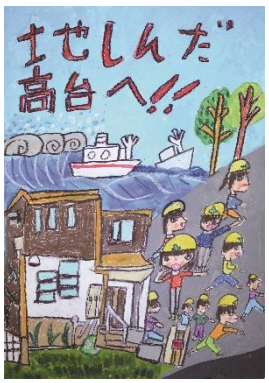
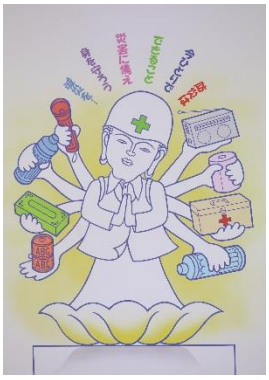
Cabinet Office
Japan

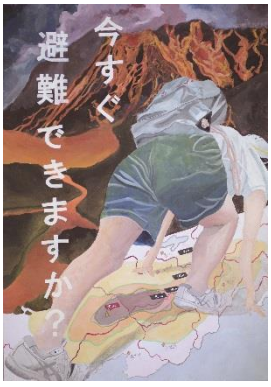
White paper

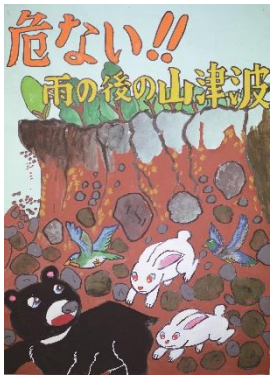
Disaster Management in Japan 2016

Summary









Foreword

The White Paper on Disaster Management in Japan was first published in 1963 pursuant to the Disaster Countermeasures Basic Act. This, the 54th edition, was reported to the National Diet after cabinet approval on May 31, 2016.

Three months have already passed since the Kumamoto Earthquakes in April 2016. Since this disaster occurred, the national government has been cooperating with various stakeholders, including the affected local governments, local governments providing support from across the country, and volunteers, in implementing emergency response and restoration measures, including providing living support to the affected people, disposing of the rubble, restoring infrastructures, such as lifelines and transportation systems, and constructing temporary housing. While expending all possible means to ensure that those measures are in place, the national government as a whole must continue to strive hard to promote earnest restoration efforts in the affected areas and "build back better." This white paper describes the major measures implemented by the national government in relation to the Kumamoto Earthquakes as of mid-May. In the future, we will revise disaster management measures based on the lesson of the Kumamoto Earthquakes.

The special feature of this year's white paper, with future disaster management as its theme, analyzes disaster management challenges in this era of an aging society coupled with a low birth rate and also looks at the "Disaster Management 4.0" Future Vision Project. This project aims to present proposals with respect to the question of what disaster management measures are really necessary to enable companies and individual people to deal with the increasing severity of disasters caused by climate change associated with global warming. It also aims to expand this initiative into a national campaign to encourage the public to face up to disaster risk and to change the mentality of the whole society. We hope that this will provide impetus for starting preparation for disaster risk with what can be done straightaway, such as participating in disaster insurance plans and stockpiling foods.

We hope that all readers of this white paper gain an understanding of Japan's disaster management measures and cooperate even further in their implementation.

Taro Kono
Minister of State for Disaster Management, Japan
July 2016

About the White Paper on Disaster Management in Japan 2016

● White Paper on Disaster Management in Japan

The White Paper on Disaster Management in Japan is a report designated by law to be drawn up and reported annually to the ordinary session of the Diet pursuant to the Disaster Countermeasures Basic Act. The White Paper was first published in 1963. This is the 54th edition.

In addition to providing an overview of measures taken concerning disasters in the year before last (FY2014) and plans concerning disaster risk reduction for the current year (FY2016), each report features a theme based on the current state of DRR policies at the time it was written.

● Key Points of the White Paper on Disaster Management in Japan 2016

The special feature of the White Paper on Disaster Management in Japan 2016, titled “Future Disaster Management,” highlights the theme “disaster management in an era of an aging society coupled with a low birth rate,” identifies the current shortage of personnel who lead disaster management due to the aging society coupled with a low birth rate and provides an overview of new leaders and technological solutions. Next, it describes the ““Disaster Management 4.0” Future Vision Project,” which was launched in December 2015 with Minister of State for Disaster Management Taro Kono as its leader. This project considers what disaster management measures are really necessary for companies and individual people to deal with the increasing severity of disasters caused by climate change associated with global warming so that fundamental proposals can be presented.

Part I, on the "Status of Disaster Management Measures in Japan,” looks at the state of measures and policy initiatives with a particular focus on those implemented in FY2015, including the following measures and initiatives:

- The Basic Disaster Management Plan was revised in July 2015 based on the lessons of the Hiroshima Landslide Disaster and the Mt. Ontake Eruption Disaster and again in February 2016 based on the amendment of the Act on Special Measures for Active Volcanoes. Thus the contents of the revisions are described.
- Following the occurrence of the Hiroshima City Landslide Disaster in August 2014, the Act on Promotion of Sediment Disaster Countermeasures in Sediment Disaster Prone Areas was amended in November 2014. In addition, under the Central Disaster Management Council, the Working Group for Studying Comprehensive Countermeasures against Sediment Disasters conducted a study on evacuation, etc. In light of these developments, the Guidelines for Producing a Decision and Dissemination Manual for Evacuation Advisories and Orders were revised in August 2015, thus the contents of the revision are described.

- In July 2015, the Investigative Committee on Securing Evacuation Shelters and Improving Their Quality was established to conduct a study on evacuation shelters, while in April 2016, the Evacuation Shelter Management Guidelines, the Guidelines for Securing and Managing Toilets at Evacuation Shelters and the Guidelines for Securing and Managing Welfare Evacuation Shelters were formulated. Therefore, the contents of these measures are described.
- In September 2015, the National Council for the Promotion of Disaster Prevention was established in order to raise the people's awareness concerning disaster management by utilizing networks of organizations in various fields and segments of society, thus the contents of such initiatives are described.
- In March 2016, the Plan for Specific Emergency Countermeasures and Activities for Tokyo Inland Earthquake based on the Basic Plan for the Promotion of Tokyo Inland Earthquake Emergency Measures was formulated and determined, thus the content of the specific plan is described.
- In July 2015, the Act for Partial Amendment of the Act on Special Measures for Active Volcanoes was amended in light of the Mt. Ontake Eruption Disaster, so the content of the revision is described.
- In light of the Kanto-Tohoku Heavy Rain in September 2015, the Working Group on Study on Evacuation and Emergency Response Measures at the Time of Flood Disasters conducted a study on evacuation and emergency response measures under the Central Disaster Management Council.

Table of Contents

Special Feature “Future Disaster Management”

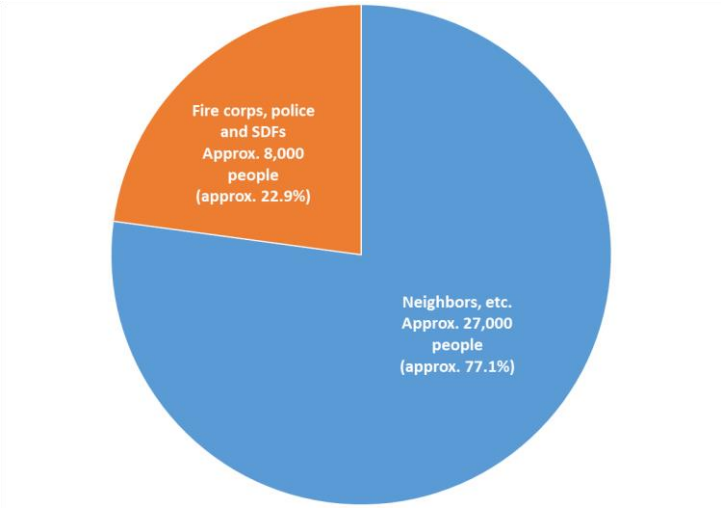
Chapter 1　Disaster Management in an Era of an Aging Society Coupled with a Low Birth Rate

The Government of Japan and local governments are promoting “public help” with respect to both structural and non-structural measures. On the other hand, regarding disaster management, self-help by individual people in communities and mutual help by various stakeholders are important. As for the contributions of self-help and mutual help to disaster management, 60% to 90% of the rescued people were saved through self-help or mutual help at the time of the Great Hanshin-Awaji Earthquake, according to some surveys (see the two figures below).

However, as the proportion of the working-age population declines due to the aging society coupled with a low birth rate, there are concerns that disaster resilience based on stakeholders who have until now led self-help and mutual help may weaken.

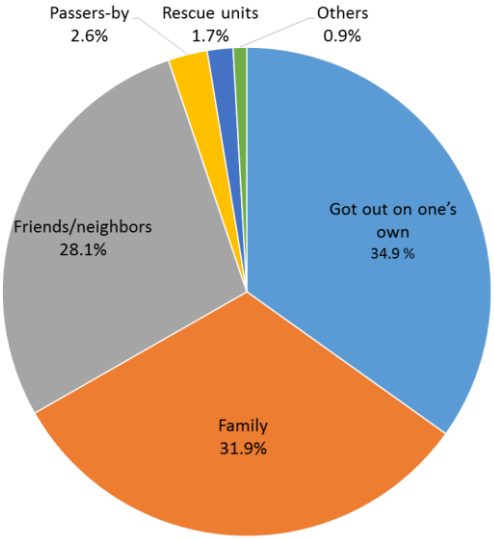
This special feature identifies the current shortage of disaster management leaders due to the aging society coupled with a low birth rate in Japan and provides an overview of new leaders and technological solutions.

Fig. Types of rescuers and the number of rescued people at the time of the Great Hanshin-Awaji Earthquake



Estimate: See Yoshiaki Kawata (1997), “Forecast of Human Casualities Due to Large-Scale Earthquakes,” Natural Sciences Vol. 16.1. However, the ratios were added by the Cabinet Office.

Fig. Types of rescuers of buried or confined people



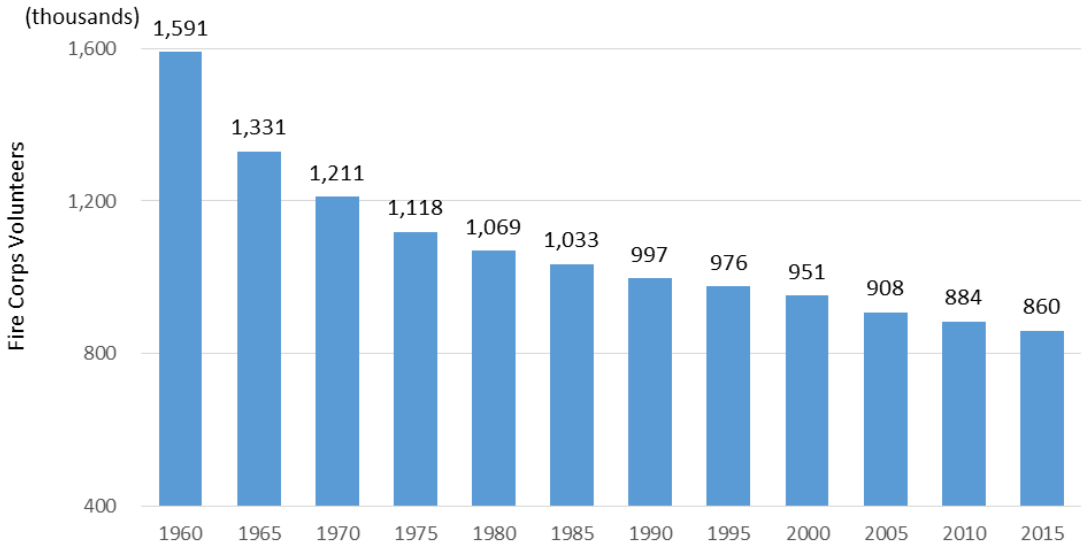
Sample survey: See Japan Association for Fire Science and Engineering (1996) "Survey Report Concerning Fires at the Time of the Southern Hyogo Prefecture Earthquake in 1995."

Section 1: An Era of an Aging Society Coupled with a Low Birthrate and the Current Status of Local Disaster Resilience

(1) Emerging Shortage of Disaster Management Leaders

The number of fire corps volunteers, who directly support local disaster resilience, is on a long-term downtrend, and at the same time, aging is proceeding among such volunteers (see the figure below). The decrease in and aging of fire corps volunteers not only means the shrinkage of the pool of personnel who directly support disaster resilience but also raises concerns that disaster resilience may not necessarily be effectively exercised.

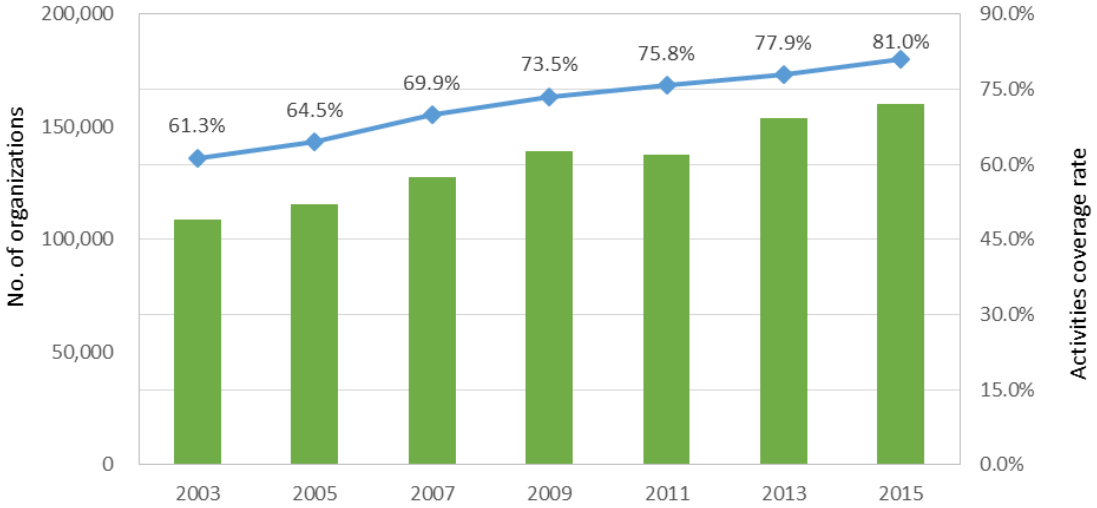
Fig. Trends in Numbers of Fire Corps Volunteers



Source: Produced by the Cabinet Office based on the Survey on the Current Status of Fire and Earthquake Disaster Management Measures of the Fire and Disaster Management Agency. Figures as of April 1 each year.

Meanwhile, regarding voluntary disaster management organizations comprised of residents, the number of such organizations and the activity coverage ratio (the ratio of households covered by the range of voluntary disaster management organizations' activities to all households) are growing (see the figure below).

Fig. Trends in Voluntary Disaster Management Organizations



* Activity coverage ratio: the ratio of households covered by the range of voluntary disaster management organizations' activities to all households

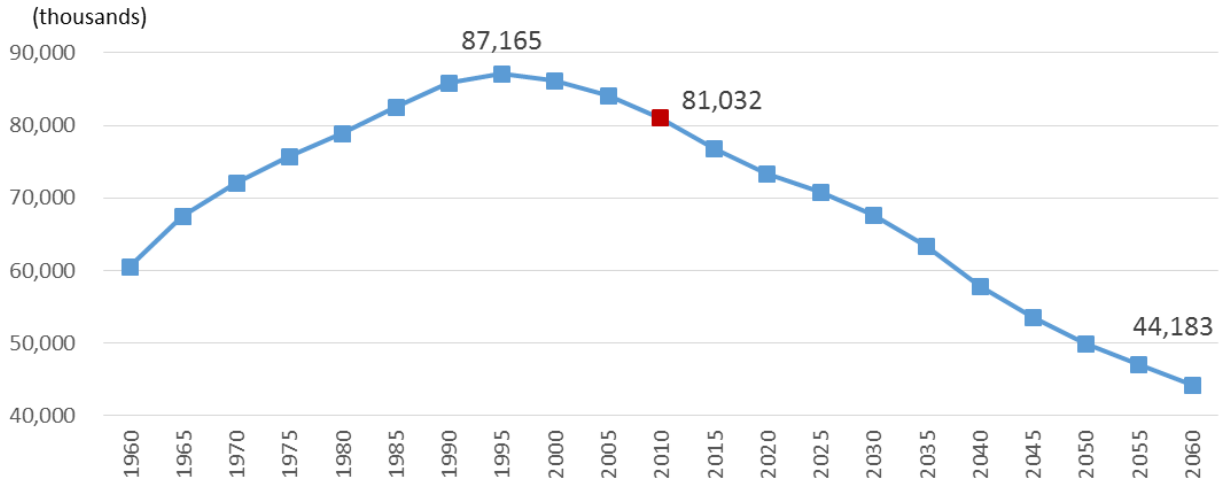
Source: Produced by the Cabinet Office based on the Survey on the Current Status of Fire and Earthquake Disaster Management Measures of the Fire and Disaster Management Agency. Figures as of April 1 each year.

(2) Changes in the Working-Age Population

In order to look at the prospects for "mutual help" leaders, attention will be paid to the working-age population, which constitutes the core of such leaders. The working-age population has been and will be on a long-term downtrend (see the figure below).

Moreover, the ratio of the working-age population to the overall population will also decline. In other words, as a result of the aging society coupled with a low birth rate, the pool of personnel from which "mutual help" leaders emerge is dwindling.

Fig. Changes in the working-age population (aged 15 to 64)

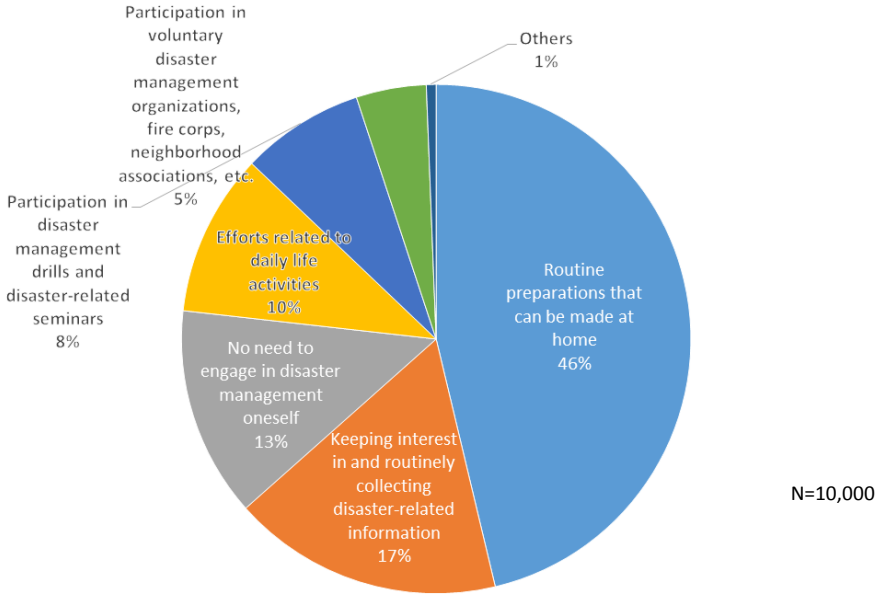


Source: The figures for 1960 to 2010 were prepared by the Cabinet Office based on the Population Census by the Ministry of Internal Affairs and Communications and the figures for 2015 and later were prepared by the Cabinet Office based on the Population Projection for Japan (January 2012) by the National Institute of Population and Social Security Research.

(3) Willingness to Join Local Disaster Management-Related Organizations

According to an Internet survey conducted by the Cabinet Office in February 2016, in response to the question "If you became more involved in disaster management in the future than now, in what activities would you like to engage?" 46% of the respondents replied they will make routine preparations that can be made at home. Meanwhile only 5% said they will participate in voluntary disaster management organizations, fire corps and the like.

Fig. Disaster management activities in which people would like to engage



Source: Prepared from the Survey on Awareness of and Activities Related to Disaster Management in Daily Activities (May 2016)

Section 2: Daily Activities and Disaster Management Efforts

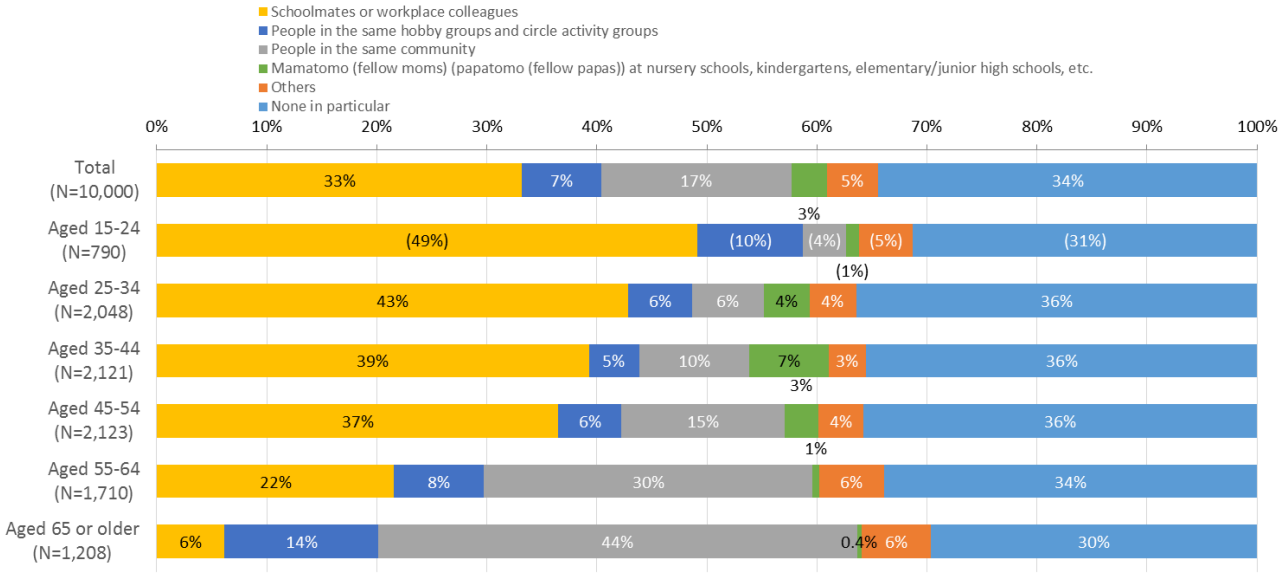
(1) People's Activities Related to Information and Communication

In order to further promote disaster management efforts among the general public, one effective measure will be to promote such efforts as part of daily life activities. The Cabinet Office conducted an Internet questionnaire survey concerning awareness concerning activities related to disaster management (Survey on Awareness of and Activities Related to Disaster Management in Daily Activities (May 2016)) (hereinafter referred to as the "Disaster Management Awareness Survey"). The Disaster Management Awareness Survey will be used to identify the general public's points of access to information and activities easy for them to participate in.

The survey asked the respondents what individuals and what groups they most often talk and communicate with on a daily basis (the respondents were required to select only one of the reply options). The result was that in the age groups aged 54 or younger, more than 30% most often communicate with schoolmates or workplace colleagues (see the figure below).

Other notable results include: in the age groups aged 55 or older, the percentage of people who most often communicate with people in the same community was high; in the age groups aged 25 to 44, the percentage of people who most often communicate with "mamatomo" (fellow moms) was high; the percentage of people who most often communicate with people in the same hobby groups and circles is around 10% in the age group aged between 15 to 24, while the percentage drops in the age groups aged between 30 to 49 but rebounds in the age groups aged 55 or older and exceeds 10% in the age group aged 65 or older.

Fig. Groups with which people most often communicate [by age group]



*The figures in the parentheses are only for reference because they concern items for which the number of replies was less than 1,000.

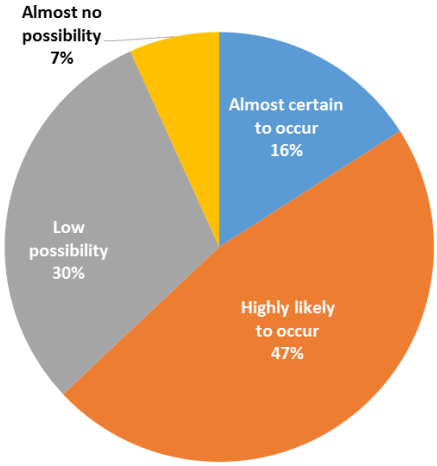
Source: Prepared from the Survey on Awareness of and Activities Related to Disaster Management in Daily Activities (May 2016)

(2) Awareness Concerning the Disaster Risk Level and Disaster Management Efforts

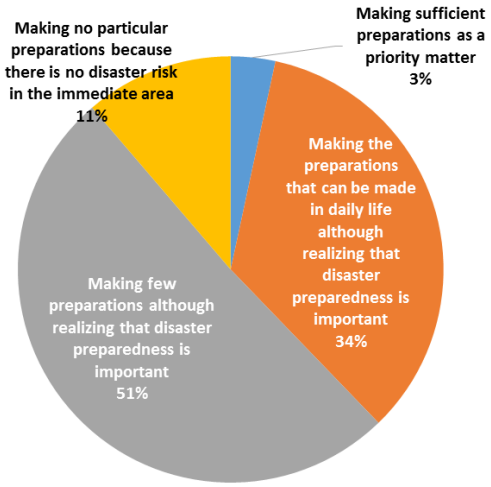
The Disaster Awareness Survey asked the respondents about their awareness of the possibility of disasters and their recognition of the importance of disaster preparedness.

More than 60% recognizes the possibility of a major disaster occurring, including those who believe that it is "almost certain to occur" and those who believe that it is "highly likely to occur" (see the left figure below). Meanwhile, when asked about disaster preparedness, the percentage of people who said either that they are making sufficient preparations or that they are making the preparations that can be made in daily life was lower than 40% (see the right figure below).

Left fig. Awareness of disaster possibility



Right fig. Importance of disaster preparedness

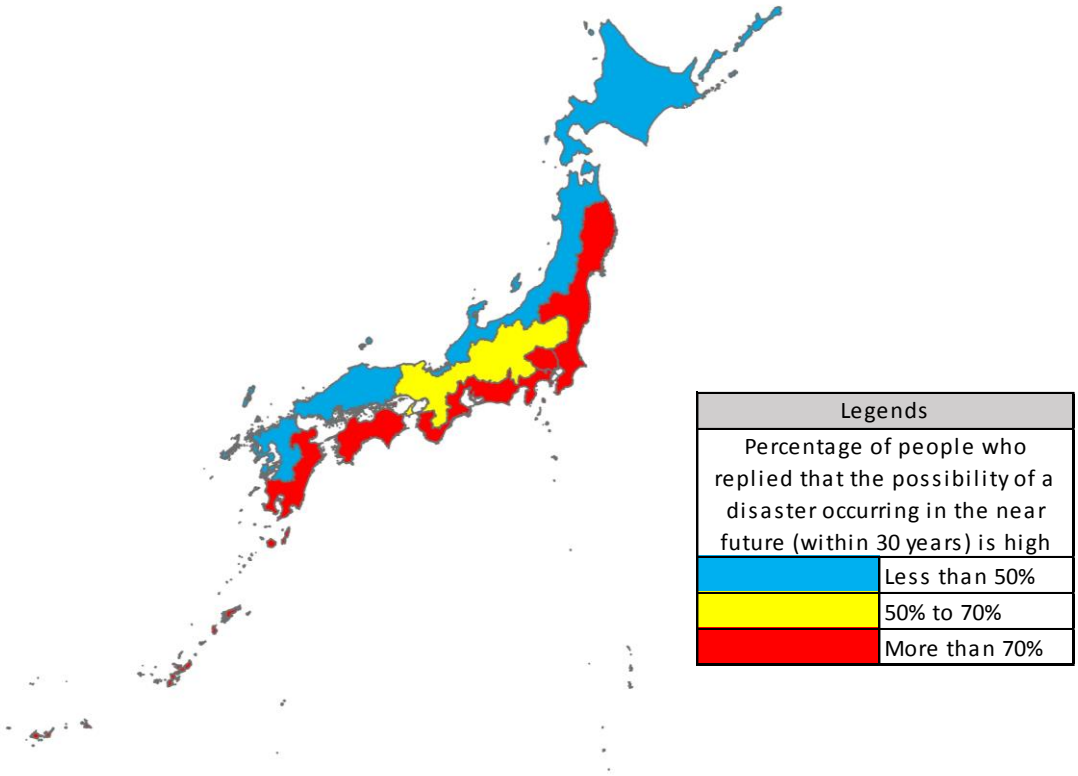


Source: Prepared from the Survey on Awareness of and Activities Related to Disaster Management in Daily Activities (May 2016)

(3) Sense of Crisis Concerning Disasters by Region

Regarding awareness of the possibility of a disaster occurring, the survey asked the respondents as to whether they expect that a major disaster will occur in the future in the region where they live now.

Fig. Sense of crisis concerning major disasters by region



Source: Prepared from the Survey on Awareness of and Activities Related to Disaster Management in Daily Activities (May 2016)

(4) Reasons for Lack of Disaster Management Efforts

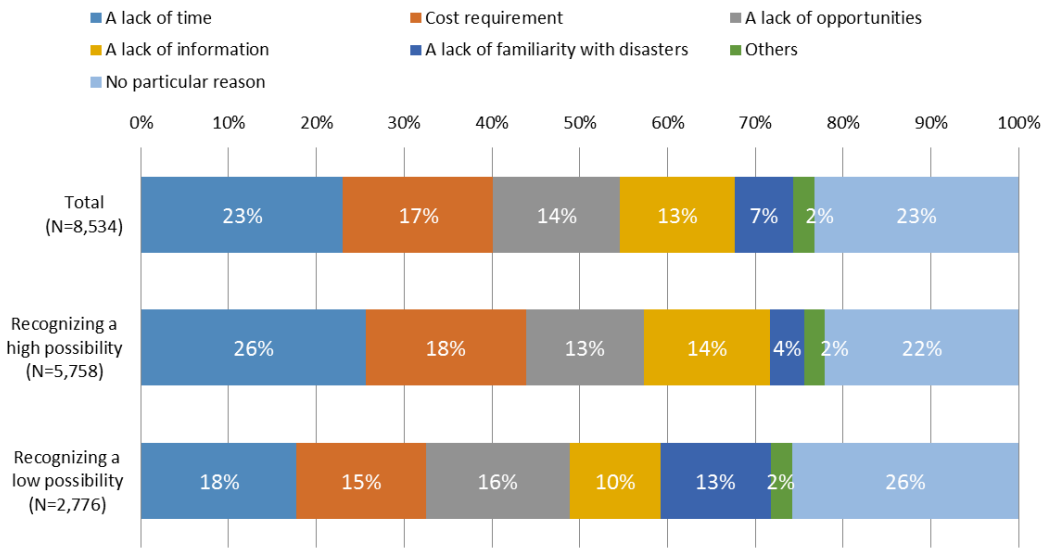
In order to consider what should be emphasized in activities to raise awareness concerning disaster preparedness, the survey asked the respondents who replied either that they are only "making the efforts that can be made in daily life although they realize disaster preparedness is important," or that they are "making few preparations" to explain the reasons for their lack of disaster preparedness.

The tabulation results show that "a lack of time," "cost requirement," "a lack of opportunities," and "a lack of information" were frequently cited reasons (see the figure below).

In the case of those who cited a lack of time, contacting them during activities for which they are already spending time, such as jobs and hobby circle activities, may be an effective measure to raise awareness, while in the case of those who cited a lack of information, providing information in an easier-to-understand way may be effective. In the case of those who cited a lack of opportunities, distributing simple pamphlets via the Internet may be an effective measure, and in the case of those who cited a lack of familiarity with disasters, calling their attention to disaster risks may be effective. Around 20% replied that there is "no particular reason." In the case of those who made such a reply, it may be possible to encourage disaster management efforts by motivating them through awareness-raising concerning disaster risk.

Next, regarding the reasons for the lack of disaster management efforts commensurate with the recognition of the disaster risk level, the survey results show that the percentage of those who cited a lack of opportunities, a lack of familiarity with disasters, or no particular reason is higher among those who recognize a "low possibility" of a major disaster than among those who recognize a "high possibility." In the case of those who recognize a low possibility, it is necessary to give them the motivation for disaster management efforts, and raising awareness concerning disaster risks may be an effective measure to do so.

Fig. Reasons for the lack of disaster management efforts commensurate with the recognition of the disaster risk level



Source: Prepared from the Survey on Awareness of and Activities Related to Disaster Management in Daily Activities (May 2016)

(5) Groups Engaging in Disaster Management Efforts

The Disaster Management Awareness Survey asked the respondents about whom other than their family members they communicate with on a daily basis. In addition, it also asked them about what individuals and groups they think can engage in disaster management efforts.

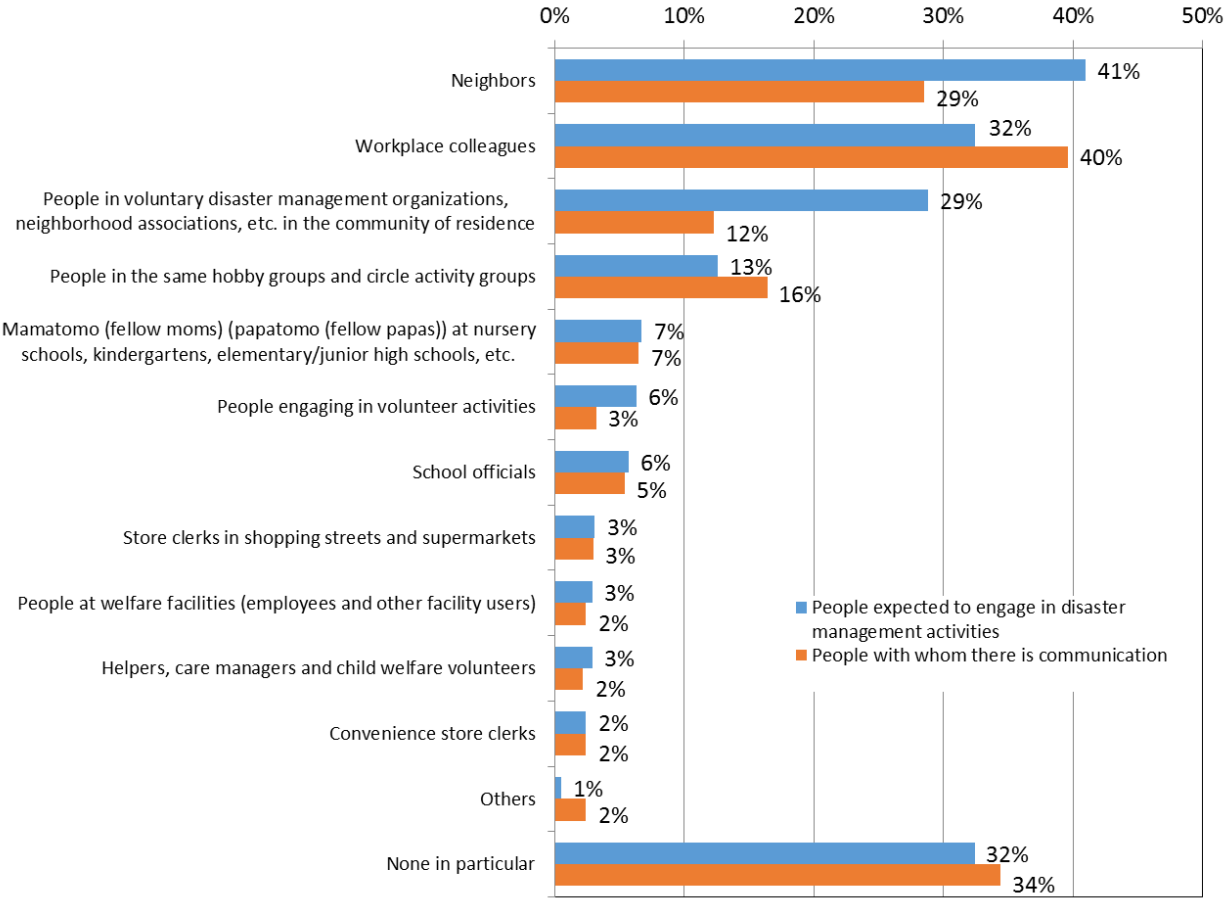
First, the results of the question concerning daily communication show that "workplace colleagues" was cited by the highest percentage, 39.6%, followed by "people in the same hobby groups and circle activity groups" with 16.4% and "people in voluntary disaster management organizations, neighborhood associations, etc. in the community of residence" with 12.3% (see Fig. People with whom there is daily communication and people who are expected to engage in disaster management efforts; the same applies hereinafter).

Next, the results of the question concerning people and groups expected to engage in disaster management activities show that "neighbors" was cited by the highest percentage, 41%, followed by "workplace colleagues" with 32.4%, "people in voluntary disaster management organizations, neighborhood associations, etc. in the community of residence" with 28.8% and "people in the same hobby groups and circle activity groups" with 12.6%.

While "neighbors" and "people in voluntary disaster management organizations, neighborhood associations, etc. in the community of residence" are expected to engage in disaster management activities, the percentage of

the respondents who communicate with such people was lower than the percentage of those who expressed expectations for such people. “Workplace colleagues” and “people in hobby groups and circle activity groups” are expected to cooperate with each other in disaster management activities.

Fig. People with whom there is daily communication and people who are expected to engage in disaster management efforts



Source: Prepared from the Survey on Awareness of and Activities Related to Disaster Management in Daily Activities (May 2016)

(6) Disaster Management Leaders

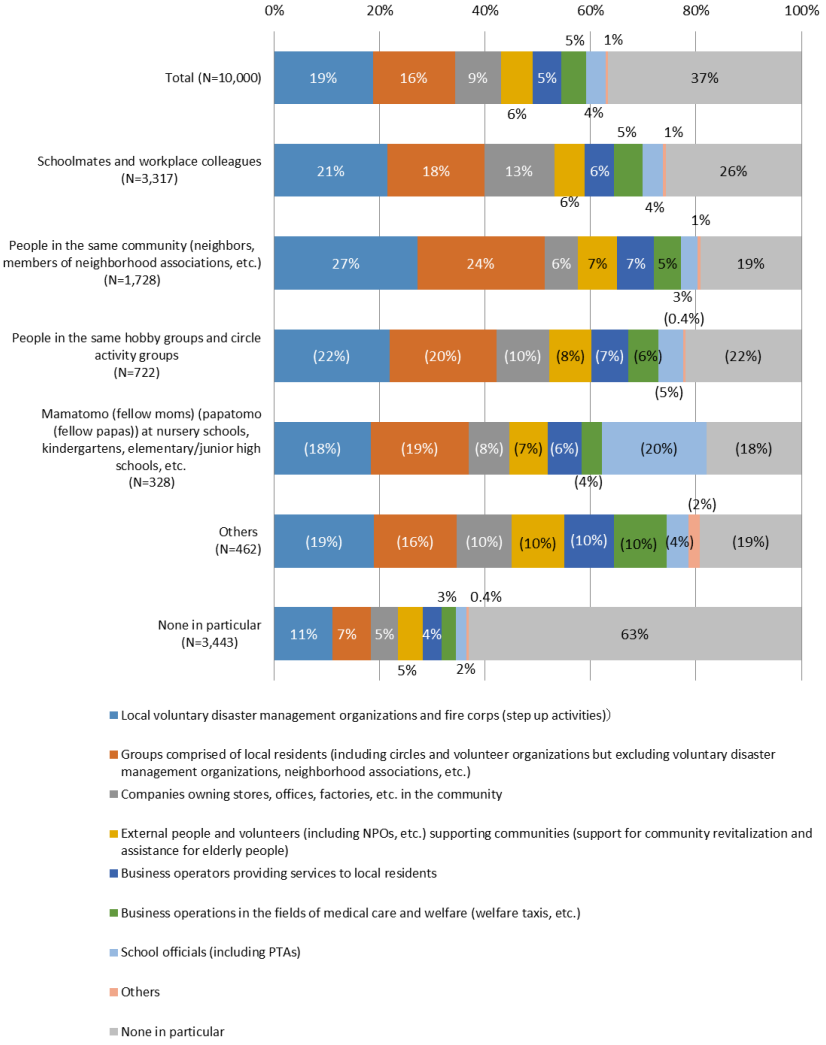
The Disaster Management Awareness Survey asked the respondents “what stakeholders can contribute as leaders to the enhancement of local disaster resilience in the future.”

The survey results show that the highest percentage, 18.7%, believes that “local voluntary disaster management organizations and fire corps” should be further strengthened (see Fig. People expected to be new disaster management leaders; the same applies hereinafter). “Groups comprised of local residents” and “companies owning stores, offices, factories, etc. in the community” followed as the second and third most frequently cited replies, indicating high expectations for local organizations and companies as leaders.

Next, the survey results were tabulated by the type of groups with which people communicate on a daily basis. People who communicate with “people in the same community” tend to place expectations on local organizations such as voluntary disaster management organizations, fire corps and circle activity groups as disaster management leaders. Meanwhile, people who communicate with “mamatomo” (fellow moms) or “papatomo” (fellow papas) — although figures for these items are for reference only — on a daily basis tend to

place expectations on school officials as disaster management leaders. As shown above, people tend to place expectations on other people with whom they communicate on a daily basis as disaster management leaders. It is necessary to consider how to enable people to engage in disaster management efforts together with other people and groups with whom they communicate on a daily basis.

Fig. People expected to be new disaster management leaders



* The figures in the parentheses are only for reference because they concern items for which the number of replies was less than 1,000.

Source: Prepared from the Survey on Awareness of and Activities Related to Disaster Management in Daily Activities (May 2016)

Section 3: Toward an Era of an Aging Society with a Low Birthrate

(1) Disaster Management Efforts as Part of Daily Activities

Section 2 looked at the possibility of encouraging disaster management as additional efforts conducted on top of people's existing activities and the possibility of making it easier for the people to engage in disaster management efforts together with familiar people and groups in order to promote disaster management by the general public.

The results of the question concerning groups engaging in disaster management activities show that the percentage of those who communicate with workplace colleagues and people in the same hobby groups is lower than the percentage of those who expect such people to engage in disaster management activities. The results show that all people except for those who selected "nobody in particular" as their reply, who accounted for nearly 90%, expect that they can engage in disaster management activities together with people and groups with whom they communicate on a daily basis. This suggests that it is possible to encourage disaster management activities in workplaces and hobby groups by raising awareness concerning the possibility of starting disaster management efforts as part of daily activities.

In Osaki City, Miyazaki Prefecture, there are example cases in which organizations that are not necessarily advocating disaster management are engaging in disaster management activities. For example, a cooking circle acts as an emergency field kitchen, while a children's association prepares meals that do not require water and makes lanterns using easily available materials.

There are also example cases in which elements of disaster resilience, such as collaboration, mutual help and sharing, are developed through activities involving mainly pupils and students but also parents, including treasure hunting games, *mochi* pounding ceremonies and camping on schoolyards.

There are also many example cases in which companies engage in disaster management activities, such as conducting an emergency communication exercise in the workplace and an evacuation exercise at a large shopping center that involves shoppers as well. Around the Tsunami Preparedness Day, November 5, last year, as many as 96 organizations conducted an exercise, counting only ones that were identified by the Minister of State for Disaster Management at the Cabinet Office.

As shown above, promoting disaster management as additional efforts conducted on top of existing activities and calling for disaster management efforts as part of daily activities can be expected to be effective to a certain degree.

(2) Toward an Era of an Aging Society Coupled with a Low Birthrate

As described above, in order to deal with the arrival of the era of the aging society with a low birthrate and a decline in the proportion of the working-age population, which are certain to occur in the future, it is important to make it easier for the general public to engage in disaster management efforts as part of daily activities.

In September last year, the National Council for the Promotion of Disaster Prevention was established upon the instruction from Prime Minister Abe. This council brings together organizations that already have nationwide networks in various fields and segments of society, including the economic, labor, education and administrative fields. Therefore, those networks will be used for public relations activity, provision of information and events to raise public awareness about disaster management.

Through such activities, promotion and awareness-raising activities will be conducted so that disaster management activities, including disaster management efforts in daily life and efforts made by groups, will spread wider among various segments of the public.

Chapter 2 “Disaster Management 4.0” Future Vision Project ～Each Individual Faces Up to Disaster Risk and the Whole Society Prepares for Disasters～

The Cabinet Office’s disaster management team launched the “Disaster Management 4.0” Future Vision Project in December 2015 with Minister of State for Disaster Management Taro Kono as its leader. This project aims to examine what disaster management measures are really necessary for companies and individual people to deal with the increasing severity of disasters caused by climate change associated with global warming so that fundamental proposals can be presented. It also aims to expand this initiative into a national campaign to encourage the public to face up to disaster risk and to change the mentality of the whole society.

Section 1: Backgrounds of the “Disaster Management 4.0” Future Vision Project

(1) History of Disaster Management Measures Based on Past Lessons

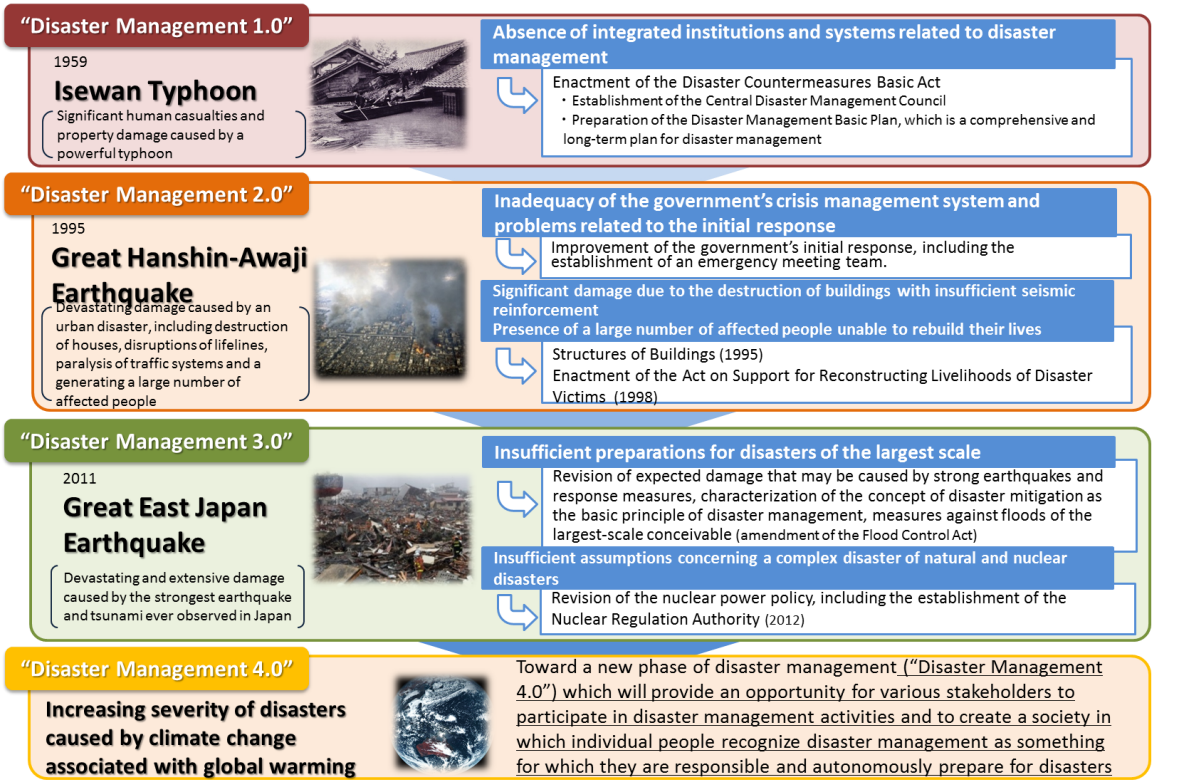
As Japan is vulnerable to damage from various disasters due to its natural conditions, it has been engaging in a variety of activities in light of the lessons of repeated major disasters.

In particular, there have been three major disasters that become critical turning points for Japan’s disaster management. They are the Isewan Typhoon in 1954, the Great Hanshin-Awaji Earthquake in 1995 and the Great East Japan Earthquake in 2011.

This project reviews the lessons learned from these major disasters and then divides Japan’s past disaster management into three phases, “Disaster Management 1.0,” “Disaster Management 2.0” and “Disaster Management 3.0,” in accordance with changes in the approach to disaster management and the measures gradually taken. The current disaster management activities intended to encourage each individual to face up to disaster risks in preparation for the increasing severity of disasters caused by climate change is designated as “Disaster Management 4.0.”

Fig.

History of the disaster management policy based on the lessons of disasters in the postwar period and "Disaster Management 4.0"



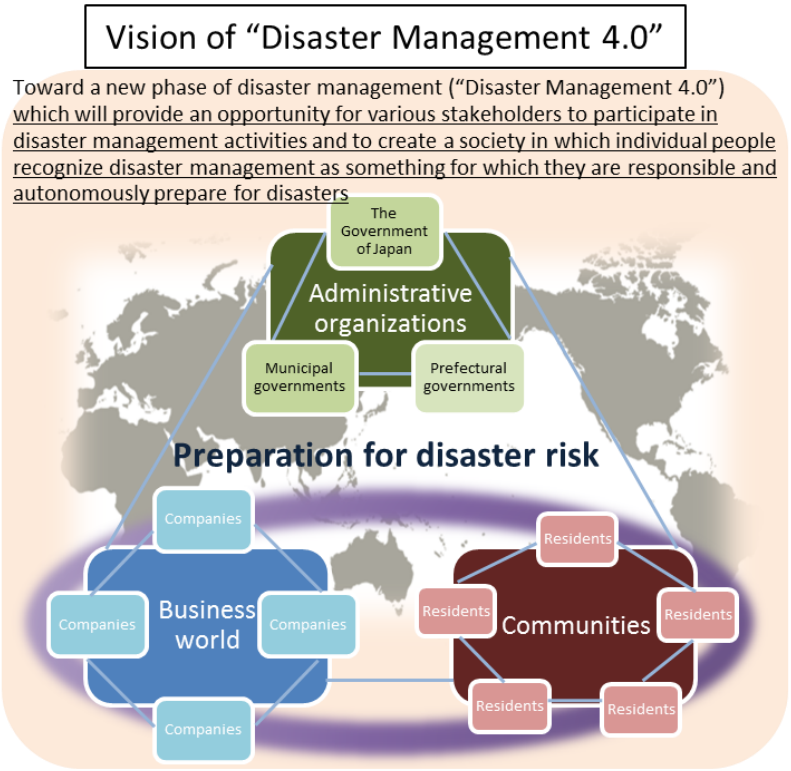
(2) Vision of "Disaster Management 4.0"

As described above, Japan has achieved development based on the lessons of the damage caused by past traumatic disasters. Meanwhile, the preparation of disaster management measures assuming disasters of the largest scale is still unfinished. In particular, people and companies are not yet proactively facing up to disaster risks, nor are they fully aware of disaster preparedness.

Moreover, it is necessary to consider, from all viewpoints, including those of companies and individual people, measures necessary to prepare for the increasing severity of disasters caused by climate change as exemplified by the occurrence of extreme heavy rains.

In consideration of these backgrounds, "Disaster Management 4.0" envisions a society in which various stakeholders, including communities, the business world, residents and companies, enhance the resilience of the whole society and autonomously prepare for disasters by recognizing disaster management as something for which they are responsible and rebuilding mutual connections and networks.

Fig.



Section 2: Increasing Severity of Disasters Expected to Be Caused by Climate Change

(1) Global Warming

According to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC), the average global temperature is projected to rise toward the end of the 21st century under any scenario of global warming gas emissions, with the risks from the effects of climate change rising.

Looking at the trends of indicators observed in the past, there is no room for doubting the warming of the climate system. For example, there has been a remarkable rise in each of the average global surface temperature since 1850 and the sea level since 1900. In particular, many of the changes observed since 1950 are the largest in decades or even thousands of years.

(2) Forecast of Climate Change in Japan

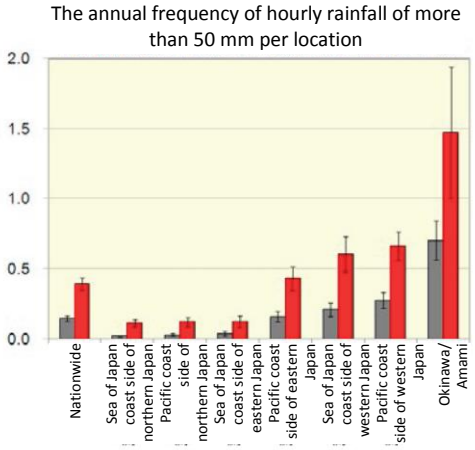
(i) Annual average temperature

The annual average temperature in the future climate (the average between 2080 and 2100) as compared with the current climate (the average between 1984 and 2004) is projected as follows:

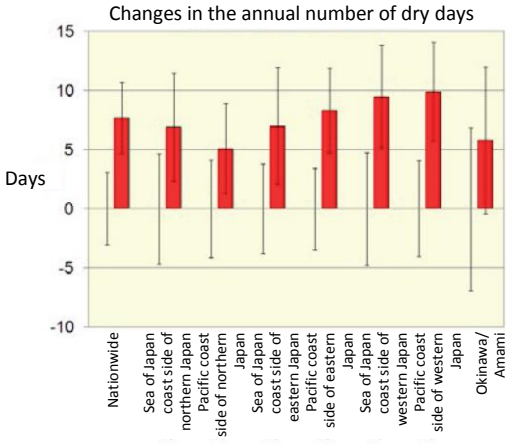
- Will rise by 4.4 (between 3.4 and 5.4) degrees Celsius if global warming adaptation measures other than existing ones are not taken.
- Will rise by 1.1 (between 0.5 and 1.7) degrees Celsius if strict adaptation measures are taken.

(ii) Rainfall

According to the forecast results of the regional climate model, if a relatively high level of global warming emissions continue in the future, the frequency of heavy hourly rainfall will increase in all regions, while the number of dry days (number of days when the daily rainfall is less than 1.0 mm) is also projected to increase.



The grey (red) bars show frequency in the present (future) period, and the thin black lines indicate the standard deviation of interannual variability (left; present: right; future).
Source: Global Warming Projection Vol.8 (Japan Meteorological Agency, 2013)



The red bars indicate future changes, and the thin black lines show the standard deviation of interannual variability (left; present: right; future).
Source: Global Warming Projection Vol.8 (Japan Meteorological Agency, 2013)

(3) Effects on Natural disasters

As described above, as the amount of water vapor that can be contained in the air will increase as a result of a temperature rise due to the progress in global warming, the rainfall intensity is projected to increase.

Among many research papers, there is a consensus that heavy rain events that could cause floods in major Japanese rivers will significantly increase by the end of this century compared with now, triggering growth in the rainfall amount by 10-30%.

The number of strong typhoons, the maximum intensity of typhoons and the rainfall intensity at the time of the maximum intensity are projected to rise as a trend compared with the current time.

As a result of an increase in the rainfall intensity, a heavy rain that would be now described as a “once-in-300 years” heavy rain may occur at a frequency of once every 100 years.

Meanwhile, in coastal areas, there are concerns over serious effects that may arise from an increase in the storm surge deviation caused by an increase in strong typhoons associated with climate change, the strengthening of heavy waves, and a medium- to long-term rise in the sea level.

In addition, there are concerns over an increase in the occurrence frequency of landslide disasters due to an increase in short-duration heavy rain and heavy rain, an increase in landslide disasters for which the lead time for surveillance and evacuation is short due to sudden and localized heavy rain and an increase in deep layer landslides associated with record-breaking rainfall due to typhoons.

(4) Growing Hazards and Changes in the Vulnerabilities of Society

As described in the previous paragraph, there is no room for doubting that disaster hazards related to wind and flood damage in particular will grow in the future.

However, the damage to be sustained will not only depend on the intensity of the hazard, but we must take into consideration changes in the vulnerabilities of the Japanese society that will sustain the damage. In other words, while disaster risk may be mitigated through infrastructure improvements and enhanced awareness of disaster management among individual people, disaster risk may grow because of increased vulnerabilities due to progress in the aging of society and urbanization.

(5) Severity of Disasters is Increasing Beyond Existing Assumptions

As described above, there are concerns that as a result of increased effects of climate change, floods may occur frequently due to hazards exceeding facilities' capacity or that large-scale floods may occur: albeit infrequently, due to hazards exceeding facilities' capacity.

In other words, because of higher frequency of heavy rain that exceeds the existing assumptions, such serious problems may arise that measures that until now have been regarded as safe and effective protection measures may become ineffective.

Section 3: Direction of the "Disaster Management 4.0" Future Vision Project

(1) Basic Concept of the Project

In the study conducted in this project, discussions have been held concerning the use of advancing information technology as well as preparations that should be made by each of the stakeholders, namely "residents and communities" and "companies." The basic concepts are as described below.

1-1 Preparations by "Residents and Communities"

Taking it into consideration that there are limits to the relief that may be provided by administrative organizations for rebuilding the lives of affected persons through public help, it is necessary to present opportunities for individual people to act voluntarily and change their mindset. In doing so, it is essential to present effective measures that can be implemented by the people themselves because merely fueling fears over the growing disaster risks would not lead to people actually taking action.

Moreover, in order to encourage individual residents to change their mindset and take action, it is essential for communities to foster awareness of mutual help.

1-2 Preparations by "Companies"

Companies, which undertake economic activities, cannot decide universally how they should face up to disaster risks. It is important to strike the right balance between the mitigation of risks taking into account the financial condition and the transfer of risks.

In order to stimulate the use of financial techniques such as disaster insurance, it is necessary to appropriately identify the accident probability and the value of damage.

First and foremost, companies need to prepare to maintain economic activity and achieve early recovery by formulating and implementing business continuity plans (BCP/BCM). In addition, it is necessary to consider securing supply chains and life line infrastructure, including electricity, fuels and communication, not only at the level of individual companies but across multiple companies.

1-3 Use of Information and Communication Technology

At the time of a disaster, the most important thing to do is collect accurate information and quickly communicate it in a timely manner. Thus, it is necessary to consider how to use such technologies as quasi-zenith satellites and drones in accordance with the type of disaster and the area size of the disaster-affected region.

In addition, against the backdrop of the diffusion of smartphones, the user operability and convenience of systems for collecting and viewing local information using social media can be secured by using the systems: not only at the time of disaster, but also in normal times.

(2) Future Developments

In order to prevent activities based on this project from becoming temporary ones, it is essential for various stakeholders to cooperate with each in continuing such activities.

To that end, efforts will be made to encourage the whole society to change its mindset and take actions by using the debate at the National Council for the Promotion of Disaster Prevention and the National Conference on Promoting Disaster Risk Reduction: the first of which is scheduled to be held in August this year, as a comprehensive disaster management event, in order to promote vigorous community-wide promotion activities including the demonstration of “mutual help” activities in schools and in workplaces.

Part I Status of Disaster Management Measures in Japan

Due to its natural conditions, Japan is prone to virtually every type of natural disaster. A variety of natural disasters occurred in 2015, including torrential rain disasters, volcanic eruptions, heavy snowfalls, and earthquakes. Part I of this report focuses on recent natural disaster risk reduction measures, in particular the status of policies implemented with priority status in 2015.

Chapter 1 Status of Disaster Management Policies

Section 1: Disaster Management Systems and Disaster Preparedness

1-1 Revision of the Basic Disaster Management Plan

The Basic Disaster Management Plan is a basic plan for disaster management in Japan, which is prepared by the Central Disaster Management Council in accordance with Article 34 of the Disaster Countermeasures Basic Act. Local governments are required to prepare Local Disaster Management Plans, while Designated Administrative Organizations and Designated Public Corporations are required to prepare Disaster Management Operations Plans, which must be based on the Basic Disaster Management Plan.

The Basic Disaster Management Plan was revised twice in FY2015: in July 2015 and February 2016.

(1) Revision Based on Lessons from the Hiroshima Landslide Disaster and the Eruption of Mount Ontake (July 2015)

The July 2015 revision mainly reflected the revision of the Act on Promotion of Sediment Disaster Countermeasures in Sediment Disaster Prone Areas, reports by the Working Group for Studying Comprehensive Countermeasures against Sediment Disasters and the Working Group for the Promotion of Volcano Disaster Prevention established under the Central Disaster Management Council's Disaster Management Implementation Committee, and the final report of the Senior Vice Ministerial Council on the Government's Approach to Crisis Management Organization.

- To strengthen measures against sediment disasters, areas where there is a risk of a sediment disaster will be disclosed, sediment disaster alert information and evacuation preparation information will be utilized, and notifications will be provided to facilitate timely and appropriate evacuation of citizens.
- To strengthen measures against volcanic disasters, efforts will be made to enhance systems for the transmission of information, consider appropriate measures for evacuation from the vicinity of a volcanic eruption, improve volcano disaster risk management education and volcano research systems, and strengthen monitoring and observation systems.
- To strengthen measures against complex disasters, efforts will be made to centralize the information gathering, decision-making, and direction and coordination carried out by Extreme Disaster Management Headquarters and Nuclear Emergency Response Headquarters.

(2) Revision Based on the Revision of the Act on Special Measures for Active Volcanoes and Lessons from Responses to Recent Disasters (February 2016)

The February 2016 revision mainly reflected the strengthening of disaster risk management measures based on such systemic reforms as the revision of the Act on Special Measures for Active Volcanoes, as well as

operational improvements based on lessons from responses to recent disasters.

- Volcano disaster risk management measures will be strengthened, by such means as the development of alert and evacuation systems in volcanic eruption hazard areas; measures against flood damage will be strengthened on the basis of assumptions about largest-scale flooding, rainfall inundation, and storm surges; and the full range of disaster waste disposal measures will be enhanced, from routine preparations to responses in the event of a large-scale disaster.
- In light of the disaster resulting from the Torrential Rain of September 2015 in the Kanto and Tohoku Regions, local government business continuity systems are to be enhanced.

1-2 Efforts in Disaster Management Drills

The basic policy on conducting disaster management drills and details of the government's comprehensive disaster management drills are prescribed in the Comprehensive Disaster Management Drill Framework determined by the Central Disaster Management Council each fiscal year. In FY2015, the various drills were conducted in accordance with the 2015 Comprehensive Disaster Management Drill Framework.

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

Various drills were conducted on Disaster Preparedness Day, which takes place on September 1. These included a drill focused on running an Extreme Disaster Management Headquarters meeting to test systems for the implementation of disaster response measures in the event of an earthquake, based on the assumption of a Tokyo inland earthquake.

On the same day, a joint disaster management drill involving nine prefectures and municipalities was held in a number of locations, primarily in the Tokyo city of Tachikawa and waterfront areas along Tokyo Bay. Prime Minister Abe viewed and took part in the drills in Tachikawa City, which included rescue drills and mutual help drills for local citizens. The drills at Tokyo Bay waterfront venues included a casualty transport and medical relief drill using helicopters and the Maritime Self Defense Force destroyer *Izumo*.

Extreme Disaster Management Headquarters Meeting drill

Prime Minister Abe takes part in a ropes and knots drill

(2) Government Tabletop Exercises

Operational drills based on the assumption of a Nankai Trough earthquake have been held in the relevant regional blocks: the Chubu On-site Extreme Disaster Management Headquarters drill was held in Nagoya City in November 2015, while the Shikoku On-site Extreme Disaster Management Headquarters drill was held in Takamatsu City in January 2016.

Parliamentary Vice-Minister of the Cabinet Office Yasuyuki Sakai receives a briefing (Chubu on-site disaster management headquarters operational drill)

State Minister of the Cabinet Office Fumiaki Matsumoto receives a briefing (Shikoku on-site disaster management headquarters operational drill)

1-3 Tsunami Preparedness Initiatives

To minimize the damage caused by a tsunami, it is vital to undertake routine efforts to raise awareness of disaster preparedness and ensure that members of the public are fully aware of the appropriate action to take in the event of a major earthquake that is likely to trigger a tsunami, which is to evacuate to higher ground without delay. National government's ministries and agencies, local governments, and private sector companies and groups across the country conduct drills to raise awareness of tsunami preparedness, primarily on November 5, which is Tsunami Preparedness Day.

(1) Public Awareness Campaign Involving the Tsunami Bosai Promotion Squad: "Tsunami?! Get to Higher Ground!"

In FY2015, famous local mascots from across Japan with a particularly strong following among the public, such as Funassyi and Kumamon, came together to form the Tsunami Bosai Promotion Squad, to raise public awareness of tsunami preparedness. Following a launch event on September 7 in which then-Minister of State for Disaster Management Eriko Yamatani also participated, the mascots have been undertaking various PR activities based on the short and simple slogan "Tsunami?! Get to Higher Ground!"

Other local mascots and celebrities have joined the Tsunami Bosai Promotion Squad, helping to promote tsunami preparedness initiatives nationwide.

(From left)
- Shinjo-kun
  (Susaki City, Kochi Prefecture)
- Chicchai Ossan
  (Amagasaki City, Hyogo Prefecture)
- Funassyi (Funabashi City, Chiba Prefecture)
- Kumamon (Kumamoto Prefecture)
- Kiichan (Wakayama Prefecture)

The core members of the Tsunami Bosai Promotion Squad

(2) Tsunami Preparedness Talk Show in Marunouchi

To raise public awareness, the Tsunami Preparedness Talk Show in Marunouchi was held at MARUCUBE in the Tokyo Maru Building in the Marunouchi district of Tokyo on Tsunami Preparedness Day (November 5), attended by Prime Minister Abe and Minister of State for Disaster Management Taro Kono. The event sought to encourage the public to learn about tsunami preparedness through such initiatives as the "tsunami evacuation pose," which represents the action of evacuating to higher ground without delay to protect oneself against a tsunami.

Prime Minister Abe and Minister of State for Disaster Management Kono strike the tsunami evacuation pose with the core members of the Tsunami Bosai Promotion Squad

(3) Other Initiatives Taking Place Around the Time of Tsunami Preparedness Day (November 5)

Around the time of Tsunami Preparedness Day (November 5), the national government (9 ministries and agencies), local governments (179 government bodies), and private sector companies (96 organizations) carried out earthquake and tsunami preparedness events around the country, with the participation of numerous members of the public.

1-4 Construction of Business Continuity Systems by Public Institutions

(1) Construction of Business Continuity Systems by National Government's Ministries and Agencies

The national government's ministries and agencies have formulated their own agency-specific organization continuity plans for the purpose of ensuring the continuity of the pivotal functions of the national government in the event of a Tokyo Inland Earthquake. In March 2014, the Central Government's Business Continuity Plan (Measures for a Tokyo Inland Earthquake) was approved by the Cabinet. The national government's ministries and agencies then revised their own business continuity plans based on the document.

(2) Construction of Business Continuity Systems by Local Government

Looking at the preparation of business continuity plans by local governments, the preparation rate remains low among municipalities: only 37% of municipalities had formulated business continuity plans as of December 2015, as compared to 89% of prefectures. Accordingly, the Cabinet Office is continuing to support local governments in enhancing their business continuity systems through such efforts as the May 2015 publication of the Business Continuity Plan Formulation Guidelines for Municipalities, with the aim of making it easier for small municipalities with a population of less than 10,000 to prepare a business continuity plan.

(3) Status of the Construction of Business Continuity Systems by Private Sector Companies

The Cabinet Office conducts a biennial fact-finding survey concerning the efforts of private sector companies to develop business continuity systems. The results of the FY2015 Fact-finding Survey on Company Business Continuity and Disaster Preparedness Initiatives, which was conducted in February 2016, showed that just under 80% of large corporations and just over 40% of medium-sized companies have prepared or are currently preparing such plans (the overall BCP preparation rate was 66.1%). In addition, 85.4% of large corporations and 60.8% of medium-sized companies responding to this survey stated that they engaged in corporate management that took into account not only natural disasters, but also specific risks relating to their business activities.

1-5 Effective Use of Relics of Disasters

Relics of disasters include structures, natural objects, records, activities, and information that people who have been affected by past disasters have left with the specific intention of passing on the lessons learned from those disasters to future generations. For example, in Miyako City, Iwate Prefecture, there is a stone stele inscribed with the lessons learned from the tsunami triggered by the 1933 Sanriku Earthquake; homes built on ground higher than this stone stele were not damaged by the tsunami triggered by the Great East Japan Earthquake. Thus, it is important to use relics of past disasters to pass on the lessons to future generations, in order to reduce the harm caused by disasters. In many cases, disaster relics are located in places familiar to the local community, helping to raise awareness of local disasters. In FY2015, having learned that such disaster relics are located in familiar places, the Cabinet Office established the Investigative Committee on the Compilation and Use of Disaster Relics, to use such relics to learn about disasters. This committee has conducted a survey of the different types of disaster relics and the ways in which they are used, and has compiled a report on these usage methods.

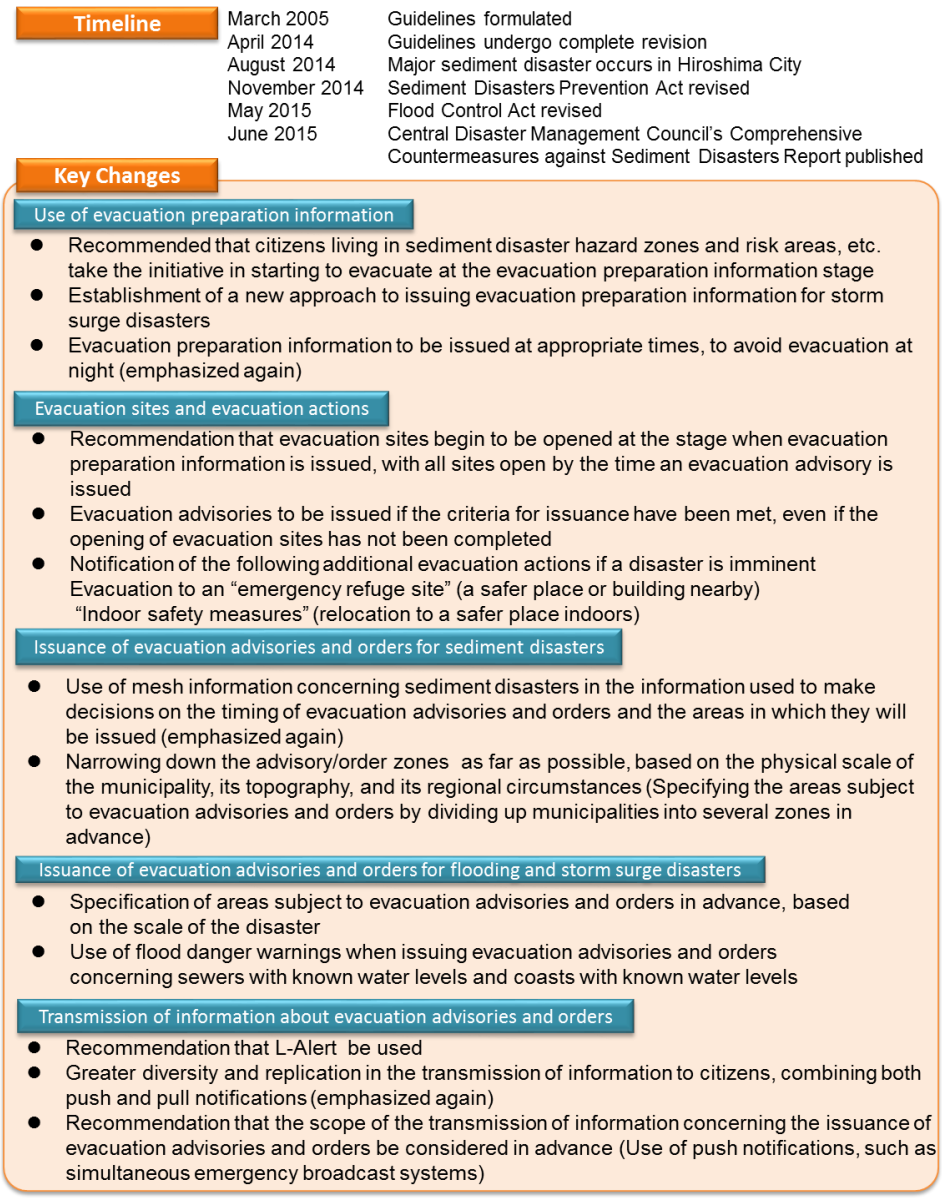
Section 2: Disaster Response and Preparedness

2-1 Guidelines for Producing a Decision and Dissemination Manual for Evacuation Advisories and Orders

The Guidelines for Producing a Decision and Dissemination Manual for Evacuation Advisories and Orders were formulated in 2005 and revised in 2014 to take account of the lessons of disasters including the Great East Japan Earthquake. Many municipalities have prescribed judgment criteria for evacuation preparation information, evacuation advisories, and evacuation orders (hereinafter “evacuation advisories and orders”) with reference to these guidelines.

However, 2014 saw many sediment disasters that caused human casualties, most notably the severe sediment disaster that occurred in Hiroshima City in August, which resulted in numerous fatalities. In response, the Act on Promotion of Sediment Disaster Countermeasures in Sediment Disaster Prone Areas (Act No. 57 of 2000; hereinafter “Sediment Disasters Prevention Act”) was revised in November, while the Guidelines for Producing a Decision and Dissemination Manual for Evacuation Advisories and Orders were revised in August 2015, based on the results of deliberations by the Working Group for Studying Comprehensive Countermeasures against Sediment Disasters established under the Central Disaster Management Council’s Disaster Management Implementation Committee.

Fig. Guidelines for Producing a Decision and Dissemination Manual for Evacuation Advisories and Orders (revised August 2015)



2-2 Securing Evacuation Shelters and Improving Their Quality

In July 2015, the Cabinet Office established the Investigative Committee on Securing Evacuation Shelters and Improving Their Quality, to consider and take the necessary steps to deal with a wide range of issues, including encouraging municipalities to designate evacuation shelters and welfare evacuation shelters, improving toilet facilities at evacuation shelters, and developing support and consultation systems for vulnerable people. The committee has discussed efforts to secure evacuation shelters and improve their quality in general terms. In addition, it set up the Quality Improvement Working Group to examine ways of improving the living environment in evacuation shelters in general and the Welfare Evacuation Shelter Working Group to consider efforts to promote the securing of welfare evacuation shelters and ensure their smooth management in the event of a disaster. In their deliberations, these working groups have taken into account recent disasters including the Great East Japan Earthquake and the Hiroshima Landslide Disaster.

The following guidelines were prepared, based on the deliberations of these working groups.

- ○ Evacuation Shelter Management Guidelines (provides an explanation of specific measures and preparations as they relate to matters described in the Guidelines for Ensuring Satisfactory Living Conditions at Evacuation Shelters, from the designation of evacuation shelters through to their closure)
- ○ Guidelines for Securing and Managing Toilets at Evacuation Shelters (sets out guidelines for securing toilets, as one of the matters that administrative bodies supporting those living in evacuation shelters should deal with)
- ○ Guidelines for Securing and Managing Welfare Evacuation Shelters (guidelines that can be used when setting up and managing welfare evacuation shelters after a disaster has occurred, as well as being used by municipalities, etc. under normal circumstances when formulating preparedness measures and manuals)

Going forward, the Cabinet Office will strive to ensure that municipalities develop evacuation shelters and implement measures to ensure satisfactory living conditions there, with reference to such manuals and guidelines.

2-3 Standardization of Symbols Representing Different Types of Disaster for Evacuation Sites, etc.

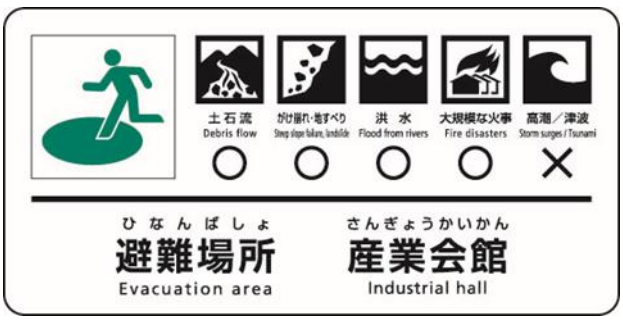
The 2013 revision of the Disaster Countermeasures Basic Act prescribed the establishment of designated emergency evacuation sites; these must be established for each type of disaster (*). Following deliberations concerning the standardization of evacuation site signs by the Cabinet Office, among others, the symbols used on signs to denote the different types of disaster have been prescribed as a Japan Industrial Standard (hereinafter “JIS”).

(*) Types of disaster prescribed in Article 20 (iv) of the Disaster Countermeasures Basic Act

(1) Flood; (2) Slope failure, debris flow, and landslide; (3) Storm surge; (4) Earthquake; (5) Tsunami; (6) Widespread fire; (7) Rainfall inundation; (8) Volcano

Fig. Symbols Representing Different Types of Disaster

Tsunami/storm surge	Flood/rainfall inundation	Debris flow	Slope failure/landslide	Widespread fire
				



Section 3: Promotion of DRR Activities in Coordination with Various Stakeholders

3-1 Promotion of Volunteer Activities Widely Contributing to DRR

To consider the issues that have arisen to date, the Cabinet Office has formed the Investigative Committee on Promoting Volunteer Activities Widely Contributing to Disaster Risk Reduction, which will spend two years examining these matters in FY2015 and FY2016. The investigative committee has already begun its deliberations concerning not only issues surrounding volunteer activities once a disaster has occurred, but also measures to support volunteer activities throughout society, including the allocation of subsidies, grants, and other funding, and institutional aspects. In addition, it is examining ways of incorporating disaster risk reduction (DRR) perspectives into grassroots community and volunteer activities that do not have a direct focus on DRR (for example, activities focused on monitoring seniors), regarding these as volunteer activities that contribute to DRR.

3-2 Initiatives to Improve Public Awareness of DRR in Partnership with the National Council for the Promotion of Disaster Prevention

The Sendai Framework for Disaster Risk Reduction 2015 -2030 (SFDRR), which was adopted at the United Nations World Conference on Disaster Risk Reduction in Sendai in March 2015, prescribes that each country's government should encourage DRR initiatives by all stakeholders, including civil society, companies, volunteers, community groups, and the academic community. Improving public awareness of DRR is an urgent issue, to ensure that the nation is prepared for the feared Nankai Trough and Tokyo inland earthquakes, as well as the torrential rain disasters and volcanic eruptions that have been frequent occurrences of late.

Amid this situation, the National Council for the Promotion of Disaster Prevention, consisting of a panel of experts from all sections of society, was set up at the urging of Prime Minister Abe, who chairs the Central Disaster Management Council. Its objective is to use the networks of groups in all sections of society to improve DRR awareness among a broad swathe of the public. The first meeting of the National Council for the Promotion of Disaster Prevention was held at the Prime Minister's Office on September 17, 2015. At this meeting, Prime Minister Abe spoke about "the importance of not only public help by government bodies, but also self-help by each individual member of the public, as well as mutual help offered to each other." In addition, he expressed his hopes that this initiative would culminate in improved public awareness of DRR by establishing a forum modeled on the United Nations World Conference on Disaster Risk Reduction, in which knowledge and experiences of DRR could be shared and opinions exchanged.

The First National Conference on Promoting Disaster Risk Reduction is due to take place in August 2016, hosted jointly by the Council for Promoting Disaster Risk Reduction, which mainly consists of industry groups associated with disaster management, and the departments of the Cabinet Office responsible for disaster management.

Prime Minister Abe opens proceedings at the meeting of the National Council for the Promotion of Disaster Prevention (from the website of the Prime Minister's Office)

Fig. Member Groups of the National Council for the Promotion of Disaster Prevention (no particular order)

Business community & labor unions	Japan Business Federation (Keidanren), Japan Association of Corporate Executives, Japan Chamber of Commerce and Industry, Japanese Trade Union Confederation, Junior Chamber International Japan
Six major organizations of local government	National Governors' Association, Japan Association of City Mayors, National Association of Towns & Villages, National Association of Chairpersons of Prefectural Assemblies, National Association of Chairpersons of City Councils, National Association of Chairpersons of Town and Village Assemblies
Education	Japan National Council of Parent Teacher Associations, National Federation of Children's Clubs, Japan Federation of Primary School Principals Association, National Association of Junior High School Principals, National Association of Upper Secondary School Principals, National Council of Prefectural Boards of Education, National Council of Municipal Boards of Education, The Japan Association of National Universities, Federation of Japanese Private Colleges and Universities Associations, The Japan Association of Public Universities
Academia	Science Council of Japan, Japan Academic Network for Disaster Reduction
Media	Japan Broadcasting Corporation (NHK), The Japan Commercial Broadcasters Association, The Japan Newspaper Publishers & Editors Association, Japan Magazine Publishers Association
Medical care	Japan Medical Association, Japan Dental Association, Japan Pharmaceutical Association, Japanese Nursing Association
Welfare	Japan National Council of Social Welfare
Fire safety	Japan Firefighters Association, Fire Chiefs' Association of Japan, Japan Fire and Disaster Prevention Association
Disability groups	Japan Disability Forum (JDF)
Women's groups	National Federation of Regional Women's Organizations
Other groups	Japanese Red Cross Society, The Nippon Foundation, Japanese Consumers' Co-operative Union

3-3 Initiatives from the Perspective of Gender Equality

After the Great East Japan Earthquake, greater awareness developed concerning the need for expanding women's participation in the disaster management policy- and decision-making progress and for initiatives that take into account differences in the needs of men and women.

In the Fourth Basic Plan for Gender Equality (hereinafter referred to in this section as "the Basic Plan"), which was approved by the Cabinet on December 25, 2015 in accordance with the Basic Act for Gender-Equal Society (Act No. 78 of 1999), one of the key perspectives highlighted is the need to deliver a message both within Japan and overseas about the importance of not only introducing the perspective of gender equality into disaster management and reconstruction measures, but also achieving female participation and leadership in disaster management and reconstruction. In addition, the establishment of disaster management and reconstruction frameworks based on the perspective of gender equality has been introduced as a new field.

Aiming to expand female participation in the disaster management policy- and decision-making process, the Basic Plan sets specific numerical targets concerning the proportion of women among the membership of Prefectural Disaster Management Councils and Municipal Disaster Management Councils, as well as the proportion of female firefighters and fire corps volunteers.

Going forward, each ministry and agency will undertake initiatives to promote disaster management and reconstruction based on the perspective of gender equality, taking into account the Basic Plan, etc.

Section 4: International Cooperation on Disaster Risk Reduction

Japan has sought to drive world initiatives in the field of disaster risk reduction for many years. Furthermore, Japan hosted the Third UN World Conference on Disaster Risk Reduction (WCDRR) in Sendai City in March 2015 and played a central role in negotiations concerning the Sendai Framework for Disaster Risk Reduction 2015-2030 (SFDRR) agreed at the conference, thereby contributing to its success. Accordingly, Japan needs to make an even greater contribution and demonstrate even stronger leadership in the future promotion of the SFDRR. As such, in addition to its existing efforts to actively promote disaster risk reduction cooperation through the UN and other international organizations, disaster risk reduction cooperation in the Asia-Pacific region, and bilateral disaster risk reduction cooperation, Japan is engaged in new initiatives, such as World Tsunami Awareness Day, which was adopted by the UN General Assembly at the end of 2015, having been proposed during the closing session of the WCDRR by then-Minister of State for Disaster Management Eriko Yamatani, who had presided over the conference.

4-1 Disaster Risk Reduction Cooperation Through the UN and Other International Organizations

(1) Strengthening Partnerships with the United Nations Office for Disaster Risk Reduction (UNISDR)

Japan is actively participating in the deliberations currently underway to promote the SFDRR, examining the creation of indicators and mechanisms for checking progress regarding the seven newly established global targets and the disaster risk reduction initiatives of each country. On March 11, 2016, Minister of State for Disaster Management Taro Kono met with Dr. Robert Glasser, the new Special Representative of the UN Secretary-General for Disaster Risk Reduction (SRSG) and head of UNISDR, who was appointed to the post in January this year. In their discussions, they reached a common understanding concerning such matters as closer partnership and cooperation between the Government of Japan (Cabinet Office) and UNISDR to promote the SFDRR and encourage widespread awareness of the new World Tsunami Awareness Day established by the UN.

Meeting between Minister Kono and Dr. Robert Glasser, Special Representative of the UN Secretary-General for Disaster Risk Reduction

(2) International Recovery Platform (IRP)

A strategic plan has been formulated as an international mechanism for promoting the “build back better” approach, which is the fourth priority area of action. As vice-chair of the Steering Committee, the Government of Japan (Cabinet Office) has led discussions and contributed to laying the foundations for the development of the IRP.

4-2 Disaster Risk Reduction Cooperation in the Asia-Pacific Region

(1) Disaster Risk Reduction Cooperation Through the Activities of the Asian Disaster Reduction Center

The Asian Disaster Reduction Center (ADRC) was established in Kobe City, Hyogo Prefecture in 1998 to share the lessons of the 1995 Great Hanshin Awaji Earthquake and other disasters in Japan with the rest of Asia. Its activities center on four key areas: sharing information about disasters, human resource development in member countries, improving the disaster management capabilities of communities, and promoting partnerships with member countries, international organizations, local organizations, and NGOs. The ADRC participated in the 12th Asian Conference on Disaster Reduction, which was held in Phuket in February 2016. As well as sharing information with other member countries about the extent of the damage from the Great East Japan Earthquake and tsunami and the countless valuable lessons learned as a result, the ADRC announced that the Government of Japan and other member countries would work together on initiatives for World Tsunami Awareness Day, which met with the approval of participants.

(2) High-level Meeting on Promotion of the Sendai Framework for Disaster Risk Reduction (SFDRR) in Asia

India, the host country of the Asian Ministerial Conference on Disaster Risk Reduction due to take place in autumn 2016, and UNISDR held a high-level meeting in the Indian city of New Delhi from November 16 through 18, 2016. At this meeting, the nine countries taking part, which included Japan and China, discussed the orientation of policies aimed at promoting the Sendai Framework for Disaster Risk Reduction (SFDRR) and the direction that should be taken at the next Asian Ministerial Conference on Disaster Risk Reduction.

4-3 Bilateral Disaster Risk Reduction Cooperation / 4th Japan–China–Republic of Korea Trilateral Ministerial Meeting on Disaster Management

Based on the Trilateral Joint Announcement on Disaster Management Cooperation, released at the first Japan–China–Republic of Korea Trilateral Summit in 2008, the Ministerial Meeting on Disaster Management has been held once every two years on a rotating basis in China, Japan, and the Republic of Korea. At these meetings, ministers from the three countries have shared information about responses to recent disasters in their countries and exchanged views and opinions concerning future approaches to trilateral disaster management cooperation, resulting in the Trilateral Joint Statement on Disaster Management Cooperation at the 4th Trilateral Ministerial Meeting on Disaster Management among Japan, the People's Republic of China, and the Republic of Korea.

The three ministers shake hands after signing the joint statement

4-4 Initiatives Focused on the Establishment of World Tsunami Awareness Day

A resolution establishing World Tsunami Awareness Day was unanimously adopted at the 70th Session of the UN General Assembly on December 23, 2015 (December 22 local time) in New York.

It is hoped that this resolution will help to boost interest in the threat of tsunami and promote measures to combat this. In addition, Japan intends to undertake tsunami awareness activities and bolster tsunami countermeasures worldwide in order to promote international disaster management cooperation initiatives in the run-up to November 5 each year. In promoting tsunami preparedness initiatives across the globe, Japan needs to serve as a role model, since it already undertakes initiatives for Tsunami Preparedness Day. Accordingly, having created a website and posters, the government is undertaking awareness activities concerning the establishment of World Tsunami Awareness Day.

Section 5: Efforts to Promote National Resilience

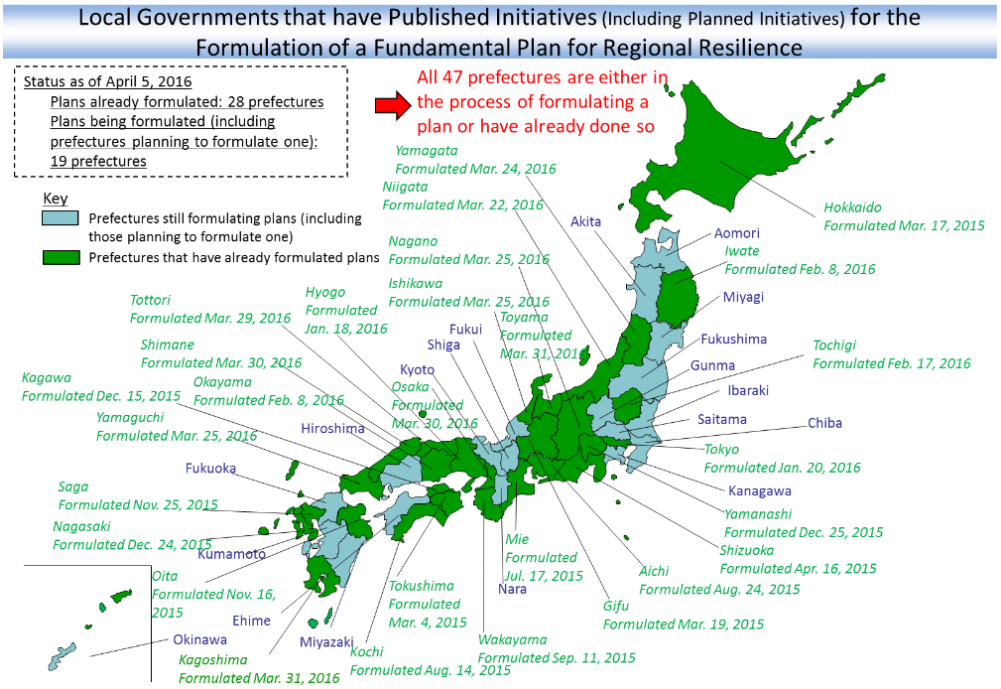
The Fundamental Plan for National Resilience was adopted by the Cabinet on June 3, 2014 pursuant to the Basic Act for National Resilience Contributing to Preventing and Mitigating Disasters for Developing Resilience in the Lives of the Citizenry (Act No. 95 of 2013) to address issues of national resilience. The Action Plan for National Resilience 2015 (hereafter in this section, the "Action Plan 2015") was adopted on Jun 16, 2015 at the National Resilience Promotion Headquarters. In light of this, each ministry and agency is currently promoting initiatives relating to national resilience.

The Action Plan 2015 prescribes the promotion of new initiatives concerning the following measures, taking into account the August 2014 Hiroshima Landslide Disaster and the September 2014 eruption of Mount Ontake:

- Support for basic surveys aimed at the designation of sediment disaster hazard zones;
- Mandatory communication of sediment disaster alert information to municipalities;
- Strengthening of volcano monitoring and observation frameworks, including a review of continuously monitored volcanoes; and
- Promotion of the preparation of concrete practical evacuation plans for a volcanic eruption.

In addition, local governments are in the process of preparing Fundamental Plans for Regional Resilience (hereinafter in this section "Regional Plans"). As of April 5, 2016, 19 prefectures and 27 municipalities were working toward the formulation of a Regional Plan, while 28 prefectures and 14 municipalities had already formulated one. The government is providing support to promote understanding concerning the Regional Plan system, including holding briefings by national government employees (57 briefings held in FY2015) and giving a certain degree of consideration to such plans when relevant ministries and agencies make decisions about the allocation of 32 grants and subsidies under their jurisdiction.

Fig. Local Governments that have Published Initiatives (Including Planned Initiatives) for the Formulation of a Fundamental Plan for Regional Resilience



Voluntary initiatives by private sector companies and the like are very important to further increase the effectiveness of efforts to enhance regional resilience, so the Cabinet Office has compiled the *Anthology of Private Sector Initiatives*, which provides examples of advanced initiatives, with the aim of further promoting such efforts.

In addition, in FY2015, the Cabinet Office worked with relevant ministries, agencies, and organizations to produce *Thinking about How to Reduce Disaster Risks at the National and Community Levels*, which is to be used in schools as a form of risk communication to encourage each and every member of the public to think about creating a strong and flexible country before disaster actually strikes. Around 2.77 million copies of this teaching material have been distributed to approximately 15,000 schools nationwide that have expressed a desire to use it.

Chapter 2　Status of Disaster Management Measures for Each Type of Potential Disaster

Section 1: Earthquake and Tsunami Disaster Management

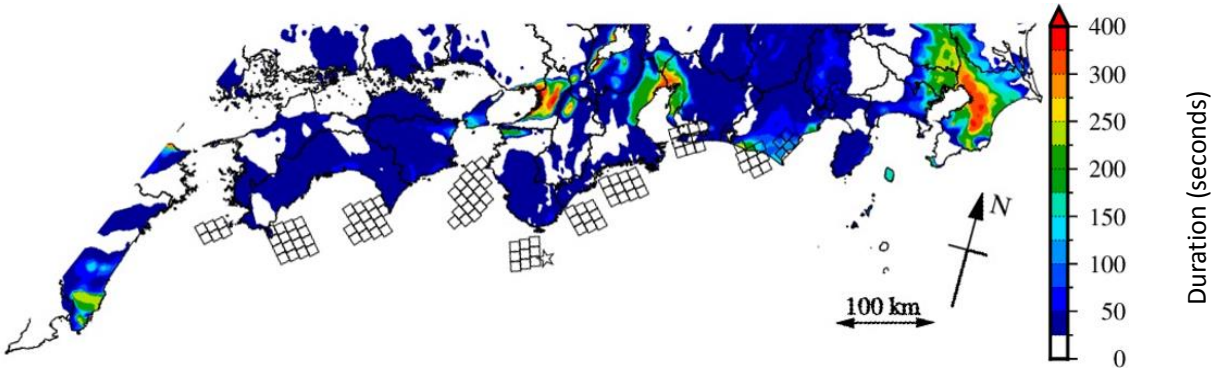
1-1　Deliberations Concerning Long-period Ground Motion Due to a Megaquake Along the Nankai Trough

Long-period ground motion is seismic motion with a long period (duration of a single cycle back and forth), which is strongly excited by a large-scale earthquake with a shallow hypocenter. Long-period ground motion is transmitted further than seismic motion with a short period and is capable of causing structures such as tall buildings and large petroleum tanks to sway considerably.

Due in part to the fact that it occurred in a fairly deep part of the Japan Trench, the 2011 Great East Japan Earthquake did not strongly excite long-period ground motion in proportion to the scale of the earthquake. However, the characteristic tremors of long-period ground motion were reported in tall buildings as far away from the hypocenter as Osaka.

It is feared that a megaquake along the Nankai Trough would strongly excite long-period ground motion, because of its shallow hypocenter and large scale. Accordingly, the Cabinet Office undertook deliberations concerning the long-period ground motion envisaged as occurring in the event of a Nankai Trough megaquake and published its findings on December 17, 2015 in the *Report on Long-period Ground Motion Due to a Nankai Trough Megaquake*.

Fig. Duration of Long-period Ground Motion Arising from a Maximum-class Earthquake



(1) Impact on the Structures of Tall Buildings

The Ministry of Land, Infrastructure, Transport and Tourism (MLIT) is examining structural design techniques for tall buildings and other measures to deal with long-period ground motion in the event of a Nankai Trough megaquake.

(2) Impact on the Interiors of Tall Buildings

It is envisaged that long-period ground motion will make the interiors of tall buildings sway considerably. In assumptions about a maximum-class earthquake, the sway on the top floor of tall buildings in the three major metropolitan areas has been estimated at around 100-200cm in coastal areas.

(3) Preparations for Long-period Ground Motion

There is a strong possibility that a Nankai Trough megaquake would bring tall items of furniture crashing down across an extensive swath of the three major metropolitan areas; in addition, it is envisaged that the tremors would be large enough to overturn even shorter items of furniture in some areas.

Moreover, in the three major metropolitan areas, a Nankai Trough megaquake would cause widespread tremors which would continue for a long time; similar to the pitch and roll of a boat, these tremors would make it difficult to walk or move, and it is envisaged that it would even be hard to stay standing up in some areas. Accordingly, if people in a tall building receive an earthquake early warning or other information warning of a major earthquake, or if they feel a tremor, it is vital that they protect their heads and get down as low as possible on the ground, to ensure that they are not thrown off their feet by a tremor, in case long-period ground motion causes a big tremor.

1-2 Plan for Specific Emergency Countermeasures and Activities for Tokyo Inland Earthquake

On March 29, 2016, the Plan for Specific Emergency Countermeasures and Activities for Tokyo Inland Earthquake, whose preparation had been stipulated in the Basic Plan for the Promotion of Tokyo Inland Earthquake Emergency Measures, was approved at a meeting of the officers of the Central Disaster Management Council. Based on the latest scientific knowledge, the Committee for Modeling a Tokyo Inland Earthquake had judged there to be an urgent need for such a plan, so damage scenarios in a report by the Working Group to Investigate Tokyo Inland Earthquake Measures were used to provide specific details of the government's plans for emergency transportation routes; rescue, first aid, and firefighting; medical activities; goods procurement; fuel supplies; and disaster management bases.

(a) Emergency Transportation Route Plan

(b) Plan for Rescue, First Aid, and Firefighting

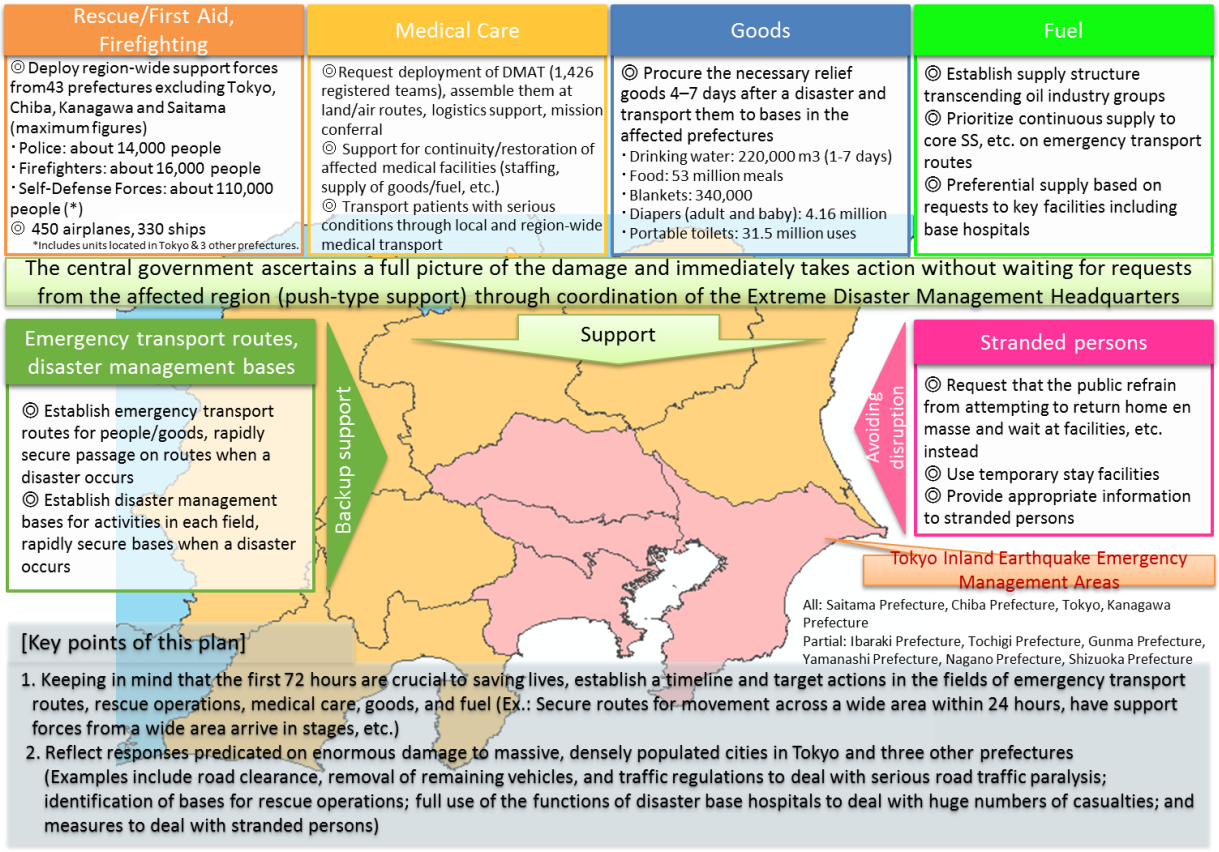
(c) Plan for Medical Activities

(d) Plan for Goods Procurement

(e) Plan for Fuel Supplies

(f) Plan for Managing Stranded Persons

Fig. Outline of Plan for Specific Emergency Countermeasures and Activities for Tokyo Inland Earthquake



1-3 Response to the Earthquakes in the Kumamoto Region of Kumamoto Prefecture

A magnitude 6.5 (provisional figure) earthquake with a maximum seismic intensity of 7 occurred on April 14, 2016. Its hypocenter was located in the Kumamoto region of Kumamoto Prefecture. Another earthquake with the hypocenter located in the Kumamoto region of Kumamoto Prefecture occurred on April 16; this had a magnitude 7.3 (provisional figure) and a maximum seismic intensity of 7. On April 14, the government established the Emergency Response Headquarters for the Earthquake Centered in the Kumamoto Region of Kumamoto Prefecture 2016, consisting of relevant ministries and agencies, in accordance with the Disaster Countermeasures Basic Act. The following day, it established the On-site Disaster Management Headquarters for the Earthquake Centered in the Kumamoto Region of Kumamoto Prefecture 2016. In addition, the government is working with Kumamoto Prefecture, Kumamoto City, and other disaster-stricken municipalities to support evacuees, including by dispatching national government staff to disaster-stricken municipalities.

The Disaster Relief Act and the Act on Support for Reconstructing Livelihoods of Disaster Victims were applied to 45 municipalities in Kumamoto Prefecture as a result of this earthquake (April 14). In addition, the government designated the disaster caused by the 2016 Kumamoto Earthquake as a Disaster of Extreme Severity affecting the entire country and stipulated the measures to be applied (including special financial support for disaster recovery projects focused on public civil engineering facilities; special financial aid for disaster recovery projects focused on agricultural land; a special provision concerning disaster-related credit guarantees under the Small and Medium-sized Enterprise Credit Insurance Act; and a special provision concerning the payment of job applicant benefits under the Employment Insurance Act) (promulgated and

entered into force on April 26). The government also designated it as a specified disaster under the Cabinet Order on the Designation of the Disaster Caused by the 2016 Kumamoto Earthquake and Measures to be Applied in Response, and sought to safeguard the rights and interests of disaster victims by extending the deadlines for administrative rights and interests (promulgated and entered into force on May 2). Furthermore, at the request of the Governor of Kumamoto Prefecture, the government designated this earthquake as a major disaster in accordance with the Act on Reconstruction from Large-Scale Disasters. This meant that the national government could, on behalf of the relevant local government, carry out disaster recovery projects focused on roads, etc. damaged by this earthquake if requested to do so by a local government affected by the disaster (promulgated and entered into force on May 13).

Section 2: Volcano Disaster Management

The September 2014 volcanic eruption of Mount Ontake involved a sudden phreatic eruption that claimed the lives of numerous climbers near the caldera. In March 2015, the Working Group for the Promotion of Volcano Disaster Prevention, which the government established under the Central Disaster Management Council, published the Report on Future Volcano DRR Promotion Based on Lessons from the Eruption of Mt. Ontake. On May 29 that year, the Cabinet approved the Bill for Partial Amendment of the Act on Special Measures for Active Volcanoes and submitted it to the 189th Session of the Diet, in order to institute the recommendations of this report that would require legislation. This bill was enacted on July 1 that year, promulgated on the 8th of that month, and entered into force on December 10 the same year.

Fig. Act for Partial Amendment of the Act on Special Measures for Active Volcanoes

(enacted December 10, 2015)

Based on the lessons learned from the eruption of Mt. Ontake and the particular features of volcano DRR measures, necessary measures are being taken to strengthen active volcano disaster management measures through the development of alert and evacuation systems that involve collaboration among all stakeholders in volcano communities.

1. Background

- Since eruptions can happen without any clear warnings, rapid information dissemination and evacuation instructions must be made to residents, hikers and others. (Lesson learned from Mt. Ontake Eruption)
- Volcanic phenomena vary and response measures must be made on the individual characteristics of each volcano (geography and eruption history). Thus, various stakeholders must work together to investigate policies that incorporate expert findings for each volcano.

2. Act Overview

Formulation of Basic Guidelines on the Promotion of Active Volcano Management by the national government (Article 2)

○Development of alert and evacuation systems in volcanic eruption hazard areas

Designation of volcanic eruption hazard areas (Article 3)

Government designates communities that must promote the development of alert and evacuation systems (primarily communities around volcanoes that are subject to regular observation)

Volcanic Disaster Management Councils (Article 4)

...Stakeholders must work together to investigate policies that incorporate expert findings.

- Prefectures and municipalities establish Volcanic Disaster Management Councils (mandatory)

Required Members

- Prefectures, municipalities
- Local meteorological offices
- Regional dev't bureaus (Sabo offices)
- Volcano experts
- Self-defense forces
- Police
- Fire

Add as needed

- Tourism organizations, etc.

*Others, including environmental offices, forest management offices, transportation and telecommunications companies, etc. Possibly also managers of consumers facilities and mountain huts.

Items for Discussion

- Integrated alert and evacuation systems, including the establishment of volcanic alert levels and the construction of corresponding evacuation systems

Eruption Scenarios
*Timelines showing changes in the phenomena and related impacts associated with an eruption

Volcano Hazard Maps
*Maps give topographical representation of areas impacted by eruption-related phenomena

→ Volcanic Alert Level
*Mountain access regulations based on degree of volcanic activity, evacuations, etc.

↔ Evacuation Plans
* Displays showing evacuation sites, evacuation routes, modes of evacuation

Results of council **hearings are reflected in Local Disaster Management Plans (mandatory)**

Prefectures (Article 5)

1. Collection and dissemination of information on the occurrence and movement of volcano phenomena, issuance and dissemination of forecasts and warnings (in prefectures)
2. Standards for determining items (2), and (3) at right
3. Regional coordination of evacuation and rescue activities

etc.

Municipalities (Article 6)

1. Collection and dissemination of information on the occurrence and movement of volcano phenomena, issuance and dissemination of forecasts and warnings (in municipalities)
2. Announcements made by municipalities regarding evacuation, such as eviction preparations (volcanic alert level)
3. Evacuation sites, evacuation routes
4. Names and addresses of consumers facilities, facilities used by vulnerable populations
5. Evacuation drills and rescue activities

etc.

Mandatory Info Dissemination to Residents by Municipal Leaders (Article 7)

Disseminate information required to ensure efficient alerts and evacuations, such as evacuation sites, by distributing volcano hazard maps.

A volcano hazard map (Sakurajima)

Mandatory Creation of Evacuation Plans (Article 8)

Creation of plans and implementation of drills by managers of consumer facilities (e.g., ropeway stations, hotels) and facilities used by vulnerable populations

○Strengthen interactions between volcano research institutions, cultivate and secure volcano experts (Article 30)

○ Obligation of local governments and hikers to make efforts (Article 11)

-New regulation requiring efforts by local governments to obtain hiker information

-New regulation requiring efforts by hikers (to collect volcano information, secure means of communication)

Section 3: Flood Disaster Management

Japan is prone to flood disasters, due to both its topographical conditions – specifically, the fact that a large number of people live on alluvial plains formed by river flooding – and its climate, as it suffers frequent torrential downpours due to typhoons, etc. In recent years, there has been a clear upward trend in the number of short-duration heavy rains occurring each year.

The disaster caused by the Torrential Rain of September 2015 in the Kanto and Tohoku Regions (hereinafter "the Kanto-Tohoku Torrential Rain") claimed two lives in the Ibaraki Prefecture city of Joso, when the Kinugawa River burst its banks. In addition, the inundation flow spread more than 10km downstream from the point at which the bank gave way, causing prolonged and extensive flooding of the municipal area, including Joso City Office and numerous residential areas. After the river burst its banks, it took around ten days for the floodwater to subside from residential land – a disaster on a scale without precedent in recent years – and the police, firefighters, Japan Coast Guard, and Self-Defense Forces rescued more than 4,200 people in Ibaraki Prefecture. The Kanto-Tohoku Torrential Rain also caused flooding in areas outside Joso City, across an extensive swath of the Kanto and Tohoku regions.

Flooding in Joso City, Ibaraki Prefecture (September 10, 2015)
Photograph courtesy of the Ministry of Land, Infrastructure, Transport and Tourism

In light of this situation, the government established the Working Group on Study on Evacuation and Emergency Response Measures at the Time of Flood Disasters under the Central Disaster Management Council's Disaster Management Implementation Committee. Its aim in doing so was to enable the government as a whole to consider flood disaster management measures, with a focus on approaches to evacuation and emergency response measures in the event of future floods, drawing upon the lessons of the damage caused by the flooding of the Kinugawa River and other incidents stemming from the Kanto-Tohoku Torrential Rain, to contribute to the creation of a country, communities, economy, and society that are strong and flexible in the face of disaster. This working group has made recommendations concerning future improvement measures.

(1) Preparations for self-help and mutual help were inadequate

(2) The timing of the issuance of evacuation advisories and orders, the zones for which they should be issued, and evacuation implementation plans for facilities used by vulnerable people were not specified in advance

(3) There is room for improvement in the provision of information, such as providing more detailed information about the situation to facilitate evacuation

(4) Preparations and systems for preventing confusion in the event of disaster and expediting procedures for rebuilding lives in the aftermath were inadequate

(5) An adequate living environment was not provided at evacuation shelters and elsewhere after the disaster

(6) There is scope for further developing mechanisms for cooperation between volunteers and government bodies

Regarding this confused and inadequate response to the disaster in municipalities affected by the Kanto-Tohoku Torrential Rain as the key problem, the working group offered recommendations concerning practical and concrete measures, with an emphasis on how to improve the disaster response capabilities of municipalities and how the national government, prefectural governments, and volunteers can support these efforts.

Fig. Future Approaches to Flood Evacuation and Emergency Response Measures

○ Direction of measures

◆ Disaster risk reduction systems have been enhanced on the basis of lessons from the Great East Japan Earthquake

◆ To ensure that existing systems are utilized adequately, the following 7 measures should be implemented, with drills held regularly to ensure their effectiveness

◆ Specific measures regarding the following will be considered in future

- Approaches to extensive, large-scale evacuation in densely populated areas
- Disaster response support mechanisms for disaster-stricken municipalities

1. Developing flood-resistant communities

- ○ Promoting voluntary disaster preparedness activity initiatives by local citizens
- ○ Promoting widespread take-up of flood insurance / mutual aid plans
- ○ Developing flood-resistant communities throughout the area in advance and rebuilding lives in the aftermath of a disaster

2. Formulating effective evacuation plans

- ○ Improving hazard maps (evacuation maps) and evacuation plans
- ○ Promoting the formulation of evacuation implementation plans and BCPs by hospitals, etc.
- ○ Promoting the specification of designated emergency evacuation sites and the compilation of lists of people who require assistance in evacuating

3. Transmitting information that will encourage appropriate evacuation actions

- ○ Issuing evacuation advisories and orders without hesitation
- ○ Transmitting evacuation advisories and orders without fail
- ○ Providing detailed information and building face-to-face relationships

4. Improving the disaster management ability of administrative bodies

- ○ Enhancing disaster management systems through training and drills for municipal mayors and staff
- ○ Administrative preparations against flooding

5. Disaster response support for disaster-stricken municipalities

- ○ Preparing and ensuring full awareness of guides to dealing with flood disasters
- ○ Securing systems to support disaster response by disaster-stricken municipalities

6. Enhancing the living environment for those affected by the disaster

- ○ Ensuring a satisfactory living environment in evacuation shelters
- ○ Ensuring the availability of medical services
- ○ Taking steps to prevent crime when disaster strikes
- ○ Dealing swiftly with disaster waste

7. Partnership and collaboration with volunteers

- ○ Proactive collaboration with volunteers
- ○ Facilitating acceptance and providing ongoing support

Chapter 3 Measures for Nuclear Disasters

Section 1: Nuclear Emergency Preparedness Systems

1-1 Nuclear Emergency Preparedness System under Non-Emergency Conditions

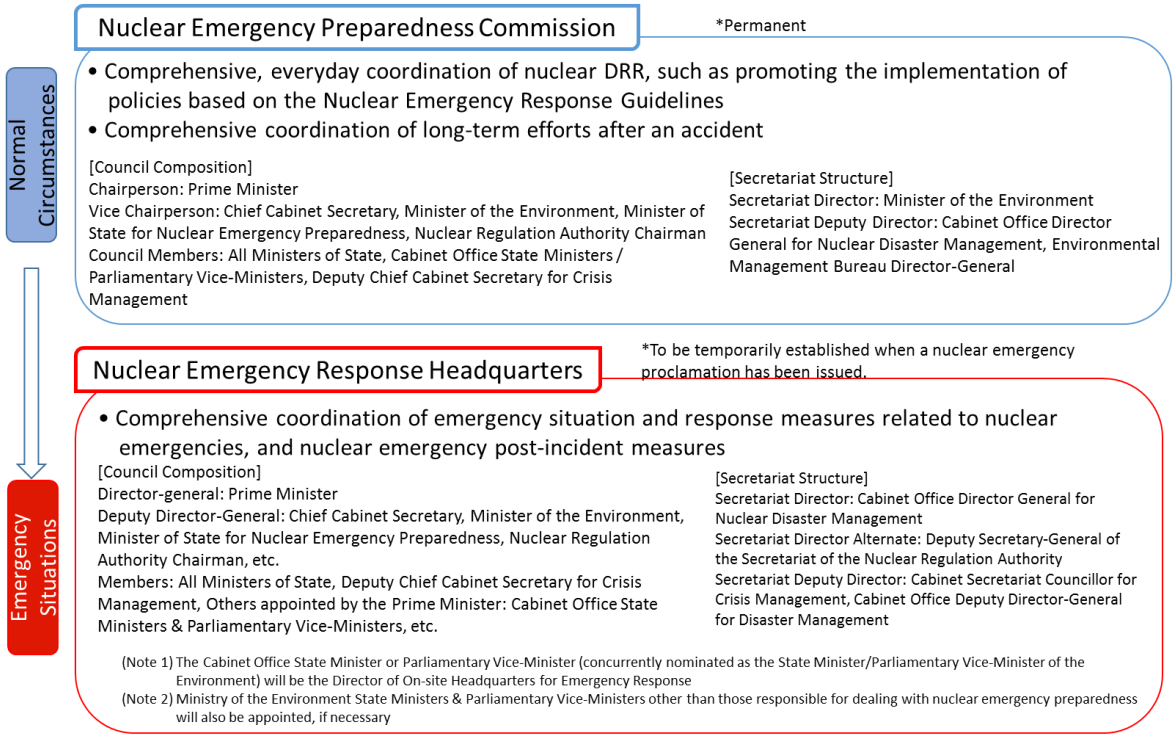
In the unlikely event of a nuclear emergency, the resultant damage would be immense and extensive, so the whole government must work together cohesively to develop and promote nuclear emergency response measures. Accordingly, the Nuclear Emergency Preparedness Commission has been established within the Cabinet to promote nuclear emergency preparedness measures by the government as a whole under non-emergency conditions.

1-2 Nuclear Emergency Preparedness System in an Emergency

In the unlikely event of a nuclear emergency involving the release of a large quantity of radioactive material, a Nuclear Emergency Response Headquarters will be established. The main role of this headquarters will be to ascertain the actual situation on the ground and the extent of the damage, and to take overall charge of coordinating relevant national government organizations and local government bodies to ensure that emergency response measures suited to the situation are implemented swiftly and accurately.

Moreover, at a meeting in July 2015, the Central Disaster Management Council revised the Basic Disaster Management Plan to enhance the system for dealing with a complex disaster. This revision put in place a cooperation framework that will, in the event of a complex disaster, enable the Extreme Disaster Management Headquarters (which deals with natural disasters) and the Nuclear Emergency Response Headquarters (which deals with nuclear emergencies) to undertake integrated information gathering, decision making, and direction and coordination. The 2015 Comprehensive Nuclear Emergency Response Exercise, which was held on November 8, 2015, was based on the scenario of a complex disaster involving an earthquake and nuclear power plant accident. To review cooperation between the headquarters, the exercise included joint meetings between the Major Disaster Management Headquarters and the Nuclear Accident Response Headquarters, and between the Major Disaster Management Headquarters and the Nuclear Emergency Response Headquarters.

Fig. Nuclear Emergency Preparedness Systems Under Emergency and Non-emergency Conditions



Section 2: Bolstering Nuclear Disaster Management and Radiation Monitoring Under the NRA

It is absolutely vital to implement ongoing initiatives to ensure trust in the administration of nuclear energy regulation, taking into account the lessons from the accident at Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Station.

The Nuclear Regulation Authority (NRA) is tackling various policy challenges, based on its guiding principles of independent decision making, effective actions, open and transparent organization, improvement and commitment, and emergency response, in order to fulfill its mission of protecting the general public and the environment through rigorous and reliable regulation of nuclear activities.

2-1 Efforts in Nuclear Disaster Management

The Act on Special Measures Concerning Nuclear Emergency Preparedness (Act No. 156 of 1999; hereinafter "the Nuclear Emergency Act"), which was revised on September 19, 2012 in conjunction with the establishment of the NRA, stipulates that Nuclear Emergency Response Guidelines must be established to facilitate the implementation of nuclear emergency response measures by operators and national and local governments. Having formulated these guidelines in October 2012, the NRA revised them on August 26, 2015, to provide more specific guidelines concerning such matters as the roles of medical institutions, national government, the prefectures where plants are located, and operators in dealing with a nuclear emergency; training and drills for those involved in providing medical care in the event of a nuclear emergency; cooperation to ensure preparedness for a complex disaster involving a nuclear emergency and a natural disaster; and examination and decontamination when evacuating each area.

2-2 Emergency Response Efforts

Crisis management initiatives by the NRA include the revision of the Disaster Management Operational Plans, the Nuclear Emergency Response Manual, the Initial Response Manual, the Manual on Standards for Local Responses to Nuclear Emergencies, the Civil Protection Plan, and business continuity plans to reflect the outcomes of the revision of the Nuclear Emergency Response Guidelines and various plans. In addition, the NRA conducted an initial response exercise based on the Disaster Management Operational Plans for a scenario involving a Tokyo inland earthquake, and strove to lay the foundations for crisis management systems that will enable it to respond smoothly and accurately in an emergency. The NRA also cooperated in the revision of the Model for Local Collaboration in Dealing with Nuclear, Biological, and Chemical (NBC) Terrorism Events, the Basic Disaster Management Plan, and the Basic Guidelines for Protection of the People, and participated in various exercises. In the 2015 Comprehensive Nuclear Emergency Response Exercise, the Cabinet Office Director General for Nuclear Disaster Management worked in partnership with the NRA.

2-3 Bolstering Radiation Monitoring

To conduct effective emergency monitoring in accordance with the Nuclear Emergency Response Guidelines, the NRA increased the number of staff at the Ehime Local Radiation Monitoring Office in July 2015, thereby bolstering the local emergency monitoring framework. In addition, on April 22 and August 26, 2015, the Secretariat of the NRA published revised editions of “About Emergency Monitoring (Nuclear Emergency Response Guidelines Supplementary Reference Materials)”, which provide detailed guidance concerning emergency monitoring. The Emergency Radiation Monitoring Information Sharing and Disclosure System began operating in June 2015.

Section 3: Enhancing and Strengthening Local Nuclear Emergency Preparedness Systems

3-1 Formulating and Supporting Local Disaster Management Plans / Evacuation Plans

Under the Disaster Countermeasures Basic Act, relevant local governments must prepare Local Disaster Management Plans that set out the basic response to be adopted by prefectures and municipalities in dealing with a nuclear emergency.

Currently, relevant local governments within a radius of around 30km of a nuclear power plant are preparing Local Disaster Management Plans with Nuclear Emergency Response Measures (hereinafter “Local Disaster Management Plans”) based on the Basic Disaster Management Plan and the Nuclear Emergency Response Guidelines.

Under a September 2013 decision by the Nuclear Emergency Preparedness Commission, prefectures and municipalities are required to prepare Local Disaster Management Plans and Evacuation Plans. In March 2015, the Cabinet Office Director General for Nuclear Disaster Management established Local Nuclear Disaster Management Councils (hereinafter “Management Councils”) to serve as working teams for resolving issues in areas where nuclear power plants are located, in order to support efforts to enhance the content of these Local Disaster Management Plans and Evacuation Plans and make them more specific. In addition, the Director General established working groups reporting to these Management Councils. The working groups in each region are considering support and region-wide coordination in the formulation of Evacuation Plans, and the

assistance provided by national front-line response organizations, while the national government and relevant local governments are working together to develop more specific, enhanced Local Disaster Management Plans and Evacuation Plans. Areas where more specific, enhanced Local Disaster Management Plans and Evacuation Plans have been developed must summarize their emergency response and have it checked by the Local Nuclear Disaster Management Councils, to ensure that it is specific and rational. The Cabinet Office Director-General for Nuclear Disaster Management then reports the councils' findings to the Nuclear Emergency Preparedness Commission, to seek the Commission's approval.

In FY2014, the Sendai Region Emergency Response was checked at a special meeting of the Sendai Region Working Team and the Nuclear Emergency Preparedness Commission approved its findings. In FY2015, the Ikata Local Nuclear Disaster Management Council checked the Ikata Region Emergency Response and the Fukui Area Local Nuclear Disaster Management Council checked the Takahama Region Emergency Response, with the Nuclear Emergency Preparedness Commission approving the findings of both councils.

Fig. Status of Local Disaster Management Plans / Evacuation Plans (as of March 31, 2016)

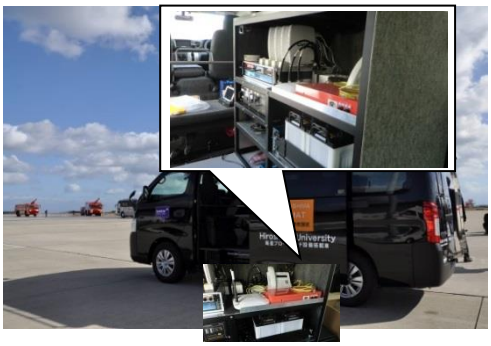
	Municipalities Concerned	Number of Local Disaster Management Plans Formulated	Number of Evacuation Plans Formulated	Remarks
Tomari region	13	13	13	
Higashidori region	5	5	5	
Onagawa region	7	7	4	In December 2014, Miyagi Prefecture formulated the Guidelines on Preparing Evacuation Plans for Nuclear Emergencies.
Kashiwazaki-Kariwa region	9	9	8	In March 2014, Niigata Prefecture formulated the Guidelines for Region-wide Evacuation in Niigata Prefecture in Case of a Nuclear Emergency.
Tokai region	14	13	0	In March 2015, Ibaraki Prefecture formulated the Plan for Region-wide Evacuation in Ibaraki Prefecture in Case of a Nuclear Emergency.
Hamaoka region	11	11	0	In March 2016, Shizuoka Prefecture formulated the Plan for Region-wide Evacuation in Case of a Nuclear Emergency in the Hamaoka Region.
Shika region	9	9	9	
Fukui area	23	23	23	
Shimane region	6	6	6	
Ikata region	8	8	8	
Genkai region	8	8	8	
Sendai region	9	9	9	
Total for the 12 regions	122	121	93	
Fukushima region	13	9	6	In March 2015, the Fukushima Prefecture Region-wide Evacuation Plan for Interim Priority Zones in Case of Nuclear Emergency was revised. The accepting facilities were partially revised in April that year.

Note: Readers should be aware that Tokyo Electric Power Company's Fukushima Daiichi Nuclear Power Station, which is a Specified Nuclear Facility, is located in the Fukushima region and that the area around it is an evacuation order area.

3-2 Response to the Revision of the Nuclear Emergency Response Guidelines and the Security of Off-site Personnel Involved in Disaster Response

In March 2015, the NRA reorganized the Study Team on Radiation Emergency Medicine to establish the Study Team on Medical Care Systems for a Nuclear Emergency, which has examined approaches to medical care systems in the event of a nuclear emergency, based on the findings of research conducted to date. The Nuclear Emergency Response Guidelines were revised in August 2015 to take account of these findings, resulting in the decision to develop nuclear disaster base hospitals and put in place a system of nuclear disaster medical assistance teams.

In light of this revision of the Nuclear Emergency Response Guidelines, the Cabinet Office provided support in the FY2016 budget for the costs of obtaining materials and equipment for the development of nuclear disaster base hospitals, conducting basic and practical training for the relevant personnel, and ensuring the effectiveness of the nuclear disaster medical assistance team system (establishing a training system and obtaining vehicles).



Nuclear disaster medical assistance team vehicle

Radiation medicine exercise

The Cabinet Office has established Local Nuclear Disaster Management Councils for each of the 13 regions where nuclear power stations are sited. Through these councils, relevant local governments, ministries, and agencies are currently working together to develop more specific, enhanced local emergency responses in the event of a nuclear disaster. To promote the security of off-site disaster response personnel involved in nuclear emergency response measures, the Cabinet Office established the Investigative Committee on the Security of Off-site Disaster Response Personnel, which published a report in January 2016.

The Committee's findings covered the following areas.

(1) Duties of disaster response personnel and the scope of their activities

(2) Approaches to appropriate protection measures in an emergency

(3) Routine training, education, and exercises

(4) Approaches to managing exposure dose in an emergency

(5) Approaches to health management both under normal circumstances and following the implementation of emergency response measures

At a meeting of the Inter-Ministerial Council for Nuclear Power on March 11, 2016, a document concerning nuclear energy policy, entitled Stance on Enhancing Nuclear Emergency Response Measures, was put together at the request of the National Governors' Association, in response to calls from local governments in charge of

local disaster management. This document lists the following as matters that the government deems to be particularly important: clarification of the role of national and local governments; use of calculations of the diffusion of radioactive substances in the atmosphere; distribution of stable iodine agents; cooperation with front-line response organizations; cooperation with the staff of private sector operators, the national government, and local governments; and the responsibilities and specific responses of nuclear operators.

3-3 Disaster Management Drill and Training Initiatives by Local Governments and Nuclear Operators

(1) Support for Nuclear Emergency Preparedness Drills Conducted by Local Governments

Under the Disaster Countermeasures Basic Act, local governments of areas where nuclear facilities are sited and local governments of neighboring areas are required to hold a nuclear emergency preparedness drill once a year. These are carried out with the participation of national and regional front-line response organizations, namely local governments, the police, firefighters, the Japan Coast Guard, and the Self-Defense Forces and include exercises in evacuating local citizens and conducting examinations when evacuating each area.

(2) Training for Staff of Local Governments and Front-line Response Organizations

The Cabinet Office Director-General for Nuclear Disaster Management has organized basic training in nuclear emergency preparedness, training for drivers of buses and other commercial vehicles, and training and tabletop exercises for key Disaster Response Headquarters personnel. The objective of these initiatives was to provide local governments and other disaster response personnel with an understanding of approaches to protection measures in the Nuclear Emergency Response Guidelines and to improve their ability to respond in the event of a nuclear emergency.

(i) Basic training in nuclear emergency preparedness

Key disaster response personnel dealing with nuclear emergency preparedness for the first time undergo basic training in nuclear emergency preparedness, to gain an understanding of legislation concerning radiation and disaster management, the Nuclear Emergency Response Guidelines, and basic knowledge concerning disaster management based on lessons from the accident at Fukushima Daiichi Nuclear Power Station.

(ii) Training for drivers of buses and other commercial vehicles

Drivers of buses and other commercial vehicles undergo training to learn the basic knowledge required for radiation protection when carrying out activities to protect local citizens from radiation in the event of a nuclear emergency, as well as gaining a general understanding of the Nuclear Emergency Response Guidelines, the flow of activities to protect local citizens from radiation, and the protective measures to be taken.

(iii) Training and tabletop exercises for key Disaster Response Headquarters personnel

Training and tabletop exercises for key Disaster Response Headquarters personnel are carried out to teach key disaster response personnel (such as local government employees involved in nuclear emergency preparedness and members of front-line response organizations) the skills required to carry out duties in response to a nuclear emergency, as well as giving Disaster Response Headquarters personnel the ability to respond in the event of an emergency.

3-4 Strengthening International Partnerships

International organizations such as the International Atomic Energy Agency (IAEA) and various countries undertake initiatives and discussions concerning off-site nuclear emergency preparedness. Such advanced knowledge is required to raise the standard of Japan's own nuclear emergency preparedness, so the government has sought to share its knowledge and experience of nuclear emergency preparedness internationally by such means as strengthening cooperative frameworks with authorities responsible for nuclear emergency preparedness in other countries, conducting regular exchanges of opinions with them, and participating in multilateral exercises.

(1) Cooperation Focused on Nuclear Emergency Preparedness Systems

(i) Cooperation with the U.S.A.

Japan is deepening its partnership with the U.S.A. In the area of nuclear emergency prevention systems via regular exchanges of opinions and reciprocal invitations to exercises, based on the U.S.-Japan Bilateral Commission on Civil Nuclear Cooperation framework established in 2012 under the Emergency Management Working Group (EMWG).

(ii) Cooperation with France

The Memorandum of Cooperation Between the Minister of State for Nuclear Emergency Preparedness of the Cabinet Office of Japan and the Ministry of the Interior (Director-General for Civil Security and Crisis Management) of France on Emergency Management related to Nuclear Accidents was signed on May 5, 2015.

Parliamentary Vice-Minister Mamoru Fukuyama and Laurent Prévost, Director-General for Civil Security and Crisis Management, Ministry of the Interior of France sign the MoC

(iii) Other international cooperation

Japan has also engaged in exchanges of opinions and issued reciprocal invitations to observe exercises with international organizations such as the IAEA and the OECD/NEA, as well as countries including the UK, France, China, the Republic of Korea, and Taiwan.

(2) Participation in Multilateral Exercises

In May 2015, Japan announced its intention to take part in INEX-5, an international nuclear emergency preparedness drill organized by the Nuclear Energy Agency of the Organisation for Economic Co-operation and Development (OECD/NEA).

(3) Surveys of International Standards, etc.

In December 2015, Japan attended a meeting of the IAEA's new Emergency Preparedness and Response Standards Committee (EPReSC), which has been established to examine the IAEA's standards on off-site nuclear emergency preparedness and the systems/management of major countries engaging in nuclear power generation.

Section 4: 2015 Comprehensive Nuclear Emergency Response Exercise

4-1 Overview of Exercise

The Comprehensive Nuclear Emergency Response Exercise is a joint exercise involving the national government, local governments, and power industry operators, in accordance with the Act on Special Measures Concerning Nuclear Emergency Preparedness. Based on the scenario of a nuclear emergency, it aims to verify systems for responding to such an emergency. The 2015 Comprehensive Nuclear Emergency Response Exercise had the following objectives:

- To check the effectiveness of the disaster preparedness systems of the national government, local governments, and nuclear operators, and the cooperative frameworks of relevant organizations
- To check national and local systems and procedures specified in manuals for responding to a nuclear emergency triggered by a major earthquake
- To examine further improvements in the effectiveness of the Evacuation Plan based on the Ikata Region Emergency Response
- To identify lessons from the outcomes of the exercise and improve emergency responses
- To enhance the skills of key personnel involved in nuclear emergency response measures and promote public understanding of nuclear emergency preparedness

4-2 Overview of Performance

(1) Exercise in Rapid Establishment of an Initial Response System

The national government, local governments, and nuclear operator mobilized key personnel to set up an initial response system at their respective operational bases following an earthquake, and gathered information about the status of the natural disaster and the power station. In addition, they used teleconferencing and other systems to strengthen communication between relevant organizations and prepare for an escalation of the situation.

(2) Exercise in Making Decisions Concerning the Evacuation Plan, etc. Based on Collaboration Between National and Local Bodies

Following an escalation of the situation, the Prime Minister's Office and the other bases worked together to formulate and decide on protection measures, including the evacuation of local citizens.

(3) Field Training Exercise in Response to a General Emergency

Citizens of Ikata-machi, which is within the PAZ (Precautionary Action Zone) on the Sadamisaki Peninsula, were evacuated in response to a General Emergency.

Local citizens board a ship to evacuate to Oita Prefecture by sea (Misaki Port, Ehime Prefecture)

An Ehime Prefecture police vehicle escorts a bus carrying local citizens to an evacuation shelter (National Route 378)

4-3 Post-exercise Initiatives

Following the 2015 Comprehensive Nuclear Emergency Response Exercise, areas for improvement were identified from views expressed by experts and responses to a questionnaire distributed to local citizens who participated in the drill. In addition, the Report on the Findings from the 2015 Comprehensive Nuclear Emergency Response Exercise was published in March 2016. Going forward, the Local Nuclear Disaster Management Councils will make improvements to the Ikata Region Emergency Response and various manuals, conducting deliberations based on matters highlighted in this report, including measures to prevent the Sadamisaki Peninsula being cut off, measures to alleviate traffic congestion, confirmation of evacuation times, and areas for improvement identified from the perspective of management and cooperation at disaster management centers. Moreover, the government will seek to further enhance the methods used for conducting the Comprehensive Nuclear Emergency Response Exercise, as well as the menu of scenarios and exercises, constantly reviewing the exercise to make it more realistic.

JIS-specified graphical symbols relating to disasters

Tsunami /Storm surges	Flood from rivers / Flood from inland waters	Debris flow
		
Steep slope failure, landslide	**Fire disasters**	**Evacuation area**
		
Tsunami evacuation area	**Tsunami evacuation building**	**Safety evacuation shelter**
		

Example of use