2023

White Paper on

Disaster Management in Japan

Cabinet Office

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Introduction

In the 2023 version of the White Paper on Disaster Management, Special Feature 1, entitled "The Great Kanto Earthquake and Disaster Management in Japan," describes the damage caused by the earthquake and the subsequent response, as well as the progress in disaster management that has been enhanced and strengthened in response to large-scale disasters since the Great Kanto Earthquake. In addition, "Special Feature 2" reviews the major disasters that occurred in FY2022, their damage, and the government's responses to them.

Part 1 covers the situation of priority measures implemented in FY2022 with regard to the following:

- Disaster risk reduction in advance through self-help and mutual support, and collaboration among diverse actors
- Disaster management system, disaster response and preparedness
- Countermeasures by type of disaster
- International cooperation in disaster risk reduction
- Promotion of national resilience
- Nuclear disaster management

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Guidelines for the Handling of Personal Information in the Field of Disaster Management	p. 99
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Special Feature 1. The Great Kanto Earthquake and Disaster Management in Japan

The year 2023 marks the 100th anniversary of the Great Kanto Earthquake of 1923. It caused unprecedented damage to the metropolitan area of modern Japan and is a significant disaster that deserves special mention in the history of disasters in Japan. September 1, the day on which it occurred, has been designated as Disaster Preparedness Day by the Cabinet. Mainly on and around the day during the period of Disaster Preparedness Week (August 30 to September 5), disaster drills, including the government's comprehensive disaster management drill, and various awareness-raising events are held every year in various places. In this way, the Great Kanto Earthquake can be seen as the starting point for Japan's disaster management.

On the other hand, it can hardly be said that the state of the damage caused by the great earthquake 100 years ago, the disaster response measures that followed, and the reconstruction efforts are widely known by people today. In this disaster, fires caused a great deal of human suffering in Tokyo Prefecture (its name at that time; the same shall apply hereinafter) while damage from strong earthquakes, tsunamis, landslides, fires, liquefaction, etc. spread to various places, centered on Kanagawa Prefecture, close to the epicenter Sagami Bay, presenting a complex picture. In terms of disaster relief, mutual help among residents, which could be called volunteerism in modern times, and support from remote areas, including overseas, played a major role. Furthermore, the results of the reconstruction projects based on the Imperial Capital Reconstruction Plan shaped the central areas of modern Tokyo and Yokohama. We can learn much from the efforts of those days as we face the risk of various large-scale disasters today.

In addition, on the 100th anniversary of the Great Kanto Earthquake, which was the starting point for Japan's current disaster management, it would be meaningful to take a bird’s-eye view of how disaster management has been enhanced and strengthened and the various changes to the environment surrounding Japan during the period after the earthquake in order to consider the general direction of future disaster management.

For this reason, the 2023 version of the White Paper on Disaster Management focuses on the theme of “The Great Kanto Earthquake and Disaster Management in Japan” as “Special Feature 1.” First, Chapter 1 examines the damage caused by the Great Kanto Earthquake and subsequent responses to it, and it reviews how disaster management has been enhanced and strengthened through subsequent large-scale disasters, with the Great Kanto Earthquake as the starting point. Next, Chapter 2 analyzes the various environmental changes that have occurred in Japan over the past 100 years, and it identifies challenges to be addressed in promoting future disaster management. In addition, Chapter 3 presents the direction of future disaster management based on the lessons learned from the Great Kanto Earthquake and subsequent environmental changes.

Moreover, “Special Feature 2” reviews the major disasters that occurred in FY2022, their damage situations, and the government's responses to them.

Chapter 1. Looking back on the 100 years after the Great Kanto Earthquake

Figure 1-1 compares the damage of the Great Kanto Earthquake with two later major earthquakes, namely the Great Hanshin-Awaji Earthquake and the Great East Japan Earthquake. Even when compared with the two later earthquakes, the Great Kanto Earthquake was an extremely large-scale disaster, both in terms of the enormous

human suffering and material damage it caused and the impact it had on the social economy of that time.

Fig. 1-1 Comparison of damages caused by the Great Kanto Earthquake, the Great Hanshin-Awaji Earthquake, and the Great East Japan Earthquake

	Great Kanto Earthquake	Great Hanshin-Awaji Earthquake	Great East Japan Earthquake
Date of occurrence	September 1, 1923 Saturday 11:58 a.m.	January 17, 1995 Tuesday 5:46 a.m.	March 11, 2011 Friday 2:46 p.m.
Magnitude	Magnitude of 7.9	Magnitude of 7.3	Moment Magnitude of 9.0
Direct deaths or missing persons	About 105,000 (about 90% of casualties burnt)	About 5,500 (about 70% of casualties suffocated/crushed)	About 180,000 (about 90% of casualties drown)
Disaster-related deaths	–	About 900 people	About 3,800 people
Houses completely collapsed/ destroyed by fire	About 290,000	About 110,000	About 120,000
Economic damage	About 5.5 billion yen	About 9.6 trillion yen	About 16.9 trillion yen
GDP at the time	About 14.9 billion yen	About 522 trillion yen	About 497 trillion yen
GDP ratio	About 37%	About 2%	About 3%
National budget at the time	About 1.4 billion yen	About 73 trillion yen	About 92 trillion yen

Note: Regarding "GDP at the time," the value of gross national product is presented for the Great Kanto Earthquake.
Source: Compiled by the Cabinet Office based on Moroi & Takemura (2004) "Japan Association for Earthquake Engineering Academic Papers," Vol. 4, No. 4; Tokyo City Hall (1926) "Tokyo Earthquake Records: Prequel"; Research Centre for Information and Statistics of Social Science, Institute of Economic Research, Hitotsubashi University, "Long-term Economic Statistics Database"; and documents from the Japan Meteorological Agency, the National Police Agency, the Fire and Disaster Management Agency, the Reconstruction Agency, the National Land Agency, the Cabinet Office, the Ministry of Finance and Hyogo Prefecture

Japan's disaster management has been enhanced and strengthened through the experience of large-scale disasters and the lessons learned from them. In addition to the two earthquakes mentioned above, the Ise Bay (Isewan) Typhoon (Typhoon Vera) of 1959 can be cited as a large-scale disaster that became a turning point in disaster management after the Great Kanto Earthquake.

Therefore, this chapter first focuses on the Great Kanto Earthquake. Section 1 details the extent of the damage, while Sections 2 and 3 review disaster response measures and reconstruction efforts, respectively.

In addition, Section 4 discusses disaster management measures that were enhanced and strengthened in response to the Great Kanto Earthquake. Section 5 touches on various disaster management measures that were enhanced and strengthened in the wake of the subsequent Ise Bay Typhoon and the two great earthquakes.

This will provide an overview of the history of disaster management in Japan, with the Great Kanto Earthquake as the starting point.

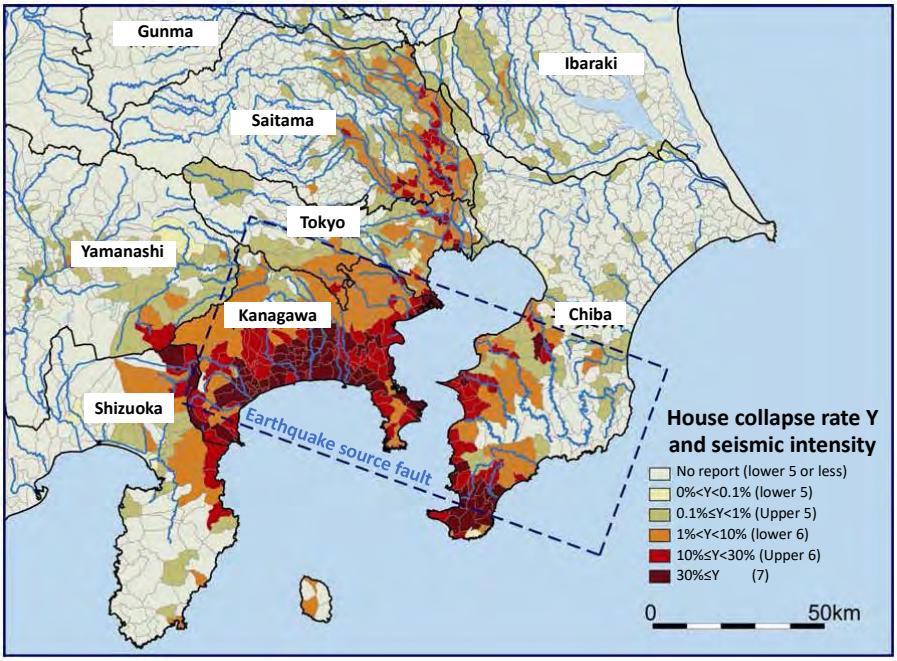
Section 1. Aspects of the Damage Caused by the Great Kanto Earthquake

Overview of the Great Kanto Earthquake

The Great Kanto Earthquake disaster was brought by an earthquake (known as the Taisho Kanto Earthquake) with an estimated magnitude of 7.9 that occurred at 11:58 on September 1, 1923. Due to this earthquake, a seismic intensity of 6 was observed in Saitama, Chiba, Tokyo, Kanagawa and Yamanashi prefectures, and seismic intensities ranging from 5 to 1 were observed over a wide area from southern Hokkaido to the Chugoku and Shikoku regions.[1]

It was a trench-type earthquake, with its epicenter in the Sagami Trough. Since the epicenter was immediately beneath semi-mountainous areas, such as Hakone and Tanzawa, and was close to the metropolitan area with a large population concentration, the earthquake caused wide-ranging damage. Specifically, the strong earthquake caused more than 100,000 houses to collapse[2] and triggered sediment disasters, such as landslides in mountainous areas, and tsunami damage in coastal areas. Since it occurred at lunch time, when people were using fires to cook, many fires broke out and spread as large-scale fires. In addition, the damage caused by ground liquefaction was widespread and particularly severe in the lowlands of Saitama Prefecture, far from the epicenter.

Fig. 1-2 **Seismic intensity distribution and collapsed house percentages in the Great Kanto Earthquake**



Note 1: The dashed lines in the figure show the estimated earthquake source fault plane projected onto the ground surface.
Note 2: The seismic intensity distribution was estimated based on the percentages of collapsed houses.
Source: Compiled by the Cabinet Office, based on Moroi & Takemura (2002) "Japan Association for Earthquake Engineering Academic Papers," Vol. 2, No. 3, 35-71 (cited in the National Disaster Management Council (2006) "Great Kanto Earthquake Report, Part 1")

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1 At that time, the seismic intensity scale had seven grades from 0 to 6, but given the amount of collapsed houses, it is estimated that the seismic intensity in the Sagami Bay coastal area and the southern tip of the Boso Peninsula was equivalent to the current seismic intensity of 7.

2 In this section, the word "collapse (潰)" is used instead of "break (壊)" to refer to damage to residential houses from the Great Kanto Earthquake. This is in line with the description in a report by the National Disaster Management Council's Expert Investigation Committee (National Disaster Management Council [2006], Great Kanto Earthquake Report, Part 1).

Human Suffering and Residential Damage

The Great Kanto Earthquake completely or partially collapsed, burned down, washed away, or buried a total of about 370,000 houses, with about 105,000 people dead or missing.

The majority of human suffering was due to fires, and about 90,000 people are estimated to have died or gone missing due to the fires. In particular, a fire at a former clothing factory in Yokoamicho, Honjo Ward (currently Sumida Ward) killed about 40,000 residents who were sheltering there. On the other hand, about 10,000 people were killed when their houses completely collapsed, and many others died due to tsunamis, landslides, or the collapse of factories. Thus human suffering occurred due to various factors.

In terms of damage to residential houses, more than 200,000 houses completely or partially collapsed due to the seismic motion. Particularly in Kamakura County (name at the time) in Kanagawa Prefecture and Awa County (name at the time) in Chiba Prefecture, the total collapse rate reached 60% or more. In addition, some houses were destroyed by fires mainly in Tokyo Prefecture, and others were washed away by tsunamis or buried by sediment disasters in Kanagawa and Shizuoka Prefectures.

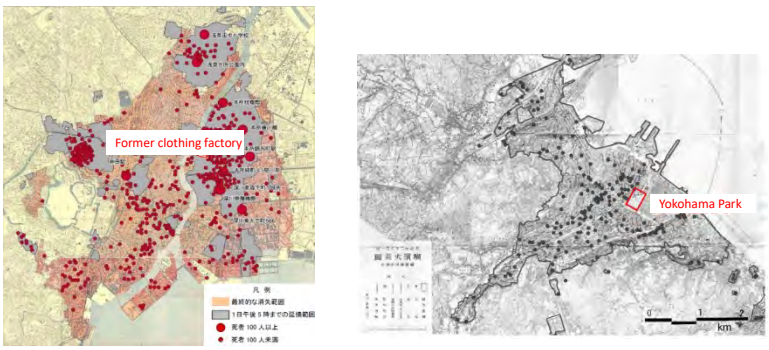
Fig. 1-3 Numbers of houses damaged and deaths caused by the Great Kanto Earthquake

Prefectures	Number of houses damaged								Number of deaths (including missing persons)				
	Completely collapsed	Unburnt	Half collapsed	Unburnt	Burned down	Washed away, or buried	Total (Excluding "half destroyed")	Total (Including "half destroyed")	Houses completely collapsed	Fires	Washed away, or buried	Damage of factories, etc.	Total
Kanagawa	63,577	46,621	54,035	43,047	35,412	497	82,530	125,577	5,795	25,201	836	1,006	32,838
Tokyo	24,469	11,842	29,525	17,231	176,505	2	188,349	205,580	3,546	66,521	6	314	70,387
Chiba	13,767	13,444	6,093	6,030	431	71	13,946	19,976	1,255	59	0	32	1,346
Saitama	4,759	4,759	4,086	4,086	0	0	4,759	8,845	315	0	0	28	343
Yamanashi	577	577	2,225	2,225	0	0	577	2,802	20	0	0	2	22
Shizuoka	2,383	2,309	6,370	6,214	5	731	3,045	9,259	150	0	171	123	444
Ibaraki	141	141	342	342	0	0	141	483	5	0	0	0	5
Nagano	13	13	75	75	0	0	13	88	0	0	0	0	0
Tochigi	3	3	1	1	0	0	3	4	0	0	0	0	0
Gunma	24	24	21	21	0	0	24	45	0	0	0	0	0
Total	109,713	79,733	102,773	79,272	212,353	1,301	293,387	372,659	11,086	91,781	1,013	1,505	105,385
Municipalities													
Tokyo city	12,192	1,458	11,122	1,253	166,191	0	167,649	168,902	2,758	65,902	0	0	68,660
Yokohama city	15,537	5,332	12,542	4,380	25,324	0	30,656	35,036	1,977	24,646	0	0	26,623
Yokosuka city	7,227	3,740	2,514	1,301	4,700	0	8,440	9,741	495	170	0	0	665

*To avoid duplication, the total number of houses damaged is the sum of those that were not destroyed by fire, those that were destroyed by fire, those that were washed away and those that were buried.

Source: Compiled by the Cabinet Office, based on the National Disaster Management Council (2011) "Learning from the History of Disasters: Trench-type Earthquakes and Tsunamis"

Fig. 1-4 Burned areas (about 34.7 km^2) and distribution of fatalities in Tokyo City (name at the time) (left), and burned areas (about 10 km^2) and distribution of fire breakout points in Yokohama City (right)



Source: Compiled by the Cabinet Office, based on the National Disaster Management Council (2011) "Learning from the History of Disasters: Trench-type Earthquakes and Tsunamis," and the National Disaster Management Council (2006) "The Great Kanto Earthquake Report, Part 1"

Damage to Lifelines

Lifelines were also severely damaged. Many hydroelectric and thermal power plants, transmission lines and substations were damaged, and power to households was not resumed until the night of September 5. At that time, gas was supplied to about 240,000 households in Tokyo City (the name at the time; the same shall apply hereinafter) or about half of the households in the city. Of those households, about 140,000 were destroyed by fires. The gas supply to the remaining 100,000 households was partially resumed at the end of September but not completely until the end of the year. From September 4, the water supply began to be gradually restored, starting in the Yamanote area, but it took time in the severely damaged areas of Honjo and Fukagawa, and it was not until November 20 that the water supply to the entire area resumed.

Railways also suffered damage, mainly in Tokyo and Kanagawa. Of the 192 stations, 178 were damaged, burned down, or completely collapsed. Of the 112 trains that were in operation at the time of the earthquake, 23 turned over or derailed and 11 caught fire. Many lines were restored within one to three weeks after the earthquake, but there were sections that were not rebuilt until the end of December, such as the section between Yokohama and Sakuragicho on the Tokaido Main Line, and there were sections that took a year and a half to fully re-open, such as the vicinities of Nebukawa Station on the Atami Line. However, some lines resumed operations the same day of the earthquake, such as the section between Kameido and Inage on the Sobu Main Line.

Photo 1. Situation after the Great Kanto Earthquake

Burnt ruins near the current Ginza 4-chome intersection
Source: Tokyo City "Tokyo Earthquake Records"

Cloud columns generated from a fire on the day of the earthquake
Source: Home Ministry, Social Affairs Bureau, "Taisho Era Earthquake Chronicle"

Tokyo Ueno area photographed from the sky
Source: Tokyo City, "Tokyo Earthquake Records"

Section 2. Disaster Response Measures against the Great Kanto Earthquake

The Government's Initial Response System

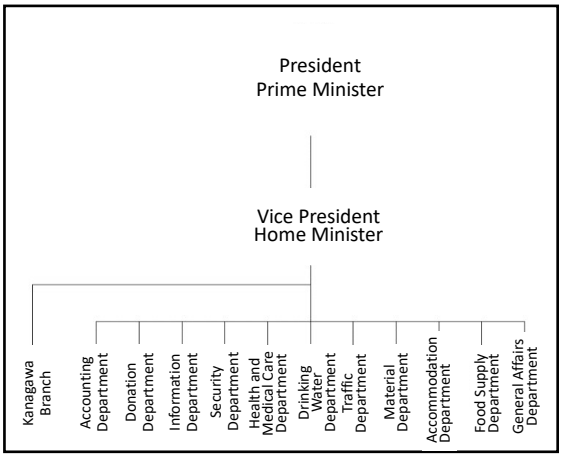
The Great Kanto Earthquake disaster occurred when the Prime Minister's position was vacant. Prime Minister Tomosaburo Kato died on August 24 while still in office, and on the day of the disaster, work was underway toward the formation of the cabinet of Gonbei Yamamoto. The inauguration ceremony of the Yamamoto Cabinet was held on the evening of September 2, the day after the earthquake. Prior to the ceremony, an extraordinary cabinet meeting held on the morning of September 2 decided to establish an interim earthquake relief secretariat and promulgate martial law.

The interim earthquake relief secretariat (Figure 1-5) was established in the Home Ministry with the Prime Minister as president and the Home Minister as vice president. The first meeting of the secretariat was reportedly held at around 3:00 p.m. on the afternoon of September 2, approximately 27 hours after the disaster.

In addition to the Prime Minister's position being vacant, the fact that the government itself became a disaster victim, including the complete destruction by fire of the main building of the Home Ministry, which was supposed to play a central role in disaster response measures, as well as the Metropolitan Police Department, which was in charge of the security of the capital city, also contributed to the delay in the initial response. Furthermore, the fact that the earthquake happened to occur on Saturday, a half working day, meant many government and local government employees went home immediately after the quake to check on the safety of their families, which also adversely affected the initial response.

The military began relief activities after the establishment of the Kanto Martial Law Enforcement Headquarters on September 3.

Fig. 1-5 Operation and Organization of the Interim Earthquake Relief Secretariat



Source: Compiled by the Cabinet Office, based on Home Ministry (1926) "Taisho Era Earthquake Chronicle Photo Album (published in the National Disaster Management Council (2006) "Great Kanto Earthquake Report, Part 1") and National Disaster Management Council (2009) "Great Kanto Earthquake Report, Part 2)

Rescue of Affected People and Fire Fighting

As fires spread in urban areas, firefighting became an immediate priority, along with rescuing people from

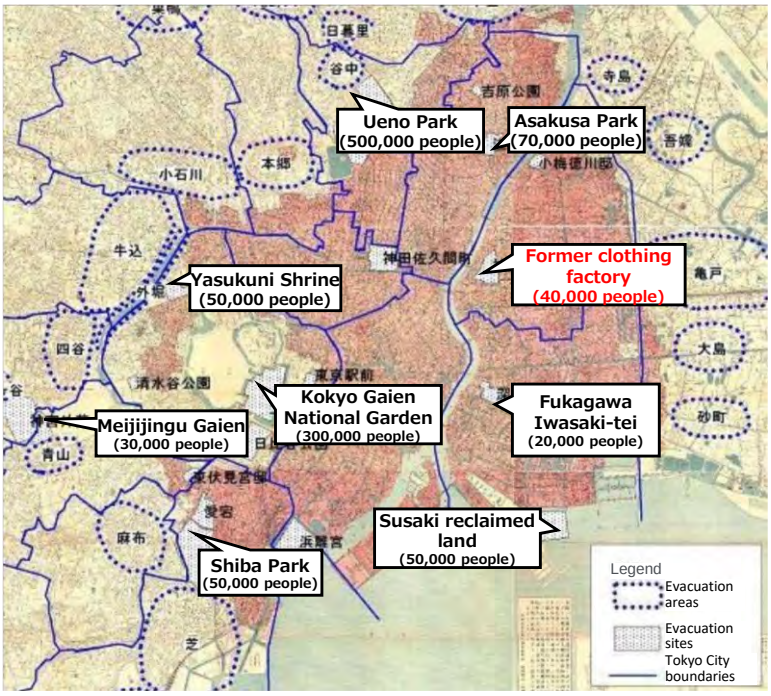
collapsed buildings and providing medical treatment to the injured. In the affected areas, houses and supplies, including food, were lost, mainly due to fires. The damage to transportation systems and bridges made it difficult for people to escape from the affected regions and hindered the delivery of external aid and supplies. Despite these challenging circumstances, relief efforts for the affected people and firefighting activities were carried out in each area.

In Tokyo City, fires broke out immediately after the earthquake struck, and most of the telephones and fire alarms were damaged by the shaking of the earthquake, leaving them out of service. With the water supply cut off, the effectiveness of the firefighting service significantly decreased. Despite the efforts of the fire department and residents, the fire spread for nearly two days after the earthquake. As a result, 43.6% of the city was damaged by fire.

At that time, there were no designated evacuation sites in the event of disasters, so people evacuated to relatively large spaces, such as Ueno Park, the Imperial Palace, and Yasukuni Shrine, depending on the location of the fire, the direction of the wind, and the movement of people (Fig. 1-6). There were also evacuation sites where many people died, such as the former clothing factory in Yokoamicho, where fire broke out, probably because of household goods that were brought in or radiant heat.

Relief activities by Tokyo Prefecture, Tokyo City, and the Metropolitan Police Department were conducted mainly at these evacuation sites. However, only about 1 in 10 people had received public food rations by the day after the disaster. An organized distribution system was put in place around September 6, so it took some time before the supply of food and the relief system became fully operational.

Fig. 1-6 **Major Evacuation Sites and Evacuated Population in Tokyo City Immediately after the Earthquake**



Source: Compiled by the Cabinet Office, based on National Disaster Management Council (2009) “Great Kanto Earthquake Report, Part 2”

Disruption of Information and Spread of Unfounded Rumors

Radio broadcasting in Japan began in 1925, two years after the earthquake. At the time of the earthquake, the main means of disseminating information were the telegraph, telephone, and newspapers. Immediately after the earthquake, media and communication organizations stopped functioning, and baseless rumors spread that the explosions and flying sparks generated during large fires were caused by bombs being thrown or arson while the turbidity of well water and pond water was caused by poisoning. There are also investigative reports[3] that the spread of such rumors led to incidents, such as the murder of Korean people.

Mutual Aid among Residents

The Great Kanto Earthquake, which exceeded expectations at the time, saw mutual aid among residents play a central role in relief efforts. In various places, residents played a major part through mutual assistance, such as offering accommodation to newly acquainted affected individuals, sharing food and coming together for food distribution and town security.

At that time, there was no system to designate shelters in advance, so schools, government offices, the precincts of shrines and temples, and the mansions of wealthy people were opened to accommodate evacuees. After the public distribution of food started, neighborhood associations coordinated to distribute food to each household. Moreover, first-aid centers were set up in various places to carry out what are now called volunteer activities with the support of neighborhood associations as well as young men's associations and local veterans' associations.

Relief by Visiting Relief Teams, Foreign Governments, Etc.

Various public and private groups, including relief teams from other prefectures, took charge of relief activities, such as operating first-aid centers. In particular, it is reported that official relief activities in the burnt-out areas of Tokyo City and urban central areas gained momentum after the arrival of relief teams from Gunma Prefecture on and after September 3. By early November, Tokyo Prefecture and Tokyo City received support from local groups (young men's associations, local veterans' associations, fire brigades, and other relief groups), totaling 23,357 people from 181 groups representing Hokkaido, one province and 18 prefectures.[4]

In Yokohama City, which was more severely damaged in the disaster, public organizations could not provide relief smoothly, resulting in confusion. Therefore, in addition to relief teams from other prefectures, private steamship companies and foreign governments also played an important role. For example, vessels of a private steamship company that were docked at the Port of Yokohama at the time of the earthquake accommodated affected people and also temporarily served as Kanagawa Prefecture's port office and customs office. In addition, vessels of British and French steamship companies along with American warships engaged in relief efforts for affected people or transported them to the Port of Kobe.

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[3] National Disaster Management Council (2009) "Great Kanto Earthquake Report, Part 2" p. 206

[4] National Disaster Management Council (2009) "Great Kanto Earthquake Report, Part 2" p. 140

Section 3. Reconstruction from the Great Kanto Earthquake

The Concept of the Imperial Capital Reconstruction Plan

The Great Kanto Earthquake caused devastating damage to the metropolitan areas, centered on Tokyo and Yokohama, and the extent of the damage was vast, with approximately 4,500 hectares burnt down. The Imperial Capital Reconstruction Council, headed by the Prime Minister, was established as a deliberative organ responsible for the world's largest post-quake reconstruction projects. As its executive body, the Imperial Capital Reconstruction Department was established under the direct control of the Home Ministry and played a central role in drafting the Imperial Capital Reconstruction Plan.

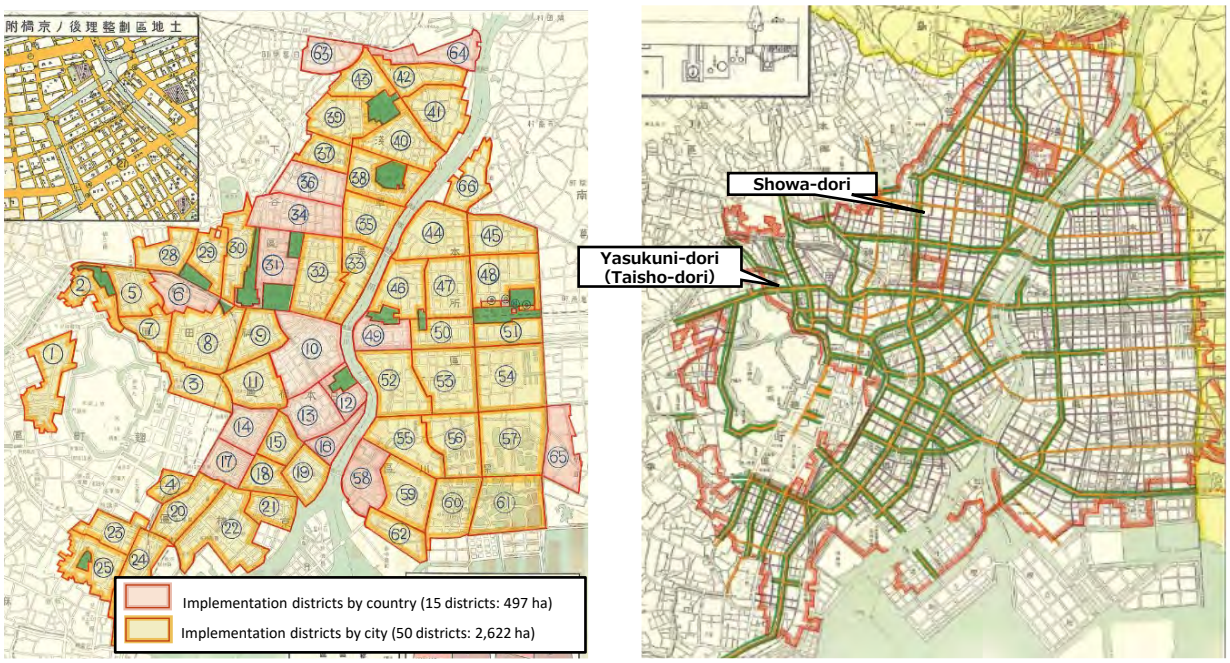
Shinpei Goto, Home Minister at the time, was appointed as the president of the Imperial Capital Reconstruction Department and led the creation of an idealistic draft that was later called “Goto's big pipe dream.” In the draft plan, urban planning suitable for a modern nation was envisaged, such as the construction of roads 100 meters wide and the sharing of lifelines. However, amid the social situation of recession after the First World War, the draft plan, which involved a huge financial expenditure of about three billion yen (at that time), was not accepted, and it was significantly revised by the Imperial Capital Reconstruction Council. As a result, changes were made, such as removing unaffected areas from the scope of the reconstruction project, excluding plans for the reconstruction of Keihin Canal and Keihin Port, and drastically reducing the widths of highways. The budget was also reduced to about 500 million yen.

Development of the Imperial Capital Reconstruction Projects

Despite such a drastic reduction in the Imperial Capital Reconstruction Plan, the projects from the plan are recognized as having achieved remarkable results. In particular, it is worth noting that a land readjustment project covering approximately 3,300 hectares was implemented, creating a modern cityscape with well-developed streets and parks. Many of the highways, such as Showa-dori, included greenbelts and were highly evaluated from both urban landscape and disaster prevention perspectives (Fig. 1-7). In addition to the development of large parks, such as Sumida Park and Yamashita Park, “small reconstruction parks” were established in various locations adjacent to elementary schools. Furthermore, modern public facilities and infrastructures were developed, such as a reinforced concrete elementary schools and bridges over the Sumida River (Fig. 1-8).

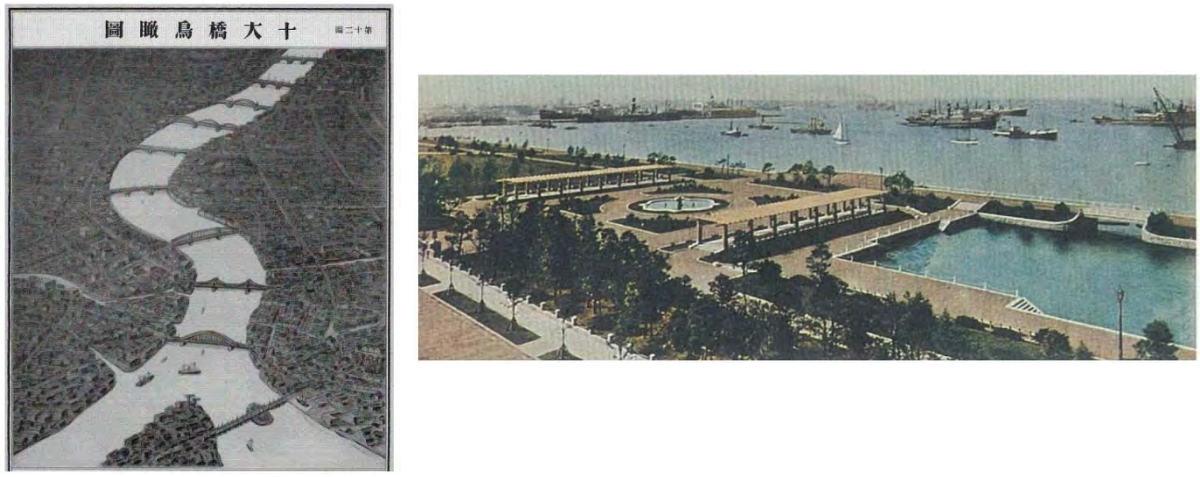
The Imperial Capital Reconstruction Plan for Tokyo and Yokohama Cities was decided in January 1924, the year after the earthquake, and the reconstruction projects were generally completed in 1929 for Yokohama City and March 1930 for Tokyo City.

Fig. 1-7 **Land Readjustment Map (left) and Street Planning Map (right) relating to the Imperial Capital Reconstruction Plan**



Source: Compiled by the Cabinet Office, based on Tokyo City (1930) “Imperial Capital Reconstruction Project Chart”

Fig. 1-8 **Bridges over the Sumida River (left) and Yamashita Park in Yokohama City (right, reclaimed from the earthquake debris)**



Source: Tokyo City (1930) “Imperial Capital Reconstruction Project Chart” and Yokohama City (1981) “History of Port Town Yokohama’s Formation” (published in National Disaster Management Council (2009) “Great Kanto Earthquake Report, Part 3”)

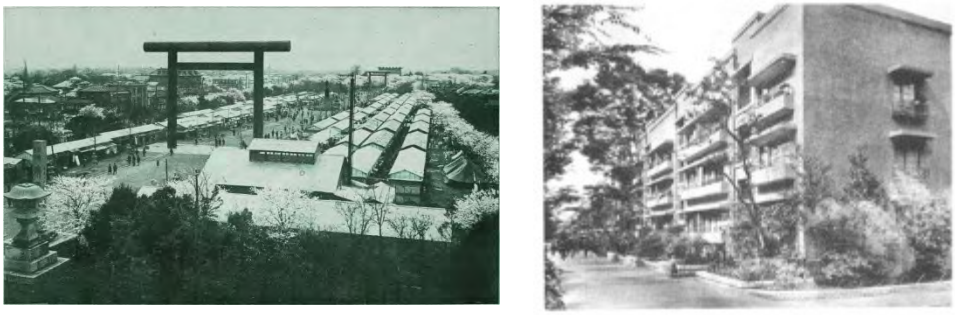
Housing Reconstruction and Social Work

In the Great Kanto Earthquake, about 370,000 houses were damaged by fires, collapse, and other causes, making their reconstruction an essential task. Immediately after the earthquake, emergency temporary housing or barracks were built by local governments, but they were insufficient to accommodate all evacuees. As a result,

many barracks were built by the residents themselves.

After that, in order to secure permanent housing, the construction of small houses using earthquake relief funds and the development of simple housing complexes by the incorporated foundation Dojunkai were promoted. In temporary housing complexes and deteriorated housing areas after the earthquake, the establishment of social facilities such as simple bathhouses, employment agencies, simple dining halls, and public markets was vigorously promoted. These efforts relatively quickly restored people's lives and stabilized the society.

Photo 2. Barracks in the precinct of Yasukuni Shrine (left) and Dojunkai Aoyama Apartments (right)



Source: Kobundo (1930) "Tokyo on Reconstruction Path" Postcards (Tokyo Metropolitan Library's TOKYO Archive), Reconstruction Research Association Edition (1930), "Imperial Reconstruction History and Yokohama Reconstruction Memorial History" (published in National Disaster Management Council (2009) "Great Kanto Earthquake Report, Part 3)

[Column]

Relief Donations from Japan and Abroad after the Great Kanto Earthquake

After the Great Kanto Earthquake, many relief donations were made in Japan and from abroad. According to documents of the Home Ministry at the time, the total amount was about 64.59 million yen, and in particular, about 22.11 million yen, or more than one-third of the total, was donated from 30 countries. Many other items were also donated.

Considering that the total amount of relief donations after the Great East Japan Earthquake was approximately 342.5 billion yen, of which approximately 22.5 billion yen (as of the end of December 2020) came from abroad, it can be said that the ratio of post-quake donations from abroad after the Great Kanto Earthquake was extremely large. The monetary value at that time is estimated to be about 600 times the current value on the basis of the corporate goods price index. Therefore, approximately 22.11 million yen at that time is approximately equivalent to 10 billion yen or more now. Considering the size of the Japanese economy at the time, it is obvious that a very large amount of donations came from overseas.

The relief donations were used for a variety of purposes, including direct payments to affected people for food, clothing, hygiene and medical expenses, as well as the management of emergency temporary housing called barracks and the development of simple housing complexes through subsidies to the incorporated foundation Dojunkai. The relief donations were a valuable resource to support activities for affected people back then.

Relief donations from abroad (ranked by amount / top 10 countries / including donations by Japanese residents in the countries and foreign residents in Japan)

Country name	Amount	Country name	Amount
U.S.	15,327,875 yen	Peru	186,514 yen
U.K.	4,075,615 yen	Mexico	137,926 yen
China	1,336,941 yen	Switzerland	89,624 yen
Netherlands	341,285 yen	France	87,988 yen
Belgium	194,771 yen	Thailand	61,648 yen

Source: Compiled by the Cabinet Office, based on Home Ministry, Social Affairs Bureau (1926) “Taisho Era Earthquake Chronicle”

Taisho Era Earthquake Chronicle (National Diet Library’s Digital Collection)
https://dl.ndl.go.jp/pid/981916/1/60

Japanese Red Cross Society Website
https://www.jrc.or.jp/international/news/210303_006556.html

Section 4. Enhancement and Strengthening of Disaster Management in the Wake of the Great Kanto Earthquake

Enactment of Seismic Provisions

In Tokyo at the end of the Taisho Era, which is when the Great Kanto Earthquake occurred, there was a mixture of buildings with or without earthquake-resistant structures, such as traditional wooden buildings, brick buildings constructed after the Meiji Era, high-rise buildings constructed by foreign construction companies having no

earthquake-related experience, and earthquake-resistant buildings independently devised by Japanese researchers.

Under such circumstances, damage to buildings due to the Great Kanto Earthquake occurred mostly in brick buildings, wooden buildings, and foreign-style buildings without consideration of seismic structures, while Japanese-style earthquake-resistant buildings suffered less damage. For example, the Industrial Bank of Japan in Marunouchi, which was under construction at the time, survived the earthquake almost undamaged. Its structure was designed by Tachu Naito, an architect who studied under Toshikata Sano, famous for his seismic design research. On the other hand, some of buildings built by foreign construction companies collapsed during construction, resulting in the deaths of workers and the need for large-scale renovations.

Photo 3. Damage to office buildings in Marunouchi, Tokyo

Naigai Building
(Destroyed during its construction)

Industrial Bank of Japan (It was completed in 1923 and designed by Tachu Naito, incorporating earthquake-resistant walls.)

Source: Website of the National Museum of Nature and Science's Earthquake Archive (published in the National Disaster Management Council (2006) "Great Kanto Earthquake Report, Part 1")

As a direct result of the massive damage to buildings caused by the Great Kanto Earthquake, the structural strength requirements of the Urban Building Law Enforcement Regulations (Home Ministry Ordinance No. 37 of 1920) were revised in 1924, the year after the earthquake. This led to the world's first seismic force-related regulations. After the war, the Urban Building Law (Act No. 37 of 1919) was replaced by the Building Standards Act (Act No. 201 of 1950), which covered the whole country. However, the seismic provisions at that time are regarded as equivalent to the current seismic resistance standards even though they have changed in appearance.

Progress in Earthquake Research

The Great Kanto Earthquake led to the realization of the importance of scientifically pursuing seismic phenomena and actively advancing research related to earthquake disaster prevention. In 1925, the Earthquake Research Institute was established at the Tokyo Imperial University (its name at that time) as a new research institute to replace the Earthquake Disaster Prevention Investigation Committee, which had been established in the wake of the Nobi Earthquake in 1891, which preceded the Great Kanto Earthquake.

The Earthquake Research Institute's official regulations (the regulations created at its establishment) stipulated: "The Earthquake Research Institute shall be responsible for research on matters related to the science of earthquakes and the prevention of earthquake disasters" and listed the science of earthquakes as its first priority. It was an attempt to understand seismic phenomena from the standpoint of vibration engineering, physics, geophysics, etc. rather than conventional statistical research and observations.

Since then, seismology has made great progress, elucidating the mechanism of earthquake generation, which

was not well understood at the time of the Great Kanto Earthquake, and developing an advanced seismic observation network. This has established the basis for today's earthquake disaster prevention measures, such as predicting future mega-quakes and the immediate dissemination of information in the event of an earthquake.

Section 5. Enhancement and Strengthening of Disaster Management in the Wake of Subsequent Major Disasters

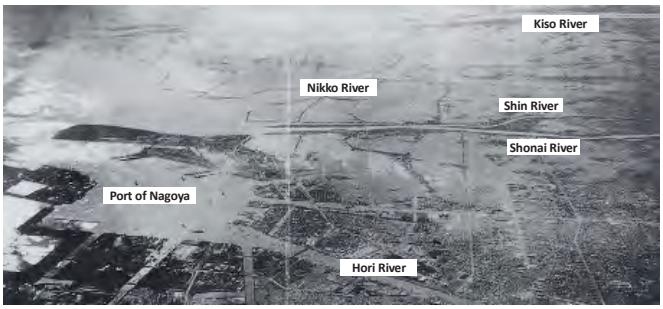
5-1 Establishment of a Comprehensive Disaster Management System in Response to the Ise Bay Typhoon

Overview of the Ise Bay Typhoon

After the Great Kanto Earthquake, disaster management has been enhanced and strengthened each time a large-scale disaster occurred.

An impetus for major advances in postwar disaster management was the Ise Bay Typhoon of 1959. It landed on Cape Shionomisaki, Wakayama Prefecture, on September 26, 1959. Combined with nearly high tides and high waves caused by strong winds, it generated a tidal wave nearly 1 meter higher than the highest historical sea level at Nagoya Port. This typhoon caused as many as 5,098 deaths and missing persons over a wide area, mainly in the Tokai region, and caused great damage.

Photo 4. Low-lying area at the back of the Ise Bay turned into a sea of mud



Source: Kiso River Downstream Office "Relation between Nature and People—40 Years after the Ise Bay Typhoon"

Enactment of the Basic Act on Disaster Management

In response to the damage caused by the Ise Bay Typhoon, the Basic Act on Disaster Management (Act No. 223 of 1961) was enacted in 1961 as the basic legislation for disaster management in Japan. The Act made two policy changes. The first change was to review the previous disaster management, which had focused on post-disaster response measures, and to implement consistent disaster management from disaster prevention to response measures and recovery/reconstruction. The second change was to establish a mechanism for comprehensively coordinating efforts in each field in order to promote comprehensive disaster management.

As discussed in Section 2, disaster management at the time of the Great Kanto Earthquake mainly focused on post-disaster management. In terms of the government system, measures were taken centering on the Home Ministry, as evidenced by the establishment of the Interim Earthquake Relief Secretariat within the Home Ministry.

The enactment of the Basic Act on Disaster Management clarified the concept of disaster management for the first time: "to prevent disasters, and in the event of a disaster, to prevent the spread of damage, and to recover from the disaster." In addition to clarifying the responsibilities of each entity involved in disaster management and

specifying concrete countermeasures and actions, the Act stipulated the establishment of disaster management councils, including the National Disaster Management Council, and the development of disaster management plans, including the Basic Disaster Management Plan, and the establishment of a comprehensive and systematic disaster management promotion system.

5-2 Strengthening the Government's Initial Response System in the Wake of the Great Hanshin-Awaji Earthquake

Overview of the Great Hanshin-Awaji Earthquake

On January 17, 1995, the Great Hanshin-Awaji Earthquake occurred. This disaster was caused by a magnitude 7.3 epicentral earthquake (Southern Hyogo Earthquake) with its epicenter in the northern part of Awaji Island. This earthquake caused a seismic intensity of 7 in the area from Kobe City to Nishinomiya and Takarazuka Cities as well as in the northern part of Awaji Island. Additionally, a seismic intensity of 5 was observed in Toyooka, Hikone and Kyoto Cities, and other areas. The seismic motions were felt over a wide area from Tohoku to Kyushu.

The Great Hanshin-Awaji Earthquake was an urban earthquake similar to the Great Kanto Earthquake, and caused 6,437 deaths and missing persons (including disaster-related deaths) (Fire and Disaster Management Agency information, as of May 19, 2006). There was also extensive physical damage, including the collapse of houses and buildings, the suspension of electricity, gas, water supply, etc., and the destruction of railways, highways, and harbors. Moreover, the disaster disrupted the information network and paralyzed the cities' functions, including administrative functions, roads, railways and ports.

Photo 5. Damage by the Great Hanshin-Awaji Earthquake

Source: Prime Minister's Office, Secretariat of the Headquarters for Reconstruction of the Hanshin-Awaji Area (2000), "Great Hanshin-Awaji Earthquake Reconstruction Report"

Strengthening of the Government's Initial Response System

This disaster caused delays in information communication and the initial response system of the entire government, including the communication of information to the Prime Minister's Office. In particular, damage information could not be promptly collected immediately after the disaster occurred, making it difficult to ascertain the scale of damage, including the numbers of deaths and collapsed buildings.

In light of this, an emergency mobilization system was established, including the establishment of the Cabinet's Information Collection Center to collect information 24 hours a day, the establishment of a Crisis Management Center at the Prime Minister's Office, and the immediate mobilization of an emergency meeting team to take an initial response in the event of a major earthquake. Furthermore, an early damage forecasting system was

developed to immediately estimate the scale of damage and use such information for an initial response.

Also at the time of the Great Kanto Earthquake, prompt collection of damage information and an initial response became issues, and it can be said that the same issues were brought to the fore again in the Great Hanshin-Awaji Earthquake. As mentioned in Section 2, when the Great Kanto Earthquake occurred, it took about 27 hours to set up an interim earthquake relief secretariat and hold its meeting, but after the Great Hanshin-Awaji Earthquake, its Major Disaster Management Headquarters was set up and its meeting was held in about 6 hours.[5] At the time of the Great East Japan Earthquake, which will be discussed later, the Extreme Disaster Management Headquarters was established and its meeting was held within one hour[6] of the earthquake's occurrence as a result of the government's efforts to strengthen its initial response system and partly because it was during the daytime on a weekday when many staffs were in their offices.

Enhancement and Strengthening of Other Disaster Management

As discussed in Section 4, the seismic provisions for buildings established in the wake of the Great Kanto Earthquake were carried over to the post-war Building Standards Act, and were strengthened in 1981 in the wake of the 1978 earthquake off the coast of Miyagi Prefecture. In the Great Hanshin-Awaji Earthquake, damage concentrated on existing unqualified buildings that did not satisfy the revised earthquake resistance standards. Therefore the earthquake triggered the development of laws and support measures for seismic diagnosis and retrofitting. This mitigated the damage of building collapse in the subsequent Great East Japan Earthquake.

After the Great Hanshin-Awaji Earthquake, more than 1.3 million people from all over Japan participated in various volunteer activities, and it was later called the "First Year of Volunteerism." Recognizing the importance of the role of volunteers in times of disaster, the "Basic Act on Disaster Management" was revised in 1995, and provisions were established for the first time to improve the environment for volunteer activities. In 1998, the Act on Promotion of Specified Nonprofit Activities (Act No. 7 of 1998) was enacted, positioning disaster relief activities as specified nonprofit activities. While mutual aid by residents and rescue teams from remote areas played an important role also in the Great Kanto Earthquake, such activities were re-recognized as volunteer activities more than 70 years later.

At the same time, public assistance for affected people was enhanced, and in 1998, the Act on Support for Reconstructing Livelihoods of Disaster Victims (Act No. 66 of 1998) was enacted to support those who suffered significant damage to their livelihood due to a disaster.

5-3 Enhancement of Affected People Support System in the Wake of the Great East Japan Earthquake

Overview of the Great East Japan Earthquake

On March 11, 2011, the Great East Japan Earthquake occurred. The disaster was caused by a trench-type earthquake (2011 off the Pacific coast of Tohoku Earthquake) with a moment magnitude of 9.0 and its epicenter off the coast of Sanriku. The scale of the earthquake was the largest ever recorded in Japan, with

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5 The earthquake occurred at 5:46 on January 17, 1995. The cabinet meeting decided to establish the Major Disaster Management Headquarters at 10:04 on the same day. The first Headquarters Meeting was held at 11:30 on the same day.

6 The earthquake occurred at 14:46 on Mach 11, 2011. The cabinet meeting decided to establish the Extreme Disaster Management Headquarters at 15:14 on the same day. The first Headquarters Meeting was held at 15:37 on the same day.

a maximum seismic intensity of 7 recorded in Kurihara City in the northern part of Miyagi Prefecture, and a seismic intensity of upper 6 was observed in Miyagi, Fukushima, Ibaraki and Tochigi Prefectures. Tremors were observed over a wide area from Hokkaido to Kyushu. The earthquake also caused huge tsunamis to hit the Pacific coastal areas centering on Iwate, Miyagi, and Fukushima prefectures. The heights of the tsunami that hit various places was 9.3 m or higher in Soma City, Fukushima Prefecture, 8.6 m or higher in Ishinomaki City, Miyagi Prefecture, 8.5 m or higher in Miyako City, Iwate Prefecture, and 8.0 m or higher in Ofunato City.

This earthquake and tsunamis left 22,318 people dead or missing in 13 prefectures (including disaster-related deaths) and 122,039 houses completely destroyed in 9 prefectures (Fire and Disaster Management Agency information, as of March 9, 2023), and up to about 470,000 people evacuated when the disaster struck. In addition, the accident at the Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Station released radioactive materials, forcing many residents living in the vicinity of the station to evacuate and causing extensive damage to all industries, thereby creating a complex disaster of unprecedented scale.

Photo 6. Tsunami surging over the embankment into the town (left: Miyako City, Iwate Pref.) and emergency firefighters rescuing affected people (right: Kesennuma City, Miyagi Pref.)

Source: Miyako City, Iwate Pref. (left) and Tokyo Fire Department (right)

Enhancement of Affected People Support System

In the Great East Japan Earthquake, communication disruptions in the affected municipalities and damage to government staff and buildings made it difficult to grasp information such as necessary supplies for the affected people. In addition, there were large differences in the management of shelters, and it was not possible to adequately respond to the changing needs of the affected people. The necessity of giving consideration to women, the elderly and the disabled was also pointed out.

In consideration of the above, the 2012 and 2013 revisions to the Basic Act on Disaster Management established provisions enabling push-type support, in which the national government can provide supplies at its own discretion without waiting for requests from local governments, a provision for pre-designating shelters where affected people can stay for a certain period of time and temporary evacuation sites in emergencies, and a provision for residents in need of assistance in evacuation. An action guideline concerning shelter management, and an action guideline from the perspective of gender equality were also established.

As discussed in Section 2, at the time of the Great Kanto Earthquake, there was no system for predesignating shelters, and therefore schools, government offices, temple precincts, etc. were opened to accommodate evacuees. In addition, food and other goods were supplied to the affected people through the mutual help of the residents. After the Great East Japan Earthquake, the designation of shelters was legally required, and a

government-led system for material support, including push-type support, was established. On the other hand, in anticipation of future large-scale disasters, and as was the case at the time of the Great Kanto Earthquake, it is still important to secure an appropriate living environment for evacuees, including for those outside the designated shelters, and to support affected people's self-help and mutual assistance, such as helping one another among the residents.

Enhancement and Strengthening of Other Disaster Management

Upon the Great East Japan Earthquake, the term "unexpected" was frequently used, highlighting the necessity to reexamine the conventional method of estimating damage, which traditionally relied on replicating earthquakes and tsunamis that had occurred during the past several hundred years. Additionally, based on the belief that disasters cannot be prevented by hardware measures alone, there was a call for thorough implementation of the concept of "disaster mitigation," which minimizes damage by combining various hardware and software measures.

Based on this, the damage assumptions for a Nankai Trough earthquake, a Tokyo inland earthquake, and a trench-type earthquake in the vicinity of Japan and Chishima Trenches have been revised sequentially, and the basic principles of disaster management, including the concept of "disaster mitigation," have been clearly stated in the Basic Act on Disaster Management to ensure the thorough enforcement of the Act.

At the time of the Great Kanto Earthquake, scientific knowledge about the earthquake generation mechanism was scarce, and it was not until around 1965 that it was confirmed that the epicenter of an earthquake is a fault moving underground. Since then, seismological research and observations have advanced, and earthquake models based on the latest scientific knowledge have been devised. Scientific risk assessments based on the latest knowledge will continue to be required, and disaster response should be conducted while always keeping in mind the possibility of disasters exceeding expectations.

Please also refer to Appendix 5 for an overview of Japan's post-war disaster management system and schemes, including those discussed above.

Chapter 2. Changes in the Environment Surrounding Japan and Future Challenges

This chapter looks back on the past 100 years and provides an overview of the various changes in the environment surrounding Japan that have occurred during this period, thereby clarifying challenges in promoting disaster management in the future.

Section 1. Increasing Severity and Frequency of Natural Disasters

Climate change and other factors are increasing the risk of natural disasters. This section discusses how temperatures and the frequency of heavy rains have changed over the past 100 years since the Great Kanto Earthquake, using meteorological data and taking into account long-term trends. This section also discusses the increasing imminence of large-scale earthquakes, such as a Tokyo inland earthquake that occurs directly under the Tokyo metropolitan area or a Nankai Trough earthquake, with reference to the evaluation results of the government's Earthquake Research Committee.

Climate Change and Its Impacts in Japan

In Japan, damage caused by meteorological disasters such as the Ise Bay (Isewan) Typhoon discussed in Chapter 1, Section 5 as well as windstorms, heavy rains, floods, sediment disasters, and storm surges have been occurring almost every year.

In recent years, Typhoon Habigis in 2019 and the torrential rains in July 2020 caused serious damage. Also in fiscal year 2022, heavy rains in August, Typhoon Nanmadol and Tropical Storm Talas, and other disasters caused damage in rapid succession. Climate change and its impacts, such as the recent rise in average temperature and the increase in the frequency of heavy rains, are manifesting across the country, and are becoming important issues for Japan.

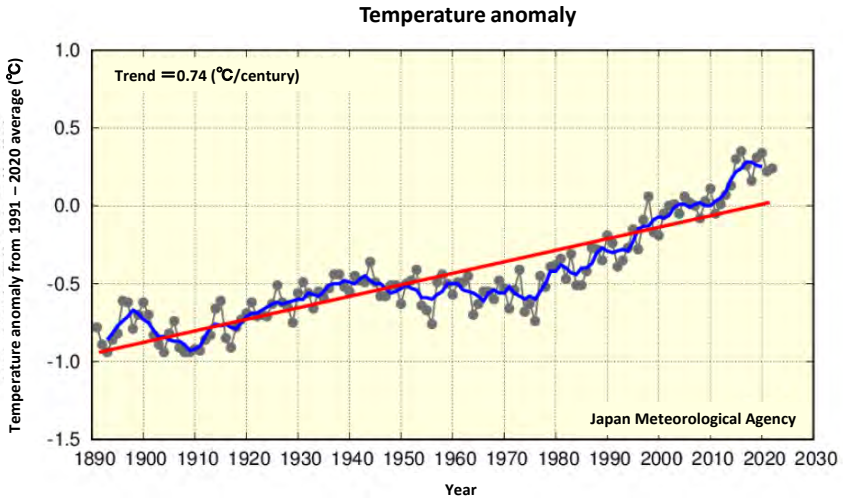
A look at long-term global temperature changes and Japan reveals that the global annual average temperature has been rising with various fluctuations, by 0.74°C per 100 years (Fig. 2-1).

On the other hand, the annual average temperature in Japan has been rising even faster, by 1.30°C per 100 years. Over the past century, global warming has been steadily progressing, due to increased greenhouse gases like carbon dioxide and the effects of natural fluctuations that are repeated every several years to several decades. The 5-year moving average trend shows an accelerating rate of increase in average temperature since the latter half of the 1980s (Fig. 2-2).

As if correlating with this rise in average temperature, the frequency of heavy rains and hourly extreme precipitations (downpours) is also increasing nationwide. The number of days with daily precipitation of 100 mm or more or 200 mm or more has been increasing over the past 100 years (Fig. 2-3). Data from AMeDAS, which started observations at many points in the late 1970s, reveal that the annual frequency of hourly extreme precipitation of 50 mm or more or 80 mm or more per hour has increased over roughly 50 years (Fig. 2-4).

Furthermore, the annual average sea surface temperature in the waters around Japan has increased by 1.24°C over the past 100 years, which is almost the same as the average temperature increase in Japan (Fig. 2-5). A rise in the sea surface temperature is generally considered to increase the forces of typhoons and may lead to them becoming even more damaging.

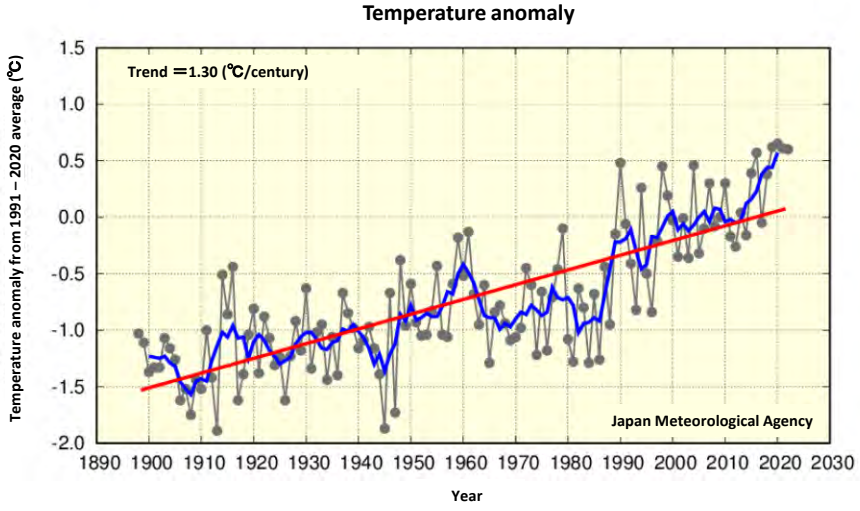
Fig. 2-1 Trends in Annual Global Average Temperature Anomalies (1891-2022)



Anomalies are deviation from baseline (1991-2020 average). The black line indicates surface temperature anomaly of each year (deviation from baseline). The blue line indicates their five-year running mean while the red line indicates the long-term linear trend of this period. The long-term linear trend is statistically significant at confidence level of 99%.

Source: Compiled by the Cabinet Office based on Japan Meteorological Agency "Climate Change Monitoring Report 2022"

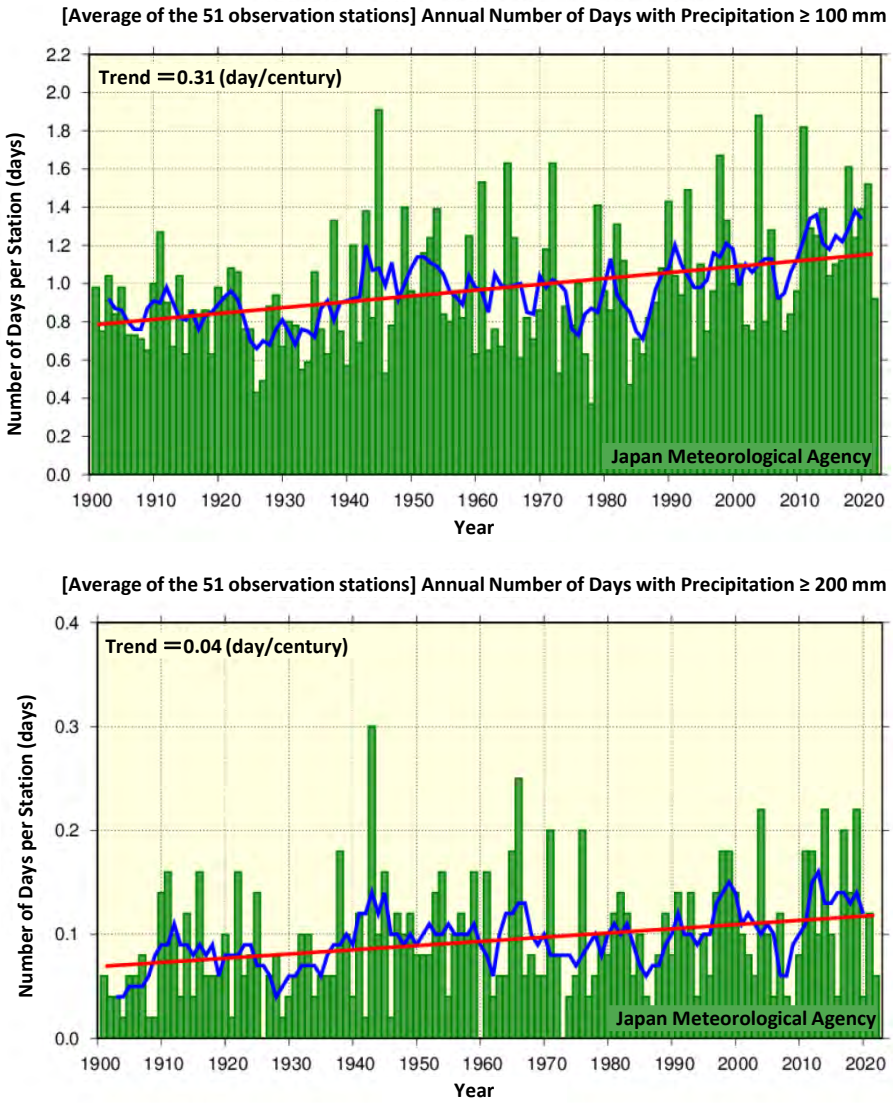
Fig. 2-2 Trends in Annual Average Temperature Anomalies in Japan (1898-2022)



Anomalies are deviation from baseline (1991-2020 average). The black line indicates values of each year averaged in 15 national observation stations (deviations from the baseline). The blue line indicates their five-year running mean while the red line indicates the long-term linear trend of this period. The long-term linear trend is statistically significant at confidence level of 99%.

Source: Compiled by the Cabinet Office based on Japan Meteorological Agency "Climate Change Monitoring Report 2022"

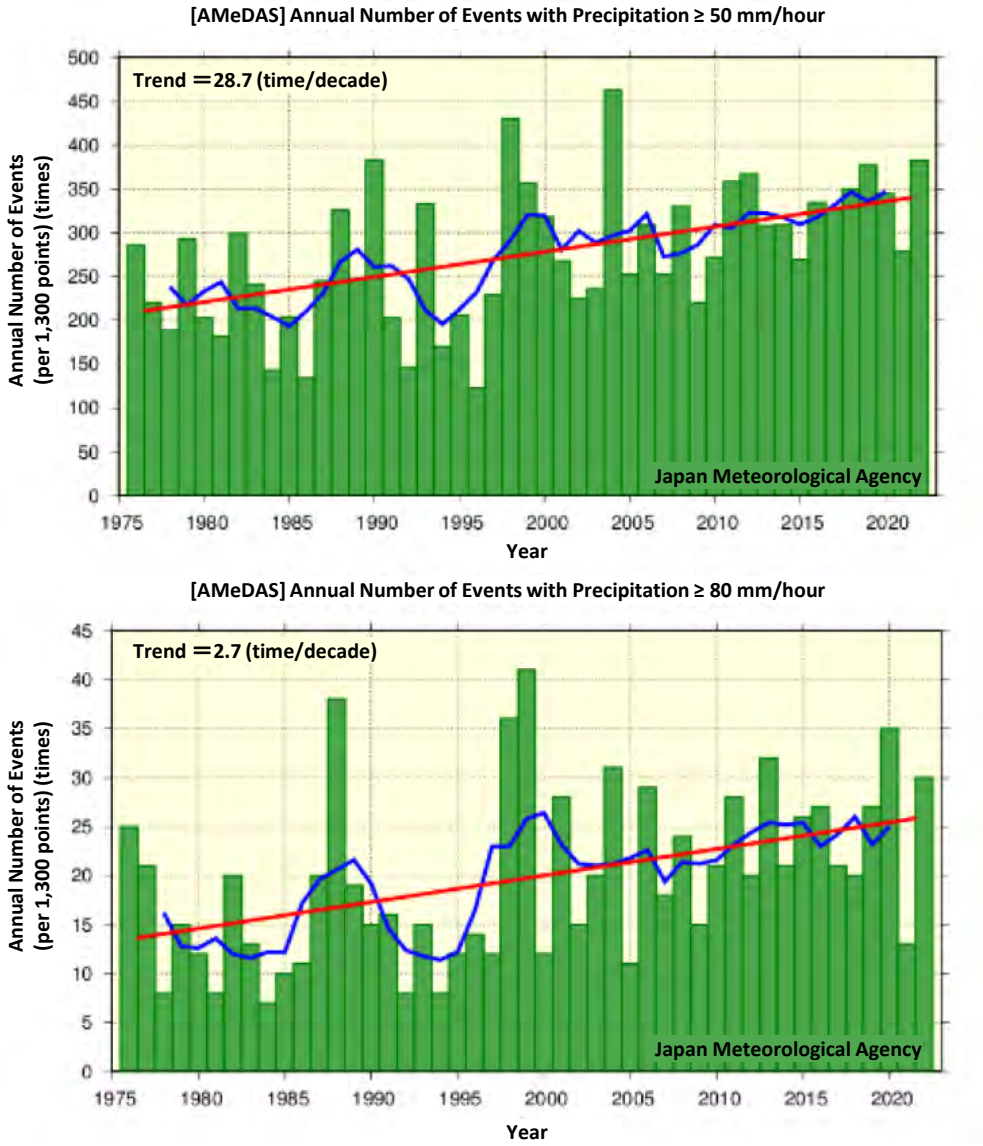
Fig. 2-3 Trends in Annual Number of Days with Precipitation ≥ 100 mm and ≥ 200 mm (1901-2022)



The green bars indicate annual occurrences of days with precipitation divided by the total number of monthly observation data sets available of the year (i.e., the average occurrence per station). The blue line indicates the five-year running mean, and the straight red line indicates the long-term liner trend of this period. The increase in the annual number is statistically significant at confidence level of 99%.

Source: Compiled by the Cabinet Office based on Japan Meteorological Agency “Climate Change Monitoring Report 2022”

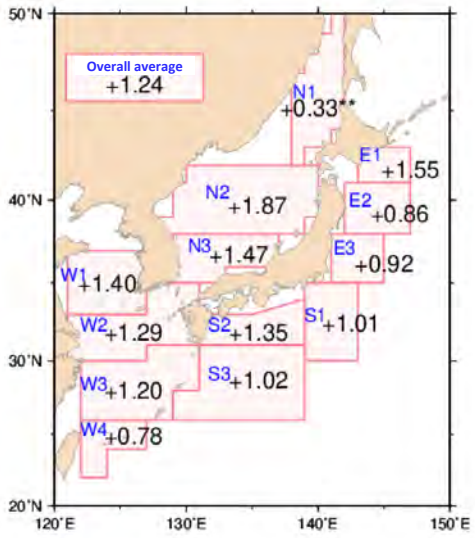
Fig. 2-4 Trends in Annual Number of Days with Precipitation ≥ 50 mm/hour and ≥ 80 mm/hour (1976-2022)



The green bars indicate the annual number of the event (days) at AMeDAS stations nationwide for each year (converted to a per-1,300-station basis). The blue line indicates the five-year running mean, and the straight red line indicates the long-term liner trend of this period. The increase in the annual number is statistically significant at confidence level of 99%.

Source: Compiled by the Cabinet Office based on Japan Meteorological Agency “Climate Change Monitoring Report 2022”

Fig. 2-5 Trends in Area-averaged Annual Mean SSTs around Japan (°C per century)



Area number	Area name	Area number	Area name
E1	Sea off Kushiro	N1	Northeastern part of the Sea of Japan
E2	Sea off Sanriku	N2	Central part of the Sea of Japan
E3	Eastern part of the sea off Kanto	N3	Southwestern part of the Sea of Japan
S1	Southern part of the sea off Kanto	W1	Yellow Sea
S2	Sea off Shikoku and Tokai	W2	Northern part of the East China Sea
S3	East of Okinawa	W3	Southern part of the East China Sea
		W4	Sea around the Sakishima Islands

Fig. 2-5 shows increase rates from 1900 to 2022. Areas with no symbol and those marked with [**] have statistical significant trend at confidence levels of 99% and 90 % respectively.

Source: Compiled by the Cabinet Office based on Japan Meteorological Agency “Climate Change Monitoring Report 2022”

Increasing Imminence of Large-Scale Earthquakes

The government's Earthquake Research Committee is assessing the intervals of the activities of major active faults and trench-type earthquakes as well as the probability of earthquakes and publishing the results. For example, the Committee announced the possibility of a Nankai Trough earthquake (magnitude 8-9 class) occurring within 30 years as 60 to 70% 10 years ago in 2013, as compared to 70 to 80% in 2023, which shows the imminence of the earthquake is increasing over time. In addition, the probability of an earthquake with magnitude 7 or so occurring within 30 years directly below the southern Kanto region, caused by plate subduction along the Sagami Trough, has not changed from around 70% at the time of the 2014 announcement because such an earthquake cannot be treated as one that occurs repeatedly in the same location. In the Kanto area, however, earthquakes of a magnitude 7 class have occurred frequently as far as the Committee has grasped. While seismic activities have been relatively calm over the 100 years since the Great Kanto Earthquake, a relatively active period is expected in future and continued vigilance is required.

Natural Disaster Risk Anticipated to Increase Further

Meteorological disasters have intensified and become more frequent over the past 100 years in visible ways and this trend is expected to continue as global warming progresses. In addition, we cannot neglect preparations for large-scale earthquakes, such as a Tokyo inland earthquake and a Nankai Trough earthquake and volcanic eruptions that are expected to occur in future.

We must squarely face the ever-increasing risk of natural disasters and make all efforts to avoid or mitigate the predicted damage.

Section 2. Improving Disaster Response Capabilities through the Development of Disaster Management and Mitigation Infrastructure

Compared with the Taisho Era, during which the Great Kanto Earthquake occurred, the current infrastructure for disaster management and mitigation (hereinafter referred to as “disaster management and mitigation infrastructure”) has been highly developed. This section presents examples of how damage has been mitigated by developing rivers and ports and reviews Japan's earthquake preparedness efforts and progress, with a focus on the seismic reinforcement of buildings. As well as the development of disaster management and mitigation infrastructure, this section discusses the need for efforts to raise disaster management awareness.

Damage Mitigation through Flood Control and Storm Surge Countermeasures

To protect the lives and property of residents from natural disasters, Japan has been promoting the development of disaster management and mitigation infrastructure, such as river development and dam construction, nationwide.

First, this section takes up the Kano River (Kanogawa), which flows through the Izu Peninsula in Shizuoka Prefecture, as an example of how damage can be mitigated by developing disaster management and mitigation infrastructure in flood control measures. The Kano River, which has its water source in the Amagi Mountain Range on the Izu Peninsula and flows from south to north, which is a rare flow direction on the Pacific Ocean side, has been at the center of people's lives for more than a thousand years. On the other hand, due to its geographically narrow downstream section and the high rainfall zone in the basin, it has caused many floods since ancient times. The Kanogawa Typhoon (Typhoon Ida) in particular brought about unprecedented flood damages to the basin in September 1958 (photo 7). In response, to lower the water level of the Kano River main stream, which traverses the downstream urban area, the Kano River Discharge Channel was constructed to divert the river flow at its midstream directly into the sea. Subsequently, Typhoon Hagibis in 2019, which brought heavy rain in this area, recorded a total rainfall of 778 mm, exceeding the total rainfall of the Kanogawa Typhoon (739 mm). However, the diversion of the flood via the Kano River Discharge Channel prevented the river from overflowing, significantly reducing human and property damage (photo 8).

Next, this section examines the effect of developing disaster management and mitigation infrastructure in storm surge measures, citing Osaka City as an example. Osaka City experienced large-scale flood damage due to the storm surge associated with the 2nd Muroto Typhoon (Typhoon Nancy) in September 1961, which prompted the city to implement storm surge countermeasures, including the water gates, storm surge barriers and seawall iron gates. In September 2018, more than half a century after the 2nd Muroto Typhoon, Typhoon Jebi (T1821) recorded TP + 3.29 m in Osaka Bay, far exceeding the highest tide level ever recorded in the bay (TP + 2.93 m in the 2nd Muroto Typhoon), but the proper operation of the water gates and seawall iron gates installed as part of measures against storm surge in Osaka Bay helped avoid flooding damage in the Osaka urban area (Photo 9).

Photo 7. Damage Caused by Kanogawa Typhoon in September 1958

Source : Numazu Office of River and National Highway, Chubu Regional Development Bureau, MLIT

Photo 8. Kano River Discharge Channel

Source : Numazu Office of River and National Highway, Chubu Regional Development Bureau, MLIT

Photo 9. Kizugawa Water Gate in Osaka Bay protecting the urban area from high waves caused by Typhoon Jebi in 2018

Source : Ministry of Land, Infrastructure, Transport and Tourism

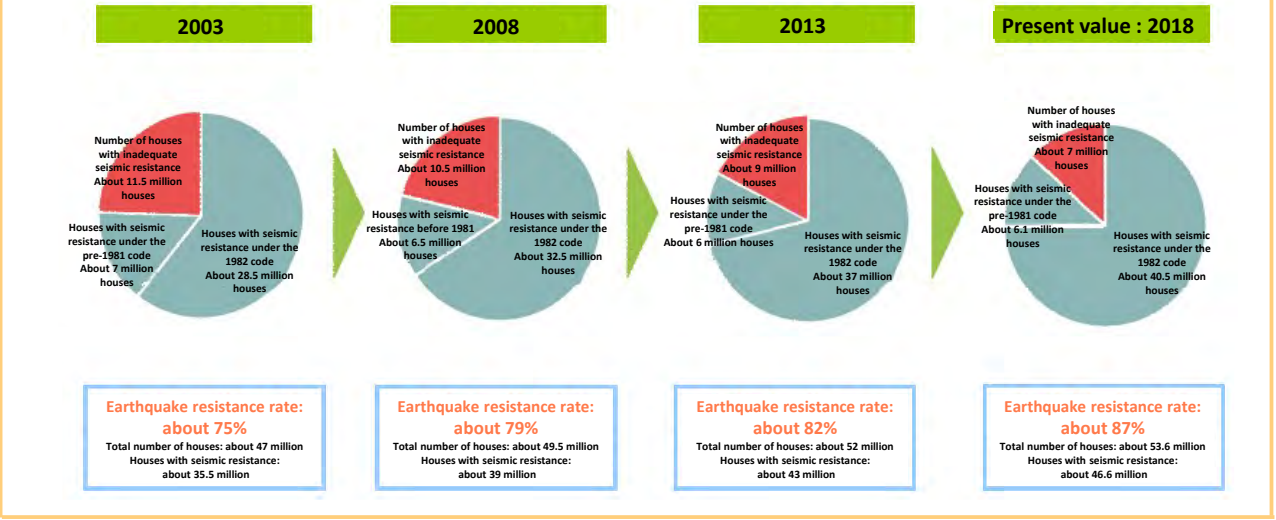
Progress in the Seismic Reinforcement of Buildings

Next, this section focuses on the seismic reinforcement of buildings as part of discussing Japan's efforts for earthquake countermeasures. As explained in Chapter 1, Section 1, the Great Kanto Earthquake caused more than 105,000 casualties due to the collapse of buildings and the resulting fires. As discussed in Chapter 1, Section 4, many buildings that had not been seismically reinforced collapsed. In response, seismic force-related provisions were enacted by law. During the later Great Hanshin-Awaji Earthquake, damage was particularly concentrated in buildings that did not satisfy the quake-resistance standards, so the seismic reinforcement of such buildings was promoted.

With these efforts, the seismic reinforcement of buildings in Japan has been making steady progress. For example, the earthquake resistance rate of residential houses[7] has been steadily increasing: approximately 75% in 2003, approximately 79% in 2008, approximately 82% in 2013 and approximately 87% in 2018. The effectiveness of seismic reinforcement has been confirmed, as evidenced by the lack of damage to many earthquake-resistant buildings in the Great East Japan Earthquake (Fig. 2-6). In preparation for future large-scale earthquakes such as a Tokyo inland earthquake, a goal of mostly eliminating the houses with inadequate seismic resistance by 2030 has been set and efforts toward it have been made with various public supports.

7 Percentage of housing stock with seismic resistance required by the 1981 quake-resistance standards

Fig. 2-6 Trends in Earthquake-resistant Housing in Japan (2018)



Source: Ministry of Land, Infrastructure, Transport and Tourism

Promotion of Disaster Management Measures Combining Hardware and Software

To cope with increasingly severe and frequent natural disasters, Japan has steadily developed and maintained disaster management and mitigation infrastructure over the past 100 years. Therefore, as was shown in the aforementioned damage mitigation examples, developing disaster management and mitigation infrastructure has often prevented or mitigated the occurrence of disasters in many areas, even in the cases of heavy rains or earthquakes that would have caused large-scale disasters if they had happened long ago. In addition, as these areas have been made safer, new housing has been developed in urban areas and land development for factories has been promoted in peripheral areas, all of which has helped upgrade land use and boost productivity nationwide. This, in turn, has contributed to Japan's economic development.

However, as hardware development progresses, new challenges emerge, such as aging facilities and an increasing number of vacant houses, if proper management is not carried out. In addition, as most people have less direct experience with natural disasters, their perception of natural disasters has diminished. Undeniably, more and more people fail to perceive natural disasters as a personal concern or are unaware of the need to take appropriate disaster management actions until a disaster actually occurs, believing that they will be fine or that no disaster will occur in their area.

There are thus obvious needs for steadily refining the development of disaster management and mitigation infrastructure, as well as implementing appropriate maintenance and aging-management measures in future. As discussed in Chapter 1, Section 5, it is also necessary to thoroughly implement a concept of “disaster mitigation” that minimizes damage by combining various hardware and software measures and further reinforce software measures such as disaster management education and drills.

Section 3. Concentration of Population in Metropolitan Areas and Aging Population

The previous chapter has reviewed the history of large-scale disasters from the time of Great Kanto Earthquake to the present day and how Japan responded to them. Japan’s economy and society have changed significantly

over the last 100 years. Since the population census in Japan started in 1920, three years before the Great Kanto Earthquake, it has been possible to take a chronological overview of the differences between the socioeconomic situations at the time the disaster occurred and today. Therefore, this section mainly uses population census data[8] to clarify the characteristics of the population structure at the time of the megaquake, analyze subsequent changes in the population structure and future trends and discuss demographic risks which are the subject of growing concern.

3-1 Distribution of Population by Region

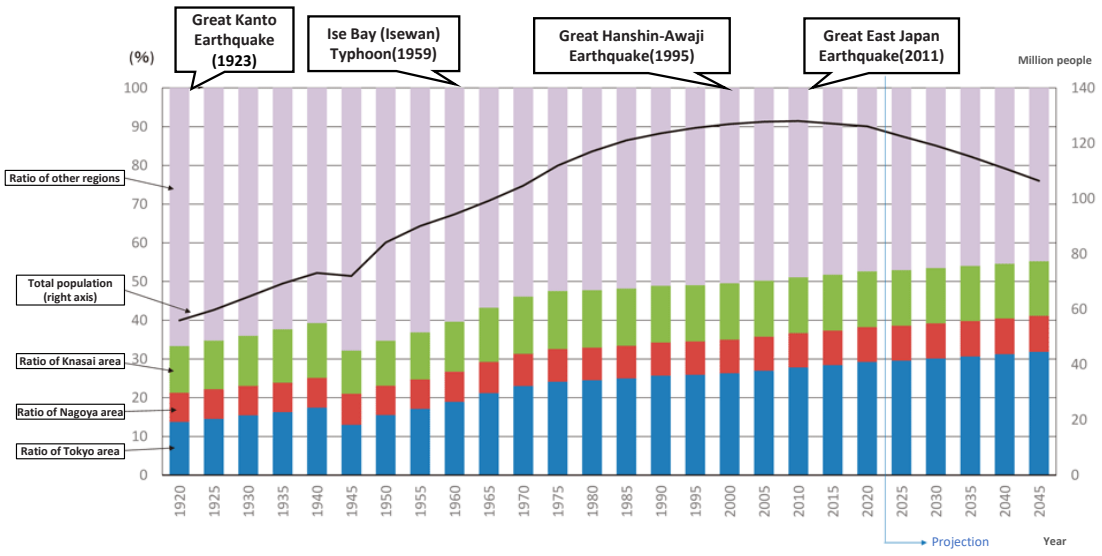
The Population of the Tokyo Area at the Time of the Great Earthquake Was Less than a Quarter of the Current Population.

The total population of Japan in 2020 was approximately 126.15 million. In 1920, three years before the Great Kanto Earthquake, Japan's total population was approximately 55.96 million (44.4% of the population in 2020), which was less than half the current population.

In terms of population distribution by area[9], the Tokyo Area in 2020 had approximately 36.91 million residents, accounting for about 29.3% of the total population, while the population of the same area in 1920 was approximately 7.68 million (about 13.7% of the total population), which was less than one-fourth its current population and only about half the current total population of Japan (Fig. 2-7).

Based on the above, it can be said that the impact of the Great Kanto Earthquake on the population and economic and social activities was relatively small compared with the impact of similar earthquakes in the present day.

Fig. 2-7 Trends in the Total Population and Population Composition Ratio by Regions



Source: "Population Census," Ministry of Internal Affairs and Communications; "Regional Population Projections for Japan: 2015-2045 (2018)" National Institute of Population and Social Security Research

8 Ministry of Internal Affairs and Communications, "Population Census"
9 Area divisions are as follows:
Tokyo Area: Saitama Pref., Chiba Pref., Tokyo, and Kanagawa Pref.
Nagoya Area: Gifu, Aichi and Mie Prefectures
Kansai Area: Kyoto, Osaka, Hyogo and Nara Prefectures
Local areas: prefectures other than the above

The Ise Bay [Isewan] Typhoon Occurring during the Rapid Population Growth in Metropolitan Areas

A study of the population structure at the times of major disasters after the Great Kanto Earthquake and the subsequent Second World War reveals that the regional population distribution differed from period to period.

The occurrence of the Ise Bay Typhoon in 1959 coincided with the full-scale concentration of population in the three major metropolitan areas. While the population of local areas decreased for the first time since the Second World War between 1960 and 1965, the populations of the three major metropolitan areas, including the Nagoya Area, which was hit by the Ise Bay Typhoon, surged during the same period.

The Great Hanshin-Awaji Earthquake, which Occurred at a Time When the Trend of Unipolar Population Concentration in Tokyo Intensified

The occurrence of the Great Hanshin-Awaji Earthquake in 1995 coincided with the period after the bursting of the economic bubble when the trend toward unipolar population concentration in the Tokyo Area intensified. The population change rate of the Kansai Area (over 5 years) remained almost flat at 0.8% from 1990 to 1995, and has been negative since 2015.

The Great East Japan Earthquake occurred in 2011, immediately after the total population of Japan peaked at approximately 128.08 million in 2008. The trend toward unipolar population concentration in Tokyo further intensified, and while the population ratio of the Tokyo Area accounted for 27.8% in 2010, the population ratio of the local areas including the Tohoku Area fell below half to 48.9%.

Expected Trend of Further Unipolar Population Concentration in Tokyo

According to the National Institute of Population and Social Security Research's future population projection by region[10], the unipolar population concentration in the Tokyo Area will further progress and the population share of the Tokyo Area is estimated to reach 31.9% by 2045. With the probability of an M7-class earthquake occurring within 30 years in the southern Kanto region estimated at around 70%, further countermeasures are required to prepare for a mega-disaster such as a Tokyo inland earthquake (an earthquake occurring directly under the Tokyo metropolitan area) than were required 100 years ago when the Great Kanto Earthquake occurred.

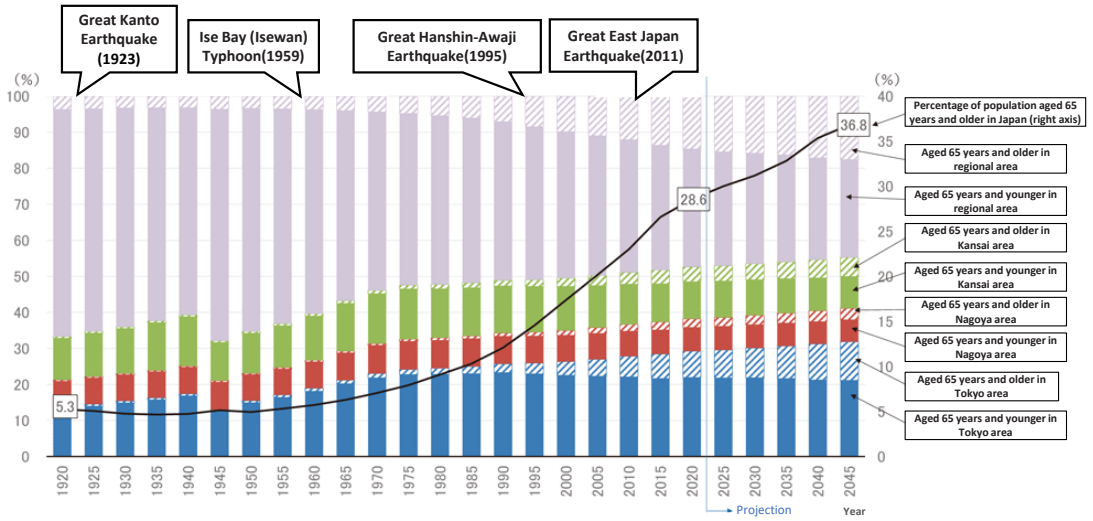
3-2 Aging of the Population

The Aging Rate at the Time of the Great Kanto Earthquake Was Less than One-Fifth of the Current Rate

Japan's population is aging, and the national aging rate (the ratio of the population aged 65 and over to the total population) in 2020 was 28.6%, meaning that more than one in four people were elderly. On the other hand, Japan's postwar population structure maintained a "pyramid-shaped" population structure, with the largest number of people at age 0 and population decreasing as the age increased, and the proportion of elderly people was much smaller than today. In 1920, the proportion of elderly people was 5.3%, or about 1 in 20 people, which was less than one-fifth of the current ratio (Fig. 2-8).

10 National Institute of Population and Social Security Research, "Population Projection by Region in Japan" (2018 estimate)

Fig. 2-8 **Trends in the Percentage of Population Aged 65 Years and Older in Japan and Population Composition Ratio by Regions and Age Groups**



Source: "Population Census," Ministry of Internal Affairs and Communications (For 2015 and 2020, unspecified values were complemented. Population aging rates in and before 2020 were calculated by proportionally distributing individuals with unspecified ages.), "Regional Population Projections for Japan: 2015-2045 (2018)" National Institute of Population and Social Security Research

Issue of Disaster-related Deaths among the Elderly That Attracted Attention in the Great Hanshin-Awaji Earthquake

Following the post-war baby boom, as the period of rapid economic growth started, Japan entered the period of a society with low fertility and death rates, but aging rate remained low for a while. During the late Showa Era, when the economic growth rate slowed, the birth rate began to decline and the aging rate began to increase progressively.

In 1995, the year of the Great Hanshin-Awaji Earthquake, the aging rate was 14.6%, an increase of 2.5 percentage points from five years earlier. The earthquake highlighted so-called "disaster-related deaths" due to prolonged evacuation and other factors, but behind this was the rapid increase in the number of elderly people.

The aging rate continued to rise especially in rural areas. By the time of the Great East Japan Earthquake (2011), the aging rate in rural areas reached 24.7% (2010).

The Aging of Population Expected to Progress Also in the Tokyo Area

The aging of the population is expected to progress further in the future, with the national average of aging rate estimated to increase from 28.6% in 2020 to 36.8% in 2045. The aging rate is particularly high in rural areas, where 31.0% in 2020 is estimated to increase to 39.3% in 2045.

Conversely, the aging rate in the Tokyo Area was 25.1% in 2020, which was lower than the national and local area averages, but is predicted to reach about 33.7% in 2045 because aging will continue to increase as in the local areas.

Thus, based on demographic projections for the next 20 years or so, more than one-third of the population of the Tokyo Area will be elderly and the population is expected to continue aging, with an increase in the number of elderly people aged 75 or older. Given the fact that most disaster-related deaths have occurred among the elderly, improving the evacuation environment in the event of a mega-disaster, such as a Tokyo inland earthquake, will be even more challenging with the mental and physical care of the elderly and their prolonged evacuation in mind.

Section 4. Changes in People's Disaster Management Awareness, and Progress in Self-Help and Mutual Support Initiatives

One of the lessons learned from the Great Kanto Earthquake is that each citizen's disaster management awareness and self-help and mutual support initiatives based on that awareness are key elements of enhancing a regional disaster resilience.

Despite the lack of any survey to determine people's disaster management awareness and the status of disaster management efforts on an ongoing basis since the Great Kanto Earthquake, this section analyzes trends since the late Showa Era and discusses future tasks based primarily on public opinion surveys by the Cabinet Office and surveys by the Fire and Disaster Management Agency.

4-1 People's Disaster Management Awareness, and Progress in Self-Help Initiatives

Low Public Awareness of Disaster Management Prior to the Great Hanshin-Awaji Earthquake

A "public opinion survey on disaster management" conducted in September 1984, asked for the first time: "Have you taken any measures in your home to prepare for a major earthquake or not?" (in a multiple-choice format), to which 41.6% of the respondents answered, "not taking any specific measures" (Fig. 2-9).

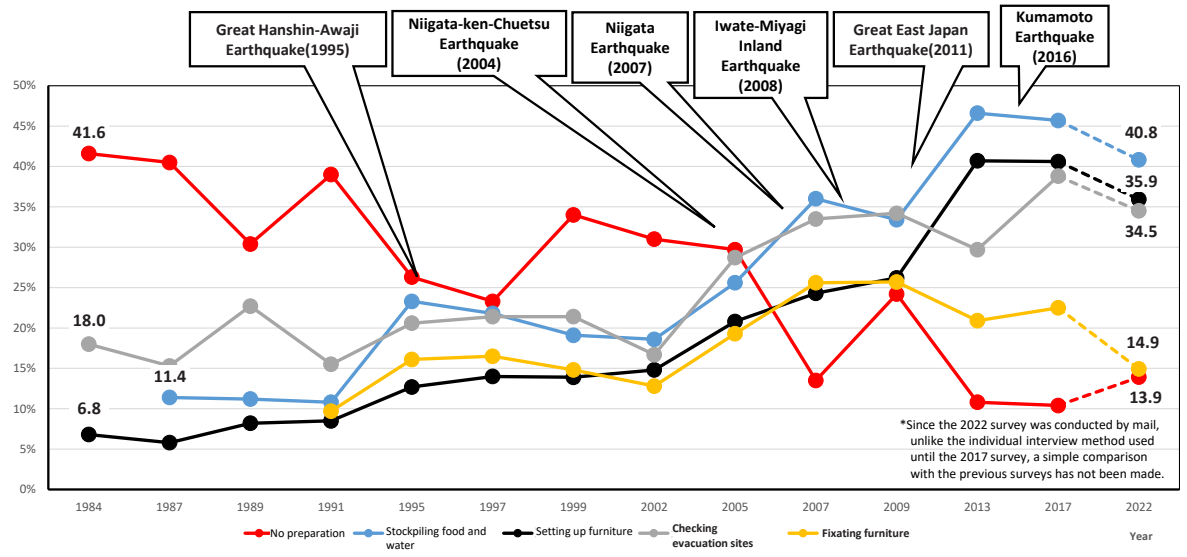
Also, the three subsequent surveys did not show any increase in public awareness of disaster management. As a result, the 1992 edition of the White Paper on Disaster Management, published about 30 years ago, made the observation below, touching on the relationship between disaster experience and disaster management awareness among the public.

"People who were 20 years old when the Great Kanto Earthquake occurred are now approaching 90 years old, and those who were 20 years old when the Ise Bay Typhoon struck are already in their 50s. As a result, the experience of the past large disasters will fade further."[11]

In addition to this observation, the white paper argued for the necessity of accumulating simulated disaster experiences through the active use of disaster video films and earthquake simulation vehicles.
What triggered a major shift in the public awareness of disaster management was the Great Hanshin-Awaji Earthquake of 1995. In a public opinion survey conducted in September 1995, shortly after the earthquake, the percentage of respondents who said they were not taking any specific measures dropped sharply to 26.3%. Regarding the percentages of implementing specific "self-help" efforts, "fixation of furniture and other home furnishings" increased from 6.8% to 12.7% (comparison between 1984 and 1995), and "stockpiling of food and water" increased from 11.4% to 23.3% (comparison between 1987 and 1995), both having increased significantly. This is due to the fact that people learned that most of the deaths in the Great Hanshin-Awaji Earthquake were caused by crushing under overturning furniture, and that food and other supplies were overwhelmingly in short supply at shelters immediately after the disaster.[12]

11 National Land Agency, "1992 White Paper on Disaster Management," pp. 198 to 199
12 Cabinet Office, "Collection of Lessons Learned from the Great Hanshin-Awaji Earthquake"

Fig. 2-9 Trends in Self-help Efforts in Preparation for a Major Earthquake (Public Opinion Survey of Disaster Management)



Source: "Public Opinion Survey of Disaster Management," prepared by the Cabinet Office

Improved Public awareness of Disaster Management Due to Successive Earthquake Disasters in the Mid-Heisei Era

Even after the Great Hanshin-Awaji Earthquake, earthquake disasters occurred successively in various regions in the mid-Heisei Era, including the Mid Niigata Prefecture Earthquake in 2004, Earthquake Off the Coast of Chuetsu in Niigata Prefecture in 2007, and the Iwate-Miyagi Inland Earthquake in 2008.

A total of six public opinion surveys were conducted from the 1995 opinion survey until the Great East Japan Earthquake (2011). During this period, the percentages of the respondents who "fixated furniture and other home furnishings" increased from 12.7% to 26.2% (comparison between 1995 and 2009), who "stockpiled food and water" increased from 23.3% to 33.4% (comparison during the same), who "checked evacuation sites" increased from 20.6% to 34.2% (same), and who "checked the method of contact among family members" increased from 16.1% to 25.7% (same), all of which generally maintained an upward trend. The background of this trend was that the public's disaster management awareness has increased as a result of those successive earthquake disasters.

Stagnating Self-Help Efforts after the Great East Japan Earthquake

Needless to say, the Great East Japan Earthquake (2011) significantly raised the public's awareness of disaster management. According to the 2013 opinion survey, the percentage of respondents who answered that they were not taking any specific countermeasures dropped to 10.8%. Specific "self-help" initiatives saw significant increases from the previous survey, with 40.7% of respondents "fixating furniture and other home furnishings" and 46.6% "stockpiling food and water," both marking an increase of over 10 percentage points.

However, despite the Kumamoto Earthquake that occurred in 2016 after the Great East Japan Earthquake and caused significant damage, the implementation rate of self-help efforts has shown signs of leveling off in the subsequent survey conducted in 2017; for example, only 40.6% of respondents answered that they "fixated furniture and other home furnishings. In addition, the most recent survey in 2022, which was conducted by mail, unlike the previous surveys conducted through individual interviews, suggests that the overall implementation rate

of self-help efforts has not increased, even though a simple comparison with the previous survey results is not possible.

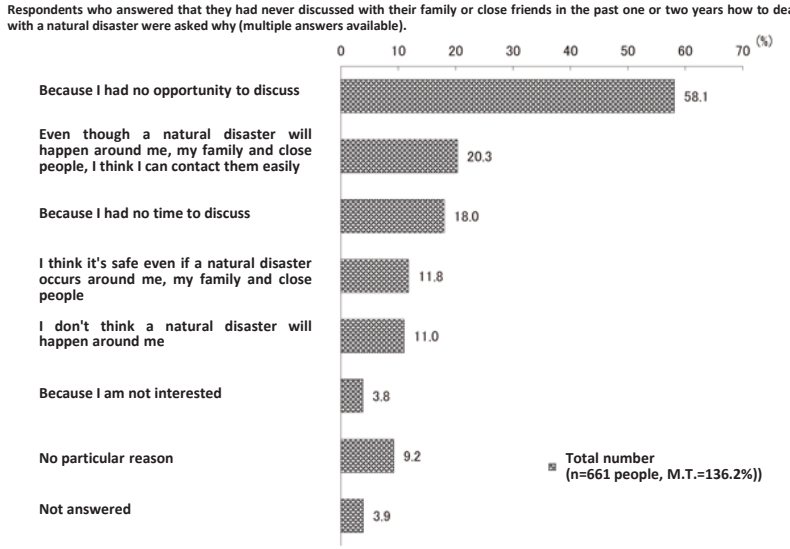
Need to Create Opportunities for the Public to Start Initiatives

In recent years, in addition to earthquake disasters, there have been a series of storm and flood disasters such as typhoons, torrential rains and landslides. However, the rate of implementation of “self-help” measures by the public has been stagnating. One reason is that many citizens only see and hear about disasters in the media and do not feel that they themselves may become victims someday, which seems to hinder efforts to boost disaster management awareness among the public, despite successive disasters.

On the other hand, in the 2022 survey, 36.9% of the respondents answered that “they had never discussed how to deal with natural disasters with their families or close people.” When they were asked why (in a multiple-choice format), the rate of those who chose the answer “I think it's safe even if a natural disaster occurs around me” or “I don't think a natural disaster will happen around me” was low, while the rate of those who chose the answer “Because I had no opportunity to discuss” was overwhelmingly high (58.1%). This suggests that although most people are aware of the risks of natural disasters, there are a certain number of people who are unable to take the first step to prepare for them (Fig. 2-10).

In the 2022 survey, 13.9% of the respondents answered that “they had not taken any particular measures” in preparation for a major earthquake. The answers were analyzed according to the attributes of the respondents: By region, 6.4% of residents in the wards of Tokyo answered the same way and by age group, 17.2% of those aged 18 to 29, 17.6% of those aged 30 to 39 and 11.4% of those aged 70 or over gave the same answer. This suggests a higher rate of those taking countermeasures among residents in the wards of Tokyo and among the elderly than in other groups. Accordingly, it is necessary to consolidate efforts to reach out to those who are yet to take the first step, bearing the differences in target regions and age groups in mind (Fig. 2-11).

Fig. 2-10 Reasons why respondents answered “they had never discussed how to deal with natural disasters with their families or close people”



Source: “Public Opinion Survey of Disaster Management,” prepared by the Cabinet Office (Survey in September 2022)

Fig. 2-11 Ration of respondent who answered “they had not taken any particular measures” in preparation for a major earthquake”

	Valid responses	Not taken any particular measures
		%
Total	1,791	13.9
[City scale]		
Large cities	500	11.6
Wards of Tokyo	110	6.4
Ordinance-designated cities	390	13.1
Middle cities	722	16.9
Small cities	403	11.9
Towns and villages	166	12.7
[Gender]		
Male	821	16.0
Female	970	12.2
[Age]		
18-29 years	145	17.2
30-39 years	182	17.6
40-49 years	286	15.0
50-59 years	333	13.2
60-69 years	354	13.8
70 years old and over	491	11.4

Source: “Public Opinion Survey of Disaster Management,” prepared by the Cabinet Office (Survey in September 2022)

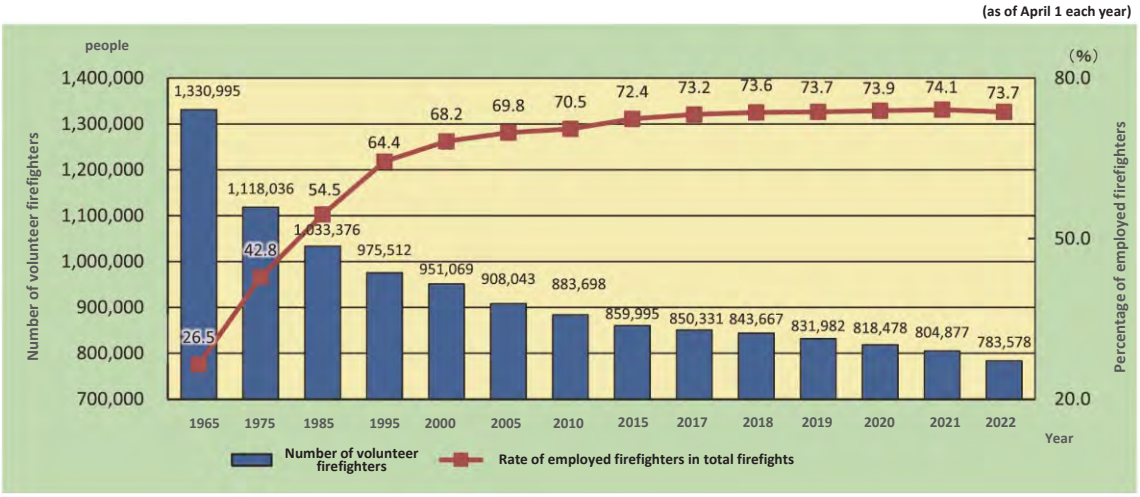
4-2 Progress in “Mutual Support” Initiative

Progress of “Mutual Support” Initiative in Communities

To improve regional disaster resilience, in addition to the promotion of “self-help” initiative by individual residents, “mutual support-based” disaster risk management activities with the awareness that “we protect our own community by ourselves” is important. To this end, the development of voluntary disaster management organizations that support voluntary disaster management activities in communities is being promoted, and the number of such organizations and their activity coverage rates are increasing year by year.

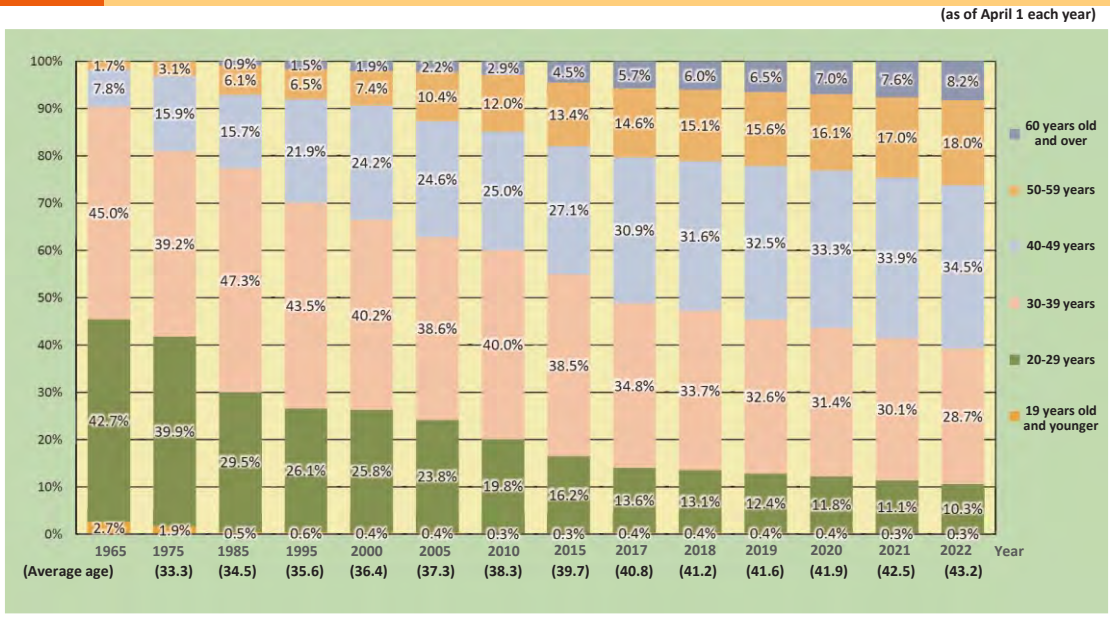
On the other hand, the number of fire corps volunteers, who play a central role in regional disaster resilience, declined from approximately 1.33 million in 1965 to approximately 780,000 in 2022, falling below 800,000 for the first time (Fig. 2-12). In addition, the members are aging: In 1965, 90.4% of the members were in their 10s to 30s, but by 2022, the percentage decreased to 39.3% (Fig. 2-13). Efforts are being made to encourage a wide range of residents, including women and young people, to join the fire corps volunteers, and to improve and strengthen their equipment, education and training.

Fig. 2-12 Trends in the Number of Volunteer Firefighters and Employed Firefighters



Source: “2022 White Paper on Fire Service” Ministry of Internal Affairs and Communications

Fig. 2-13 Trends in Number of Volunteer Firefighters by Age Groups



Source: "2022 White Paper on Fire Service" Ministry of Internal Affairs and Communications

Progress of Volunteer Activities

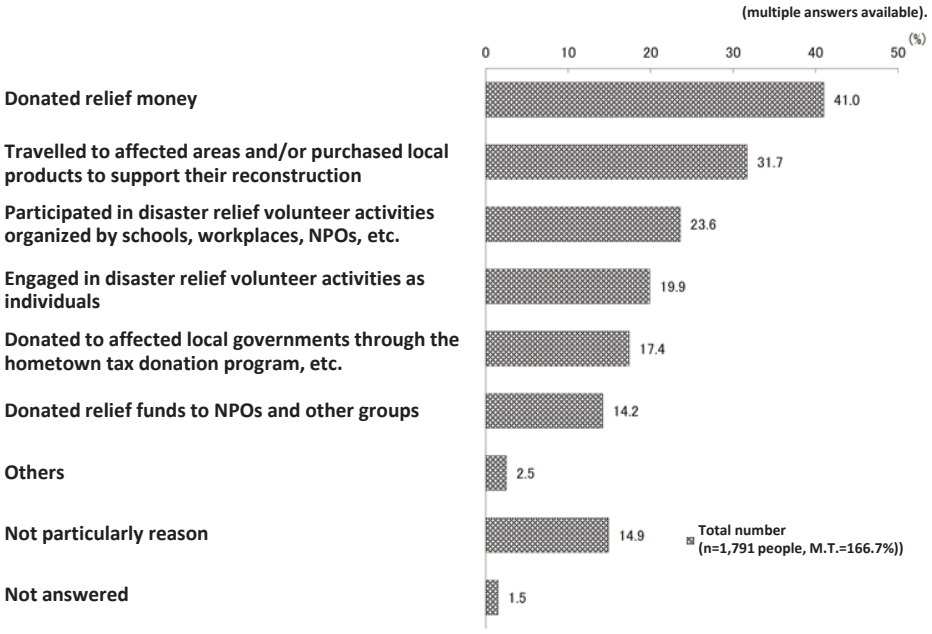
Since the Great Hanshin-Awaji Earthquake in 1995, often referred to as the "First Year of Volunteerism," in which a total of 1.38 million volunteers were engaged, support activities by disaster relief volunteers have become indispensable for disaster-stricken areas and people. As a result of the Mid Niigata Prefecture Earthquake (2004) and other disasters, it became common for the Japan National Council of Social Welfare to operate disaster volunteer centers, creating an environment favorable for the activities of individual volunteers. Furthermore, the Great East Japan Earthquake (2011) and other disasters have activated volunteer activities by organizations such as NPOs and companies. The establishment of the Japan Volunteer Organizations Active in Disaster (JVOAD), which supports such organizations' activities and the establishment of prefecture-level disaster relief intermediary support organizations are progressing in various regions.

Necessity of Widely Promoting a "Mutual Support" Initiative

The 2022 public opinion survey (using a multiple-choice format) investigated the awareness of people, including volunteers, towards support activities for disaster-affected people and areas. According to this survey, 41% of the respondents "donated relief money," 23.6% "participated in disaster relief volunteer activities organized by schools, workplaces, NPOs, etc.,"and 19.9% "engaged in disaster relief volunteer activities as individuals." Additionally, many respondents answered that they "travelled to affected areas and purchased local products to support their reconstruction" (31.7%), "donations to affected local governments through the hometown tax donation program, etc."(17.4%) and "donated relief funds to NPOs and other groups" (14.2%) (Fig. 2-14).

Such support activities can be regarded as a "mutual support" initiative in a broad sense. Amid concerns about the weakening of people's ties in each local community, there is a need to foster an environment that encourages a wide range of "mutual support" efforts, including those mentioned above.

Fig. 2-14 **Support Activities for Disaster-affected People and Areas in the Event of a Natural Disaster (Public Opinion Survey of Disaster Management)**



Source: "Public Opinion Survey of Disaster Management," prepared by the Cabinet Office (Survey in September 2022)

Section 5. Foreign Nationals Increasing Due to Globalization

Over the past 100 years, the number of foreigners living in or visiting Japan has increased significantly. This means that the number of foreign residents and foreigners who visit Japan and who may be affected and need assistance in the event of a disaster is increasing. From this perspective, this section compares the current situation of foreigners with their situation a century ago.

Significantly Increased Foreigners Living in Japan

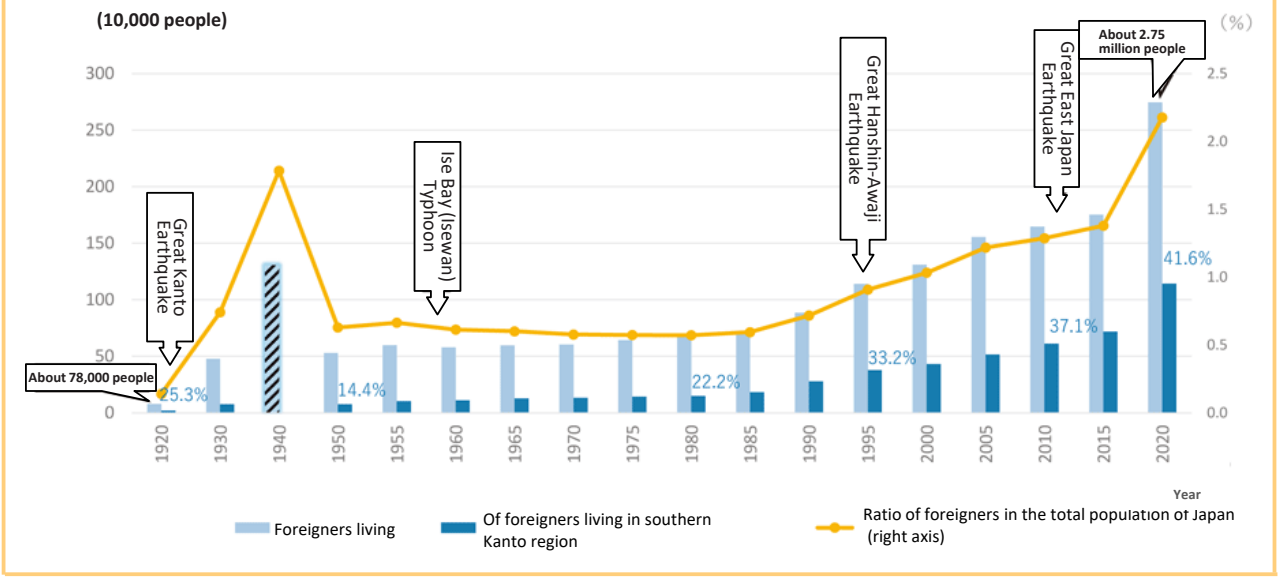
In 1920, three years before the Great Kanto Earthquake, there were only 78,000 foreigners living in Japan, but 100 years later, in 2020, the number increased 35-fold to 2.747 million. While the Japanese population has been declining since the 2010 population census, the foreign population has continued to increase, and the percentage of foreigners in the total population increased significantly from 0.1% in 1920 to 2.2% in 2020.

More Than 40% of Foreigners Living in the Tokyo Area

The following is a comparison of the regional numbers of foreigners in Japan a hundred years ago and the present. In 1920, the numbers of foreigners were high in the order of Hyogo Pref. (about 12,000), Kanagawa Pref. (about 11,000), Fukuoka Pref., and Tokyo (then Tokyo Pref.) (approximately 9,000 for both Fukuoka Pref. and Tokyo). At that time, the proportion of foreigners living in the Tokyo Area accounted for 25.3% of the total foreign population in Japan. On the other hand, in 2020, the order changed to Tokyo (about 564,000), Aichi Pref. (about 259,000), Osaka Pref. (about 242,000), and Kanagawa Pref. (about 231,000), and the proportion of foreigners living in the Tokyo Area increased to 41.6% (Fig. 2-15). The prefecture with the highest percentage of foreign residents

was Tokyo at 4 %.

Fig. 2-15 Trends in Number of Foreigners Living in Japan



Source: "Population Census," Ministry of Internal Affairs and Communications (For 2020, unspecified values were complemented.)

* Data on the number of foreigners living in Japan by prefectures in 1940 is not available.

Foreign Visitors to Japan Can Also Become Victims of Disasters.

As well as foreigners residing in Japan, the number of those staying temporarily for travel or other reasons is also increasing. In 2019, the year before the COVID-19 pandemic, the number of foreign visitors to Japan reached approximately 31.88 million annually. In Tokyo, where the largest number of foreign visitors to Japan stay, the total number of foreigners who stayed temporarily in 2019 was about 29.35 million and the total number of foreigners who stayed temporarily in the Tokyo Area in the same year was about 37.62 million, which averages out to about 100,000 foreigners staying in the area per day.

Given the far greater number of foreigners staying in Japan compared with 100 years ago, many could become disaster victims in the event of a major disaster such as the Great Kanto Earthquake. Therefore, to provide the information they need in a way they can understand, more efforts are required, such as providing information in multiple languages.

Section 6. Changes in Means of Information Transmission, Such as Digitization

Advances in information and communication technology have drastically changed means of information transmission over the past 100 years. This section discusses the changes in the means of information transmission since the Great Kanto Earthquake and how the means of obtaining information has changed in the modern era.

The Lack of Means of Information Transmission Delayed the Grasping of Damage from the Great Kanto Earthquake.

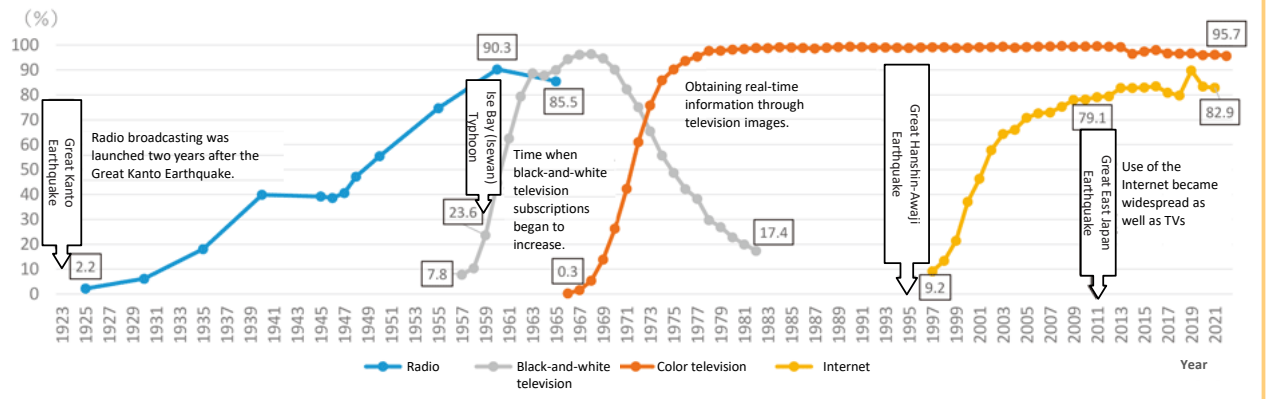
In Japan, radio broadcasting, the primary means of communicating real-time information to an unspecified

number of people, was launched in 1925, after the Great Kanto Earthquake. In other words, this medium did not yet exist when the Great Kanto Earthquake occurred, which made it difficult to accurately determine the extent of the damage and disseminate relevant information to the affected people. In addition, newspapers, which already existed as a medium for mass communication albeit not in real time, were also unable to immediately disseminate information because they were severely damaged by the earthquake.

Subsequently, the Means of Information Transmission Changed Significantly.

Once radio broadcasting started in 1925, the penetration rate of radios grew significantly for more than 30 years until the early post-war period. Subsequently, in 1953, televisions emerged as an alternative medium to radios and TV broadcasting started. In 1959, the year of the Ise Bay (Isewan) Typhoon, the radio penetration rate reached 90% and the number of black-and-white television subscriptions began to increase. Later, color TVs became the mainstream and after the Great Hanshin-Awaji Earthquake in 1995, many people learned of its damage through television images. Subsequently, the use of the Internet became widespread. In the aftermath of the Great East Japan Earthquake of 2011, information was disseminated via the Internet and social networking services (social media), making it easier to disseminate and obtain information (Fig. 2-16).

Fig. 2-16 **Trends in Information Communication Medium Penetration**



Source: Radio penetration rates: “Historical statistics of Japan,” Black-and-white/color television penetration rates: “Consumer Confidence Survey,” Cabinet Office, Use of Internet penetration rates: “Communications Usage Trend Survey” Ministry of Internal Affairs and Communications

Significant Differences in the Means of Obtaining Information by Generation

Public opinion surveys asked people regarding the means of obtaining information they wanted to use in a disaster. In recent years, the most common answer has been TV. Also in the 2017 opinion survey, the percentages of respondents who selected the answer “TV” were the highest in all age groups. On the other hand, in the 2022 survey, the percentage of respondents who selected the answer “TV” remained the highest at 81.7%, although a simple comparison with the past results is not possible because the survey method was different from the previous ones. The next common answer was “radio” at 48.3%, followed by “information on SNS including Twitter, LINE and Facebook” at 36.9%. By age group, respondents aged 18 to 29 selected the answer “SNS information” (76.6%) more often than “TV” (73.8%), whereas the percentage of those aged 30 to 39 who selected the answer “SNS information” (70.9%) was almost the same as those who selected the answer “TV (71.4%), suggesting that the

younger generation is likely to make use of SNS information. On the other hand, the percentage of respondents who selected the answer "TV" increased as age increased. For example, it was high at 91.9% for those aged 70 or higher. These show that the means of obtaining information differ markedly depending on the generation (Fig. 2-17).

Fig. 2-17 Means of Obtaining Information People Wanted to Use in a Disaster (top five responses / multiple answers available)

(Top five responses / multiple answers available)

		1	2	3	4	5
Total		Television (81.7%)	Radio (48.3%)	Information on SNS * (36.9%)	Disaster management app.** (34.1%)	Websites *** (32.4%)
By generation	18-29 years	Information on SNS (76.6%)	Television (73.8%)	Disaster management app. (36.6%)	Websites (26.2%)	Radio (24.1%)
	30-39 years	Television (71.4%)	Information on SNS (70.9%)	Radio (40.1%)	Disaster management app. (35.7%)	Websites (26.4%)
	40-49 years	Television (73.1%)	Information on SNS (52.4%)	Disaster management app. (38.8%)	Radio (38.1%)	Websites (35.7%)
	50-59 years	Television (79.0%)	Radio (47.4%)	Websites (44.1%)	Disaster management app. (39.3%)	Information on SNS (38.4%)
	60-69 years	Television (85.6%)	Radio (58.2%)	Disaster management app. (42.1%)	Websites (37.3%)	Newspaper (34.7%)
	60 years old and over	Television (91.9%)	Radio (57.8%)	Newspaper (46.6%)	Leaflets **** (31.0%)	Websites (23.2%)

Source: "Public Opinion Survey of Disaster Management," prepared by the Cabinet Office (September 2022)

Remarks * : SNSs including Twitter, LINE and Facebook
** : Disaster management app., etc.
*** : Websites on disaster management
**** : Leaflets of national and local governments

As shown above, social media, which is a convenient tool that allows anyone to easily share or obtain information, is being widely used as the primary means of obtaining information by the younger generation. In the event of a disaster, given the crucial need to determine the extent of damage swiftly and accurately, it is expected that social media features will continue to be utilized in future. Conversely, disseminating false or unverified information via social media, either intentionally or unintentionally, is also problematic. In the event of a disaster, it is necessary to prevent social confusion due to such disinformation or misinformation and every individual should use it with caution.

Chapter 3. Future Disaster Management

This Chapter presents the direction of future disaster management, based on the lessons learned from the Great Kanto Earthquake discussed in Chapter 1 and the changes in the environment surrounding Japan discussed in Chapter 2.

Section 1. Promotion of Measures against Imminent Large-Scale Earthquakes Such as a Tokyo Inland Earthquake

Past large-scale earthquakes, such as the Great Kanto Earthquake, the Great Hanshin-Awaji Earthquake, and the Great East Japan Earthquake, caused serious damage due to buildings collapsing, fires, and earthquake-triggered massive tsunamis.

First of all, in order to prevent buildings from collapsing due to earthquake tremors, it is important to promote the seismic reinforcement of buildings. In particular, many of the buildings built before 1981 have insufficient seismic resistance because they were built according to the old quake-resistance standards before they were strengthened in the Building Standards Act. The government set a goal of eliminating most of the houses that have insufficient seismic resistance by 2030, and it has been making efforts such as seismic diagnosis to grasp the seismic resistance situation, encouraging seismic retrofitting and reconstruction in the case of inadequate seismic resistance, and providing support to cover the costs associated with this. As a result, the seismic reinforcement rate of buildings in Japan is steadily increasing. Also, in the future, it is important for each building owner to recognize the importance of seismic reinforcement and work on countermeasures with the awareness that it is their own problem.

In the Great East Japan Earthquake, huge tsunamis caused devastating damage on the Pacific Ocean side of the Tohoku region. As a lesson from the Great East Japan Earthquake, it was widely recognized that disasters cannot be completely prevented by hardware measures alone and that evacuation is the most important measure to protect lives. Therefore, it is important to make efforts to raise disaster management awareness so that everyone, from children to the elderly, regards disasters as something that may affect them someday and is able to take appropriate disaster prevention actions under their own decision in the event of a disaster.

In the Great Kanto Earthquake, government buildings, such as those of the Home Ministry, were destroyed by fires, so the fact that the government itself was a victim caused a delay in the initial response. In preparation for a Tokyo inland earthquake that directly hits the capital, the government must strive to be able to maintain the central functions of the capital by establishing a rapid initial response system and ensuring emergency priority operations, based on the Business Continuity Plan of the Central Government. It is also important to clarify in advance the operation bases and entry routes of the police, firefighters, and Self-Defense Forces rescue units and to establish plans for specific emergency measures. Securing a base that can replace the Extreme Disaster Management Headquarters in the case of a Tokyo inland earthquake is also an important initiative. In addition, as the population concentration of the Tokyo metropolitan area increases, a Tokyo inland earthquake could paralyze road traffic, generate a huge number of evacuees and people stranded and unable to return home, and cause a serious shortage of relief supplies. Thus, it is necessary to secure stockpiles of food, drinking water, etc. at shelters, take measures for stranded persons, such as limiting the number of people returning home all at once, and secure supply chains.

Although the extent of damage caused by earthquakes in the future that are of concern, such as a Tokyo inland earthquake, a Nankai Trough earthquake, and a trench-type earthquakes in the vicinity of the Japan and Chishima Trenches, varies greatly depending on the preconditions, such as the period and time frame, it is likely to be devastating. On the other hand, it has been also pointed out that the damage caused by an earthquake can be minimized by thoroughly implementing disaster management and taking appropriate evacuation actions. Each and every one of us must recognize once again the importance of countermeasures and work on disaster management measures, such as seismic reinforcement of buildings, as well as appropriate evacuation actions, self-restraint in the use of automobiles and stockpiling water and food.

Section 2. Promotion of Storm and Flood Countermeasures in Response to Climate Change

Shortly after World War II, Japan suffered serious damage from frequent typhoons and torrential rains on its war-torn land. Since then, however, the government, prefectures, and municipalities, under their respective roles, have systematically implemented measures to improve embankments, dams, sewers, and ports, thereby dramatically improving the level of regional safety. As shown in the cases of Kano River (Shizuoka Prefecture) and Osaka Bay in Chapter 2, Section 2, there are regions where typhoon damage has significantly decreased compared with damage caused by previous typhoons of the same scale. This validates the damage mitigation effects of past storm and flood countermeasures.

However, it is obvious that the intensification and higher frequency of disasters caused by climate change and other factors are increasing not only human suffering but also economic impacts, such as housing damage, which are affecting economic activities and increasing social anxiety.

Storm and flood countermeasures have been taken based on the lessons and reflections of past disasters. However, typhoons and torrential rains that have occurred in various regions have been unprecedented in scale due to climate change and other factors and are expected to become more powerful in the future. Therefore, flood control plans have been revised from the previous plans based on past rainfall records to take into account increased rainfall due to climate change.

We need to recognize the threat of ever more powerful storms and flood disasters and confront these crises as a society acting as a whole, without being bound by conventional thinking. To achieve this, it is necessary for the entire nation to work together for disaster management and form a society in which all stakeholders are aware of and act on disaster management and mitigation as a matter of course and as the main pillar of society.

Section 3. Promotion of National Resilience

In addition to the increasingly intense and frequent meteorological disasters due to climate change and other factors, the occurrence of large-scale earthquakes, such as a Nankai Trough earthquake or a Tokyo inland earthquake, is also imminent. Moreover, the infrastructure that was intensively developed during the period of rapid economic growth is aging all at once, and if appropriate measures are not taken, the socioeconomic system could fall into dysfunction. In order to overcome this crisis, protect the lives, property, and livelihood of the people, and create a nation that will not succumb to disasters, the entire nation must strengthen its efforts for disaster management and mitigation and national resilience and steadily promote the Five-Year Acceleration Plan for

Disaster Prevention, Disaster Mitigation, and Building Land Resilience (Cabinet decision of December 11, 2020).

In order to promote these efforts more effectively and efficiently, the national government and local governments must correctly analyze the risks of natural disasters that they face in their respective regions and systematically work on building regional resilience. It is also important to build national resilience by making use of the vitality of the private sector, such as by creating a mechanism that encourages private sector investments through collaborations between the government and private actors. Furthermore, it is also necessary to efficiently improve disaster response capabilities, by, for example, utilizing digital technology, such as the latest technology and innovations in the field of disaster management.

Building national resilience requires not only national and local governments but also private companies, individuals, and all other stakeholders to cooperate and work together. Ten years after the Basic Act for National Resilience was enacted, efforts by the national and local governments are in progress, but it is also necessary for private companies, local communities, households, and individuals to deepen their understanding of the necessity and effectiveness of national resilience, and to pursue it in their respective regions and positions.

Section 4. Enhancement of an Affected People Support System

Immediately after the Great Kanto Earthquake, it is said that an estimated one million people, about 40% of the then 2.48 million population of Tokyo City, evacuated.[13] As explained in Section 2, the earthquake resistance of buildings has greatly improved since the Great Kanto Earthquake. However, there are concerns about the collapse of houses and the spread of fire in urban areas with a high density of wooden houses—areas created during the subsequent rapid urbanization process. There are also concerns that damage to lifelines, such as water and power supplies, could make it difficult for many affected people to take shelter in their homes even if the damage to their homes is not serious.

At the time of the Great Kanto Earthquake, the severity of the damage and the lack of disaster preparedness prevented the administrative agencies from taking prompt emergency measures, which delayed support to the affected people and expanded the damage. As measures against a possible Tokyo inland earthquake, a Nankai Trough earthquake, and a trench-type earthquake in the vicinity of the Japan and Chishima Trenches, the government has formulated a basic plan to prepare for emergency responses and is working to improve the plan to enhance its effectiveness through various drills and training.

In addition, new issues have arisen that differ from those at the time of the Great Kanto Earthquake due to changes in the environment, such as the aging of the population and the increase in the number of foreign residents. Furthermore, it is necessary to promote countermeasures based on the needs of each affected individual, including women, children and the disabled. Therefore, it is necessary to promote detailed measures for affected people, including persons requiring special care in times of disaster—measures such as the prevention of disaster-related deaths through the provision of information, evacuation guidance, and the improvement of living conditions in shelters—in coordination with welfare and other relevant measures.

Furthermore, as disasters are expected to become more intense and frequent in the future, the government's public support alone will not be able to provide sufficient support for affected people. Therefore, it is necessary to raise each citizen’s awareness of self-help. And in order to promote mutual support, it is necessary to build a system for supporting affected people in which various entities cooperate with one another while taking into account

13 National Disaster Management Council (2009), “Great Kanto Earthquake Report, Part 2,” p. 6 (authored by Ai Sekizawa and Yukio Nishida)

gender equality and involving various private organizations, such as NPOs and volunteers. Coordination for receiving support from overseas, as was received after the Great East Japan Earthquake and the Great Kanto Earthquake, also needs to be strengthened.

Section 5. Multilingualization in Information Dissemination

At the time of the Great Kanto Earthquake, the proportion of foreigners in Japan's population was only about 1 in 1,000, but today, it has increased significantly to about 1 in 45. In addition to the number of foreigners residing in Japan, the number of foreigners temporarily staying in Japan for travel or work has also increased dramatically over the past 100 years.

If a disaster were to occur under these circumstances, many foreigners residing or temporarily staying in Japan would become victims.

In such a case, a situation in which foreigners are unable to take a prompt evacuation action or receive adequate support at shelters due to Japanese language barrier must be avoided. Thus, relevant ministries and agencies are currently working together to ensure the dissemination of information in multiple languages, and it is important to continue to ensure that foreigners can easily obtain necessary information.

Section 6. Use of Digital Technology in Disaster Management

In 1923, when the Great Kanto Earthquake occurred, radio broadcasting had yet to begin. In addition, since the earthquake severely damaged transportation, telephones, and other lifelines, the circulation of information was disrupted, preventing newspapers from being published for a while after the disaster.

However, in order for the government to take appropriate actions after a disaster occurs, including emergency activities such as lifesaving and support for people living in shelters, it is first necessary to quickly and accurately grasp the extent of damage caused by the disaster.

During the last 100 years, information and communication technology has advanced dramatically. The main means of information transmission has changed from radios to televisions. Today, with the advancement of digital technology, the use of the Internet and SNS has become commonplace in the daily lives of people. The government's promotion of the digitization of data that can be useful in disaster response and making use of it will greatly contribute to understanding the extent of damage caused by disasters, and is also indispensable when disseminating information to the public.

The government is working on collecting and sharing information using digital technology. Since digital technology is constantly evolving, it is necessary to continue efforts to make further use of it.

[Column]

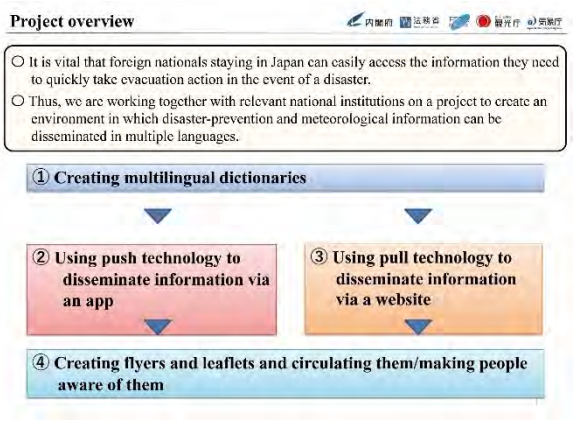
Dissemination of Disaster Management and Meteorological Information to Foreigners

Based on the “Comprehensive Measures for the Acceptance and Coexistence of Foreign Human Resources” (decided in a ministerial meeting on the acceptance and coexistence of foreign human resources on June 14, 2022), the Cabinet Office, together with related ministries and agencies, is promoting multilingualization so that foreign nationals can easily obtain necessary information in case of a disaster.

Specifically, leaflets using 15 languages* that summarize information on applications and websites useful in time of disaster, as well as posters using “easy Japanese” that are easily understood by foreigners, are being prepared and distributed through a variety of opportunities.

In addition, materials on “Dissemination of Disaster Management and Meteorological Information to Foreigners” are prepared in 15 languages* and provided to relevant organizations for use when they implement disaster management drills and training for foreigners.

* 15 languages: Japanese, English, Chinese (traditional and simplified), Korean, Spanish, Portuguese, Vietnamese, Thai, Indonesian, Tagalog, Nepali, Khmer, Burmese, Mongolian



Source：Cabinet Office website, " Disseminating disaster information to foreign nationals.
(Reference：https://www.bousai.go.jp/kyoiku/gaikoku/index.html)

[Column]

Promotion of Activities to Help One Another (“Connected Mutual Support”) through SNS

With the rapid spread of communication tools such as SNS in recent years, there is an increasing possibility that mutual support using these tools will exert great power in the event of a disaster. For this reason, FUKKO DESIGN, a general incorporated association that has been disseminating information useful for supporting affected areas, has collaborated with the Japan Voluntary Organizations Active in Disaster (JVOAD) to propose the concept of “connected mutual support” and is disseminating information.

Specifically, FUKKO DESIGN has created easy-to-understand educational materials on how to use SNS and other tools for exchanging information among friends, soliciting and applying for supplies and financial support, and soliciting and applying for help for recovery work. The materials also include information on what to keep in mind to protect privacy. The information is being disseminated via SNS and the association’s website.

(Reference) “Connected Mutual Support”)

(Reference) https://note.com/fukko_design/n/n8e0e33ce414a

Section 7. Conclusion

This year's white paper looked back on the Great Kanto Earthquake that occurred 100 years ago, and discussed the direction of future disaster management, based on the lessons learned from the earthquake and the subsequent changes in socio-economic conditions.

Physicist Torahiko Terada, who personally experienced the Great Kanto Earthquake and was deeply involved in the establishment of the Earthquake Research Institute afterward, critically discussed in his book Natural Disasters and National Defense in 1934 the inadequacy of natural disaster management measures taken by the government of the time compared with its national defense measures against enemy nations that were threatening national security. Reflecting on this, Japan has since made considerable progress in disaster management measures through the enactment of the Basic Act on Disaster Management and the expansion of measures based on the Great Hanshin-Awaji Earthquake and the Great East Japan Earthquake.

On the other hand, Terada also stated in his book the following:

"However, there is one important thing to be considered here, and it is often forgotten. It is the fact that the more civilization advances, the more devastating the disasters caused by the forces of nature."[14]

Terada argued that as civilization progresses, and when people think they have contained nature's violent forces by building structures that resist them, nature suddenly goes on a rampage, toppling buildings and embankments, thereby causing great damage to human lives and property. He also stated that as civilization progresses, the internal mechanisms of the state and its people become significantly differentiated, and if a part of them is damaged, the entire system is likely to suffer a serious impact.

In Japan, the frequency of disasters that cause a large number of deaths has decreased due to investment in disaster risk prevention, including the development of disaster management and mitigation infrastructure. On the other hand, as Terada warned, before the Great Hanshin-Awaji Earthquake, the public's disaster management awareness remained low, and preparations for unexpected mega-disasters, such as the Great East Japan Earthquake, are still inadequate.

The concentration in the Tokyo metropolitan area of both a large population and various functions has also increased the risk of ripple effects should a disaster occur there. The same can be said for the impact of disasters overseas in Japan amid the growing interdependence in the world due to globalization.

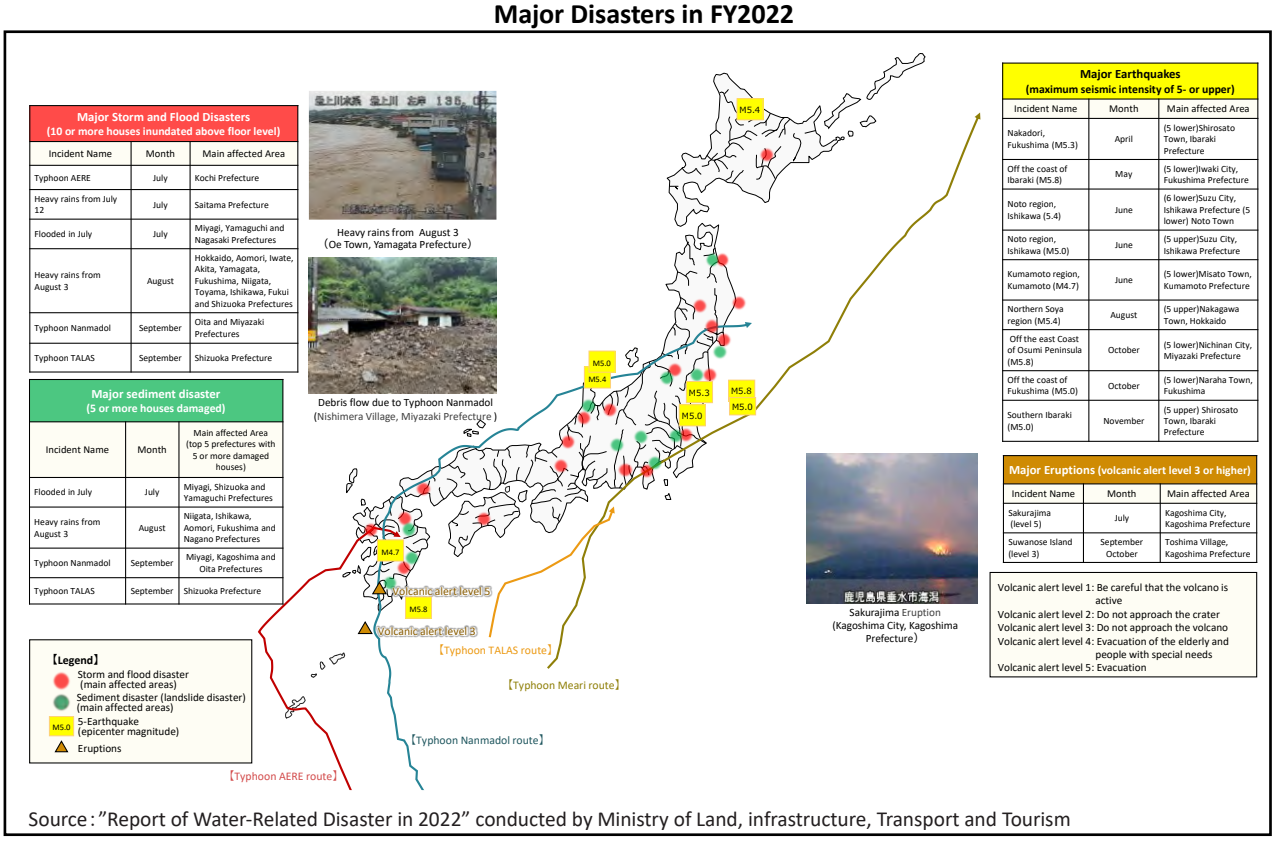
As this year marks the 100th anniversary of the Great Kanto Earthquake, we must not forget the lessons learned from it and pass them on to the next 100 years. In addition, we need to address the ever-increasing risk of disasters from a comprehensive perspective, including national land and industrial policies, while taking into account the principle of national resilience and aim to build a disaster-resistant nation, regions, and economic society. On top of that, from the perspective of disaster management, we must not neglect preparations for large-scale disasters that we may face, and we must invest in disaster risk reduction, including the development of disaster management and mitigation infrastructure, prepare disaster response measures, improve support for affected people, and engage in international cooperation. It is also necessary to promote the awareness and efforts by each citizen through disaster risk reduction education and other means to reduce the damage caused by disasters to the extent that is possible.

14 From "Natural Disasters and National Defense" (1934) by Torahiko Terada

Special Feature 2. Major Disasters in FY2022

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, the 2016 Kumamoto Earthquake, the Heavy Rain Event of July 2018, Typhoon Hagibis in 2019 (T1919), the Heavy Rain Event of July 2020 and the Heavy Rain from July 1 of 2021. In FY2022, a series of natural disasters, including heavy rain in August, Typhoon Nanmadol (T2214), Typhoon Talas (T2215) in 2022, and heavy snow from December 17 and from December 22 (all in 2022), caused damage all over Japan.

Major Disasters in FY2022



Source：”Report of Water-Related Disaster in 2022” conducted by Ministry of Land, infrastructure, Transport and Tourism

Chapter 1. Volcanic Activity of Sakurajima

(1) Overview

At 8:05 p.m. on July 24, 2022, an eruption occurred at the summit crater of Sakurajima’s Minamidake, flying rocks that scattered in a trajectory and landed as far as about 2.4 km from the crater. At 8:50 p.m. on the same day, the volcanic alert level upgraded from 3 (restriction on proximity to the volcano) to level 5 (evacuation) by Japan Meteorological Agency, and it called for extreme caution in residential areas (parts of Arimura-cho and Furusato-cho, Kagoshima City) within approximately 3 km of the Minamidake summit crater and the Showa crater. Subsequently, as the possibility of an eruption impacting areas beyond 2 km from the crater was reduced, the volcanic alert level downgraded to 3 (restriction on proximity to the volcano) by Japan Meteorological Agency at

8:00 p.m. on July 27.

(2) State of Damage

No damage to individuals or residential houses resulting from this volcanic activity has been confirmed. (Source: Fire and Disaster Management Agency information, as of July 28, 2022)

(3) Response by the Government

At 8:50 p.m. on July 24, 2022, the government reorganized the Information Contact Office, established since June 23, 2020, into the Emergency Response Office of the Prime Minister's Office. Prime Minister Kishida issued directives to “swiftly assess the extent of damage,” “collaborate closely with local governments and, under the policy of prioritizing human lives and with a government-wide approach, thoroughly implement measures to prevent damage, including the evacuation of climbers and local residents,” and “strengthen volcanic activity monitoring/observation and provide timely and accurate information to climbers and residents.”

Chapter 2. Disaster due to Heavy Rain in August of 2022

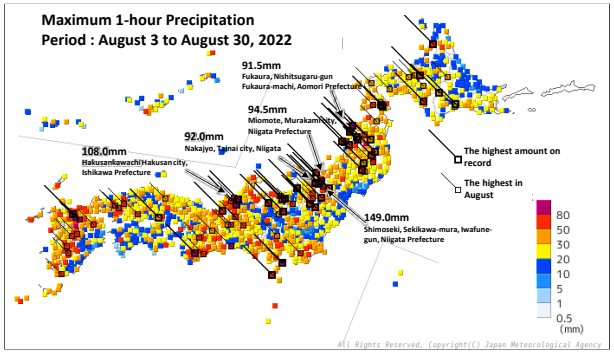
(1) Overview

From August 3 to 4, 2022, a rain front remained stationary from southern Tohoku to Niigata Prefecture, and warm, moist air flowed into the rain front, causing it to become active. Multiple stationary linear mesoscale convective systems developed, and hazardous rain, accompanied by thunderstorms, intermittently poured down, resulting in heavy rainfall. Many observation points in the Tohoku and Hokuriku region experienced record-breaking amounts of hourly and 24-hour precipitation, making it the heaviest rainfall in recorded history. Yamagata and Niigata prefectures, in particular, experienced record-breaking heavy rain, so the Meteorological Agency issued a heavy rain emergency warning for both prefectures. The rain front gradually moved southward, and on the 4th, hazardous rain fell intermittently in Ishikawa and Fukui prefectures, again resulting in record-breaking heavy rain. On the 5th and 6th, Fukui, Shiga, Mie and other prefectures also experienced heavy rain.

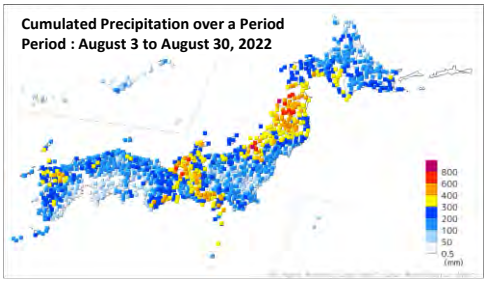
From August 8 to 14, the rain front stayed over northern Japan and the Hokuriku region. Hazardous rain fell over a wide area from Hokkaido to Hokuriku, with precipitation in Aomori and Akita prefectures exceeding in seven days twice the average monthly precipitation for August. Heavy rainfall was also observed on the Pacific side of eastern Japan on August 13 and 14 due to Typhoon Meari (T2208) of 2022, which landed on Izu Peninsula. From August 15 to 22, heavy rain fell in northern to western Japan due to the influence of the rain front and low-pressure systems. On the 24th and the 25th, the low pressure systems caused local heavy rainfall in eastern and western Japan.

Maximum 1-hour Precipitation and Cumulated Precipitation

Maximum 1-hour Precipitation (August 3 to August 30)



Cumulated Precipitation over a Period (August 3 to August 30)



Rank	Prefectures	Municipalities	Location name	Precipitation (mm)
1	Aomori	Fukaura-machi, Nishitsugaru-gun	Fukaura	827.0
2	Niigata	Swkikawa-mura, Iwafune-gun	Shimoseki	818.5
3	Niigata	Murakami City	Takane	787.5
4	Akita	Odate City	Jinba	758.0
5	Aomori	Hirosaki City	Dake	705.0

Source: Meteorological Agency

(2) State of Damage

Heavy rains in August 2022 caused debris flows and other damage in Aomori and Niigata prefectures, and 132 rivers managed by the national and prefectural governments overflowed and flooded 14 prefectures. As a result, 2 persons died (Iwate and Nagano prefectures), 1 person went missing (Yamagata Prefecture), 2 persons were seriously injured, and 7 persons sustained minor injuries. As for damage to homes, 37 were completely destroyed, 1,114 were half or partially destroyed, and 6,264 were flooded above or below floor level (Source: Fire and Disaster Management Agency information, as of March 24, 2023).

Damage also occurred to lifelines, with a maximum of 14,044 water outages and 8,072 electric power outages. Transportation infrastructure such as roads and railroads were also damaged.

(3) Response by the Government

The government established the Emergency Contact Office in the Prime Minister's Office at 7:15 p.m. on August 3, 2022, and held Inter-Agency Disaster Management Meetings on August 5 (a total of six meetings were held by August 23).

On August 7, then Minister of State for Disaster Management Ninoyu, visited a disaster site in Yamagata Prefecture. In addition, Minister of State for Disaster Management Tani, visited disaster sites in four prefectures: Niigata on August 20, Akita on August 30, Aomori on August 31, and Yamagata on October 1. On September 4, Prime Minister Kishida visited a disaster site in Niigata Prefecture. The Disaster Relief Act (Act No. 118 of 1947) was applied to 35 municipalities in 5 prefectures.

Regarding the designation of a "disaster of extreme severity," based on the "Act on Special Financial Support to Deal with the Disasters of Extreme Severity" (Act No. 150 of 1962), a cabinet decision was made on September 30, 2022 to designate disasters that occurred due to heavy rains and rainstorms from August 1 to 22, 2022 as disasters of extreme severity.

Then Minister of State for Disaster Management Ninoyu visited a disaster site in Yamagata Prefecture (Source: Cabinet Office)

Minister of State for Disaster Management Tani visited disaster sites in Aomori Prefecture (Source: Cabinet Office)

Prime Minister Kishida visited a disaster site in Niigata Prefecture (Source: Cabinet Office)

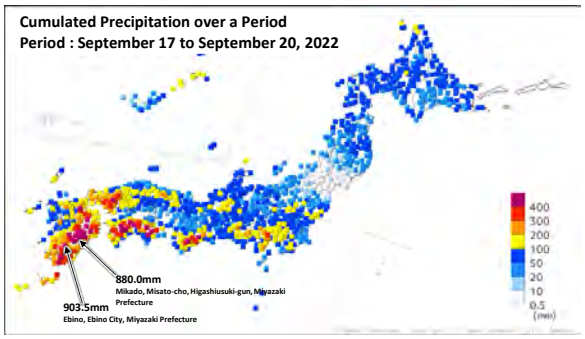
Chapter 3. Disaster Caused by Typhoon Nanmadol in 2022

(1) Overview

Typhoon Nanmadol in 2022, which originated near the Ogasawara Islands at 3:00 a.m. on September 14, 2022, rapidly developed into a large and ferocious typhoon on September 17. As the likelihood increased of this typhoon approaching Kagoshima Prefecture (excluding the Amami region) with a sufficient force that warranted a windstorm emergency warning, the Meteorological Agency issued a windstorm, wave, and storm surge emergency warning for Kagoshima Prefecture on the same day. It landed with extremely strong force near Kagoshima City at around 7:00 p.m. on the 18th, and it moved through Kyushu on the morning of the 19th. It then changed course, and traveling east, it moved from the Chugoku region to the Sea of Japan. At 3:00 a.m. on the 20th, it turned into an extratropical cyclone over the Sea of Japan. Record-breaking heavy rains and windstorms swept across western Japan, particularly Kyushu. The total rainfall on the 17th was about twice the monthly average for September at several locations in Kyushu and Shikoku, with over 900 mm of rainfall in many areas in Miyazaki Prefecture. The heavy rainfall was particularly extreme in Miyazaki Prefecture, so the Meteorological Agency issued a heavy rain emergency warning for Miyazaki Prefecture. In addition, a maximum wind gust speed of 50.9 meters per second was observed in Yakushima-cho, Kagoshima Prefecture, and many locations from Kyushu to the Chugoku and Kinki regions experienced the highest maximum wind gust speeds ever recorded.

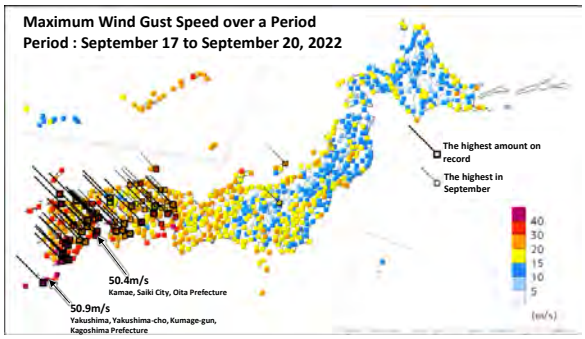
Cumulated Precipitation over a Period and Maximum Wind Gust Speed over a Period

Cumulated Precipitation over a Period (September 17 to September 20)



Rank	Prefectures	Municipalities	Location name	Precipitation (mm)
1	Miyazaki	Ebino City	Ebino	903.5
2	Miyazaki	Misato-cho, Higashiusuki-gun	Mikado	880.0

Maximum Wind Gust Speed over a Period (September 17 to September 20)



Rank	Prefectures	Municipalities	Location name	Wind speeds (m/s)	Wind direction	Day and time
1	Kagoshima	Yakushima-cho, Kumage-gun	Yakushima	50.9	East-northeast	11:51 on 18th
2	Oita	Saiki City	Kamae	50.4	South-southeast	21:14 on 18th

Source: Meteorological Agency

(2) State of Damage

Typhoon Nanmadol in 2022 caused slope failures in Mimata-cho, Miyazaki Prefecture, and 29 rivers managed by the national and prefectural governments overflowed and caused flood damage in Miyazaki and other prefectures. As a result, 5 people died (Hiroshima, Kochi, and Miyazaki prefectures), 20 were seriously injured, and 141 were slightly injured, mainly in the Kyushu region, particularly in Miyazaki Prefecture. As for damage to homes, 17 were completely destroyed, 2,162 were half or partially destroyed, and 1,310 were flooded above or below floor level (Source: Fire and Disaster Management Agency information, as of March 24, 2023).

Damage also occurred to lifelines such as water and electricity, and to transportation infrastructure such as roads and railroads. In particular, damage to utility poles and power lines caused by strong winds resulted in power outages for up to approximately 129,000 homes in Kagoshima Prefecture and 115,000 homes in Miyazaki Prefecture.

(3) Response by the Government

At 3:00 p.m. on September 16, 2022, the government set up the Information Contact Office in the Prime Minister's Office. At 3:00 p.m. on September 17, Prime Minister Kishida issued directives to “provide timely and accurate information to the public regarding the situations of evacuation, heavy rains, windstorms, and river conditions.” “take all possible proactive measures such as evacuation support in close cooperation with the local governments to ensure the evacuation of residents in areas where flooding or slope failures are expected as the typhoon approaches,” and “quickly grasp the extent of damage upon its occurrence, and form a united front as the government to make every effort to implement disaster response measures." The Specified Disaster Management Headquarters was established for the first time at a stage when a disaster was likely to occur, and the Information Contact Office was reorganized into the Prime Minister’s Official Contact Office. At 4:00 p.m. on the same day, the first meeting of the Authorized Disaster Management Headquarters was held (four meetings were held by Sept. 21). Minister of State for Disaster Management Tani, who headed the Headquarters, encouraged each ministry

and agency to support evacuation and respond with the greatest possible sense of urgency, notified each prefecture that the “Disaster Relief Act” was applicable to prefectures that may suffer a disaster, and encouraged citizens to evacuate whenever necessary without hesitation. On September 18, the first ministerial meeting was held under Prime Minister Kishida (the meeting was held twice by September 19), and the Prime Minister’s Official Contact Office was reorganized into the Prime Minister’s Official Response Office. On September 24, Minister of State for Disaster Management Tani visited the disaster sites in Miyazaki Prefecture.

The Disaster Relief Act was applied, to all 286 municipalities in 9 prefectures, for the first time since its revision in 2021 at a stage when a disaster was likely to occur. Subsequently, the Act was again applied to Miyazaki Prefecture’s two cities where houses were damaged.

The Cabinet decided on October 28, 2022 to designate the disaster caused by rainstorms and heavy rains from September 17 to 24, 2022 as a disaster of extreme severity, along with the decision to designate the after-mentioned disaster due to Typhoon Talas in 2022 as the same.

The first ministerial meeting on Typhoon Nanmadol in 2022 (Source: Prime Minister’s office website)

Minister of State for Disaster Management Tani visited a disaster site in Miyazaki Prefecture (Source: Cabinet Office)

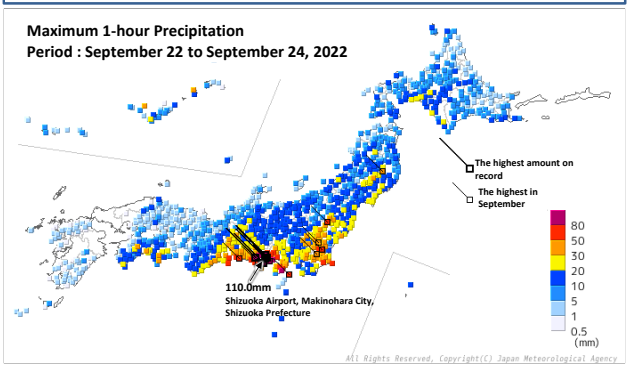
Chapter 4. Disaster Caused by Typhoon Talas in 2022

(1) Overview

Typhoon Talas in 2022, which originated in the south of Japan at 9:00 a.m. on September 22, 2022, moved northward from the south of Japan, approached the Kinki region, and then turned into a tropical cyclone in the south of the Kii Peninsula at 9:00 p.m. on September 23. It changed to an extratropical cyclone off the coast of Tokaido at 9:00 a.m. on September 24. Rain-bearing clouds that developed around the typhoon caused heavy rain, mainly in the Pacific Ocean side of eastern Japan. In Shizuoka and Aichi prefectures, a stationary linear mesoscale convective system developed from the evening of the 23rd to dawn of the 24th, resulting in record-breaking heavy rainfall. Particularly in Shizuoka Prefecture, hazardous rain continued, and a number of short-duration heavy rainfall alerts were issued for record-breaking amounts of rainfall. Additionally, 24-hour precipitation exceeded 400 millimeters at several locations, surpassing the average monthly rainfall for September and setting the highest rainfall record.

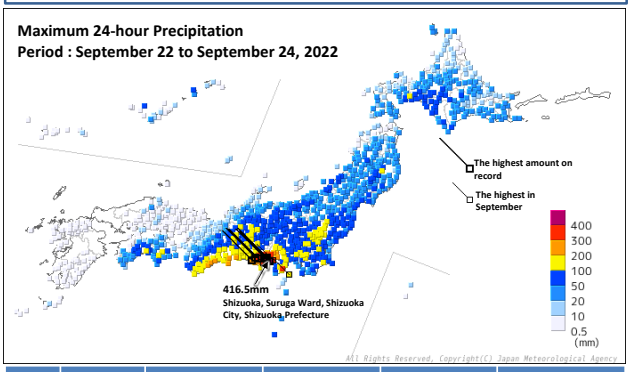
Maximum 1-hour Precipitation and Maximum 24-hour Precipitation

Maximum 1-hour Precipitation (September 22 to September 24)



Rank	Prefectures	Municipalities	Location name	Precipitation (mm)	Day and time
1	Shizuoka	Makinohara City	Shizuoka Airport	110.0	21:47 on 23rd
2	Shizuoka	Suruga Ward, Shizuoka City	Shizuoka	107.0	02:06 on 24th

Maximum 24-hour Precipitation (September 22 to September 24)



Rank	Prefectures	Municipalities	Location name	Precipitation (mm)	Day and time
1	Shizuoka	Suruga Ward, Shizuoka City	Shizuoka	416.5	06:00 on 24th
2	Shizuoka	Aoi Ward, Shizuoka City	Kagiana	405.0	04:00 on 24th

Source: Meteorological Agency

(2) State of Damage

Typhoon Talas in 2022 caused slope failures in Kakegawa City, Shizuoka Prefecture, and flooded prefecture-managed 28 rivers causing flood damage in three prefectures. As a result, 3 persons died (Shizuoka), 12 persons were seriously injured, and 4 persons were slightly injured, with Shizuoka Prefecture suffering the most. As for damage to homes, 7 were completely destroyed, 3,704 were half or partially destroyed, and 8,950 were flooded above or below floor level (Source: Fire and Disaster Management Agency information, as of March 24, 2023).

Damage also occurred to lifelines such as electricity and water supply, and to transportation infrastructure such as roads and railroads. Particularly in Shizuoka City, water was cut off in up to 74,300 households due to blocked water intakes and other problems.

(3) Response by the Government

At 4:30 p.m. on September 22, 2022, the government held an Inter-Agency Disaster Alert Meeting. At 10:05 a.m. on September 23, an Information Contact Office was set up in the Prime Minister's Office. On September 27, State Minister of Cabinet Office Hoshino and Parliamentary Vice-Minister of Health, Labour and Welfare Honda visited damaged sites in Shizuoka Prefecture.

The Disaster Relief Act was applied to 23 municipalities in Shizuoka Prefecture.

Regarding the designation of a disaster of extreme severity, the Cabinet decided on October 28, 2022 to designate the disaster due to rainstorms and heavy rains from September 17 to 24, 2022 as a disaster of extreme severity, along with the disaster due to the aforementioned Typhoon Nanmadol in 2022.

State Minister of Cabinet Office Hoshino and Parliamentary Vice-Minister of Health, Labour and Welfare Honda visited damaged sites in Shizuoka Prefecture (Source: Cabinet Office)

Chapter 5. Disasters Due to Heavy Snow from December 17 and from 22, 2022

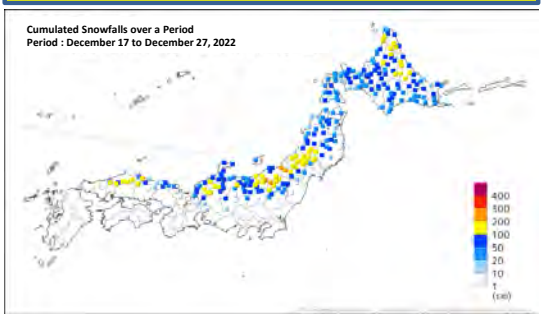
(1) Overview

From December 17 to 19, 2022, a strong cold air mass moved over Japan, and a strong winter-type pressure pattern was observed around the country. The Sea of Japan side of northern to western Japan experienced heavy snowfall, mainly in Fukushima, Yamagata, and Niigata prefectures. In some areas in Fukushima and Yamagata, 24-hour snowfall through the 19th exceeded 100 centimeters, which was the highest ever until last winter. In Fukushima and Niigata prefectures, where developed snow clouds flow in, snowfall temporarily intensified, so the Meteorological Agency gave the announcement “weather information on extremely heavy snow” for both prefectures and called for their greater vigilance. In addition, in the Shikoku and Kyushu regions, heavy snow fell, mainly in the mountains, but snow also fell and accumulated on the plains. Furthermore, extremely strong winds with speeds of 20 meters or more a second were observed in the Okinawa region, southern Kyushu, and northern Japan.

From December 22 to 24, another strong cold air mass moved over Japan, and until December 26, a strong winter-type pressure pattern was observed around the country. Heavy snow fell over a wide area on the Sea of Japan side of northern to western Japan, and snowfall intensified in some areas in northern and eastern Japan. Heavy snow also fell on the Okhotsk Sea side of Hokkaido, on the Pacific Ocean side of western Japan, and on the flatlands of the Tokai region, where snow is usually rare. In addition, winds intensified nationwide, and very strong winds with speeds of 20 meters or more a second were observed over a wide area, from western to northern Japan.

Cumulated Snowfalls over a Period (December 17 to December 27)

Cumulated Snowfalls over a Period (December 17 to December 27)



Cumulated Snowfalls over a Period (December 17 to December 27)

Prefectures	Municipalities	Location name	Amount of snow (cm)
Yamagata	Oguni-machi, Nishiokitama-gun	Oguni	258
Fukushima	Tadami-machi, Minamiaizu-gun	Tadami	236
Niigata	Sekikawa-mura, Iwahune-gun	Shimoseki	222
Niigata	Uonuma City	Sumon	217
Yamagata	Nishikawa-machi, Nishimurayama-gun	Oisawa	197

Source: Meteorological Agency

(2) State of Damage

In the heavy snowfall from December 17, 2022, accidents occurred during snow removal work, resulting in 12 fatalities (Hokkaido, Aomori, Akita, Yamagata, Niigata, and Ishikawa prefectures), 32 serious injuries, and 54 slight injuries. Seven houses were partially damaged (Fire and Disaster Management Agency information, as of January 13, 2023). A maximum of 23,620 households experienced power outages within the service area of Tohoku Electric Power Co. In particular, Sado City, Niigata Prefecture, experienced power outages intermittently due to snow

accumulating on transmission lines (from December 18 to 27). In addition, snow caused traffic disruptions from northern to western Japan, such as road closures, suspension of railway services, and cancellations of aircraft and ships. Particularly in Niigata Prefecture, traffic was intermittently brought to a standstill on National Route 8 (Kashiwazaki City, Niigata Prefecture) and National Routes 8 and 17 (Mitsuke City to Nagaoka City, Niigata Prefecture).

Heavy snowfall on December 22, 2022, caused accidents during snow removal work, resulting in 11 fatalities (Hokkaido, Akita, Yamagata, Ishikawa, Hiroshima and Ehime prefectures), 22 serious injuries, and 34 light injuries. Twenty seven houses were partially damaged (Fire and Disaster Management Agency information, as of January 13, 2023). In addition, power transmission towers collapsed due to heavy snowfall that began on December 22, causing power outages in approximately 26,900 households within the service area of Hokkaido Electric Power Co., mainly in Monbetsu City, Hokkaido, and damaging lifelines. The heavy snow also caused traffic disruptions from northern to western Japan, including road closures, rail service suspensions, and cancellations of aircraft and ships.

(3) Response by the Government

The government continued to respond to the heavy snow that began on December 17, 2022 through the Information Contact Office, which had been established at the Prime Minister's Office on December 1, 2022. The "Disaster Relief Act" was applied to four cities in Niigata Prefecture due to traffic hindrance caused by heavy snow.

In response to the heavy snow that began on December 22, 2022, an Information Contact Office was set up at the Prime Minister's Office at 3:30 p.m. on December 21, 2022, and Inter-Agency Disaster Alert Meetings were held (two meetings by December 23). In addition, a ministerial meeting on the heavy snowfall that began from December 22 was held from 6:25 p.m. on December 22. Furthermore, the "Disaster Relief Act" was applied to 12 cities and towns in Hokkaido and Niigata Prefecture due to long-duration power outages caused by heavy snow and other factors.

Ministerial meeting on the heavy snowfall that began from December 22
(Source: Prime Minister’s office website)

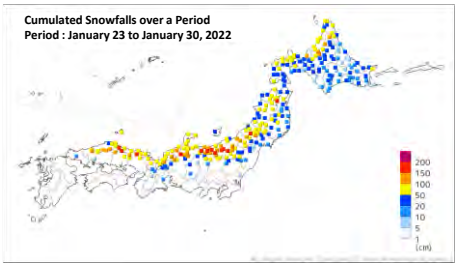
Chapter 6. Disasters Caused by Heavy Snow from January 20, 2023

(1) Overview

Several low-pressure systems passed near Japan on January 23, 2023, and subsequently, a strong cold air mass moved over Japan and remained until January 25, creating a strong winter-type pressure pattern around the country. Through January 25, heavy snow fell, mainly in western Japan and the Hokuriku region. Snow accumulated even in areas where snowfall is usually rare, such as the Kinki and Tokai regions. The Meteorological Agency gave the announcement “weather information on extremely heavy snow” for Okayama Prefecture, where snowfall temporarily intensified, and called for further precautions. In addition, winds intensified nationwide, with very strong winds of 25 meters or more per second observed in northern Japan, and the lowest temperatures on the 25th and 26th were below freezing point nationwide, except for the Nansei Islands, resulting in near-record 10-year lows in a wide area. Heavy snowfall continued, mainly in the Hokuriku and Sanin regions, until the 30th due to the winter-type pressure pattern and a low-pressure system over the Sea of Japan. Especially on the 28th, well-developed snow clouds moved into the Hokuriku region, and the Meteorological Agency gave the announcement "weather information on extremely heavy snow" for Toyama Prefecture.

Cumulated Snowfalls over a Period (January 23 to January 30)

Cumulated Snowfalls over a Period (January 23 to January 30)



Cumulated Snowfalls over a Period (January 23 to January 30)

Prefectures	Municipalities	Location name	Amount of snow (cm)
Yamagata	Okuramura, Mogami-gun	Hijiori	199
Tottori	Daisen-cho Saihaku-gun	Daisen	194
Aomori	Aomori City	Sukayu	186
Niigata	Uonuma City	Sumon	182
Niigata	Myoukou City	Sekiyama	172

Source: Meteorological Agency

(2) State of Damage

Due to heavy snowfall from January 20, 2023, accidents occurred during snow removal work, resulting in 8 fatalities (Hokkaido, Aomori, Akita, Yamagata, Niigata, Kyoto and Okayama prefectures), 35 serious injuries, and 77 slight injuries. As for damage to houses, 1 house was partially damaged and 7 houses suffered inundation below floor level (Fire and Disaster Management Agency information, as of February 2, 2023).

A strong cold air mass that formed on January 24 damaged lifelines, including water supply cut off for up to 14,385 households mainly in Ishikawa Prefecture due to freezing of water pipes, and power outages for up to approximately 3,100 households mainly in Tottori Prefecture in the service area of the Chugoku Electric Power Co., due to fallen trees caused by snowfall and strong winds breaking electric wires. Furthermore, traffic disruptions occurred in northern to western Japan, including road closures, railroad service suspensions, and cancellations of aircraft and ships. Major traffic jams occurred on the Shin-Meishin Expressway, particularly on the sections between Yokkaichi JCT and Kameyama-Nishi JCT, and between Kameyama JCT and Koga-Tsuchiyama IC). Moreover, 15 trains stopped between Yamashina and Takatsuki Stations of JR West, and 3 trains stopped between Ebetsu and Toyohoro Stations of JR Hokkaido.

(3) Response by the Government

The government established an Information Contact Office in the Prime Minister's Office at 3 p.m. of January 20, 2023, and held Inter-Agency Disaster Alert Meetings (twice by January 23). The “Disaster Relief Act” was adopted to a town of Tottori Prefecture due to a traffic disruption.

Chapter 7 Response by Volunteers and NPOs

(1) Volunteer Response to Major Disasters in 2022

In the disasters caused by heavy rains in August 2022, Disaster Volunteer Centers (hereinafter referred to as "Disaster VCs") were set up in 22 municipalities in Aomori, Iwate, Akita, Yamagata, Niigata, Ishikawa, Fukui and Shizuoka prefectures by the Council of Social Welfare, and a total of about 23,000 volunteers participated in support activities through the Disaster VCs (as of October 15, 2022).

In the disaster caused by Typhoon Nanmadol in September 2022, Disaster VCs were launched in four cities in Oita and Miyazaki prefectures by the Council of Social Welfare, and a total of about 1,200 volunteers worked through the disaster VCs (as of October 11, 2022).

In the disaster caused by Typhoon Talas in September 2022, Disaster VCs were launched in three cities in Shizuoka Prefecture by the Council of Social Welfare, and a total of about 7,000 volunteers worked through the Disaster VCs (As of December 31, 2022).

In the affected areas, relief efforts tailored to the local conditions were undertaken, including cleaning and organizing damaged houses, disposing disaster waste, removing debris and dirt from houses and waterways, distributing supplies at shelters, and aiding people relocating from shelters.

In the affected areas, the scope of volunteer recruitment was defined, taking into account the needs of the affected people and the local COVD-19 situation, and basic infection prevention measures, such as wearing masks, washing hands, and social distancing, were requested of the volunteers. In addition, a pre-registration system utilizing ICT was introduced to alleviate congestion at the reception for volunteers.

In addition to the support from volunteers through the Disaster VCs, specialized NPOs and other organizations engaged in wide-ranging support activities, such as providing technical assistance for removing soil and debris from damaged houses, handling disaster waste in the affected areas, supporting evacuees in their homes (indoor evacuees), creating a comfortable environment for children, and providing psychological care.

Activities by disaster volunteers (Source: Council of Social Welfare in Shizuoka Prefecture)


Volunteer activities by NPOs with experts (Source: JVOAD)

(2) Cooperation among the Administration, Volunteers and NPOs

In the affected areas in Niigata and Shizuoka 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.

At the national level as well, “national information sharing meetings (Core Conference)” was held by the Cabinet Office, Ministry of the Environment, the Japan Voluntary Organizations Active in Disaster (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 meeting in Niigata Prefecture
(Source: Niigata Prefecture)

Information sharing meeting in Shizuoka Prefecture
(Source: Council of Social Welfare in Shizuoka Prefecture)

Part I. Status of Disaster Management Measures in Japan

Japan is prone to various types of natural disasters due to its natural conditions, and many disasters occurred in FY2022, including heavy rains in August and Typhoons Nanmadol and Talas in 2022. Part 1 discusses recent disaster management measures, particularly those intensively conducted in FY2022.

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 Actors

1-1 Raising Public Awareness of Disaster Risk Reduction

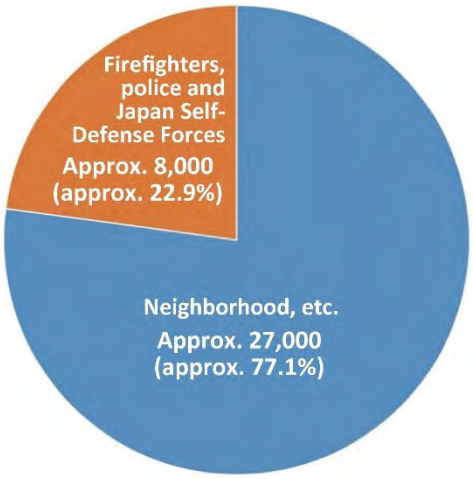
Japan has traditionally experienced many natural disasters due to its topography, weather, and other natural conditions. Therefore, in order to prepare for the eventuality of a disaster, our country takes structural measures to prevent or mitigate damage from disasters, such as the construction of embankments 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.

After 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).

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"), date 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).

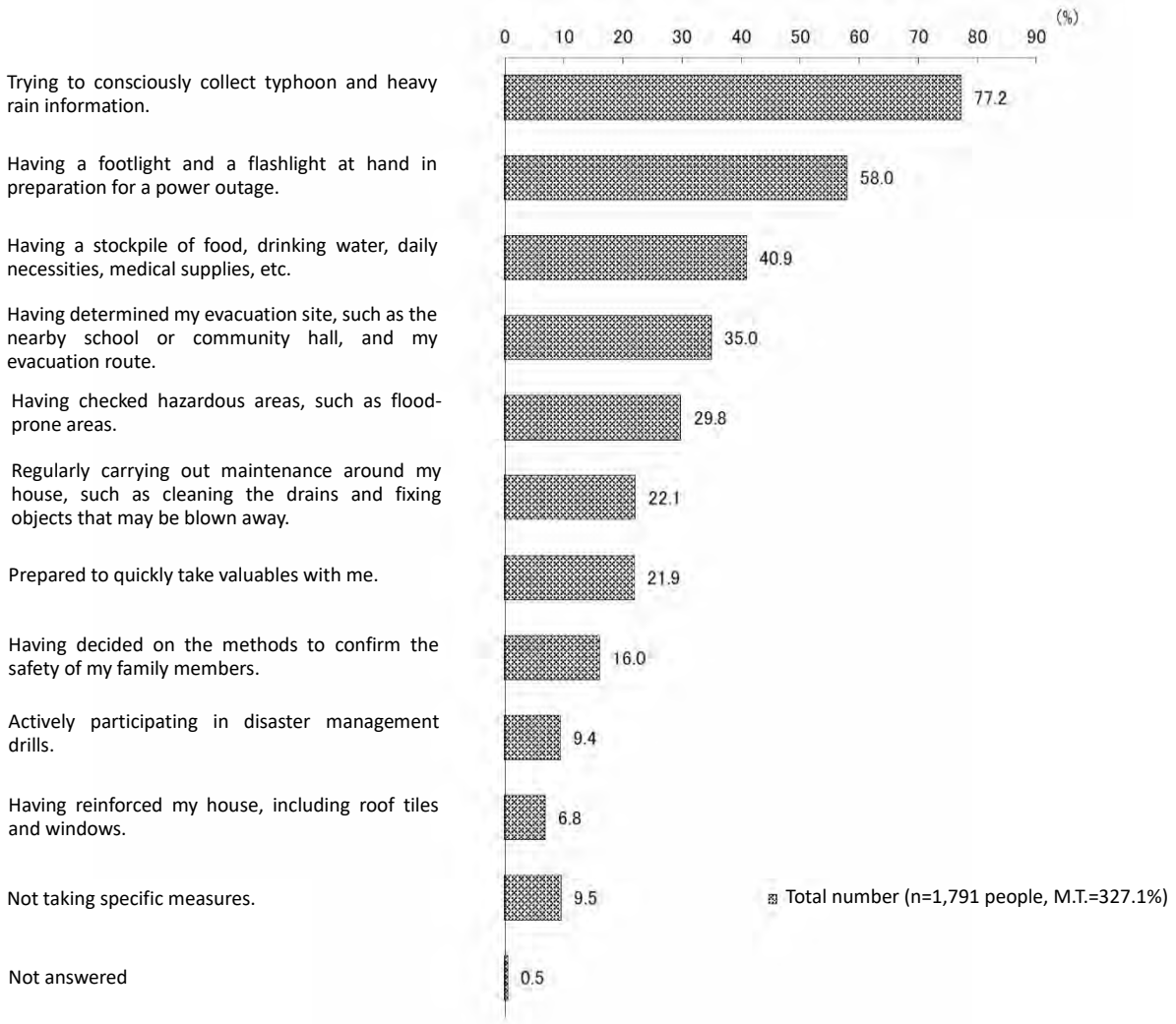
Specific actions for disaster prevention and mitigation may include, first of all, "self-help," such as understanding the disaster risks in the community, "preparing" in advance by securing furniture and stockpiling food and other supplies, and participating in evacuation drills to be prepared to take 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.

According to the results of the "Public Opinion Survey of Disaster Management," which was conducted by the Cabinet Office in September 2022, the situation regarding people's efforts for earthquake countermeasures, as well as their awareness of the importance of self-help and concrete countermeasures, is as explained in Special Feature 1, Chapter 2, Section 4, "Changes in People's Disaster Management Awareness, and Progress in Self-Help and Mutual Support Initiatives." The most common measures, which were taken in preparation for typhoons and heavy rains, were "consciously collecting typhoon information" (77.2%), "preparing footlights, flashlights, etc." (58.0%), "stockpiling food, drinking water, medicines, etc." (40.9%), and "predetermining an evacuation site and route" (35.0%) (Fig. 1-1-2).

The status of "mutual support" efforts is also as described in Special Feature 1, Chapter 2, Section 4.

(Reference : https://survey.gov-online.go.jp/r04/r04-bousai/index.html)

Fig. 1-1-2 Measures to prepare for a storm and flood disaster (multiple answers allowed)



Source: “Public Opinion Survey of Disaster Management,” prepared by the Cabinet Office (Survey in September 2022)

Although 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.

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, involving various sectors in exchanging information and opinions and collaboration.

(1) National Conference on Promoting Disaster Risk Reduction (Bosai-Kokutai) 2022

The "National Conference on Promoting Disaster Risk Reduction (Bosai-Kokutai) 2022" was held from October 22 to 23, 2022 in Kobe City, Hyogo Prefecture. 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). The theme of the National Conference on Promoting Disaster Risk Reduction was “Disaster Experiences and Lessons for the Future — Never Forget, Pass on, Utilize, and Prepare,” and it aimed to provide an opportunity to reaffirm the importance of passing on disaster experiences and lessons to future generations and to emphasize the importance of each of us working on disaster management on a daily basis.

At its opening, Mr. Tani, Minister of State for Disaster Management, gave an opening address on behalf of the organizers, saying, “I hope this national conference becomes a catalyst for new encounters and connections, spreading the circle of disaster management throughout Japan and further contributing to strengthening the nation's disaster management capabilities.” After that, Mr. Seike, chairperson of the National Council for Promoting Disaster Risk Reduction (and president of the Japanese Red Cross Society) gave a speech as the organizer, and Mr. Saito, the governor of Hyogo Prefecture, and Mr. Hisamoto, the mayor of Kobe City, gave speeches as representatives of the venue. In the opening discussion held under the theme of “Lessons Learned and Disaster Management Education for the Future,” the participants exchanged opinions on what lessons should be learned from past major disasters, such as the Great Hanshin-Awaji Earthquake, and how to pass them on to the next generation through discussions on how communities and schools should cooperate in disaster management education and how to provide disaster management education for young children. In the high-level session hosted by the Cabinet Office with the theme of "Large Disasters and Me — Disaster Experiences and Lessons Passed on by Top Leaders,“ prominent figures representing the venue and various sectors in Japan and overseas, including the governor of Hyogo Prefecture, the mayor of Kobe City, and Ms. Mizutori, the Special Representative of the United Nations Secretary-General for Disaster Risk Reduction and head of the United Nations Office for Disaster Risk Reduction (UNDRR), shared their personal disaster experiences and their disaster management priorities from their respective positions, and they also looked ahead to the future.

In addition, various groups from governments, public interest groups, academia, the private sector, and NPOs held topical sessions to discuss lessons learned from disasters and the increasingly important self-help and mutual support efforts. Workshops were also held where various disaster management actors from across the country gathered to share examples of their daily disaster management and mitigation efforts, as well as related concerns and issues. Moreover, there were presentation and poster sessions at booths, an Ignite Stage where exhibiting organizations presented their initiatives on stage for the first time in this series of event, as well as outdoor exhibitions featuring vehicles. A total of 319 organizations introduced their disaster management and mitigation activities.

In the closing remarks, Mr. Akimoto, Vice-Chairman of the National Council for Promoting Disaster Risk Reduction (President of the Japan Firefighters Association), delivered the host address, and Mr. Kawata, Executive

Director of the Great Hanshin-Awaji Earthquake Memorial Disaster Reduction and Human Renovation Institution, gave a summary of the conference, and reported on the “Local Planning and Information Sharing Meeting,” an initiative to prepare for an exhibition in the host prefecture Hyogo. In addition, a video message was received from Mr. Kuroiwa, the Governor of the next host prefecture Kanagawa. State Minister of Cabinet Office, Mr. Hoshino thanked the participants and expressed his expectations for the next conference. The conference was attended by approximately 12,000 people on-site and viewed 11,000 times online. This conference confirmed the importance of increasing the disaster resilience of the country as a whole 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 Tani

Host address by Chairperson Seike (opening)

Opening discussion

High level session

Session by IRDR, Sub-committee of the Science Council of Japan

Host address by Vice-Chairperson Akimoto (Closing Remarks)

(2) The 8th National Council for Promoting Disaster Risk Reduction

The 8th National Council for Promoting Disaster Risk Reduction was held in the Grand Hall, Prime Minister's Office of Japan on December 14, 2022. 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, "As disasters become more frequent and severe, it is important for each and every citizen to raise their disaster management awareness, such as checking their daily preparations, and to enhance Japan's disaster resilience." Since 2023 marks the 100th anniversary of the Great Kanto Earthquake, with various initiatives planned in many places, he also expressed his hope for receiving even greater cooperation from the affiliated bodies of the National Council for Promoting Disaster Risk Reduction.

Following this, reports on activities such as the "National Conference on Promoting Disaster Risk Reduction (Bosai Kokutai) 2022" were shared, and the National Governors' Association and the Japan Voluntary Organizations Active in Disaster (JVOAD) introduced their efforts to raise awareness of disaster risk reduction through self-help and mutual support.

The 8th National Council for Promoting Disaster Risk Reduction
(Attended by Prime Minister Kishida)

The Council also confirmed its policy of actively conducting awareness-raising activities and related events in light of the 100th anniversary of the Great Kanto Earthquake. The Cabinet Office called for the use of the common logo mark for the "100th Anniversary of the Great Kanto Earthquake" in events by the national government, local governments, and private organizations. The Cabinet Office has set up the special website page "100th Anniversary of the Great Kanto Earthquake," which includes an overview of the earthquake and related events.

Common logo mark for "100th Anniversary of the Great Kanto Earthquake"
"The 100th Anniversary of the Great Kanto Earthquake" Special website

1-3 Measures on Disaster Management Drill and Disaster Risk Reduction Education

In the event of a disaster, as national government agencies, local governments, and other 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 FY2022, based on the "FY2022 Comprehensive Disaster Management Drill Framework" (decided by the National Disaster Management Council on June 17, 2022), 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, 2022, Disaster Preparedness Day, a government headquarters operation drill was conducted under the assumption in the immediate aftermath of the earthquake, taking COVID-19 countermeasures into consideration. First, Prime Minister Kishida and other cabinet members gathered on foot at the Prime Minister's Office to conduct a 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 Aichi Governor Omura received reports on the damage and response from each cabinet minister, confirmed the policy for responding to the situation by putting human lives first. 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. After the meeting, Prime Minister Kishida held a press conference to urge the public via NHK to take actions to protect their lives and sent out the message that a "Nankai Trough Earthquake Extra Information (mega-earthquake alert)" had been issued and that people should be prepared to evacuate immediately if they feel any tremors in the next seven days. Additionally, the government conducted training for procedures necessary to set up an Extreme Disaster Management Headquarters and declare an emergency.

On the same day, a joint disaster management drill involving nine prefectures and cities was held, with Chiba City, Chiba Prefecture, as the main venue, and Prime Minister Kishida and related cabinet members participated in on-site survey training. Prime Minister Kishida observed a rescue drill by the fire department, police, and Self-Defense Forces, and he experienced a simulated earthquake using a disaster management promotion vehicle (VR seismic simulation vehicle), observed the preparation of a disaster risk management map, and watched the installation of partitions for cardboard beds.

Government Headquarters Operation Training

On-site survey training in collaboration with 9 prefectures and cities' joint disaster management drill

(Source: Prime Minister's Office website)

(2) Government tabletop exercises

In December 2022, Extreme Disaster Management Headquarters operation drill (Cabinet Office (Central Government Bldg. No. 8)) was conducted in cooperation with On-site Extreme Disaster Management Headquarters drill (Main Wide-area Disaster Management Base Facility in the Tokyo Bay Waterfront (Ariake Hill)) 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 assembled 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.

Extreme Disaster Management Headquarters Operation Drill assuming Tokyo Inland Earthquake

Extreme Disaster Management Headquarters Operation Drill assuming Nankai Trough Earthquake (Kyusyu)

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. Site situation-setting and discussion-based drills were conducted with concerned parties assembling at the sites of Kinki region (Osaka City) in November 2022, Kyushu region (Kumamoto City) in December 2022, and Chubu region (Nagoya City) in February 2023.

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.

Furthermore, in June 2022, a drill was conducted for the operation of the Relief Goods Procurement and Transport Coordination Support System and for opening the relief supply bases. In this drill, officials from related ministries and agencies, local government officials, and other participants checked the relief supply bases and

requested and distributed relief supplies using the online Relief Goods Procurement and Transport Coordination Support System.

(3) Disaster Risk Reduction Education

In order for all citizens to protect their own lives during disasters, it is extremely important for each citizen to be able to take appropriate actions in the event of a disaster. For this reason, it is necessary to implement practical disaster risk reduction education throughout the country so that people, from as early as their childhood, can acquire the necessary disaster management knowledge and proactive disaster management actions.

The government, therefore, is promoting the following initiatives based on the "Third Plan for Promoting School Safety," which was approved by the Cabinet in March 2022:

- Develop and disseminate a new disaster risk reduction education guide taking into account developmental stages so that all schools nationwide can provide practical disaster risk reduction education and evacuation drills that teach local disaster risks, normalcy biases, and other necessary knowledge.
- Prepare teaching materials and data that are easy to use in schools and disseminate them. Especially regarding disaster risk reduction education from early childhood, education materials for young children, including a template for communicating information and raising awareness at home, should be developed to enhance disaster risk reduction education for parents and young children.
- Conduct regular and specific assessments of disaster risk reduction education in schools nationwide, including the status of implementation of practical evacuation drills and their reviews, set key indicators, and publicly announce the findings.

In FY2022, the Ministry of Education, Culture, Sports, Science and Technology created guidelines for disaster risk reduction education for elementary school teachers, and the Cabinet Office created guidelines for promoting disaster risk reduction education in collaboration with communities and schools.

1-4 Measures for Tsunami Disaster Prevention

(1) Evacuation Drills against Tsunami

Mainly during the period before and after "Tsunami Disaster Prevention Day (November 5)" in FY2022, disaster drills against earthquake and tsunami were held nationwide by the national government, local governments, and private companies with approximately 1.95 million people participating.

Mainly during the period mentioned above, the Cabinet Office collaborated with local governments and implemented drills with the participation of residents in 11 places nationwide (Nemuro City, Hokkaido Prefecture; Sakata City, Yamagata Prefecture; Kitaibaraki City, Ibaraki Prefecture; Hiratsuka City, Kanagawa Prefecture; Kakegawa City, Shizuoka Prefecture; Tokoname City, Aichi Prefecture; Nachikatsuura Town, Wakayama Prefecture; Fukuyama City, Hiroshima Prefecture; Tokushima City, Tokushima Prefecture; Saijo City, Ehime Prefecture, Naha City, Okinawa Prefecture). These drills included drills to protect oneself in the event of an earthquake (shakeout drills) and drills to evacuate from a tsunami after the shaking subsides (tsunami evacuation drills) as well as drills to confirm safety, set up shelters and operate them according to the local disaster management plan. A workshop was held before and after each drill to provide an opportunity for residents to learn about local damage assumptions and geographical conditions, and to review local evacuation plans. A total of approximately 12,000 people participated in the drills and workshops.

Drill to protect oneself
(Tokushima City, Tokushima Prefecture)

Tsunami evacuation drill
(Nachikatsuura Town, Wakayama Prefecture)

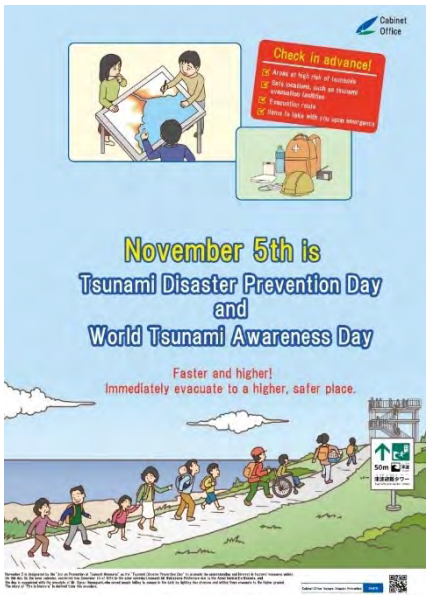
Shelter setup training
(Tokoname City, Aichi Prefecture)

Disaster management-related workshop
(Naha City, Okinawa 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 2022 were taken.



FY 2022 poster for tsunami disaster management awareness building

2. "Tsunami Disaster Prevention Day" Special Event in FY2022

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 held mainly in Tokyo.

At the event, following a greeting by Minister of State for Disaster Management, Mr. Tani, a keynote speech titled “Evolving Tsunami Disaster Prevention — Challenging Taboos through Tsunami Evacuation Drills” was delivered by Mr. Imamura, the director of the International Research Institute of Disaster Science, Tohoku University. In the panel discussion that followed, representatives from the sub venues, Nemuro City in Hokkaido and Nachikatsuura Town in Wakayama Prefecture, introduced the tsunami disaster prevention efforts of their respective regions online, and they exchanged opinions with the main venue.

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

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

Opening remarks by Minister of State for Disaster Management Tani

Part 1. Keynote speech by Director Fumihiko Imamura

Part 2. Panel discussion

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 a 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 ordinary 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, 2022, the Community Disaster Management Plans were stipulated under the local disaster management plans in 2,091 districts from 177 cities, towns and villages in 38 prefectures, and the actions for developing the Community Disaster Management Plans have been taken in 5,162 districts from 333 cities, towns and villages in 45 prefectures. Nine 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 **Number of Community Disaster Management Plan as Defined in Local Disaster Management Plans (as of April 1, 2022)**

◆ Reflected in the local disaster management plans :

38 prefectures, **177** municipalities, **2,091** districts

(**264** districts with new plans reflected in FY 2021)

* Surveyed: Municipalities
* Total as of April 1, 2022

Prefecture name	The number of municipalities	The number of districts	Prefecture name	The number of municipalities	The number of districts	Prefecture name	The number of municipalities	The number of districts
Hokkaido	9	42	Ishikawa	1	1	Okayama	3	5
Aomori	0	0	Fukui	1	1	Hiroshima	0	0
Iwate	6	57	Yamanashi	8	541	Yamaguchi	3	79
Miyagi	3	14	Nagano	14	182	Tokushima	0	0
Akita	2	17	Gifu	6	20	Kagawa	4	28
Yamagata	2	39	Shizuoka	7	70	Ehime	8	83
Fukushima	1	2	Aichi	8	14	Kochi	3	42
Ibaraki	6	80	Mie	4	16	Fukuoka	3	20
Tochigi	9	13	Shiga	2	6	Saga	0	0
Gunma	0	0	Kyoto	3	47	Nagasaki	0	0
Saitama	6	17	Osaka	3	18	Kumamoto	6	185
Chiba	2	6	Hyogo	6	155	Oita	0	0
Tokyo	11	190	Nara	4	7	Miyazaki	2	5
Kanagawa	4	34	Wakayama	1	1	Kagoshima	12	47
Niigata	2	2	Tottori	1	4	Okinawa	0	0
Toyama	0	0	Shimane	1	1	Total	177	2,091

Source: Cabinet Office data

Fig. 1-5-2 **Number of Activities Toward the Formulation Community Disaster Management Plan (as of April 1, 2022)**

◆ Working toward the formulation of Community Disaster Management Plans (Note):

45 prefectures, **333** municipalities, **5,162** districts

* Surveyed: Municipalities
* Total as of April 1, 2022

(Note) Including those that have been proposed to municipalities but not yet reflected in the local disaster management plans

Prefecture name	The number of municipalities	The number of districts
Hokkaido	7	35
Aomori	3	10
Iwate	3	42
Miyagi	7	123
Akita	3	3
Yamagata	4	66
Fukushima	9	24
Ibaraki	7	28
Tochigi	21	78
Gunma	7	102
Saitama	11	158
Chiba	4	13
Tokyo	4	44
Kanagawa	7	32
Niigata	7	166
Toyama	7	23

Prefecture name	The number of municipalities	The number of districts
Ishikawa	7	228
Fukui	16	823
Yamanashi	12	81
Nagano	13	47
Gifu	6	53
Shizuoka	4	79
Aichi	12	34
Mie	15	97
Shiga	8	174
Kyoto	4	16
Osaka	12	392
Hyogo	10	409
Nara	3	5
Wakayama	0	0
Tottori	2	7
Shimane	4	20

Prefecture name	The number of municipalities	The number of districts
Okayama	9	110
Hiroshima	5	100
Yamaguchi	3	30
Tokushima	5	18
Kagawa	12	32
Ehime	5	30
Kochi	2	4
Fukuoka	8	78
Saga	0	0
Nagasaki	2	17
Kumamoto	17	346
Oita	1	305
Miyazaki	7	32
Kagoshima	13	642
Okinawa	5	6
Total	**333**	**5,162**

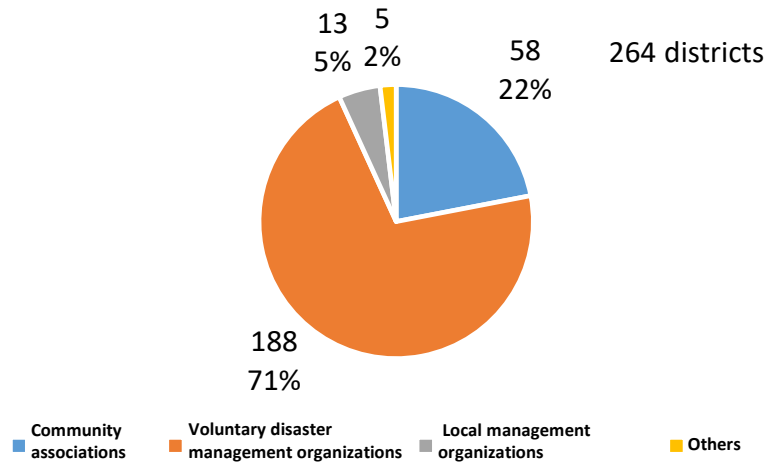
Source: Cabinet Office data

(1) Trends in Community Disaster Management Plans

The Cabinet Office analyzed case studies of 264 districts in local disaster management plans stipulated in FY2021 under the local disaster management plans, and found the following characteristics (Fig. 1-5-3 to Fig. 1-5-5).

1. The Community Disaster Management Plans were prepared by the community association in 22%, and the voluntary disaster management organizations in 71% of all the respondents.
2. Regarding the populations in each community, 42% respondents showed that there were 500 residents or less in the community, and 62% respondents indicated that 1,000 residents or less were in the community.
3. As for the trigger to establish the Community Disaster Management Plan, 82% 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–the development of Community Disaster Management Plans.

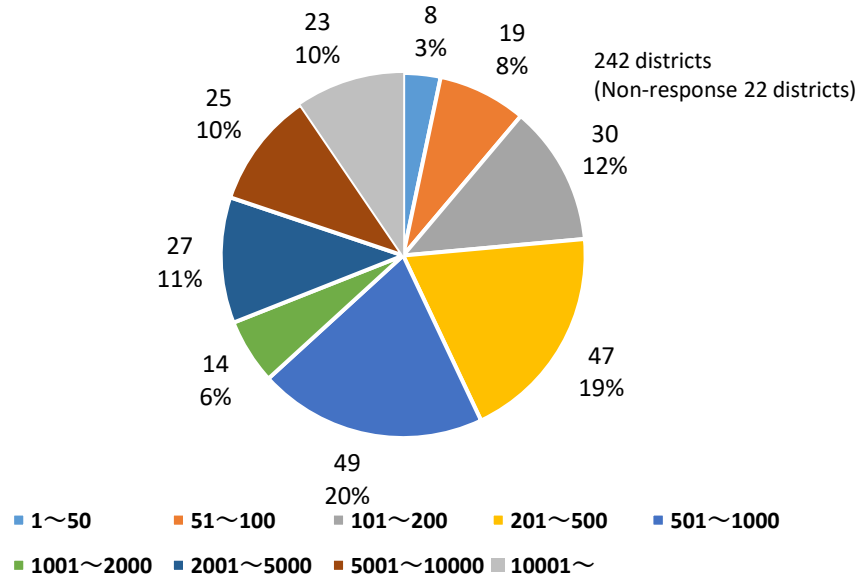
Fig. 1-5-3 Entities That Prepared Their Community Disaster Management Plans in FY2021



Others: Preparatory committees organized mainly by town council officials
Community associations, voluntary disaster management associations, and companies in the coastal area
Neighborhood associations and voluntary disaster management organizations

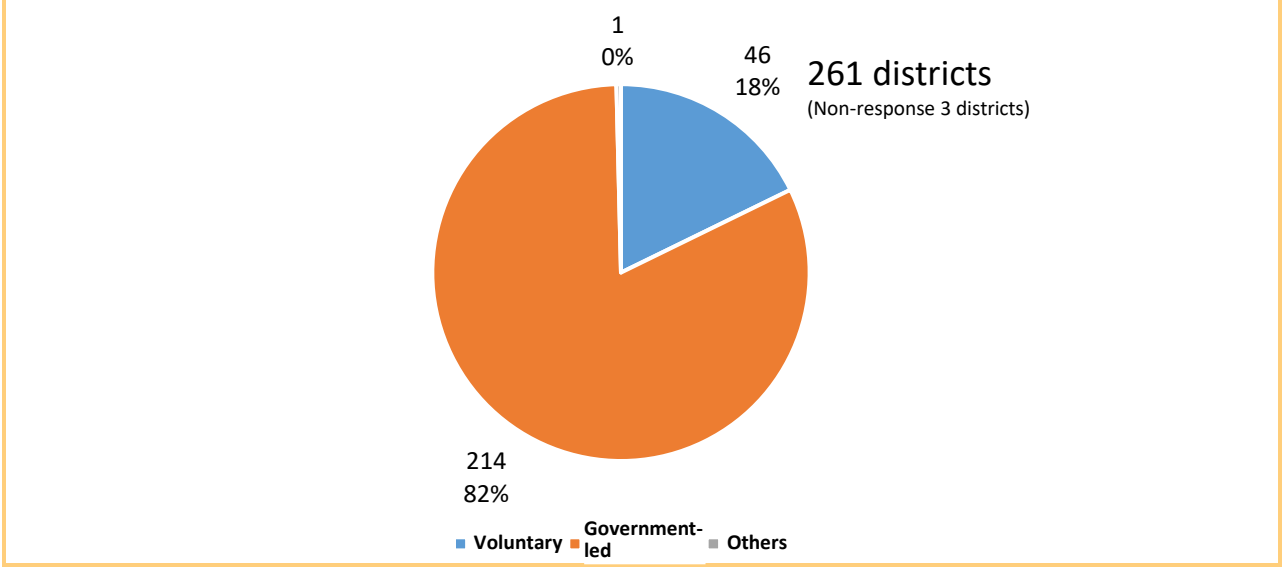
Source: Cabinet Office data

Fig. 1-5-4 The Number of Districts by Population in Community Disaster Management Plan Defined in Local Disaster Management Plans During FY2021



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 FY2021**



Source: Cabinet Office data

(2) Cabinet Efforts to Promote the Formulation of Community Disaster Management Plans

To promote the formulation of Community Disaster Management Plans, the Cabinet Office is preparing materials that can be used as references, such as Guidelines for Community Disaster Management Plan. The Cabinet Office is also establishing a "Community Disaster Management Plan Library," which will list Community Disaster Management Plans by region and theme. In FY2022, the Cabinet Office organized the following forums and training sessions:

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

1. Holding the Community Disaster Management Plan Forum in 2023

The Cabinet Office held the "Community Disaster Management Plan Forum 2023" on March 26, 2023, to facilitate the sharing of examples and experiences from each region and to promote the development of their Community Disaster Management Plans. This form showcased initiatives by Tsutsujigaoka, Akishima City, Tokyo, and Takagi-cho, Kokubunji City, Tokyo, under the theme of "Preparing for Imminent Megaquakes" and also initiatives by Mutsu City, Aomori Prefecture, and Mabi-cho, Kurashiki City, Okayama Prefecture, under the theme of "Preparing for Severe and More Frequent Heavy Rain Disasters." The forum included active exchanges of opinions on each theme. An archived video of this forum is now available.

2. 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 October 26, 2022, and December 6, 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.

3. 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 October 21 2022, "Chikubo'z Opinion Exchange Meeting" was held in a hybrid format combining on-site in Kobe City, Hyogo Prefecture and online for local government officials, to exchange opinions together with experts regarding support for Community Disaster Management Plans.

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 entities supporting affected people, 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 FY2022" conducted by the Cabinet Office in January, 2023, all 43 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 January 22, 2023, the Cabinet Office held the "Disaster Risk Reduction and Volunteer Meeting." The theme of this meeting was "Modern-Day Challenges in Supporting Affected People and the Spread of Disaster Relief Volunteer Activities 100 Years after the Great Kanto Earthquake." The meeting attracted about 70 participants at the Tokyo venue and about 200 participants online. In the first part of this meeting, themed “Looking Back on the Initiatives of Volunteers Who Engaged in Disaster Responses in the Great Kanto Earthquake on its 100th anniversary,'' the Cabinet Office explained the outline of the damage caused by the earthquake. Private organizations (the Japanese Red Cross Society, the Japan National Council of Social Welfare, and Tokyo YMCA) that were involved in relief activities at that time of the earthquake also gave relay talks.

In the second part of the meeting, a panel discussion was held under the theme of "Discussing Diverse Initiatives to Expand the Base of Volunteers" to discuss current disaster relief activities by various private sector entities (Nihon Bousaishi Kai, the business community, and volunteer groups).

Disaster Risk Reduction and Volunteer Meeting

Speech by Mr. Minister of State for Disaster Management Tani

Relay talks

(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 including intermediary disaster support organizations (including intermediary disaster support organizations), 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 FY2022, 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 several times with different target audiences. The "Basic Training" was held as a livestream and attended by approximately 210 participants from 26 prefectures. Government administrators, councils of social welfare, and intermediary disaster support organizations explained the need for collaboration among diverse actors. The "Building Collaborative Relationships Training" was attended by five prefectures, with the participation of various affected people including the governments, the Council of Social Welfare, NPOs and others at each site (some participants participated online due to COVID-19 countermeasures). During the training, in the light of presentations on its collaborative states of local governments, the Council of Social Welfare, NPOs and others that had already worked to build a system of collaboration and cooperation, the participating local governments exchanged opinions to further build collaborative and cooperative systems.


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

(4) Model Training for “Evacuation Life Support Leaders and Supporters”

In recent years, natural disasters have become more severe and frequent. And for evacuees, stays in shelters have been more prolonged, sometimes for weeks or months, making the improvement of evacuation living conditions a challenge. Amid the various tasks that arise after a disaster, there is a limit to how much local government officials can continue to play a central role in the operation of shelters after they are setup. Therefore the principles of “self-help” and “mutual support” cannot be overlooked upon assistance for affected people. Furthermore, the prolonged operation of shelters requires specialized knowledge and skills.

Thus, taking into account recommendations of the "Working Group on Disaster Risk Reduction Education and Public Awareness (Disaster Relief Volunteer Team)" compiled in May 2021, the Cabinet Office is endeavoring to realize an "ecosystem for human resource cultivation for evacuation life support and disaster management" that will provide systematic skill enhancement opportunities to motivated individuals, increase the number of those who can play a central role in supporting the lives of evacuees in each region, and strengthen the disaster resilience of communities.

In FY2022, a training program was established to promote the nurturing of "Evacuation Life Support Leaders and Supporters" who are responsible for providing evacuation life support. Model training was conducted in five areas across Japan (Maebashi City, Gunma Prefecture; Ueda City, Nagano Prefecture; Mihama Town, Aichi Prefecture; Suita City, Osaka Prefecture; and Yakage-cho, Okayama Prefecture).

The model training consisted of preliminary on-demand learning (eight sessions lasting about 20 minutes) and drills that lasted three days. During the drills, an environmental improvement exercise was held at a venue simulating shelter conditions, and an interpersonal communication exercise was carried out using role-playing activities.


“Evacuation life support leaders and supporters” model training

1-7 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.

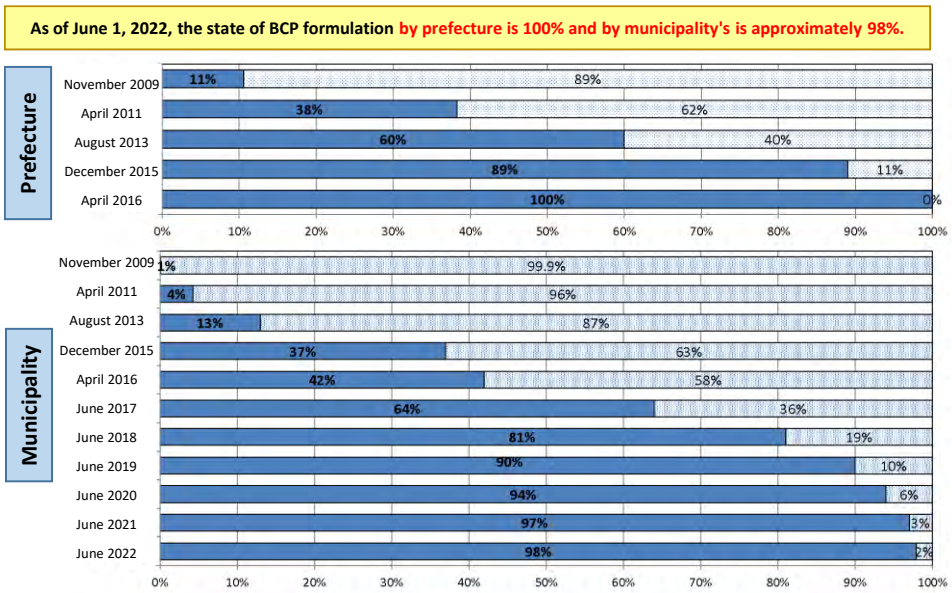
The Cabinet Office developed guidelines in June 2007 to support the development of Business Continuity Plans for central ministries and agencies. Subsequently, the guidelines were reviewed to address changes in social conditions and emerging issues and were recently revised in April 2022. Furthermore, based on the Business Continuity Plan of the central government, the effectiveness of the Business Continuity Plans of central ministries and agencies has been evaluated by experts. In response, the central ministries and agencies have reviewed and improved their Business Continuity Plans as necessary.

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 98% of all municipalities as of June 2022, up 1 percentage points from the previous year (Fig. 1-7-1).

Fig. 1-7-1 **State 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 Management and Fire and Disaster Management Agency, Ministry of Internal Affairs and Communications)
April 2011 : Local Autonomy Information Management Overview (March 2012) (Regional Information Policy Office, Local Administration Bureau, Ministry of Internal Affairs and Communications)
August 2013: Preliminary Figures for the Rate of BCP Formulation for Natural 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)
June 2022: 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)

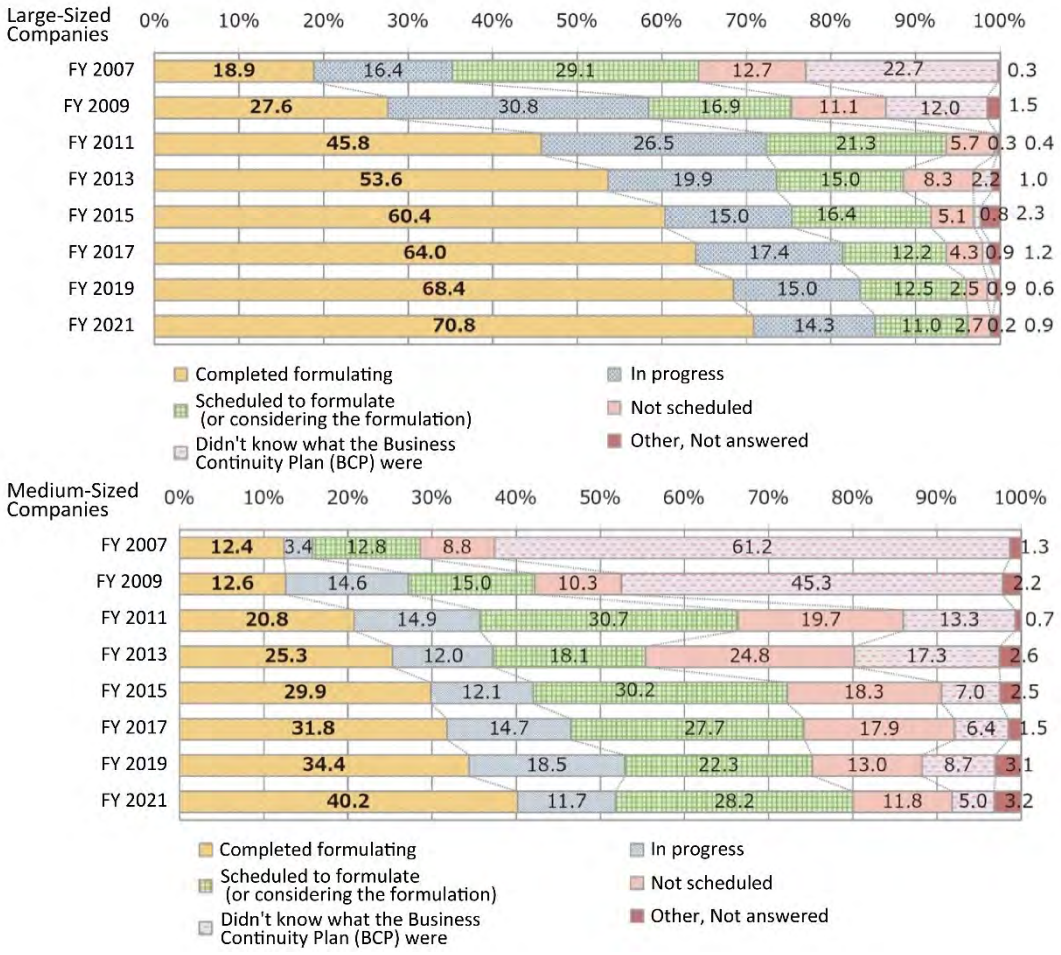
The Cabinet Office developed the "Business Continuity Plan Formulation Guidelines for Municipalities (in May 2015)," the "Guidelines for Business Continuity of Local Governments in the Event of a Major Disaster (revised in February 2016)" and the "Guide to Formulate Aid Acceptance Plans Regarding the Receipt of Human Support for Municipalities (revised in June 2021)" and familiarized them to the public. 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.

(3) Establishment of a Business Continuity Systems for Private Companies

Should a large-scale disaster cause the business activities of companies to stagnate, the impact would not be limited to the companies themselves. It could also have a significant impact, with such as the disruption of supply chains, on related business partners as well as the local economy and society and eventually Japan as a whole. Therefore, it is extremely important to ensure the continuity of corporate business activities in the event of a large-scale disaster. Therefore, in 2005, the Cabinet Office established the 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 recent times, a revised version of the Guidelines was published in March 2023 is being promoted, encouraging 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 "2021 Survey on Business Continuity and Disaster Risk Reduction Efforts of Corporations," there was an observed increase of the formulation of a BCP where 70.8% of large companies (68.4% in the previous survey in 2019) 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. 1-7-2).

Fig. 1-7-2 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."
https://www.bousai.go.jp/kyoiku/kigyou/pdf/chosa_201516.pdf

1-8 Collaboration with Industry

(1) Disaster Risk Management Economic Consortium

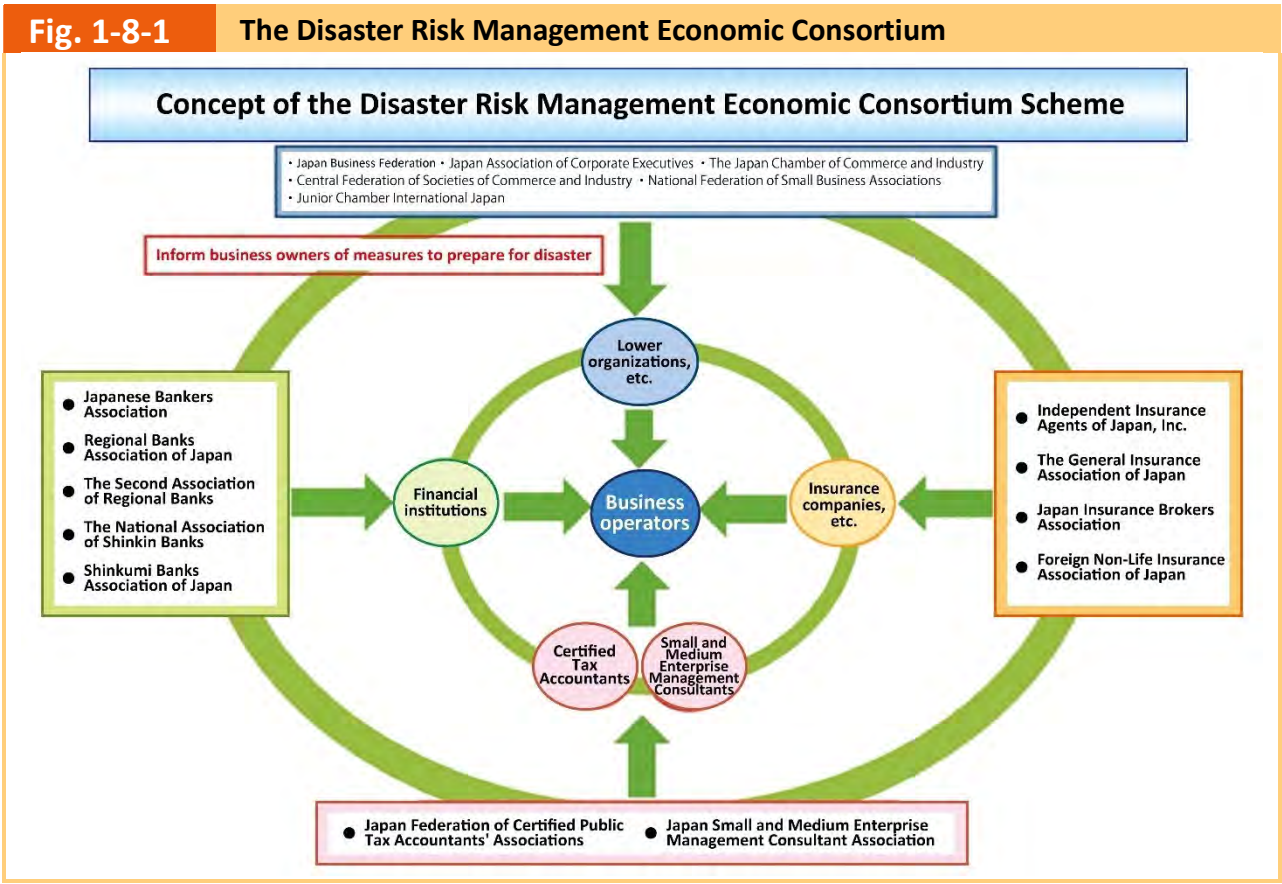
In order to improve the disaster risk management capacity of society as a whole, there is a need for business operators to improve their advance preparedness for large-scale natural disasters. For this purpose, the "Disaster Risk Management Economic Consortium" was established in 2018, as a forum for business operators to exchange views and ideas (Fig. 1-8-1).

The "Disaster Risk Management Economic Consortium" has formulated the "Principles of Disaster Management Economic Action," which are designed to promote and educate business operators to improve their disaster risk management capabilities through creative ideas tailored to the characteristics of each industry. In FY2022,

members of 17 organizations were mainly engaged in activities for spreading and raising awareness of these principles to their respective subsidiary organizations. Specifically, two administrative subcommittee meetings were held to exchange opinions among the members, as well as to introduce the Cabinet Office's policies on disaster management and to hear lectures by experts.

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

Fig. 1-8-1 The Disaster Risk Management Economic Consortium



Source: Cabinet Office data

(2) Disaster Risk Reduction x Technology Public-Private Partnership Platform

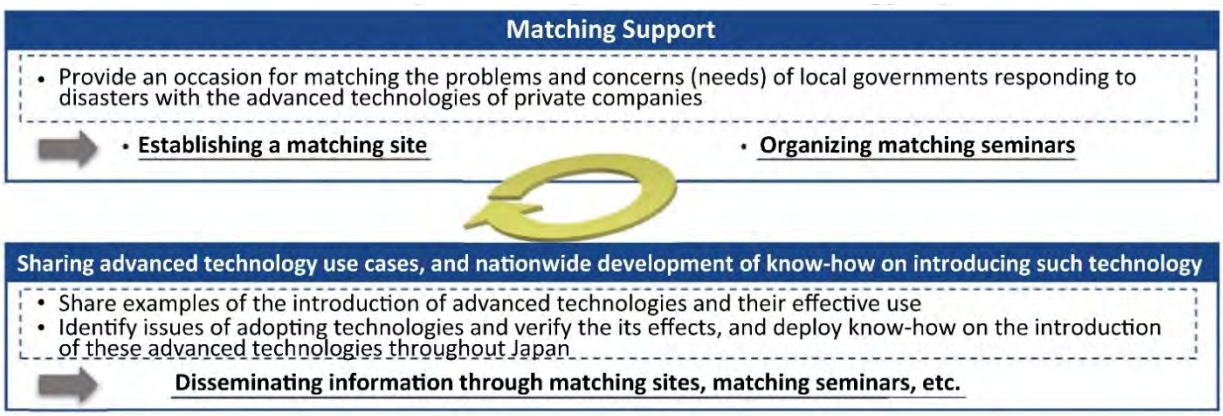
In order to respond more effectively and efficiently to the increasingly severe and frequent disasters that have occurred in recent years, it is essential for local governments to actively utilize advanced technologies, including digital technologies. Some local governments have already started using 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 "DRR 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 (Fig. 1-8-2).

The Cabinet Office has established a permanent website (hereinafter referred to as the "Matching Site") and organized seminars (hereinafter referred to as the "Matching Seminars") to provide a venue for interaction between local governments and private companies, etc.

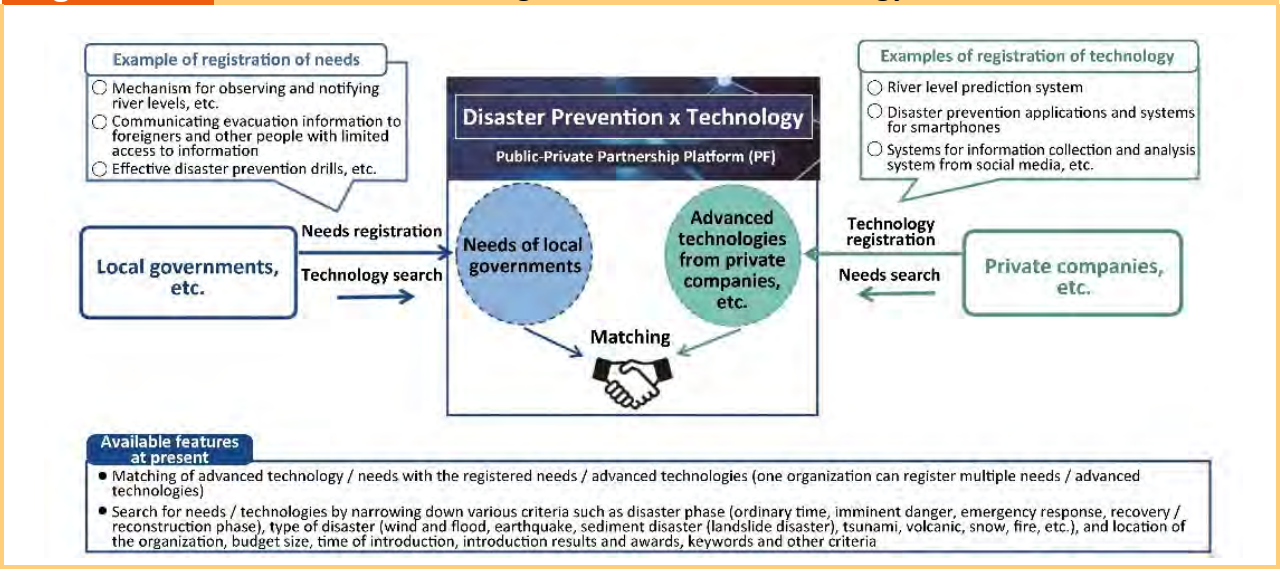
The Matching Site has been in operation since July 2021, allowing local governments to register their disaster risk reduction issues and needs in conjunction with private companies to register their useful technologies for disaster risk reduction. As of the end of March 2023, approximately 270 local governments and 800 private companies, etc. have registered on the Matching Site (Fig. 1-8-3).

Fig. 1-8-2 **Overview of Disaster Prevention x Technology Public-Private Partnership Platform (DRR Technology PF)**



Source: Cabinet Office data

Fig. 1-8-3 **Overview of Matching Site for the DRR Technology PF**



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.

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

A total of six matching seminars were held by the end of FY2022. In the first three matching seminars, the business outline of the DRR Technology PF was explained; the advanced technologies actually introduced into local governments were presented; the unique disaster management of some local governments was introduced; and

individual consultations were held in which private companies directly introduced their own technologies to local governments or local governments consulted on their issues and needs with companies on a one-on-one basis. From the fourth matching seminar onwards, in addition to the contents of the first three, public-private disaster management efforts in coordination with a public-private partnership network operated by local governments were introduced.

Moreover, the "Project for Supporting Municipalities as DRR Technology PF Models" was launched by selecting, as models, municipalities that were willing to commercialize the technology but had not yet made progress in matching or commercializing it. They were provided with support to help them identify issues they had with introducing and matching technology and also to verify the effectiveness of their measures dealing with this.

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.

【Column】

Development of a Certification System to Quantify and Visualize the Resilience of Real Estate to Natural Disasters

In recent years, Japan has seen a trend toward the frequent occurrence of a variety of natural disasters. It has become an important responsibility for those involved in real estate to minimize damage from natural disasters to buildings, enhance post-disaster resilience (recuperative power), and ensure the safety and security of people. In addition, the need to understand and disclose physical risks as a societal trend due to climate change in line with the recommendations of the Task Force on Climate-related Financial Disclosures (TCFD) is increasing, and every year there is a growing need to respond from an ESG perspective.

However, there is no mechanism to visualize the resilience of real estate that is based on the characteristics of Japan. Although there are risk assessment tools overseas, they do not necessarily fit Japan's characteristics because their judgments are based only on information about land, and they overemphasize chronic risks, such as storm surges. In Japan, urgent risks, such as typhoons, are priority issues, and not only the issue of land but operational aspects, such as the robustness and redundancy of buildings and the responsiveness and readiness in the event of a disaster, should be also considered.

In response, seven companies, including general incorporated foundations and private companies, established the “Resilience Review Committee in the Real Estate Field (D-ism Project)” and also developed "ResReal," which is Japan's first system for quantifying and visualizing the resilience of real estate before its certification. The first certification was launched at the end of January 2023, targeting resilience against flood damage. The ResReal certification targets land and buildings and their operational aspects. It quantifies their performance on a five-point scale, which makes it possible to take measures to achieve a higher score. In addition, all evaluation items for scoring are disclosed, making it possible to obtain the indicators necessary to improve resilience.

ResReal can be used by real estate owners to develop resilience enhancement measures and disclose information in accordance with the TCFD recommendations. It can also be used as a criterion for selecting a building or for developing buildings that are highly resistant against natural disasters. In this way, ResReal can serve as a "decision-making criterion" for a variety of decisions, which is expected to increase the awareness of real estate resilience and reduce damage to buildings, thereby enhancing public safety. Moreover, the certification system for environmental and wellness performance is already in place, and analysis has proven that the economic value of real estate that has these certifications is high. In the future, it is expected that awareness of the increase in economic value of real estate that is resilient will become evident.

○ Certification logo mark

Source: ResReal website

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

1-9 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 2023, 62 academic societies (59 groups of regular members and 3 associations of special members) participate in this academic network.

In August 2022, the academic network, together with the Science Council of Japan’s Council of Japan Academic Network for Disaster Reduction, held the fourth "Liaison Conference on Disaster Management among the Science Council of Japan, Academic Societies, and Government Ministries and Agencies" under the theme of "Environmental Changes Surrounding Natural Disasters and Disaster Management Policies: Preparing for Emerging Diverse Crises,” at which both the national government's ministries and agencies and academic circles presented their respective efforts. In May and October 2022, the academic network held a public symposium, in which opinions on the roles of disaster risk reduction science were widely exchanged.

The 4th Liaison Conference on Disaster Management among the Science Council of Japan, Academic Societies, and Government Ministries and Agencies

1-10 Strengthening Disaster Response Efforts from Gender-Equality Perspectives

Disasters threaten the lives of all people, but they are known to affect people differently depending on their gender, age, disability, etc. To realize a disaster-resilient society, it is important to minimize the impact of disasters

on people by considering the different needs of women, children, the elderly, people with disabilities, and other vulnerable people. The Cabinet Office has been promoting efforts for disaster management and reconstruction from the perspective of gender equality.

As of April 2022, the percentage of female members of prefectural disaster management councils and municipal disaster management councils remained unchanged at 19.2% and 10.3%, respectively. The Fifth Basic Plan for Gender Equality (approved by the Cabinet on December 25, 2020) set a goal of increasing the percentage of female members of prefectural and municipal disaster management councils to 30% by 2025. The participation of women in the decision-making process for disaster management is an urgent issue.

In May 2022, the Cabinet Office disseminated the results of a survey on local governments' disaster management efforts, focusing on the perspective of gender equality and based on "Women's Perspectives for Strengthening Disaster Response Capabilities — Guidelines for Disaster Prevention and Reconstruction from the Perspective of Gender Equality" (prepared in May 2020 and hereinafter referred to as the "Guidelines"). The survey suggested two key findings: about 60% of municipalities nationwide lacked any female personnel assigned to disaster/risk management departments. In addition, municipalities with a higher proportion of female members in local disaster prevention councils were stockpiling disaster relief supplies catering to the needs of a diverse range of people, as compared to municipalities with no female council members. The Cabinet Office has been conducting follow ups on local governments' initiatives which are implemented based on the Guidelines.

(Reference：https://www.gender.go.jp/policy/saigai/fukkou/chousa_r03.html)

In FY2022, based on the results of the survey on the implementation status of the Guidelines, the Cabinet Office gathered and compiled good practices of initiatives to promote the participation of women in the decision-making processes at the forefront of disaster management and response at the municipality level. In February 2023, the Cabinet Office conducted three thematic training sessions for staff members responsible for gender equality and disaster/risk management in local governments across the country in order to enhance their understanding of disaster management from a gender-equality perspective and to help them implement it in their respective local governments. These training sessions included lectures on each theme by experts, the presentation of model examples of local governments' efforts in revising their plans and initiatives from a gender-equality perspective, and question-and-answer sessions in the form of panel discussions.

In addition to the above, at the "National Conference on Promoting Disaster Risk Reduction (BOSAI Kokutai) 2022" held in Kobe City, Hyogo Prefecture, projects aimed at fostering connections among female administrative personnel engaged in disaster management, local female disaster management actors, female disaster prevention experts, and related individuals across their organizations were exhibited, strengthening cooperation with local communities and the private sector.

The Cabinet Office will continue to promote the participation of women as active players in the decision-making processes in the field of disaster management and response so that diverse viewpoints can be reflected in disaster management and reconstruction, and disaster responses that leave no one behind can be achieved.

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

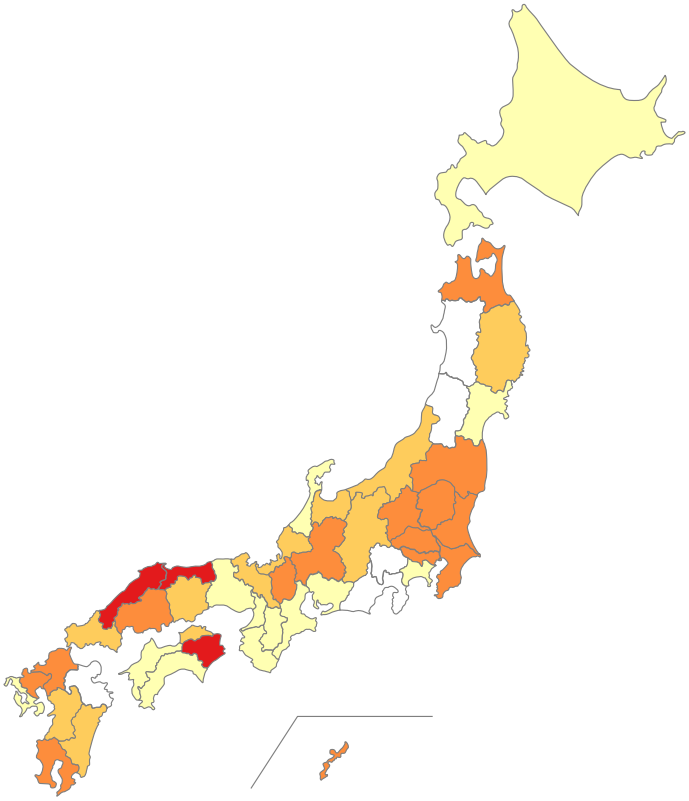
- Promote the government and local governments to lead disaster risk reduction and recovery efforts from a gender perspective through closer collaboration and cooperation between disaster/ risk management departments and gender equality departments from the normal time.
- Request each prefecture to promote 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. 1.10-1, Fig. 1.10-2)

- Encourage local governments to assign female and gender equality staff to the local Disaster Management Headquarters and promote understanding of efforts under 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. 1-10-1 **Proportion of Women among the Members of Prefectural Disaster Management Councils**

Prefecture	The total number of committee members (persons)	Women (persons)	Ratio of women (%)	
Tokushima	81	38	46.9	40% or more, 3 organizations
Shimane	73	31	42.5	
Tottori	69	29	42.0	
Shiga	62	21	33.9	20% or more to less than 40%, 15 organizations
Kagoshima	57	17	29.8	
Gifu	61	17	27.9	
Ibaraki	52	14	26.9	
Saga	69	18	26.1	
Tokyo	87	22	25.3	
Saitama	73	17	23.3	
Hiroshima	73	17	23.3	
Gunma	53	12	22.6	
Chiba	53	12	22.6	
Fukushima	54	12	22.2	
Aomori	60	13	21.7	
Tochigi	56	12	21.4	
Okinawa	56	12	21.4	
Fukuoka	61	13	21.3	
Kyoto	66	13	19.7	15% or more to less than 20%, 11 organizations
Kumamoto	57	11	19.3	
Nagano	80	15	18.8	
Fukui	56	10	17.9	
Niigata	77	13	16.9	
Yamaguchi	60	10	16.7	
Kagawa	60	10	16.7	
Toyama	67	11	16.4	
Miyazaki	55	9	16.4	
Iwate	77	12	15.6	
Okayama	59	9	15.3	
Wakayama	55	8	14.5	10% or more to less than 15%, 13 organizations
Mie	65	9	13.8	
Nagasaki	68	9	13.2	
Osaka	61	8	13.1	
Nara	61	8	13.1	
Ishikawa	69	9	13.0	
Kanagawa	56	7	12.5	
Hyogo	56	7	12.5	
Ehime	60	7	11.7	
Miyagi	58	6	10.3	
Hokkaido	69	7	10.1	
Aichi	69	7	10.1	
Kochi	60	6	10.0	
Akita	61	6	9.8	Less than 10%, 5 organizations
Yamagata	61	6	9.8	
Oita	59	5	8.5	
Shizuoka	60	4	6.7	
Yamanashi	65	2	3.1	
Total	2,977	571	19.2	



(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" (FY2022).
2. In principle, the survey data was as of April 1, 2022, 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: Compiled by the Cabinet Office from the “Progress in the Formation of Gender Equal Society or Woman-related Policies in Local Governments (2022)”

Fig. 1-10-2 **Performance Targets for Prefectural and Municipal Disaster Management Councils under the Fifth Basic Plan for Gender Equality, along with Actual Values**

Item		Present Status	Performance Target (Deadline)
Ratio of Women among Prefectural Disaster Management Councils' committee members		19.2% (2022)	30% (2025)
Ratio of Women among Municipal Disaster Management Councils' committee members			
	The number of organizations with no woman committee members	285 (2022)	0 (2025)
	Ratio of Women among committee members	10.3% (2022)	Aiming for 15% (in early stage), and even for 30% (by 2025)

Source: Compiled the Cabinet Office 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) and "Progress in the Formation of Gender Equal Society or Woman-related Policies in Local Governments (2022)"

Section 2. Disaster Management System, Disaster Response and Preparedness

2-1 Amendment of Basic Disaster Management Plan

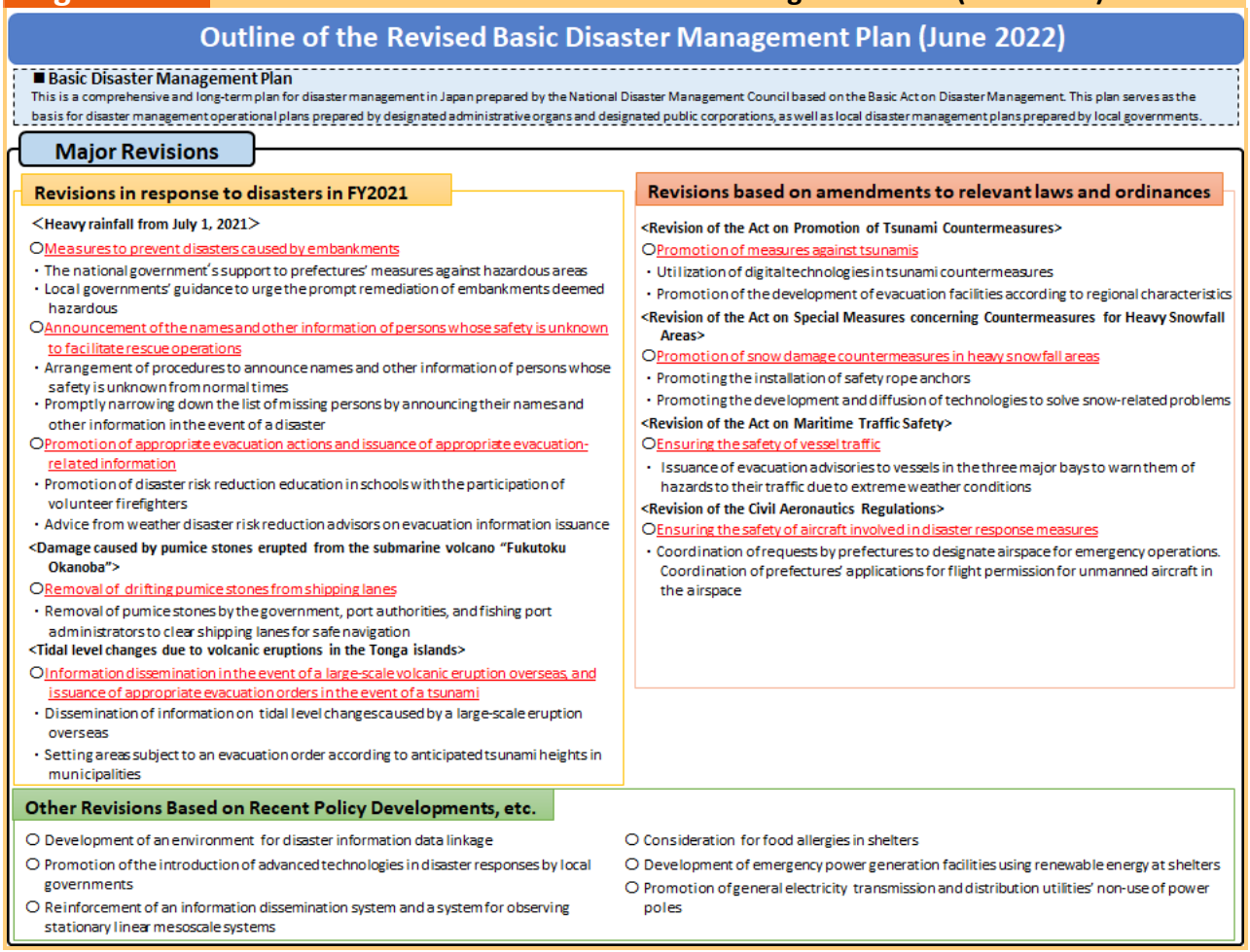
The Basic Disaster Management Plan is a basic plan for disaster management in Japan that is prepared by the National Disaster Management Council in accordance with Article 34, Paragraph 1 of the Basic Act on Disaster Management, and "must be reviewed each year in the light of the findings of scientific 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)

The Basic Disaster Management Plan was recently revised in June 2022 (Fig. 2-1-1). The main revisions were made based on the disasters that occurred in FY2021, and include measures to prevent disasters caused by soil embankments and to improve the efficiency of rescue activities by publicizing the names of people whose safety is unknown. The revisions also included the necessity of dissemination of information on large-scale volcanic eruptions overseas and the appropriate issuance of evacuation instructions in the event of a tsunami.

Other revisions have also been made in light of recent developments in disaster management policies, such as the promotion of the introduction of advanced technologies in disaster response by local governments.

Fig. 2-1-1 Outline of the Revised Basic Disaster Management Plan (June 2022)



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 FY2022, the "Training Program at Ariake Hill" was put into operation from September to October in 2022 and from January to March in 2023. 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. 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, regarding the "Disaster Response e-Learning," which is designed to help support staff members who perform disaster management operations on-site for disaster responses to quickly learn basic knowledge relevant to their assigned tasks, the following three new themes have been introduced: "Support for Persons Requiring Special Care," "Disaster Waste Disposal," and "Epidemic Prevention and Corpse Disposal." The

operation of the existing three themes, "Opening and Operating Shelters," "Survey for Residence Damage Certification and Issuance of Disaster Damage Certificates," and "Assessment and Communication of Evacuation Information," will also continue.

In planning and operating these training programs, the Cabinet Office established a planning and review committee for "Nurturing Disaster Management Specialists" consisting of disaster management-related experts, and it reviewed and expanded the contents of training while taking into account advice based on the social situation 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 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 cities, wards and towns and villages nationwide, with the aim of enabling them to exert effective leadership in the event of a disaster and providing them with support to enhance their response capabilities in disaster crisis management. 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.

"Online Training Program for Training of Disaster Prevention Specialists (Training Program at Ariake Hill)"

"Exercise for Training of Disaster Prevention Specialists (Training Program for Local Governments)"

“Disaster Response e-Learning (Opening and Operating Shelters)”

“National Seminar on Disaster and Crisis Management for Heads of Local Government”

【Column】

Full-Scale Operation of the Disaster Waste Treatment Support Staff System (Staff Bank)

When a large-scale disaster occurs, an enormous amount of disaster waste, equivalent to several years' worth of waste in normal times, is generated all at once, placing a heavy burden on the staff engaged in waste-related work at the affected local governments. In August 2021, the Ministry of the Environment started to operate the Disaster Waste Treatment Support Staff System (Staff Bank), consisting of local government personnel with experience and knowledge in disaster waste disposal, to assist affected local governments in determining disaster waste disposal policies and administrative procedures.

In FY2022, when this system was first put into full operation, disaster waste disposal support staff equivalent to 20 man-days were dispatched from five cities and towns to the local governments (five municipalities) affected by heavy rain in August 2022 to provide advice on the operation of temporary storage facilities and assist in the preparation of disaster reports required for applications for subsidies for disaster waste disposal projects. In the 2022 Typhoon Talas disaster, a total of eight man-days of disaster waste disposal support staff were dispatched from one city to the affected local government (one town) to provide assistance, such as advice on the removal of damaged houses and disaster waste disposal. The local government that received the assistance expressed its gratitude for the sympathetic support from the fellow local government personnel. The disaster waste disposal support staff who was engaged the disaster sites also expressed their intention to maintain the relationship and offer assistance in various situations in the future.

The Disaster Waste Treatment Support Staff System has only recently been launched, and there is a need to improve and expand the system in the future. The Ministry of the Environment will continue to work on improving the system to make it more responsive to affected local governments by registering new support staff according to the fields they can handle and their experience and by providing training opportunities to improve their skills.

Ministry of the Environment Website: Disaster Waste Treatment Support Staff System

(Reference: http://kouikishori.env.go.jp/action/jinzai_bank/index.html)

Yokohama City officials from Kanagawa Prefecture providing support in Ajigasawa Town, Aomori Prefecture
(Ministry of Environment material)

【Column】

Cooperative Efforts among Relevant Divisions within a City Office to Provide Nutrition and Dietary Support to "Leave No One Behind" in Preparation for a Large-Scale Disaster

In Gosen City, Niigata Prefecture, staff from the city's Disaster Prevention Section, General Affairs Division, and registered dietitians from the Health and Welfare Division, the Children's Division, and the School Education Division are working together to consider how nutrition and dietary support should be provided in the event of a large-scale disaster, and they are promoting initiatives for the efficient management and use of stockpiled food.

At the beginning of these efforts, the challenges were improving the nutritional balance of stockpiled food and dealing with those requiring special care, such as infants and those with food allergies. To resolve these issues and also understand the current situation of food stockpiles, the registered dietitians checked the contents and raw materials of existing stockpiled food using a list prepared by the Disaster Prevention Section.

Under these circumstances, in April 2020, the Ministry of Health, Labour and Welfare published a " Simple nutrition-based stockpiling simulator for calculating the amount of food stock for large-scale disasters." The simulator was developed to promote food stockpiling in order to provide nutrition and dietary support in the event of a large-scale disaster, taking into consideration health and nutritional aspects and the people requiring special care. The simulator allows a rough estimate of the required quantity of stockpiled food based on basic information possessed by local governments. This made it possible for Gosen City to estimate the nutritional needs of its citizens in the event of a large-scale disaster and to obtain data on nutritional excesses or deficiencies. Previous disaster experiences in Japan have made it obvious that excesses or deficiencies in nutrition are likely to occur after a large-scale disaster. To ensure nutrition and dietary support so that no one in the community is left behind, Gosen City is currently using the simulator to consider stockpiled food and improve nutrition in cooperation with the Disaster Prevention Section and registered dietitians.

Gosen City is also utilizing stockpiled foodstuffs before their expiration dates as teaching materials for disaster risk reduction education. Elementary schools' social studies, junior high schools' Home Economics, communities' health classes, salons for the elderly, and parent-child cooking courses at child-rearing support centers and nursery schools are teaching citizens how to sample (taste-test) and use stockpiled food. When it replaces stockpiled food, the Disaster Prevention Section listens to the opinions of local residents at disaster risk reduction education sites to improve its quality.

Gosen City believes that data-based management of stockpiled food and its utilization in disaster risk reduction education are the cornerstones for maximizing health-crisis management with a limited budget. The city will continue to promote efforts for nutrition and dietary support of its citizens in preparation for large-scale disasters in close cooperation with the Disaster Prevention Section and registered dietitians.

Disaster risk reduction education through parent-child cooking at a nursery school

Aim and usage of simple nutrition-based stockpiling simulator for large-scale disasters

○ The aim of this simulator is to have those in charge of disaster management departments in local governments acknowledge the importance of food stockpiling which focus on peoples' health/nutrition, and special needs, and to encourage such stockpiling.

Name	Simple nutrition-based stockpiling simulator for calculating the amount of food stock for large-scale disasters
Background	• This simulator was created as part of Ministry of Health, Labour and Welfare's budgeted project "Research and Analysis toward 'Nutrition for Growth Summit 2020' (tentative name)" under the supervision of an advisory committee whose members include experts on disaster nutrition.
Aim	• To enable each local government to calculate the approximate amount of required food stock, with focus on peoples' health/nutrition and special needs. • To enhance acknowledgment and understanding in local governments toward emergency stockpiling, in aim to establish a stronger support system for nutrition and dietary habits in preparation for large-scale disasters (disaster nutrition).
Intended Users	Those working in disaster management departments in local governments, etc. *This simulator should be used upon coordination with such persons as registered dietitians in health promotion departments as necessary.
Functions	• It is designed to calculate automatically the amount of required food stock via Excel® once the basic information of each local government (number of intended persons, etc.) is entered into the system. • Upon excluding items considered unsuitable for stockpiling by referencing government publications, the simulator is then able to calculate the optimal amount of food stock of selected items in consideration to nutritional aspects. (Reference) Ministry of Agriculture, Forestry and Fisheries: "Disaster Stockpiling Guide" (March 2019) Ministry of Agriculture, Forestry and Fisheries: "Household Emergency Stockpiling Guide" (February 2014) Ministry of Education, Culture, Sports, Science and Technology: "Food Composition Database" "Standard Tables of Food Composition in Japan - 2005 - (Seventh Revised Edition) 2018 Addendum"

The basic concept adopted for the calculation of optimal amount of food stock with consideration to nutritional aspects

This tool uses the **"demand"** and **"supply"** concepts to calculate the optimal amount of food stock in consideration to nutritional aspects.

"Demand" is the "total required amount" of nutrient factors that is calculated by multiplying the amount of each daily required amount (calories, protein, vitamins, etc.) and the number of applicable days.

"Supply" is the "total supply amount" which is the sum of each nutrient factor included in foods selected. The simulator calculates the optimal amount of food stock to match (or nearly match) "demand" and "supply" in consideration to nutritional aspects.

Ministry of Health, Labour and Welfare of Japan 'Simple simulator for calculating nutritional food stocks in preparation for large-scale disasters' (only available in Japanese)
https://www.mhlw.go.jp/stf/seisakunitsuite/bunya/0000089299_00004.html

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, 2022, 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	70,979	66,671	22,577	85,901	39,118	40,550	37,990	10,665
Estimated accommodation capacity (10,000 people)	12,263	13,426	5,992	23,872	8,874	17,813	7,621	2,705

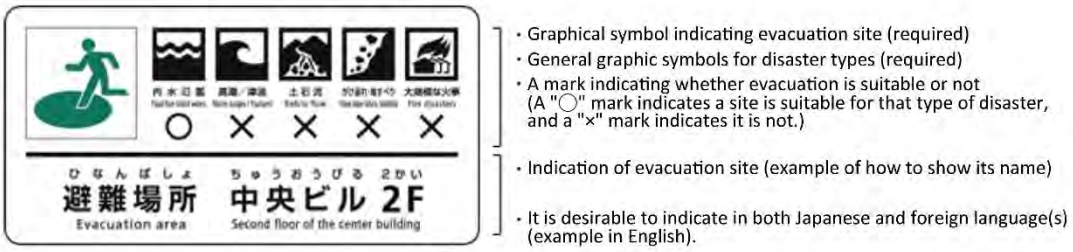
Source: Prepared by the Cabinet Office based on the Fire and Disaster Management Agency's "Status of Regional Disaster Management Administration" (with multiple responses for each category)

The designated emergency evacuation sites are also available on the Geospatial Information Authority of Japan's web map, "GSI Maps." (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 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 encouraged to follow the "Hazard Specific Evacuation Guidance Sign System (JISZ 9098) (March, 2016) when they install or update guidance sign plates. This system was established to help evacuees make clear decisions (Fig. 2-3-2). The International Standard for the Hazard Specific Evacuation Guidance Sign System (ISO 22578) was issued in February 2022.

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

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



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 82,184 as of December 1, 2022.

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 broadly examined 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 recent years, the "Sub-Working Group Concerning Evacuation of the Elderly and people with special needs

Based on Typhoon Hagibis in 2019 (hereafter referred to as “SWG for the Elderly and Persons with disabilities”)" 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.

Moreover, there have been needs at shelters 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. Accordingly, in April 2022, the "Implementation Direction of Ensuring Satisfactory Living Conditions at Shelters," was published, based on which the "Shelter Management Guidelines" and the "Guidelines for Securing and Managing Toilets at Shelters" were prepared.

In July 2022, the Cabinet Office published the “Examples of Efforts to Improve the Living Environment and Countermeasures against COVID-19 in Shelters” to present examples of advanced initiatives in shelter operations.

（Reference：https://www.bousai.go.jp/taisaku/hinanjo/index.html）

2-4 Formulation of Individual Evacuation Plans

In recent years, a large number of the elderly and persons with disabilities have been affected by disasters. Therefore, in the final reports of SWG for the Elderly and Persons with disabilities, 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 FY2023.

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 for formulating individual evacuation plans were conducted in designated organizations in 34 cities, wards, towns, and villages as well as 18 prefectures in FY2021, and in designated organizations in 23 cities, wards, towns, and villages as well as 11 prefectures in FY2022 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 which Achieve 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 local governments

・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 educate municipalities nationwide.

Based on the initiatives of the designated organizations (model groups), a streamlined procedure for preparing individual evacuation plans was presented to municipal officials and related parties with the aim of promoting awareness and dissemination (Fig. 2-4-1).

Fig. 2-4-1 **To Those Working on Individual Evacuation Plans (Excerpt)**

Source: Cabinet Office data
(https://www.bousai.go.jp/taisaku/hisaisyagyousei/pdf/230302_hinan.pdf)

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

2-5 Study to Enhance Support for Affected People

Based on the current status of systems and efforts for supporting disaster-affected people, the Cabinet Office established the "Study Group on Support for Affected People" in May 2022 with the aim of examining more efficient and high-quality support for affected people. The study group is discussing issues, such as improving the environment for evacuees, securing and improving their housing, strengthening cooperation among various actors who are supporting affected people, and disaster case management (an initiative to provide continuous, attentive support to affected people through the cooperation of related parties, based on an understanding of each affected

person’s situation to resolve various issues faced by them). Based on the discussions by the study group and as described below, initiatives are ongoing, such as preparing a guide for disaster case management, holding briefing sessions, and implementing model projects to strengthen cooperation with NPOs and volunteers. In addition, the study group will continue to discuss and implement feasible measures to enhance and strengthen support for affected people.

Regarding disaster case management, the Cabinet Office has positioned it in the Basic Disaster Management Plan, and it has prepared the "Case Book of Disaster Case Management Initiatives," which contains examples of advanced initiatives by local governments.

In FY2022, the Cabinet Office established the "Academic Experts Committee for Preparing Disaster Case Management Guidance for FY2022" to prepare a standardized guide for local governments nationwide to implement disaster case management regardless of their disaster experience. The committee discussed preparations to be made during normal times and specific measures to be taken after a disaster. The guidance was developed in March 2023 and disseminated to all local governments.

（Reference: https://www.bousai.go.jp/taisaku/hisaisyagyousei/case/index.html）

Starting in FY2023, the Cabinet Office will continue its efforts to promote the dissemination of disaster case management by utilizing the aforementioned case book and guidance. This will include briefing sessions targeting a wide range of stakeholders, such as local government officials, welfare personnel, and NPOs.

2-6 Use of Digital Technology in Disaster Management

(1) Consolidation of Information during Disasters

In the event of a disaster, it is important to share information collected by national and local governments and private companies, such as the damage situation, the movement of evacuees, and the situation of relief supplies. To this end, the Cabinet Office has established the National and Local Governments and the Private Sector Disaster Information Hub Promotion Team since 2017 to facilitate the use of digital technologies and promote the act of exchanging information through rules of the method and period of information sharing among relevant organizations through a disaster information hub (hereinafter referred to as the “hub” (see Fig. 2-6-1)).

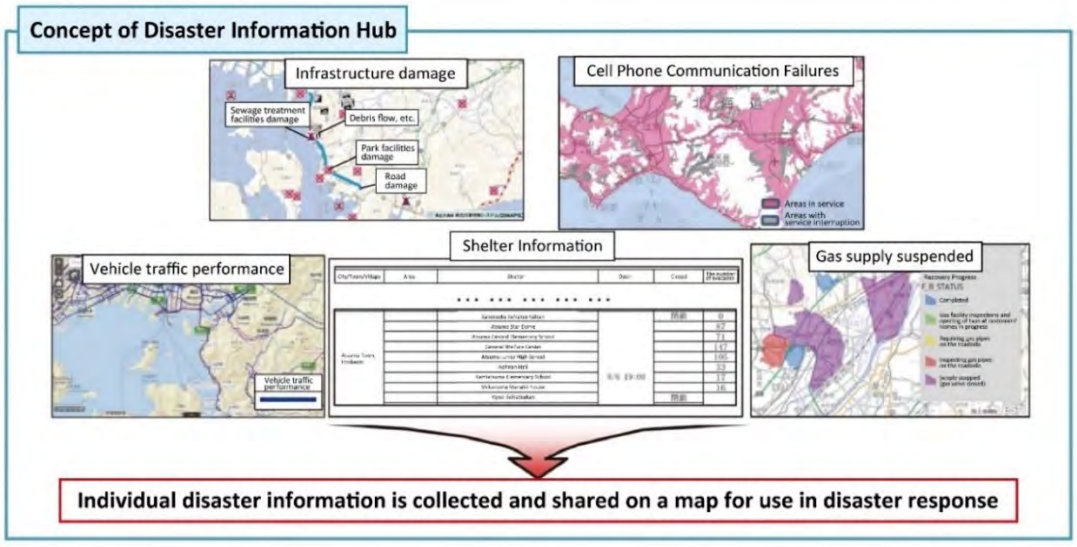
(Reference: https://www.bousai.go.jp/kaigirep/saigaijyouhouhub/index.html)

Based on these studies, in FY2019, the ISUT (Information Support Team) began operation 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. 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. 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. The ISUT initiated information sharing before the occurrence of disasters in FY2022, including pre-disaster information on Typhoons Nanmadol and Talas, heavy snowfall starting from December 17, 2022 and from January 20, 2023. It also provided information support to disaster response organizations through the ISUT website, sharing information on disaster waste generation, snowfall, road restrictions and road closures.

Furthermore, in order for the ISUT to conduct its activities more quickly and effectively, its operations, such as mapping, have been partially outsourced to the private sector since 2021, and this has further enhanced the system. Training programs on the use of the ISUT website were also implemented.

Fig. 2-6-1 "Disaster Information Hub" Conceptual Diagram

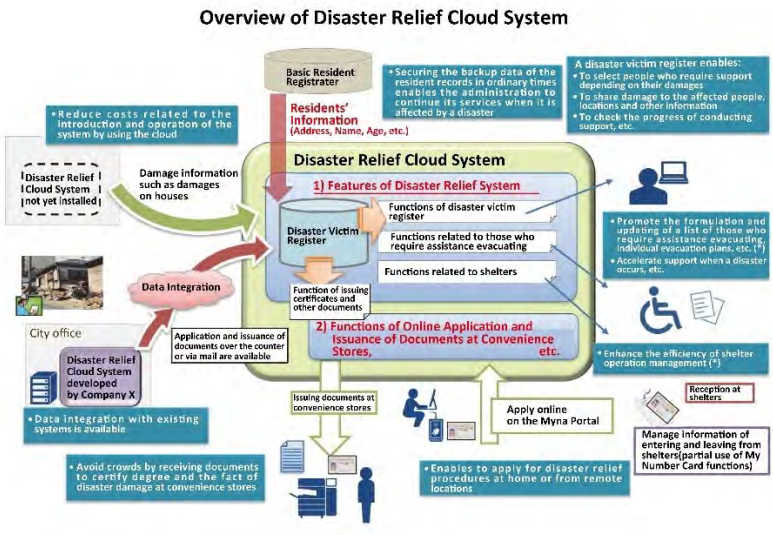


Source: Cabinet Office data

(2) Building Disaster Victims Supporting Cloud Systems

The Cabinet Office developed the "Disaster victims Supporting Cloud System" from FY2021 to FY2022. 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) solicited participating municipalities and started operation.

Fig. 2-6-2 Overview of Disaster Relief Cloud System



Source: Cabinet Office data

(3) Key Measures Taken Based on Recommendations from the Disaster Management Technology Working Group on Digital Transformation (DX) in Disaster Management

Based on the proposals of the "Digital and Disaster Management Technology Working Group" compiled in May 2021, the Cabinet Office is promoting various initiatives centered on the following to drive disaster management digital transformation.

① Development of Next Comprehensive Disaster Management Information System

The Integrated 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. The next system, scheduled to be operational in FY2024, will incorporate the mechanism of SIP4D (Shared Information Platform for Disaster Management), which the National Research Institute for Earth Science and Disaster Resilience is operating as part of its research and development activities. The scope of its use will be expanded to include local governments and designated public institutions in addition to central ministries and agencies. In order to realize and strengthen functions such as information collection, analysis, processing, and sharing, as well as to link the system with other disaster response organizations, studies are being conducted on information items and handling rules that are necessary in the event of a disaster.

② Measures to Enhance Disaster Response with "Disaster Management IoT" data

At disaster sites, a variety of cameras, disaster management helicopters, and drones are used to confirm the situation. To appropriately acquire and share the vast and diverse data from these various IoT among disaster-affected municipalities and disaster management organizations, a research project is ongoing to organize technical standards for data formats and device specifications. Additionally, a verification system has been launched to verify the effectiveness of the project.

③ A Study on the Handling of 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 were established in a centralized manner. Taking this as an opportunity, the Cabinet Office established the "Study Group on the Handling of Personal Information in the Field of Disaster Management" in March 2022. In March 2023, the Cabinet Office developed the "Guidelines for Handling Personal Information in the Field of Disaster Management" to clarify the handling of personal information and prevent local governments and other relevant entities from facing ambiguities in their handling of personal information during a disaster or normal times. These guidelines are based on the following two policies.

a Given that the initial 72 hours following a disaster are crucial for life-saving efforts, proactive use of personal information should be considered.

b However, when using personal information, it is necessary to protect the rights and interests of individuals in accordance with the Act on the Protection of Personal Information and the Basic Act on Disaster

Management. For example, it is necessary to give sufficient consideration to those who are especially in need of protecting their rights and interests, such as victims of domestic violence or stalking.

2-7 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 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 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 staff 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 to rebuild the lives and livelihood of the affected people, and the establishment of such a team has been made a rule.

2-8 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 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, etc. 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. The Act also mandates the establishment of Headquarters for the Promotion of Ships Utilization Medical Care in the Cabinet. 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 in July 2022, established Preparatory Office for Establishment of Headquarters for the Promotion of Ships Utilization Medical Care in the Cabinet Secretariat, as part of promotion of the preparation for the enforcement of the Act in a unified government-wide effort. In February 2023, the relevant government ministries and agencies and medical organizations collaborated to conduct a drill ranging from the initial response to the completion of disaster medical activities using a Self-Defense Forces vessel, etc. In addition, they conducted a survey on the current status of private vessels that are capable of providing medical care in times of disaster, performed a demonstration drill using private vessels, and investigated how to strengthen cooperation with the private sector in disaster medical care.

The government will continue to work towards the development of ships utilization medical care provision system in times of disaster, etc. while taking advantage of the government's measures to date and continuing to listen carefully to the opinions of medical-organizations and others.

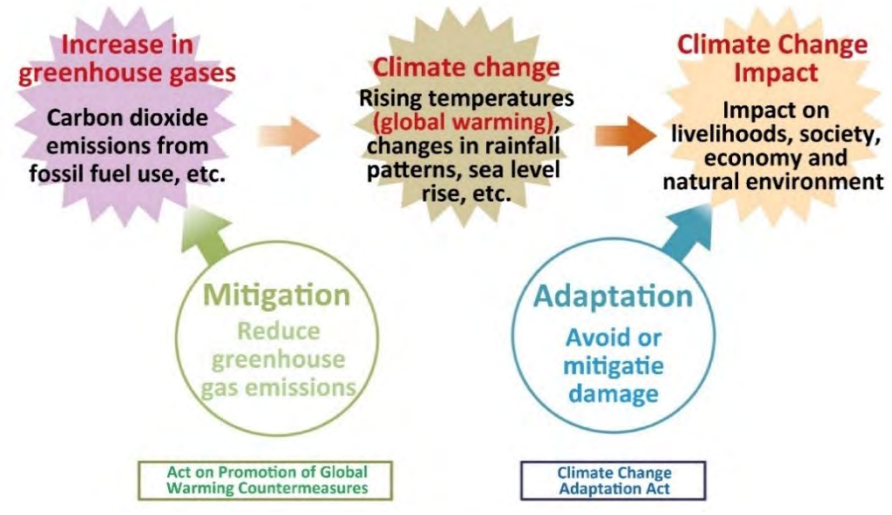
2-9 Disaster Prevention and Mitigation Measures Based on Climate Change Risks

(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, the risk of extreme high temperature events and heavy rainfall is projected to increase. Therefore, adaptation efforts are necessary to avoid or reduce observed or projected damage (Fig. 2-9-1).

Fig. 2-9-1 Relationship between Adaptation and Mitigation



Source: Cabinet Office data

(2) Promotion 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-the "Adaptation Plan") was formulated in accordance with the provisions of that law.

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. In October 2021, the government revised the Adaptation Plan on the basis of the report.

The “Climate Change Adaptation Promotion Council,” which consists of relevant government ministries and agencies, verified the method for short-term progress monitoring of measures based on the Adaptation Plan. Based on this method, the Council identified the status of efforts for sector-specific and infrastructure-specific measures, grasped the values of Key Performance Indicators (KPIs) (key indicators designed to monitor the short-term progress of measures contributing to the government’s adaptation efforts, by quantitatively assess the outputs and outcomes achieved to the extent possible), and published them in November 2022 as a follow-up report of the Adaptation Plan.

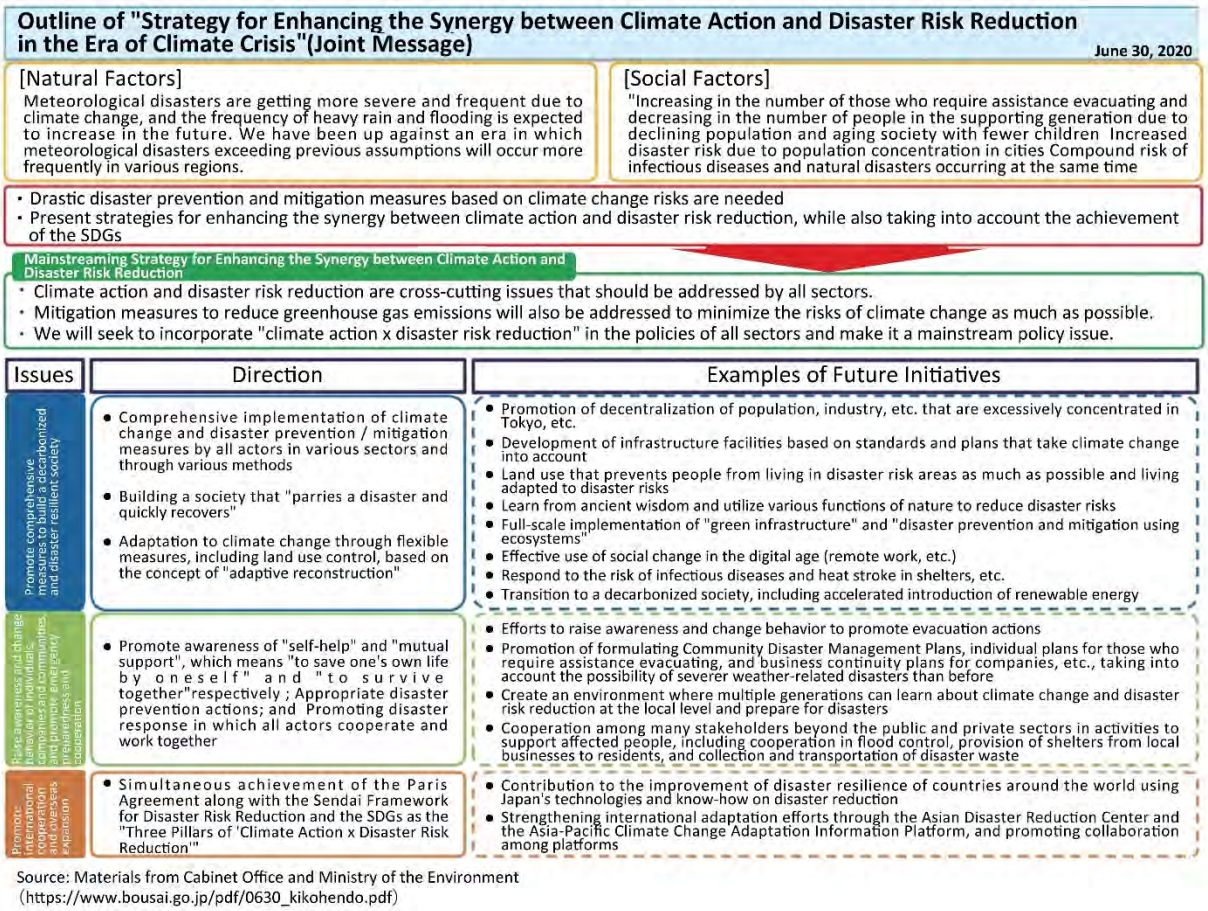
(Reference: http://www.env.go.jp/earth/tekiou.html)

(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 (Fig. 2-9-2).

The Ministry of the Environment is actively promoting initiatives that effectively link climate change and disaster risk reduction with various sectoral measures. These initiatives aim to incorporate the concept of “climate change x disaster management” (intended to comprehensively take climate countermeasures and disaster management and mitigation measures) into policies in each field as a mainstream policy. These initiatives include integrating the concept into the Adaptation Plan revised in October 2021, as well as developing a manual for local governments to be published by the end of 2023. This manual will assist in advancing “Adaptive Recovery," an approach that encourages adaptation to climate change by controlling land use beyond mere restoration to the original form.

Fig. 2-9-2 **Outline of "Strategy for Enhancing the Synergy between Climate Action and Disaster Risk Reduction in the Era of Climate Crisis"**



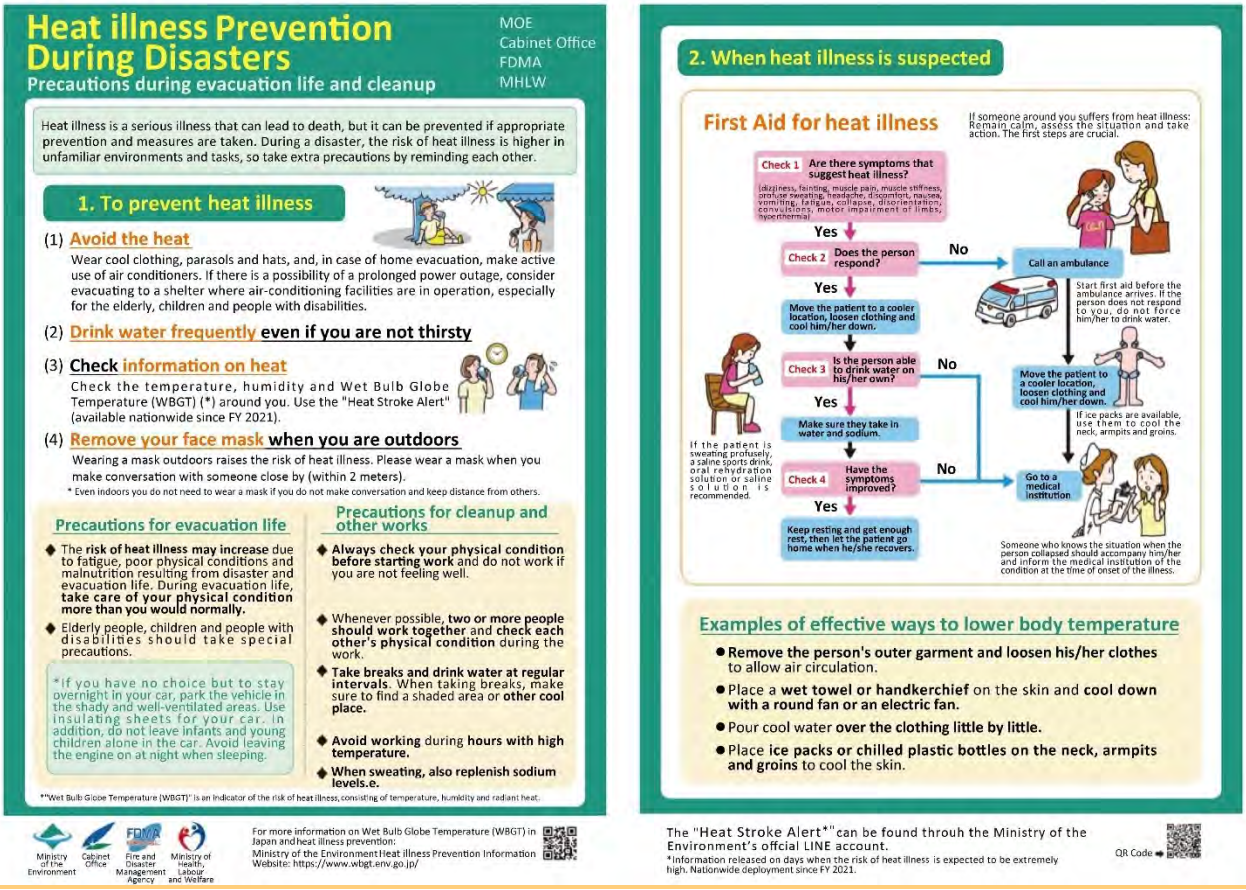
Source: Materials from Cabinet Office and Ministry of the Environment
(https://www.bousai.go.jp/pdf/0630_kikohendo.pdf)

(4) Heat illness 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 heat illness during evacuation life and cleanup operations.

Therefore, in March 2021, 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 heat illness during evacuation and cleanup activities after disasters (revised in June 2022). In FY 2022, they also conducted awareness-raising campaigns targeting local governments in June in preparation for the summer season (Fig. 2-9-3).

Fig. 2-9-3 **Leaflet for Heat illness Prevention During Disaster**



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

【Column】

Consolation Payments for Persons Disabled by Disasters

Human suffering caused by natural disasters can be broadly classified into deaths and injuries, but some injured people may be left with a substantial disability even after their injuries heal (including cases where symptoms stabilize).

After the Great Hanshin-Awaji Earthquake, Hyogo Prefecture and Kobe City conducted a joint survey based on a recommendation in March 2010 by the Reconstruction Follow-up Committee (established by Hyogo Prefecture) that "the actual situation of people who became disabled or orphaned as a result of the earthquake and lessons to be learned should be identified in anticipation of future disasters." The survey included questionnaires and interviews on items such as the distribution of disability grades, the timing of the acquisition of physical disability certificates, the current health status and living conditions, and the situation at the time of the disaster, and its results were published.

(Reference) Hyogo Prefecture website – Report on the Survey of Individuals Who Became Disabled or Orphans as a Result of the Earthquake
https://web.pref.hyogo.lg.jp/kk41/wd34_000000177.html

Yorozu Sodan-shitsu is a counseling office (its representative is Mr. Shuichi Maki) that has been supporting the elderly and other people affected by the Great Hanshin-Awaji Earthquake. In 2007, it began supporting those who were disabled by the earthquake, and it has been reaching out to related organizations to expand support for the elderly and disabled since the Great East Japan Earthquake. (Excerpts of key points from its website)

In general, the administration for the welfare of people with disabilities provides necessary support, such as the issuance of disability certificates and the provision of welfare services regardless of the cause of the disability.

Additionally, based on the "Act on Provision of Disaster Condolence Grant" (Act No. 82 of 1973), municipalities must be able to pay disaster disability compensation money for those who have particularly severe disabilities due to a disaster. In light of the fact that those who have been severely disabled by a disaster and who find it difficult to return to socio-economic activities are placed in a harsh environment that is comparable to death, this is an exceptional case where public funds are used to provide consolation money. Disabilities that are eligible for financial assistance are particularly severe disabilities, such as blindness in both eyes, loss of both upper limbs, and conditions requiring constant care. The provision of disaster disability compensation is considered a matter specific to municipalities (autonomous affairs), with the national government covering half of the cost and the relevant prefecture and municipality each covering a quarter of the cost.

In December 2022, the Cabinet Office announced on its website the number of disaster disability compensation payments.

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

(Reference) Number of payments

FY	2017	2018	2019	2020	2021
Number of cases	12	6	6	1	2

Note 1: The number of cases in the table is the number of those in which disaster compensation was paid to persons who became disabled by disaster (may not be the same as the number of affected people in the fiscal year)

Note 2: Includes the number of payments of disaster compensation relating to the Great East Japan Earthquake

* Number of payments of disaster compensation paid to persons who became disabled due to the Great East Japan Earthquake: 107 cases from FY2011 to FY2021

Section 3. Measures against Each Anticipated Type of Disaster

3-1 Measures against Earthquakes and Tsunamis

(1) Reviewing Measures against a Nankai Trough Megaquake

Based on the Basic Plan for the Promotion of Nankai Trough Earthquake Disaster Management Countermeasures developed in March 2014 (hereinafter referred to as the "Basic Plan" in this section), the national and local governments, private business operators, and other stakeholders have been collaborating to actively advance measures in the event of a Nankai Trough Megaquake. However, considering that it will soon be 10 years since the plan was created, a review of the process has been initiated.

First, in February 2023, the Cabinet Office established the “Study Group on Nankai Trough Megaquake Model and Damage Estimation Method” consisting of academic experts in seismology and earthquake engineering. Drawing on the latest scientific knowledge, the study group is proceeding with technical studies on tsunami height, seismic intensity distribution, and damage estimation calculation methods.

(Reference: https://www.bousai.go.jp/jishin/nankai/kento_wg/index.htm)

In March 2023, the Cabinet Office established the "Working Group on Nankai Trough Megaquake Disaster Management" under the Disaster Management Implementation Committee of the National Disaster Management Council to check the progress of disaster management measures set forth in the Basic Plan, to organize tasks, and to review damage assumptions reflecting the progress of disaster management measures using new calculation methods studied by the “Study Group on Nankai Trough Megaquake Model and Damage Estimation Method.” The Cabinet Office is set to study new measures to be promoted in the future.

(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 (hereinafter referred to as the “Basic Plan” in this section)" and other plans. In February 2015, the government established the "Study Group on a Megaquake Model in the Vicinity of the Japan and Chishima Trenches" in the Cabinet Office to examine the distribution of seismic intensities and tsunami heights caused by the largest class of earthquakes and tsunamis, and it published the results in April 2020.

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, the Central Disaster Management Council. 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.

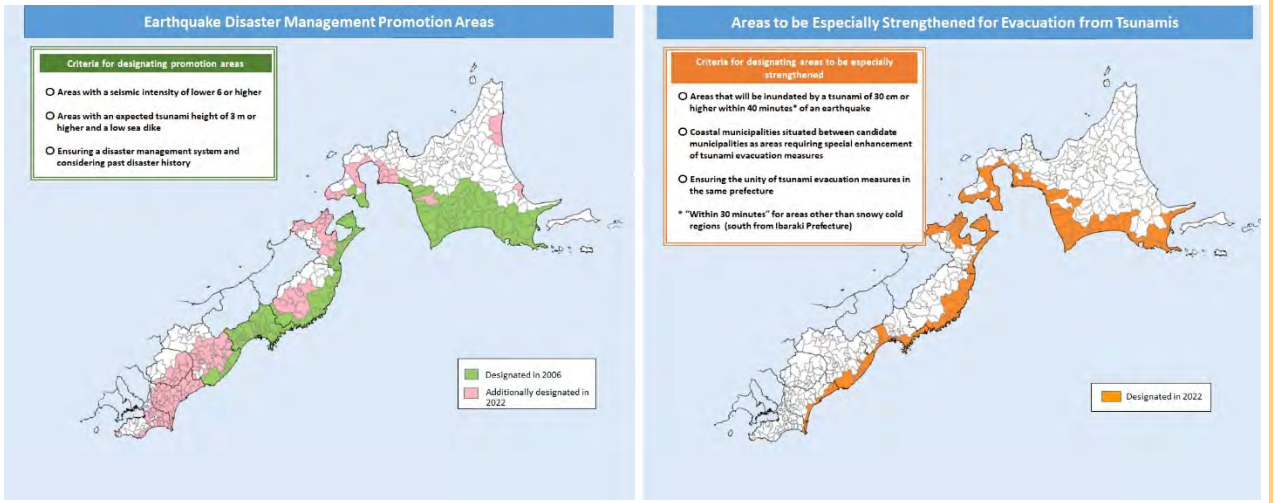
② Designation of Areas and Changes in the Basic Plan

Based on the report of the Japan and Chishima Trenches WG, in May 2022, the “Act on Special Measures for Promotion of Countermeasures against Earthquake in the Vicinity of the Japan and Chishima Trenches” (Act No.

27 of 2004) was amended by legislation from lawmakers. (It was enforced on June 17 of the same year.)

The act specifies that the ``Areas for the Promotion of Disaster Management for Trench-Type Earthquakes in the Vicinity of the Japan and Chishima Trenches'' (hereinafter referred to as ``Earthquake Disaster Management Promotion Areas'' in this section) and the “Areas to Be Especially Strengthened for Evacuation from Trench-Type Earthquakes and Tsunamis in the Vicinity of the Japan and Chishima Trenches'' (hereafter referred to as “Areas to be Especially Strengthened for Evacuation from Tsunamis” in this section) shall be designated by the prime minister. The National Disaster Management Council was consulted about the new designations of these areas. Following consultations with relevant local governments and discussions at the Disaster Management Implementation Committee of the National Disaster Management Council and based on the report of the National Disaster Management Council in September 2022, Hokkaido and seven other prefectures and 272 municipalities were designated as Earthquake Disaster Management Promotion Areas, and Hokkaido and six other prefectures and 108 municipalities were designated as Areas to be Especially Strengthened for Evacuation from Tsunamis (Fig. 3-1-1).

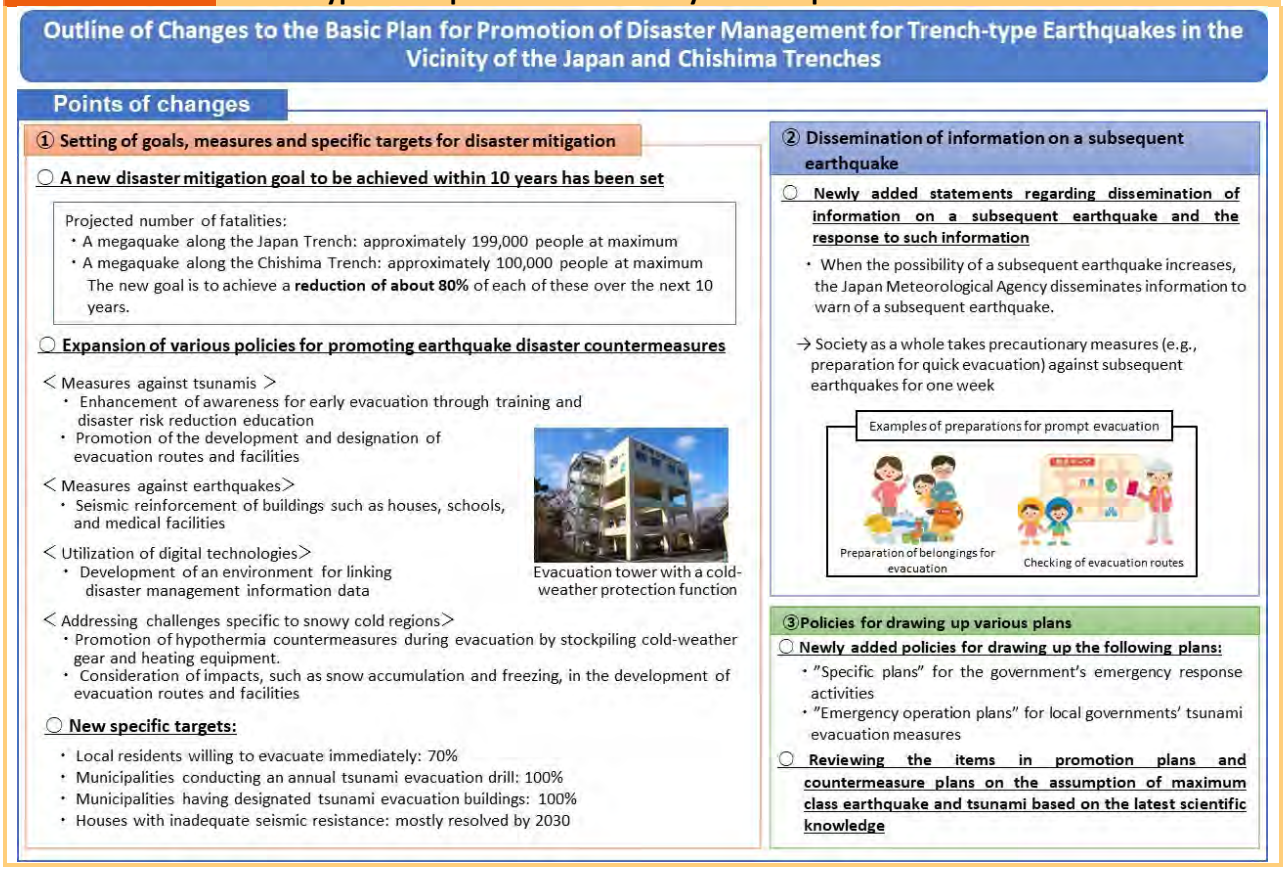
Fig.3-1-1 **Earthquake Disaster Management Promotion Areas and Areas to be Especially Strengthened for Evacuation from Tsunamis**



Source: Cabinet Office data (Published in September 2022)
(Reference: https://www.bousai.go.jp/jishin/nihonkaiko_chishima/pdf/chizu.pdf)

At the Disaster Management Implementation Committee, the Basic Plan was revised, and a disaster mitigation goal was set to reduce by 80% the estimated number of deaths in the next 10 years (a maximum of 199,000 in a megaquake along the Japan Trench and 100,000 in a megaquake along the Chishima Trench). Moreover, measures and specific numerical targets for achieving the disaster mitigation goal were set (Fig. 3-1-2).

Fig.3-1-2 **Outline of Changes to the Basic Plan for Promotion of Disaster Management for Trench-type Earthquakes in the Vicinity of the Japan and Chishima Trenches**



Source: Cabinet Office data (Published in September 2022)
(Reference: https://www.bousai.go.jp/jishin/nihonkaiko_chishima/pdf/r409_gaiyou.pdf)

The main measures specified include: training and disaster risk reduction education to raise awareness of the need for early evacuation; tsunami countermeasures, such as the development of tsunami hazard maps; and seismic reinforcement of buildings and measures against seismic shaking, such as securing furniture. The measures also include stockpiling cold-weather gear and heating equipment against hypothermia during evacuation and measures to deal with problems unique to snowy and cold regions, such as the development of evacuation routes and facilities that take into account the effects of snow and freezing conditions.

In addition, along the Japan and Chishima Trenches, there have been confirmed cases of an earthquake with a moment magnitude of 7.0 or more followed by a large-scale earthquake (hereafter referred to as a "subsequent earthquake" in this section). Therefore, the Japan and Chishima Trenches WG pointed out in its report (March 2022) that "although the probability of a subsequent earthquake is small, it is necessary to disseminate information that warns the public about it to mitigate the serious damage that could occur in the event of a series of massive earthquakes." Based on this proposal, the Basic Plan was revised to include the dissemination of information warning of a subsequent earthquake, the response to such a warning, and the necessity of one-week preparations for prompt evacuation upon the Japan Meteorological Agency issuing information calling attention to a subsequent earthquake.

③ Information Calling Attention to a Subsequent Earthquake and Response

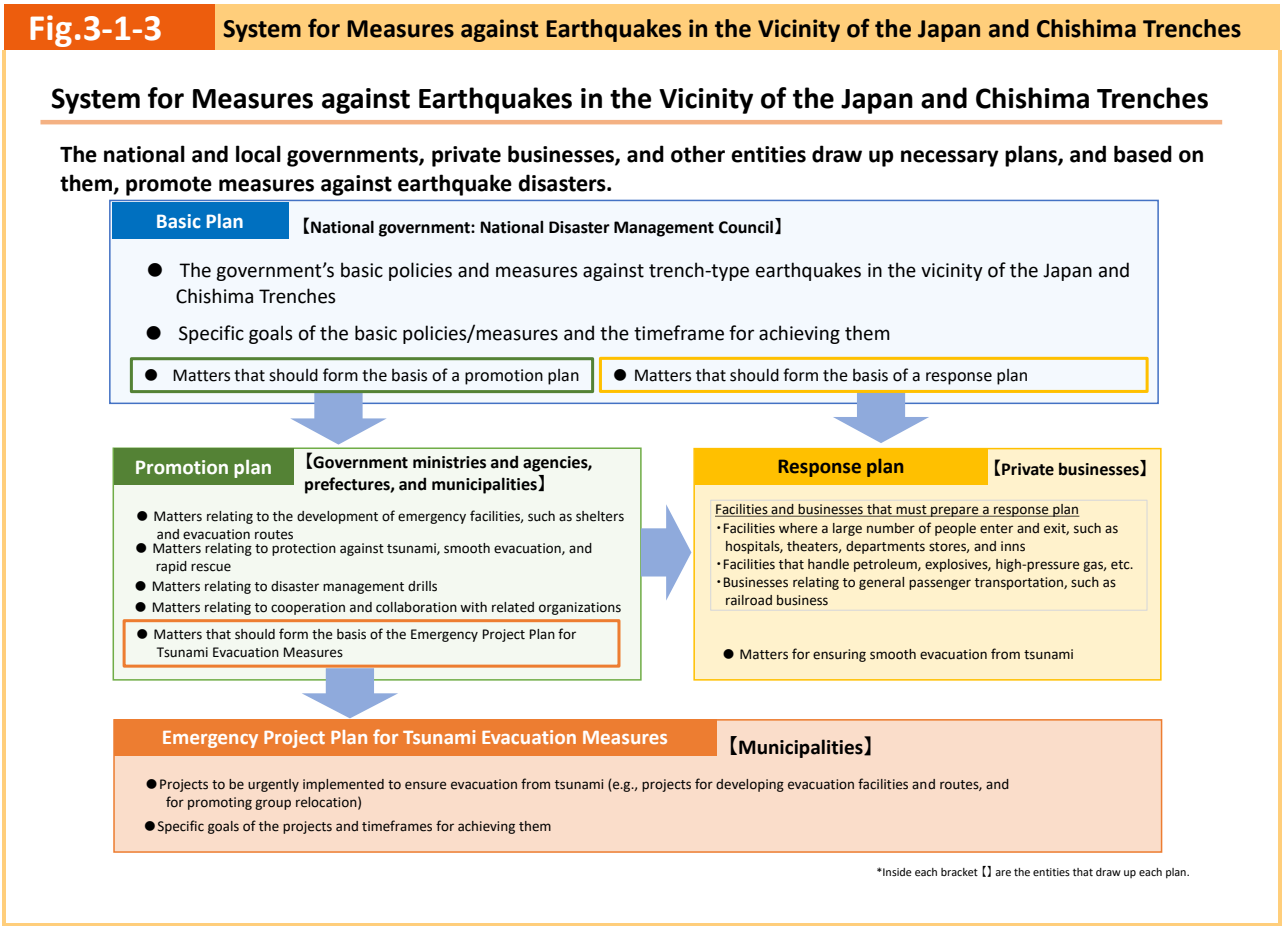
The "Study Group on Information Dissemination to Call Attention to a Subsequent Earthquake along the Japan and Chishima Trenches" discussed management, dissemination and awareness-raising of information that called

attention to a subsequent earthquake and the response to it. Taking into account its results, the Cabinet Office and the Japan Meteorological Agency chose to call the name of the information warning of a subsequent earthquake the "Off the Coast of Hokkaido and Sanriku Subsequent Earthquake Advisory." On November 8, 2022, the Cabinet Office released the "Guidelines for the Response to an Off the Coast of Hokkaido and Sanriku Subsequent Earthquake Advisory." The Japan Meteorological Agency commenced the operation of the "Off the Coast of Hokkaido and Sanriku Subsequent Earthquake Advisory" on December 16 of the same year.

④ Future Efforts

Based on the changes in the Basic Plan, the national government is required to create a plan for concrete emergency response activities in preparation for the occurrence of a megaquake along the Japan and Chishima Trenches. Local governments designated as Earthquake Disaster Management Promotion Areas are required to develop a "Disaster Management Promotion Plan for Trench-Type Earthquakes in the Vicinity of the Japan and Chishima Trenches" (hereinafter referred to as the "Promotion Plan" in this section). In addition, the facility managers of hospitals, theaters, department stores, etc., and lifeline and infrastructure operators are required to develop a "Response Plan for Trench-Type Earthquakes in the Vicinity of the Japan and Chishima Trenches" (hereinafter referred to as a "Response Plan" in this section) (Fig. 3-1-3).

Fig.3-1-3 **System for Measures against Earthquakes in the Vicinity of the Japan and Chishima Trenches**



Source: Cabinet Office data (Published in September 2022)
(Reference: https://www.bousai.go.jp/jishin/nihonkaiko_chishima/pdf/suishin_gaiyou.pdf)

The Cabinet Office will promote measures against a megaquake along the Japan and Chishima Trenches in

cooperation with the designated local governments in each region with measures to achieve the disaster mitigation goals set in the Basic Plan, as well as public awareness on appropriate disaster management actions that are based on the nature and content of an “Off the Coast of Hokkaido and Sanriku Subsequent Earthquake Advisory”.

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

If there is a Tokyo Inland Earthquake that causes enormous damage to the metropolitan area and a large number of people that were unable to return home (stranded persons) then start walking home at the same time, there are concerns that such people may overflow onto roadways and interfere with emergency activities, such as lifesaving, rescue, and firefighting, as well as cause secondary damage by falling in groups for example. The Cabinet Office, therefore, formulated guidelines (March 2015) based on the basic principle of having "restrictions on people from returning home at once," discouraging movement for three days after the onset of disaster, and it is working on measures such as encouraging people to stay in the facilities of their companies and securing temporary accommodation facilities.

On the other hand, in response to recent changes in social conditions, such as the seismic reinforcement of railroads and other public transportation systems and the development of digital technology, the “Investigative Committee on Measures for Stranded Persons due to a Tokyo Inland Earthquake,” which was established in November 2021, compiled the "Future Response Policies for Stranded Persons" in August 2022. The policies indicated that the following tasks are to be considered: “the public’s correct understanding and awareness of the need to prevent people from returning home en masse, which is necessary to improve the effectiveness of countermeasures,” "promoting appropriate actions by stranded persons through the use of digital technology," and "supporting people returning home using trains when rail services are resumed in phases.”

Based on these policies, the committee will cooperate with related ministries and agencies, local governments, and private businesses and will strictly maintain the conventional basic principle of "restricting people from returning home all at once for three days,” take flexible measures according to the situation of the disaster, and improve the effectiveness of measures for stranded persons.

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

(4) A Study on Measures against Earthquakes Directly beneath the Chubu and Kinki Regions

According to examples of past earthquakes, there have been cases in which earthquakes on active faults caused extensive damage in western Japan and cases in which a fault activity increased before and after Nankai Trough earthquakes. If a large-scale earthquake were to occur in the Chubu and Kinki regions, where there are urban areas that are spread across the prefectures, it is anticipated that the damage would be enormous and expansive.

Regarding such earthquakes that may occur directly beneath the Chubu and Kinki regions, the National Disaster Management Council studied and compiled damage estimates and disaster management measures from 2004 to 2008. However, it is necessary to review the results on the basis of the lessons learned from the Great East Japan Earthquake, which occurred in 2011, as well as the latest knowledge.

Therefore, in November 2022, the "Chubu and Kinki Regions’ Inland Earthquake Model Study Group," consisting of academic experts in seismology and earthquake engineering, was established in the Cabinet Office. Based on the latest scientific knowledge, the study group is reviewing the conventional earthquake models for the Chubu and Kinki regions and is proceeding with studies to create new earthquake models that take into account all

possibilities. The study group will estimate the expected seismic intensity distribution in the event of an earthquake directly below the Chubu and Kinki regions and will examine the expected damage and disaster management measures.

(Reference : https://www.bousai.go.jp/jishin/chubu_kinki/kentokai/index.html)

【Column】

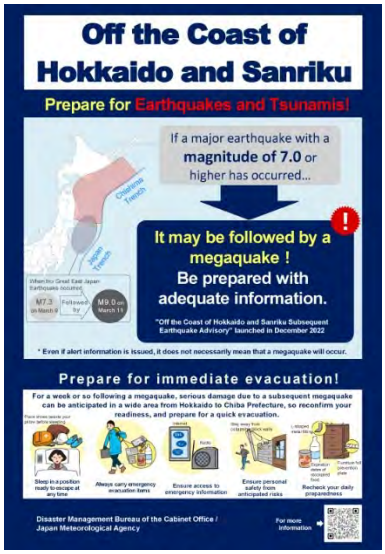
"Off the Coast of Hokkaido and Sanriku Subsequent Earthquake Advisory" and "Nankai Trough Earthquake Extra Information"

Along the Japan and Chishima Trenches, there have been cases in which a large-scale earthquake was followed by another large-scale earthquake (hereinafter referred to as a "subsequent earthquake"). For example, in the 2011 Tohoku Earthquake off the Pacific coast, an earthquake with a moment magnitude of 7.3 occurred on March 9, followed by a megaquake with a moment magnitude of 9.0 two days later on March 11. In light of this, we started to operate the "Off the Coast of Hokkaido and Sanriku Subsequent Earthquake Advisory" on December 16, 2022, to provide information for raising awareness about subsequent earthquakes.

An Off the Coast of Hokkaido and Sanriku Subsequent Earthquake Advisory is issued when an earthquake with a moment magnitude of 7.0 or greater occurs in the hypothetical megaquake epicenter region along the vicinity of the Japan and Chishima Trenches or in an outer area that affects the epicenter region. Upon issuance of an Off the Coast of Hokkaido and Sanriku Subsequent Earthquake Advisory, municipalities that require disaster prevention measures will be urged to thoroughly prepare for a subsequent earthquake, such as being alert to the possibility of a subsequent earthquake for about a week after the first earthquake, being ready to evacuate people immediately if a tremor or a tsunami warning is announced, and rechecking their daily preparedness. The Off the Coast of Hokkaido and Sanriku Subsequent Earthquake Advisory is intended as a warning that the possibility of a large-scale earthquake is relatively high compared with normal times. While it does not indicate that a large-scale earthquake will definitely occur within a specific period, providing information that warns of a subsequent earthquake and taking disaster prevention actions in preparation for it is an effective way to save as many lives as possible.

(Reference: https://www.bousai.go.jp/jishin/nihonkaiko_chishima/hokkaido/index.html)

Overview of the Off the Coast of Hokkaido and Sanriku Subsequent Earthquake Advisory



Source: Cabinet Office document

The announcement of information urging vigilance against a subsequent earthquake has already been provided along the Nankai Trough since November 2017. In May 2019, operation of the "Nankai Trough

Earthquake Extra Information" started.

If an anomalous phenomenon is observed along the Nankai Trough, a "Nankai Trough Earthquake Extra Information (Under Analysis)" will be announced to inform people that an investigation has begun to see if the phenomenon relates to a large-scale earthquake along the Nankai Trough. A "Nankai Trough Earthquake Extra Information (Megathrust Earthquake Alert)," a "Nankai Trough Earthquake Extra Information (Megathrust Earthquake Attention)" or a "Nankai Trough Earthquake Extra Information (Analysis Complete)" will be issued according to the evaluation results of experts in the Nankai Trough Earthquake Assessment Committee. In the case a Nankai Trough Earthquake Extra Information (Megathrust Earthquake Alert) is issued, the national and local governments will urge the residents of predesignated areas to evacuate as a precaution.

(Reference: https://www.bousai.go.jp/jishin/nankai/rinji/index.html)

In the event of a megaquake along the Japan and Chishima Trenches or the Nankai Trough, it is important to thoroughly prepare for seismic movements, tsunamis, fires, and post-evacuation secondary disasters. Performing the following preparations during normal times leads to preparations for a subsequent earthquake:

Assume that furniture will inevitably fall over during a major earthquake and apply countermeasures, such as making sure furniture is secure.

Check evacuation sites and routes for a quick evacuation from a tsunami.

Anticipate potential disruptions to lifelines, such as electricity, gas, and water, and ensure you have stockpiles of drinking water, food and other essential supplies in preparation for evacuating.

Source: Cabinet Office document

3-2 Measures against Wind and Flood Damage and Sediment Disasters

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

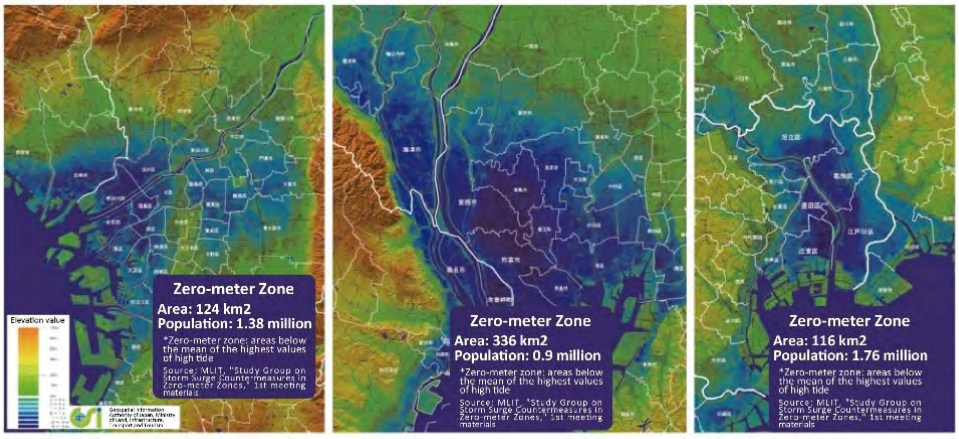
Due to global warming, there are concerns that the proportion of intense tropical cyclones is projected to increase, and it is predicted that there will be large-scale floods in the future that will require large-scale and wide-area evacuation. Each of the 3 major metropolitan areas in Japan have wide "zero-meter (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. 3-2-1).

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.3-2-1 Zero-meter Zones in Three Major Metropolitan Areas



Source: Compiled by the Cabinet Office from the GSI 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 seven times through FY2021 with the aim of the nature of cooperation and role sharing among relevant organizations. The study group made “Guidelines for supporting planning for Wide-area Evacuation (Report)” in March 2022.

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

In June 2022, the Cabinet Office and the Tokyo Metropolitan Government established the "Study Group on Specific Measures for Wide-Area Evacuation in the Tokyo Metropolitan Area" so that it would be able to smoothly conduct a wide-area evacuation in the event of a large-scale flood disaster in the metropolitan area. The study group is working to make further concrete efforts, based on the aforementioned guidelines, while deepening the relationships between relevant organizations during normal times.

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

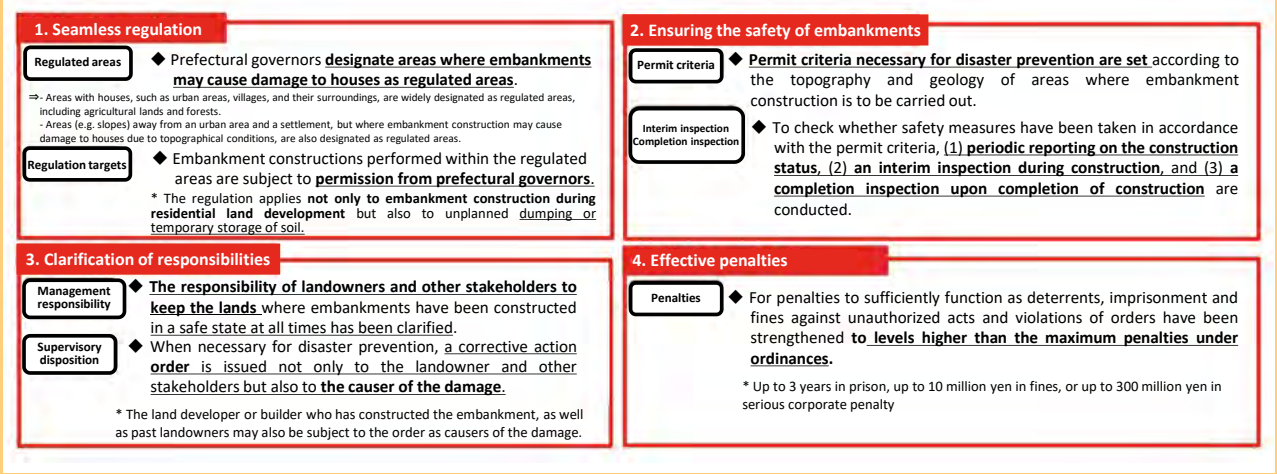
(2) Consideration of the Prevention of Disasters Caused by Embankments

In light of the massive debris flow disaster that occurred in Atami City, Shizuoka Prefecture, in July 2021, when heavy rainfall collapsed an embankment and the fact that there are areas where regulations under various land use laws are not necessarily adequate, the "Act on Regulation on Residential Land Development" (Act No. 191 of 1961) was fundamentally revised, including the name and purpose of the act. And the "Act on the Regulation of Residential Land Development and Specific Embankments" (hereinafter referred to as the "Embankment Regulation Act") was promulgated on May 27, 2022 (enforced on May 26, 2023), to comprehensively regulate dangerous embankments, regardless of the land use (residential land, agricultural land, forest, etc.), under a

uniform nationwide standard.

The outline of the act is as follows (Fig. 3-2-2).

Fig.3-2-2 Overview of the Embankment Regulation Act

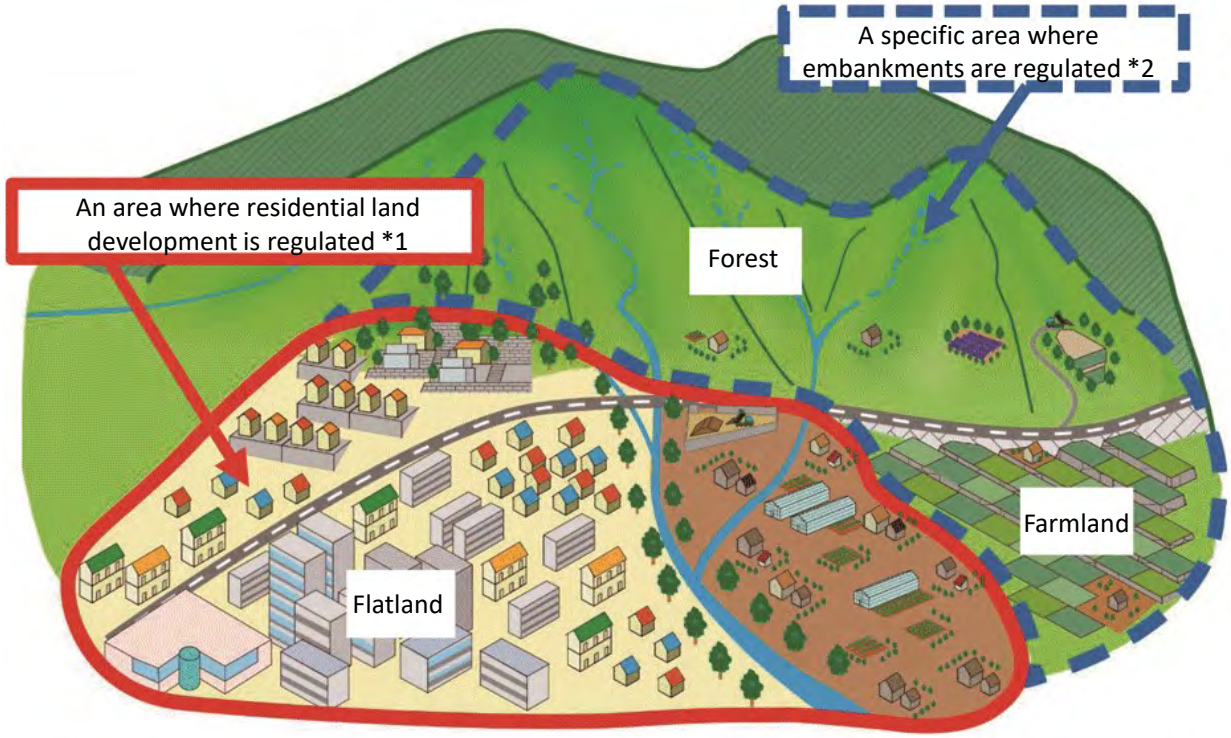


Source: Ministry of Land, Infrastructure, Transport and Tourism

In June 2022, the Ministry of Land, Infrastructure, Transport and Tourism and the Ministry of Agriculture, Forestry and Fisheries established the "Study Group on Embankment Disaster Management" to examine the safety standards for embankments, in preparation for implementation of the measures outlined in the Embankment Regulation Act. By the end of March 2023, the study group held five meetings, which were attended by experts. The study group meetings mainly focused on the following: (1) designating the target areas for the regulations, based on the distribution of houses to be protected from disasters that are caused by the collapse of embankments or the topography to ensure seamless regulations, (2) technical standards that serve as the criteria for ensuring the safety of embankments, (3) surveys that assess the safety of existing embankments, and (4) measures to take administrative action without hesitation against illegal or dangerous embankments. The study group is also working on the development of various guidelines.

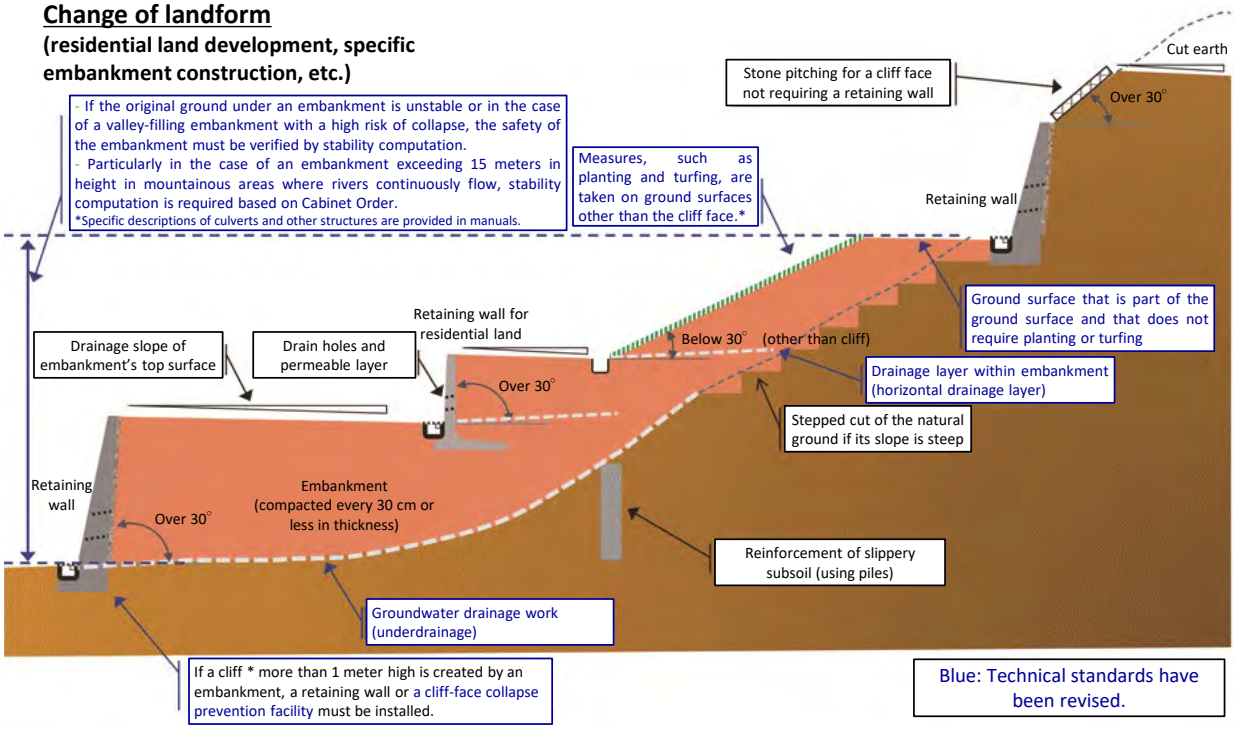
The Cabinet Office will continue to promote safety measures for embankments by providing support to prefectures in their basic surveys for designating target areas for the regulations and safety measures against dangerous embankments so that the regulations under the Embankment Regulation Act will be promptly and effectively enforced after they come into effect.

Fig.3-2-3 Image of the regulated area (above) and technical standards (below)



*1. An area where residential land development is regulated: an area such as an urban area and village where houses are clustered together and embankment construction may cause damage to the houses
*2. A specific area where embankments are regulated: an area away from an urban area and a settlement, but where embankment construction may cause damage to houses due to topographical conditions

Change of landform
(residential land development, specific embankment construction, etc.)



* A cliff means land whose surface makes an angle exceeding 30° to the horizontal plane, except rigid bedrock not severely weathered.
★ Regarding residential land development and specific embankments, respective conditions are specified that do not require planting or turfing.

Source: Ministry of Land, Infrastructure, Transport and Tourism

3-3 Measures against Volcanic Disasters

The Act on Special Measures for Active Volcanoes (Act No. 61 of 1973), which was revised in 2015 based on the lessons learned from the Mt. Ontake eruption disaster (September 2014), requires local governments (23 prefectures and 179 municipalities) designated as volcanic eruption hazard zones to establish in their local disaster management plans specific and detailed matters concerning the development of alert and evacuation systems on the basis of the "unified evacuation plan for each volcano" discussed by the "Volcanic Disaster Management Council," which consists of stakeholders in volcanic areas. The act also requires the owners of municipality-designated facilities that attract customers and the owners of facilities used by people requiring special care (evacuation promotion facilities) to prepare an ensuring evacuation operation and implement training based on the plan to ensure the smooth evacuation of facility users.

However, since the number of staff members that have actually experienced a volcanic eruption is limited and volcanoes differ in the scale of expected eruptions and regional characteristics, many local governments face challenges in planning evacuation plans. The Cabinet Office is, therefore, endeavoring to promote volcano disaster risk management measures nationwide, such as preparing a guidebook that summarizes the specific procedures and key points in planning, reviewing evacuation plans and ensuring evacuation operations with local governments, revising guides and preparing case books that reflect the knowledge and results obtained through the reviews, and dispatching people with experience of playing leading roles in volcano disaster risk management at local governments to volcano areas as "volcano disaster risk management experts."

In FY2022, the Cabinet Office supported the planning and implementation of drills in model areas to encourage their local governments to conduct volcano disaster management drills, to verify evacuation plans and local disaster management plans developed based thereon, and to raise awareness of volcano disaster management among residents. The Cabinet Office is planning to compile the findings and results obtained through the collaborative study with local governments into the "Casebook on Volcano Disaster Management Drills."

Considering the impact of ash falls and the basic approach to ash fall countermeasures that was compiled in 2020 by the "Working Group on Countermeasures for Wide-Area Ash Falls from Major Volcanic Eruptions," the Cabinet Office is continuing to study specific countermeasures in collaboration with related ministries, agencies, and local governments.

3-4 Measures against Snow Disasters

Japan is an arc-shaped archipelago consisting of steep mountain ranges. In winter, cold monsoons blow from Siberia, and warm ocean currents from the south flow into the Sea of Japan, bringing about large amounts of snowfall and snow accumulation on the Sea of Japan side. As a result, snow disasters, such as people falling from roofs while removing snow, avalanches, and severe snowstorms, as well as paralysis of urban functions and traffic disruptions due to snow accumulation, occur every year. As described in Special Feature 2, the government took all possible precautions in FY2022, such as holding Inter-Agency Disaster Alert Meetings when heavy snow was expected, and when heavy snow actually occurred, the government worked as a whole to implement disaster response measures according to the damage situation.

In addition, based on past snow disasters, the Cabinet Office developed the "Guide on Snowfall for Municipalities" in January 2019 (revised in November 2022) so that even municipalities with little experience of disasters due to snowfall can quickly and appropriately respond to heavy snowfalls. Since then, it has reflected the

latest efforts in the Guide and is distributing it to each local government.

In heavy snowfall areas, comprehensive measures for such areas, including snow damage control, have been implemented in accordance with the Act on Special Measures concerning Countermeasures for Heavy Snowfall Areas (Act No. 73 of 1962) and the basic plan for heavy snow areas developed based thereon. In the December 2022 revision of the basic plan for heavy snow areas, the following were added: "securing personnel for snow removal and developing the snow removal system," "taking disaster management measures that take into consideration the characteristics of heavy snowfall areas during the snow season," and "avoiding traffic congestion caused by large vehicles on trunk roads during short and intensive snowfalls." In FY2022, the Ministry of Land, Infrastructure, Transport and Tourism provided "grants for emergency measures for ensuring safety in heavy snowfall areas" to support those areas in the formulation of safe snow management policies that define a future vision for safe regional development and local rules and measures to achieve that vision, as well as to support local governments that are taking experimental safety measures during snow removal (e.g., developing a system for mutual support for snow removal, holding safety seminars, promoting the use of safety rope anchors, and developing and introducing automated and labor-saving technologies for snow removal).

Section 4. International Cooperation for Disaster Risk Reduction

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

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 (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.

(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 $5.87 million (approximately 634 million yen) in FY2022.

The UNDRR, in collaboration with the government of Indonesia, held the seventh meeting of the Global Platform for Disaster Risk Reduction in Bali, Indonesia, from May 23 to 27, 2022. The meeting, which was held for the first time in three years since 2019, was attended by approximately 3,200 local participants and more than 4,000 participants from 185 countries, including online participants.

Japan was represented by the then State Minister of the Cabinet Office, Mr. Ohno, who served as a panelist in the high-level dialogue. He also attended a ministerial roundtable with the theme of strengthening disaster

management to counter the climate crisis, where he presented Japan's initiatives.

7th meeting of the Global Platform for Disaster Risk Reduction

The UNDRR, together with the Australian government, held the 9th Asia-Pacific Ministerial Conference on Disaster Risk Reduction in Brisbane, Australia, from September 19 to 22, 2022. More than 3,000 participants from 40 countries attended the conference, which was held for the first time in four years since 2018.

The Vice-Minister for Policy Coordination, Mr. Inoue, participated in the conference as Japan's representative. He attended the ministerial roundtable, and, as a panelist at the plenary session, made a presentation on disaster investments and other topics while introducing Japan's initiatives.


9th Asia-Pacific Ministerial Conference on Disaster Risk Reduction

(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.

On January 27, 2023, the "International Recovery Forum" was held in Kobe under the theme of "Achievements in Build Back Better and Long-term Reconstruction: Goals for a Resilient and Sustainable Future." It had 443 participants from 70 countries, including Mr. Uemura, the Deputy Director-General for the Cabinet Office, Mr. Saito, the governor of Hyogo Prefecture, and Ms. Mizutori, the Special Representative of the United Nations Secretary-

General for Disaster Risk Reduction. The forum featured a keynote speech by the specially appointed Professor Takemura, a leading researcher on the Great Kanto Earthquake from Nagoya University's Disaster Mitigation Research Center. There was also a panel discussion on long-term reconstruction from large-scale disasters around the world.


International Recovery Forum 2023

(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 2023, 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 (126 visiting researchers in total as of January 2023), 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)" 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 18th conference and was held in Sendai City from March 10 to 12, 2023 under the theme " WHAT IS NEXT? – Learn from the Past; Prepare for the Future.” 205 officials and experts from 22 of the 31 member countries as well as members of the government of Fiji, UNDRR, ASEAN and other related organizations attended, and Minister of State for Disaster Management, Mr. Tani delivered opening remarks.-At the conference, a special session commemorating the 100th anniversary of the Great Kanto Earthquake was held, and information was shared and opinions were exchanged on large-scale disasters and their countermeasures, expansion of data linkage in the efforts of the Sendai Framework for Disaster Risk Reduction, and provision of disaster prevention and crisis management information using satellites.


Asian Conference on Disaster Reduction

4-2 Bilateral and Multilateral Disaster Risk Reduction Coordination

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

Based on the chairman's statement in the 22nd ASEAN+3 (Japan, China, and Korea) Summit Meeting, which was attended by the then Prime Minister Abe in November 2019, the "ASEAN-Japan Ministerial Meeting on Disaster Management" was launched by the Japanese government (Cabinet Office) and the departments in charge of disaster management of the 10 ASEAN member countries in October 2021.

On October 20, 2022, the "2nd ASEAN-Japan Ministerial Meeting on Disaster Management was held online, with State Minister of the Cabinet Office Hoshino attending as co-chair. At the meeting, the "ASEAN-Japan Action Plan for Disaster Management" was formulated, and the two sides agreed to further deepen cooperation in the future.

ASEAN-Japan Ministerial Meeting on Disaster Management

(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.

(3) Trilateral Cooperation through Japan-China-Korea Ministerial Meetings on Disaster Management

Based on the "Joint Announcement on Trilateral Disaster Management Cooperation" at the 1st Japan-China-Korea Trilateral Summit Meeting in 2008, the three countries have been holding trilateral ministerial meetings on disaster management on a rotating basis since 2009.

On July 14, 2022, the “7th Japan-China-Korea Ministerial Meeting on Disaster Management” was held online, with the attendance of the then Minister of State for Disaster Management, Mr. Ninoyu. During the meeting, each country’s representative presented updates on recent disasters and the progress of their disaster risk management policies. Considering that the Sendai Framework for Disaster Risk Reduction reaches its halfway point in 2023, the three nations formulated a joint statement to ensure the steady implementation of the framework and the sharing of information and experiences among them.

Japan-China-Korea Ministerial Meeting on Disaster Management

（4） Activities of the Japan International Public-Private Association for Disaster Risk Reduction (JIPAD) for Overseas Deployment of Technologies for Disaster Risk Management

The Japan International Public-Private Association for Disaster Risk Reduction (JIPAD) was established in 2019 to promote the active overseas deployment of technologies for disaster risk management and expertize, which is one of Japan's strengths, through the cooperation of the public and private sectors. As of March 2023, 207 companies and organizations are members of JIPAD.

On December 2, 2022, the 3rd JIPAD General Assembly was held. A total of 41 embassy officials from 38 countries and regions, including 10 ambassadors and extraordinary ambassadors, as well as representatives from more than 30 Japanese companies and organizations participated. The State Minister of the Cabinet Office, Mr. Hoshino, delivered opening remarks, followed by a keynote speech by Ms. Mizutori, the Special Representative of the United Nations Secretary-General for Disaster Risk Reduction, and reports from relevant ministries and agencies.

JIPAD General Assembly

JIPAD has been holding “Public-Private Disaster Management Seminars” to comprehensively present Japan's

disaster management policies, technologies, and expertize, as well as to build a public-private network and strengthen cooperative relations in disaster management.

In September 2022, during the period of the aforementioned Asia-Pacific Ministerial Conference on Disaster Risk Reduction, a public-private disaster management seminar for Asia-Pacific island countries was held in Brisbane, Australia, in collaboration with JICA. At the seminar, JIPAD companies and organizations gave presentations and offered opportunities for individual meetings with the participants.

In February 2023, capitalizing on the opportunity of Vietnamese disaster management administration officials and officers visiting Japan as part of a JICA training program, the Cabinet Office collaborated with JICA to organize a public-private disaster management seminar.

In March 2023, in collaboration with the aforementioned Asia-Pacific Ministerial Conference on Disaster Risk Reduction, a public-private disaster management seminar was held in Sendai City as a side event that was organized by the Cabinet Office and the Asian Disaster Reduction Center (ADRC). Ministers of the government of Fiji, and officials from the ASEAN Secretariat and the AHA Center were invited to the city. Many disaster management officials from Asian countries who had participated in the Asia-Pacific Ministerial Conference on Disaster Risk Reduction also attended the seminar.

【Column】

Municipality-Level Monitoring Initiatives Based on the Sendai Framework for Disaster Risk Reduction

The "Sendai Framework for Disaster Risk Reduction 2015–2030" was adopted at the “3rd United Nations World Conference on Disaster Reduction” held in Sendai City in March 2015. The year 2023 marks the midpoint of the framework's promotion period, which ends in 2030. Therefore, each country conducted interim assessments to gauge progress toward their respective goals. In a pioneering effort at the local government level and for the first time in the world, Sendai City, in collaboration with the International Research Institute of Disaster Science at Tohoku University, undertook an interim assessment.

As part of the assessment work, data on disaster damage was analyzed. The results showed that the disaster management and mitigation measures that Sendai City has been promoting with its stakeholders, including citizens and related organizations, have attained a certain degree of success and that the city is on track to achieve the seven “global targets” of the Sendai Framework for Disaster Risk Reduction, namely reduction of deaths, affected people, economic losses, and damage to crucial infrastructure. Conversely, analysis by disaster type clearly showed that damage caused by windstorms and floods is increasing. Thus, Sendai City intends to promote effective disaster management and mitigation measures while referring to the statistics.

Through the assessment work, valuable data items useful for disaster statistics analyses in municipalities were identified. Based on this, Sendai City aims to contribute to the advancement of the Sendai Framework for Disaster Risk Reduction both domestically and internationally. To this end, the city intends to collaborate with the United Nations and national institutions in sharing assessment methods and actively disseminating results, including sharing insights for similar analyses in other municipalities.

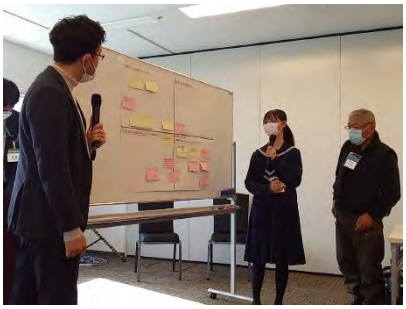
<Progress in achieving the seven global targets of the Sendai Framework for Disaster Risk Reduction>

○: Achieved △: Not achieved

		Targets	Assessment
Reduction targets	A	Number of deaths due to disasters per 100,000 people	○
	B	Number of those affected by disasters per 100,000 people	○
	C	Direct economic losses due to disasters	○
	D	Damage to critical infrastructure including medical and educational facilities and disruption of basic services	○
Incremental targets	E	To increase the number of countries having national and local disaster risk reduction strategies	○
	F	To provide appropriate and sustainable support to complement the measures of developing countries for the implementation of this framework, and significantly strengthen international cooperation with developing countries.	○
	G	To significantly improve the availability and accessibility of multi-hazard early warning systems and disaster risk information and assessment	○

- Based on the scale of the framework, the figures for "2005 to 2014" and "2015 to 2021" are used to compare increases and decreases.
- Since E, F, and G are national-level provisions, they were evaluated by comparing them to changes over time in Sendai City's measures.

<Special lectures (workshops) were also held for citizens to discuss the progress of the Sendai Framework for Disaster Risk Reduction.>



Source: Sendai City data

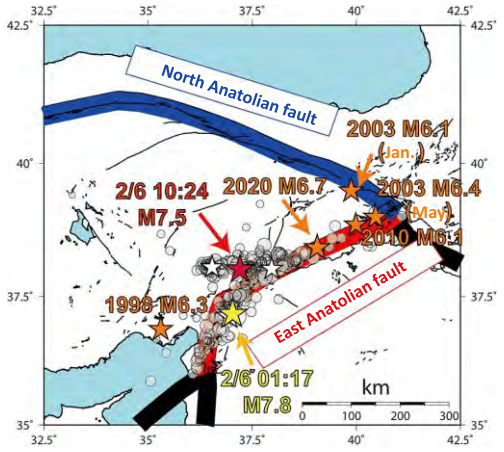
【Column】

Damage from an Earthquake in Southeastern Turkey and Japan's Support

At around 4:17 a.m. (local time) on February 6, 2023, a magnitude 7.8 earthquake occurred, with its epicenter in southeastern Turkey. It was followed by a magnitude 7.5 earthquake approximately nine hours later. Several aftershocks also occurred, causing significant damage in Turkey and Syria. In Turkey alone, there have been over 50,000 fatalities, 115,000 injuries, and approximately 50,000 buildings collapsed as of March 21, 2023. In particular, urban areas have suffered extensive damage, with buildings collapsing or being partially destroyed, roads severed in multiple places, and many citizens forced to evacuate. According to a report by the World Bank released on February 27, the direct damage from this earthquake is estimated at $34.2 billion (equivalent to 4% of Turkey's GDP in 2021). Although obtaining precise figures is difficult, more than 5,900 deaths in Syria have been reported as of March 21, 2023.

In response to this, the Japanese government, based on requests from the Turkish government, dispatched Japan Disaster Relief Rescue Teams to Turkey after February 6, and it sent Medical Teams from February 10 onwards. On March 6, Japan dispatched an Expert Team to assess the condition of damaged buildings and infrastructure, and it provided technical advice for reconstruction and recovery.

Furthermore, in response to requests from the governments of Turkey and Syria, Japan provided emergency humanitarian relief supplies, and it announced on February 24 its plan of providing approximately $27 million in emergency humanitarian aid to both countries. Moreover, during a donor conference co-hosted by the EU and Sweden on March 20, a video message from the Foreign Minister, Mr. Hayashi, was delivered, introducing Japan's support and expressing the intention to contribute to the reconstruction of the affected areas through continued financial and technical assistance.



Locations of epicenters

Japan Agency for Marine-Earth Science and Technology's website
https://www.jamstec.go.jp/j/pr/topics/column-20230208/

The JDR Rescue Team

Source: Ministry of Foreign Affairs

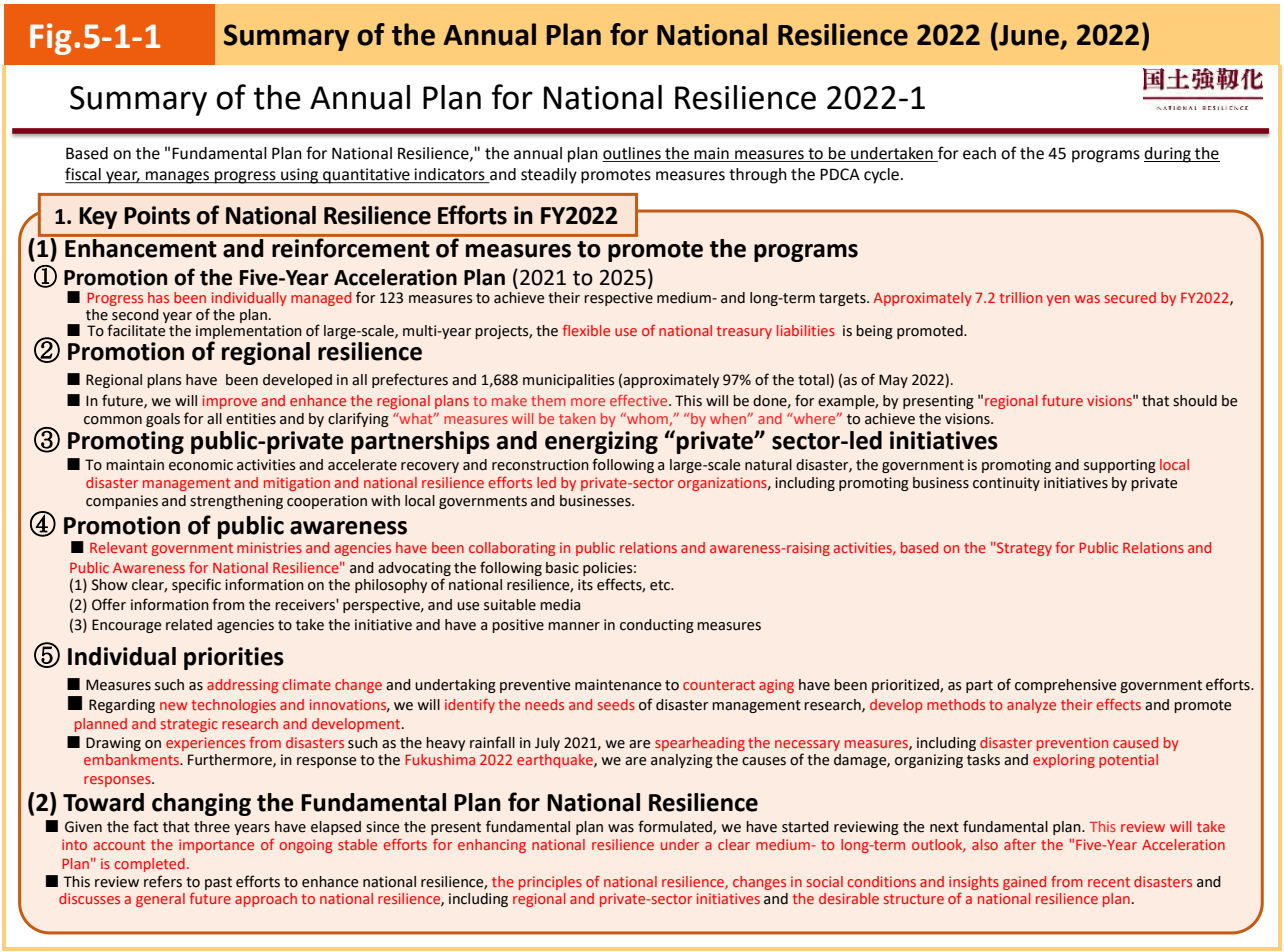
Section 5. Measures to Promote National Resilience

5-1 Formulation of the Annual Plans for National Resilience

The government finalized the "Annual Plan for National Resilience 2022" (hereafter referred to as the "Annual Plans 2022") on June 21st, 2022 (decided by the National Resilience Promotion Headquarters). In the Annual Plan 2022, a summary was compiled of the progress of measures, including the "Five-Year Acceleration Plan for Disaster Prevention, Disaster Mitigation, and Building National Resilience," developed in December 2020 (hereinafter referred to as "Five-Year Acceleration Plan" in this section). In light of lessons learned from the responses to heavy rains from July 1 and in August of 2021, as well as issues that have arisen during recent disasters, new measures were added to the Annual Plan to enhance and strengthen it.

Furthermore, the government has taken intensive measures against climate change and aging through preventive maintenance throughout its departments, etc. Regarding new technologies and innovations, the government has decided to proceed with planned and strategic research and development by grasping the needs and sources of disaster management research and developing methods for analyzing their effects (Fig. 5-1-1).

Fig.5-1-1 Summary of the Annual Plan for National Resilience 2022 (June, 2022)



Summary of the Annual Plan for National Resilience 2022-1

国土強靭化 NATIONAL RESILIENCE

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 FY2022

(1) Enhancement and reinforcement of measures to promote the programs

① Promotion of the Five-Year Acceleration Plan (2021 to 2025)

■ Progress has been individually managed for 123 measures to achieve their respective medium- and long-term targets. Approximately 7.2 trillion yen was secured by FY2022, the second year of the plan.

■ To facilitate the implementation of large-scale, multi-year projects, the flexible use of national treasury liabilities is being promoted.

② Promotion of regional resilience

■ Regional plans have been developed in all prefectures and 1,688 municipalities (approximately 97% of the total) (as of May 2022).

■ In future, we will improve and enhance the regional plans to make them more effective. This will be done, for example, by presenting "regional future visions" that should be common goals for all entities and by clarifying "what" measures will be taken by "whom," "by when" and "where" to achieve the visions.

③ Promoting public-private partnerships and energizing "private" sector-led initiatives

■ To maintain economic activities and accelerate recovery and reconstruction following a large-scale natural disaster, the government is promoting and supporting local disaster management and mitigation and national resilience efforts led by private-sector organizations, including promoting business continuity initiatives by private companies and strengthening cooperation with local governments and businesses.

④ Promotion of public awareness

■ Relevant government ministries and agencies have been collaborating in public relations and awareness-raising activities, based on the "Strategy for Public Relations and Public Awareness for National Resilience" and advocating the following basic policies:

(1) Show clear, specific information on the philosophy of national resilience, its effects, etc.

(2) Offer information from the receivers' perspective, and use suitable media

(3) Encourage related agencies to take the initiative and have a positive manner in conducting measures

⑤ Individual priorities

■ Measures such as addressing climate change and undertaking preventive maintenance to counteract aging have been prioritized, as part of comprehensive government efforts.

■ Regarding new technologies and innovations, we will identify the needs and seeds of disaster management research, develop methods to analyze their effects and promote planned and strategic research and development.

■ Drawing on experiences from disasters such as the heavy rainfall in July 2021, we are spearheading the necessary measures, including disaster prevention caused by embankments. Furthermore, in response to the Fukushima 2022 earthquake, we are analyzing the causes of the damage, organizing tasks and exploring potential responses.

(2) Toward changing the Fundamental Plan for National Resilience

■ Given the fact that three years have elapsed since the present fundamental plan was formulated, we have started reviewing the next fundamental plan. This review will take into account the importance of ongoing stable efforts for enhancing national resilience under a clear medium- to long-term outlook, also after the "Five-Year Acceleration Plan" is completed.

■ This review refers to past efforts to enhance national resilience, the principles of national resilience, changes in social conditions and insights gained from recent disasters and discusses a general future approach to national resilience, including regional and private-sector initiatives and the desirable structure of a national resilience plan.

Summary of the Annual Plan for National Resilience 2022-2

2. Major policies of the Annual Plan for National Resilience 2022 (main examples)

- Promotion of river basin management measures, earthquake and tsunami resistance-enhancing measures for infrastructure facilities, and aging countermeasures in cooperation with all stakeholders
- Elimination of missing links on high-standard highways to ensure a disaster-resistant national highway network function
- Enhancement of the forecasting, collection, accumulation, and dissemination of disaster-related information, including strengthening observation systems and improving forecasting accuracy for concentrated heavy rainfall, establishing a disaster management digital platform and IoT, utilizing robot and drone technologies, providing evacuation-related information through smartphones, and accelerating the societal implementation of disaster management chatbots for collecting data on the extent of damage
- Prevention of disasters caused by embankments through detailed surveys to assess their safety and support for countermeasure construction
- Establishment of an "Ecosystem for Human Resource Cultivation for Evacuation Life Support and Disaster Management" to prevent disaster-related deaths, improve evacuation living conditions, and cultivate local specialists

3. Progress in management of Five-Year Acceleration Plan

- We had targeted an overall project size of approximately 15 trillion yen (including the use of fiscal investment and loans and projects by the private sector) and by FY2022, the second year of the project, we secured approximately 7.2 trillion yen.
- The progress of the 123 measures as of the completion of the first fiscal year (end of FY2021) is summarized as a list of progress status as follows:

Category	Estimated scale of projects (at the time of Cabinet decision)	Scale of projects (As of FY 2022)	Of which, government funds (As of FY 2022)
Five-Year Acceleration Plan for Disaster Prevention, Disaster Mitigation and Building National Resilience	**Approx. 15 trillion yen**	**Approx. 7.2 trillion yen**	**Approx. 3.5 trillion yen**
1 Measures to cope with increasingly severe wind and flood damage and imminent large-scale earthquakes	Approx. 12.3 trillion yen	Approx. 5.9 trillion yen	Approx. 2.7 trillion yen
2 Aging countermeasures for a shift to preventive maintenance	Approx. 2.7 trillion yen	Approx. 1.2 trillion yen	Approx. 0.7 trillion yen
3 Promotion of digitization, etc. for efficient implementation of measures related to national resilience	Approx. 0.2 trillion yen	Approx. 0.1 trillion yen	Approx. 0.1 trillion yen

* Of the total project size of the five-year acceleration 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.

(Reference) Initiatives Based on Disasters in FY2021

A disaster caused by heavy rainfall from July 1, 2021

- A stagnant rain front caused heavy rainfall over a wide area from western Japan to the Tohoku region. Multiple locations in Shizuoka Prefecture recorded the highest 72-hour precipitation in history. Consequently, a massive debris flow in Atami City, Shizuoka Prefecture, resulted in extensive casualties and damage to houses.

Efforts in response to the heavy rain disaster from July 1, 2021

- In response to the heavy rain disaster, a general inspection was conducted for embankments that may affect people's homes and other buildings.
- While corrective measures should be taken by embankment constructors in principle, we supported the efforts of local governments to conduct detailed surveys, emergency responses and drastic measures against dangerous embankments that may impact residential homes and public facilities.
- A law for comprehensively regulating dangerous embankments under uniform standards nationwide, regardless of the use or purpose of the land for which an embankment is to be constructed, the Embankment Regulation Act, was promulgated.
- The announcement of the names of persons whose safety was unknown led to the targets for rescue and search being narrowed down. Based on this disaster case, points to be considered when publishing names were communicated to local governments.

Disasters due to heavy rainfall in August 2021

- Heavy rainfall spread over a wide area from western to eastern Japan due to an intensified rain front. A heavy rain emergency warning was announced for Nagasaki, Saga, Fukuoka, and Hiroshima prefectures.

Efforts found effective in the aftermath of the heavy rainfall disaster in August 2021

- In the town of Kaita, Hiroshima Prefecture, cameras were installed at danger spots in the town to give residents a sense of urgency and bring home the impacts of disaster via smartphone. As a result, about 10,000 people accessed the related site per month. This is an example of using digital technology to encourage evacuation actions, such as communicating information about imminent disasters to residents.
- In addition, in erosion and sediment control projects in Hiroshima, Saga, and Shizuoka prefectures implemented through the Three-Year Emergency Response Plan for Disaster Prevention, Disaster Mitigation, and Building National Resilience, there were cases where dams trapped mudslides and prevented damage.

March 2022 earthquake off the coast of Fukushima Prefecture

- A magnitude 7.4 (provisional) earthquake occurred off the coast of Fukushima Prefecture, with a seismic intensity peaking at 6 upper in Miyagi and Fukushima prefectures.
- The earthquake caused power outages to a maximum of approximately 2.2 million households and the suspension of operations at several thermal power plants. As the power supply and demand situation was expected to become severe, a supply-demand crunch warning was issued on March 21 for the Tokyo area (on the 22nd for the Tohoku area).
- A Tohoku Shinkansen train derailed between Fukushima and Shiroishi Zao stations. Other damage included broken poles, track displacement and damage to an elevated bridge and station equipment.
- Up to about 70,000 households suffered water outages due to damage to water pipes.

Efforts in response to the March 2022 earthquake off the coast of Fukushima Prefecture

- With regard to electric power, electric power companies have systematically implemented measures such as installing scaffolding in boilers and securing spare parts to enable rapid power recovery. Power supply and demand-related measures have been also taken, including putting idle thermal power plants back into service, raising fuel inventory levels, and the multi-step implementation and concretization of the government's power-saving requests.
- Regarding bullet trains, an "investigative committee on earthquake countermeasures for Shinkansen" has been set up. This committee has verified the earthquake countermeasures that had been taken and clarify the direction that should be taken going forward.
- As for water supply, anti-seismic measures for water pipes and power outage countermeasures for water purification plants, as well as the promotion of power outage countermeasures for distribution reservoirs are planned.

Source: National Resilience Promotion Office, Cabinet Secretariat Website
(Reference: https://www.cas.go.jp/jp/seisaku/kokudo_kyoujinka/pdf/kakuteigaiyou.pdf)

5-2 The National Resilience Related Budgets and Revision of Tax Systems Contributing to National Resilience

In the second supplemental budget of FY 2022, approximately 1.5 trillion yen in national expenditure was allocated to accelerate and enhance the Five-Year Acceleration Plan, aiming for a project scale of around 15 trillion yen over a five-year period, and approximately 9.6 trillion yen in project scale has been secured as of November 2022. Additionally, based on the Fundamental Plan for National Resilience, approximately 0.4 trillion yen in national expenditures was allocated to steadily advance national resilience initiatives. Furthermore, in the initial budget for fiscal year 2023, approximately 4.7 trillion yen in national expenditure was allocated to national resilience -related budgets.

Furthermore, 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. 13 items, including 1 expansions and improvements and 1 revision, were completed in the FY 2023 tax system revisions and made public.

5-3 Improving the Effectiveness of a Fundamental Plan for Regional Resilience

To effectively promote national resilience, it is highly important for local governments to play a central role and for various regional stakeholders to collaborate and cooperate in a planned manner. "The Fundamental Plan for Regional Resilience" (hereinafter referred to as the "Regional Plan" in this section), which serves as the basic plan for promoting regional resilience, has been developed in the 47 prefectures and almost all the municipalities. However, to further enhance the efforts to strengthen national resilience, it is necessary to review each plan to make it more effective by actively involving local residents and companies from the planning stage and by specifying when, where, who, and what will be addressed in the plans. Based on this, the government developed in July 2022 "The Guidelines for Developing and Revising a Fundamental Plan for Regional Resilience," which describe important points in reviewing regional plans, and it provided the guidelines to local governments nationwide. Furthermore, the government held briefing sessions attended by its officials and provided subsidies and grants under the jurisdiction of relevant ministries and agencies to projects for which project sites and implementation periods have been concretely specified in regional plans, thus supporting regional efforts to enhance resilience.

5-4 Encouragement of Measures for National Resilience by Private Sectors, Promotion of Public Relations, and Raising Public Awareness

(1) Promotion of private sector activities related to national resilience

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 March FY 2023, 293 organizations, including 188 "+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 Workshops" are held for the general public, and they have been held four times in total in FY 2022. In addition, model projects targeting small and medium-sized industrial parks were implemented to promote collaboration between the government and private sectors for national resilience, and a manual on this public-private collaboration was prepared and published. In January 2023, a symposium was held in Kumamoto City, Kumamoto Prefecture, to promote and raise awareness of national resilience.

Fig.5-4-1 Promotion of private sector activities related to national resilience

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 raise public awareness of national resilience, a study group on public relations and public awareness-raising activities was established. In June 2022, the Strategy for Public Relations and Public Awareness for National Resilience was developed (reference: https://www.cas.go.jp/jp/seisaku/kokudo_kyoujinka/kouhou.html). In this strategy, 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 promote the future efforts of the Cabinet Secretariat and related ministries and agencies.

Based on this strategy , the Cabinet Secretariat and related ministries and agencies will work harder on public relations and public awareness measures for national resilience.

As part of these efforts, they compiled and disseminated information on cases in which national resilience initiatives were effective in times of disaster (Fig. 5-4-2).

Fig.5-4-2 Examples of Effective Disaster Management and Mitigation, and National Resilience

Emergency measures for National Route 7 drainage facilities (Aomori City, Aomori Pref.)

Three-Year Plan for Disaster Risk Reduction and Resilience
Examples of effectiveness during disasters

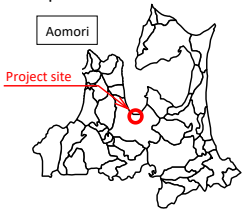
国土強靱化 NATIONAL RESILIENCE

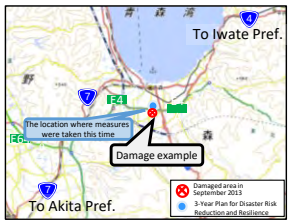
Summary of effects: In Typhoon Man-yi in 2013, heavy rainfall of approximately 136 mm per 24 hours flooded the roads, causing road closures for about 2 hours. As a result of repairing the drainage facilities based on the 3-year Plan for Disaster Risk Reduction and Resilience, the heavy rainfall registering 145 mm per 24 hours in August 2022, which exceeded that of Typhoon Man-yi in 2013, did not cause flooding of roads, with traffic functions secured.
Ministry name: Ministry of Land, Infrastructure, Transport and Tourism (MLIT)

Route	Countermeasures	Project cost	Countermeasure period
National Route 7	Drainage structure work	About 300 million yen	2018-2019

*Total cost of the 3-Year Plan for Disaster Risk Reduction and Resilience (flooding) for Aomori Prefecture National Route 7 maintenance and management

【Location map】





[Effects in 2013 Typhoon Man-yi]

2013 Typhoon Man-yi
24-hour rainfall: about 136 mm
- Roads were closed for about 2 hours due to flooding caused by heavy rain.

Heavy rain in August 2022
24-hour rainfall: about 145 mm
- No flooding (no road closures)

【Countermeasures】

Damage caused by 2013 Typhoon Man-yi (road flooding)

Flood countermeasures

Government-administered river improvement project for Gokase River (Nobeoka City, Miyazaki Pref.)

5-Year Acceleration Plan
Three-Year Plan for Disaster Risk Reduction and Resilience
Examples of effectiveness during disasters

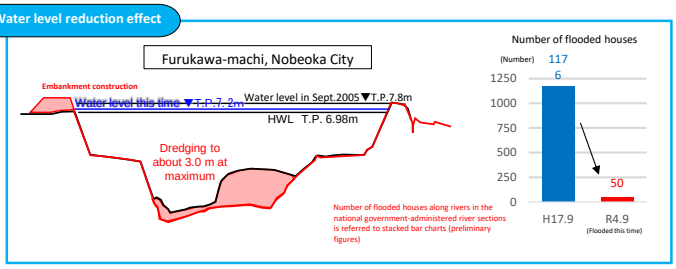
国土強靱化 NATIONAL RESILIENCE

Embankment construction and river channel dredging through the 5-Year Acceleration Plan and the 3-Year Plan for Disaster Risk Reduction and Resilience, as well as prior discharge of water from three dams upstream of Hoshiyama Dam, prevented overflow from the Gokase and Ose Rivers and flooding damage from Typhoon Nanmadol in September 2022.

■ Implementing Body: Kyushu Regional Development Bureau, MLIT
■ Outline of countermeasures and project cost

Major projects	Countermeasures	Project cost	Countermeasure period
River improvement projects	Embankment construction and river channel dredging	About 35.2 billion yen	2005-2022
3-Year Plan for Disaster Risk Reduction and Resilience	River channel dredging	About 600 million yen	2018-2020
5-Year Acceleration Plan	Embankment construction and river channel dredging	About 1.2 billion yen	2020-2021

Water level reduction effect



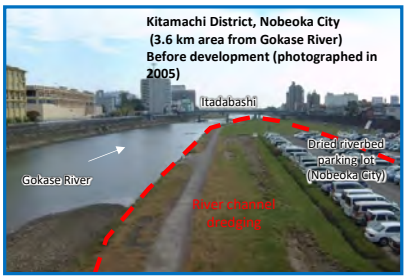
【Effectiveness against Typhoon Nanmadol in September 2022】

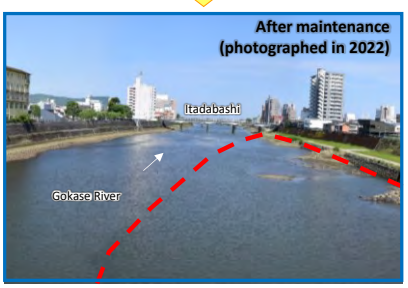
In case of no maintenance
Had it not been for river channel dredging, embankment maintenance, or advance water discharge from the dam, damage such as flooding in the central urban area of Nobeoka City would have occurred due to inundation by river water.

395 mm/12 hours rainfall recorded
(highest in observation history)
* Hinokage Rainfall Observation Station

No damage due to inundation by river water

*The figures in this document are preliminary figures as of December 2022 and may change depending on future scrutiny.





Source: Website of National Resilience Promotion Office, Cabinet Secretariat
https://www.cas.go.jp/jp/seisaku/kokudo_kyoujinka/kouhou/koukahakkijirei.html

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). At the 15th National Resilience Promotion Headquarters established in October 2022, Prime Minister Mr. Kishida, the head of the Headquarters, instructed the Advisory Committee on National Resilience (hereafter referred to as the "Advisory Committee" in this section) to "initiate efforts to revise by the summer of 2023 the Fundamental Plan, which had been revised in December 2018, in conjunction with the next National Spatial Planning that was being undertaken. In response, the Advisory Committee initiated preparations for the revision of the Fundamental Plan.

In light of past initiatives for national resilience, its philosophy, knowledge from changes in the recent social circumstances and disasters, and May 2021 proposals by the “Working Group on Reducing Disaster Risk in Advance and Complex Disasters” established under the Advisory Committee, the Committee is discussing general issues on national resilience for the future, such as the system for national resilience planning including Regional Plans, Annual Plans, activation of the private sector’s initiatives, to promote national resilience even further. Additionally, the Committee is conducting vulnerability assessments (intended to identify essential matters for promoting national resilience by assessing the process of the “worst-case scenarios that must not occur” and the progress of measures) based on the latest scientific knowledge. The Advisory Committee will proceed with a revision of the Fundamental Plan based on these discussions.

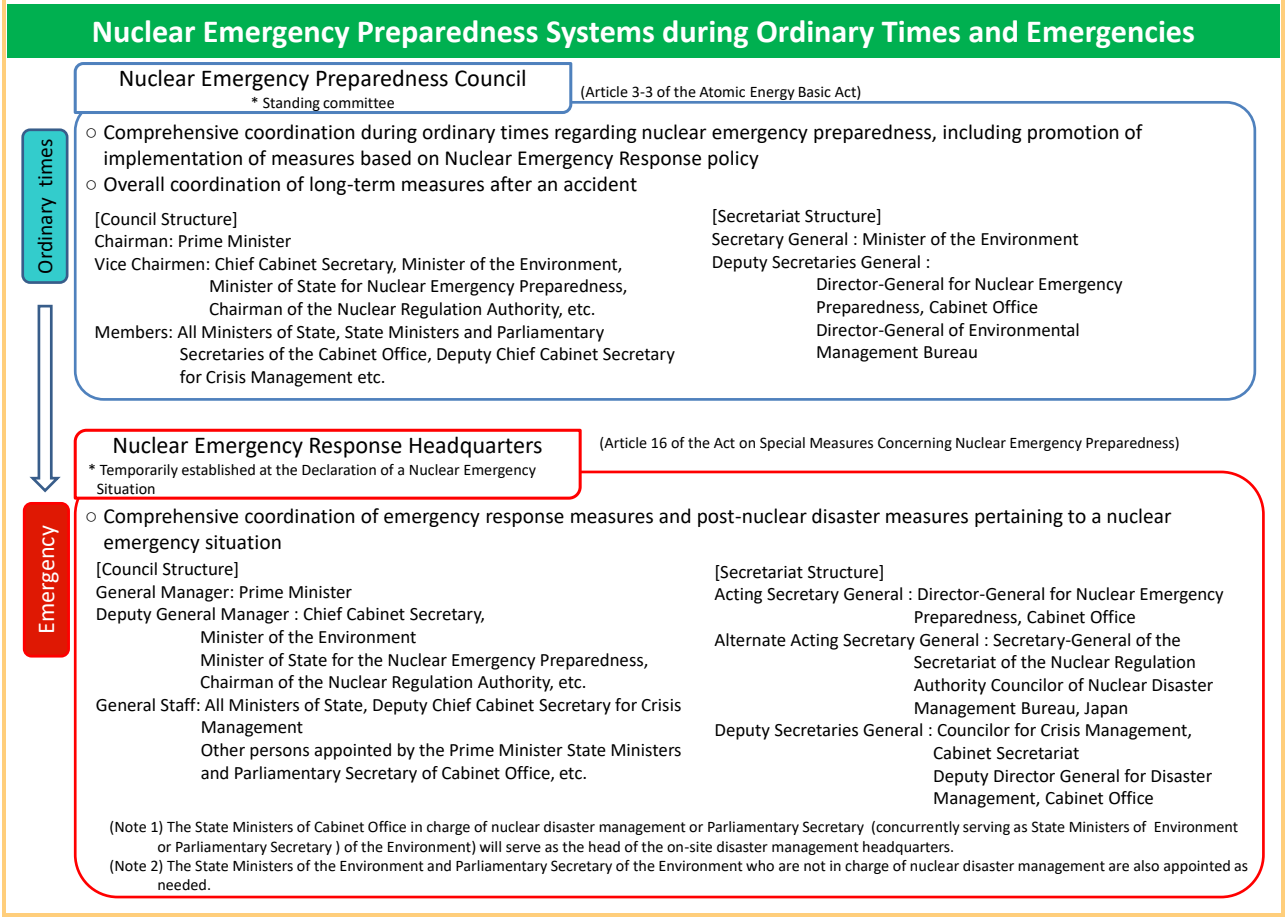
Chapter 2. Status of Countermeasures against Nuclear Emergency

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 Nuclear Emergency Preparedness, 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

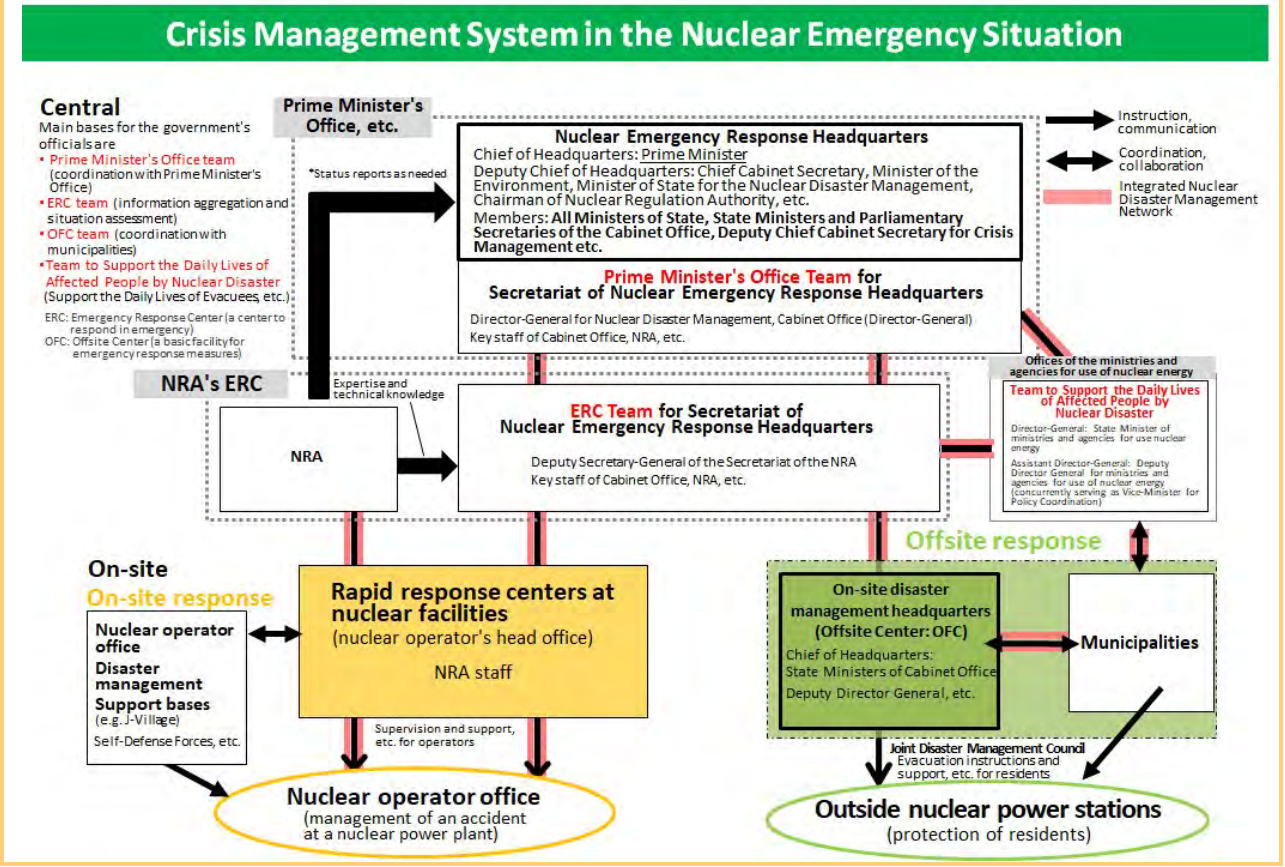
1-2 Nuclear Emergency Preparedness System in a time of Emergency

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 Nuclear Emergency Preparedness, and the Chairman of the Nuclear Regulation Authority. The 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 Emergency Preparedness, the Cabinet

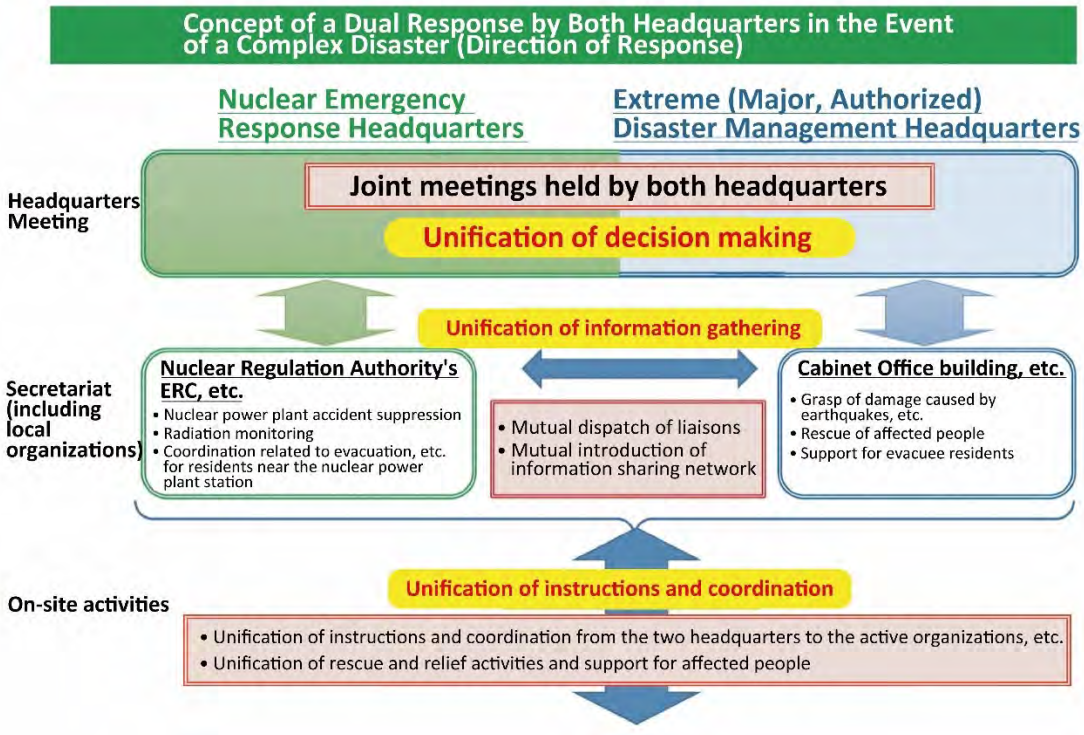
Office, which was established on October 14, 2014. In addition, regarding complex disasters, the Basic Disaster Management Plan was revised in July 2015 to establish a coordinated system that enables both the “Extreme Disaster Management Headquarters, which responds to natural disasters, or the “Major Disaster Management Headquarters (including the “Authorized Disaster Management Headquarters” after the revision of the “Basic Act on Disaster Management” in May 2021), 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, thereby strengthening the system against 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.

The NRA reviewed the requirements for emergency thyroid exposure dose monitoring to be implemented when there is a concern about internal exposure due to inhalation of radioactive iodine in the event of a nuclear disaster. It also examined the requirements for nuclear disaster base hospitals and other facilities. Based on the results, it revised the NRA EPR Guide at the 1st NRA meeting of FY 2022 (April 6, 2022).

In order to ensure the smooth implementation of nuclear disaster countermeasures, it is essential to take appropriate radiation protection measures for emergency workers supporting the implementation of protective measures for residents, as well as those radiation protection measures for residents. To enhance radiation protection measures for emergency workers, the NRA EPR Guide was revised at the 21st FY2022 NRA Commission Meeting (July 6, 2022).

To further strengthen the medical care system in the event of a nuclear disaster, the designation of the University of Fukui as an Advanced Radiation Emergency Medical Support Center as of April 1, 2023 was decided at the 81st NRA meeting of FY 2022 (March 8, 2023).

2-2 Efforts for Emergency Response

The NRA is continuously engaged in improving the capabilities of personnel involved in nuclear emergency response and identifying and addressing issues relating to regional Nuclear Emergency Preparedness Systems to improve them, through various training and drills in preparation for a nuclear emergency. In FY 2022, to enhance emergency response capabilities, the NRA conducted three tabletop exercises for emergency response centered on personnel responsible for decision-making in an emergency situation, such as the NRA Chairman and members, and NRA Secretariat senior officials. Some emergency drills by nuclear operators were participated in by the NRA Chairman and others.

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. Moreover, the off-site Function Team and others also conducted two drills linked with the nuclear operators' disaster prevention drills.

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 FY2022 the

Debriefing Session of Emergency Drills by Nuclear Operators. Moreover, based on the training scenarios discussed by the Training Scenario Development Working Group (https://www.nra.go.jp/disclosure/committee/yuushikisya/bousai_kunren/index.html) held under the Debriefing Session, drills have been conducted to enhance the decision-making abilities of the directors of NPP emergency stations and central control rooms, as well as drills for improving on-site response capabilities. In FY 2022, drills based on scenarios developed in FYs2020 and 2021 were carried out to enhance the decision-making abilities of the directors of eight nuclear operating companies (nuclear operators) and those of ten nuclear operating companies. Furthermore, based on the exercise scenarios prepared in FY 2021, drills were conducted with 14 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 2022.

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 2022, we received 3 reports from nuclear operators based on the "Act on the Regulation of Nuclear Source Material, Nuclear Fuel Material and Reactors" and 5 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, 2023)

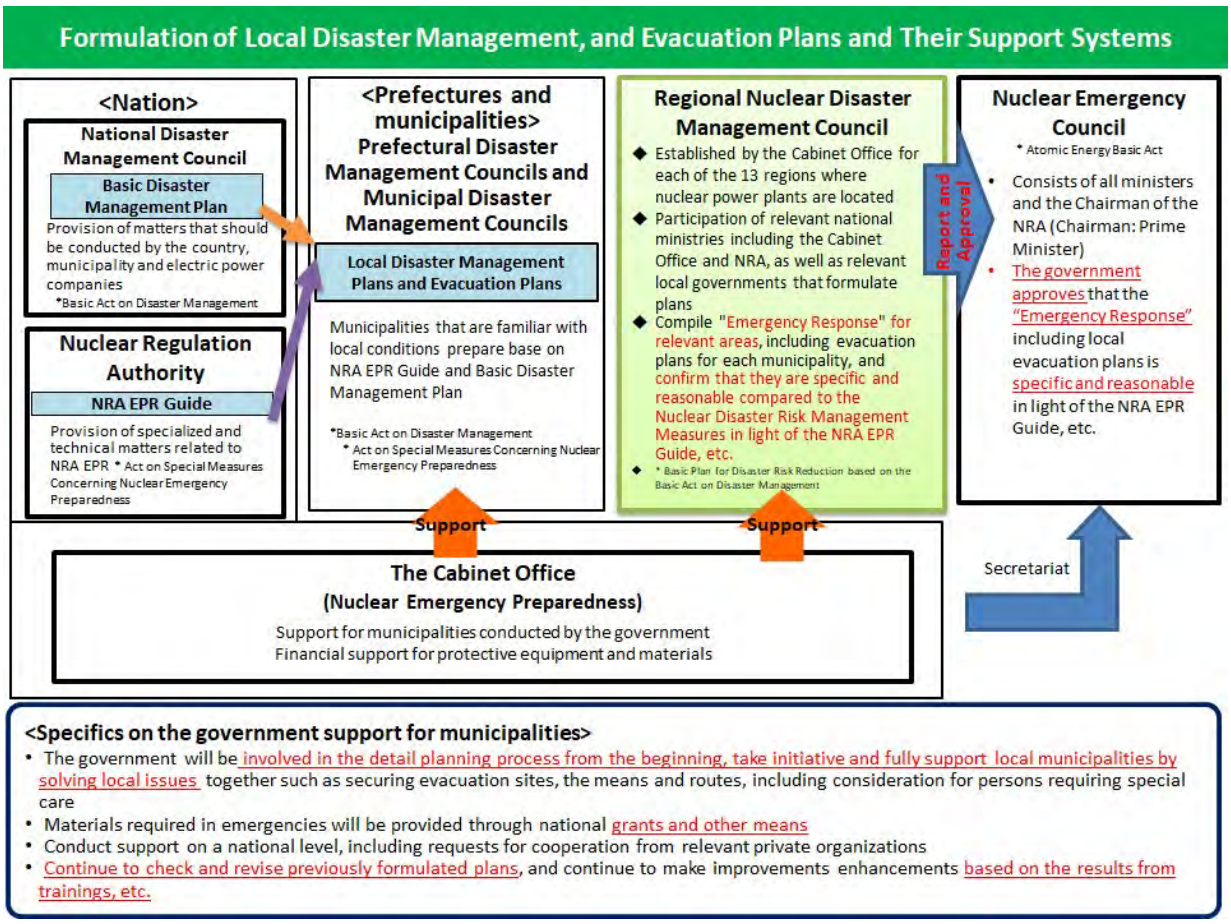
	Target municipalities	The number of disaster management plans formulated	The number of evacuation plans formulated
Tomari Area	13	13	13
Higashidori Area	5	5	5
Onagawa Area	7	7	7
Fukushima Area	13	13	12
Kashiawazaki-Kariwa Area	9	9	9
Tokai Dai-ni Area	14	14	5
Hamaoka Area	11	11	11
Shiga Area	9	9	9
Fukui Area	23	23	23
Shimane Area	6	6	6
Ikata Area	8	8	8
Genkai Are	8	8	8
Sendai Area	9	9	9
Total 13 Areas	135	135	125

Source: Cabinet Office data

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.

In March 2015, 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 operational agencies. The national government and relevant local governments work together to realize and enhance local disaster management plans and evacuation plans (Fig.3-1-2).

Fig. 3-1-2 **Formulation of Local Disaster Management Plans and Evacuation Plan and Their Support System**

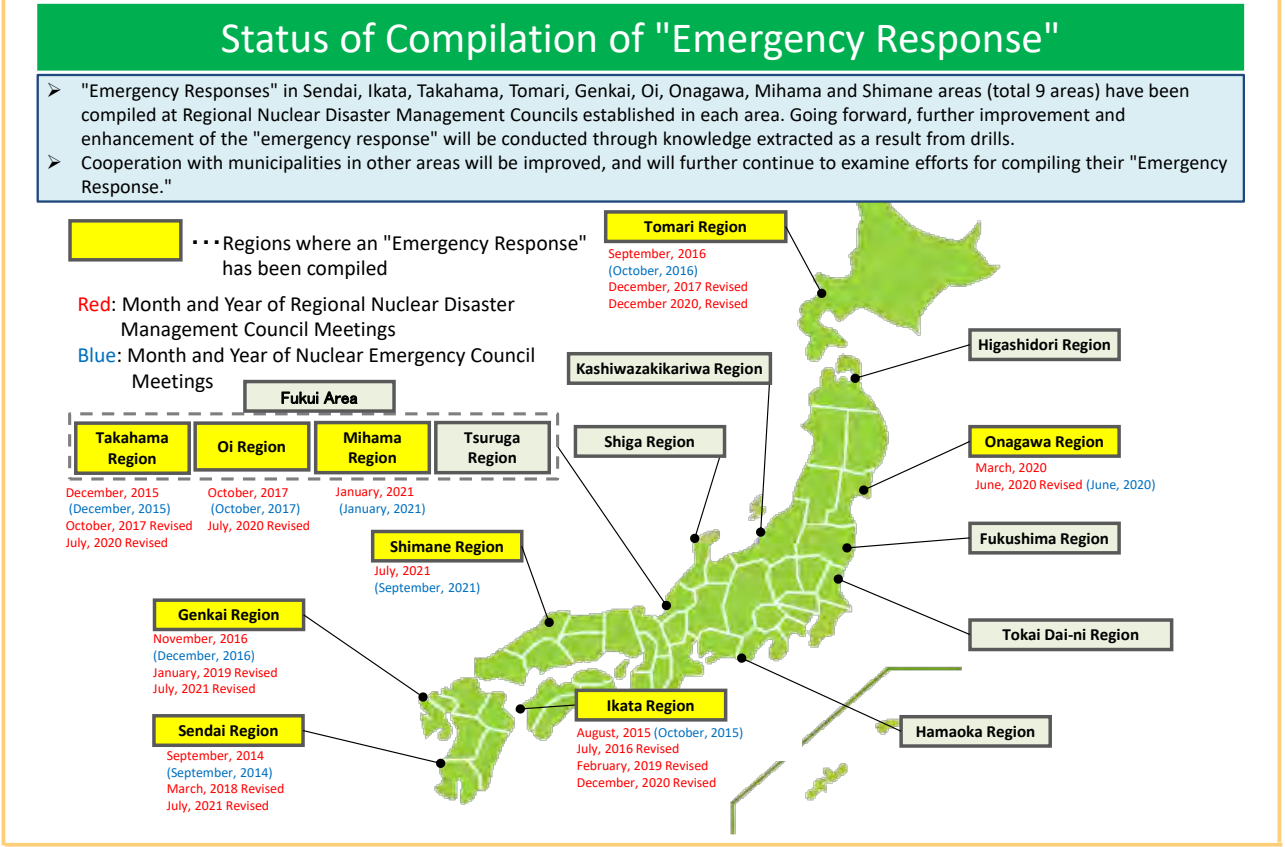


Source: Cabinet Office data

Regarding the concrete formulation and enhancement of Nuclear Emergency Preparedness Systems, each region's council established by the Cabinet Office compiles the region-specific "emergency response," including local disaster management plans and evacuation plans of relevant local governments. The entities participating in these councils, including relevant government ministries and agencies, local governments, and organizations, check whether these region-specific measures for emergency preparedness are concrete and reasonable in light of the NRA EPR Guide and other related criteria. The emergency response confirmed by each council is reported to and approved by the Nuclear Emergency Council, which is chaired by the Prime Minister and consists of all cabinet ministers and the NRA Chairman. In addition to verifying each emergency response plan and supporting the concrete formulation and enhancement of a regional Nuclear Emergency Preparedness System based on such a plan (Plan), drills have been conducted according to the plan (Do), and points to be improved are identified from the drill results (Check), and the plan for each region is improved based on the points learned from the drills (Action); a PDCA cycle has been introduced. Through this cycle, the Cabinet Office and relevant local governments are continuously working to enhance and strengthen regional Nuclear Emergency Preparedness Systems and their effectiveness.

As of the end of FY2022, emergency responses by 9 regions of 16 regions in total were compiled, and their contents have been 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.

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, in compliance with the NRA EPR Guide and NRA's manual regarding distribution and taking of stable iodine agents.

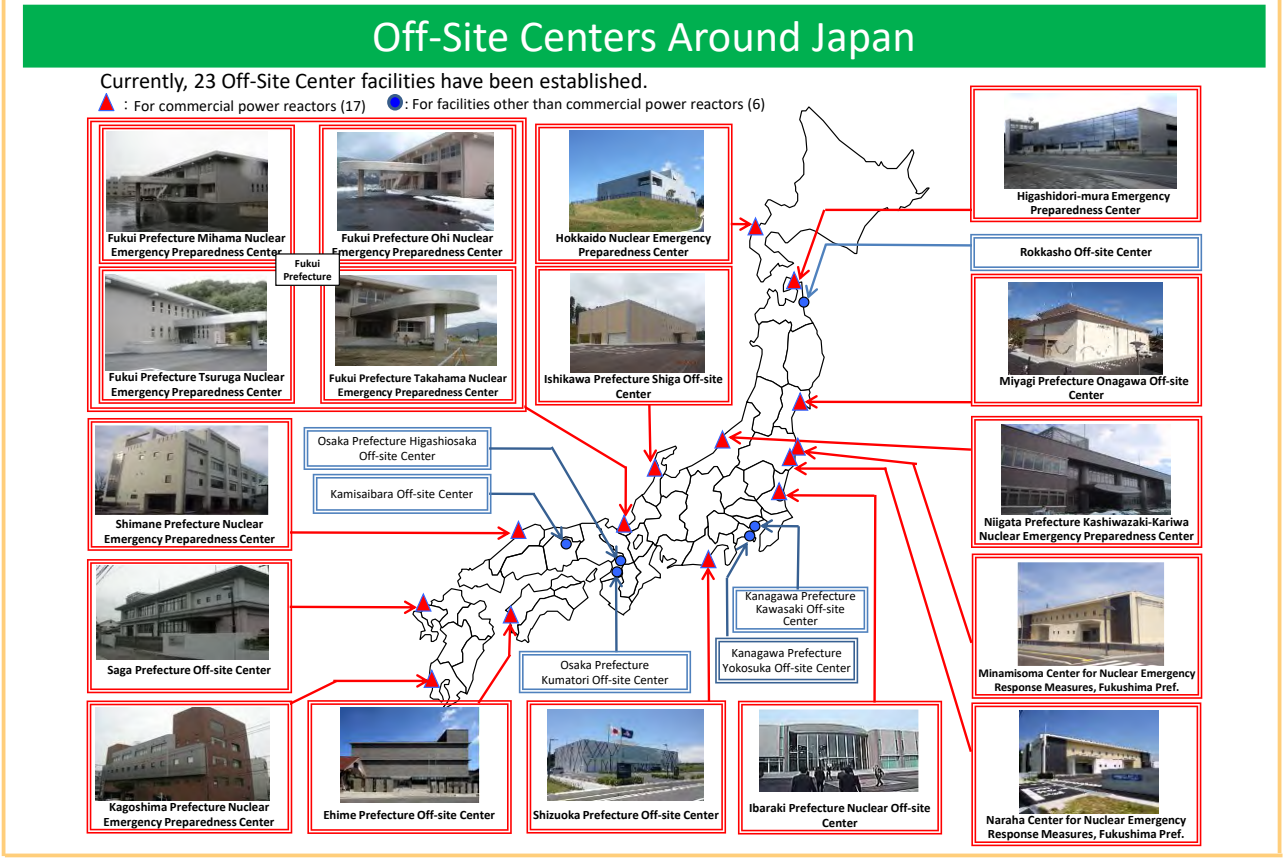
(2) Designation of an Off-Site Center

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. Currently, there are Off-site Centers for 23 nuclear facilities in Japan.

Fig. 3-2-1 Off-Site Centers Around Japan



Source: Cabinet Office data

(3) 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 plans, as well as infection prevention measures stemming from the action plan from the "Act

on Special Measures for Pandemic Influenza and New Infectious Diseases Preparedness and Response (Act No. 31 of 2012)" 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.

Based on the above, nuclear disaster risk management measures are being taken in accordance with the actual conditions of each site and regional situations.

(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)

(4) Support for Facilitating Evacuation

Facilitating evacuation at the time of a nuclear disaster, such as by securing evacuation routes through road maintenance and improvement, is important from the perspective of the safety and security of local residents. The relevant ministries and agencies and the government as a whole are committed to cooperate for this purpose.

The Cabinet Office (Nuclear Disaster Management Bureau) has selected model evacuation routes that are more effective and efficient without obstructive factors and has been providing assistance to prefectures in preparing their evacuation facilitation plans, demonstrating improved models, and disseminating the results of these efforts. Based on the results of this model demonstration, the Cabinet Office established a new emergency evacuation facilitation project in FY 2021 under the “system of grant for emergency safety measures for nuclear facilities” to support traffic guidance measures to ensure the smooth evacuation or temporary relocation of residents and to improve the evacuation routes designated in local disaster management plans.

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 for evacuation and inspecting the evacuees (Fig. 3-3-1).

Each 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. Furthermore, the Cabinet Office has distributed the above-mentioned guidance to relevant prefectures along with the "Practical Drill Manual for Personnel in Charge of Nuclear Disaster Management," which describes specific items to be performed by nuclear disaster management personnel in accordance with the guidance, thereby disseminating the guidance and manual.

(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 2022**

Areas	Exercise Name	Date
Tomari	Hokkaido Nuclear Emergency Response Exercise	October 31, 2022 and February 9, 2023
Higashidori	Aomori Prefecture Nuclear Emergency Response Exercise	November 17, 2022
Onagawa	Miyagi Prefecture Nuclear Emergency Response Exercise	October 29, 2022 and January 30, 2023
Fukushima	Fukushima Prefecture Nuclear Emergency Response Exercise	October 1, 2022 and January 27, 2023
Kashiwazakikariwa	Niigata Prefecture Nuclear Emergency Response Exercise	October 24 to 26, 29, November 8, 2022 and February 8, 2023
Shiga	Ishikawa Prefecture Nuclear Emergency Response Exercise	November 23, 2022
	Toyama Prefecture Nuclear Emergency Response Exercise	
Fukui	Fukui Prefecture Comprehensive Nuclear Emergency Response Exercise	November 4 to 6, 2022 (* Comprehensive Nuclear Emergency Response Exercise by the government)
	Shiga Prefecture Nuclear Emergency Response Exercise	
	Gifu Prefecture Nuclear Emergency Response Exercise	
	Kyoto Prefecture Nuclear Emergency Response Exercise	November 27, 2022
Hamaoka	Shizuoka Prefecture Nuclear Emergency Response Exercise	January 31 and February 4, 2023
Shimane	Shimane Prefecture Nuclear Emergency Response Exercise	November 7 and 12, 2022
	Tottori Prefecture Nuclear Emergency Response Exercise	
Ikata	Ehime Prefecture Nuclear Emergency Response Exercise	October 12, 2022 and February 2, 2023
	Yamaguchi Prefecture Nuclear Emergency Response Exercise	October 12, 2022
Genkai	Saga Prefecture Nuclear Emergency Response Exercise	October 29, 2022
	Nagasaki Prefecture Nuclear Emergency Response Exercise	October 29 and November 12, 2022
	Fukuoka Prefecture Nuclear Emergency Response Exercise	October 29, 2022
Sendai	Kagoshima Prefecture Nuclear Emergency Response Exercise	February 11, 2023

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 2022, 38 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 emergency, and to verify and improve local disaster management plans and evacuation plans formulated by local governments. In FY 2022, 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 2022, 2 sessions were held for each of national, prefectural and municipal 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)
- Flow of response in accordance with the progress of a nuclear emergency situation (classroom lecture)
- Tabletop exercises

4. Practical human resource training

a. Response to inspecting the evacuees

This training is for local government personnel in charge of implementation plans for inspecting the evacuees and simple decontamination during evacuation. 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 2022, 4 sessions were held, and their main contents are as follows.

· Basic concept of inspecting the evacuees (classroom lecture)

· Exercises on planning and operation of inspecting the evacuees

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 2022, 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 and municipality, 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 2022, 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)

Simulation training (Tabletop exercises at the nuclear disaster on-site disaster management headquarters)

Task exercise (Core human resources development training)

Hands-on training
(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 strengthening the cooperation regarding Nuclear Emergency Preparedness Systems through regular exchanges of views and mutual invitation to drills. In FY 2022, following meetings were held online: one EMWG co-chairs' meeting and one technical workshops on protective measures under pandemic, 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 Vice-Minister for the Cabinet Office and the Director General of the Directorate-General for Civil Protection and Crisis Management of French Ministry of the Interior, the two countries have deepened cooperation for their Nuclear Emergency Preparedness Systems through mutual invitations to drills and regular meetings of the "Cooperation Committee for Planning and Crisis Management in Case of Nuclear Accident," which was launched in 2019. In FY 2022, the French side was invited to Japan's Nuclear Energy Disaster Prevention Drill, where the Japanese side introduced local disaster risk management activities and exchanged opinions on how to provide information to French residents in Japan in the event of an accident.

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 drill. The Nuclear Energy Disaster Prevention Drill for the Mihama Nuclear Power Station (hereinafter referred to as "Mihama NPS") of Kansai Electric Power Company, conducted from November 4 to 6, 2022, hosted 28 visitors from seven countries and regional organizations involved in nuclear disaster management. During the visit (observation), the participants stayed at the site for three days, including pre-briefing and opinion exchange meetings. After the Drill, the Japanese side exchanged opinions regarding the Drill and emergency preparedness system with the overseas observers.

(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.

Section 4. FY 2022 Comprehensive Nuclear Emergency Response Exercise

4-1 Implementation Overview

(1) Definition and Purpose

The purpose of the Comprehensive Nuclear Emergency Response Exercise 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 2022, the Comprehensive Nuclear Emergency Response Exercise was conducted 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.

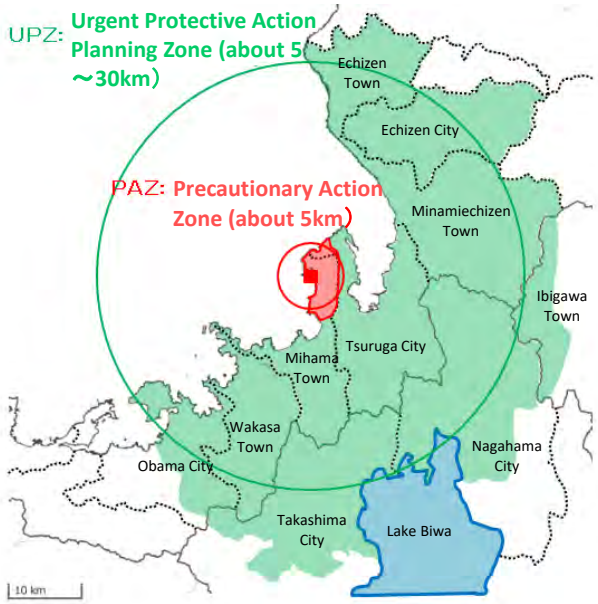
· To confirm the central and local systems and the procedures stipulated in the manuals for nuclear emergencies.

· To verify the evacuation plan specified in the "Emergency Response in the Mihama Area" (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 Mihama Area



Source: Geospatial Information Authority of Japan's website (http://maps.gsi.go.jp/#9/35.795538/136.051941)
Prepared by the Disaster Management Bureau of the Cabinet Office based on the Geospatial Information Authority of Japan's "Blank Map" (https://maps.gsi.go.jp/#10/35.703032/135.964050)

(2) Implementation Period and Subjected Power Plant

Exercises were conducted at the Mihama Nuclear Power Station from November 4 to 6, 2022.

(3) Participating Organizations

· Government agencies: Cabinet Secretariat, the Cabinet Office, Nuclear Regulation Authority, and other relevant ministries and agencies

·Local governments: Fukui Prefecture, Mihama Town, Tsuruga City, Wakasa Town, Obama City, Minami Echizen Town, Echizen City, Echizen Town, Shiga Prefecture, Nagahama City, Takashima City, Gifu Prefecture, Ibigawa Town and other related municipalities

· Operator: Kansai Electric Power Company

· Related organizations: National Institutes for Quantum Science and Technology, Japan Atomic Energy Agency, etc.

(4) Assumed Accident Scenario

An earthquake with its epicenter in Reinan, Fukui Prefecture, occurs. This causes the operating Mihama NPP Unit 3 to scram. In addition, a reactor coolant leakage occurs, combined with a series of equipment failures, leading to the loss of steam generator cooling and reactor water injection functions, thus resulting in a site area emergency and a state of general emergency.

(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, government officials, and experts were dispatched to the emergency preparedness base facility (Mihama Off-site Center) and rapid response centers at nuclear facilities (the head office of Kansai Electric Power Company).

Personnel who assembled at the site

(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 office, the Cabinet Office Building, the

NRA Secretariat's Emergency Response Center, the Off-site Center, the Fukui Prefectural Office, and other locations. Along with this, information sharing and the coordination of protective measures, involving local organizations, were carried out centrally. At the Prime Minister's office, the Prime Minister issued a Declaration of a Nuclear Emergency Situation and held a Nuclear Emergency Response Headquarters meeting to determine policies for emergency response measures.

Exercise at the Joint Meeting of the Nuclear Emergency Response Headquarters with the participation of Prime Minister Kishida and related cabinet ministers (Prime Minister's Office)

(3) Evacuation of Residents in and out of the prefecture and sheltering indoors

In response to a site area emergency and a state of general emergency, evacuation of residents in the Precautionary Action Zone (PAZ) was conducted with cooperation from the Ministry of Defense, the Self-Defense Forces, and other bodies in charge of field response, as well as private transportation. Also, residents in the Urgent Protective 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.

Assuming that radioactive materials were released and the OIL2 level was exceeded based on the Operational Intervention Level (OIL), a drill was conducted for the temporary relocation and contamination screening of the residents in some areas within the UPZ.

Resident evacuation drill

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 "Emergency Response in the Mihama Area" in the Regional Nuclear Disaster Management Council.

APPENDIX

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Fig. A-1 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 north of 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 north ofShikoku 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	Nanki Torrential Rains	In and west of Tohoku region (Especially in Wakayama Prefecture)	1,124
May 8-12, 1954	Windstorm	Northern Japan, Kinki region	670
September 25-27, 1954	Typhoon Marie	Nationwide (Especially in Hokkaido and Shikoku region)	1,761
July 25-28, 1957	Isahaya 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	In and east of Kinki region (Especially in Shizuoka Prefecture)	1,269
September 26-27, 1959	Typhoon Vera	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	The Heavy Snow Event of 1963	Hokuriku and San-in 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 of July and August	Western Chubu and Shouthern Tohoku regions	256
May 16, 1968	1968 Earthquake Off the Coast of Tokachi (M7.9)	Shouthern Hokkaido and Tohoku region mainly in Aomori Prefecture	52
July 3-15, 1972	The Heavy Rain Event of July 1972	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 of September	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	1977 Mt. Usu Eruption	Hokkaido	3
January 14, 1978	1978 Earthquake Inshore of Izu-Oshima Island (M7.0)	Izu Peninsula	25
June 12, 1978	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 of July-August and Typhoon BESS (8210)	Nationwide (Especially in Nagasaki, Kumamoto and Mie Prefectures)	439
May 26, 1983	1983 Central Japan Sea Earthquake (M7.7)	Akita and Aomori Prefectures	104
July 20-29, 1983	Seasonal Torrential Rains	In and east of San-in area (Especially in Shimane Prefecture)	117
October 3, 1983	1983Miyake 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	1984 Western Nagano Prefecture Earthquake (M6.8)	Western Nagano Prefecture	29
November 15 – December 18, 1986	1986 Izu-Oshima Is. Eruption	Izu-Oshima Island	—
November 17, 1990 – June 3, 1995	1991 Mt. Unzen Eruption	Nagasaki Prefecture	44

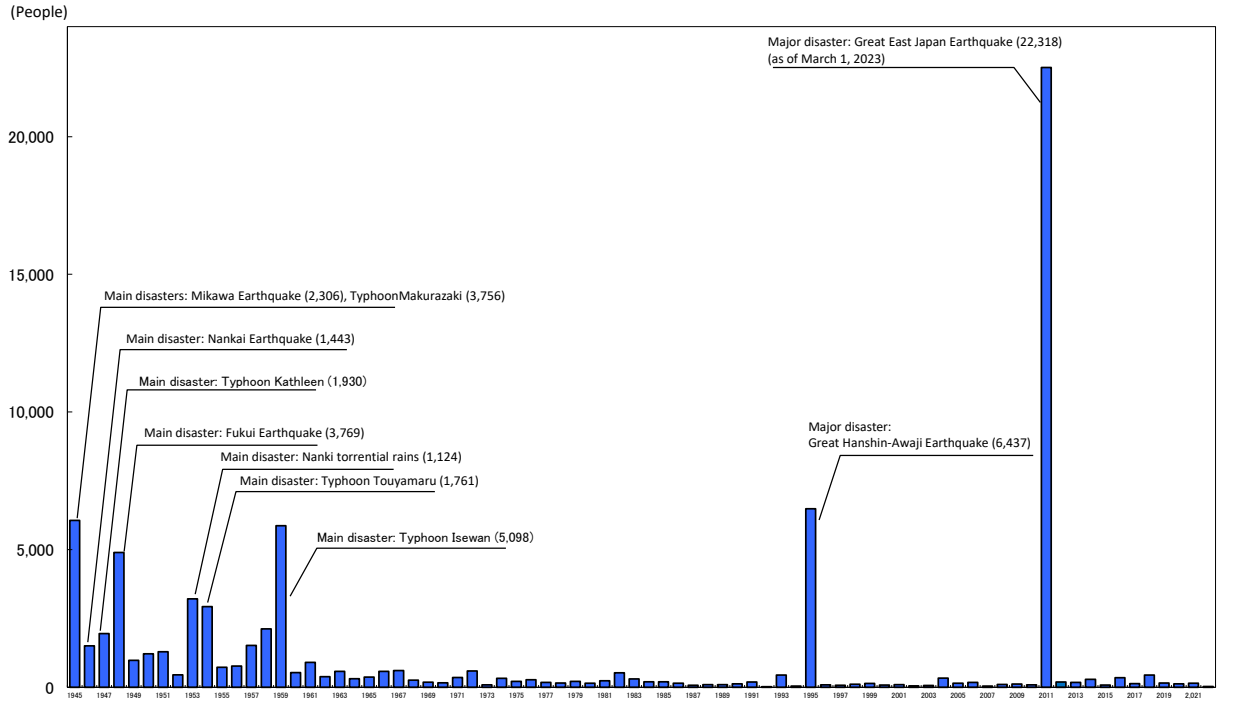
Date	Disaster	Main Affected Areas	Number of Fatalities and Missing
July 12, 1993	1993 Earthquake Off the Coast of the Southwestern Part of Hokkaido (M7.8)	Hokkaido	230
July 31 – August 7, 1993	The Heavy Rain Event of August 1993	Nationwide	79
January 17, 1995	Great Hanshin-Awaji Earthquake (M7.3)	Hyogo Prefecture	6,437
March 31, 2000 - June 28, 2001	2000 Mt. Usu Eruption	Hokkaido	—
June 25, 2000 - March 31, 2005	2000 Miyake Is. Eruption and Niijima and Kozushima Is. Earthquake (M6.5)	Tokyo	1
October 20-21, 2004	2004 Typhoon TOKAGE (0423)	Nationwide	98
October 23, 2004	The mid Niigata prefecture Earthquake in 2004 (M6.8)	Niigata Prefecture	68
December 2005 - March 2006	The Heavy Snow Event of 2006	The Coast of the Japan Sea mainly in Hokuriku area	152
July 16, 2007	The Niigataken Chuetsu-oki Earthquake in 2007	Niigata Prefecture	15
June 14, 2008	The Iwate-Miyagi Nairiku Earthquake in 2008 (M7.2)	Tohoku region (Especially in Miyagi and Iwate Prefectures)	23
November 2010 - March 2011	2010 Snow Disaster	From Northern to Western Japan on the Japan Sea Coast	131
March 11, 2011	The 2011 off the Pacific coast of Tohoku Earthquake (Mw9.0)	Eastern Japan (Especially in Miyagi, Iwate and Fukushima Prefectures)	22,318
August 30 - September 5, 2011	Typhoon TALAS (1112)	Kinki and Shikoku regions	98
November 2011 - March 2012	Heavy Snow of 2011	From Northern to Western Japan on the Japan Sea Coast	133
November 2012 - March 2013	Heavy Snow from November 2012	From Northern to Western Japan on the Japan Sea Coast	104
November 2013 - May 2014	Heavy Snow from 2013	From Northern Japan to Kanto-Koshinetsu area (Especially in Yamanashi Prefecture)	95
August 20, 2014	The Heavy Rain Event of August 2014	Hiroshima Prefecture	77
September 27, 2014	2014 Eruption of Mt. Ontake	Nagano and Gifu Prefectures	63
April 14 and 16, 2016	The 2016 Kumamoto Earthquake (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 2018 Hokkaido Eastern Iburi Earthquake (M6.7)	Hokkaido	43
October 10 – 13, 2019	Typhoon Hagibis	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	Heavy Rain from July 1 of 2021	Nationwide (Especially in Shizuoka Prefecure)	29
August 7 – August 23, 2021	Heavy Rain of August 2021	Nationwide (Especially in Nagano, Hiroshima and Nagasaki Prefectures)	13
September 17 – September 20, 2022	Typhoon NANMADOL (2214)	Kyushu, Chugoku and Shikoku regions	5

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. The number of fatalities and missing persons is the current figure as of end-March, 2023.

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-2 Number of Fatalities and Missing Persons Due to Natural Disasters

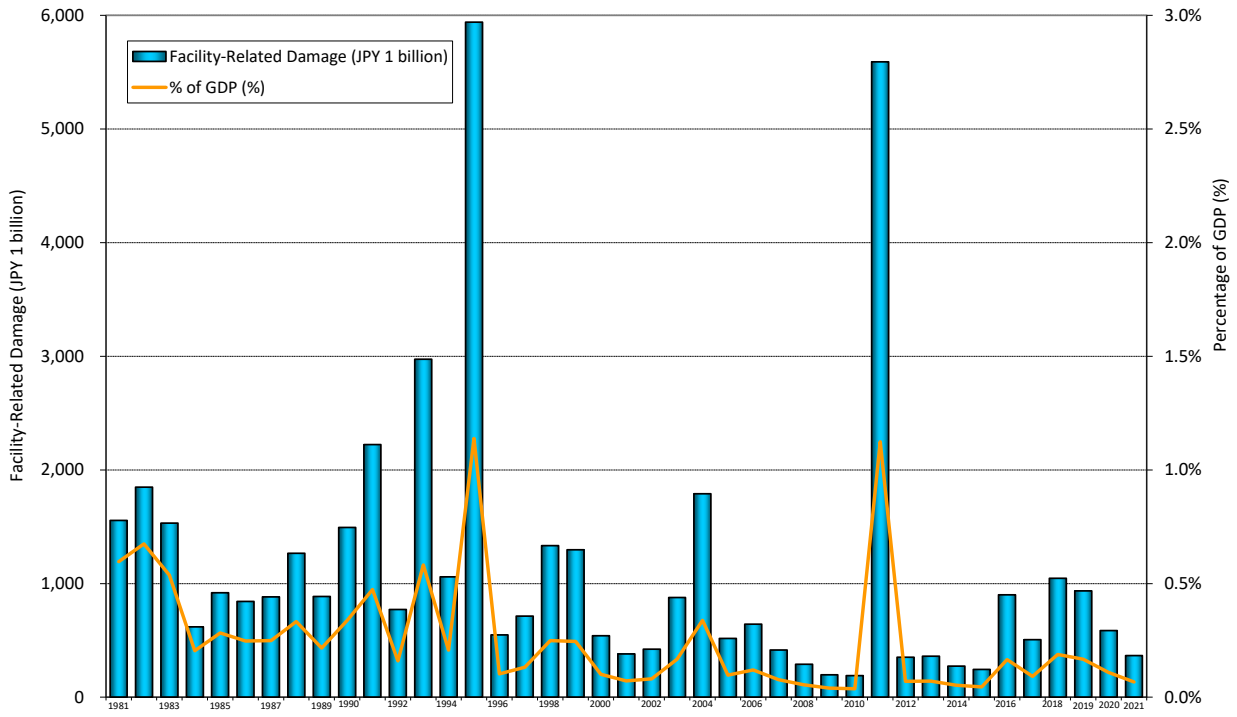


Note: The fatalities and missing persons in 2022 are based on flash bulletins from the Cabinet Office.

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	280
1947	1,950	1964	307	1981	232	1998	109	2015	65
1948	4,897	1965	367	1982	524	1999	141	2016	297
1949	975	1966	578	1983	301	2000	78	2017	129
1950	1,210	1967	607	1984	199	2001	90	2018	452
1951	1,291	1968	259	1985	199	2002	48	2019	159
1952	449	1969	183	1986	148	2003	62	2020	128
1953	3,212	1970	163	1987	69	2004	318	2021	150
1954	2,926	1971	350	1988	93	2005	148	2022	26
1955	727	1972	587	1989	96	2006	177		
1956	765	1973	85	1990	123	2007	41		
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	22,585		
1961	902	1978	153	1995	6,482	2012	192		

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-3 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 2015 standard (SNA 2008)
Source: Formulated by the Cabinet Office based on materials from various ministries and agencies

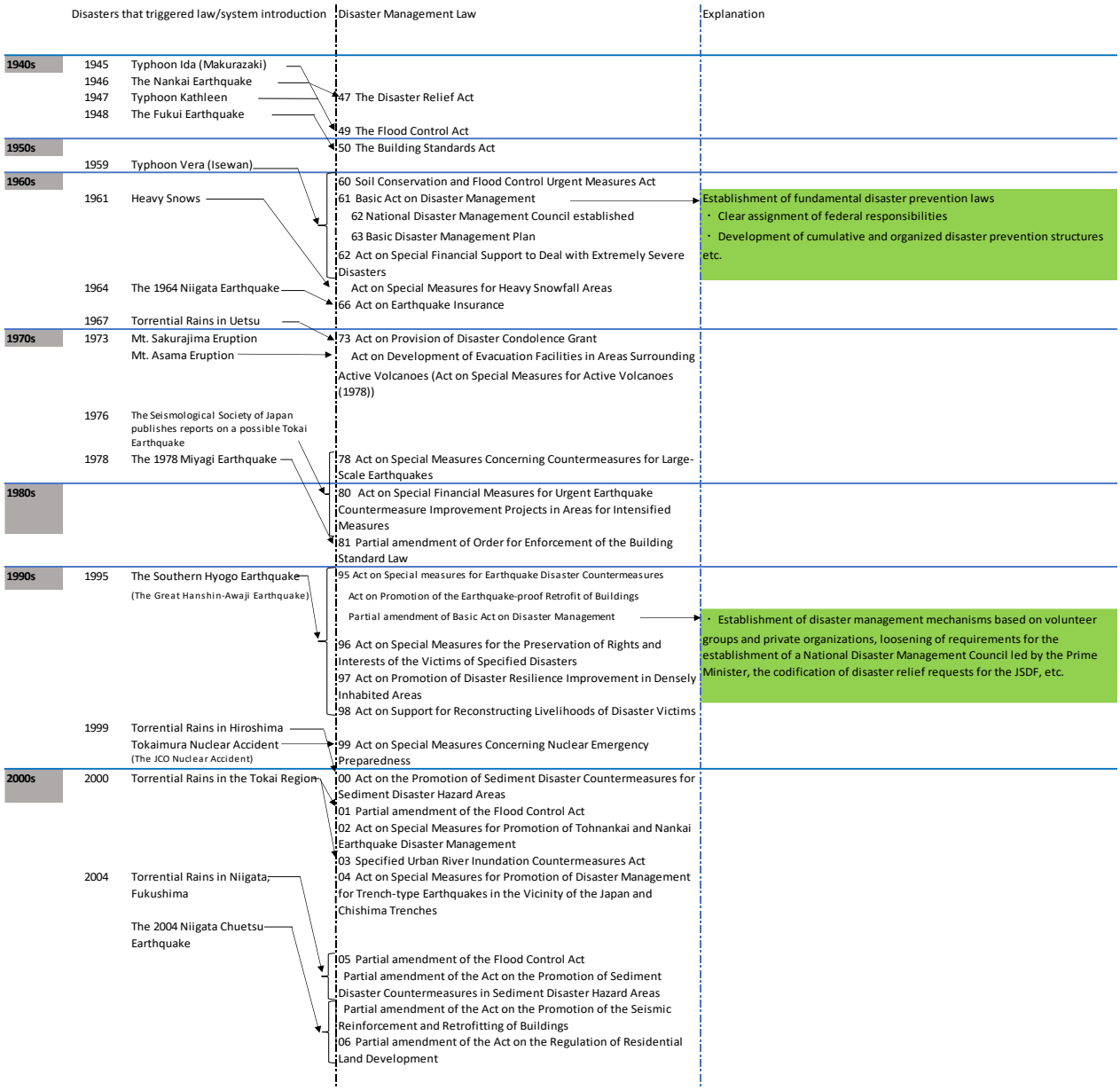
Fig. A-4 Facility Damage Due to Disasters in 2021, by Hazard

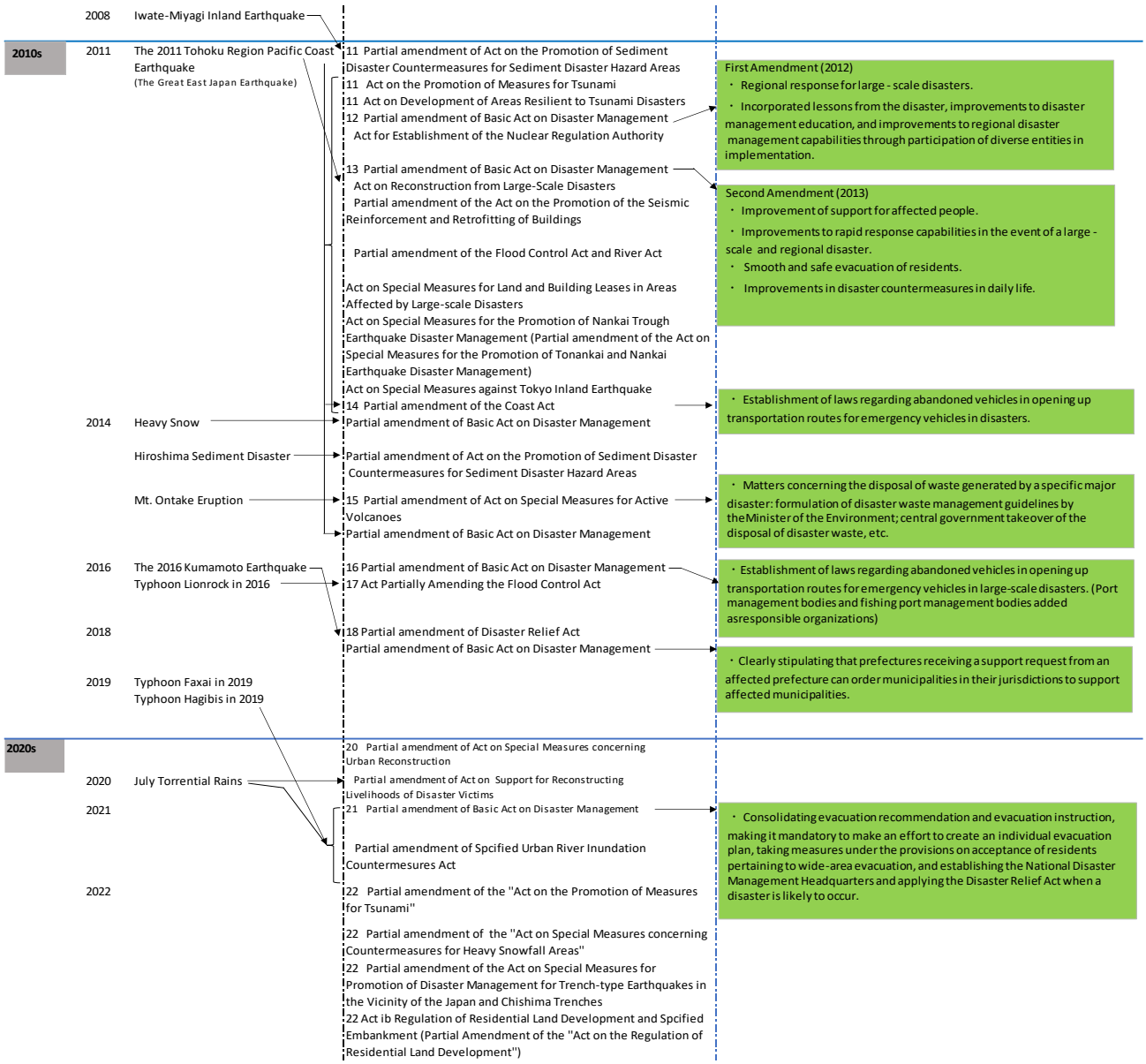
(Unit: JPY 1 million)

Facility type	Typhoon	Torrential rain	Earthquake	Heavy snowfall	Other	Total	Notes
Public works	11,950	147,068	7,960	1,295	18,183	186,457	Rivers, forestry conservation facilities, ports, etc.
Agriculture, forest, and fisheries industry	10,178	131,155	3,923	3,027	3,590	151,872	Farmland, agricultural facilities, forestry roads, fishing facilities, etc.
Educational facilities	622	2,010	3,864	30	251	6,778	School facilities, cultural properties, etc.
Public welfare facilities	44	3,768	12,414	6	173	16,405	Social welfare facilities, waterworks facilities, etc.
Other facilities	667	2,728	567	234	813	5,009	Nature parks, telegraph/telephone, urban facilities, etc.
Total	23,461	286,729	28,729	4,592	23,010	366,520	

Note: Totals may not agree due to rounding.
Source: Formulated by the Cabinet Office based on materials from various ministries and agencies

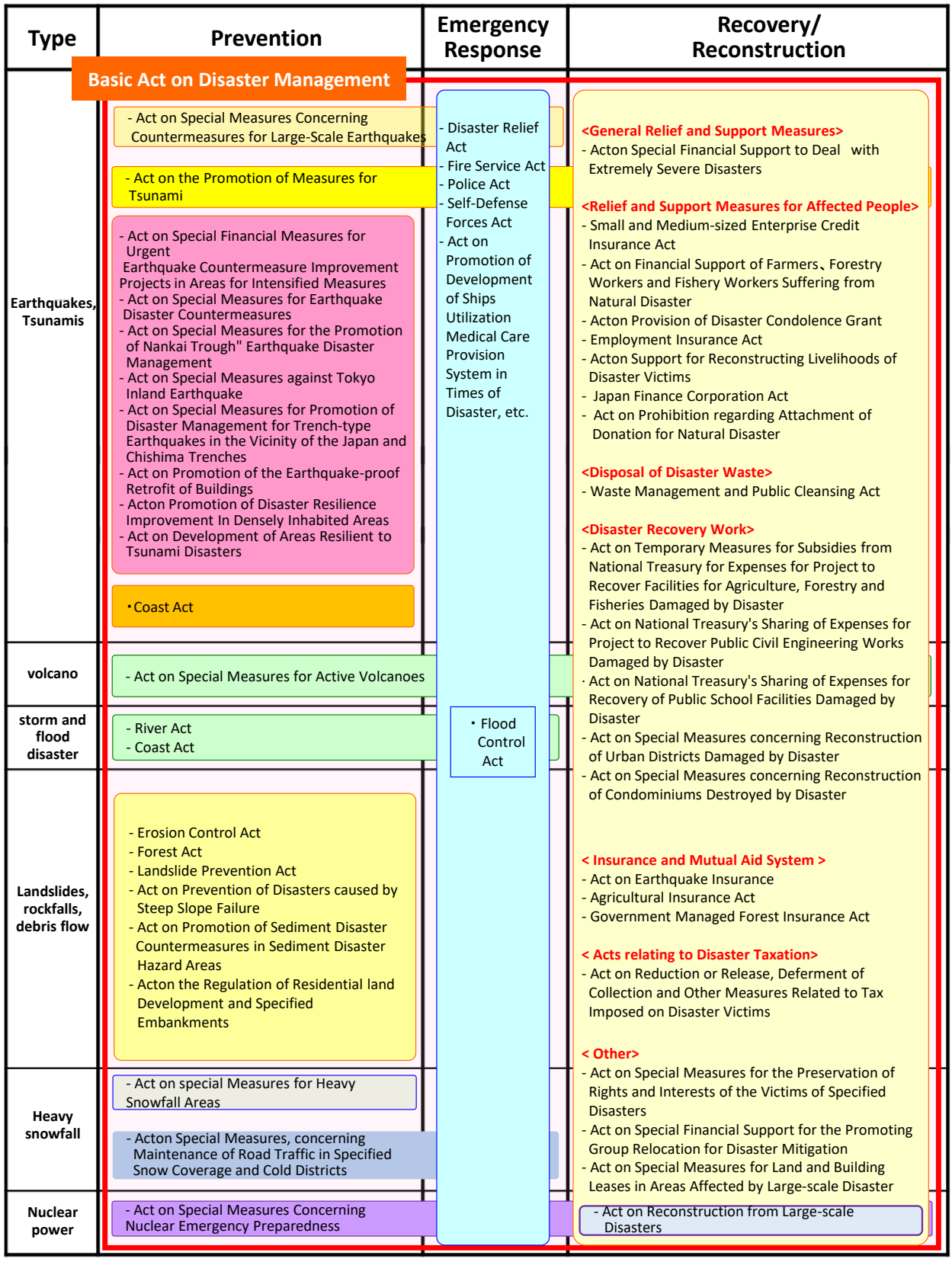
Fig. A-5 Evolution of Disaster Management Laws and Systems Since 1945





Source: Cabinet Office

Fig. A-6 Major Disaster Management Laws by Type of Disaster



Source: Cabinet Office

Fig. A-7 **Disaster Risk Management Budgets by Year**

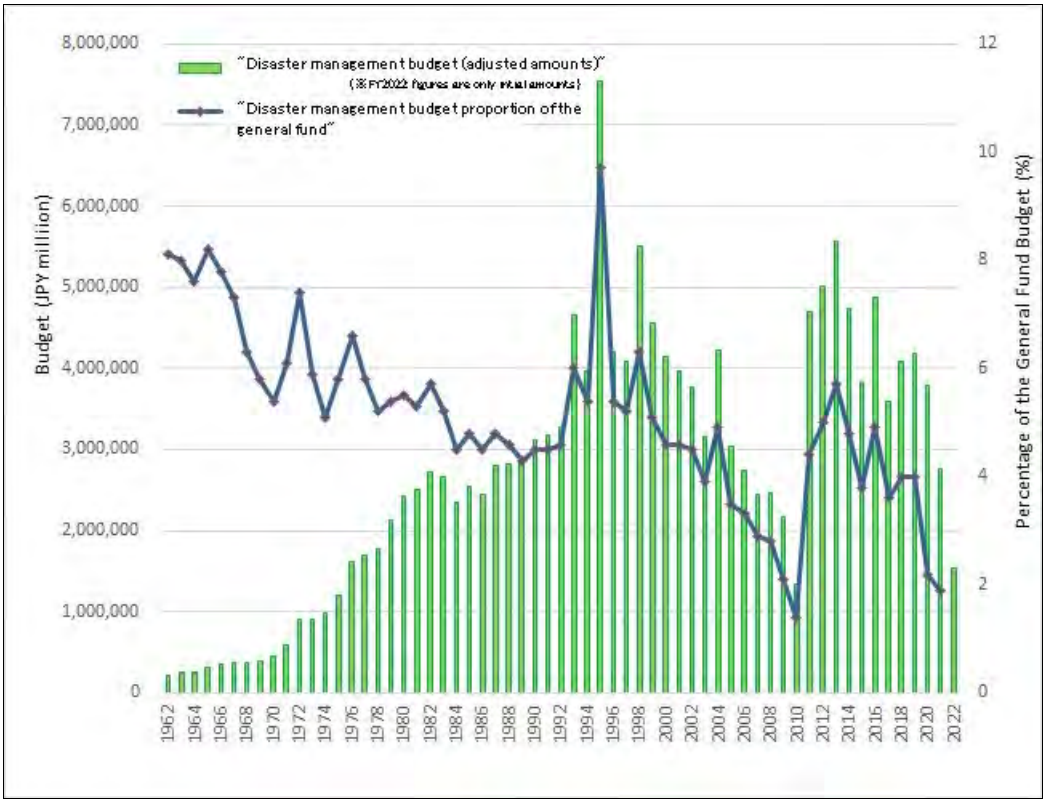
Fiscal Year	Science and Technology Research		Disaster Prevention		Land Conservation		Disaster Reconstruction		Total
	(JPY million)	Share (%)	(JPY million)	Share (%)	(JPY million)	Share (%)	(JPY million)	Share (%)	(JPY million)
1962	751	0.4	8,864	4.3	97,929	47.1	100,642	48.3	208,006
1963	1,021	0.4	8,906	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	383,384	8.2	743,936	15.9	3,534,830	75.4	4,684,652
2012	53,496	1.1	1,010,535	20.1	951,561	19.0	2,854,537	56.9	4,656,656
2013	15,339	0.3	786,046	14.1	879,932	15.8	3,881,875	69.6	5,578,036
2014	16,688	0.4	777,210	16.3	841,367	17.8	3,102,691	65.6	4,594,789
2015	14,961	0.4	701,843	18.4	155,239	4.1	2,951,923	77.2	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	0.6	737,429	18.1	482,711	11.8	2,834,284	69.5	4,077,205
2019	14,390	0.3	814,471	19.5	512,324	12.3	2,835,790	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	14,806	0.5	1,122,603	37.2	693,159	23.0	1,186,362	39.3	3,016,930
2023	7,432	0.5	643,841	40.0	110,084	6.8	846,522	52.6	1,607,879

Notes:

1. These are adjusted budget (national expenditures) amounts. However, the FY2023 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