic Eruption		El Chichon Volcano, Mexico	17,000
1985	Cyclone		Bangladesh	10,000
1985	Earthquake		Mexico City, Mexico	10,000
1985	Volcanic Eruption		Nevado del Ruiz Volcano, Colombia	22,000
1986	Toxic gas		Lake Nyos, Western Cameroon	1,700
1986	Earthquake		San Salvador, El Salvador	1,000
1987	Earthquake		Northwestern Ecuador	5,000
1987	Flood		Bangladesh	1,000
1988	Earthquake		India, Nepal	1,000
1988	Flood		Bangladesh	2,000
1988	Earthquake (Spitak Earthquake)		Armenia (former Soviet Union)	25,000
1988	Earthquake		Yunnan, China	1,000
1989	Flood		India	1,000
1989	Flood/Landslide		Sichuan, China	2,000
1990	Earthquake (Manjil Earthquake)		Northern Iran	41,000
1990	Earthquake		Philippines	2,000
1991	Cyclone/Storm Surge		Chittagong, Bangladesh	137,000
1991	Flood		Jiangsu, China	1,900
1991	Typhoon THELMA (9125)		Philippines	6,000
1992	Flood		Pakistan	1,300
1992	Earthquake/Tsunami		Indonesia	2,100
1993	Flood		Nepal	1,800
1993	Earthquake (Maharashtra Earthquake)		India	9,800
1993	Flood		India	1,200
1994	Torrential Rain, Flood		India	2,000
1994	Typhoon, Flood		Six Southern Provinces of China	1,000
1994	Tropical Storm		Haiti	1,100
1995	Earthquake (Great Hanshin-Awaji Earthquake)		Japan	6,300
1995	Earthquake		Russia	1,800
1995	Flood		China	1,200
1996	Flood/Typhoon		Seven southern and five northern and northwestern provinces of China	2,800
1996	Typhoon/Flood		Viet Nam	1,000
1997	Earthquake	EQ-1997-000095-IRN	Eastern Iran	1,600
1997	Flood	FL-1997-000260-IND	India	1,400
1997	Flood	FL-1997-000265-SOM	Southern Somalia	2,000
1997	Typhoon LINDA (9726)	TC-1997-000007-VNM	Southern Viet Nam	3,700
1998	Earthquake	EQ-1998-000026-AFG	Northern Afghanistan	2,300
1998	Earthquake	EQ-1998-000152-AFG	Northern Afghanistan	4,700
1998	Flood/Landslide	FL-1998-000392-IND	Assam state, India	3,000
1998	Cyclone		India	2,900
1998	Flood	FL-1998-000203-BGD	Bangladesh	1,000
1998	Flood	FL-1998-000165-CHN	Coastal areas of the Yangtze River and other rivers in China	3,700
1998	Tsunami (Aitape Tsunami)	TS-1998-000220-PNG	Papua New Guinea	2,600
1998	Hurricane Mitch	TC-1998-000012-HND	Honduras, Nicaragua	17,000

Year	Disaster Type	GLIDE number	Country (Areas)	Fatalities/Missing Persons (approx.)
1999	Earthquake (Quindio Earthquake)	EQ-1999-000007-COL	Mid-western Colombia	1,200
1999	Earthquake (Izmit Earthquake)	EQ-1999-000008-TUR	Western Turkey	15,500
1999	Earthquake (Chi-Chi earthquake)	EQ-1999-000321-TWN	Taiwan	2,300
1999	Cyclone	ST-1999-000425-IND	India	9,500
2000	Flood		Venezuela	30,000
2001	Earthquake (Gujarat earthquake)	EQ-2001-000033-IND	India	20,000
2001	Earthquake	EQ-2001-000013-SLV	El Salvador	1,200
2003	Earthquake	EQ-2003-000074-DZA	Northern Algeria	2,300
2003	Earthquake (Bam earthquake)	EQ-2003-000630-IRN	Iran	26,800
2004	Flood	FL-2004-000028-HTI	Haiti	2,700
2004	Hurricane	TC-2004-000089-JAM	USA, Jamaica, Puerto Rico, Haiti	3,000
2004	Earthquake, Tsunami (2004 Indian Ocean Earthquake and Tsunami)	TS-2004-000147-LKA TS-2004-000147-IDN TS-2004-000147-MDV TS-2004-000147-IND TS-2004-000147-THA TS-2004-000147-MYS TS-2004-000147-MMR TS-2004-000147-SOM TS-2004-000147-BGD	Sri Lanka, Indonesia, Maldives, India, Thailand, Malaysia, Myanmar, Seychelles, Somalia, Tanzania, Bangladesh, Kenya	Over 226,000
2005	Flood/Landslide	FL-2005-000125-IND	India	1,200
2005	Hurricane Katrina	TC-2005-000144-USA	USA	1,800
2005	Rainstorm	ST-2005-000162-IND ST-2005-000162-BGD	India, Bangladesh	1,300
2005	Hurricane Stan/Flood	TC-2005-000171-GTM FL-2005-000171-SLV	Guatemala, El Salvador, Mexico	1,500
2005	Earthquake (Pakistan earthquake)	EQ-2005-000174-PAK EQ-2005-000174-IND	Pakistan and northern India	75,000
2006	Landslide	LS-2006-000024-PHL	Philippines	1,100
2006	Earthquake/Volcanic Eruption	VO-2006-000048-IDN	Merapi volcano, Indonesia	5,800
2006	Typhoon XANGSANE (0615)	TC-2006-000144-PHL	Luzon, Philippines	1,400
2007	Heavy Rain, Flood	FL-2007-000096-IND	India	1,100
2007	Cyclone Sidr	TC-2007-000208-BGD	Bangladesh	4,200
2008	Earthquake (Great Sichuan Earthquake)	EQ-2008-000062-CHN	China	87,500
2008	Cyclone Nargis	TC-2008-000057-MMR	Myanmar	138,400
2008	Flood	FL-2008-000089-IND	North-eastern India	1,100
2009	Earthquake (2009 Sumatra Earthquake)	EQ-2009-000273-IDN	Indonesia	1,200
2009	Flood	FL-2009-000217-IND	Southern India	1,200
2010	Earthquake (Haiti Earthquake)	EQ-2010-000009-HTI	Haiti	222,600
2010	Earthquake (Yushu Earthquake)	EQ-2010-000073-CHN	Qinghai, China	3,000
2010	Flood	FL-2010-000141-PA	North-western Pakistan	2,000
2010	Torrential Rain, Debris Flow	LS-2010-000156-CHN	Yangtze River Basin, China	1,800
2011	Earthquake, Tsunami (Great East Japan Earthquake)	EQ-2011-000028-JPN	Tohoku and Kanto regions, Japan	19,000
2011	Typhoon WASHI (1121)	TC-2011-000189-PH	Mindanao, Philippines	1,400
2012	Typhoon BOPHA (1224)	TC-2012-000197-PHL	Mindanao, Philippines	1,900
2013	Flood	FL-2013-000070-IND	Northern India	1,500
2013	Typhoon HAIYAN (1330)	TC-2013-000139-PHL	Leyte, Philippines	6,200
2015	Earthquake (Nepal Earthquake)	EQ-2015-000048-NPL	Nepal	9,000
2018	Earthquake, Tsunami	EQ-2018-000156-IDN	Sulawesi, Indonesia	3,400
2019	Flood	FL-2019-000084-IND	India	1,900
2020	Flood	FL-2020-000164-IND	India	1,922
2021	Earthquake	EQ-2021-000116-HTI	Haiti	2,575
2022	Flood	FL-2021-000093-IND	India	1,282

Source: Formulated by the Cabinet Office based on the OFDA/CRED International Disaster Database (EM-DAT) (www.emdat.be), Université Catholique de Louvain, Brussels (Belgium), and Chronological Scientific Tables

Note) GLIDE number (GLobal unique disaster IDEntifier number) was proposed by the Asian Disaster Reduction Center (ADRC) in 2001 to share disaster information between different databases by allocating a common and unique disaster number to ea Townf various disasters in the world, and operated jointly by the Office for the Coordination of Humanitarian Affairs (OCHA, ReliefWeb) for use of numerous disaster-related organizations. The number does not cover all kinds of disasters because it is allocated for a disaster when the relevant organization decides to allocate as required according to respective criteria. If the use of GLIDE is more common in disaster-related organizations in the future, more information on disasters can be shared.

Fig. A-24 Top 10 Largest Earthquakes Since 1900

(As of March 12, 2022)

Ranking	Date (Japan Time)	Location	Magnitude (Mw)
1	May 23, 1960	Chile	9.5
2	March 28, 1964	Gulf of Alaska	9.2
3	December 26, 2004	Off the West Coast of Northern Sumatra, Indonesia	9.1
4	March 11, 2011	Off the Sanriku Coast, Japan (The 2011 off the Pacific coast of Tohoku Earthquake)	9.0
	November 5, 1952	Kamchatka Peninsula	9.0
6	February 27, 2010	Offshore Maule, Chile	8.8
	February 1, 1906	Offshore Ecuador	8.8
8	February 4, 1965	Aleutian Islands, Alaska	8.7
9	August 16, 1950	Tibet, Assam	8.6
	April 11, 2012	Off the West Coast of Northern Sumatra, Indonesia	8.6
	March 29, 2005	Northern Sumatra, Indonesia	8.6
	March 10, 1957	Aleutian Islands, Alaska	8.6
	April 1, 1946	Aleutian Islands, Alaska	8.6

*Mw: Moment magnitude

*The magnitude (Mw) of the 2011 off the Pacific coast of Tohoku Earthquake is based on materials from JMA.

Source: US Geological Survey

Fig. A-25 Major Natural Disasters Since 2021

Date	Country	Disaster Type	Fatalities	Affected People	Direct Damages (USD 1,000)
Jan. 1, 2021 - Dec.31, 2021	United States of America (the)	Drought	0	0	9,000,000
Jan. 1, 2021 - Dec.31, 2021	China	Drought	0	0	3,100,000
Jan. 5, 2021 - Jan. 11, 2021	Thailand	Flood	4	175,493	0
Jan. 7, 2021 - Jan. 12, 2021	Japan	Rainstorm	23	394	2,000,000
Jan. 8, 2021 - Jan. 12, 2021	Spain	Rainstorm	5	0	1,900,000
Jan. 10, 2021 - Jan. 18, 2021	Philippines (the)	Flood	2	261,580	0
Jan. 13, 2021 - Jan. 15, 2021	United States of America (the)	Rainstorm	3	0	675,000
Jan. 14, 2021 - Jan. 27, 2021	Syrian Arab Republic	Flood	1	142,003	0
Jan. 15, 2021 - Jan. 15, 2021	Indonesia	Earthquake	110	100,653	58,700
Jan. 15, 2021 - Jan. 21, 2021	Indonesia	Flood	21	126,025	0
Jan. 23, 2021 - Jan. 23, 2021	Mozambique	Tropical cyclone	11	481,901	0
Jan. 24, 2021 - Jan. 29, 2021	United States of America (the)	Rainstorm	2	75	1,100,000
Jan. 24, 2021 - Jan. 27, 2021	United States of America (the)	Rainstorm	1	30	120,000
Jan. 29, 2021 - Feb. 2, 2021	Chile	Rainstorm	0	521	175,000
Jan. 30, 2021 - Feb. 2, 2021	United States of America (the)	Rainstorm	4	0	100,000
Jan. 2021 - Apr. 2021	Afghanistan	Drought	0	11,000,000	0
Jan. 2021 - Aug.27, 2021	Iraq	Drought	0	7,000,000	0
Jan. 2021 - Oct. 2021	Syrian Arab Republic	Drought	0	5,500,000	0
Feb. 1, 2021 - Feb. 7, 2021	Australia	Wildfire	0	243	120,000
Feb. 7, 2021 - Feb. 8, 2021	India	Glacial lake outburst	234	0	210,000
Feb. 9, 2021 - Feb. 10, 2021	Bolivia (Plurinational State of)	Flood	9	145,000	0
Feb. 10, 2021 - Feb. 20, 2021	United States of America (the)	Rainstorm	235	10	30,000,000
Feb. 10, 2021 - Feb. 22, 2021	Brazil	Flood	6	100,000	36,000

Date	Country	Disaster Type	Fatalities	Affected People	Direct Damages (USD 1,000)
Feb. 12, 2021 - Feb. 20, 2021	Mexico	Rainstorm	12	0	100,000
Feb. 13, 2021 - Feb. 13, 2021	Japan	Earthquake	1	7,892	7,700,000
Feb. 19, 2021 - Feb. 23, 2021	Indonesia	Flood	7	228,650	50,000
Feb. 21, 2021 - Feb. 22, 2021	Philippines (the)	Tropical cyclone	5	272,453	3,114
Feb. 25, 2021 - Mar. 4, 2021	Australia	Tropical cyclone	0	6,000	155,000
Feb. 25, 2021 - Mar. 1, 2021	United States of America (the)	Flood	1	51	150,000
Mar. 16, 2021 - Mar. 18, 2021	United States of America (the)	Rainstorm	0	92	500,000
Mar. 18, 2021 - Mar. 19, 2021	Australia	Flood	2	18,000	2,100,000
Mar. 20, 2021 - Mar. 20, 2021	Japan	Earthquake	0	611	550,000
Mar. 24, 2021 - Mar. 26, 2021	United States of America (the)	Rainstorm	6	0	1,700,000
Mar. 24, 2021 - Mar. 24, 2021	China	Earthquake	3	195	125,000
Mar. 27, 2021 - Mar. 28, 2021	United States of America (the)	Flood	8	0	1,300,000
Mar. 2021 - Mar. 2021	South Africa	Drought	0	12,000,000	0
Mar. 2021 - Mar. 2022	Somalia	Drought	0	5,600,000	0
Mar. 2021 - Mar. 2022	Kenya	Drought	0	2,100,000	0
Mar. 2021 - Apr. 2021	Kenya	Epidemic	0	1,352,253	0
Mar. 2021 - Mar. 15, 2021	Ecuador	Volcanic eruption	0	133,306	0
Apr. 2, 2021 - Apr. 6, 2021	Indonesia	Tropical cyclone	226	509,625	800,000
Apr. 5, 2021 - Apr. 6, 2021	Timor-Leste	Tropical cyclone	41	143,670	0
Apr. 9, 2021 - Apr. 11, 2021	United States of America (the)	Rainstorm	3	7	945,000
Apr. 9, 2021 - Apr. 30, 2021	Saint Vincent and the Grenadines	Volcanic eruption	0	13,300	325,000
Apr. 11, 2021 - Apr. 11, 2021	Australia	Tropical cyclone	1	2,625	530,000
Apr. 13, 2021 - Apr. 15, 2021	United States of America (the)	Rainstorm	13	0	215,000
Apr. 15, 2021 - Apr. 16, 2021	United States of America (the)	Rainstorm	0	0	1,500,000
Apr. 20, 2021 - Apr. 23, 2021	Brazil	Flood	0	455,005	0
Apr. 27, 2021 - May 2, 2021	United States of America (the)	Rainstorm	0	0	3,100,000
May 1, 2021 - May 31, 2021	Somalia	Flood	25	400,000	0
May 2, 2021 - May 4, 2021	United States of America (the)	Rainstorm	4	8	1,300,000
May 2, 2021 - May 6, 2021	Afghanistan	Flood	116	30,833	0
May 11, 2021 - Jun.15, 2021	Guyana	Flood	0	150,000	0
May 14, 2021 - May 19, 2021	India	Tropical cyclone	198	700,153	1,400,000
May 14, 2021 - May 19, 2021	United States of America (the)	Rainstorm	6	250	1,300,000
May 21, 2021 - May 21, 2021	China	Earthquake	3	39,028	516,000
May 22, 2021 - May 23, 2021	Congo (the Democratic Republic of the)	Volcanic eruption	32	288,404	0
May 25, 2021 - May 29, 2021	India	Tropical cyclone	19	1,625,000	3,000,000
May 25, 2021 - May 29, 2021	Bangladesh	Tropical cyclone	3	1,300,000	0
May 2021 - Feb. 2022	Ethiopia	Drought	0	5,500,000	0
May 2021 - Oct.7, 2021	South Sudan	Flood	7	623,000	0
Jun. 1, 2021 - Aug.30, 2021	China	Flood	352	14,500,000	16,500,000
Jun. 1, 2021 - Sep.30, 2021	India	Flood	1,282	375,000	3,100,000
Jun. 1, 2021 - Jun.30, 2021	India	Flood	59	1,000	100,000

Date	Country	Disaster Type	Fatalities	Affected People	Direct Damages (USD 1,000)
Jun. 7, 2021 - Jun.10, 2021	United States of America (the)	Flood	0	636	950,000
Jun. 9, 2021 - Jun.11, 2021	Australia	Flood	2	600	330,000
Jun. 15, 2021 - Aug.31, 2021	Niger (the)	Flood	62	105,750	0
Jun. 17, 2021 - Jun.18, 2021	Ukraine	Rainstorm	1	1,700	170,000
Jun. 18, 2021 - Jun.21, 2021	United States of America (the)	Rainstorm	14	344	375,000
Jun. 24, 2021 - Jun.25, 2021	Czech Republic (the)	Rainstorm	6	3,813	701,000
Jun. 24, 2021 - Aug.11, 2021	Russian Federation (the)	Flood	0	24,000	200,000
Jun. 26, 2021 - Aug.31, 2021	Chad	Flood	32	269,180	0
Jun. 26, 2021 - Jul. 2021	Canada	Heat wave	808	0	0
Jun. 26, 2021 - Jun.30, 2021	United States of America (the)	Heat wave	229	0	0
Jun. 28, 2021 - Jul.2, 2021	China	Flood	0	1,080,000	161,000
Jul. 1, 2021 - Sep.30, 2021	Pakistan	Flood	194	0	10,000
Jul. 2, 2021 - Jul.9, 2021	United States of America (the)	Tropical cyclone	1	9	1,200,000
Jul. 3, 2021 - Jul.5, 2021	Japan	Landslide	26	900	250,000
Jul. 6, 2021 - Jul.31, 2021	United States of America (the)	Wildfire	0	483	325,000
Jul. 8, 2021 - Jul.11, 2021	United States of America (the)	Rainstorm	1	0	1,200,000
Jul. 12, 2021 - Jul.15, 2021	Germany	Flood	197	1,000	40,000,000
Jul. 13, 2021 - Aug.11, 2021	United States of America (the)	Wildfire	3	1,261	3,000,000
Jul. 14, 2021 - Jul.15, 2021	Belgium	Flood	43	1,950	1,700,000
Jul. 15, 2021 - Jul.17, 2021	New Zealand	Flood	0	200	140,000
Jul. 20, 2021 - Sep.24, 2021	Sudan (the)	Flood	52	303,045	0
Jul. 21, 2021 - Jul.28, 2021	China	Tropical cyclone	5	72,000	2,000,000
Jul. 21, 2021 - Jul.29, 2021	Myanmar	Flood	0	125,000	0
Jul. 22, 2021 - Jul.28, 2021	United States of America (the)	Flood	9	0	300,000
Jul. 22, 2021 - Jul.28, 2021	Costa Rica	Flood	3	200,000	0
Jul. 27, 2021 - Aug.3, 2021	Bangladesh	Flood	21	268,744	0
Jul. 28, 2021 - Aug.7, 2021	Turkey	Wildfire	9	561,088	232,000
Jul. 28, 2021 - Jul.29, 2021	Afghanistan	Flood	260	4,200	0
Jul. 29, 2021 - Aug.12, 2021	Greece	Wildfire	2	7,012	580,000
Jul., 2021 - Nov., 2021	Zambia	Drought	0	1,180,000	0
Aug. 9, 2021 - Aug.24, 2021	Niger (the)	Epidemic	144	4,283	0
Aug. 10, 2021 - Aug.13, 2021	United States of America (the)	Rainstorm	0	0	1,300,000
Aug. 10, 2021 - Aug.16, 2021	Turkey	Flood	70	2,660	290,000
Aug. 10, 2021 - Aug.16, 2021	United States of America (the)	Flood	3	0	225,000
Aug. 11, 2021 - Aug.16, 2021	Japan	Flood	12	30,000	100,000
Aug. 12, 2021 - Aug.13, 2021	China	Flood	21	286,100	0
Aug. 13, 2021 - Aug.31, 2021	United States of America (the)	Wildfire	0	2,136	1,500,000
Aug. 14, 2021 - Aug.14, 2021	Haiti	Earthquake	2,575	702,763	1,620,071
Aug. 17, 2021 - Aug.22, 2021	United States of America (the)	Tropical cycone	7	105	1,300,000
Aug. 20, 2021 - Aug.25, 2021	United States of America (the)	Tropical cyclone	0	86	550,000
Aug. 21, 2021 - Aug.23, 2021	Mexico	Tropical cyclone	13	0	500,000
Aug. 21, 2021 - Aug.22, 2021	United States of America (the)	Flood	22	89	150,000

Date	Country	Disaster Type	Fatalities	Affected People	Direct Damages (USD 1,000)
Aug. 23, 2021 - Aug.24, 2021	Venezuela (Bolivarian Republic of)	Flood	46	1,400,100	0
Aug. 27, 2021 - Aug.31, 2021	Thailand	Flood	0	325,400	0
Aug. 28, 2021 - Sep.2, 2021	United States of America (the)	Tropical cyclone	96	14,000	65,000,000
Aug. 28, 2021 - Aug.30, 2021	Mexico	Tropical cyclone	2	1,503	100,000
Aug. 28, 2021 - Sep.2, 2021	Cuba	Tropical cyclone	0	0	100,000
Aug. 29, 2021 - Sep.2, 2021	Spain	Flood	2	150	105,000
Aug. 2021 - Dec.19, 2021	Nigeria	Epidemic	3,604	179,189	0
Aug. 2021 - Feb. 2022	Zimbabwe	Drought	0	167,000	0
Sep. 7, 2021 - Sep.13, 2021	Congo (the Democratic Republic of the)	Epidemic	131	301	0
Sep. 8, 2021 - Sep.8, 2021	Mexico	Earthquake	3	21,951	200,000
Sep. 12, 2021 - Sep.17, 2021	United States of America (the)	Tropical cyclone	0	0	1,000,000
Sep. 13, 2021 - Sep.15, 2021	India	Flood	7	850,000	0
Sep. 16, 2021 - Sep.16, 2021	China	Earthquake	3	24,395	250,000
Sep. 19, 2021 - Dec.25, 2021	Canary Isls	Volcanic eruption	1	6,888	1,000,000
Sep. 19, 2021 - Oct.6, 2021	Thailand	Flood	10	298,900	591,000
Oct. 2, 2021 - Oct.7, 2021	China	Flood	18	1,760,000	1,800,000
Oct. 3, 2021 - Oct.3, 2021	India	Tropical cyclone	7	179,000	0
Oct. 4, 2021 - Oct.7, 2021	United States of America (the)	Flood	4	0	325,000
Oct. 11, 2021 - Oct.12, 2021	Philippines (the)	Tropical cyclone	59	1,140,539	103,128
Oct. 16, 2021 - Oct.22, 2021	Nepal	Flood	118	10	0
Nov. 4, 2021 - Nov.5, 2021	Bosnia and Herzegovina	Flood	0	250,000	0
Nov. 5, 2021 - Nov.9, 2021	China	Rainstorm	1	5,600	935,000
Nov. 6, 2021 - Nov.7, 2021	Sri Lanka	Flood	26	230,004	0
Nov. 13, 2021 - Nov.16, 2021	Canada	Flood	4	15,000	2,000,000
Nov. 13, 2021 - Nov.15, 2021	United States of America (the)	Flood	1	500	200,000
Nov. 14, 2021 - Nov.14, 2021	Iran (Islamic Republic of)	Earthquake	1	36,583	165,000
Nov. 15, 2021 - Jan. 16, 2022	Brazil	Flood	52	966,173	417,000
Nov. 15, 2021 - Dec.1, 2021	Australia	Flood	2	1,000	100,000
Nov. 27, 2021 - Nov.30, 2021	Viet Nam	Flood	18	300,000	0
Nov. 29, 2021 - Dec.2, 2021	Thailand	Flood	0	132,900	0
Dec. 10, 2021 - Dec.11, 2021	United States of America (the)	Rainstorm	93	100	5,200,000
Dec. 15, 2021 - Dec.16, 2021	United States of America (the)	Rainstorm	5	120	1,900,000
Dec. 16, 2021 - Dec.17, 2021	Philippines (the)	Tropical cyclone	457	10,608,996	915,271
Dec. 17, 2021 - Jan. 3, 2022	Malaysia	Flood	52	62,999	200,000
Dec. 27, 2021 - Dec.28, 2021	Sao Tome and Principe	Flood	8	219,668	0
Dec. 30, 2021 - Jan. 1, 2022	United States of America (the)	Wildfire	2	3,654	3,300,000
2021 - Aug. 2021	Iran (Islamic Republic of)	Drought	0	2,580,000	0

Source: Formulated by the Cabinet Office based on materials from Emergency Events Database (EM-DAT, the international disaster database) of Centre for Research on the Epidemiology of Disasters (CRED), Université catholique de Louvain).

1) Canada, U.S. heat wave (HT-2021-000074-CAN, HT-2021-000074-USA)

Western Canada and northwestern U.S. suffered intense heat from late June to July of 2021. Lytton, near Vancouver, Canada, recorded 46.6 Celsius degrees on 27, beating the highest temperature on record in this country for the first time in 84 years. High temperature warnings and advisories were issued in various areas, and in Lytton, the site with the highest ever recorded temperature in Canada, wildfires broke out and destroyed much of the village.

In Canada, at least 486 people died suddenly during the five-day period starting on June 25 of 2021, when the heat wave began, more than three times the number in an average year. This disaster resulted in 808 confirmed deaths in Canada and 229 in the United States (EM-DAT, as of March 10, 2022).

https://www.nikkei.com/article/DGXZQOGN28CKC0Y1A620C2000000/
https://www.nikkei.com/article/DGXZQOGN02EB40S1A700C2000000/
https://www.cbc.ca/news/canada/british-columbia/sudden-deaths-heat-waveb-c-1.6086770

2) Haiti earthquake (EQ-2021-000116-HTI)

On August 14 of 2021, at 8:29 AM (local time), an earthquake of magnitude 7.2 occurred at southwestern Haiti located in the Caribbean Sea. The epicenter was located near 12 km northeast of Saint-Louis-du-Sud, 125 km west of the capital Port-au-Prince, and the depth of the earthquake was 10 km. The earthquake caused many affected people including deaths and injuries as well as material damage. As of March 10, 2022, the EM-DAT database showed 2,575 deaths, 702,763 affected people, and economic damage of over US$1.6 billion. Haiti experienced a megaquake of magnitude 7.0 in 2010 as well and suffered devastating damage including more than 220,000 deaths.

Upon the request from the Haiti Government, the government provided emergency relief supplies through the Japan International Cooperation Agency (JICA) and also provided $3.25 million (about 351 million yen) as Emergency Grant Aid for earthquake damage in Haiti through the United Nations World Food Programme (WFP), International Organization for Migration (IOM), United Nations Children's Fund (UNICEF), and the International Federation of Red Cross and Red Crescent Societies (IFRC).

https://www.mofa.go.jp/mofaj/press/release/press1_000585.html
https://www.mofa.go.jp/mofaj/press/release/press1_000601.html
https://www.jrc.or.jp/international/results/2021HaitiEQ.html

3) Philippines typhoon (TC-2021-000202-PHL)

From December 16 to 17 of 2021, Typhoon Rai (T2122) (Asian name: Rai, Philippine name: Odette) made landfall in southeastern Philippines, caused many affected people including deaths and injuries as well as material damage to key infrastructure such as electric power and houses.

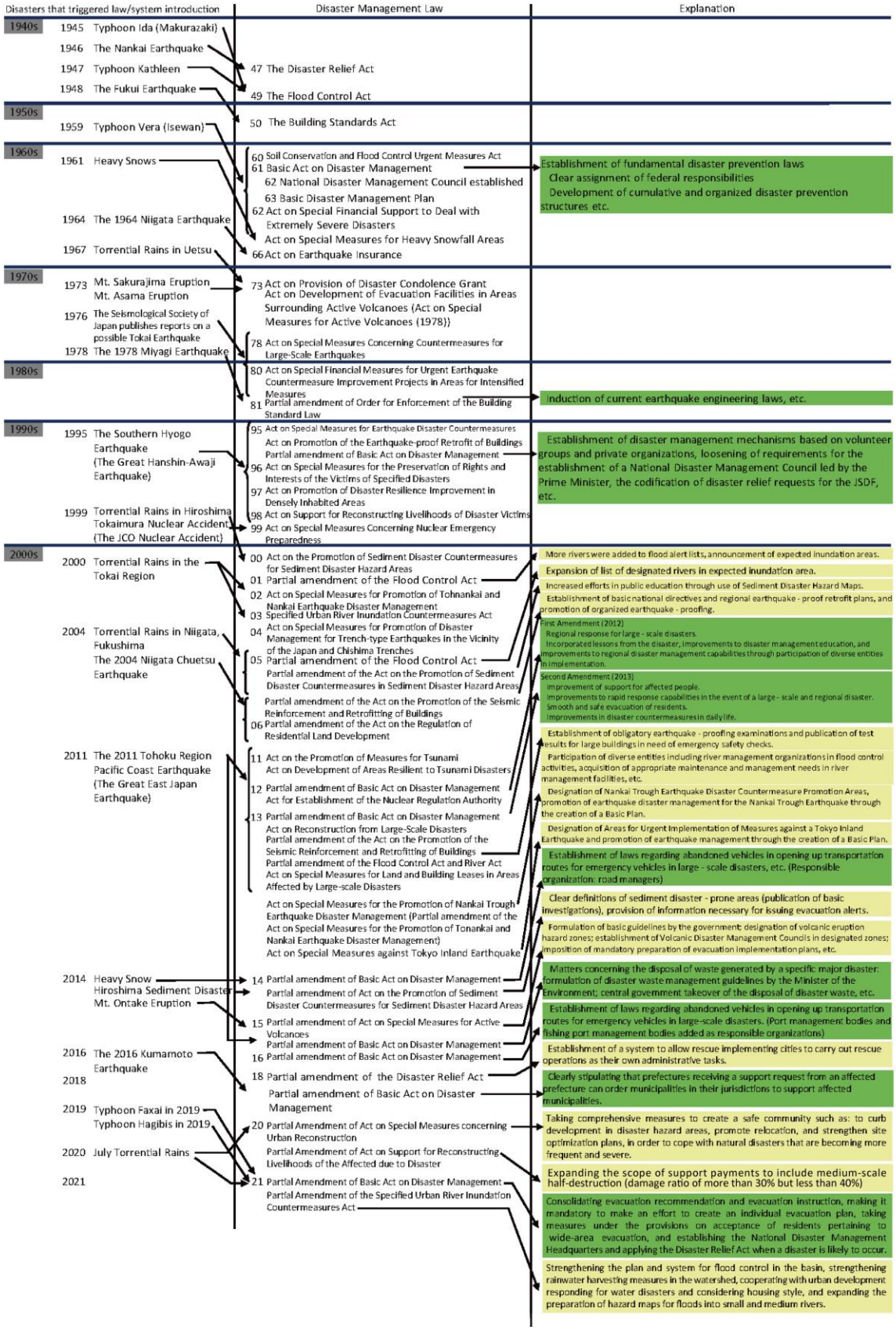
This typhoon rapidly grew into a category 5 windstorm before making landfall and crossed 11 of the 17 areas of the Philippines keeping its strength. This typhoon caused heavy rains, floods and landslides, and according to EM-DAT, resulted in a mega-disaster with 457 deaths, 10,608,996 affected people and economic damage of over US$910 million (as of March 10, 2022).

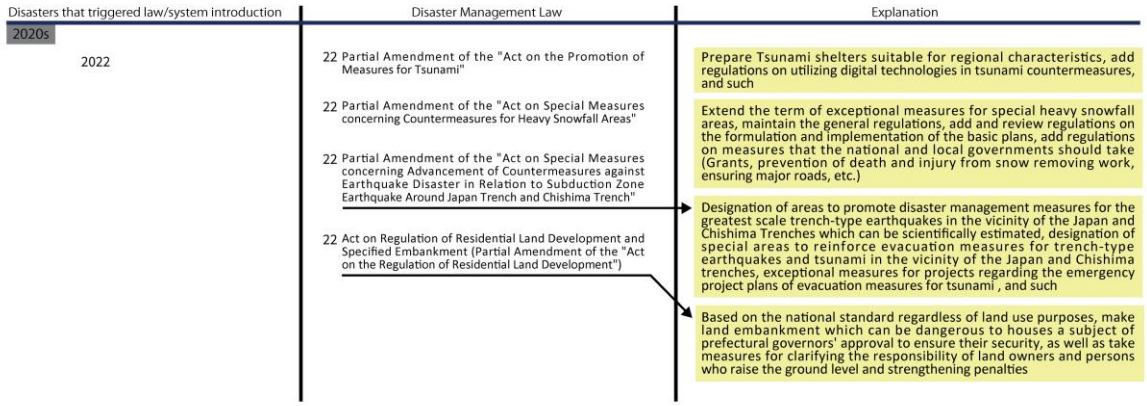
Upon request from the Philippine Government, the Japanese Government provided emergency relief supplies through the Japan International Cooperation Agency (JICA) as well as Emergency Grant Aid of US$13 million.

https://www.mofa.go.jp/mofaj/press/release/press6_001025.html
https://www.mofa.go.jp/mofaj/press/release/press1_000681.html
https://www.adrc.asia/view_disaster_jp.php?NationCode=&Lang=jp&Key=2507
https://unocha.exposure.co/nbsp-nbsp-super-typhoon-rainbsp-nbspnbsp?embed=true

3. Laws and Systems

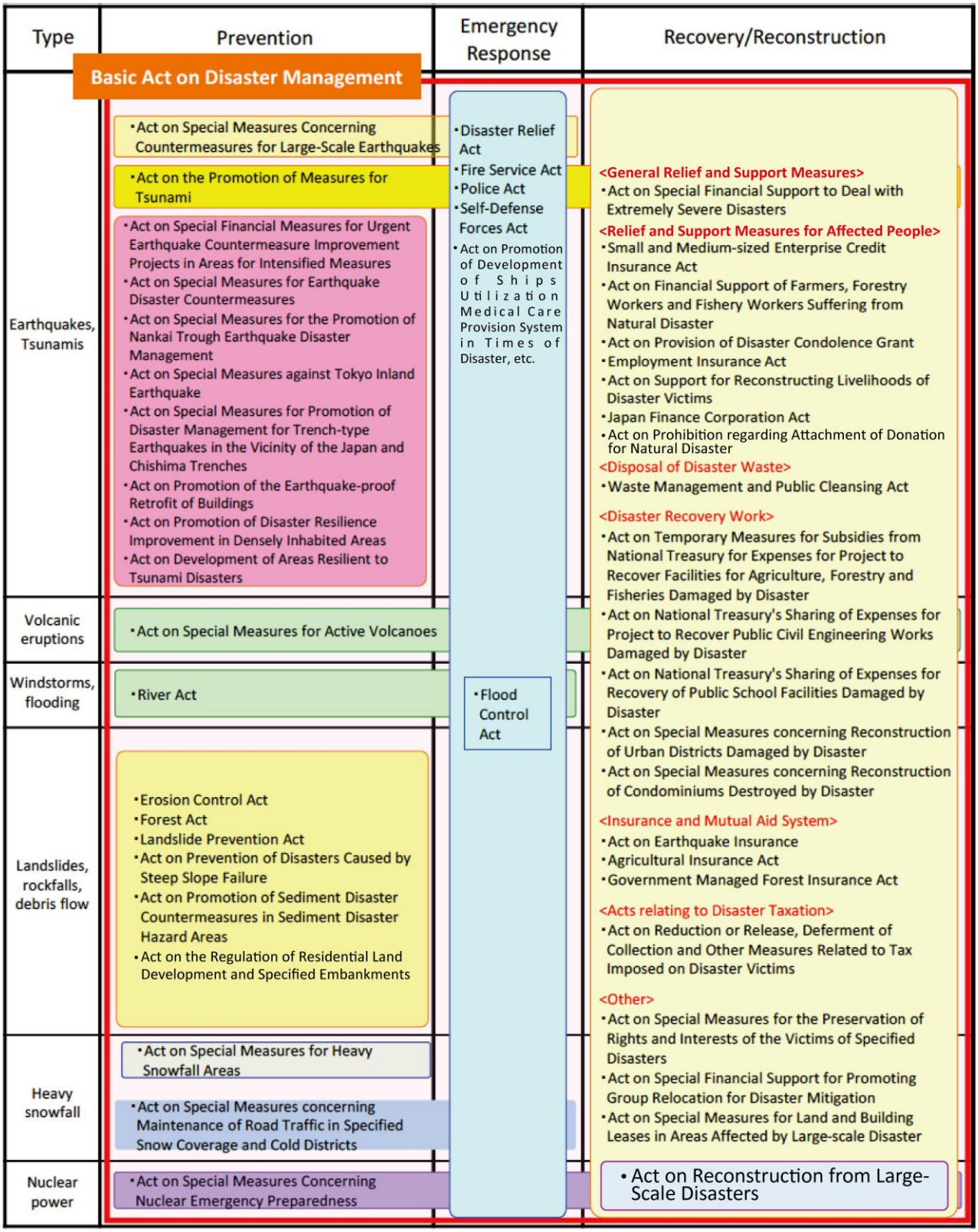
Fig. A-26 Evolution of Disaster Management Laws and Systems Since 1945





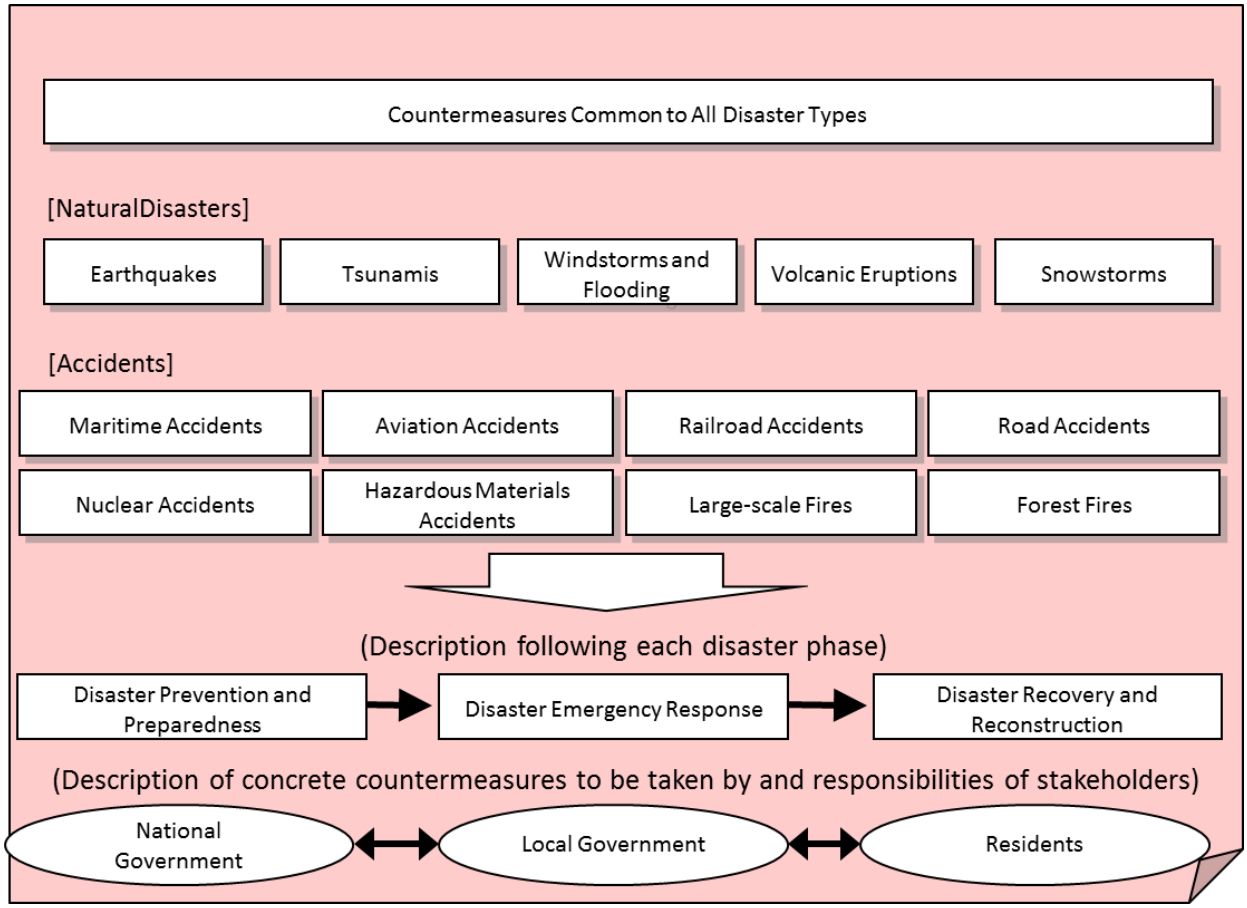
Source: Cabinet Office

Fig. A-27 Major Disaster Management Laws by Type of Disaster



Source: Cabinet Office

Fig. A-28 Structure of the Basic Disaster Management Plan



Source: Cabinet Office

Fig. A-29 Revisions to the Basic Disaster Management Plan

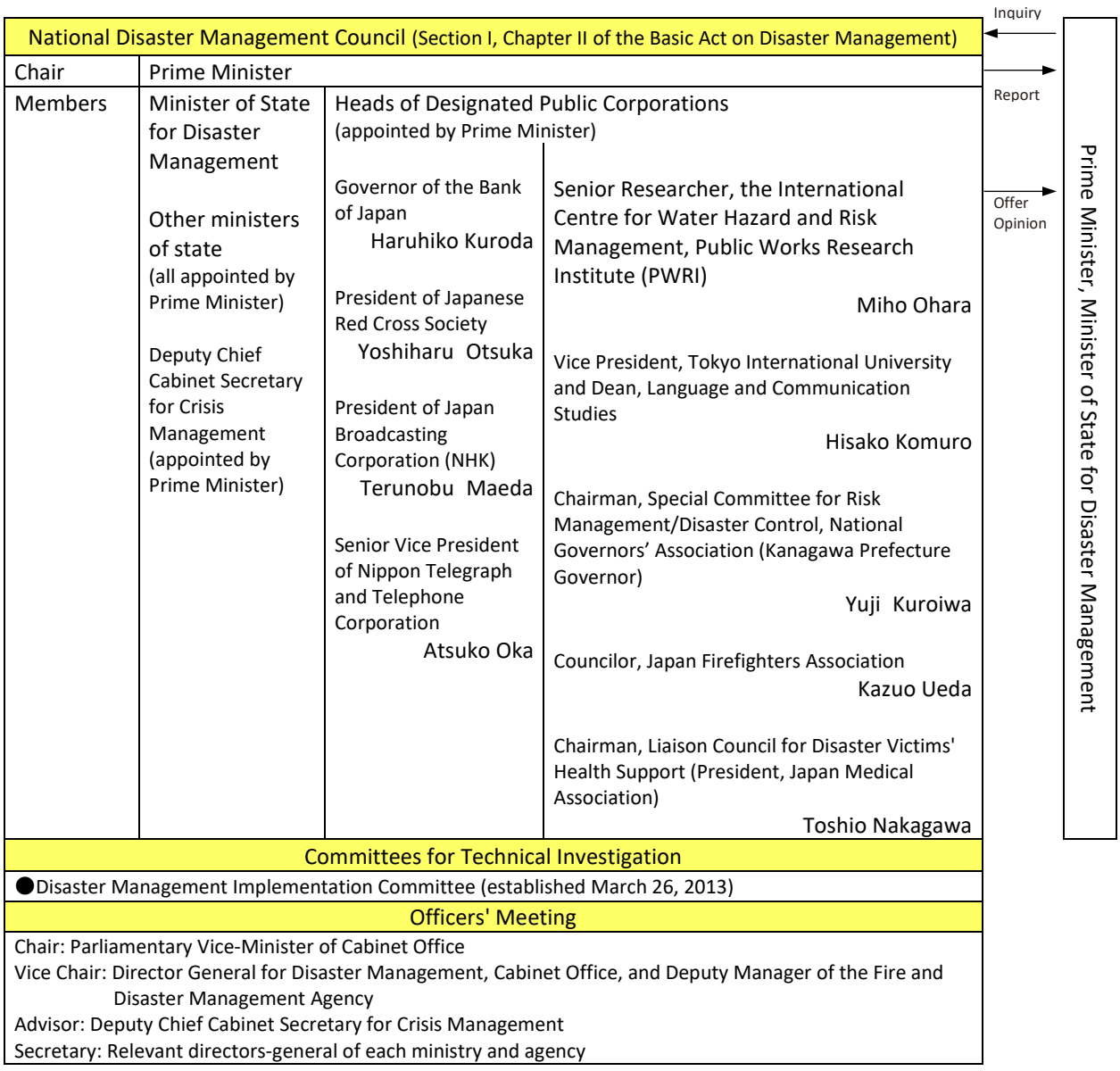
Revision Date	Outline of Revision	Background
June 1963	- The Basic Disaster Management Plan formulated based on the Basic Act on Disaster Management - Stipulations regarding various measures to prevent natural disasters, mitigate damage, and promote disaster reconstruction	Sep. 26, 1959: Typhoon VERA (5915) Nov. 15, 1961: Enactment of the Basic Act on Disaster Management
May 1971	Partial revision - Enhancement of earthquake countermeasures (facilities for earthquake prediction, preparation of fire fighting helicopters) - Renewed positioning of countermeasures to tackle hazardous materials, petrochemical complexes, and wildfires	Sep. 6, 1967 Recommendation concerning Disaster Prevention Measures (recommending revisions in response to a modern socioeconomy)
July 1995	Complete revision - Structured this version by disaster type, and included stipulations in the following order: prevention, emergency response, recovery/reconstruction - Clearly defined the stakeholders, such as governments, public agencies, local governments, and businesses, and specified countermeasures - Stipulated that changes in social structure such as the aging of society should be taken into account	Jan. 17, 1995: Southern Hyogo Prefecture Earthquake (Great Hanshin-Awaji Earthquake)
June 1997	Partial revision - Addition of section on countermeasures to address disasters caused by accidents (structural improvements such as the establishment of an emergency countermeasures headquarters) - Addition of a section on snowstorm countermeasures	Jan. 2, 1997: Nakhodka Oil Spill Accident
May 2000	Partial revision - Revision of the section on countermeasures to tackle nuclear power disasters, following the enactment of the Act on Special Measures Concerning Nuclear Emergency Preparedness	Sep. 30, 1999: Criticality accident at uranium fabrication plant in Tokai Village, Ibaraki prefecture
December 2000	Partial revision - Revisions resulting from the government reformation	Government reformation
April 2002	Partial revision - Enhancement of descriptions relating to information transmission to residents and evacuation measures regarding countermeasures against flooding, sediment disasters, and storm surges - New positioning of nuclear power disasters related to nuclear vessels	Jun. 29, 1999: Torrential rain disaster in Hiroshima Prefecture Sep. 24, 1999: Storm surge disaster in Kumamoto Prefecture
March 2004	Partial revision - Revisions based on the creation of the Basic Plan for the Promotion of Tonankai and Nankai Earthquake Countermeasures (seismic retrofitting of public buildings, etc.) - Revisions based on the development of policies such as the development of an earthquake early warning system	Mar. 31, 2004: Creation of a Basic Plan for the Promotion of Tohnankai and Nankai Earthquake Countermeasures
July 2005	Partial revision - Revisions based on developments in policy, such as the promotion of a nationwide movement to practice disaster preparedness, the promotion of corporate disaster risk reduction efforts, the formulation and implementation of an earthquake DRR strategy, tsunami DRR measures such as the development of tsunami evacuation buildings, information transmission during torrential rains, evacuation support for the elderly, etc.	July 28, 2004: Creation of an Earthquake Disaster Risk Reduction Strategy Dec. 26, 2004: Indian Ocean Tsunami (Sumatra/Andaman Earthquake)
March 2007	Partial revision - Revisions resulting from the transition from Defense Agency to the Ministry of Defense	Transition from Defense Agency to the Ministry of Defense
February 2008	Partial revision - Implementation of follow-up actions on key issues regarding the Basic Disaster Management Plan, development of strategic national movements, establishment of conditions for the promotion of corporate disaster risk reduction, full-scale introduction of earthquake early warning system, strengthening of nuclear power disaster countermeasures in light of lessons learned from the Earthquake Off the Coast of Chuetsu in Niigata Prefecture	July 16, 2007: The Earthquake Off the Coast of Chuetsu in Niigata Prefecture
December 2011	Partial revision - Radical strengthening of earthquake/tsunami countermeasures in light of the Great East Japan Earthquake (addition of tsunami disaster countermeasure section)	Mar. 11, 2011 Tohoku Earthquake and Tsunami (The Great East Japan Earthquake)
September 2012	Partial revision - Strengthening of countermeasures against large-scale regional disasters in light of revisions to the Basic Act on Disaster Management (First Revision), and the final report of the National Disaster Management Council's Committee for Policy Planning on Disaster Management (each section) - Strengthening of nuclear power disaster countermeasures in light of the enactment of the Act for Establishment of the Nuclear Regulation Authority (nuclear power disaster countermeasures section)	Mar. 11, 2011 The Great East Japan Earthquake Jun. 27, 2012 Partial Amendment of the Basic Act on Disaster Management Sep. 19, 2012 Inauguration of the Nuclear Regulatory Authority
January 2014	Partial revision - Strengthening of countermeasures against large-scale disasters in light of revisions to the Basic Act on Disaster Management (Second Revision) and the enactment of the Act on Reconstruction from Large-Scale Disasters (each section) - Strengthening of nuclear disaster countermeasures in light of investigations by the Nuclear Regulation Authority	Mar. 11, 2011 The Great East Japan Earthquake Jun. 21, 2013 Partial Amendment of the Basic Act on Disaster Management, enactment of the Act on Reconstruction from Large-Scale Disasters

Revision Date	Outline of Revision	Background
November 2014	Partial revision - Strengthening of countermeasures against abandoned and stranded vehicles following revision of the Basic Act on Disaster Management - Addition of descriptions in light of lessons learned from heavy snowfall of February 2014, such as the diversification of information transmission methods such as warnings of heavy snow	Feb. 2014: Heavy snowfall Nov. 21, 2014: Partial Amendment of the Basic Act on Disaster Management
March 2015	Partial revision - Improvement and strengthening of nuclear emergency preparedness systems e.g., through the establishment of local nuclear disaster management committees and national support for the enhancement of local plans for disaster risk reduction/evacuation plans (nuclear disaster countermeasures section)	Mar. 5, 2015: Cabinet Secretariat Three-Year Revision and Investigation Team "Improvement and Strengthening of the Nuclear Emergency Preparedness System (Second Report)"
July 2015	Partial revision -Revisions resulting from the strengthening of measures in light of lessons learned from the Hiroshima Sediment Disaster and the Mt. Ontake Eruption (each section)	Jan. 18, 2015: Partial Amendment of the Act on the Promotion of Sediment Disaster Countermeasures in Sediment Disaster Hazard Areas Mar. 26, 2015: Working Group for the Promotion of Volcano Disaster Prevention report Jun. 4, 2015: Working Group for Studying Comprehensive Countermeasures against Sediment Disasters report
February 2016	Partial revision -Revisions resulting from the strengthening of measures in light of the revision of laws, including the Act on Special Measures for Active Volcanoes, the Flood Control Act, the Sewerage Act, the Waste Management and Public Cleansing Act, and the Basic Act on Disaster Management (each section)	Dec. 10, 2015: Partial Amendment of the Act on Special Measures for Active Volcanoes
May 2016	Partial revision -Revisions resulting from the strengthening of measures in light of lessons learned from the Torrential Rain of September 2015 in the Kanto and Tohoku Regions (each section)	Mar. 31, 2016: Working Group on Study on Evacuation and Emergency Response Measures for Flood Disasters report
April 2017	Partial revision -Revisions resulting from the strengthening of measures in light of lessons learned from the 2016 Kumamoto Earthquake and Typhoon LIONROCK (1610) disaster (each section)	Dec. 20, 2016: Report of the Working Group for Studying Emergency Response and Livelihood Support Measures in Light of the 2016 Kumamoto Earthquake Dec. 26, 2016: Report of the Study Group on Guidelines for Producing a Handbook on Decision and Dissemination for Evacuation Recommendations
June 2018	Partial revision -Revisions resulting from the strengthening of measures in light of the revision of laws, including the Disaster Relief Act, the Road Act, and the Flood Control Act, etc. (each section) - Revisions resulting from the strengthening of measures in light of lessons learned from the 2017 July Northern Kyushu Heavy Rain and the heavy snow from January to February 2018 (each section)	Dec. 8, 2017: Report of the Study Group on Evacuation from the 2017 July Northern Kyushu Heavy Rain May 16, 2018: Interim Report on Measures to Secure Road Traffic in Heavy Snow June 15, 2018: Partial Amendment of the Disaster Relief Act
May 2019	Partial revision -Amendments to evacuation measures from flood and sediment disasters in light of the heavy rain event of July 2018 (each section)	Dec.26, 2018: Amendments to evacuation measures from flood and sediment disasters in light of the heavy rain event of July 2018 (report) Mar. 29, 2019 Revision of the guidelines on evacuation recommendations
May 2020	Partial Amendment ・Verification of the Typhoon Faxai in 2019 (T1915) and the Typhoon Hagibis in 2019 (T1919), and amendments to strengthen countermeasures based on COVID-19 response (each part).	March 31, 2020: Verification of the series of disasters including Typhoon Faxai in 2019 (T1915) and Typhoon Hagibis in 2019 (T1919). Report (final summary)
May 2021	Partial Revision ・Revision in response to amendment of the Basic Act on Disaster Management and measures against COVID-19 (each part)	May 10, 2021: Partial amendment of the Basic Act on Disaster Management

Source: Cabinet Office

4. Organizations

Fig. A-30 Organization of the National Disaster Management Council



[Role]

- ○ Formulate a Basic Disaster Management Plan and Earthquake Disaster Management Plan and promote their implementation
- ○ Discuss important issues related to disaster management in response to inquiries from the Prime Minister or the Minister of State for Disaster Management (e.g. basic approaches to disaster management, comprehensive coordination of disaster management policies, and the declaration of states of emergency)
- ○ Offer opinions on important issues related to disaster management to the Prime Minister or the Minister of State for Disaster Management

Source: Cabinet Office

Fig. A-31 Recent Meetings of the National Disaster Management Council (Since 2011)

FY2011	
Apr. 27, 2011	• Great East Japan Earthquake: Characteristics and Challenges • Conventional earthquake and tsunami policies
Oct. 11, 2011	• Report of the Committee for the Technical Investigation of Earthquake and Tsunami Measures Based on Lessons Learned from the Great East Japan Earthquake • Government ministry and agency efforts related to future DRR efforts • Establishment of the Committee for Policy Planning on Disaster Management
Dec. 27, 2011	• Revisions to the Basic Disaster Management Plan • Revisions to the National Disaster Management Council Operation Guidelines • Report of the Committee for the Technical Investigation of the Dissemination of Lessons Learned from Disasters • Status of the investigations by the Committee for Policy Planning on Disaster Management
Mar. 29, 2012	• Interim Report of the Committee for Policy Planning on Disaster Management • Current efforts aimed at bolstering and reinforcing DRR measures • FY2012 Comprehensive Disaster Management Drill Framework
FY2012	
Sep. 6, 2012	• Revisions to the Basic Disaster Management Plan • Framework for Large-Scale Flood Measures in the Capital Region • New Promotion of Earthquake Research • Final Report of the Committee for Policy Planning on Disaster Management • Report of the Committee for the Technical Investigation of Best Practices for Earthquake Disaster Management in Regional Cities • Report of the Committee for the Technical Investigation of Disaster Evacuation • Report on Tsunami Heights and Inundation Areas Resulting from Nankai Trough Megaquake (Secondary Report) and Damage Estimates (Primary Report)
Mar. 26, 2013	• Review of the legal systems for disaster management; status of investigations into Nankai Trough Megaquake Measures and Tokyo Inland Earthquake Measures • Establishment of the Disaster Management Implementation Committee • FY2013 Comprehensive Disaster Management Drill Framework
FY2013	
Jan. 17, 2014	• Designation of Areas for the Promotion of Nankai Trough Earthquake DRR Measures and Areas for the Special Reinforcement of Nankai Trough Earthquake Tsunami Evacuation Measures • Designation of Tokyo Inland Earthquake Emergency Management Zones • Revisions to the Basic Disaster Management Plan • Final Report of the Working Group to Investigate Tokyo Inland Earthquake Measures and a National Government Business Continuity Plan Proposal
Mar. 28, 2014	• Act on Special Measures for the Promotion of Nankai Trough Earthquake Disaster Management • Act on Special Measures against Tokyo Inland Earthquake • Framework for Large-Scale Earthquake Disaster Management and Reduction • FY2014 Comprehensive Disaster Management Drill Framework
FY2014	
Nov. 28, 2014	• Revisions to the Basic Disaster Management Plan
Mar. 31, 2015	• Revisions to the Basic Disaster Management Plan • FY2015 Comprehensive Disaster Management Drill Framework • Earthquake Disaster Risk Reduction Strategy for a Tokyo Inland Earthquake
FY2015	
Jul. 7, 2015	• Revisions to the Basic Disaster Management Plan
Feb. 16, 2016	• Basic Guidelines on the Comprehensive Promotion of Measures for Active Volcanoes • Designation of volcanic eruption hazard areas • Revisions to the Basic Disaster Management Plan
FY2016	
May 31, 2016	• FY2016 Comprehensive Disaster Management Drill Framework • Revisions to the Basic Disaster Management Plan
FY2017	
Apr. 11, 2017	• Revisions to the Basic Disaster Management Plan • FY2017 Comprehensive Disaster Management Drill Framework
FY2018	
Jun. 29, 2018	• Revisions to the Basic Disaster Management Plan • Partial amendment of the Disaster Relief Act
FY2019	
May 31, 2019	• Revisions to the Basic Disaster Management Plan • Revisions to the Basic Plan for the Promotion of Nankai Trough Earthquake Disaster Risk Reduction Countermeasures • FY2019 Comprehensive Disaster Management Drill Framework • Promotion of Earthquake Research (third period)
FY2020	
May 29, 2020	• Amendment of Basic Disaster Management Plan • Outline of the Comprehensive Disaster Management Drill Framework of 2020
FY2021	
May 25, 2021	• Regarding the revision of the Basic Disaster Management Plan • Regarding FY2021 Comprehensive Disaster Management Drill Framework, etc.

Source: Cabinet Office

Fig. A-32 Status of the Establishment of National Disaster Management Council Committees for Technical Investigation

Source: Cabinet Office

5. Budget

Fig. A-33 Disaster Risk Management Budgets by Year

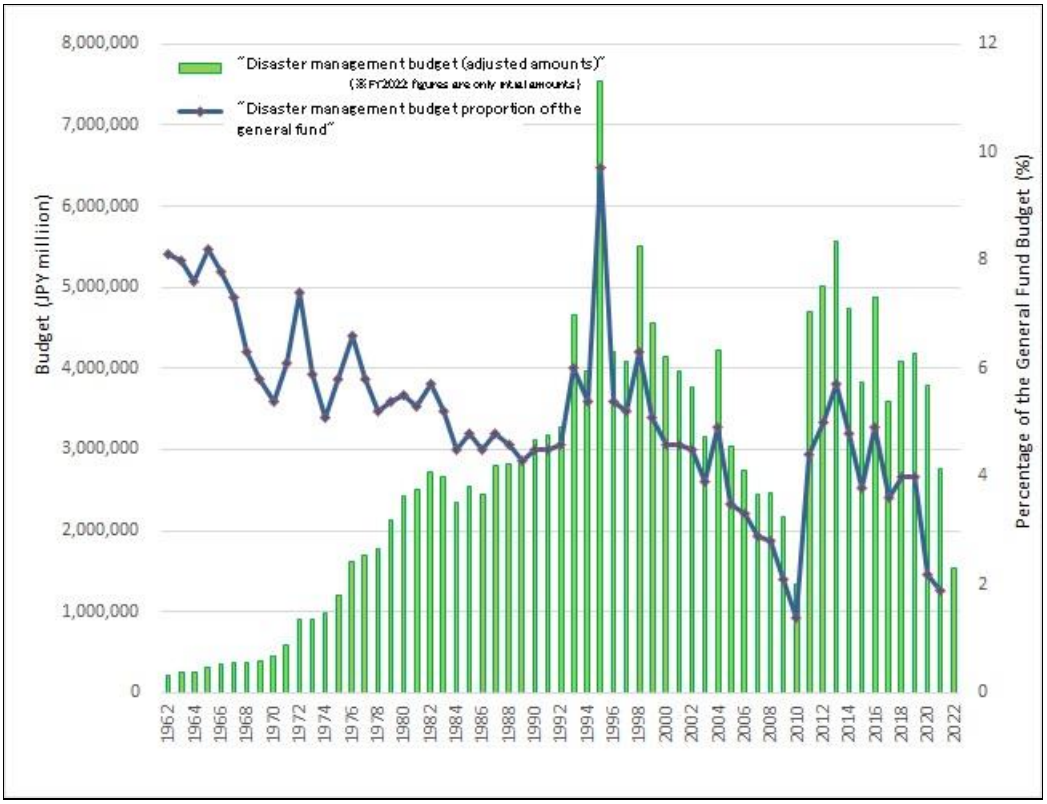
Fiscal Year	Science and Technology Research		Disaster Prevention		Land Conservation		Disaster Reconstruction		Total
	(JPY million)	Share (%)	(JPY million)	Share (%)	(JPY million)	Share (%)	(JPY million)	Share (%)	(JPY million)
1962	751	0.4	8,864	4.3	97,929	47.1	100,642	48.3	208,006
1963	1,021	0.4	8,906	3.7	116,131	47.7	117,473	48.2	243,522
1964	1,776	0.7	13,724	5.4	122,409	48.3	115,393	45.6	253,302
1965	1,605	0.5	17,143	5.6	147,858	48.3	139,424	45.6	306,030
1966	1,773	0.5	20,436	5.9	170,650	49.0	155,715	44.7	348,574
1967	2,115	0.6	23,152	6.1	197,833	52.3	154,855	41.0	377,955
1968	2,730	0.7	25,514	6.8	207,600	55.4	138,815	37.1	374,659
1969	2,747	0.7	30,177	7.5	236,209	59.0	131,270	32.8	400,403
1970	2,756	0.6	36,027	8.2	269,159	60.9	133,998	30.3	441,940
1971	3,078	0.5	50,464	8.6	352,686	60.3	178,209	30.5	584,437
1972	3,700	0.4	93,425	10.3	488,818	54.1	316,895	35.1	902,838
1973	6,287	0.7	111,321	12.4	493,580	54.9	287,082	32.0	898,270
1974	14,569	1.5	118,596	12.1	505,208	51.5	342,556	34.9	980,929
1975	17,795	1.5	159,595	13.3	615,457	51.3	405,771	33.9	1,198,618
1976	21,143	1.3	186,297	11.5	711,159	43.9	700,688	43.3	1,619,287
1977	22,836	1.4	234,409	13.9	904,302	53.6	525,886	31.2	1,687,433
1978	29,642	1.7	307,170	17.3	1,093,847	61.6	345,603	19.5	1,776,262
1979	35,145	1.6	435,963	20.4	1,229,401	57.6	432,759	20.3	2,133,268
1980	29,929	1.2	456,575	18.9	1,229,615	50.8	705,168	29.1	2,421,287
1981	29,621	1.2	474,926	18.9	1,240,788	49.5	761,950	30.4	2,507,285
1982	28,945	1.1	469,443	17.2	1,261,326	46.3	963,984	35.4	2,723,698
1983	29,825	1.1	489,918	18.4	1,268,712	47.6	875,851	32.9	2,664,306
1984	28,215	1.2	485,219	20.7	1,350,592	57.7	475,878	20.3	2,339,904
1985	27,680	1.1	512,837	20.2	1,355,917	53.5	640,225	25.2	2,536,659
1986	28,646	1.2	482,889	19.7	1,354,397	55.3	581,462	23.8	2,447,394
1987	38,296	1.4	612,505	21.9	1,603,599	57.2	548,337	19.6	2,802,737
1988	31,051	1.1	587,073	20.8	1,550,132	54.9	657,681	23.3	2,825,937
1989	34,542	1.2	588,354	20.7	1,638,104	57.5	587,819	20.6	2,848,819
1990	35,382	1.1	625,239	20.0	1,669,336	53.4	796,231	25.5	3,126,188
1991	35,791	1.1	628,596	19.8	1,729,332	54.3	788,603	24.8	3,182,322
1992	36,302	1.1	745,405	22.8	2,017,898	61.6	475,411	14.5	3,275,015
1993	43,152	0.9	866,170	18.6	2,462,800	52.9	1,280,569	27.5	4,652,691
1994	40,460	1.0	747,223	18.9	1,945,295	49.1	1,230,072	31.0	3,963,050
1995	105,845	1.4	1,208,134	16.0	2,529,386	33.5	3,696,010	49.0	7,539,375
1996	52,385	1.2	1,029,658	24.5	2,156,714	51.3	968,182	23.0	4,206,938
1997	49,128	1.2	1,147,102	28.2	2,014,695	49.4	864,370	21.2	4,075,295
1998	62,435	1.1	1,228,539	22.3	2,905,921	52.8	1,310,515	23.8	5,507,411
1999	78,134	1.7	1,142,199	25.0	2,400,534	52.6	941,886	20.6	4,562,752
2000	73,502	1.8	1,011,535	24.4	2,376,083	57.3	689,225	16.6	4,150,346
2001	49,310	1.2	1,060,445	26.7	2,238,816	56.4	618,427	15.6	3,966,998
2002	48,164	1.3	1,202,984	31.9	1,981,686	52.5	543,949	14.4	3,776,783
2003	35,133	1.1	814,101	25.7	1,625,670	51.4	689,255	21.8	3,164,159
2004	30,478	0.7	815,059	19.3	1,753,418	41.5	1,622,112	38.4	4,221,067
2005	11,097	0.4	866,290	28.6	1,426,745	47.0	728,606	24.0	3,032,738
2006	11,627	0.4	689,505	25.1	1,439,129	52.3	610,302	22.2	2,750,563

Fiscal Year	Science and Technology Research		Disaster Prevention		Land Conservation		Disaster Reconstruction		Total
	(JPY million)	Share (%)	(JPY million)	Share (%)	(JPY million)	Share (%)	(JPY million)	Share (%)	(JPY million)
2007	9,687	0.4	706,853	29.0	1,332,222	54.6	391,637	16.0	2,440,399
2008	8,921	0.4	819,359	33.2	1,275,135	51.7	363,471	14.7	2,466,886
2009	8,761	0.4	498,397	23.0	1,383,254	63.7	279,789	12.9	2,170,201
2010	7,695	0.6	224,841	16.9	813,359	61.1	285,038	21.4	1,330,933
2011	28,072	0.6	376,169	8.0	743,936	15.9	3,536,475	75.5	4,684,652
2012	29,422	0.6	561,021	12.0	790,422	17.0	3,129,561	67.2	4,656,656
2013	15,339	0.3	788,576	14.1	879,932	15.8	3,883,911	69.6	5,578,036
2014	16,688	0.4	639,966	13.9	836,580	18.2	3,101,555	67.5	4,594,789
2015	14,961	0.4	713,477	18.6	155,475	4.1	2,954,355	77.0	3,838,268
2016	14,023	0.3	696,399	14.3	318,320	6.5	3,855,516	78.9	4,884,258
2017	10,123	0.3	790,361	22.1	267,629	7.5	2,515,384	70.2	3,583,497
2018	22,781	0.8	737,429	16.3	482,711	4.0	2,834,284	78.8	4,077,205
2019	14,390	0.3	814,471	19.5	512,324	12.3	2,839,061	67.9	4,180,246
2020	15,726	0.4	1,037,401	27.2	437,134	11.5	2,320,286	60.9	3,810,547
2021	26,756	0.5	1,108,485	33.3	404,554	7.5	1,226,931	58.2	2,766,726
2022	7,060	0.5	542,716	35.5	116,860	7.6	861,170	56.4	1,527,806

Notes:

1. These are adjusted budget (national expenditures) amounts. However, the FY2022 figures are preliminary figures reflecting the initial budget.
2. The reduced amount allocated to science and technology research in FY2007 is largely due to the structural conversion of national lab and research institutions into independent administrative agencies (the budgets of independent administrative agencies are not included in this table).
3. The amount allocated to disaster prevention in FY2009 is reduced because a portion of the revenue sources set aside for road construction were converted to general fund sources making it impossible to allocate certain portions to the disaster management budget.
4. The reduced amount allocated to disaster prevention and land conservation in FY2010 is due to the fact that, following the creation of the General Grant for Social Capital Development, some disaster prevention policies and many subsidy programs in land conservation were established using those grants.

Source: Formulated by the Cabinet Office based on materials from various ministries and agencies



Source: Formulated by the Cabinet Office based on materials from various ministries and agencies

Fig. A-34 Earthquake Emergency Development Project Plans

(As of the end of FY2020; Unit: JPY million)

Category	FY1980 - FY2024		
	Planned Amount (a)	Implemented Amount (b)	Rate of Progress (b)/(a)
1 Evacuation sites	202,572	196,515	97.0%
2 Evacuation roads	136,082	94,676	69.6%
3 Firefighting facilities	149,684	133,285	89.0%
4 Emergency transport routes	1,150,690	1,020,763	88.7%
4-1 Emergency transport routes	1,016,648	898,820	88.4%
4-2 Emergency transport ports	72,924	63,744	87.4%
4-3 Emergency transport fishing ports	61,118	58,199	95.2%
5 Telecommunications facilities	16,819	16,637	98.9%
6 Public medical institutions	54,012	54,012	100.0%
7 Social welfare facilities	55,586	55,586	100.0%
8 Public elementary and junior high schools	456,315	432,314	94.7%
9 Tsunami countermeasures	300,638	251,964	83.8%
9-1 River management facilities	99,381	79,745	80.2%
9-2 Coastal preservation facilities	201,257	172,219	85.6%
10 Landslide prevention	615,613	560,620	91.1%
10-1 Erosion control facilities	123,888	110,695	89.4%
10-2 Security facilities	179,201	171,720	95.8%
10-3 Landslide facilities	93,050	86,384	92.8%
10-4 Steep slope facilities	187,922	168,646	89.7%
10-5 Ponds	31,552	23,175	73.4%
Total	3,138,011	2,816,371	89.8%

Notes:

1. The content of Earthquake Emergency Development Project Plans (FY1980-2024) is as of the end of FY2020.
2. Project expenses include expenses for projects that may not be solely designed for earthquake disaster management, but that, while having other policy objectives, also are intended to have an overall effect on earthquake disaster management. Project expenses are not comprised solely of expenses used entirely for disaster management.

Source: Cabinet Office

Based on lessons learned from the Great Hanshin-Awaji Earthquake, the Act on Special Measures for Earthquake Disaster Countermeasures was enacted in July 1995 to protect citizens' lives, heath, and assets from earthquake-related damage. This law allows prefectural governors to create a Five-Year Plan for Emergency Earthquake Disaster Management Projects for communities where there are concerns about the occurrence of a severe earthquake disaster and a portion of the projects to be implemented based on this plan are eligible for an increased rate of financial support from the national government.
Thus far, these plans have been created by the prefectural governors over fifth terms, and earthquake disaster projects have begun to be implemented.
These plans are five-year plans created for 29 facilities that need to be urgently developed from the perspective of achieving earthquake disaster reduction. When a prefecture wants to create a plan, hearings are held to listen to the opinions of the municipalities

(All prefectures, As of the end of FY 2020. Unit: JPY 1,000,000)

Category	First Five-Year Plan (FY 1996-2000)			Second Five-Year Plan (FY 2001-2005)				Third Five-Year Plan (FY 2006-2010)				Fourth Five-Year Plan (FY 2011-2015)				Fifth Five-Year Plan (FY 2016-2020)			
	Planned Amt.	Actual Amt.	% Complete	Project Scope (Unit)	Planned Amt.	Actual Amt.	% Complete	Project Scope (Unit)	Planned Amt.	Actual Amt.	% Complete	Project Scope (Unit)	Planned Amt.	Actual Amt.	% Complete	Project Scope (Unit)	Planned Amt.	Actual Amt.	% Complete
	(a)	(b)	(b)/(a)	(c)	(d)	(e)	(e)/(d)	(f)	(g)	(h)	(h)/(g)	(i)	(j)	(k)	(k)/(j)				
1. Evacuation sites	1,462,542	959,276	65.6%	3,168 ha	931,413	543,233	58.3%	2,515 ha	488,257	400,283	82.0%	1,456 ha	305,490	257,218	84.2%	1,090 ha	286,744	222,144	77.5%
2. Evacuation routes	1,481,509	1,105,639	74.6%	2,601 km	1,188,051	900,446	75.8%	1,405 km	952,865	625,957	65.7%	897 km	1,336,465	781,628	58.5%	601 km	832,907	613,192	73.6%
3. Firefighting facilities	917,213	697,067	76.0%	28,153 sites	540,784	297,301	55.0%	21,039 sites	448,460	246,745	55.0%	20,052 sites	677,209	472,644	69.8%	18,421 locations	442,422	335,743	75.9%
4. Roads for firefighting activities	168,387	128,163	76.1%	161 km	119,329	92,958	77.9%	102 km	46,719	49,136	105.2%	56 km	23,506	19,998	85.1%	29 km	24,167	19,265	79.0%
5. Emergency transport roads, etc.	6,067,258	5,719,897	94.3%		5,267,908	4,242,139	80.5%		3,813,169	3,291,461	86.3%		2,773,563	2,443,339	88.1%		2,744,914	2,689,146	98.0%
5-1. Emergency transport roads	5,555,626	5,355,365	96.4%	3,920 km	4,998,577	4,067,023	81.4%	2,552 km	3,557,657	3,106,165	87.3%	2,191 km	2,584,039	2,279,595	88.2%	2,189 km	2,627,436	2,601,846	99.0%
5-2. Emergency transport/traffic control facilities	23,900	21,017	87.9%	3,448 facilities	16,855	8,473	50.3%	2,439 facilities	9,242	6,844	74.0%	4,837 sites	15,464	12,214	79.0%	6,458 locations	21,854	13,750	62.9%
5-3. Emergency transport heliports	6,327	2,094	33.1%	1 site	550	387	70.4%	0 sites	0	0		2 sites	117	78	66.7%	0 locations	0	0	—
5-4. Emergency transport port facilities	359,671	237,940	66.2%	113 sites	181,503	119,869	66.0%	100 sites	198,676	136,895	68.9%	77 sites	153,101	133,801	87.4%	46 locations	75,612	54,542	72.1%
5-5. Emergency transport fishing port facilities	121,734	103,481	85.0%	73 sites	70,423	46,387	65.9%	43 sites	47,594	41,558	87.3%	26 sites	20,843	17,652	84.7%	24 locations	20,012	19,008	95.0%
6. Multipurpose underground utility conduits	261,385	275,928	105.6%	844 km	394,948	257,890	65.3%	591 km	259,420	175,571	67.7%	471 km	255,017	208,175	81.6%	485 km	274,331	261,466	95.3%
7. Medical institutions	784,899	526,548	67.1%	115 facilities	391,016	277,721	71.0%	93 facilities	239,424	150,877	63.0%	219 facilities	689,917	506,681	73.4%	75 facilities	243,765	239,519	98.3%
8. Social welfare facilities	482,317	219,490	45.5%	857 facilities	280,028	176,408	63.0%	521 facilities	114,756	56,400	49.1%	681 facilities	126,275	98,772	78.2%	254 facilities	46,324	28,821	62.2%
8-2. Public kindergartens	-	-	-	-	-	-	-	995 schools	35,198	7,074	20.1%	1,159 schools	54,480	27,203	49.9%	266 schools	24,385	12,367	50.7%
9. Public elementary and jr. high schools	1,359,672	765,344	56.3%	5,840 schools	1,078,849	594,777	55.1%	16,256 schools	3,077,544	1,399,624	45.5%	13,612 schools	2,322,751	1,631,920	70.3%	1,233 schools	381,065	285,895	75.0%
10. Public special education schools	84,577	29,685	35.1%	114 schools	32,094	12,070	37.6%	264 schools	56,834	23,262	40.9%	199 schools	43,173	29,955	69.4%	5 schools	5,293	3,957	74.8%
11. Public buildings	24,169	5,267	21.8%	29 facilities	2,662	1,199	45.0%	670 facilities	62,975	24,429	38.8%	1,737 facilities	369,417	209,134	56.6%	743 facilities	272,033	194,526	71.5%
12. Coast and river facilities	235,686	187,310	79.5%	334 sites	272,744	225,598	82.7%	491 sites	237,787	182,911	76.9%	687 sites	345,184	302,195	87.5%	812 locations	652,554	584,092	89.5%
12-1. Coastal preservation facilities	140,865	109,501	77.7%	215 sites	196,496	146,699	74.7%	423 sites	187,407	146,044	77.9%	525 sites	229,583	184,601	80.4%	581 locations	359,579	325,025	90.4%
12-2. River management facilities	94,821	77,809	82.1%	119 sites	76,248	78,899	103.5%	68 sites	50,380	36,867	73.2%	162 sites	115,601	117,594	101.7%	231 locations	292,975	259,067	88.4%
13. Erosion control facilities, etc.	1,729,574	1,702,042	98.4%	14,332 sites	1,622,048	1,339,438	82.6%	10,504 sites	1,069,686	976,742	91.3%	9,327 sites	845,288	786,324	93.0%	9,130 locations	927,623	942,540	101.6%
13-1. Erosion control facilities	268,151	247,050	92.1%	2,278 sites	436,635	409,636	93.8%	2,033 sites	354,972	325,910	91.8%	2,063 sites	303,286	257,665	85.0%	1,854 locations	285,869	315,200	110.3%
13-2. Security facilities	409,216	469,126	114.6%	5,583 sites	330,719	263,907	79.8%	3,673 sites	210,861	202,299	95.9%	2,683 sites	146,012	173,261	118.7%	2,762 locations	173,877	178,676	102.8%
13-3. Landslide prevention facilities	359,433	356,531	99.2%	1,651 sites	275,558	219,200	79.5%	1,151 sites	158,479	160,883	101.5%	849 sites	119,025	109,130	91.7%	718 locations	94,636	92,178	97.4%
13-4. Steep slope failure prevention facilities	522,261	497,690	95.3%	3,568 sites	446,098	356,530	79.9%	2,500 sites	244,461	220,779	90.3%	2,629 sites	193,935	185,729	95.8%	1,917 locations	195,522	201,909	103.3%
13-5. Reservoirs	170,513	131,645	77.2%	1,252 sites	133,038	90,165	67.8%	1,147 sites	100,913	66,870	66.3%	1,103 sites	83,029	60,539	72.9%	1,879 locations	177,719	154,577	87.0%
14. Community DRR base facilities	162,319	102,857	63.4%	121 sites	81,642	40,342	49.4%	78 sites	60,905	34,277	56.3%	161 sites	90,683	68,591	75.6%	125 locations	106,287	82,116	77.3%
15. Disaster management radio communications system	224,276	126,236	56.3%	1,702 sites	126,944	38,693	30.5%	5,844 sites	239,525	78,112	32.6%	8,777 sites	190,612	105,334	55.3%	9,134 locations	173,526	118,549	68.3%
16. Potable water facilities/power generation systems	221,622	126,320	57.0%	444 sites	89,822	55,599	61.9%	405 sites	142,958	72,142	50.5%	517 sites	121,728	93,437	76.8%	455 locations	125,379	97,965	78.1%
17. Storage warehouses	17,763	8,028	45.2%	437 sites	10,338	5,292	51.2%	296 sites	4,081	838	20.5%	650 sites	7,053	3,968	56.3%	458 locations	10,822	7,177	66.3%
18. Response and relief systems	3,595	659	18.3%	610 groups	1,133	687	60.6%	515 groups	314	262	83.4%	304 groups	891	161	18.0%	29 sets	150	70	46.7%
19. Downtown areas with high density dilapidated housing	2,814,605	1,431,714	50.9%	6,960 ha	1,725,532	916,981	53.1%	7,839 ha	846,197	563,811	66.6%	12,156 ha	501,836	340,080	67.8%	12,685 ha	434,409	238,108	54.8%
	18,503,368	14,117,470	76.3%		14,157,285	10,018,773	70.8%		12,197,074	8,359,916	68.5%		11,080,537	8,386,758	75.7%		8,009,099	6,976,657	87.1%

Notes:

1. The content of the Fifth Five-Year Plan (FY2016-2020) is as of the end of FY 2020.
2. The expenses for each project are not limited to projects aimed at achieving earthquake DRR; they include expenses for projects that have other policy purposes, such as those related to urban infrastructure development, but that also are effective in termsof earthquake DRR.
3. Public special education schools include schools known as schools for the blind, schools for the deaf, and schools for the physically or mentally/physically handicapped prior to FY 2006.

Source: Cabinet Office materials.

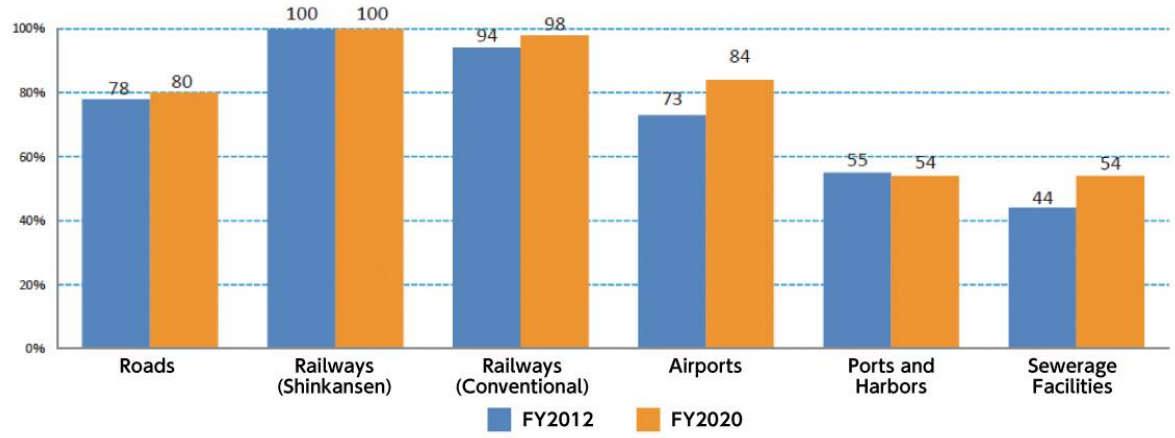
6. Disaster Management Facilities and Equipment

Fig. A-36 Number of Red Cross Hospitals, Emergency Medical Centers, and Disaster Base Hospitals

Prefectures	Red Cross Hospital	Emergency Medical Center	Disaster Base Hospital	Prefectures	Red Cross Hospital	Emergency Medical Center	Disaster Base Hospital
Hokkaido	10	12	34	Shiga	3	4	10
Aomori	1	3	10	Kyoto	3	6	13
Iwate	1	3	11	Osaka	2	16	20
Miyagi	2	6	16	Hyogo	3	10	18
Akita	2	2	13	Nara	0	3	7
Yamagata	0	3	7	Wakayama	1	3	10
Fukushima	1	4	8	Tottori	1	2	4
Ibaraki	2	6	18	Shimane	2	4	10
Tochigi	3	5	11	Okayama	2	5	11
Gunma	2	4	18	Hiroshima	3	7	19
Saitama	3	9	23	Yamaguchi	2	5	15
Chiba	1	14	26	Tokushima	1	3	11
Tokyo	4	26	86	Kagawa	1	3	10
Kanagawa	6	21	33	Ehime	1	3	8
Niigata	1	6	14	Kochi	1	3	12
Toyama	1	2	8	Fukuoka	3	10	31
Ishikawa	1	2	10	Saga	1	4	8
Fukui	1	2	9	Nagasaki	2	3	14
Yamanashi	1	1	9	Kumamoto	2	3	15
Nagano	6	7	13	Oita	1	4	14
Gifu	2	6	12	Miyazaki	0	3	12
Shizuoka	5	11	23	Kagoshima	1	3	14
Aichi	2	24	37	Okinawa	1	3	13
Mie	1	4	17	Total	96	293	765

Source: Red Cross Hospital information was formulated by the Cabinet Office based on the website of the Japanese Red Cross Society (as of March 2022).
Information on emergency medical centers and disaster base hospitals was formulated by the Cabinet Office based on materials from the Emergency Medical Information System (EMIS) (as of March 2022).

Fig. A-37 Seismic Reinforcement of Public Infrastructure



Notes

Roads: The rate of bridges not in danger of being damaged related to all bridges along emergency transport roads (important roads that have to be secured for evacuation and rescue as well as ensuring the passage of emergency vehicles immediately after the earthquake, including national expressways, national highways and the arterial roads that connect them.) (As of the end of FY2020)

Railway (Shinkansen): Elevated bridges. (Left: As of end of FY2013. Right: As of end of FY2020.)

Railway (Conventional): Elevated bridges of major railway lines in regions where a seismic intensity of 6 Upper or greater would be expected to occur in the case of a Tokyo Inland Earthquake or Nankai Trough Earthquake. (Left: As of end of FY2013. Right: As of end of FY2020.)

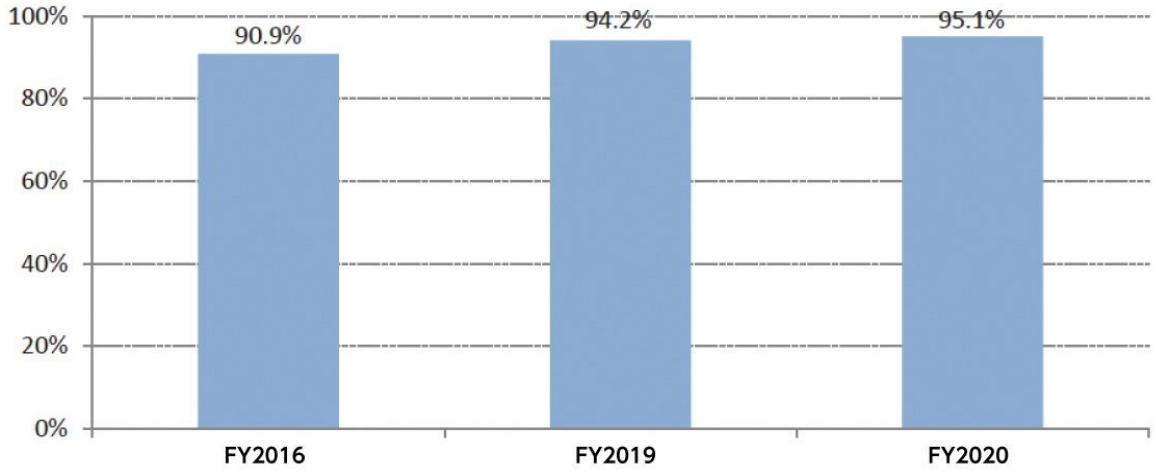
Airports: Percentage of population in a 100 km area around an airport that could be used for emergency transport.

Ports and Harbors: Seismically reinforced piers (number completed as a proportion of those detailed in plans for seismic retrofit of piers to facilitate the transportation of emergency supplies (those classed as major ports or higher)). (Left: As of end of FY2013. Right: As of end of FY2020.)

Sewerage Facilities: Important main lines (pipes that can accommodate drainage from river basin lines, DRR bases, and evacuation sites, main pipes connected to pump stations and disposal stations, pipes buried beneath emergency transport roads and railroad tracks. (Left: As of end of FY2013. Right: As of end of FY2020.)

Source: Formulated by the Cabinet Office using materials from the Ministry of Land, Infrastructure, Transport and Tourism (MLIT)

Fig. A-38 Trends in the Seismic Reinforcement Rate of Public Facilities That Serve as Disaster Management Bases

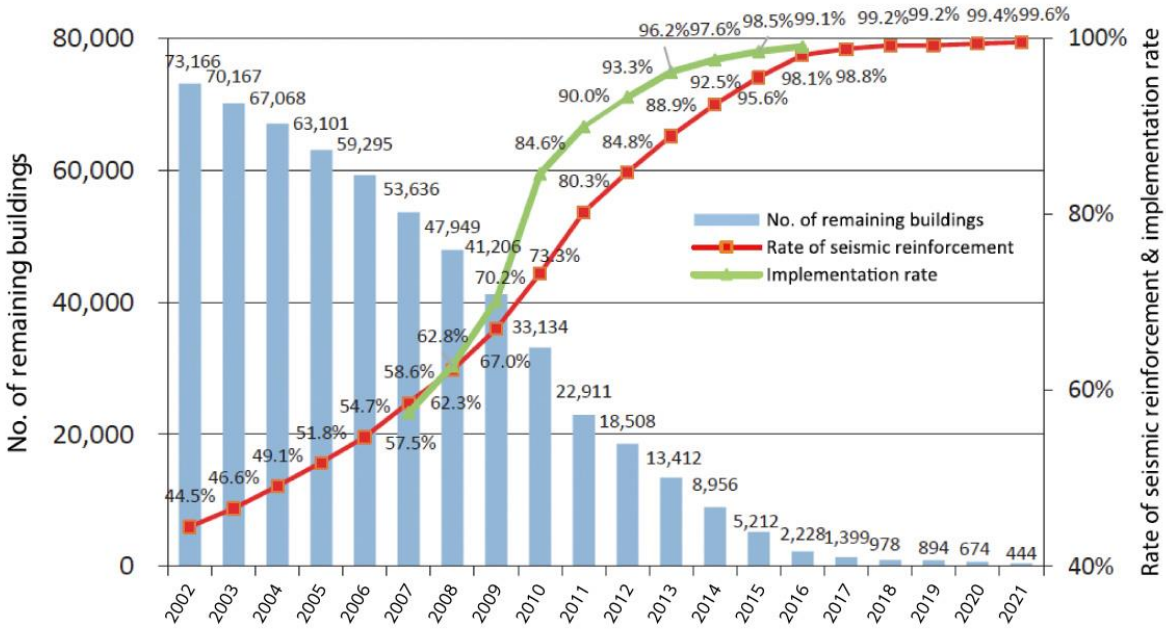


Note) Of all the public facilities owned or managed by local governments (buildings for public or public-private use: non-wooden structures built two stories or taller or buildings with a floor area of 200 m^2 or more), the facilities that could serve as disaster management bases for implementing disaster response measures are identified, consolidated and analyzed based on the criteria below.

<Classification criteria of public facilities that serve as disaster management bases>	
(1) Social welfare facilities	All facilities
(2) Education facilities (classrooms, gymnasiums)	Facilities designated as designated emergency evacuation site or designated shelter, etc.
(3) Government buildings	Facilities that will be used for the implementation of disaster response measures
(4) Prefectural civic halls, civic centers	Facilities designated as designated emergency evacuation site or designated shelter, etc.
(5) Gymnasiums	Facilities designated as designated emergency evacuation site or designated shelter, etc.
(6) Health care facilities	Facilities positioned in local plans for disaster risk reduction as medical care facilities
(7) Police headquarters and police stations	All facilities

Source: "Results of the Survey on the Seismic Reinforcement Rate of Public Facilities That Serve as Disaster Management Bases," Ministry of Internal Affairs and Communications (October 2021)

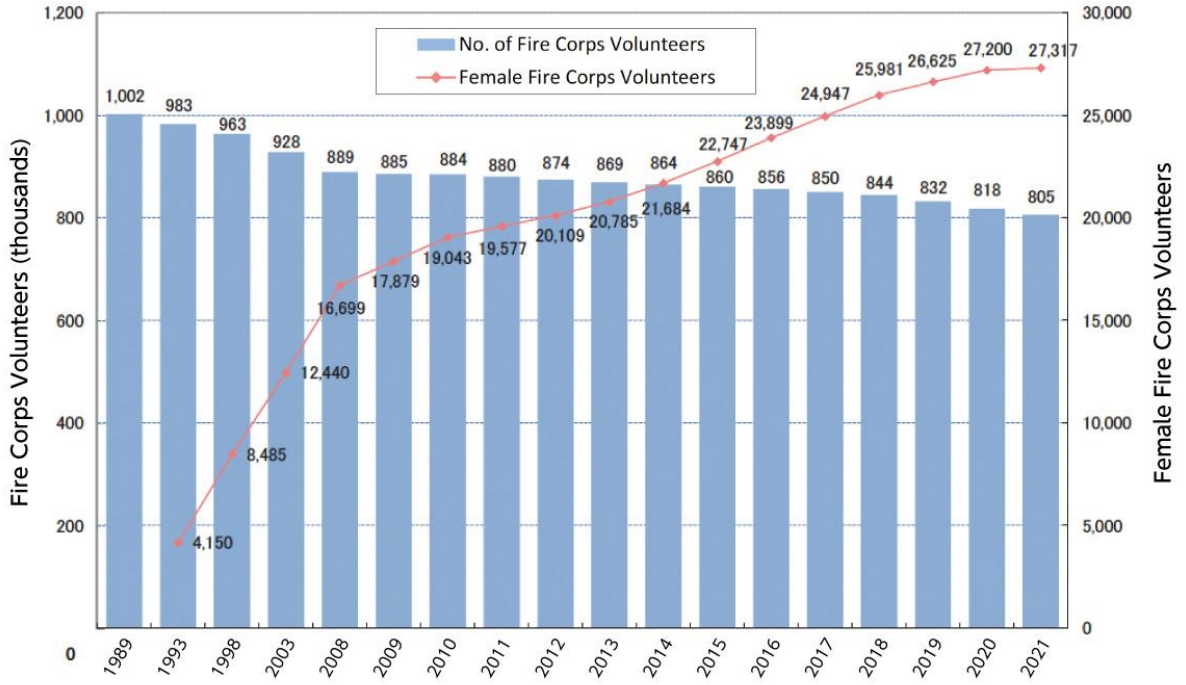
Fig. A-39 Seismic Reinforcement of Public Elementary and Junior High Schools



Source: "Results of a Follow-up Investigation on the Progress of the Seismic Retrofitting of Public School Facilities," Ministry of Education, Culture, Sports, Science and Technology (MEXT) (August 2021)

7. Trends in Numbers of Workers in Disaster Management

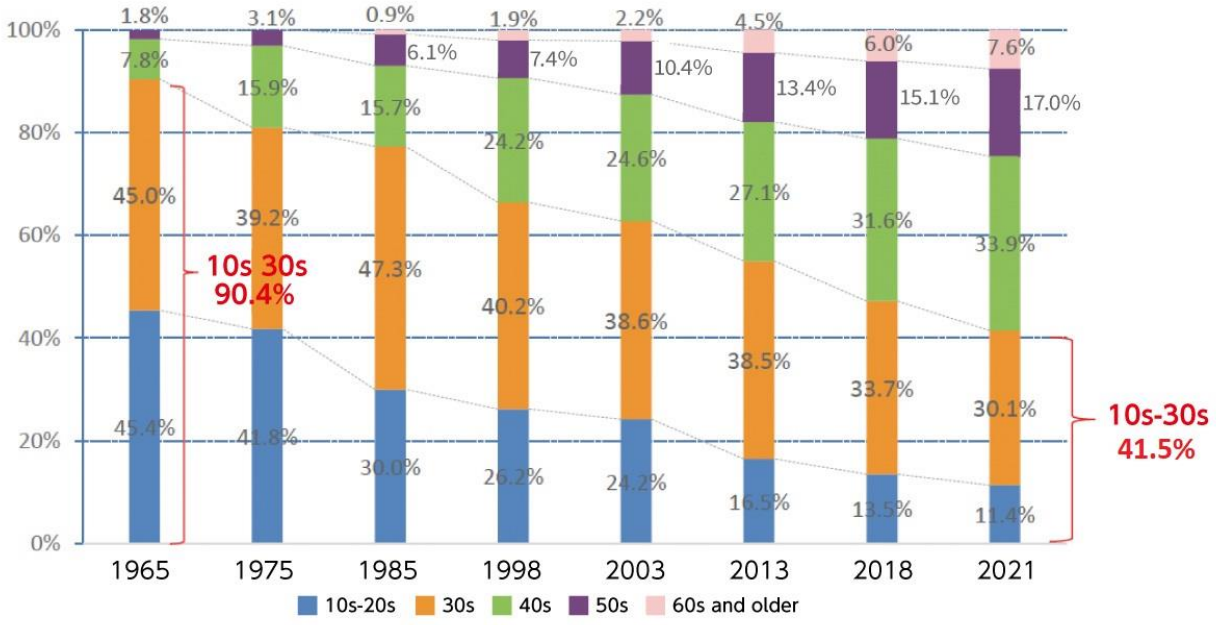
Fig. A-40 Numbers of Fire Corps Volunteers



Note: As a result of the Great East Japan Earthquake, the figure for 2012 for Onagawa Town, Meshika Country, Miyagi prefecture is the figure from 2010 (as of April 1, 2010)

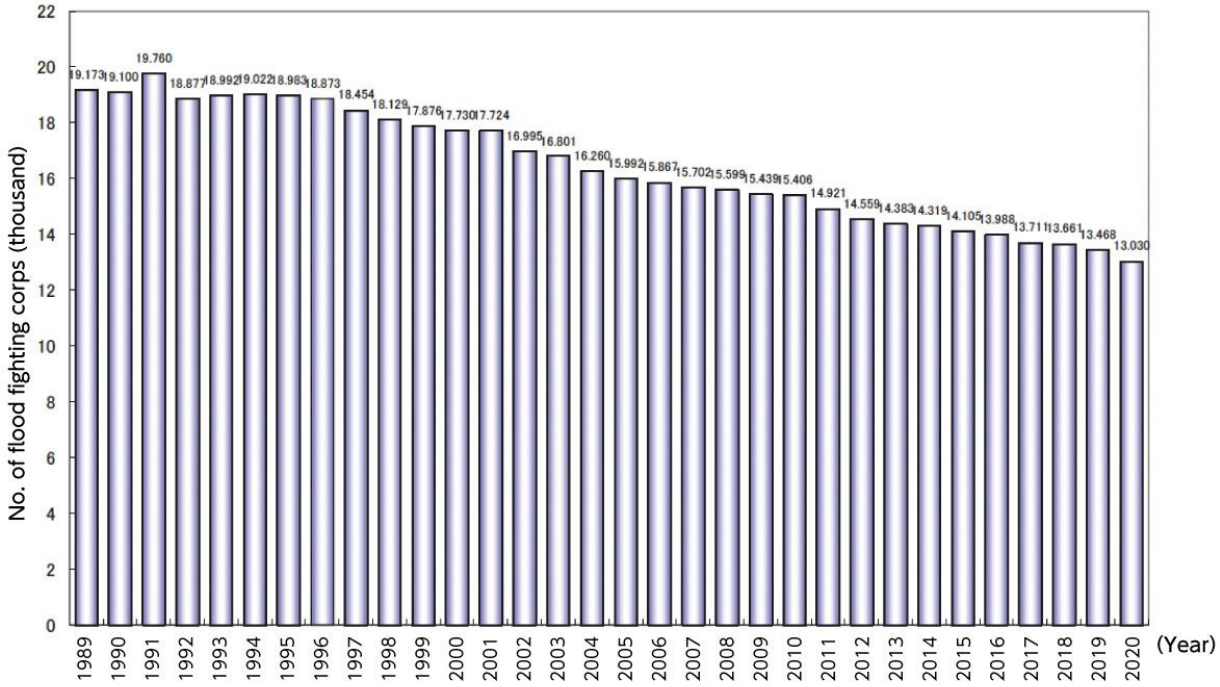
Source: Formulated by the Cabinet Office based on the Survey on the Current Status of Fire and Earthquake Disaster Management Measures of Fire and Disaster Management Agency

Fig. A-41 Age Composition Ratios among Fire Corps Volunteers



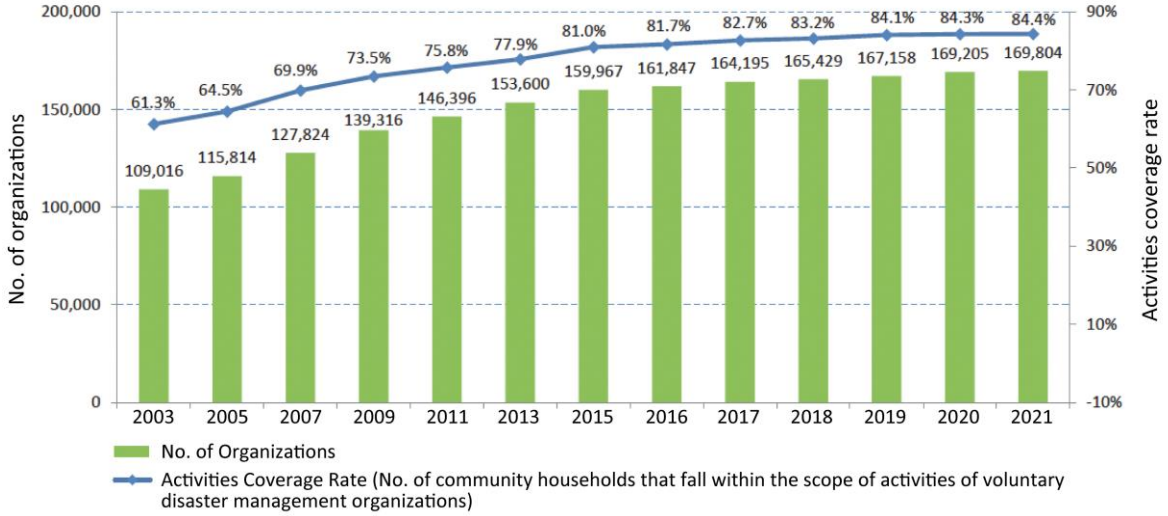
Source: Formulated by the Cabinet Office based on the Survey on the Current Status of Fire and Earthquake Disaster Management Measures of Fire and Disaster Management Agency

Fig. A-42 Numbers of Flood Fighting Corps Personnel



Note) Number of full-time flood fighting corps personnel
Source: Ministry of Land, Infrastructure, Transport and Tourism (MLIT)

Fig. A-43 Numbers of Voluntary Disaster Management Organizations



Source: Formulated by the Cabinet Office based on the Survey on the Current Status of Fire and Earthquake Disaster Management Measures of Fire and Disaster Management Agency. Figures as of April 1 each year.

Fig. A-44 Female Representation in Local Disaster Management Councils (by Prefecture, 2021)

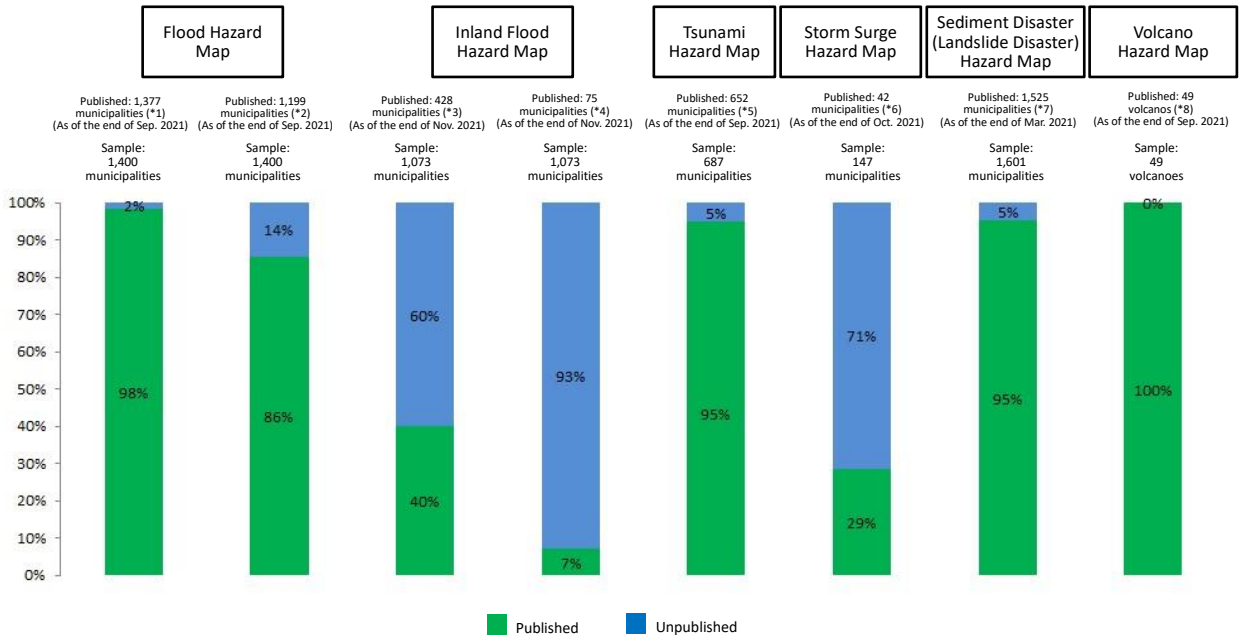
	Prefectural Disaster Management Council			Municipal Disaster Management Council		
	Total Members	Of which, Female Members	Proportion of Women (%)	Total Members	Of which, Female Members	Proportion of Women (%)
Hokkaido	68	4	5.9	3,901	145	3.7
Aomori	60	11	18.3	753	42	5.6
Iwate	77	13	16.9	1,159	123	10.6
Miyagi	59	7	11.9	832	68	8.2
Akita	61	4	6.6	723	75	10.4
Yamagata	60	6	10.0	1,003	74	7.4
Fukushima	54	10	18.5	1,186	63	5.3
Ibaraki	52	14	26.9	1,291	127	9.8
Tochigi	56	10	17.9	745	68	9.1
Gunma	48	7	14.6	1,010	100	9.9
Saitama	73	11	15.1	2,016	246	12.2
Chiba	52	10	19.2	1,493	186	12.5
Tokyo	74	8	10.8	2,229	296	13.3
Kanagawa	57	7	12.3	955	107	11.2
Niigata	77	14	18.2	874	58	6.6
Toyama	67	12	17.9	530	36	6.8
Ishikawa	70	5	7.1	452	34	7.5
Fukui	56	7	12.5	429	40	9.3
Yamanashi	64	3	4.7	569	55	9.7
Nagano	80	15	18.8	1,896	147	7.8
Gifu	61	12	19.7	955	80	8.4
Shizuoka	60	4	6.7	1,052	90	8.6
Aichi	69	4	5.8	1,518	153	10.1
Mie	64	8	12.5	863	87	10.1
Shiga	62	16	25.8	494	48	9.7
Kyoto	66	14	21.2	747	84	11.2
Osaka	61	7	11.5	1,418	164	11.6
Hyogo	56	7	12.5	1,297	137	10.6
Nara	60	6	10.0	842	68	8.1
Wakayama	55	7	12.7	564	38	6.7
Tottori	67	27	40.3	368	51	13.9
Shimane	72	29	40.3	570	54	9.5
Okayama	59	8	13.6	514	85	16.5
Hiroshima	59	3	5.1	827	65	7.9
Yamaguchi	60	7	11.7	624	77	12.3
Tokushima	81	39	48.1	585	51	8.7
Kagawa	60	9	15.0	425	52	12.2
Ehime	60	7	11.7	508	37	7.3
Kochi	59	6	10.2	781	85	10.9
Fukuoka	61	6	9.8	1,293	220	17.0
Saga	70	19	27.1	356	66	18.5
Nagasaki	68	11	16.2	689	53	7.7
Kumamoto	57	8	14.0	1,663	121	7.3
Oita	59	5	8.5	518	42	8.1
Miyazaki	55	7	12.7	757	60	7.9
Kagoshima	63	10	15.9	1,129	59	5.2
Okinawa	55	10	18.2	463	38	8.2
Total	2,944	474	16.1	45,866	4,255	9.3

Notes)

1. Formulated by the Cabinet Office from its material titled the “Implementation Status of Measures for Promoting the Formation of a Gender-equal Society or Policy Considerations for Gender in Local Government” (FY2021)
2. Figures for April 1, in principle.

8. Various Policies and Measures

Fig. A-45 Hazard Map Development



Source: Formulated by the Cabinet Office based on materials of the Ministry of Land, Infrastructure, Transport and Tourism (volcano hazard maps are materials owned by the Cabinet Office)

*1 Municipalities (including special wards) with designated flood and inundation hazard areas based on Article 14 of the Flood Control Act, which have published a hazard map pursuant to Article 15, paragraph (3) of the Flood Control Act

*2 Municipalities (including special wards) that have published a hazard map covering the estimated maximum precipitation

*3 Municipalities with sewerage systems that have implemented flood prevention measures and have published internal water hazards maps corresponding to the maximum rainfall on record.

*4 Municipalities with sewerage systems that have implemented flood prevention measures and have published internal water hazards maps corresponding to the maximum rainfall on assumption.

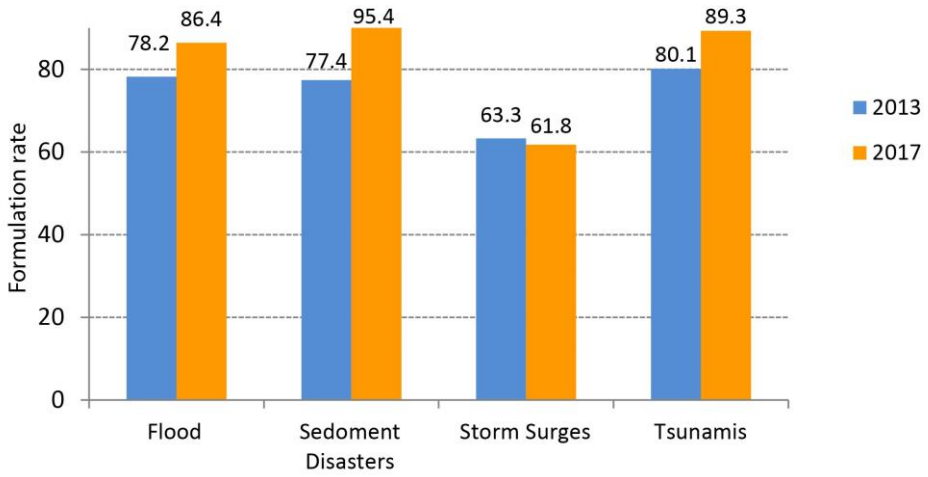
*5 Municipalities located in coastal areas or the tsunami hazard areas under Article 8 of the Act on Regional Development for Tsunami Disaster Prevention, which have already published a tsunami hazard map.

*6 Municipalities which were designated as storm surge and inundation hazard areas under Article 14-3 of the Flood Control Act and have already published a hazard map pursuant to Article 15, paragraph (3) of the Flood Control Act are tallied.

*7 Municipalities (including special wards) designated as sediment disaster hazard areas that have already published a hazard map pursuant to Article 8, paragraph (3) of the Act on Sediment Disaster Countermeasures for Sediment Disaster Prone Areas.

*8 Volcanoes for which Volcanic Disaster Management Councils were established in accordance with Article 4 of the Act on Special Measures for Active Volcanoes, and of which a volcano hazard map has already been published (one of the tasks of a Volcanic Disaster Management Council).

Fig. A-46 Formulation of Official Announcement Criteria for Evacuation Recommendations in Municipalities



Note) The disasters anticipated vary from one municipality to another, so the formulation rate is calculated using different denominators, according to the type of disaster.

Source: Formulated by the Cabinet Office based on the "Results of a Survey into the Formulation Status of Specific Official Announcement Criteria for Evacuation Recommendations" from Fire and Disaster Management Agency

Fig. A-47 Communication Method of Evacuation Instructions in Municipalities

Year	Disaster management radio communications system		Communication facilities of agricultural/ fishery cooperatives (including wired systems)	Patrols by loudspeaker vans	Siren	Bell ringing	News media	Through voluntary disaster management organizations	email	Other
	Individual Home Receivers System	Simultaneous Broadcasting System								
2003	1,748 54%	2,126 66%	591 18%	2,942 92%	2,537 79%	698 22%	675 21%	1,065 33%	- -	1,106 34%
2004	1,731 55%	2,095 67%	559 18%	2,864 92%	2,463 79%	659 21%	663 21%	1,064 34%	- -	1,106 35%
2005	1,365 56%	1,670 69%	449 19%	2,254 93%	1,927 80%	525 22%	642 27%	942 39%	- -	925 38%
2006	1,118 61%	1,349 73%	362 20%	1,739 94%	1,487 81%	414 22%	666 36%	887 48%	- -	781 42%
2007	1,125 62%	1,350 74%	343 19%	1,722 94%	1,462 80%	383 21%	718 39%	939 51%	- -	800 44%
2008	1,117 62%	1,348 74%	323 18%	1,713 95%	1,455 80%	358 20%	750 41%	987 55%	- -	829 46%
2009	1,118 62%	1,361 76%	311 17%	1,702 95%	1,440 80%	345 19%	782 43%	1,015 56%	- -	830 46%
2010	1,096 63%	1,333 76%	289 17%	1,647 94%	1,383 79%	324 19%	811 46%	1,033 59%	- -	830 47%
2011	1,006 62%	1,240 77%	248 15%	1,530 95%	1,271 79%	270 17%	787 49%	1,002 62%	- -	806 50%
2012	1,086 62%	1,340 77%	245 14%	1,644 94%	1,357 78%	285 16%	848 49%	1,129 65%	- -	955 55%
2013	1,097 63%	1,377 79%	219 13%	1,648 95%	1,347 77%	276 16%	878 50%	1,154 66%	- -	998 57%
2014	1,112 64%	1,398 80%	206 12%	1,651 95%	1,334 77%	256 15%	925 50%	1,169 67%	- -	1,049 60%
2015	1,128 65%	1,412 81%	192 11%	1,659 95%	1,317 76%	238 14%	975 56%	1,193 69%	- -	1,093 63%
2016	1,145 66%	1,426 82%	178 10%	1,654 95%	1,282 74%	219 13%	993 57%	1,204 69%	- -	1,078 62%
2017	1,157 66%	1,443 83%	169 10%	1,651 95%	1,277 73%	208 12%	1,028 59%	1,212 70%	- -	1,081 62%
2018	1,170 67%	1,450 83%	155 9%	1,651 95%	1,256 72%	195 11%	1,046 60%	1,203 69%	883 51%	972 56%
2019	1,181 68%	1,466 84%	149 9%	1,658 95%	1,255 72%	182 10%	1,070 61%	1,211 70%	1,070 61%	990 57%
2020	1,192 68%	1,469 84%	141 8%	1,653 95%	1,250 72%	170 10%	1,098 63%	1,233 71%	1,207 69%	1,036 60%
2021	1,229 71%	1,483 85%	129 7%	1,647 95%	1,247 72%	166 10%	1,119 64%	1,240 71%	1,284 74%	1,089 63%

Source: Formulated by the Cabinet Office based on Fire and Disaster Management Agency report “Status of Regional Disaster Management Administration”

Fig. A-48 Performance of Assistance based on Mutual Support Agreements between Prefectures andContract Status of Support Agreements with Private-Sector Institutions

Year	Support Based on Mutual Support Agreements Between Prefectures		Support Agreements with Private-Sector Institutions													
			Broadcasting Agreements (agmts.)		Reporting Agreements		Emergency Relief Agreements		Transportation Agreements		Disaster Recovery Agreements		Resources Agreements		Other	
	Total no.	No. of orgs.	Total no. of concluded agmts.	No. of orgs.	Total no. of concluded agmts.	No. of orgs.	Total no. of concluded agmts.	No. of orgs.	Total no. of concluded agmts.	No. of orgs.	Total no. of concluded agmts.	No. of orgs.	Total no. of concluded agmts.	No. of orgs.	Total no. of concluded agmts.	No. of orgs.
2003	23	6	288	47	347	31	191	37	148	39	400	37	711	34	124	19
2004	4	2	288	47	359	33	218	39	165	41	474	39	828	36	134	23
2005	13	8	304	47	362	32	221	43	178	42	504	40	873	40	182	31
2006	5	2	301	46	370	33	241	44	201	40	587	43	992	42	212	37
2007	0	0	304	46	337	34	272	43	211	41	778	43	1,196	44	317	36
2008	12	1	306	46	400	36	316	45	239	43	818	45	1,294	46	461	39
2009	5	1	314	46	399	36	339	44	247	43	857	45	1,364	46	546	41
2010	24	5	329	47	393	36	420	45	254	43	1,590	46	1,431	45	676	42
2011	18	4	318	44	373	33	472	43	235	41	1,568	43	1,357	44	676	39
2012	25	6	334	47	395	36	495	46	291	44	1,825	46	1,461	47	931	46
2013	29	8	360	47	419	38	575	47	317	46	1,913	47	1,558	47	1,178	46
2014	28	6	351	47	445	40	703	47	374	46	2,360	47	1,672	47	1,299	46
2015	24	6	343	47	454	39	893	47	382	46	2,397	47	1,694	47	1,515	46
2016	19	5	352	47	461	40	970	47	438	46	2,626	47	1,795	47	1,751	47
2017	16	5	351	47	438	40	1,065	47	477	47	2,648	47	1,754	47	1,898	47
2018	10	5	349	47	457	41	1,272	47	514	47	3,392	47	1,850	47	2,384	47
2019	14	5	364	47	467	41	1,415	47	561	47	3,461	47	1,998	47	2,893	47
2020	24	7	383	47	476	41	1,576	47	627	47	3,531	47	2,028	47	3,147	47
2021	91	7	393	46	476	42	1,971	47	660	47	3,756	47	2,099	47	3,384	47

Source: Formulated by Cabinet Office based on Fire and Disaster Management Agency report “Status of Regional Disaster Management Administration”

Fig. A-49 Contract Status of Mutual Support Agreements in Municipalities

Year	No. of Municipalities	No. of mutual support agreements concluded between municipalities in the same prefecture	No. of municipalities that have concluded mutual support agreements with other municipalities
2003	3,213	1,459	2,363 74%
2004	3,123	1,527	2,306 74%
2005	2,418	1,502	1,771 73%
2006	1,843	1,408	1,457 79%
2007	1,827	1,512	1,471 81%
2008	1,811	1,625	1,656 91%
2009	1,800	1,725	1,646 91%
2010	1,750	1,778	1,571 90%
2011	1,619	1,738	1,476 91%
2012	1,742	2,254	1,645 94%
2013	1,742	2,920	1,650 95%
2014	1,742	3,419	1,697 97%
2015	1,741	3,642	1,705 98%
2016	1,741	4,013	1,699 98%
2017	1,741	4,280	1,698 98%
2018	1,741	—	1,701 98%
2019	1,741	—	1,708 98%
2020	1,741	—	1,708 98%
2021	1,741	—	1,704 98%

Source: Formulated by Cabinet Office based on Fire and Disaster Management Agency report “Status of Regional Disaster Management Administration”

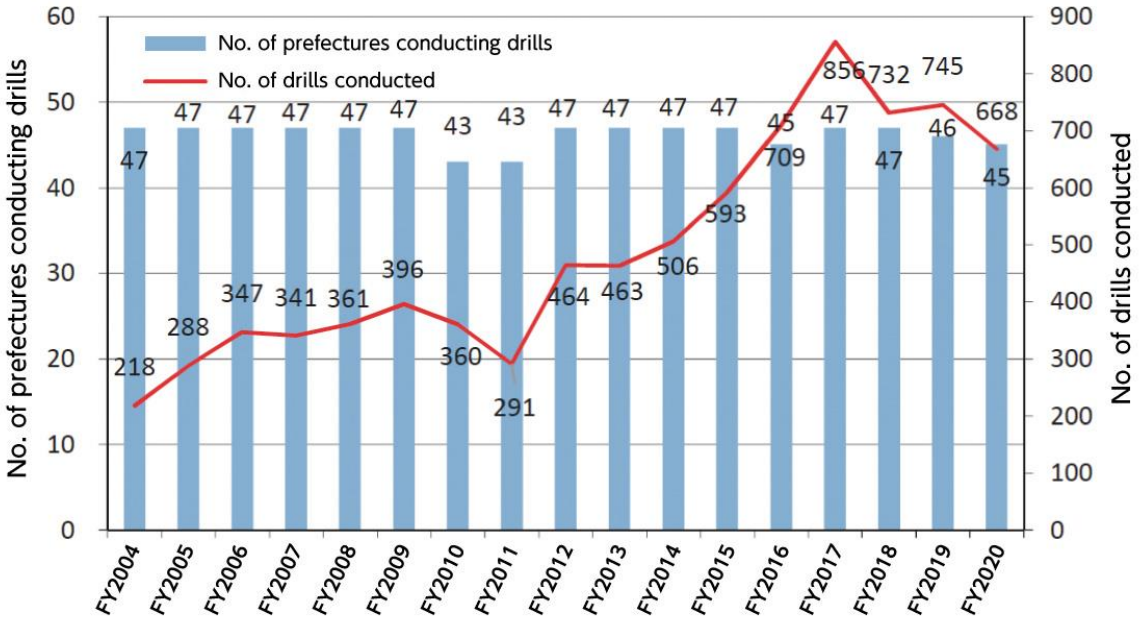
Fig. A-50 Municipalities' Support Agreements with Private-Sector Institutions

Year	Broadcast Agreements		Reporting Agreements		Emergency Relief Agreements		Transportation Agreement		Disaster Recovery Agreements		Resources Agreements		Other	
	No. of orgs.	No. of support instances	No. of orgs.	No. of support instances	No. of orgs.	No. of support instances	No. of orgs.	No. of support instances	No. of orgs.	No. of support instances	No. of orgs.	No. of support instances	No. of orgs.	No. of support instances
2003	150	10	22	2	726	4	253	2	392	21	562	7	334	6
2004	171	20	20	2	713	4	260	2	445	18	589	5	361	5
2005	191	50	27	2	647	6	271	15	445	39	583	17	376	9
2006	225	38	18	2	574	10	267	3	451	24	619	8	401	2
2007	275	35	24		596	7	292	2	662	23	794	6	484	9
2008	315	62	33		619	2	319	5	813	35	936	17	510	5
2009	362	48	33		658	3	355	2	979	35	1,060	33	559	11
2010	378	35	35		683	6	376	3	1,052	42	1,125	22	580	8
2011	376	107	36	2	645	17	386	109	1,066	548	1,118	226	579	57
2012	437	59	41	3	719	19	462	48	1,242	167	1,309	123	684	54
2013	495	81	58		778	3	519	9	1,318	42	1,412	20	743	6
2014	554	59	66		827	2	602	3	1,360	131	1,466	40	800	17
2015	609	50	83	1	869	34	719	3	1,408	62	1,500	31	809	15
2016	636	48	101	1	921	43	811	6	1,451	41	1,526	44	810	25
2017	676	108	116	1	948	2	870	14	1,454	49	1,543	40	821	11
2018	708	140	117		981	31	925	10	1,478	213	1,561	56	826	276
2019	731	100	135	1	1,007	54	958	20	1,492	1,020	1,577	107	837	37
2020	783	114	173	2	1,039	72	1,009	30	1,520	598	1,586	99	863	52
2021	829	132	197		1,057	156	1045	11	1,531	185	1,601	53	889	12

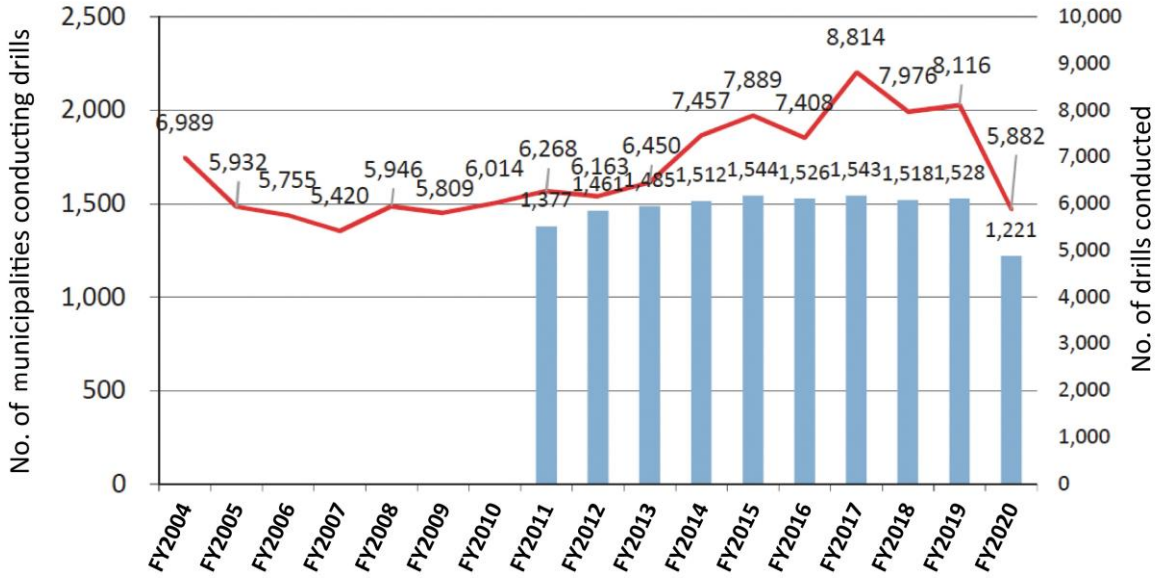
Source: Formulated by Cabinet Office based on Fire and Disaster Management Agency report "Status of Regional Disaster Management Administration"

Fig. A-51 Disaster Management Drill Implementation

Number of Prefectures Conducting Disaster Management Drills and the Number of Drills Conducted



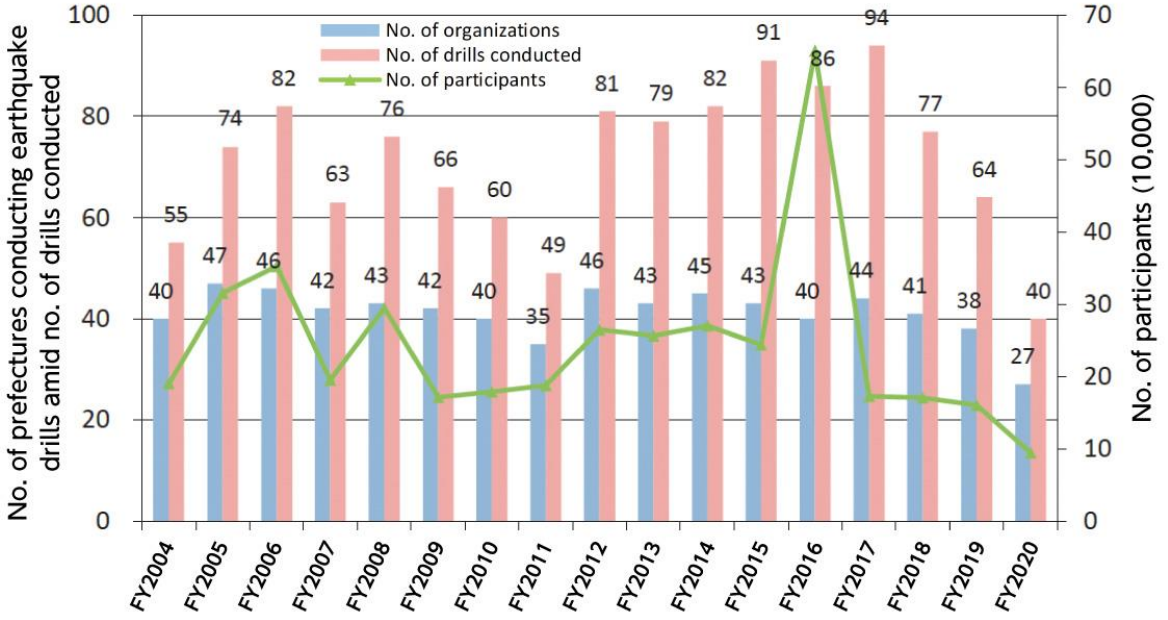
Number of Municipalities Conducting Disaster Management Drills and the Number of Drills Conducted



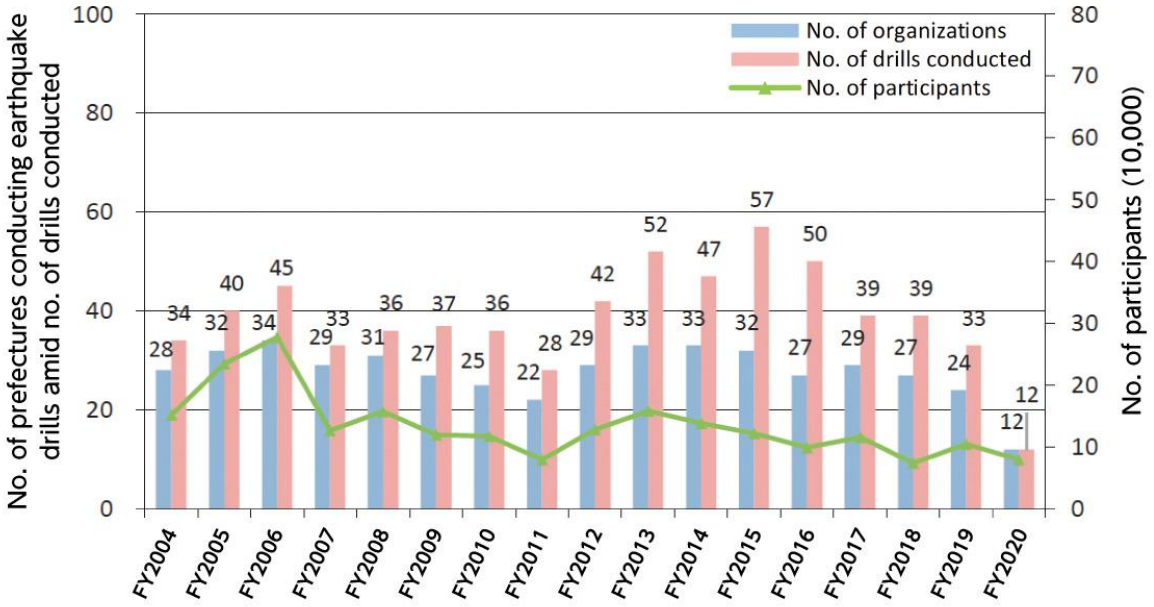
Source: Formulated by Cabinet Office based on Fire and Disaster Management Agency report “Status of Regional Disaster Management Administration”

Fig. A-52 Earthquake Disaster Management Drill Implementation

Number of Prefectures Conducting Earthquake Disaster Management Drills, Number of Drills Conducted, and the Number of Participants (Comprehensive Drills)



Number of Prefectures Conducting Earthquake Disaster Management Drills, Number of Drills Conducted, and the Number of Participants (Including Wide-area Drills)



Source: Formulated by Cabinet Office based on Fire and Disaster Management Agency report “Status of Regional Disaster Management Administration”

Fig. A-53 Implementation of Tsunami Countermeasures

(Unit: Extended Distance = km)

Year	No. of govts.	Coastlines		Designated as hazardous tsunami inundation areas	Measures incorporated into local disaster risk reduction plan	Evacuation Routes		Evacuation Sites		Tsunami Breakwaters	
		Present	Absent			No. of routes	No. of govts.	No. of facilities	No. of govts.	Extended distance (km)	No. of govts.
2003	3,213	1,014	2,199	401	812	1,700	108	5,355	311	1,631	204
2004	3,123	984	2,139	420	799	1,817	104	5,609	306	1,535	204
2005	2,418	806	1,612	374	465	2,099	111	6,442	316	1,472	180
2006	1,843	666	1,177	367	299	3,066	107	6,830	286	1,233	149
2007	1,827	667	1,160	374	384	2,297	108	7,307	292	1,231	143
2008	1,811	659	1,152	417	393	2,593	118	7,647	297	1,105	133
2009	1,800	655	1,145	424	353	2,674	118	7,919	307	1,042	125
2010	1,750	648	1,102	439	385	2,757	118	8,396	304	1,025	123
2011	1,619	609	1,010	425	357	2,448	106	7,448	276	787	93
2012	1,742	646	1,096	492	379	4,058	130	12,110	323	886	107
2013	1,742	646	1,096	539	383	5,054	139	16,238	361	905	104
2014	1,742	646	1,096	576	403	5,591	155	19,405	380	848	96
2015	1,741	646	1,095	603	431	6,176	166	22,589	410	841	97
2016	1,741	646	1,095	612	444	6,086	174	23,263	418	913	93
2017	1,741	645	1,096	623	483	9,414	179	23,481	425	959	98
2018	1,741	645	1,096	626	500	10,058	184	23,285	414	967	101
2019	1,741	645	1,096	628	525	10,279	187	24,331	432	1,023	101
2020	1,741	645	1,096	630	538	10,683	187	26,040	432	1,004	101

Source: Formulated by Cabinet Office based on Fire and Disaster Management Agency report “Status of Regional Disaster Management Administration”

9. Japan's International Cooperation

Fig. A-54 List of Cooperation Projects Conducted by Ministries and Agencies

Ministry/ Agency	Project	Partner/ Target Country (Target Institution)	Description	Budget for FY2021 (in JPY million; if applicable)	Department Responsible
Cabinet Office (CAO)	Partnership between the Cabinet Office and FEMA	US	Based on the Memorandum of Cooperation between the Cabinet Office and FEMA signed in December 2014 and revised in December 2019, Japan-U.S. Video Conference on Cooperation in Disaster Risk Reduction was held in December 2020.	—	Disaster Preparedness, Public Relations and International Cooperation Division, Disaster Management Bureau, CAO
	Cooperation for Disaster Management with ASEAN	Member states and the Secretariat of ASEAN	On October 14, 2021, the first ASEAN-Japan Ministerial Meeting on Disaster Management was held via videoconference by Japan and 10 ASEAN member states. Minister of State for Disaster Management, Ninoyu acted as a co-chairperson. After they discussed how Japan and ASEAN could cooperate in the disaster management field, they agreed on a policy for the future and adopted a joint statement.	—	International Cooperation Division, Disaster Management Bureau, the Cabinet Office
	International Cooperation through Asian Disaster Reduction Center (ADRC)	ADRC member countries, etc.	ADRC coporates mainly with its member countries to share disaster information, develop human resources, and improve the community's disaster management abilities. Also, they have held the "Asian Conference on Disaster Reduction" annually since 2003 to improve disaster management abilities in Asian countries as well as improve and strengthen the disaster management network in Asia.	102	International Cooperation Division, Disaster Management Bureau, the Cabinet Office
	Japan International Public-Private Association for Disaster Risk Reduction (JIPAD) for Global Expansion of the Disaster Management Technologies	Related countries	In August 2019, JIPAD was established to encourage the global expansion of Japanese technologies for disaster management with collaboration between public and private sectors and take the lead in improving disaster management abilities all over the world. As of January 15, 2022, the number of participating companies and organizations hit 205. They introduce Japanese policies, and the Japanese private sector's technologies and knowledge on disaster management integrally through the "Public-Private Sectors Disaster Management Seminar."	30	International Cooperation Division, Disaster Management Bureau, the Cabinet Office
Ministry of Internal Affairs and Communications (MIC)	Technical Survey on the Introduction and Dissemination of Digital Terrestrial Television Broadcasting Systems in Latin America	Peru, Nicaragua, Costa Rica, El Salvador, etc.	Japan conducted research, demonstrate, and cooperate in introducing and operating the disaster management system (Emergency Warning Broadcast System, EWBS), which is one of the charasteristics of the Integrated Services Digital Broadcasting - Terrestrial (ISDB-T) in countries that adopted ISDB-T.	38	International Economic Affairs Division, Global Strategy Bureau
Fire and Disaster Management Agency (FDMA)	Cooperation between the Fire and Disaster Management Agency and the Ministry of Public Safety of Vietnam in the field of fire and disaster management	Vietnam	Based on the memorandum of cooperation in the fire service field signed in October 2018, exchange of views is conducted with relevant agencies of Vietnam. We cooperate with them to improve fire safety in the country, including the establishment of a standard and verification system for fire safety equipments, etc.	—	Fire and Disaster Management Agency Prevention Division
	International Forum on Fire and Disaster Management	Mainly Asian countries	The International Forum on Fire and Disaster Management has been held since 2007 to enhance their firefighting and disaster management capacity in Asian countries through sharing Japan's firefighting technologies and systems with them.	3	(Counselor of) Civil Protection and Disaster Management Department, FDMA
	Japan-Republic of Korea Firefighting Administration Seminar	Republic of Korea	During the Year of Japan-Republic of Korea National Exchange, which was held to coincide with the joint hosting of the 2002 FIFA World Cup by Japan and the Republic of Korea, a Japan-Republic of Korea Firefighting Administration Seminar was held in both countries to promote Japanese-Republic of Korean exchange, partnership, and cooperation, through the sharing of information and the exchange of ideas regarding firefighting and disaster management in both countries.	1	(Counselor of) Civil Protection and Disaster Management Department, FDMA

Ministry/ Agency	Project	Partner/ Target Country (Target Institution)	Description	Budget for FY2021 (in JPY million; if applicable)	Department Responsible
Ministry of Foreign Affairs (MOFA)	Japan-Turkey Disaster Management Cooperation	Turkey	Based on the Japan-Turkey Summit Meeting in 2017 and 2018, a Memorandum of Understanding (MOU) on Disaster Prevention and Cooperation was signed in December 2018. Various trainings and sharing of know-how in the field of disaster prevention were held. In addition, the two countries have been exchanging opinions and confirming the progress in the annual consultation.	—	First Middle East Division, Middle Eastern and African Affairs Bureau, MOFA
	Science and Technology Research Partnership for Sustainable Development (SATREPS)	128 countries among the objects of ODA (Public offering in 2021)	This program is jointly implemented by MOFA, the Japan International Cooperation Agency (JICA), MEXT, the Japan Science and Technology Agency (JST), and the Japan Agency for Medical Research and Development (AMED). Research institutions in Japan and developing countries cooperate with one another to conduct joint international research on solutions to global issues, tapping into the power of Japanese leading science and technology and the Official Development Assistance (ODA). Disaster prevention is one of the research fields under this program; by FY2021, 30 projects have been implemented in 21 countries.	(MOFA) Included in JICA Management Expenses Grant (MEXT) Included in JST Management Expenses Grant	Development Administration Division, International Cooperation Bureau, MOFA International Science and Technology Affairs Division, Science and Technology Policy Bureau, MEXT
	Cooperation in Disaster Prevention and Support for Disaster Recovery through Collaboration with Japanese International Cooperation NGOs	Countries affected by natural disasters	(1) Cooperation for disaster prevention in developing countries through the Grant Aid for Japanese NGO's Projects (N-NGO), and emergency humanitarian aid and disaster recovery support through the Japan Platform (JPF) (Note 1), (2) Establishment of an international disaster prevention network and emergency humanitarian assistance in the Asia-Pacific region through Asia Pacific Alliance (A-PAD) (Note 2). (Note 1) A framework in which Japanese NGOs, the business community, and the government work together to provide emergency humanitarian assistance in the event of a large-scale natural disaster or conflict in Japan or abroad. (Note 2) A framework that aims to build an international disaster prevention network for the purpose to promote collaboration among NGOs, the business community, and governments of A-PAD member countries in the region, in response to large-scale natural disasters and disaster prevention measures in the Asia Pacific region, under the leadership of Japanese NGOs.	(1) The number of grant aid (2) Voluntary contributions to A-PAD 95, 38	Non-Governmental Organizations Cooperation Division, International Cooperation Bureau, MOFA
	Provision of Emergency Relief Goods	Countries affected by natural disasters	In the event of a large-scale disaster overseas, MOFA decides providing emergency relief goods to support the immediate needs of affected people, upon request of the government of the affected country through Japan International Cooperation Agency (JICA). In FY2021, we provided assistance to 12 countries (total of 13 proejcts) such as provision of oxygen concentrators for the rapid spread of the novel coronavirus infection in India. *As of March 31, 2022	Included in JICA Management Expenses Grant	Humanitarian Assistance and Emergency Relief Division International Cooperation Bureau, MOFA
	Deployment of Japan Disaster Relief (JDR) teams	Countries affected by natural disasters	In the event of a large-scale disaster overseas, MOFA dispatches Japan Disaster Relif (JDR) teams, upon request of the government of the affected country. In FY2021, the Japan Disaster Relief team and the Self Defense Force Units were dispatched to the Kingdom of Tonga to assist with response to volcanic eruptions and tsunami damage. We transported emergency relief supplise to Tonga via the Self Defense Force aircrafts and transport ships. Additionally, we supplied water (seawater desalination). *As of the end of February 2021	Included in JICA Management Expenses Grant	Humanitarian Assistance and Emergency Relief Division International Cooperation Bureau, MOFA
Ministry of Education, Culture, Sports, Science and Technology (MEXT)	Science and Technology Research Partnership for Sustainable Development (SATREPS)	128 countries among the objects of ODA (Public offering in FY2022)	This program is jointly implemented by MOFA, the Japan International Cooperation Agency (JICA), MEXT, the Japan Science and Technology Agency (JST), and the Japan Agency for Medical Research and Development (AMED). Research institutions in Japan and developing countries cooperate with one another to conduct joint international research on solutions to global issues, tapping into the power of Japanese leading science and technology and the Official Development Assistance (ODA). Disaster prevention is one of the research fields under this program; by FY2021, 30 projects have been implemented in 21 countries.	(MOFA) Included in JICA Management Expenses Grant (MEXT) Included in JST Management Expenses Grant	Development Administration Division, International Cooperation Bureau, MOFA International Science and Technology Affairs Division, Science and Technology Policy Bureau, MEXT
	Promotion of "Sentinel Asia" Project to Share Information on Natural Disasters Between Asia - Pacific Countries	28 countries and regions of the Asia Pacific Region/ 17 international organizations	This project is led and implemented by Japan to contribute to disaster management efforts in the Asia-Pacific Region. It uses satellites to share information relating to natural disasters. Participants consist of 28 countries and regions, 95 institutions, and 17 international organizations (As of February 2022).	Included in JAXA Management Expenses Grant	Office for Space Utilization Promotion, Space Development and Utilization Division, Research and Development Bureau, MEXT
Ministry of Agriculture, Forestry and Fisheries (MAFF)	Enhancing community resilience to climate change in mountain watersheds	Philippines and Peru (The Food and Agriculture Organization of the United Nations)	To strengthen community resilience in mountain watersheds by forest management and conservation, the project supports research and analysis of disaster risk assessment and issues, capacity building through development of educational materials and training, collection of good practices such as demonstration of risk mitigation measures and holding of workshops.	86	International Forestry Cooperation Office, Forestry Agency

Ministry/ Agency	Project	Partner/ Target Country (Target Institution)	Description	Budget for FY2021 (in JPY million; if applicable)	Department Responsible
Ministry of Agriculture, Forestry and Fisheries (MAFF)	Development of technologies to enhance the functions of forests for disaster prevention and mitigation in developing countries	Vietnam, Thailand, Philippines and India	Promoting the global expansion of Japanese private companies for contributing to disaster prevention and mitigation in developing countries through providing information on disaster occurrence and current measures of forest-based disaster prevention and mitigation in developing countries, and development of methods to enhance functions of forests in disaster risk reductions by using remote sensing technologies.	53	International Forestry Cooperation Office, Forestry Agency
Ministry of Land, Infrastructure Transport and Tourism (MLIT)	Disaster Management Collaboration Dialogues	Vietnam, Myanmar, Indonesia, Turkey,	Since 2013, workshops have been held to match Japanese technologies for DRR/DRM with disaster management issues of other countries.	40	River Planning Division, Water and Disaster Management Bureau, MLIT /Overseas Projects Division, Policy Bureau, MLIT
	Discussion on Disaster Management Technologies through a Bilateral Conference with India	The Indian Ministry of Road Transport and Highways	The seventh Japan-India Joint Working Group on Roads and Road Transport was held online. Japan introduced cases of slope protection in Japan and discussed them with India.	—	International Affairs Office, Planning Division, Road Bureau, Ministry of Land, Infrastructure, Transport and Tourism
	International Cooperation through United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM)	All relevant countries	Promoting the use of technologies in the field of geospatial information to share disaster and disaster risk information as Co-Chair of Working Group on Geospatial Information and Services for Disasters (WG-Disasters) at the United Nations Committee of Experts on Global Geospatial Information Management (UN-GGIM).	—	International Affairs Division, Planning Department, Geospatial Information Authority of Japan, MLIT
	The United States-Japan Cooperative Program in Natural Resources (UJNR) / Panel on Earthquake Research	US	With a view to contributing to the establishment of earthquake disaster reduction technologies, researchers from public seismic research institutions in Japan and the U.S. met to present the latest resear Townutcomes and exchange opinions. The event was held in U.S. in 2022 (the event will be held every two years in Japan and the U.S. alternately).	—	Research Planning Division, Geography and Crustal Dynamics Research Center, Geospatial Information Authority of Japan, MLIT
	Raising Awareness of World Tsunami Awareness Day (Hamaguchi Award)	All relevant countries	Taking advantage of the opportunity presented by the establishment of World Tsunami Awareness Day, Japan founded the Hamaguchi Award (presented by the Minister of Land, Infrastructure and Transport and Tourism) in FY2016 for individuals and/or organizations within Japan or overseas that have made significant contributions in the field of technologies for coastal disaster risk reduction, especially tsunami preparedness. At the award ceremony held on November 29, 2021, the award was presented to 2 people and 1 organization: Hideo Matsutomi, Professor Emeritus of Akita University and Visiting Professor of Research and Development Initiative, Chuo University, Dr. Gerassimos A. Papadopoulos, President of the International Society for the Prevention and Mitigation of Natural Hazards (Greece), and the Pacific Tsunami Museum (US).	—	Port and Airport Research Institute, National Institute of Maritime, Port and Aviation Technology
Japan Coast Guard (JCG)	Participation in the projects of the Northwest Pacific Action Plan (NOWPAP) Marine Environmental Emergency Preparedness and Response Regional Activity Centre (MERRAC)	Republic of Korea, China, Russia	The JCG participates in the projects of the NOWPAP MERRAC, which is a center responsible for preparing for and responding to marine environmental emergencies. As well as undertaking a marine environmental conservation initiative focused on the Sea of Japan and the Yellow Sea, etc. in partnership with neighboring countries, the JCG takes part in joint oil spill cleanup drills organized by relevant organizations and attends meetings held each year. Through these activities, it promotes international cooperation by striving to build systems that will enable relevant countries to work together in the event of an accident.	0.4	Protection of Marine Environment Division, Guard & Rescue Department, JCG
Japan Metrological Agency (JMA)	International Cooperation through World Meteorological Organization (WMO)	WMO member countries	The Japan Meteorological Agency (JMA) plays a central role in a number of international center operations as the keystone of WMO's weather information service in Asia. Also, many staff members of the Japan Meteorological Agency contribute to the activities of the WMO as experts.	—	Office of Disaster Mitigation, Planning Division, Administration Department, JMA
	International Cooperation through United Nations Educational, Scientific and Cultural Organization (UNESCO)	UNESCO member countries, etc.	Under the framework of the UNESCO Intergovernmental Oceanographic Commission (IOC), the JMA collects, analyzes, and provides data on oceans and maritime meteorology for the northeast Asian region. It also provides information on tsunamis caused by earthquakes that occur in the northwest Pacific region.	—	Office of Disaster Mitigation, Planning Division, Administration Department, JMA
	International Cooperation through International Civil Aviation Organization (ICAO)	ICAO member countries	The JMA participates in meetings organized by the ICAO, as well as investigations into adopting and improving standard international criteria for aviation weather services. It has also been appointed by the ICAO to operate international centers, thus contributing to the safe operation of global aircraft.	—	Office of Disaster Mitigation, Planning Division, Administration Department, JMA

Ministry/ Agency	Project	Partner/ Target Country (Target Institution)	Description	Budget for FY2021 (in JPY million; if applicable)	Department Responsible
Japan Metrological Agency (JMA)	Collaboration on International Research Plans	All relevant countries	The JMA promotes various international research projects in cooperation with other countries. On climate change, it has been involved in writing evaluation reports on the activities of the Intergovernmental Panel on Climate Change (IPCC) since the panel was established in 1988.	—	Office of Disaster Mitigation, Planning Division, Administration Department, JMA
	Human Resource Development Aid and Technological Cooperation to Developing Countries	All relevant countries	Together with the Japan International Cooperation Agency (JICA), the JMA conducts training for developing countries to improve their meteorological services. Also, in response to requests from developing countries, the JMA dispatches expert staff and accepts trainees from national meteorological institutions.	—	Office of Disaster Mitigation, Planning Division, Administration Department, JMA
Ministry of Environment (MOE)	Promotion of Assessment of Climate Change Impact and Plan Formulation with International Cooperation	Mainly the Asia Pacific region	Promote international cooperation in climate change adaptation by offering information on climate change risks through developing coastal inundation hazard predictions, providing its information and operating the Asia-Pacific Climate Change Adaptation Information Platform (AP-Plat).	288	Climate Change Adaptation Office, Policy and Coordination Division Global Environment Bureau
Ministry of Defense (MOD)	Japan-Philippines Bilateral Training on Humanitarian Assistance and Disaster Relief	Philippines	Japan and the Philippines conducted a bilateral training on humanitarian assistance and disaster relief activities.		Training Division, Defense Policy Bureau, Ministry of Defense
	Multinational Training Exercise Cobra Gold 2021	Thailand, the United States, Indonesia, Malaysia, Singapore, South Korea, China, India and Australia	The United States and Thailand sponsored the multinational training exercise. Japan participated in tabletop exercises assuming humanitarian assistance and disaster relief with the referenced countries.		Training Division, Defense Policy Bureau, Ministry of Defense
	U.S.-Philippines Sponsored Multinational Training Exercise (Exercise SAMA SAMA 2021)	The United States and Philippines	The United States and Philippines sponsored the multinational training exercise, which is a video teleconference for a discussion on humanitarian assistance and disaster relief among experts.		Training Division, of Defense Policy Bureau, Ministry of Defense
	Participation in U.S.-Philippines Multinational Training Exercise (Kamandag 2021)	Philippines	The United States and Philippines sponsored the multinational training exercise, including a training exercise on humanitarian assistance and disaster relief activities. (The United States was absent from it this year.)		Training Division, Defense Policy Bureau, Ministry of Defense
	Multinational Training Exercise on Humanitarian Assistance and Disaster Relief in the Federated States of Micronesia and Other Pacific Islands (Operation Christmas Drop)	The United States, etc.	The United States and other participating countries conducted a multinational training exercise on humanitarian assistance and disaster relief activities.		Training Division, Bureau, Ministry of Defense
	Multinational Training Exercise Cobra Gold 2022	Thailand, the United States, Indonesia, Malaysia, Singapore, South Korea, China, India and Australia	The United States and Thailand sponsored the multinational training exercise. Japan participated in tabletop exercises assuming humanitarian assistance and disaster relief with the referenced countries.		Training Division, Defense Policy Bureau, Ministry of Defense
	Joint Training for Humanitarian Assistance and Disaster Relief at Cope North 2022	The United States, Australia, India, France and Singapore	It is a joint training conudcted by Japan, the U.S., Australia, India, France and Singapore, for humanitarian assistance and disaster relief activites.		Training Division, Defense Policy Bureau, Ministry of Defense

Source: Formulated by the Cabinet Office based on materials from various ministries and agencies.

Fig. A-55 Technical Cooperation Projects in Disaster Risk Reduction (FY2021)

Country	Cooperation Period	Project Name	Description
Indonesia	2022-2026	Project for Flood Control Master Plan toward Disaster Risk Reduction Investment	This project will develop a master plan and implementation system through the establishment of Flood Control Master Plan in pilot watersheds. Through this effort, we aim to strengthen the institutional capacity of the Ministry of Public Works and Housing (PUPR) in developing and implementing the Flood Control Master Plan. Further, this effort will contribute to the pre-investment in disaster risk reduction of the flood control sector.
Indonesia	2022-2027	New Sustainability System for Building a Coastal Resilient Society (Science and Technology Cooperation)	This project aims to realize the costal areas where disaster prevention, environment and economy will be in harmony in the next 5 to 10 years by means of (1) improving costal defense functions based on the latest scientific evidence from monitoring, modeling and green infrastructure and establishing social implementation methods, and (2) organizing monitoring networks using the latest technologies and transferring analytic technologies.
Indonesia	2021-2024	Earthquake and Tsunami Observation and Communication Capacity Improvement Project	This project aims to establish a system for BMKG (Meteorological, Climatological, and Geophysical Agency, Indonesia) to communicate earthquake information and tsunami warnings more accurately and appropriately with disaster risk reduction agencies and residents, and thereby, contributes to the promotion of their disaster prevention activities, which will be brought by strengthening BMKG's capability of observing earthquakes and tsunamis, and disseminating information.
Philippines	2017-2022	Development of an Extreme Weather Observation and Information Sharing System (SATREPS)	This includes establishing a lightning, weather and 3D cloud structure monitoring system, developing technologies for short-term weather forecasts of extreme weather and the intensity of cyclones in Metropolitan Manila using an extrapolation method and developing software to distribute information to disaster management organizations.
Philippines	2018-2022	Project for Developing a Flood Control Master Plan for Davao	This project aims to support the preparation of a comprehensive flood control master plan for three river basins (Davao river, Matina river, Talomo river) in Davao city and carry out feasibility studies on priority plans.
Philippines	2020-2023	Project for Strengthening Capacity on High-quality Weather Observation, Forecasting and Warning	Strengthening the ability to provide high quality observations, forecasts, warnings and information by improving maintenance and management capabilities of ground-based weather observation systems and development of quantitative precipitation estimation and precipitation guidance for the purpose of contributing to the widespread use of this information at the national and local levels to mitigate weather-related disasters.
Philippines	2019-2024	Disaster Risk Reduction and Management Capacity Enhancement Project Phase 2	This project will support local jurisdictions (regions) and municipalities (provinces, cities and towns) to develop, implement and monitor disaster risk reduction measures to reduce human and economic losses from natural disasters. This will be done based on technical support from the national emergency preparedness system.
Thailand	2018-2022	The project on regional resilience enhancement through establishment of Area-BCM at industry complexes in Thailand	This project aims to establish a method to introduce and use Area-BCM in clusters in Thailand through the development of a method to analyze and assess flood risks, development of a method for business impact analysis concerning natural disasters, establishment of systems to manage Area-BCM in specific clusters, and development of training programs for the domestic and international introduction of Area-BCM.
Vietnam	2018-2023	The project for strengthening capacity in weather forecasting and flood early warning system	This project aims to provide disaster management institutions and residents with more accurate meteorological information in a prompt manner by improving maintenance, inspection, and calibration skills for meteorological observation equipment, improving abilities to analyze data obtained from two weather radars introduced under the Grand Aid program and quality control skills, improving monitoring and forecasting skills concerning heavy rains and typhoons, and improving communication skills.
Vietnam	2021-2024	Project of Strengthening the capacity to cope with and minimize damages caused by flash floods and landslides for the northern mountainous regions	This project intends to strengthen the organizational structure and the capacity to advance sediment disaster (landslide disaster) countermeasures through the demonstration of the effectiveness of measures proposed in the sediment disaster (landslide disaster) risk reduction plan, and thereby, contributes to sediment disaster (landslide disaster) risk reduction in 14 northern mountainous provinces. This will be established by the development of methodology for sediment disaster (landslide disaster) hazard and risk assessment, using scientific data in target provinces in the northern mountainous regions of Vietnam, by the arrangement of prioritized countermeasure works in pilot watersheds, and by the pilot operations for structural and non-structural countermeasures.
Myanmar	2019-2022	Project for Enhancing Capacity of Weather Observation and Forecasting in Myanmar	This program aims to improve the Myanmar Department of Meteorology and Hydrology's capacity for the maintenance of meteorological observation equipment and weather data analysis and processing skills. By ensuring more effective forecasting, Myanmar aims to reduce damage from disasters. This program is intended to create a synergy effect with support related to meteorological observation equipment, such as the introduction of three weather radars under the Grand Aid program.
Bangladesh	2015-2021	Building Safety Promotion Project for Disaster Risk Reduction (BSPP)	Primarily targeting staff at the Public Works Department under the Ministry of Housing and Public Works, this project seeks to increase the safety of buildings in Bangladesh and reduce the risk of disaster in urban areas by supporting efforts to strengthen human resource development systems aimed at increasing building safety and making use of manuals to enhance the capability of the staff for evaluating seismic capacity, undertaking seismic design and supervising construction at the end of the project.
Bangladesh	2016-2022	Technical Development to Upgrade Structural Integrity of Buildings in Densely Populated Urban Areas and its Strategic Implementation towards Resilient Cities (SATREPS)	Focusing on buildings in Dhaka that are primarily built from reinforced concrete, this project involves research into diagnostic techniques and reinforcement methods suitable to local components and structural styles, and the presentation of recommendations for strategies for applying them. Through this, it aims to increase the structural resilience of buildings, and encourage technology development and its effective implementation, thereby contributing to reducing the structural vulnerability of buildings in Bangladesh, and increasing safety against urban earthquakes.
Bangladesh	2020-2024	Project for Planning Capacity Enhancement and Establishment of a Technology Adaptation Cycle on Comprehensive Nodi (River) Management	In the target rivers (large rivers such as the Jamuna River and small and medium rivers including the Matamuhuri River), a knowledge tool is being developed for the installation and maintenance of structures according to characteristics each river in Bangladesh. In addition, by acquiring knowledge and know-how through the knowledge tool, and by introducing methods for formulating comprehensive river development and management plans, systematic control and planning management methods for diverse rivers are to be established.

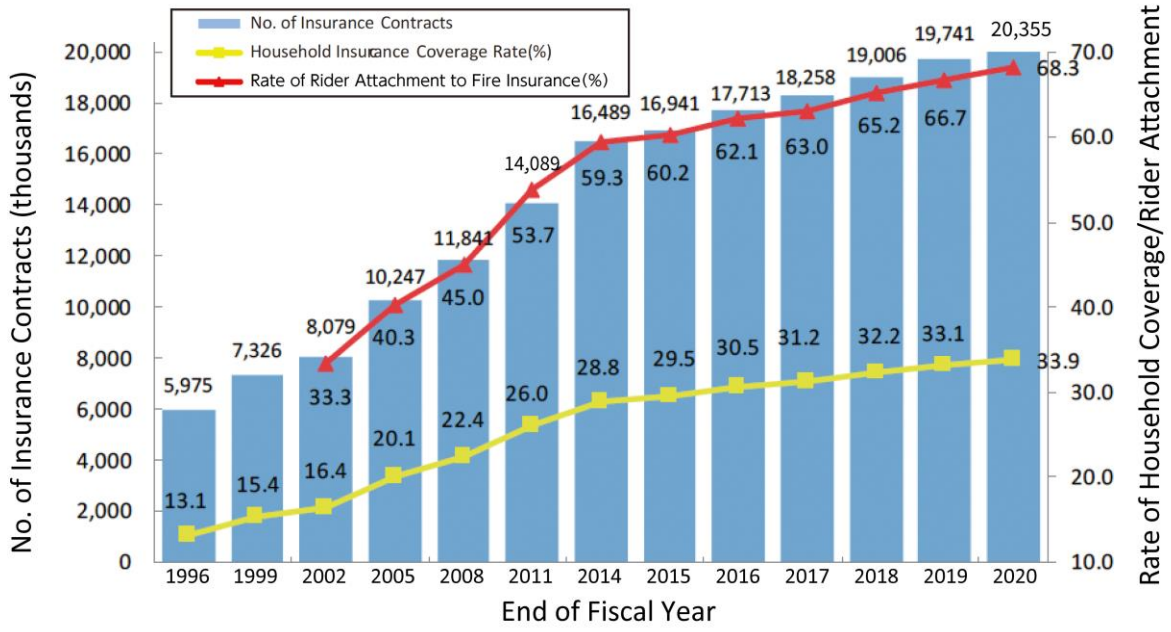
Country	Cooperation Period	Project Name	Description
Bangladesh	2020-2024	Project for Strengthening Abilities to Formulate and Conduct Local Disaster Plans	The project provides support to formulate local disaster management plans for weather-related disasters in two Upazilas of Cox's Bazar, Shunamganj and Kurigram Districts as pilot activity sites and obtains budget for the implementation of the planned projects, and develops local management plans throughout the country to strengthen the implemented system.
Bhutan	2019-2022 (plans)	Project on Strengthening Weather Observation, Forecasting and Flood Warning Capacities for Disaster Preparedness and Responses in the Thimphu and Paro River Basins	This project will enhance the capacities of the National Centre for Hydrology and Meteorology (NCHM) for weather observation and forecasting, and flood risk assessment, forecasting and warning in the Thimphu and the Paro River basins as well as strengthen the capacities of the Department of Disaster Management (DDM) and the provinces and cities in the basins for preparedness of and respond to flood disasters.
Nepal	2016-2021	The project for Integrated Resear Townn Great Earthquakes and Disaster Mitigation in Nepal Himalaya (SATREPS)	The goal of this project is to strengthen remote monitoring systems and develop human resources in the earthquake field by estimating future earthquakes that could occur in the Himalayan seismic gap, thoroughly examining the ground properties of the Kathmandu basin, and enhancing the seismographic network.
Nepal	2020-2024	Project for Planning Capacity Enhancement to make the Kathmandu Valley resiliente	This project contributes to strengthening the maximum resilience of the Kathmandu Valley and promote pre-investment in disaster management, focusing on strengthening the administrative capacity of the National Disaster Reduction and Mitigation Agency (NDRRMA), which is Nepal's central disaster management agency, for disaster risk reduction (DRR), development of a mechanism for implementing DRR projects in the Kathmandu Basin, and supporting local governments in mainstreaming disaster reduction.
India	2022-2024	Chennai Urban River Basin Comprehensive Flood Control Master Plan Development Project	This project aims to contribute to reducing flood risk by creating a comprehensive flood control master plan which optimally and systematically combines flood control measures based on the findings of the complex factors and mechanisms of diverse and complex types of floods.
Pakistan	2016-2022	Project for Capacity Development of Disaster Management	Via the National Institute of Disaster Management (NIDM), an NDMA training institution established in 2007 to develop capacity at the National Disaster Management Authority (NDMA), this project will support efforts to strengthen human resource development implementation systems in the field of disaster management and contribute to increasing the knowledge concerning disaster management held by personnel belonging to the country's disaster management administration bodies.
Pakistan	2022-2025	Technical Assistance Project for Updating the National Disaster Management Plan	This project will contribute to the promotion of pre-investment in disaster risk reduction by reinforcing the disaster management planning process in Pakinstan. Further, this will be made possible by conducting disaster risk analysis, preparing technical review documents for updating the National Disaster Management Plan, reviewing drafts of pre-investment plan related to disaster management in the flood sector and coordinating with relevant agencies.
Sri Lanka	2018-2022	Project for capacity strengthening regarding non-structural measures for landslide risk reduction	This program aims to improve Sri Lanka's capabilities concerning intangible measures by establishing an early sediment disaster alert system using risk assessment, and introducing the concept of land use planning.
Sri Lanka	2021-2024	The Project for early warning technology of rain induced rapid and long traveling landslide	This project aims to contribute to improving the capacity of the early warning system of RRLL in Sri Lanka by utilizing its technology. This will be done by developing evaluation methods of the RRLL occurrence and flow process on the Sri Lankan pilot sites, and strengthening risk communication methods and procedures. And these technologies combine to form the technology of the early warning system of RRLL.
Sri Lanka	2020-2024	Project to Promote the Mainstreaming Disaster Risk Reduction through the Development of Local Disaster Management Plans Based on Watershed Strategies	The project will support the development of a system to promote the mainstreaming of disaster risk management (DRM) in Sri Lanka through the development of local disaster management plans and improvement of items on the introduction of a disaster risk management perspective in the applications for the projects of the central government agencies in the Kelani River Basin, including Colombo City, a major city in Sri Lanka, as a pilot area.
Sri Lanka	2018-2022	Project for Storm Water Drainage Plan in selected areas in Colombo Metropolitan Region	This project aims to plan urban drainage and inland flood control measures in Colombo and its surrounding areas, while also selecting priority programs and conducting investigations.
Maldives	2021-2025	Development of Climate Resilient and Safe Island Project	This project aims to improve the resilience and safety of the nation against climate change by establishing a system to promote coastal protection and conservation measures that take into account the effects of climate change. Also it is known as a Component (JICA's Co-finance project) of "Building Climate Resilient Safer Islands in the Maldives" which is contracted business of Green Climate Fund (hereinafter called "GCF").
Turkmenistan	2017-2022	The Project for Improvement of the Earthquake Monitoring System in and around Ashgabat City	This project will contribute to the implementation of earthquake risk assessment through the application of the resulting data from observation of earthquakes and earthquake hazard assessment along with the formulation of the Earthquake Disaster Management Plan. For these purposes, the improvement of the ability to observe earthquakes and assess earthquake hazards will be conducted in and around Ashgabat City by the development of seismic and strong-motion observation systems, the rapid determination of seismic intensity, epicenter and magnitude of the earthquake, and the establishment of a system to estimate the seismic intensity in the pilot areas.
Armenia	2019-2022	The Project for the Improvement of Crisis Communication and Public Awareness for Disaster Risk Reduction	This project will reinforce crisis communication in the Ministry of Emergency Situations of Armenia and the national media so that they are able to ensure timely and accurate delivery of emergency information. This will be conducted through the organization of standard operating procedures, the implementation of training based on these procedures, and the development of training materials and plans for crisis communication.
Fiji	2020-2024	Project to Promote Mainstreaming of Disaster Risk Reduction	The project aims to strengthen the capacities of the National Disaster Management. Office (NDMO) to implement and facilitate disaster risk management activities through the improvement of hazard evaluation abilities, the formulation and dissemination of the local disaster management, and the development of a system to implement and facilitate disaster management projects of the central government in Fiji, which is highly susceptible to natural disasters.
Vanuatu	2018-2023	Project for Enhancing the Capacity of Issuing Earthquake, Tsunami and Storm Surge Information	This project aims to develop a system for the timely and accurate communication of earthquake, tsunami, and storm surge information from the Vanuatu Meteorology and Geohazards Department and the National Disaster Management Office (NDMO) to relevant institutions and residents, by strengthening earthquake and tide monitoring networks (including the observation networks developed under the Grand Aid program), improving data analysis capabilities, and enhancing disaster information communication and alert issuing capabilities.

Country	Cooperation Period	Project Name	Description
Mexico	2016-2022	Hazard Assessment of Large Earthquakes and Tsunamis in the Mexican Pacific Coast for Disaster Mitigation (SATREPS)	In collaboration with a Mexican research institute, this project involves installing measuring instruments on the earth's surface and sea floor in the coastal region of Guerrero state in southern Mexico, and gathering and analyzing earthquake data. This will be used to develop scenarios for major earthquake and tsunami disasters that could occur in future and to prepare a hazard map and evacuation signs. In addition, the project will develop and disseminate a disaster mitigation education program that takes local sociocultural attributes into account.
Honduras	2018-2023	Project for Control and Mitigation of Landslide in Tegucigalpa Metropolitan Area	This project aims to improve landslide management capabilities by strengthening the following skills: (1) detailed investigation and analysis to understand landslide phenomenon; (2) design, construction, construction management, and maintenance skills concerning small and medium-scale landslide control measure; (3) formulation of landslide hazard maps and risk maps; and (4) land use regulation related to landslide disasters.
Colombia	2015-2022	Project for Application of State of the Art Technologies to Strengthen Research and Response to Seismic, Volcanic and Tsunami Events, and Enhance Risk Management (SATREPS)	Colombia experiences frequent disasters due to earthquakes, tsunami, and volcanic eruptions. This project involves promoting partnerships between research institutes and relevant disaster management organizations, along with research and practical activities aimed at strengthening measures to mitigate the damage due to disaster through capacity building in such areas as earthquake, tsunami, and volcanic activity monitoring, modeling, damage forecasting, and the transmission of information. In addition, it will contribute to advances in disaster research in South America through collaboration with neighboring countries.
Ecuador	2021-2025	The Project for the Capacity Improvement of the Sediment Disaster (Landslide Disaster) Risk Reduction	This project will improve the capacity of the IIGE (Instituto de Investigación Geológico y Energético) and the Quito City Hall to approach sediment disaster (landslide disaster), and thereby contribute to the implementation of countermeasures based on hazard analysis and risk assessment in sediment disaster (landslide disaster) hazard areas in Ecuador. This will be achieved by improving sediment disaster (landslide disaster) investigation and analysis abilities, enhancing risk assessment and hazard mapping capabilities, reinforcing early warning and evacuation systems and utilizing risk assessment in land use regulations/development standards.
Ecuador	2017-2021	Project for Safe and Resilient Cities for Earthquake and Tsunami Disaster	Initiatives for developing "disaster resilient cities" will be deployed nationwide to mitigate damage caused by earthquakes and tsunamis by formulating tsunami evacuation plans, updating the disaster management agenda and strengthening the operational structure of building system in three pilot cities (Atacames, Portoviejo and Salinas).
Chile	2018-2021	Institutional Strengthening of ONEMI in Disaster Risk Reduction Project	Under the Sendai Framework for Disaster Risk Reduction, this project aims to contribute to promotion of disaster prevention measures taken by ONEMI (Chile's national disaster control institution) by improving capabilities and developing disaster-prevention human resources required for the promotion of disaster prevention and reduction measures, development of a disaster knowledge management system, and formulation of regional disaster management plans.
Chile	2021-2022	Project on Improving Infection Prevention Measures during Disasters under the COVID-19	This project aims to improve the ability to manage shelters during disasters, including situations of the spread of infectious diseases, and thereby contributes to strengthen disaster response capacity of the metropolitan area through ONEMI. This will be possible by providing equipment to control infectious diseases to ONEMI and pilot cities in the metropolitan area of Santiago, Chile.
El Salvador	2021-2025	Project to Improve the Ability for Seismic Evaluation and Retrofitting Buildings in the Metropolitan Area	This project will promote appropriate seismic diagnosis, earthquake-proof retrofit design and construction of public buildings in the Metropolitan Area of San Salvador (AMSS), and thereby contributes to the resilience of urban functions through the promotion of seismic retrofitting of public buildings inside and outside of the AMSS. This will be done through the improvement of administrative and technical abilities for diagnosis, design and construction management related to earthquake resistance in the AMSS.
Peru	2021-2026	The Project for development of integrated expert system for estimation and observation of damage level of infrastructure in Lima Metropolitan Area Just after an Earthquake (Science and Technology Cooperation)	This project aims to contribute to improving Peru's capacity of disaster response to earthquakes and tsunamis (reduction of secondary damage and expedition of recovery and reconstruction). This will be done by the improvement of estimation of damages and the establishment of immediate damage assessment system for buildings and lifelines at the time of earthquakes and tsunamis, thereby building an expert system that integrates those pieces of information and developing human resources to utilize this system in the metropolitan area of Lima, Peru.
Brazil	2021-2026	Capacity Development Project for Structural Measures against Sediment Disaster for Resilient Cities	This project will improve the ability for the Ministry of Regional Development to design and supervise the construction and maintenance of debris flow control structures, thereby contributing to the expansion of debris flow management projects in Brazil. This will be conducted by developing technical guidelines for the characteristics, design, construction management and maintenance of debris flow control structures, and formulating tools and plans to utilize and disseminate them in Brazil.
Mauritius	2019-2022	Project for Enhancing Meteorological Observation, Weather Forecasting and Warning Capabilities	This project aims to ensure the timely provision of accurate meteorological information to Mauritian disaster management institutions and residents through technological cooperation aimed at improving the Mauritius Meteorological Services' forecasting and alert issuing capabilities, while also utilizing weather radars introduced under the Grand Aid program.

Source: Japan International Cooperation Agency (JICA)

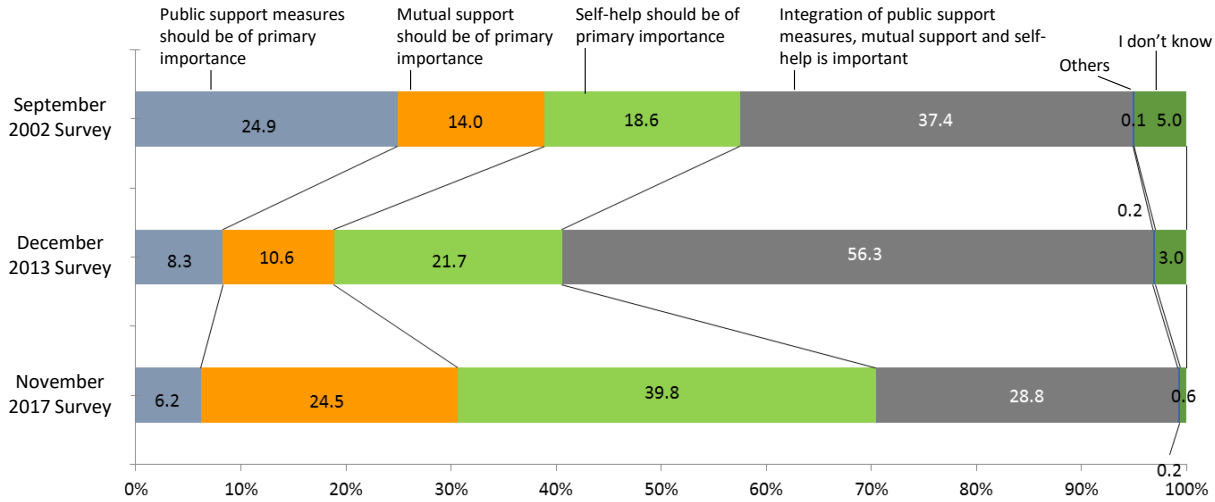
10. Others

Fig. A-56 Number of Earthquake Insurance Contracts



Source: Formulated by the Cabinet Office based on materials from the General Insurance Rating Organization of Japan

Fig. A-57 Awareness of Self-Help, Mutual Support, and Public Support Measures



Source: Formulated by Cabinet Office on basis of "Public Opinion Poll regarding Disaster Risk Reduction" conducted by the Public Relations Office, Cabinet Office

Fig. A-58 Tables Explaining the Japan Meteorological Agency Seismic Intensity Scale

Notes:

(1) As a rule, seismic intensities announced by JMA are values observed using seismic intensity meters installed on the ground or on the first floor of low-rise buildings. This document describes the phenomena and damage that may be observed for individual seismic intensity levels. Seismic intensities are not determined from the observed phenomena described here.

(2) Seismic ground motion is significantly influenced by underground conditions and topography. Seismic intensity is the value observed at a site where a seismic intensity meter is installed, and may vary even within the same city. In addition, the amplitude of seismic motion generally differs by floor and location within the same building, as shaking on upper floors of middle-to-high-rise buildings may be considerably amplified.

(3) Sites with the same level of seismic intensity will not necessarily suffer the same degree of damage, as the effect of tremors depends on the nature of the seismic motion (such as amplitude, period and duration), the type of construction and underground conditions.

(4) This document describes typical phenomena that may be seen at individual seismic intensity levels. In some cases, the level of damage may be greater or less than specified. Not all phenomena described for each intensity level may necessarily occur.

(5) The information outlined here is made by experiences of recent earthquake disasters and regularly checked at intervals of about five years. This information will be updated in line with actual phenomena observed in new cases or improvements in the earthquake resistance of buildings and structures.

(6) In the case that the extent of damage cannot be shown in round numbers, the following adverbs and adjectives have been used as a tentative guide.

Term	Definition
Rarely A few/little Majority Almost all	Extremely limited. Hardly ever. Number/extent is extremely small. Just a little bit. Half or more. Less than “almost all.” Not all but close to all.
There are (also), there may be	Used to express something that typically starts to appear at this seismic intensity level, where the quantity is not great, but it is hard to quantify the number/extent.
Increases	It is difficult to specify the quantity, but it is more than would be the case for a lower level of intensity.
Increases further	Same meaning as “increases” above. Used in relation to lower levels of intensity, just like “increases” above.

* The JMA sometimes publishes earthquake intensities obtained from questionnaire surveys, but these are expressed as “corresponding to seismic intensity xx” and are distinguished from seismic intensity levels observed by seismic intensity meters.

●Human perception and reaction, indoor situation, outdoor situation

Seismic intensity	Human perception and reaction	Indoor situation	Outdoor situation
0	Imperceptible to people, but recorded by seismometers.	—	—
1	Felt slightly by some people keeping quiet in buildings.	—	—
2	Felt by many people keeping quiet in buildings. Some people may be awoken.	Hanging objects such as lamps swing slightly.	—
3	Felt by most people in buildings. Felt by some people walking. Many people are awoken.	Dishes in cupboards may rattle.	Electric wires swing slightly.
4	Most people are startled. Felt by most people walking. Most people are awoken.	Hanging objects such as lamps swing significantly, and dishes in cupboards rattle. Unstable ornaments may fall.	Electric wires swing significantly. Those driving vehicles may notice the tremor.
5 Lower	Many people are frightened and feel the need to hold onto something stable.	Hanging objects such as lamps swing violently. Dishes in cupboards and items on bookshelves may fall. Many unstable ornaments fall. Unsecured furniture may move, and unstable furniture may topple over.	In some cases, windows may break and fall. People notice electricity poles moving. Roads may sustain damaged.
5 Upper	Many people find it hard to move; walking is difficult without holding onto something stable.	Dishes in cupboards and items on bookshelves are more likely to fall. TVs may fall from their stands, and unsecured furniture may topple over.	Windows may break and fall, unreinforced concrete-block walls may collapse, poorly installed vending machines may topple over, and automobiles may stop due to the difficulty of continued movement.
6 Lower	It is difficult to remain standing.	Many unsecured furniture moves and may topple over. Doors may become wedged shut.	Wall tiles and windows may sustain damage and fall.
6 Upper	It is impossible to remain standing or move without crawling. People may be thrown through the air.	Most unsecured furniture moves, and is more likely to topple over.	Wall tiles and windows are more likely to break and fall. Most unreinforced concrete-block walls collapse.
7		Most unsecured furniture moves and topples over, or may even be thrown through the air.	Wall tiles and windows are even more likely to break and fall. Reinforced concrete-block walls may collapse.

●Wooden houses

Seismic intensity	Wooden houses	
	High earthquake resistance	Low earthquake resistance
5 Lower	—	Slight cracks may form in walls.
5 Upper	—	Cracks may form in walls.
6 Lower	Slight cracks may form in walls.	Cracks are more likely to form in walls. Large cracks may form in walls. Tiles may fall, and buildings may lean or collapse.
6 Upper	Crazing or cracks may be seen in walls.	Large cracks are more likely to form in walls. Buildings are more likely to lean or collapse.
7	Cracks are more likely to form in walls. Buildings may lean in some cases.	Buildings are even more likely to lean or collapse.

Notes:

(1) Wooden houses are classified into two categories according to their earthquake resistance, which tends to be higher for newer buildings. Earthquake resistance tends to be low for structures built up to 1981, and high for those built since 1982. However, earthquake resistance may have a range and depends on structure of buildings and wall placement, resistance is not necessarily determined only by building age. The earthquake resistance of existing buildings can be ascertained through quakeproof diagnosis.

(2) The walls in this table are assumed to be made of mud and/or mortar. Mortar in a wall with a weak base can easily break off and fall, even under conditions of low deformation.

(3) Damage to wooden houses depends on the period and duration of seismic waves. In some cases (such as the Iwate-Miyagi Nairiku Earthquake in 2008), few buildings sustain damage in relation to the level of seismic intensity observed.

●Reinforced-concrete buildings

Seismic intensity	Reinforced-concrete buildings	
	High earthquake resistance	Low earthquake resistance
5 Upper	—	Cracks may form in walls, crossbeams and pillars.
6 Lower	Cracks may form in walls, crossbeams and pillars.	Cracks are more likely to form in walls, crossbeams and pillars.
6 Upper	Cracks are more likely to form in walls, crossbeams and pillars.	Slippage and X-shaped cracks may be seen in walls, crossbeams and pillars. Pillars at ground level or intermediate floors may disintegrate, and buildings may collapse.
7	Cracks are even more likely to form in walls, crossbeams and pillars. Ground level or intermediate floors may sustain significant damage. Buildings may lean in some cases.	Slippage and X-shaped cracks are more likely to be seen in walls, crossbeams and pillars. Pillars at ground level or on intermediate floors crumble are more likely to disintegrate, and buildings are more likely to collapse.

Notes:

(1) Earthquake resistance tends to be higher for newer foundations. The value tends to be low for structures built up to 1981, and high for those built since 1982. However, to maintain a certain range of earthquake resistance according to differences in structure and 2D/3D arrangement of reinforced walls, resistance is not necessarily determined only by foundation age. The earthquake resistance of existing buildings can be ascertained through quakeproofing diagnosis.

(2) Slight cracks may form in reinforced-concrete buildings without their core structure being affected.

●Situation of ground and slopes, etc.

Seismic intensity	Situation of ground	Situation of slopes, etc.
5 Lower	Small cracks*1 may form and liquefaction*2 may occur.	Rock falls and landslips may occur.
5 Upper		
6 Lower	Cracks may form.	Landslips and landslides may occur.
6 Upper	Large cracks may form.	Landslips are more likely to occur; large landslides and massif collapses may be seen.*3
7		

Notes:

*1 A crack is the same phenomenon as a fissure, but the expression is used here to refer to a small fissure or opening in the ground.

*2 Liquefaction may be seen in areas with a high groundwater level and loose sand deposits. Damage observed as a result of liquefaction includes spouts of muddy water from the ground, outbreaks of subsidence in riverbanks and quays, elevation of sewage pipes and manholes, and leaning or destruction of building foundations.

*3 When large landslides and massif collapse occurs, dams may form depending on geographical features, and debris flow may occur due to the large quantities of sediment produced.

●Influence on utilities and infrastructure, etc.

Suspension of gas supply	In the event of shaking with a seismic intensity of about 5 Lower or more, gas meters with safety devices are tripped, stopping the supply of gas. In the event of stronger shaking, the gas may stop for entire local blocks.*
Suspension of water supply, electrical blackouts	Suspension of water supply and electrical blackouts may occur in regions experiencing shaking with a seismic intensity of about 5 Lower or more.*
Suspension of railroad services, regulation of highways, etc.	In the event of shaking with a seismic intensity of about 4 or more, services on railroads or highways may be stopped for safety confirmation. Speed control and traffic regulations are performed according the judgment of the relevant bodies. (Standards for safety confirmation differ by organization and area).
Disruption to lines of communication such as telephones	In the event of an earthquake, communication network congestion may occur due to increased calls related to safety confirmation and inquiries around regions experiencing strong shaking. To combat this, telecommunications providers offer Disaster Emergency Message Dial and Message Board services if a disaster such as an earthquake with a seismic intensity of about 6 Lower or greater occurs.
Suspension of elevator service	In the event of shaking with a seismic intensity of about 5 Lower or more, elevators with earthquake control devices will stop automatically for safety reasons. Resumption of service may be delayed until safety is confirmed.

*In the event of shaking with a seismic intensity of 6 Upper or more, gas, water, and electric supplies may stop over wide areas.

●Effect on large-scale structures

Shaking of skyscrapers from long-period ground motion*	Due to their longer characteristic period, skyscrapers react less to earthquakes than general reinforced-concrete buildings, which have a shorter characteristic period. However, they exhibit slow shaking over a long time in response to long-period ground motion. If motion is strong, poorly fixed office appliances may move significantly, and people may have to hold onto stable objects to maintain their position.
Sloshing of oil tanks	Sloshing of oil tanks occurs in response to long-period ground motion. As a result, oil outflows or fires may occur.
Damage or collapse of ceilings etc. at institutions covering large spaces	In institutions covering large spaces such as gymnasiums or indoor pools, ceilings may shake significantly and sustain damage or collapse, even in cases where ground motion is not severe enough to cause other structural damage.

*Occasionally, when a large earthquake occurs, long-period seismic waves reach locations far from the hypocenter; such waves may be amplified over plains depending on the characteristic period of the ground, thus extending their duration.

Source: Japan Meteorological Agency

Fig. A-59 Emergency Warning Issuance Criteria

■Criteria for Meteorological Emergency Warnings

<table>
<tr><th>Phenomenon</th><th colspan="2">Criteria</th></tr>
<tr><td>Heavy rain</td><td colspan="2">Heavy rainfall with a level of intensity observed only once every few decades is predicted in association with a typhoon or similar.</td></tr>
<tr><td>Storm</td><td>A storm is predicted…</td><td rowspan="3">…in association with a typhoon expected to have a level of intensity observed only once every few decades or an extratropical cyclone with comparable intensity.</td></tr>
<tr><td>Storm surge</td><td>A storm surge is predicted…</td></tr>
<tr><td>High waves</td><td>High waves are predicted…</td></tr>
<tr><td>Snowstorm</td><td colspan="2">A snowstorm is predicted in association with an extratropical cyclone expected to have a level of intensity observed only once every few decades.</td></tr>
<tr><td>Heavy snow</td><td colspan="2">Heavy snowfall with a level of intensity observed only once every few decades is predicted.</td></tr>
</table>

■Emergency Warning Criteria for Tsunami, Volcanic eruptions, and Earthquake

Phenomenon	Criteria
Tsunami	Tsunami height is expected to be greater than 3 meters. (Major Tsunami Warnings are issued in the classification of Emergency Warnings.)
Volcanic eruption	Eruption or possibility of eruption that may cause serious damage in residential areas and non-residential areas nearer the crater. (Volcanic Warning (Level 4 and 5) and Volcanic Warning (residential areas)* are issued in the classification of Emergency Warnings.)
Earthquake	Seismic intensity of 6-lower or more is expected. (Earthquake Early Warnings incorporating prediction of tremors measuring 6-lower or more on JMA's seismic intensity scale are issued in the classification of Emergency Warnings.)

Source: Japan Meteorological Agency

Fig. A-60 Evacuation Information Using Five Warning Levels of Warning (Flood and Landslide Disasters)

Things to Know About Evacuation Information for Typhoons and Torrential Rain

Check During Emergency

Evacuation Information Points

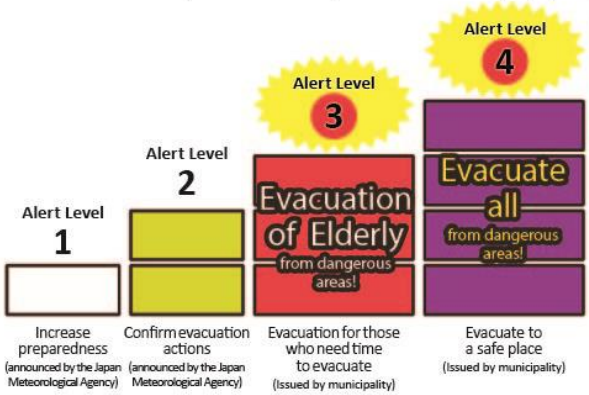
Be in the know!

Evacuation Information Issued by Municipalities (Alert Level)

"Evacuation" means to "evade" disasters.
People who are in a safe place do not need to go to a shelter.

Alert Level 3 = <Evacuation of Elderly from Dangerous Areas>,
Alert Level 4 = <Evacuation of All*1>.

*1 At Alert Level 4, "Evacuation of All," is a time when all people, not just the elderly, should evacuate from dangerous areas.



An Alert Level 4 = 〈evacuation recommendation〉 means to evacuate from dangerous areas

The Alert Levels are classified into five levels to inform residents of the actions they should take in preparation for floods and sediment disasters, and are issued by municipalities in conjunction with evacuation information.

Alert level 5 is where a disaster has already occurred.

- If you are still not able to evacuate when the alert level 5 is issued, please take the best action to save your life by moving to a slightly safer room in your house or to a safe building if there is one nearby.
- Information on the occurrence of a disaster at Alert Level 5 is issued when the municipality is aware of the occurrence of a disaster, to the extent possible, but may not be given in some circumstances.

It is dangerous to evacuate outdoors during torrential rain.
Please refrain from transfer by car as well.

Alert Level 4 includes evacuation recommendations and evacuation instructions (emergency)*2, but in any case, evacuate at Alert Level 4.

- The Alert Level 4 evacuation recommendation is issued in consideration of the time required for evacuation and the time of sunset, so it is necessary to evacuate dangerous areas at this time.

*2 The evacuation instruction (emergency) at Alert Level 4 is not always issued, but may be issued in case of an emergency or to encourage evacuations repeatedly depending on the situation in the area.

List of Acronyms

ACDR	Asian Conference on Disaster Reduction
ADRC	Asian Disaster Reduction Center
AMCDRR	Asia Ministerial Conference on Disaster Risk Reduction
APEC	Asia-Pacific Economic Cooperation
ASAP	as soon as possible
BCM	Business Continuity Management
BCP	Business Continuity Plan
DOE	Department of Energy
DRR	Disaster Risk Reduction
ECCS	emergency core cooling system
EMWG	Emergency Management Working Group
EPReSC	Emergency Preparedness and Response Standards Committee
ERC	Emergency Response Center
FEMA	Federal Emergency Management Agency
GSI	Geospatial Information Authority of Japan
HA/DR	humanitarian assistance and disaster relief
IAEA	International Atomic Energy Agency
ICHARM	International Centre for Water Hazard and Risk Management
ICT	information and communication technology
IRP	International Recovery Platform
ISO	International Organization for Standardization
ISUT	Information Support Team
JANDR	Japan Academic Network for Disaster Reduction
JBP	Japan Bosai Platform
JICA	Japan International Cooperation Agency
JIS	Japanese Industrial Standards
JMA	Japan Meteorological Agency
JVOAD	Japan Voluntary Organizations Active in Disaster
MAFF	Ministry of Agriculture, Forestry and Fisheries
MEXT	Ministry of Education, Culture, Sports, Science and Technology
MHLW	Ministry of Health, Labour and Welfare
MIC	Ministry of Internal Affairs and Communications
MLIT	Ministry of Land, Infrastructure, Transport and Tourism
MOC	Memorandum of Cooperation
NIED	National Research Institute for Earth Science and Disaster Resilience
NPO	Non-Profit Organization
NRA	Nuclear Regulation Authority
NRC	Nuclear Regulatory Commission
OECD/NEA	Nuclear Energy Agency of the Organization for Economic Cooperation and Development
OEIWG	Open-Ended Intergovernmental Expert Working Group
PAZ	Precautionary Action Zone
SCJ	Science Council of Japan
SDF	Self-Defense Forces
SDGs	Sustainable Development Goals
SDMOF	Senior Disaster Management Officials Forum
SFDRR	Sendai Framework for Disaster Risk Reduction 2015-2030
SIP4D	Shared Information Platform for Disaster Management
SMEs	Small and Medium-sized Enterprises
SRSG	Special Representative of the UN Secretary-General
TEC-FORCE	Technical Emergency Control FORCE
TMG	Tokyo Metropolitan Government
UNISDR	United Nations Office for Disaster Risk Reduction
UPZ	Urgent Protective Action Planning Zone
VC	volunteer center

Prime Minister's Office of Japan

Disaster Preparedness Checklist

Supervised by Director General for Disaster Management, Cabinet Office
Gender Equality Bureau of Cabinet Office

Evacuation Backpack Things to take with you when evacuating!

- ☐ Water
- ☐ Food
  (Instant steamed rice (e.g. alpha rice), pouched retort foods, biscuits, chocolate, hardtack, etc. Prepare food for at least 3 days!)
- ☐ Protective helmet or hood
- ☐ Clothes and underwear
- ☐ Rainwear
- ☐ Anti-slip, rubber outsole shoes without strings
- ☐ Flashlight (Hand-cranked type is helpful)
- ☐ Mobile radio (Hand-cranked type is helpful)
- ☐ Extra batteries and phone chargers
- ☐ Boxes of matches and candles
- ☐ First aid kit
  (Adhesive plasters, bandages, antiseptic solutions, common home medicines, etc.)
- ☐ Disposable hand warmers
- ☐ Blanket
- ☐ Work gloves
- ☐ Toiletries
- ☐ Toothbrush and toothpaste
- ☐ Towels
- ☐ Pen and notebook

These are also effective to prevent infectious diseases!!

- ☐ Masks
- ☐ Hand sanitizer
- ☐ Soap and hand soap
- ☐ Wet wipes
- ☐ Thermometer

Don't forget about these!!

- ☐ Valuables
  (Bankbook, cash, passport, driver's license, hospital patient's cards, Individual Number Card, etc.)

For Families with Young Children

- ☐ Cube-type infant formula
- ☐ Disposable baby bottles
- ☐ Baby food
- ☐ Portable cutlery
- ☐ Disposable diapers
- ☐ Baby wipes
- ☐ Portable bidet
- ☐ Neck light
- ☐ Baby sling/carrier
- ☐ Kids shoes

For Women

- ☐ Sanitary items
- ☐ Liners
- ☐ Sanitary shorts
- ☐ Non-transparent garbage bags
- ☐ Personal security alarm or whistle

For Families with the Elderly

- ☐ Disposable underwear
- ☐ Stick
- ☐ Hearing aid
- ☐ Dentures
- ☐ Detergent for dentures
- ☐ Urine care pads for men
- ☐ Detergent for intimate area
- ☐ Medicine for chronic diseases
- ☐ Copy of prescription records

Things to Stockpile

Things to prepare at home!

- ☐ First aid kit(Minimum for 3 days! Ideally for one week) for each family member
  You can always stockpile food by making sure to buy extra products with long preservation periods and restock them when consuming them!
- ☐ Basic necessities
  For example, facial tissues, toilet paper, plastic wrap, water tanks, portable toilets, etc.

Households would be well advised to prepare other necessities in ordinary times.

Source: Prime Minister's Office of Japan Website (https://www.kantei.go.jp/jp/content/000064513.pdf)