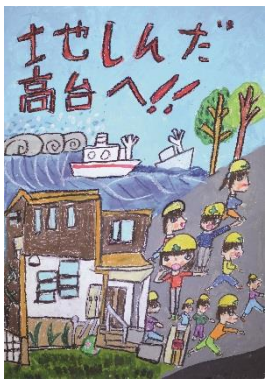
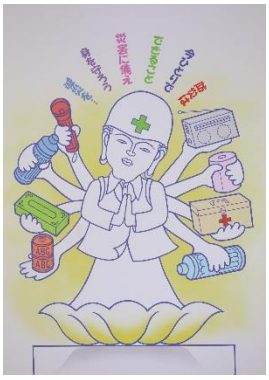
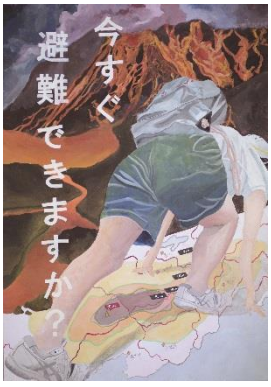
Cabinet Office
Japan

White paper

Disaster Management in Japan 2016







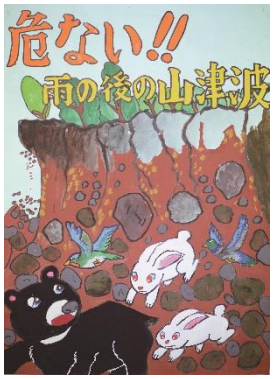


TABLE OF CONTENTS

INTRODUCTION

Special Feature "Future Disaster Management"

Part 1 Status of Disaster Management Measures in Japan

Part 2 Outline of Disaster Management Measures Implemented in FY2014

Part 3 Disaster Management Plan for FY2016

INTRODUCTION

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 Sediment 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 Sediment Disaster in August 2014, the Act on Promotion of Sediment Disaster Countermeasures in Sediment Disaster Hazard 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.

Special Feature
“Future Disaster Management”

Special Feature “Future Disaster Management”

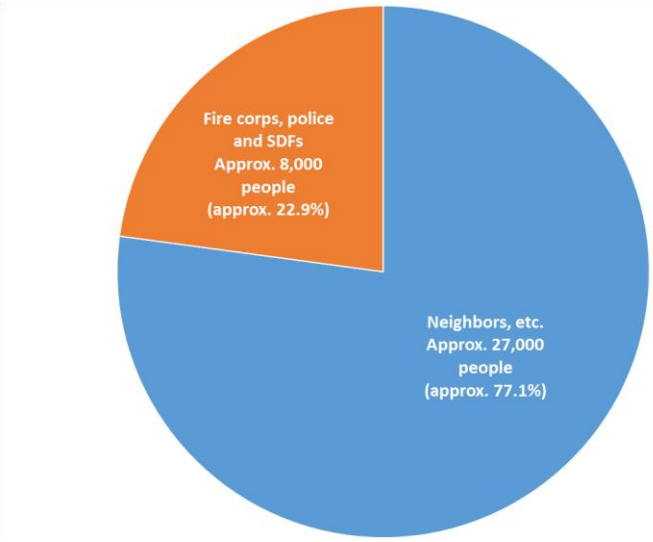
Chapter 1 Disaster Management in an Era of an Aging Society Coupled with a Low Birth Rate

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 (Fig. 1 and 2).

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.

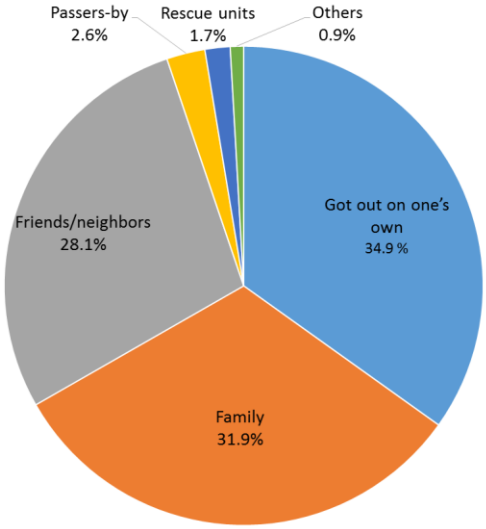
This chapter identifies the current shortage of disaster management leaders due to the aging society coupled with a low birth rate in Japan and provides an overview of new leaders and technological solutions.

Fig. 1 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. 2 Types of rescuers of buried or confined people



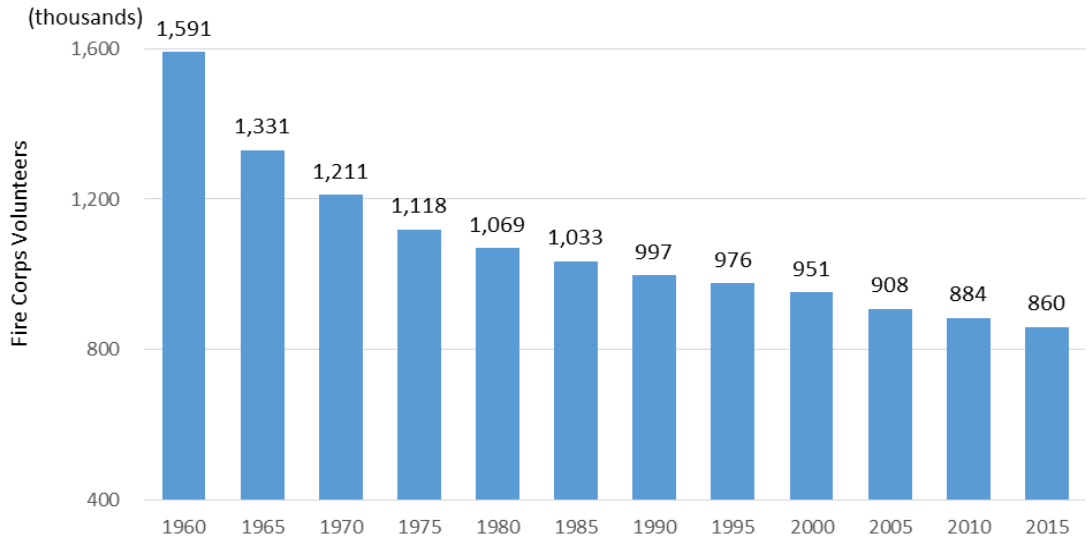
Sample survey: See Japan Association for Fire Science and Engineering (1996) "Survey Report Concerning Fires at the Time of the Southern Hyogo Prefecture Earthquake in 1995."

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

1-1 Emerging Shortage of Disaster Management Leaders

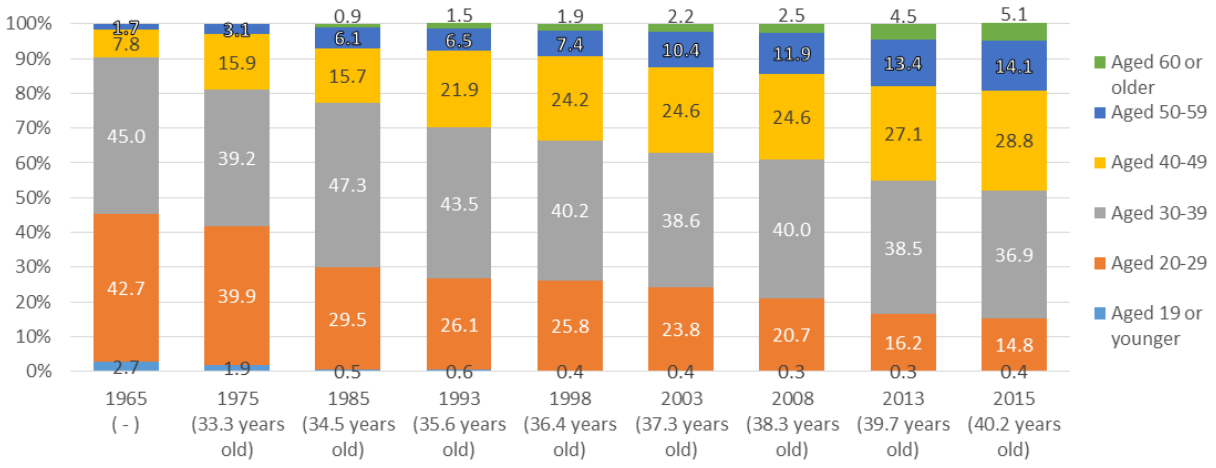
The number of fire corps volunteers, who directly support local disaster resilience, is on a long-term downtrend, and at the same time, aging is proceeding among such volunteers (Fig. 3 and 4). The decrease in and aging of fire corps volunteers not only means the shrinkage of the pool of personnel who directly support disaster resilience but also raises concerns that disaster resilience may not necessarily be effectively exercised.

Fig. 3 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.

Fig. 4 Trends in Age Composition Ratios among Fire Corps Volunteers

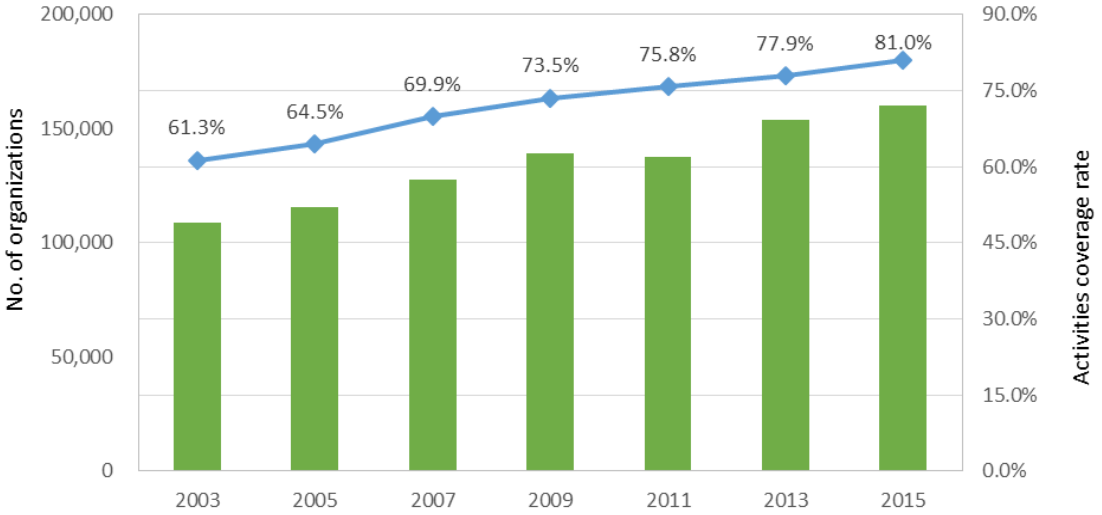


*Numbers in the parentheses in the above figure indicate average ages.
*For 1965 and 1975, statistics concerning "Aged 60 or older" are not available. For 1965, statistics concerning average ages are not available, either.

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 (Fig. 5).

Fig. 5 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

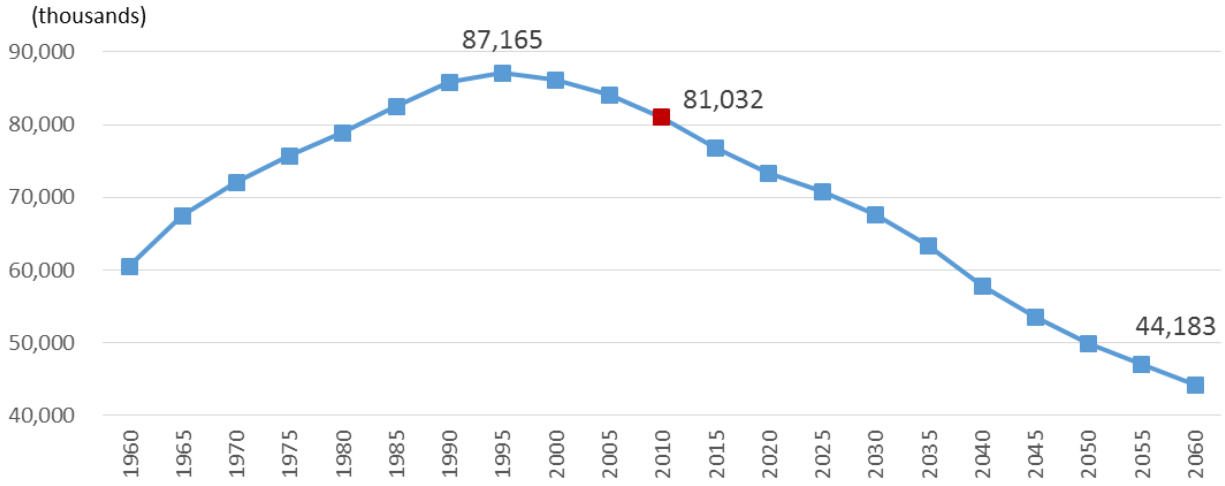
Source: Produced by the Cabinet Office based on the Survey on the Current Status of Fire and Earthquake Disaster Management Measures of the Fire and Disaster Management Agency. Figures as of April 1 each year.

1-2 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 (Fig. 6).

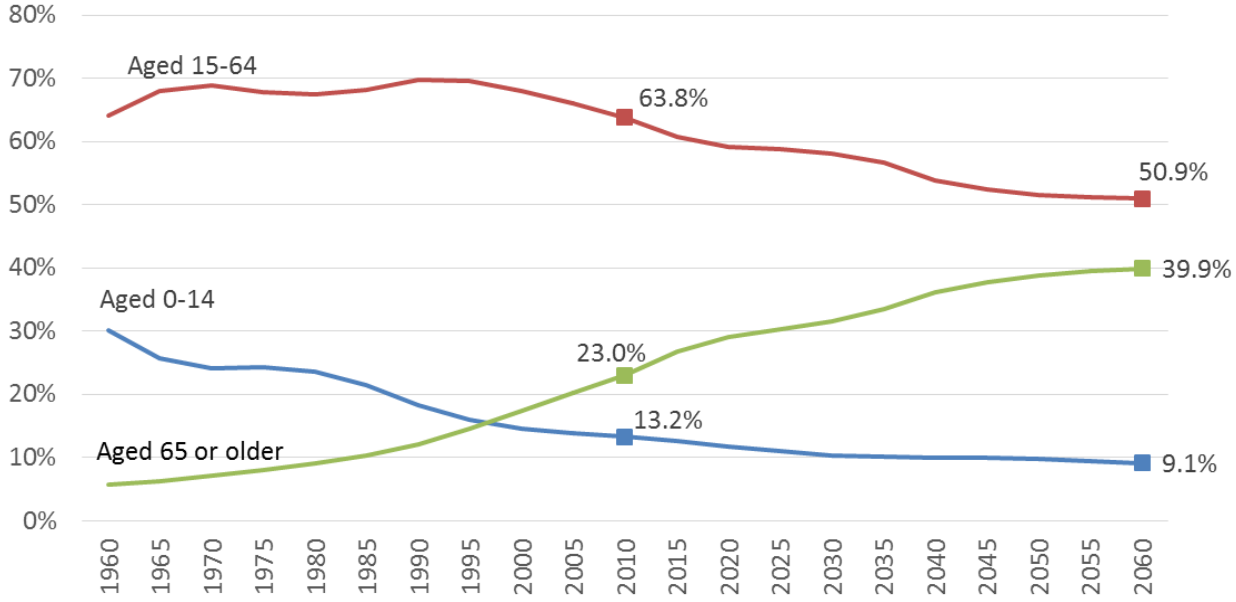
Moreover, the ratio of the working-age population to the overall population will also decline (Fig. 7). In other words, as a result of the aging society coupled with a low birth rate, the pool of personnel from which "mutual help" leaders emerge is dwindling.

Fig. 6 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.

Fig. 7 Trends in the population structure (classified into three groups)

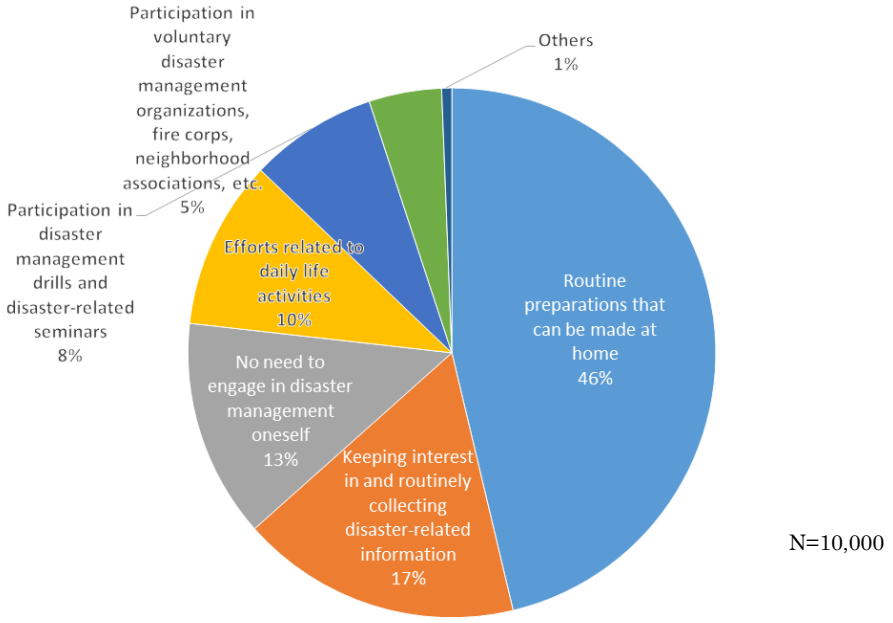


Source: The figures for 1960 to 2010 were prepared by the Cabinet Office based on the Population Census by the Ministry of Internal Affairs and Communications and the figures for 2015 and later were prepared by the Cabinet Office based on the Population Projection for Japan (January 2012) by the National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

1-3 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. 8 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

2-1 People's activities as measured in terms of consumption of time

In order to raise people's awareness concerning disaster management and to promote evacuation preparedness, it is necessary to reach out to them in a timely and appropriate manner. To explore when to reach out and which activities enable the public to engage in additional disaster management efforts, we analyzed the public's activities based on the 2015 Survey on People's Use of Time in Daily Life (hereinafter referred to as the "Daily Time Usage Survey"), which was conducted by the NHK Broadcasting Culture Research Institute's Public Opinion Research Division.

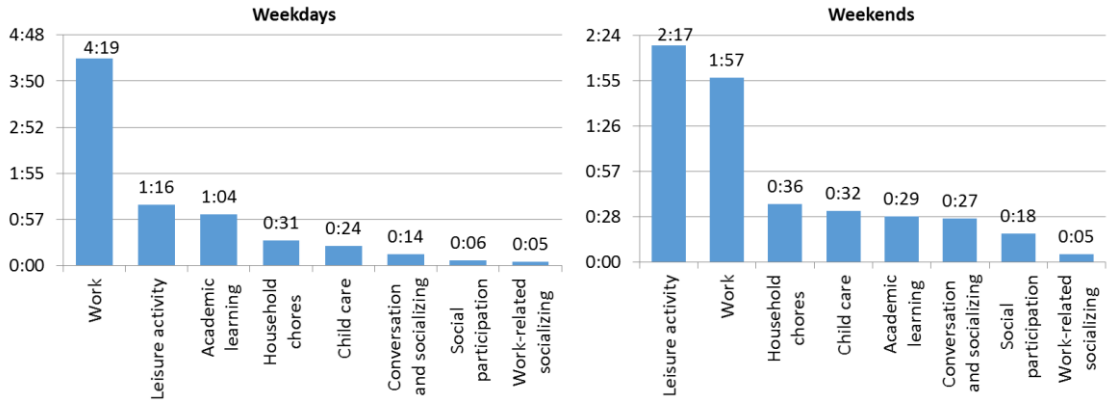
In the Daily Time Usage Survey, essential activities, such as sleeping and eating, constraining activities, such as working, shopping (housekeeping) and attending school classes, and free activities, such as conversation, playing sports, watching TV and relaxing, are classified into a total of 29 categories of activity, with the respondents asked to specify the duration of time consumed by each category of activity. In this survey, not only was the time consumed by each activity tallied; the proportion of people who engage in each activity even for a short period of time (15 minutes) was also tallied as the "the activity engagement rate." As a result, it is possible to identify activities regularly conducted, however briefly.

(1) Time Spent on Activity

The time consumed by "work" is the longest. Although the time consumed by "leisure activity" is short, the activity engagement rate for it is high. The results show that while the time consumed by leisure activity on weekdays is short, a high percentage of people engage in such activity (Fig. 9 and Fig. 10).

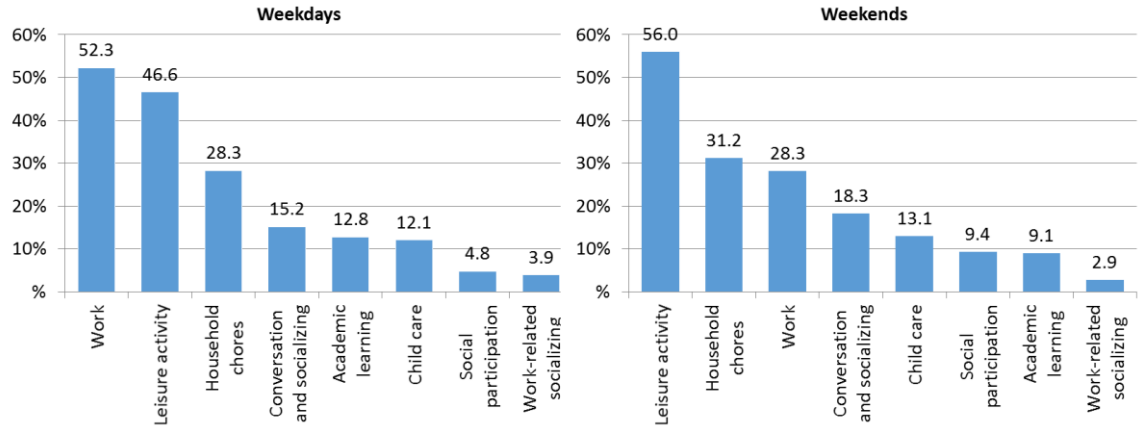
It can be presumed that in order to encourage the public to participate in disaster management activity, it is highly effective to make it easy for them to access media that contribute to raising awareness concerning disaster management while working or engaging in leisure activity, for example by calling on business operators to engage in disaster management activities and placing feature articles on media accessed frequently by hobby groups.

Fig. 9 Average time consumed by major categories of activity among all respondents



Source: Produced by the Cabinet Office based on the 2015 Survey on People's Use of Time in Daily Life (March 2016) by the NHK Broadcasting Culture Research Institute.

Fig. 10 Activity engagement rates for major categories of activity



Source: Produced by the Cabinet Office based on the 2015 Survey on People's Use of Time in Daily Life (March 2016) by the NHK Broadcasting Culture Research Institute.

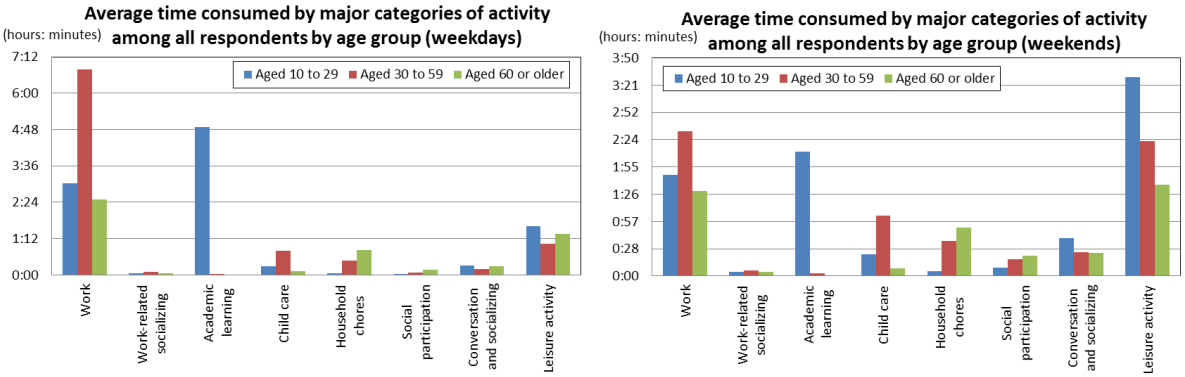
(2) Time Consumed by Activity by Age Group

On weekdays, the time consumed by "work" is longest among people aged from 30 to 59. The time consumed by "leisure activity" is longer among people aged 10 to 29 and people aged 60 or older than among people aged 30 to 59. On weekends, the time consumed by "leisure activity" is particularly long among people aged 10 to 29. Meanwhile, the time consumed by "child care" is longer among people aged from 30 to 59 than among other age groups (Fig. 11).

Regarding the activity engagement rate for activity on weekdays, the rate for "work" is highest among people aged 30 to 59. The activity engagement rate for "leisure activity" is higher among people aged 10 to 29 and people aged 60 or older than among people aged 30 to 59 (Fig. 12).

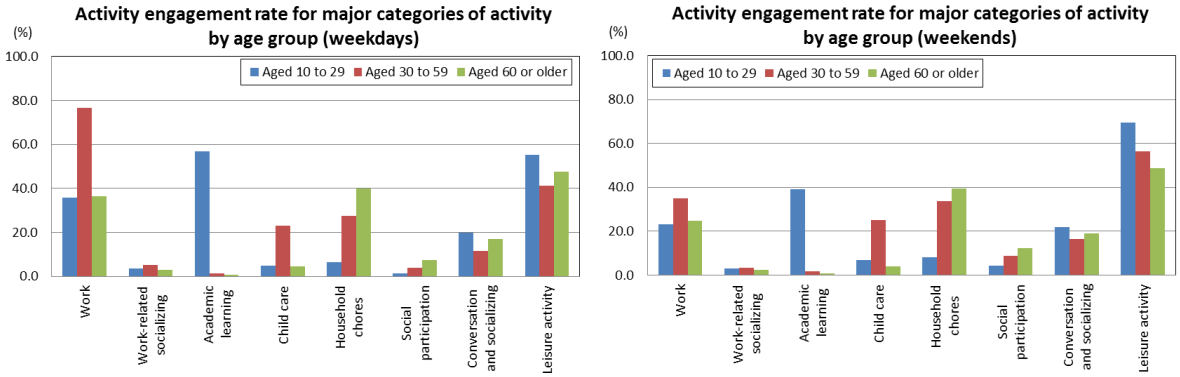
It is possible to reach out to a wide range of people aged 30 to 59 by calling their attention to disaster management during work and to people aged from 10 to 29 and people aged 60 or older by doing so during leisure activity.

Fig. 11 Average time consumed by major categories of activity among all respondents (by age groups)



Source: Produced by the Cabinet Office based on the 2015 Survey on People's Use of Time in Daily Life (March 2016) by the NHK Broadcasting Culture Research Institute.

Fig. 12 Activity engagement rates for major categories of activity (by age group)



Source: Produced by the Cabinet Office based on the 2015 Survey on People's Use of Time in Daily Life (March 2016) by the NHK Broadcasting Culture Research Institute.

2-2 People's Activities Related to Information and Communication

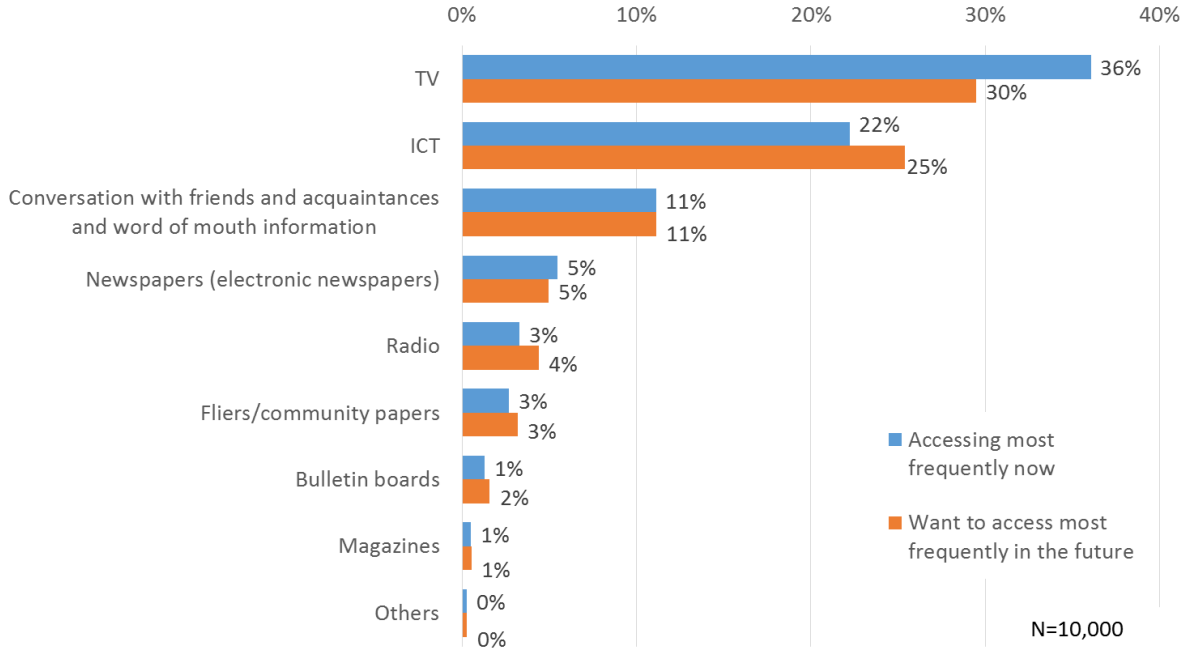
In order to further promote disaster management efforts among the general public, one effective measure will be to promote such efforts as part of daily life activities. The Cabinet Office conducted an Internet questionnaire survey concerning awareness concerning activities related to disaster management (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.

(1) Access to information

Before starting initiatives — not only disaster management but any initiative — people are likely to access relevant information as the first step. Therefore, the survey identified how ordinary people obtain information in their daily life.

When asked about through which media they obtain information in their daily life, many respondents cited TV, ICT, and word of mouth as media which they are "accessing most frequently now" (Fig. 13). Regarding ICT, the survey results show that the percentage of people who regard it as a medium which they "want to access most frequently in the future" is higher than the percentage of people who are "accessing most frequently now," indicating high expectations for ICT as an information medium.

Fig. 13 Information media accessed by people



*It should be kept in mind that information referred to here is not only disaster management information but information in general that may be obtained in daily life.

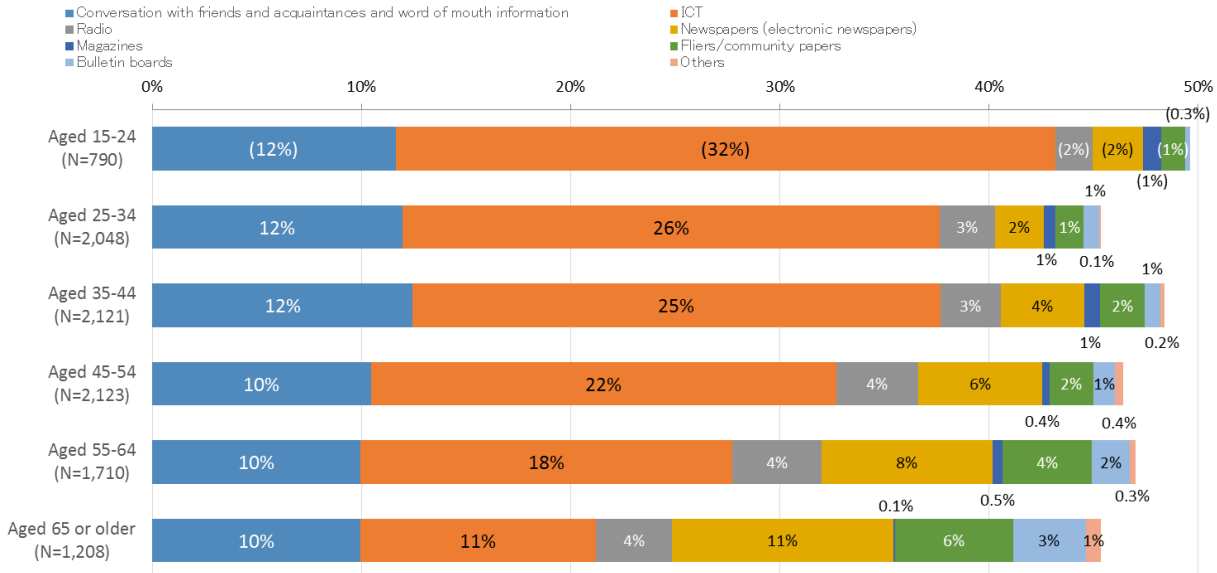
Source: Prepared from the Survey on Awareness of and Activities Related to Disaster Management in Daily Activities (May 2016)

Next, let us take a look at the most frequently accessed information medium by age group.

ICT is the most frequently accessed medium among younger age groups, while paper-based media delivered to homes, such as newspapers and advertising fliers, are the most frequently accessed media among older age groups (Fig. 14). If ICT is divided further, social media are accessed far more frequently among people aged 15 to 24 than among other age groups (Fig. 15).

This suggests that dissemination of information via social media is effective in the case of younger age groups.

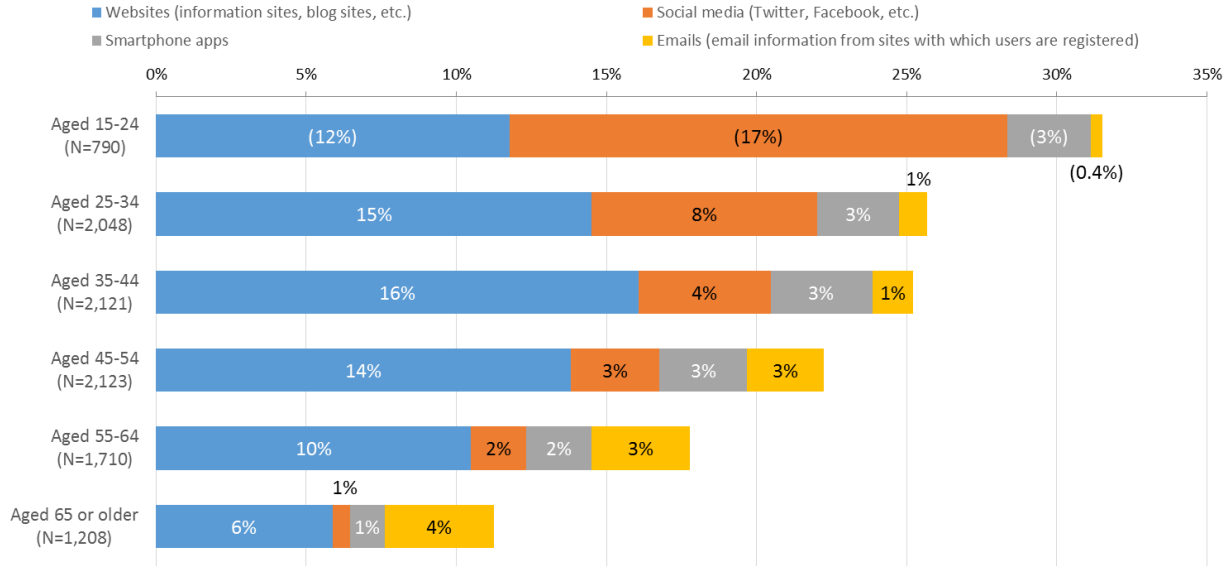
Fig. 14 The most frequently accessed information medium [by age group]



*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)

Fig. 15 The most frequently accessed ICT information medium [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.

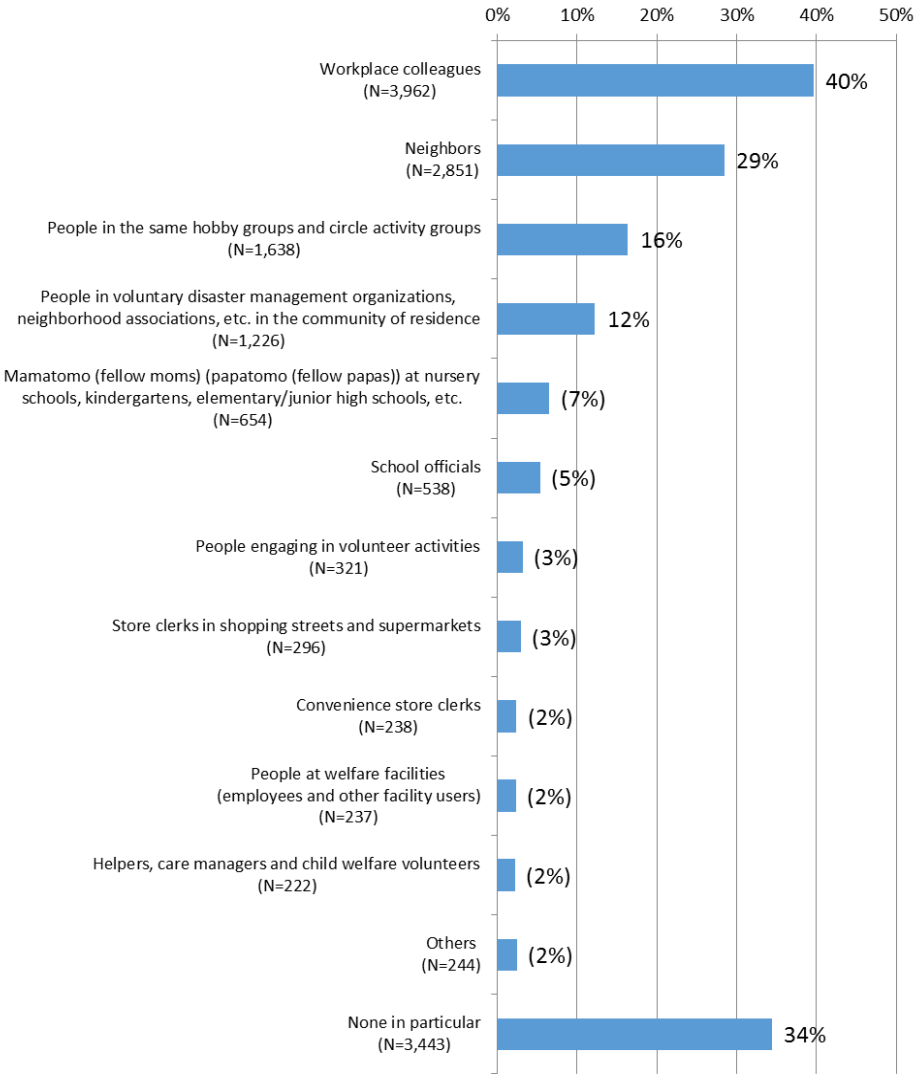
Source: Prepared from the Survey on Awareness of and Activities Related to Disaster Management in Daily Activities (May 2016)

(2) Communication Partners

The survey asked the respondents to cite all individuals and groups other than family members with whom they communicate on a daily basis (multiple replies accepted). This makes it possible to identify individuals and groups with whom ordinary people regularly communicate at least to some degree.

The results indicate that the percentage of people who cited workplace colleagues and other people involved in constraining activity and familiar people such as neighbors and people in the same hobby group is high (Fig. 16).

Fig. 16 Groups with which people communicate on a daily basis [multiple replies accepted]



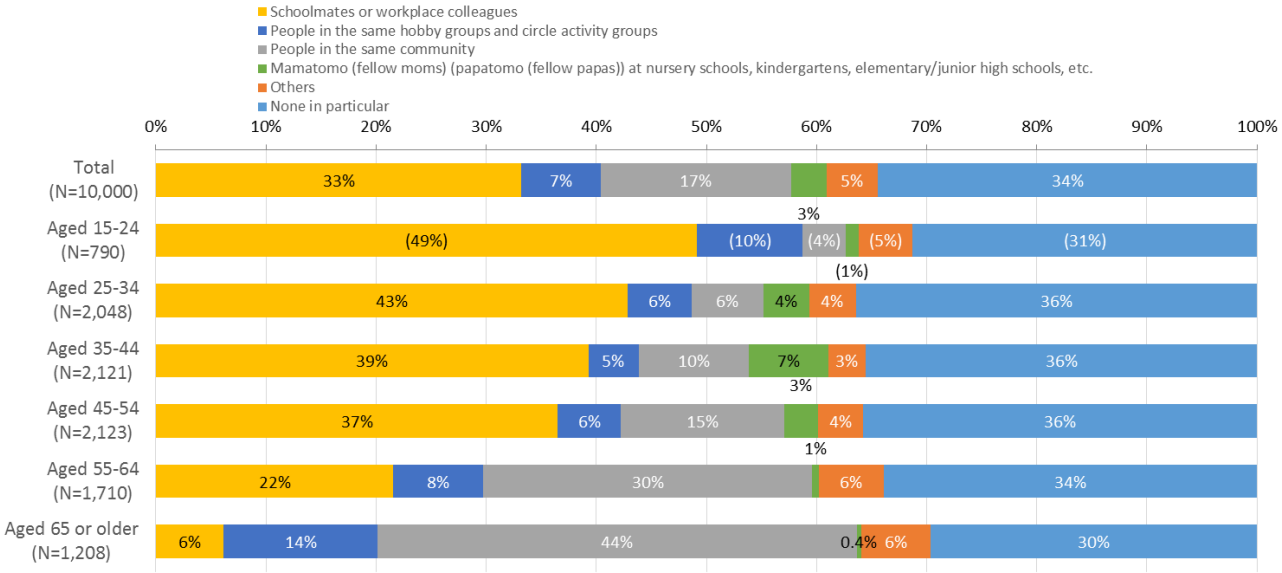
Source: Prepared from the Survey on Awareness of and Activities Related to Disaster Management in Daily Activities (May 2016)

Next, 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 (Fig. 17; the same applies hereinafter).

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



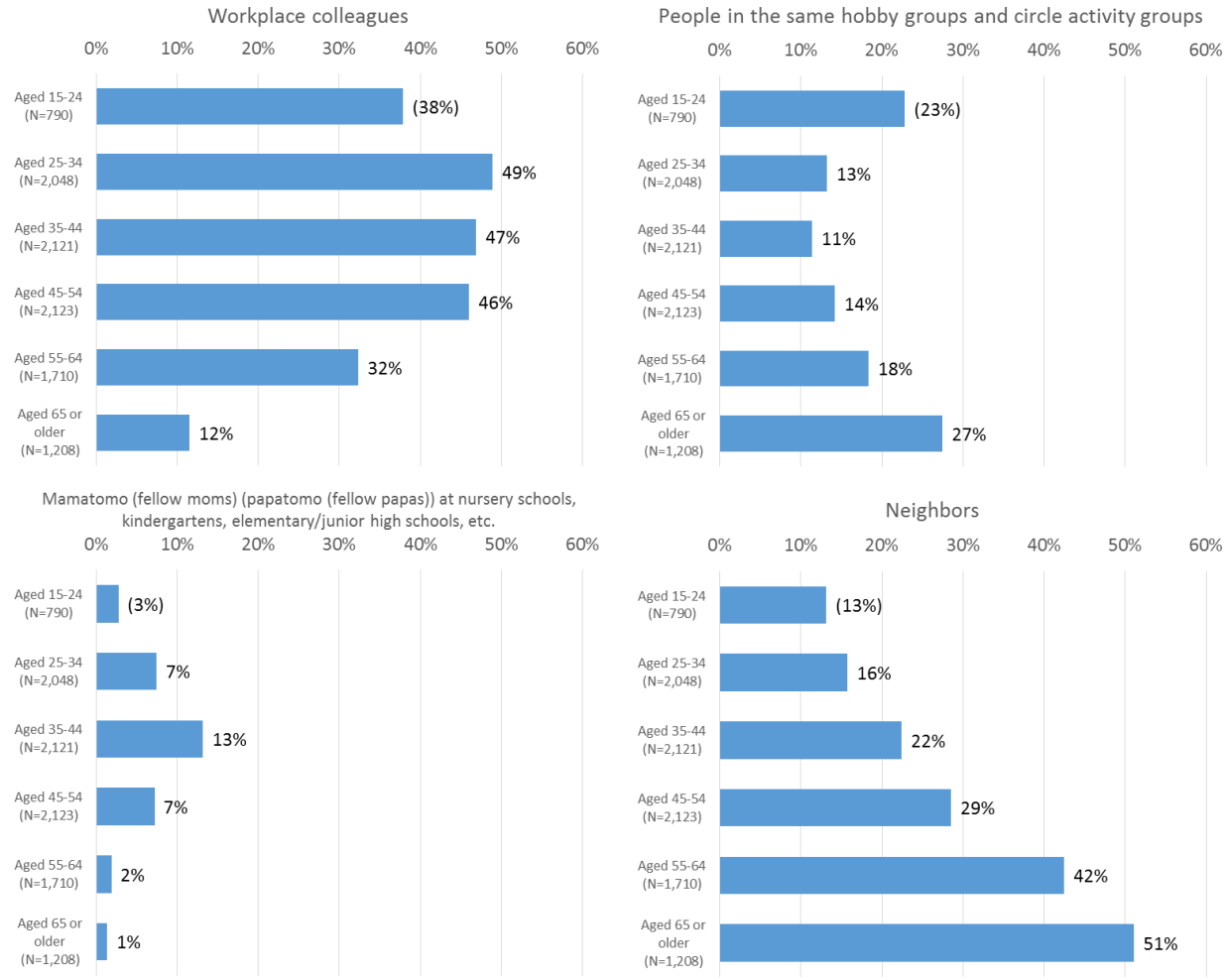
*The figures in the parentheses are only for reference because they concern items for which the number of replies was less than 1,000.

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

Next, let us look at groups with which people communicate at least to some degree by age group. In the question concerned, the respondents were allowed to give multiple replies regarding groups with which they communicate.

While the overall trend is similar to the trend described on the previous page, the percentage of people who cited groups other than workplace colleagues and others involved in constraining activity, such as people in the same hobby group and neighbors including so-called “mamatomo” (fellow moms) is high compared with the results of the one-reply question (Fig. 18). This indicates that the range of people’s socializing activity outside the fields of work and other constraining activity is expanding.

Fig. 18 Groups with which people communicate on a daily basis 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)

2-3 Awareness of and Activities Related to Disaster Management

(1) 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” (Fig. 19). 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% (Fig. 20). The results indicate a tendency among some people to be aware of the inadequacy of their disaster management efforts while recognizing the possibility of a major disaster occurring.

In the future, it will be necessary to consider enlightenment activities to encourage people aware of the possibility of disaster to make preparations for its occurrence.

Fig. 19 Awareness of disaster possibility

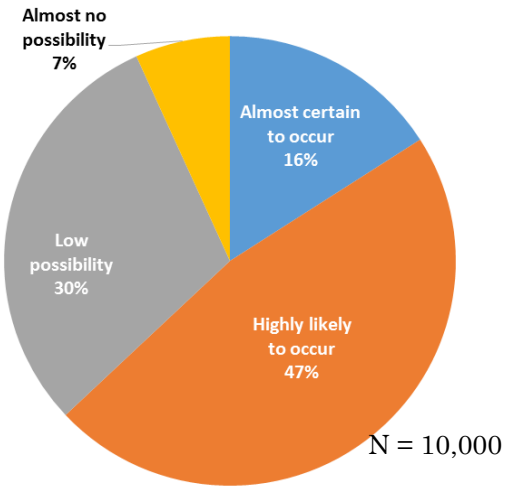
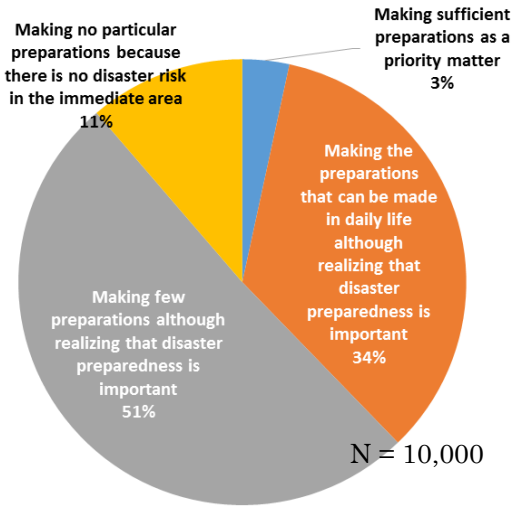


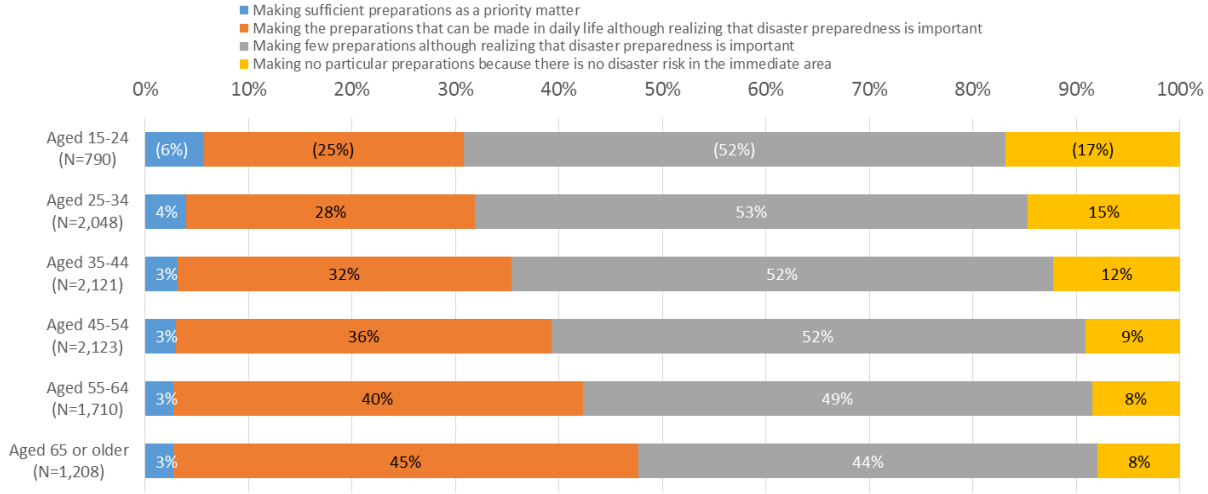
Fig. 20 Importance of disaster preparedness



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

Next, the survey results concerning the recognition of the importance of disaster preparedness were tabulated by age group. Older age groups have a higher tendency to prepare for disasters than younger age groups (Fig. 21).

Fig. 21 Importance of disaster preparedness [by age group]



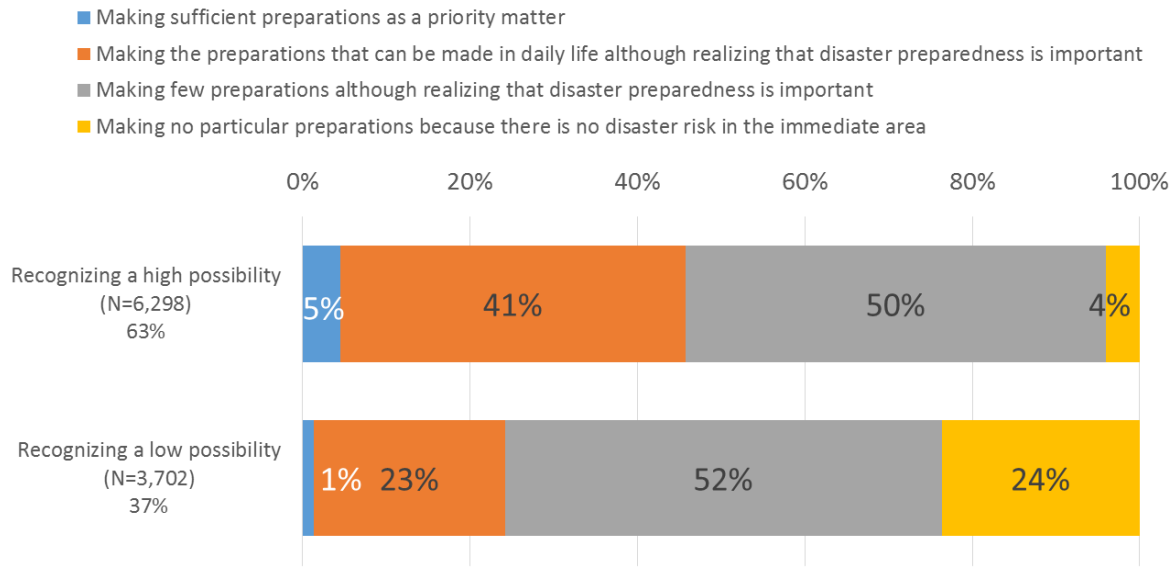
*The figures in the parentheses are only for reference because they concern items for which the number of replies was less than 1,000.

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

Moreover, regarding the awareness of disaster possibility, people who chose “almost certain to occur” as their reply and those who chose “highly likely to occur” were classified as the “recognizing a high possibility” group and people who chose “low possibility and “almost no possibility” were classified as the “recognizing a low possibility” group; the results concerning the recognition of the importance of disaster preparedness were then tabulated with respect to each group.

The results indicate that preparedness tends to be low among people in the low possibility group (Fig. 22). As there is a strong correlation between awareness of disaster possibility and disaster preparedness, it is necessary to consider educating young people in particular, to foster awareness concerning disaster management in order promote disaster preparedness.

Fig. 22 Recognition of the importance of disaster preparedness by awareness of disaster possibility



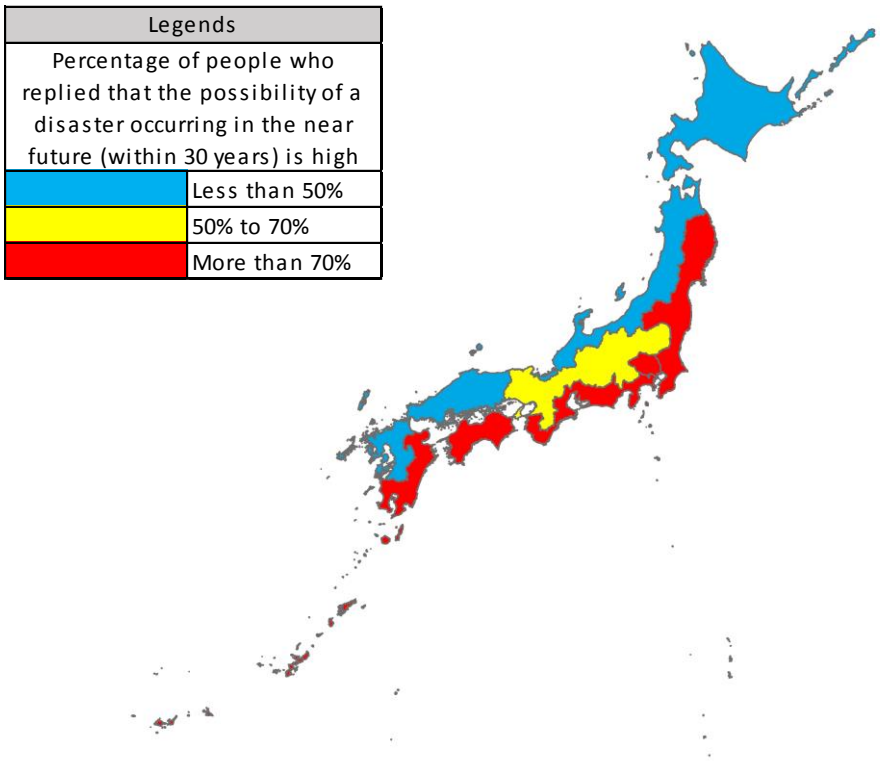
Source: Prepared from the Survey on Awareness of and Activities Related to Disaster Management in Daily Activities (May 2016)

[Sense of Crisis Concerning Disasters by Region]

Regarding awareness of the possibility of a disaster occurring, the survey asked the respondents whether they expect that a major disaster will occur in the future in the region where they live now, so the survey results were tabulated by region. Regarding the tabulation method, it should be kept in mind that prefectures for which the results showed similar tendencies concerning replies were grouped together into regions so that the number of replies for each region is higher than 1,000.

As for regional trends, the percentage of people who expect that a major disaster is “highly likely to occur” is high in regions located on the Pacific Coast (Fig. 23). This may indicate that a sense of crisis about disasters is taking hold due to efforts to raise awareness about a possible Nankai Trough Earthquake. Thus, the survey produced results instructive for consideration of future awareness-raising and education activities.

Fig. 23 Sense of crisis concerning major disasters by region



* Regions: Prefectures were grouped together into seven regions in accordance with their tendency concerning replies so that the number of replies for each is higher than 1,000.

(1) Hokkaido-Tohoku(Sea of Japan side)-Hokuriku (N=1,403)
Hokkaido, Aomori, Akita, Yamagata, Niigata, Toyama, Ishikawa, Fukui
(2) Tohoku (Pacific side) (N=1,099)
Iwate, Miyagi, Fukushima, Ibaraki, Chiba
(3) Southern Kanto (N=1,094)
Saitama, Tokyo
(4) Honshu (Pacific side) (N=1,439)
Kanagawa, Shizuoka, Aichi, Mie, Wakayama
(5) Inland-Northern Kinki (N=2,224)
Tochigi, Gunma, Yamanashi, Nagano, Gifu, Shiga, Kyoto, Nara, Osaka, Hyogo
(6) Chugoku-Kyushu (except the eastern coast) (N=1,557)
Tottori, Shimane, Okayama, Hiroshima, Yamaguchi, Fukuoka, Saga, Nagasaki, Kumamoto
(7) Shikoku-Kyushu (eastern coast)-Okinawa (N=1,184)
Tokushima, Kagawa, Ehime, Kochi, Oita, Miyazaki, Kagoshima, Okinawa

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

[Reasons for Lack of Disaster Management Efforts]

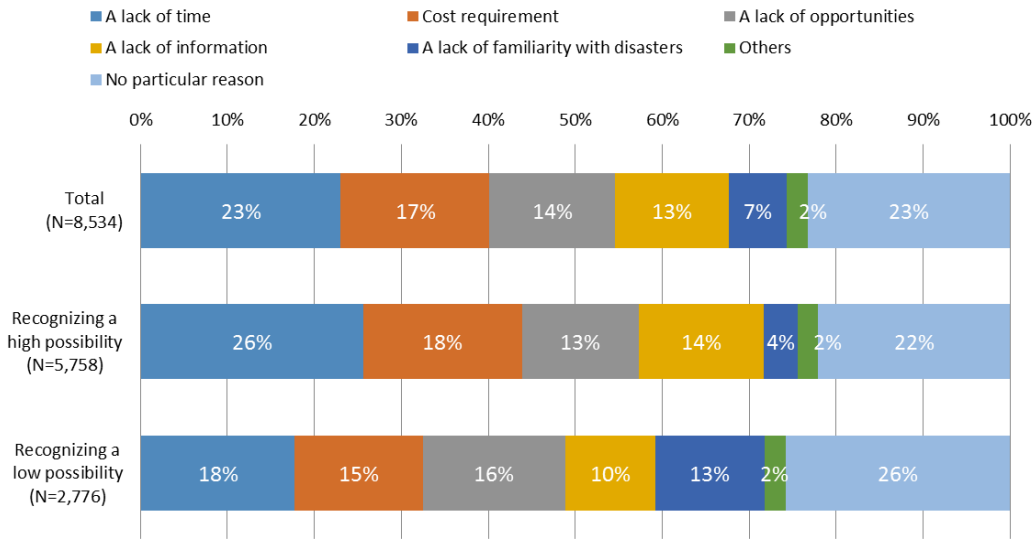
In order to consider what should be emphasized in activities to raise awareness concerning disaster preparedness, the survey asked the respondents who replied either that they are only "making the efforts that can be made in daily life although they realize disaster preparedness is important," or that 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 (Fig. 24; the same applies hereinafter).

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



Note: Classification of replies concerning the reasons for a lack of disaster management efforts is as follows:
(1) A lack of time: "busy with constraining activities," "busy with hobby and leisure activities" and "busy with other daily-life activities"
(2) A lack of information: "ignorant of what efforts to make in preparation for disasters"
(3) Cost requirement: "too costly compared with own financial status" and "too troublesome to encourage willingness to act"
(4) A lack of opportunities: "no opportunity to start" and "not feeling a sense of urgency"
(5) A lack of familiarity with disasters
Source: Prepared from the Survey on Awareness of and Activities Related to Disaster Management in Daily Activities (May 2016)

(2) Groups Engaging in Disaster Management Efforts

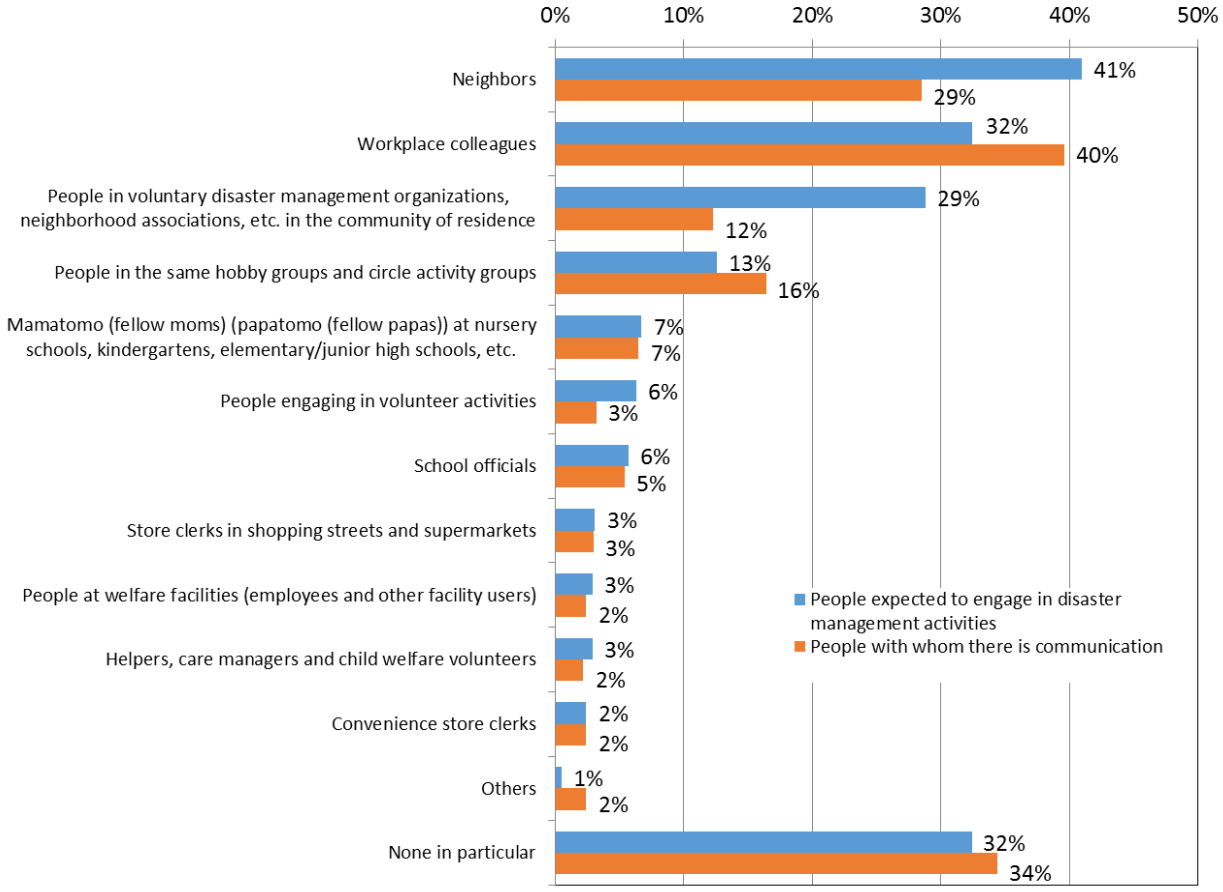
The Disaster Management Awareness Survey asked the respondents about whom other than their family members they communicate with on a daily basis (Fig. 16). In addition, it also asked them about what individuals and groups they think can engage in disaster management efforts.

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% (Fig. 24; 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.

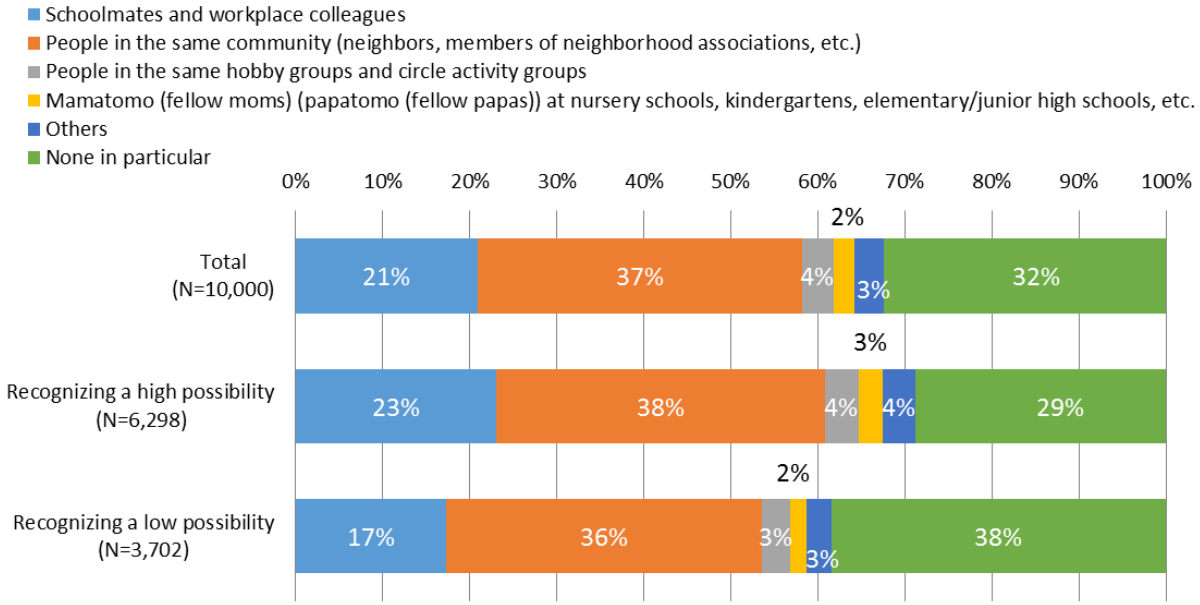
Fig. 25 People with whom there is daily communication and people who are expected to engage in disaster management efforts



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

Just as in Fig. 22, the respondents were classified into the “recognizing a high possibility group” and the “recognizing a low possibility group” and the survey results were tabulated on the basis of the group with which they feel best able to engage in disaster management efforts. The percentage of people who cited no particular group is lower in the “recognizing a high possibility” group, indicating that people recognizing a high possibility are more likely to have in mind specific groups with which they may be able to cooperate in disaster management (Fig. 26).

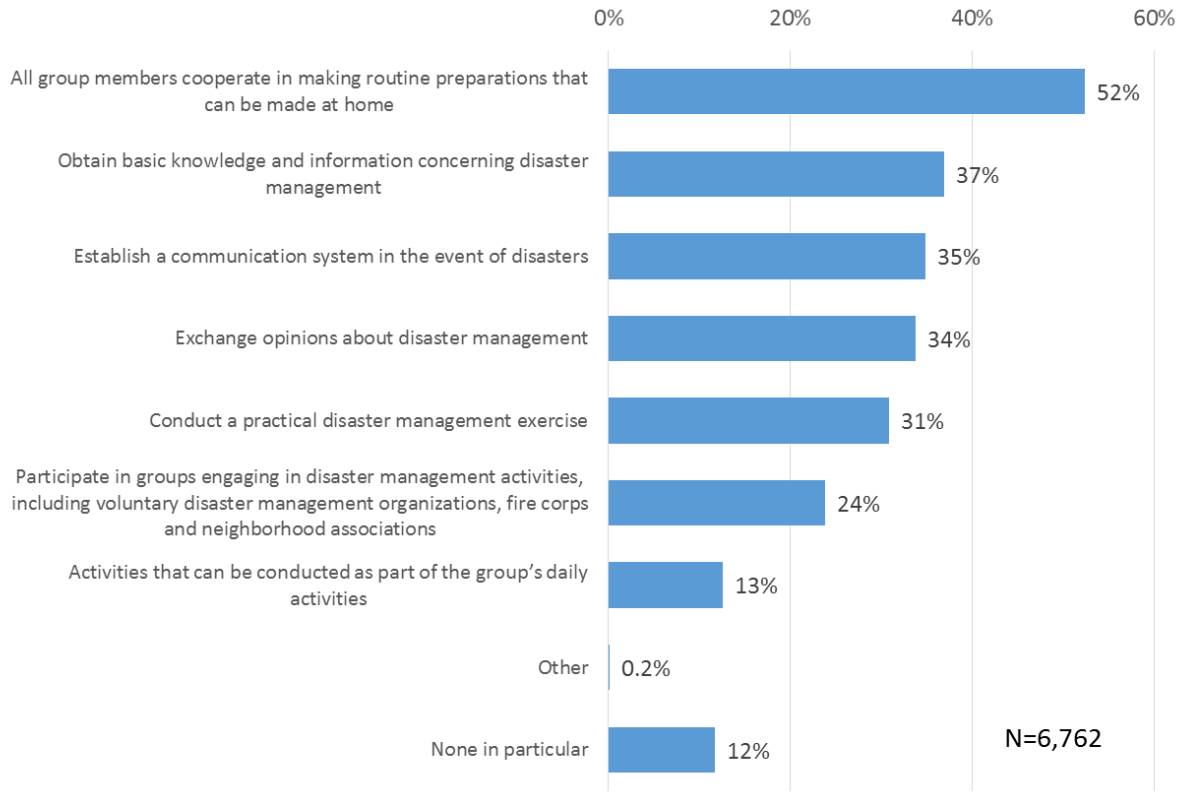
Fig. 26 Recognition of the disaster risk level and groups with which people can engage in disaster management efforts



Note: Classification regarding the recognition of the disaster risk level
- Recognizing a high possibility: “Almost certain to occur” + “Highly likely to occur”
- Recognizing a low possibility: “Low possibility” + “Almost no possibility”
Source: Prepared from the Survey on Awareness of and Activities Related to Disaster Management in Daily Activities (May 2016)

Furthermore, when asked about what efforts can be made in groups with which they communicate on a daily basis, the highest percentage of people replied that all group members cooperate in making routine preparations that can be made at home. This suggests the possibility that in disaster management efforts, people may cooperate with members of groups with which they are communicating while comparing notes about such efforts (Fig. 27).

Fig. 27 Disaster management activities conducted with groups with which people communicate on a daily basis



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

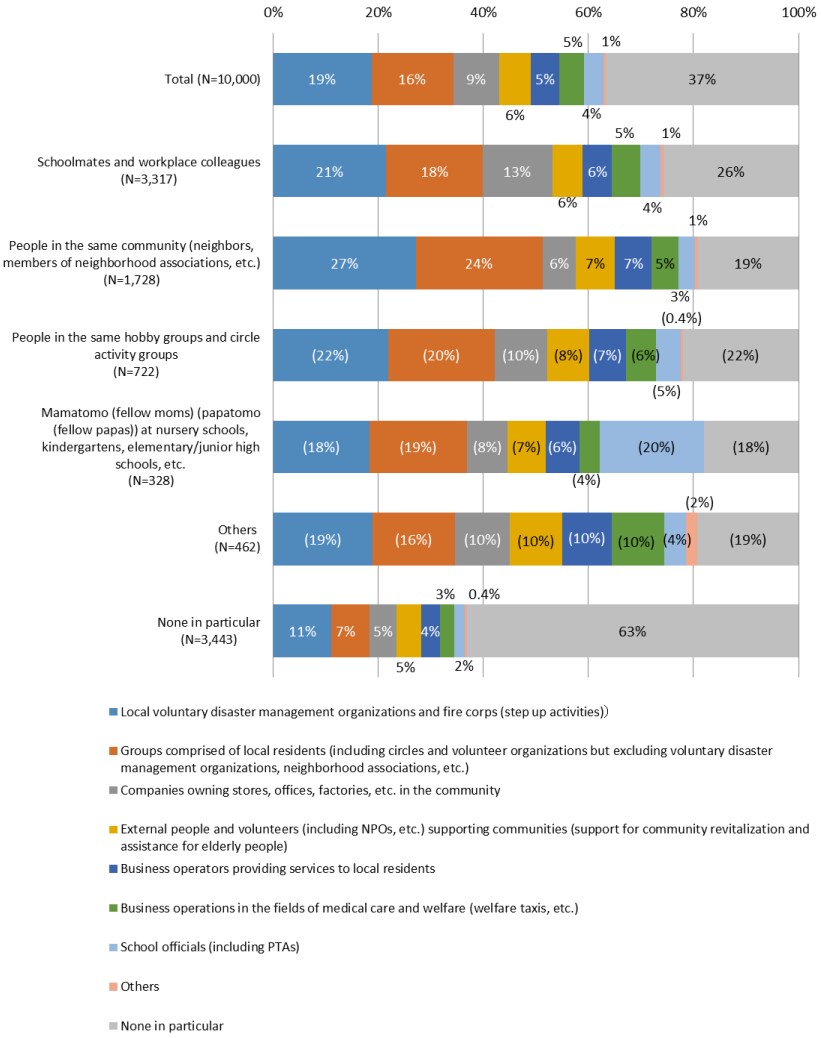
2-4 Disaster Management Leaders

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 (Fig. 28; the same applies hereinafter). The next-largest group consisted of respondents who cited "groups comprised of local residents" and those who cited "companies owning stores, offices, factories, etc. in the community."

Next, the survey results were tabulated by the type of groups with which people communicate on a daily basis. Among people who communicate with "people in the same community," the highest percentage believe that voluntary disaster management organizations and fire corps should be further strengthened. This group of respondents plus those who cited "groups comprised of local residents (including circles and volunteer organizations but excluding voluntary disaster management organizations, neighborhood associations, etc.)" together account for more than 50% of respondents, indicating that more than half place high expectations on community organizations and groups. 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. 28 People expected to be 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

3-1 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 in Fig. 25 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 indicated in Fig. 27 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.

3-2 Use of Technology, Including ICT

The various effects of the aging society coupled with a low birthrate, such as a shortage of disaster management leaders, can be partially offset by the use of technology.

When engaging in disaster management efforts, it is necessary to first access information, whether in emergencies or in normal times. It is indisputable that the use of ICT has been spreading remarkably in recent years in a variety of fields, including disaster management. As was shown in Fig. 15, young people obtain information from social media. Therefore, it may be said that the dissemination of information via social media, to which the disaster management staff at the Cabinet Office are devoting considerable effort, is an activity using a medium with which young people are very familiar.

Dissemination and sharing of information using ICT, including social media and websites, has already become a popular means of communication. There is an increasing number of cases in which the websites of condominium management associations are used to disseminate and share not only daily-life information but also disaster management information, and information-sharing sites concerning regional resources and hazardous areas using the web mapping system are also becoming more widespread. Moreover, progress is being made in the development and commercialization of disaster management ICT solutions, including portable ICT disaster management units which enable emergency restoration of communication functions in environments where communications have been disrupted by power outages or other factors.

As shown above, efforts are being made to make access to information easier and more reliable.

In addition, in some cases, smartphones are used for guidance to evacuation shelters and evacuation exercises (described in detail in the special feature in Part 1). Thanks to the prevalence of smartphones, ubiquitous networks and other technologies to which the performance and widespread use of mobile information terminals held the key are rapidly becoming a reality.

In addition, there are burgeoning signs of the application of consumer-sector technologies, such as the development of robot technology intended for use in the field of nursing care.

Such technological advances are beginning to put in place an environment in which ordinary people can engage in disaster management efforts more easily, both mentally and physically.

3-3 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 2015, 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.

Furthermore, Team Bosai Japan, a comprehensive portal site concerning disaster management, will be used as a tool for dissemination of information in the ICT era.

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 Bureau 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

1-1 About “Disaster Management 4.0”

(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 phased introduction of measures. The current round of disaster management activities intended to provide an opportunity to prepare for the increasingly severe disasters caused by climate change is designated as “Disaster Management 4.0.”

The following provides an outline of “Disaster Management 1.0” to “Disaster Management 3.0.”

(i) “Disaster Management 1.0”: Isewan Typhoon (1959)

In this disaster, a powerful typhoon caused significant human casualties and property damage. At that time, the system for the government’s response to large-scale disasters was underdeveloped and disaster-related laws were not unified, so it was unclear what roles government agencies should play and where the responsibility rested. Because of this and other factors, the system was unable to function efficiently and effectively in emergencies.

In order to improve this situation, the following measures were implemented as the first stage of Japan’s postwar disaster management.

- Enactment of the Disaster Countermeasures Basic Act, which is the most basic law for disaster management, for the purpose of developing an integrated and systematic disaster management system involving the national and local governments and public corporations.
- Establishment of the Central Disaster Management Council based on the above law and the preparation of the Disaster Management Basic Plan, which is a comprehensive and long-term plan for disaster management.

(ii) “Disaster Management 2.0”: Great Hanshin-Awaji Earthquake (1995)

In this disaster, a major earthquake whose epicenter was directly under an urban area caused devastating damage typical of an urban disaster, including destruction of houses, disruption of lifelines, paralysis of traffic systems and a huge number of casualties. The inadequacy of the crisis management system headed by the Prime Minister’s Office and of systems for gathering and communicate information at the outset was pointed out at that time, so the following measures were implemented in response:

- Improvement of the government’s initial response frameworks, including the establishment of an emergency meeting team
- Enactment of the Act on Promotion of Seismic Retrofitting of Buildings and the Act on Support for Reconstructing Livelihoods of Disaster Victims

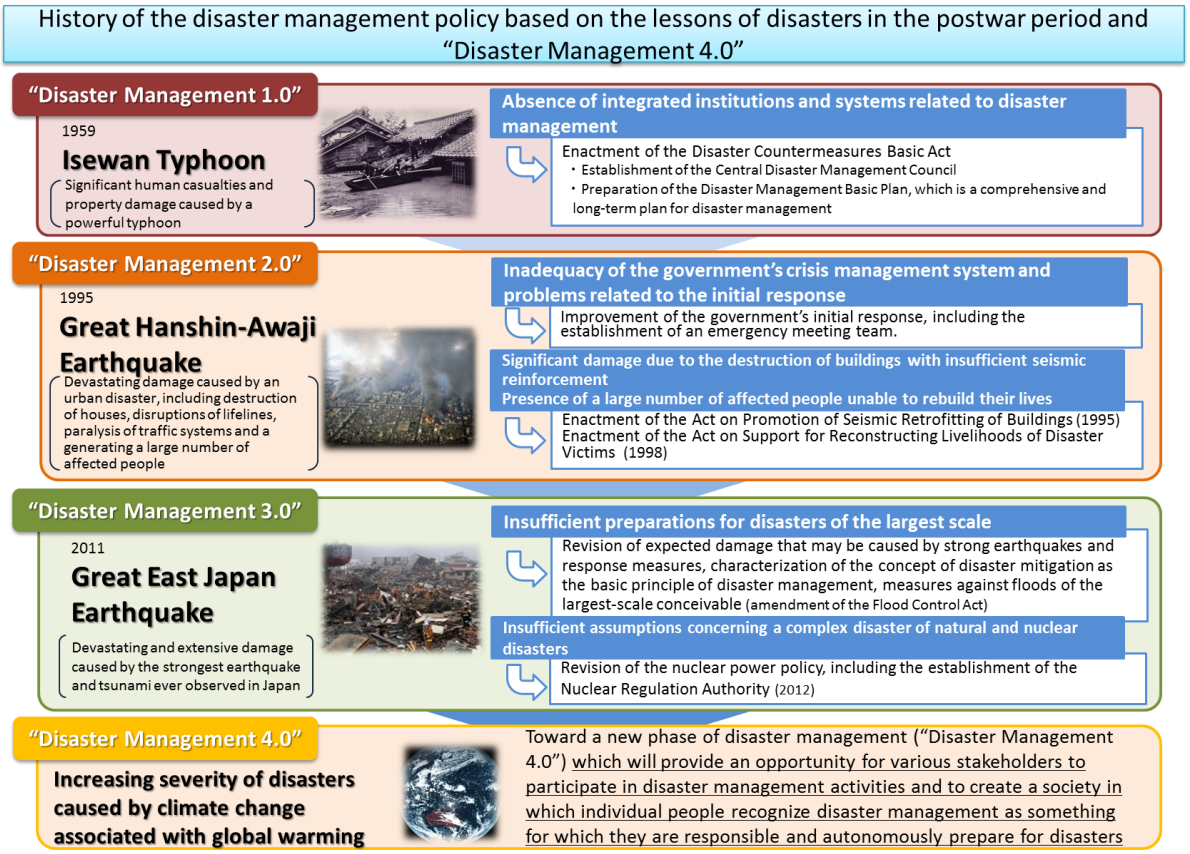
(iii) “Disaster Management 3.0”: Great East Japan Earthquake (2011)

In this disaster, a magnitude 9.0 earthquake, the strongest ever observed in Japan, and a huge tsunami caused devastating and extensive damage, mainly in the coastal areas of the Tohoku region. It was pointed out that preparations for disasters of the largest scale and assumptions concerning a complex disaster involving a natural disaster and a nuclear emergency were insufficient, so the following measures were implemented in response. However, ongoing efforts with an eye to reconstruction are required by all stakeholders.

- Revision of assumptions regarding damage that may be caused by strong earthquakes and of response measures; the positioning of the concept of disaster mitigation as the basic principle of disaster management for the first time; and measures against floods of the largest scale conceivable
- Revision of policy on nuclear power, including the establishment of the Nuclear Regulation Authority

“Disaster Management 4.0” reflects a resolve to send a message that encourages each individual to face up to disaster risks in preparation for the increasingly severe disasters caused by climate change.

(Fig. 1)



Source: Cabinet Office

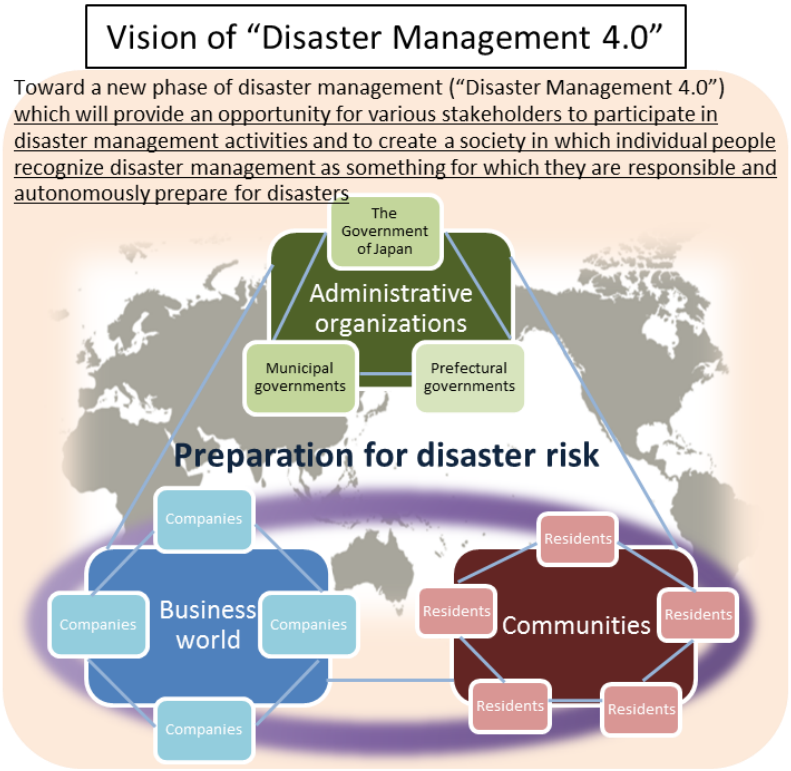
(2) Vision of "Disaster Management 4.0"

As described above, Japan has achieved development based on the lessons of the damage caused by past traumatic disasters. Meanwhile, five years after the Great East Japan Earthquake, the preparation of disaster management measures based on the assumption of largest-scale disasters 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.

There are also concerns about the increasing severity of disasters due to climate change associated with global warming. At COP21 in December 2015, the Paris Agreement, which serves as a new framework for adapting to climate change that involves all countries, was adopted. It is natural to place the top priority on mitigating the impact of global warming in this way, and moreover, it is necessary to consider from all viewpoints, including those of companies and individual people, measures necessary to prepare for increasingly severe disasters caused by climate change as exemplified by the occurrence of extremely intense 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. 2)



Source: Cabinet Office

1-2 Framework for Considering the Disaster Management 4.0 Future Vision Project

This project involves leading experts in a broad range of fields and aims to present proposals with a view to sounding a clarion call for the whole society to prepare for disasters, sending a message intended not only to change each individual’s mindset but also to encourage him/her to actually take action.

(Fig. 3)

○Purpose and objective of the launch of the project

The project was launched (decision made by the Minister of State for Disaster Management) in order to show the features of disasters which are expected to become increasingly severe and to consider disaster management measures which are both truly necessary for the public and effective in light of scientific knowledge concerning climate change associated with global warming.

* “Disaster Management 4.0” reflects a resolve to set the tone of new disaster prevention and mitigation measures in light of the Isewan Typhoon (1959=1.0), the Great Hanshin-Awaji Earthquake (1995=2.0) and Great East Japan Earthquake (2011=3.0), each of which marked a major turning point for Japan’s disaster management measures, to encourage each individual to face up to disaster risks in preparation for the increasingly severe disasters caused by climate change.

Isewan Typhoon (1959)

Great Hanshin-Awaji Earthquake (1995)

Great East Japan Earthquake (2011)

○Expert members

Jun Iio	Professor, National Graduate Institute for Policy Studies
Seita Emori	Head, Climate Risk Assessment Section, Center for Global Environmental Research, National Institute for Environmental Studies
Hideki Kato	Representative, Kosonippon
Kiyoshi Kurokawa	Visiting Professor, National Graduate Institute for Policy Studies
Akimasa Sumi	President, National Institute for Environmental Studies, Japan
Kae Takase	Researcher, Center for Low Carbon Strategy Society, Science and Technology Agency
Yoichi Funabashi	Chairman, Rebuild Japan Initiative Foundation
Takanori Matsui	Director, Planetary Exploration Research Center, Chiba Institute of Technology

(As of December 2015)

Source: Cabinet Office

Column: “Disaster Management 4.0” Future Vision Dialogue

“Disaster Management 4.0” Future Vision Dialogue was held in order to directly listen to the voices of people actually involved in disaster management, based on the idea that viewpoints which better reflect the actual situation are necessary. Specifically, exchanges of opinions took place with condominium management associations in Tokyo, members of junior high school disaster management clubs, and company officials.

Among these participants, the junior high school disaster management clubs are conducting activities based on a high-minded commitment to act as rescuers in communities, rather than waiting to be rescued as was previously the case.

A scene of a meeting for an exchange of opinions with Tokias

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

2-1 Trends in Climate Change-related Indicators

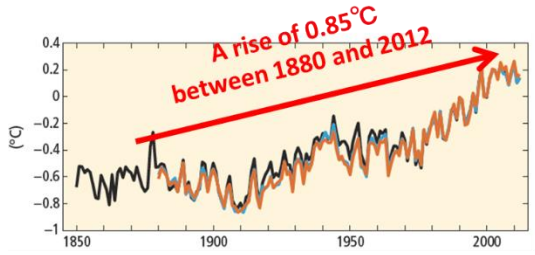
(1) Global Warming

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.

A look at the trends in other indicators shows that the total area of snow and ice in the Northern Hemisphere in the springtime is declining, and the total area of sea ice in the Arctic region in the summertime is also decreasing.

While projections vary between climate models to some degree, rises in the temperature and the sea level are forecast to continue.



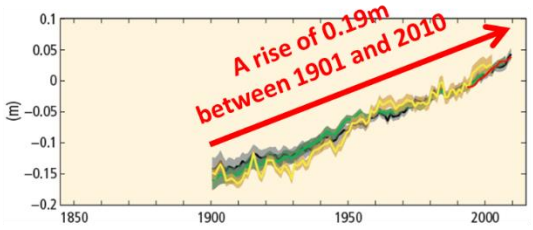
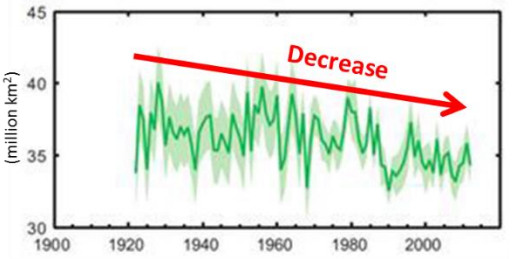


Fig. Deviations in average global surface temperature, onshore and offshore combined (top)
Changes in the average global sea level (bottom)
* The benchmark for both is the average for 1986-2005.
Source: IPCC AR5 Synthesis Report (SYR), Summary for Policymakers
Figure SPM.1 (a), (b)
*The arrows and text in the figures (in red) were added to the original figures.



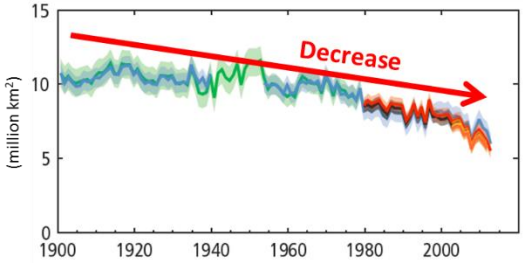


Fig. Trend in the total area of snow cover in the Northern Hemisphere (springtime) (top)
Trend in the total area of sea ice in the Arctic region (summertime) (bottom)
Source: IPCC AR5 WG1 report (WG1) SPM
Figure SPM.1 (a), (b)
*The arrows and text in the figures (in red) were added to the original figures.

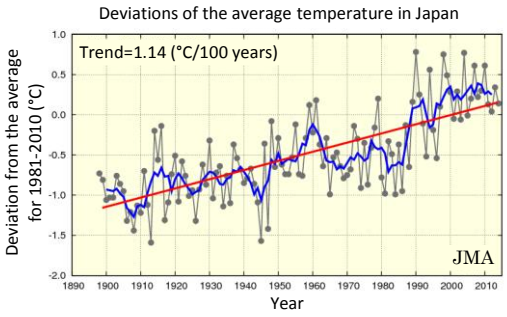
(2) Results of Observation of Climate Change in Japan

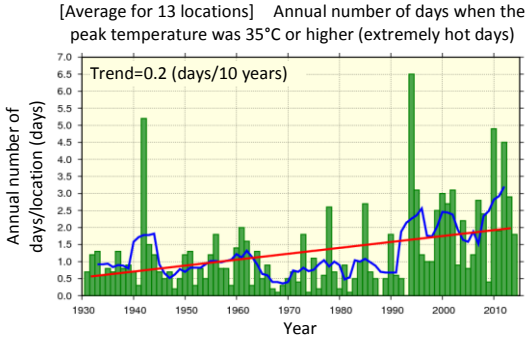
(i) Annual average temperature

Changes over time based on Japan Meteorological Agency (JMA) analysis are shown below.

Between 1898 and 2014, the temperature rose at a pace of 1.14°C per century.

・There is a clear uptrend in the number of days when the peak temperature was 35°C or higher (extremely hot days) between 1931 and 2014.





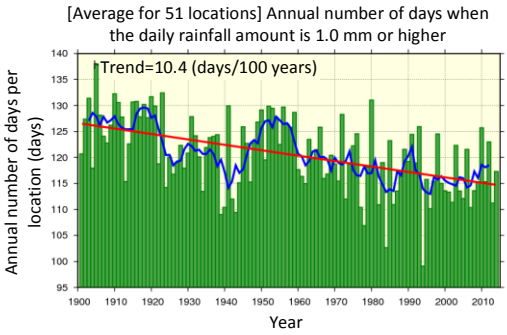
Climate Change Monitoring Report 2014 (JMA)

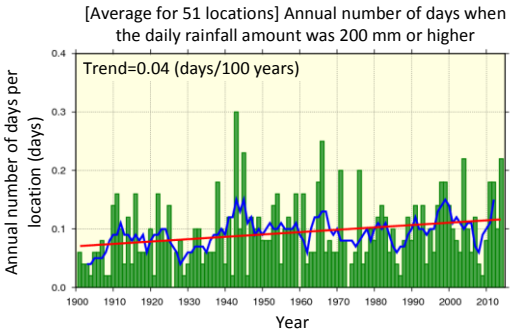
(ii) Rainfall

The trend in rainfall is as shown below.

・The numbers of days when the daily rainfall amount was 100 mm or higher and days when it was 200 mm or higher increased between 1901 and 2014.

・On the other hand, the number of days when the daily rainfall amount of 1.0 mm or higher declined.





Source: Climate Change Monitoring Report 2014 (JMA)

(3) Forecast of Climate Change in Japan

(i) Annual average temperature

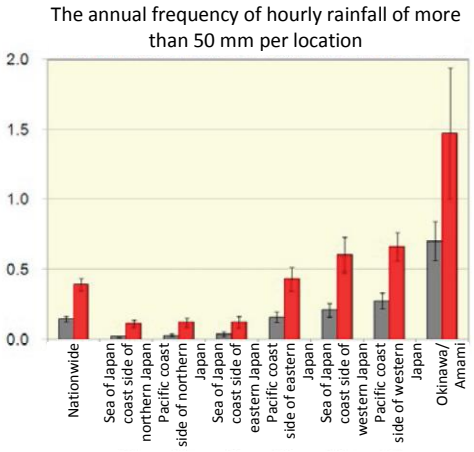
The annual average temperature in the future climate (the average between 2080 and 2100) as compared with the current climate (the average between 1984 and 2004) is projected as follows:

・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.

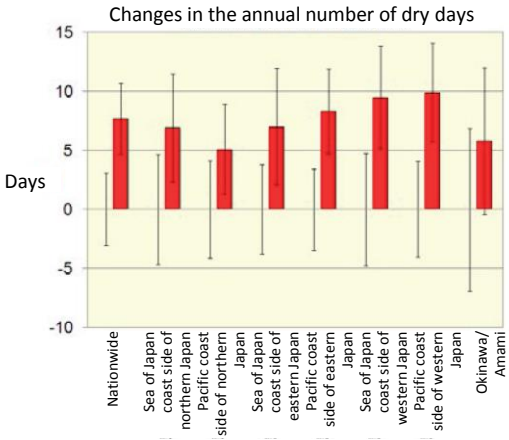
(ii) Rainfall

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 in many regions.



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)



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)

2-2 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.

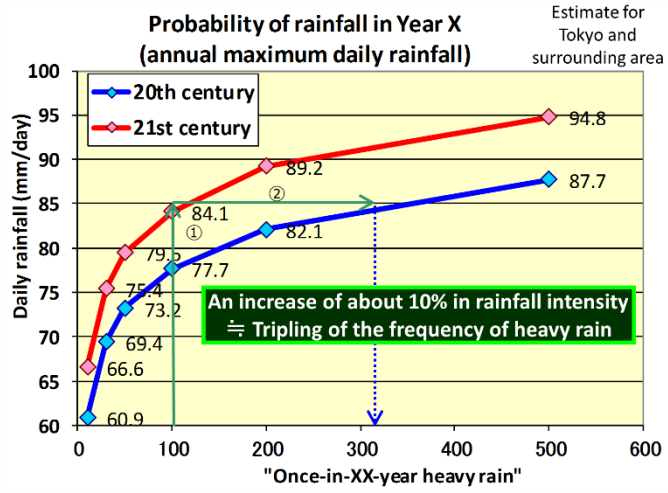
Among many research papers, there is a consensus that heavy rain events that could cause floods in major Japanese rivers will significantly increase by the end of this century compared with now, triggering growth in the rainfall amount by 10-30%.

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. Over the long term, the number of typhoons in the West Pacific region will decrease somewhat.

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 at a time when concerns have already arisen about a possible increase in damage to inland areas caused by storm surges and other flooding, as well as shore erosion, due to the increase in powerful typhoons.

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.



Source: OKI, T., 2015: Integrated Water Resources Management and Adaptation to Climate Change, in A.K. Biswas and C. Tortajada (eds.), Water Security, Climate Change and Sustainable Development, Water Resources Development and Management, DOI 10.1007/978-981-287-976-9_3

[Explanations]

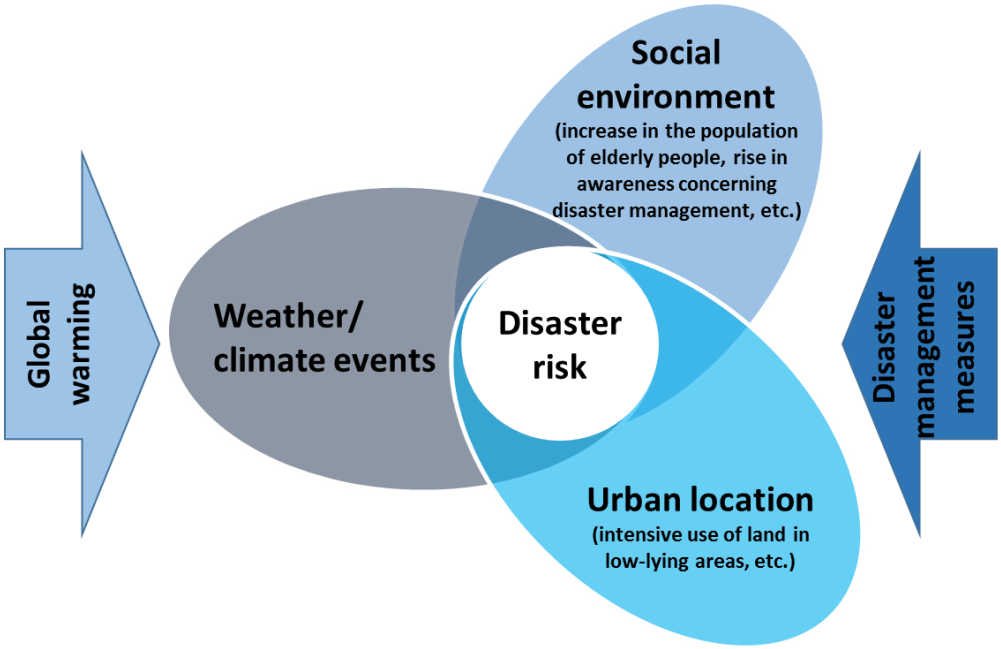
This figure shows the maximum daily rainfall expressed as “once-in-XX year heavy rain” on the assumption that rain falls uniformly in an area of approximately 100 km around Tokyo and the surrounding area based on a climate model for the purpose of estimating changes in relative frequency of heavy rain. Therefore, although the daily rainfall (rainfall intensity) of “once-in-100 year heavy rain” is around 80 mm/day in this estimate, the actual amount at individual observation locations may be higher than 100 mm/day, as the amount varies from location to location within the same 100 km area. For example, according to a rainfall probability estimate by the JMA, a “once-in-100 year heavy rain” in Tokyo (Otemachi) is estimated to be 289 mm/day.

This figure shows that the rainfall intensity of “once-in-100-year heavy rain” estimated for the 21st century (84.1 mm/day) (red) is about 10% higher than the intensity estimated for the 20th century (77.7 mm/day) (blue) (①). This rainfall intensity is equivalent to “once-in-300-year” heavy rain in the 20th century (②). In other words, a climate event which would have been “once-in-300 year heavy rain” in the 20th century is “once-in-100 year heavy rain” in the 21st century, indicating that the frequency of heavy rain will almost triple.

2-3 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.



Source: Produced by the Cabinet Office based on Fig. SPM.1 of the IPCC special report on Managing the Risks **of** Extreme Events and Disasters to Advance Climate Change Adaptation.

2-4 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.

Development of embankments is now underway, in accordance with plans that base their assumptions of flow volumes on past major floods. However, in light of the progress made so far, it is necessary to promptly implement countermeasures in due consideration of the possibility of a major flood exceeding these assumptions might occur before the completion of the plans, due to the increasing frequency of heavy rain and disasters.

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

3-1 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) 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.

At a time when social bonds within communities are generally weakening, residents' failure to proactively involve themselves in disaster management plans prepared by local governments and their tendency to regard the plans as someone else's problem is posing a major challenge. One effective way to overcome this challenge is for the public to become involved in the process of formulating disaster management measures, think for themselves and see disaster management as something that concerns them.

(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. On the other hand, in light of the disaster insurance enrollment rate and the scale of the reinsurance market, it cannot yet be said that the transfer of risks has reached an adequate level.

The cost of disaster insurance is not necessarily high, so in order to encourage the use of financial techniques, it is necessary to appropriately identify the probability of accidents and the cost 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.

(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.

3-2 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.

“Practical initiatives” at the community level will be conducted as model activities on a pilot basis in order to set examples of good practice for future initiatives, before being rolled out nationwide.

Part I
Status of Disaster Management Measures in Japan

Part I Status of Disaster Management Measures in Japan

Due to its natural conditions, Japan is prone to various natural disasters. A variety of natural disasters occurred in 2015, such as torrential rain disasters, volcanic eruptions, heavy snowfalls, and earthquakes. Part I focuses on the recent countermeasures for disaster risk reduction, in particular the status of policies implemented intensively 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 Mt. Ontake Eruption (July 2015)

The July 2015 revision mainly reflected: the amendment of the Act on Promotion of Sediment Disaster Countermeasures in Sediment Disaster Hazard Areas; the report from the Working Group for Studying Comprehensive Countermeasures against Sediment Disasters and the Working Group for the Promotion of Volcano Disaster Prevention both 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.

First, measures adopted to strengthen countermeasures against sediment disasters included the specification of areas with a danger of a sediment disaster, the utilization of sediment disaster alert information and evacuation preparation information, and publicity activities for timely and appropriate evacuation.

Second, measures adopted to strengthen countermeasures against volcanic disasters included the reinforcement of information communication systems, consideration of appropriate evacuation measures from the vicinity of a volcanic eruption, the improvement of education for disaster risk reduction in respect of volcanic hazard and enhancement of research systems for volcanic disaster, and strengthening of monitoring and observation systems.

Third, measures adopted to strengthen countermeasures against complex disasters included integrated coordination of information gathering, decision-making, and instruction and coordination between Extreme Disaster Management Headquarters and Nuclear Emergency Response Headquarters.

Other changes in this revision included the addition of content concerning coordination between front-line response organizations and the gathering and coordination of important information, based on experiences of dealing with recent disasters, as well as clarification regarding the specific organization(s) responsible for each measure (Fig. 1-1-1).

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

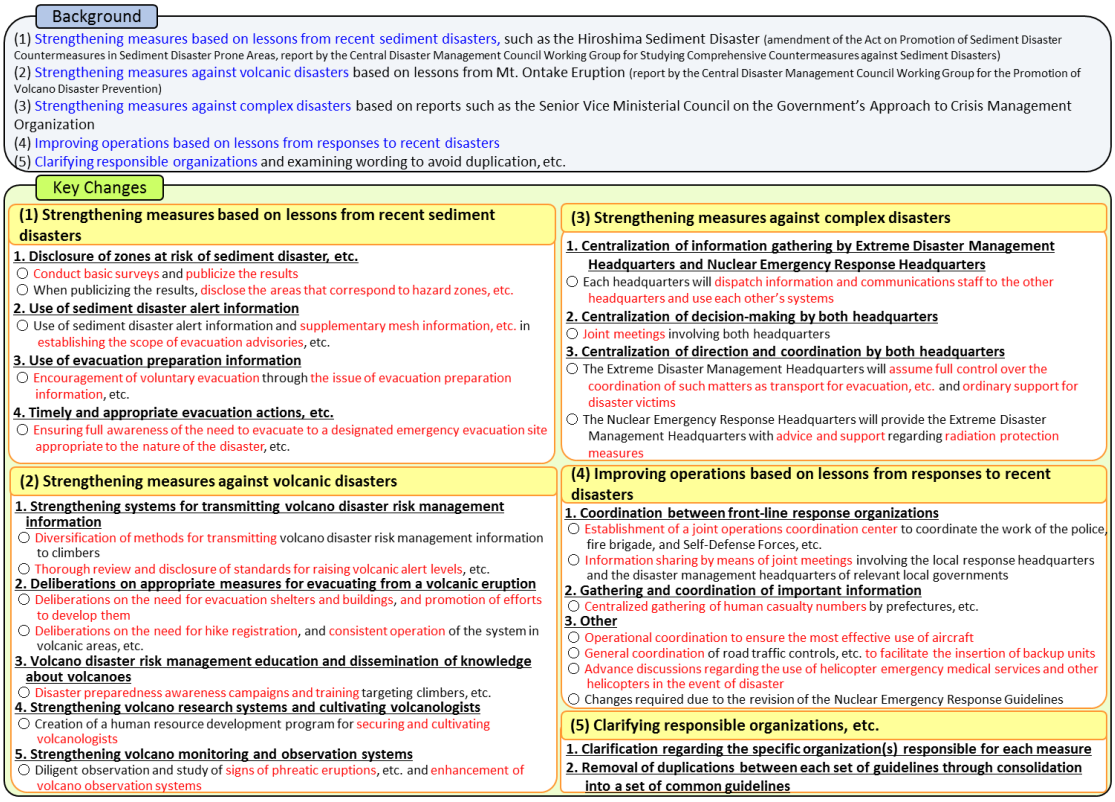
The February 2016 revision mainly reflected the strengthening of disaster risk management measures based on such systemic reforms as the revision of the Act on Special Measures for Active Volcanoes, as well as

operational improvements based on lessons from responses to recent disasters.

First, to strengthen disaster risk management measures in light of systemic reforms, 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.

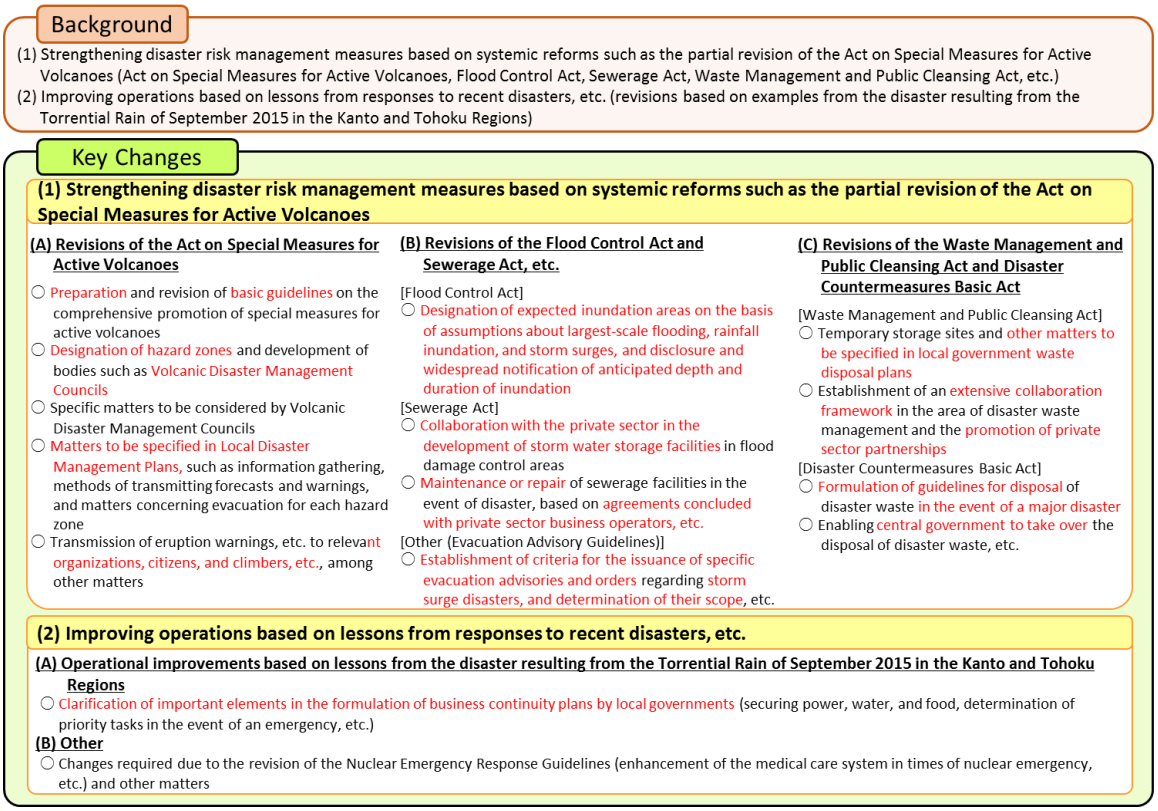
Second, to achieve operational improvements that take into account the lessons of recent disasters, local government business continuity systems are to be enhanced on the basis of lessons learned from the disaster resulting from the Torrential Rain of September 2015 in the Kanto and Tohoku Regions (Fig. 1-1-2).

Fig. 1-1-1 Overview of Revisions to the Basic Disaster Management Plan (July 2015)



Source: Cabinet Office

Fig. 1-1-2 Overview of Revisions to the Basic Disaster Management Plan (February 2016)



Source: Cabinet Office

1-2 Efforts in Disaster Management Drills

In the event of a natural disaster, national government institutions, local governments, designated public corporations, and other institutions involved in disaster management must work as one, in cooperation with local residents and the public as a whole, to respond to that disaster. For this reason, institutions involved in disaster management implement disaster management drills based on the Disaster Countermeasures Basic Act, Basic Disaster Management Plan, and other regulations to verify and confirm the emergency measures to be taken when a natural disaster strikes and to enhance residents' awareness of disasters.

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

On September 1, Disaster Preparedness Day in Japan, the government held comprehensive disaster drills including an operational drill of the Extreme Disaster Management Headquarters, which would secure emergency disaster responses, in preparation for the Tokyo Inland Earthquake.

In the drill, Prime Minister Abe and the rest of the Cabinet made their way on foot to the Prime Minister's Office, where they held an Extreme Disaster Management Headquarters meeting. This included a video-conference with Tokyo Governor Yoichi Masuzoe and reports by members of the Cabinet concerning the extent of the damage and the response to the disaster. At the meeting, participants set response guidelines that assigned the highest priority to saving human lives, established an On-site Disaster Management Headquarters,

and confirmed the dispatch of a governmental investigation team. Afterwards, the Prime Minister used a press conference broadcast on NHK to ask the public for their cooperation.

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

Extreme Disaster Management Headquarters operational drill

Prime Minister Abe takes part in a ropes and knots drill

(2) Government Tabletop Exercises

The government conducted drills based on the running of the executive office for an Extreme Disaster Management Headquarters in June 2015 (based on a Tokyo Inland Earthquake scenario) and February 2016 (based on a Nankai Trough Earthquake scenario), with the aim of increasing the knowledge and proficiency of Extreme Disaster Management Headquarters executive office personnel, as well as verifying the effectiveness of emergency measures prescribed in plans and manuals.

Video-conference
(Drill based on a Tokyo Inland Earthquake scenario)

Executive office drill
(Drill based on a Nankai Trough Earthquake scenario)

Operational drills in the relevant regional blocks were held on the assumption that the Nankai Trough Earthquake might occur: 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 foster appropriate evacuation behavior, such as rapid evacuation to higher ground when a large earthquake which might trigger tsunamis occurs, by raising awareness of disaster risk reduction. The Cabinet Office has been encouraging national government ministries and agencies, local governments, and private companies and organizations to conduct tsunami evacuation drills throughout Japan, mainly on November 5 to promote public awareness of disaster risk reduction. In FY2015, the Cabinet Office made greater efforts to encourage the spread of tsunami awareness activities that would appeal to the public, with the aim of ensuring that appropriate emergency evacuation actions are taken in the event of a tsunami.

(1) Public Awareness Campaign Involving the Tsunami Bosai Promotion Squad: “Tsunami?! Get to High Ground!”

In FY2015, nationally famous local mascot characters with the ability to deliver a message to the public, such as Funassyi and Kumamon, came together to form the Tsunami Bosai Promotion Squad to raise public awareness of tsunami preparedness. Following an event on September 7 to mark their debut, 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 High Ground!”

First of all, the Cabinet Office established a special website, “the Tsunami Bosai Promotion Squad,” in order to disseminate information regarding tsunami preparedness exercises and events across the country, as well as tsunami preparedness rules. In addition, the Cabinet Office has made a tsunami preparedness video featuring core squad members Funassyi, Kumamon, and Chicchai Ossan, offering a user-friendly guide to the rules of tsunami preparedness. It has been published on the Cabinet Office’s official YouTube channel dedicated to the topic of disaster management, along with information about the Tsunami Bosai Promotion Squad initiative and footage from various events. The core squad members also distribute information to a wide audience on social media, actively using Twitter and the like to spread the message about tsunami preparedness to their many followers.

As well as the core members, other local mascots and celebrities keen to spread the word about tsunami preparedness in their communities have also 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

The “Tsunami Preparedness Talk Show in Marunouchi” was held at MARUCUBE in the Tokyo Maru-Building on November 5, Tsunami Preparedness Day attended by Prime Minister Abe and Minister of State for Disaster Management Taro Kono.

At this event, Prime Minister Abe and Minister Kono discussed tsunami preparedness with Professor Fumihiko Imamura (Director, International Research Institute of Disaster Science, Tohoku University). In particular, Prime Minister Abe stressed how important it is for each individual to do their utmost to protect their own life and evacuate without delay as soon as a tsunami warning is issued. To this end, he emphasized that it is crucial for people to confirm the nearest evacuation site to their home and workplace, to share this information with family members, and to reunite with their families only once the danger of a tsunami has passed. He also highlighted the importance of checking and discussing these matters both at home and in the workplace.

They also talked about World Tsunami Awareness Day, the subject of a Japanese proposal under consideration by the United Nations at the time, and introduced various international cooperation initiatives in the field of disaster risk reduction. In addition, Prime Minister Abe, Minister of State for Disaster Management Kono, and members of the Tsunami Bosai Promotion Squad sought to encourage the public to learn about tsunami preparedness by striking the “tsunami evacuation pose,” which represents the action of evacuating to higher ground without delay to protect oneself against a tsunami.

Due to its scale, the event attracted many visitors and a great deal of media coverage, helping to spread the word about the importance of tsunami preparedness throughout the country.

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 Tsunami Bosai Promotion Squad sought to promote awareness of tsunami preparedness through a nationwide poster campaign, messages on cash register display screens at major convenience store chains, and the screening of public awareness videos on outdoor monitors attached to commercial buildings.

In addition, the national government (9 ministries and agencies), local governments (179 government bodies), and private companies (96 organizations) carried out earthquake and tsunami preparedness events around the country, with the participation of numerous members of the public. Six of the earthquake and tsunami preparedness events held by the Cabinet Office in partnership with municipalities nationwide included local elements, with appearances by local mascots and celebrities, which helped to make the events both fun and educational, thereby ensuring that participants went home with a deeper understanding of tsunami preparedness.

1-4 Construction of Business Continuity Systems Throughout Society

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

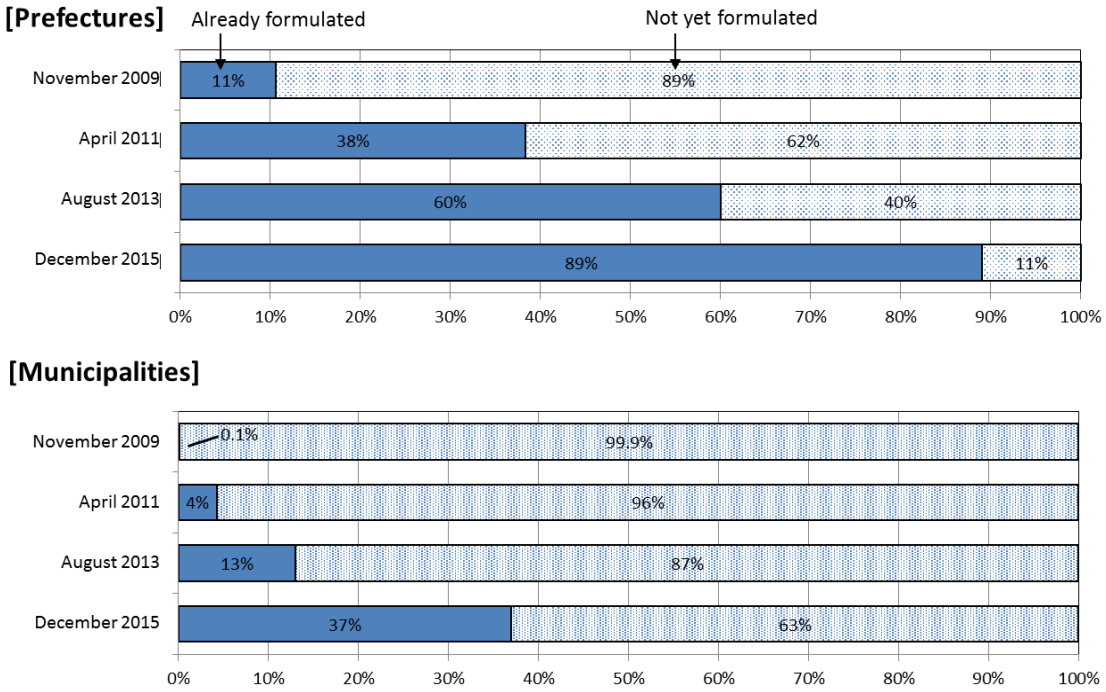
In March 2014, the Central Government's Business Continuity Plan (Measures for a Tokyo Inland Earthquake) was approved by the Cabinet. National government's ministries and agencies then used this document as the basis for revisions of their own business continuity plans (BCPs). The Cabinet Office assessed the ministry and agency BCPs with experts on the basis of the Central Government BCP. It then revised the Business Continuity Guidelines for Central Government Ministries and Agencies. Through such initiatives, the government is building business continuity systems that will enable the business of government to continue operating smoothly even in the event of a Tokyo inland earthquake.

(2) Construction of Business Continuity Systems by Local Government

It is absolutely vital for local governments to formulate a BCP to ensure business continuity in the event of a disaster. However, the BCP preparation rate remains low among municipalities, with only 37% of municipalities having formulated a BCP as of December 2015, as compared to 89% of prefectures (Fig. 1-1-3).

In response to this situation, the Cabinet Office published the Business Continuity Plan Formulation Guidelines for Municipalities in May 2015, with the aim of making it easier for small municipalities with a population of less than 10,000 to prepare a BCP. In addition, to support the preparation of more effective BCPs, it expanded and enhanced the Business Continuity Manual for Local Governments During Earthquake Disasters (April 2010) to take account of the lessons of the Great East Japan Earthquake and other recent disasters, publishing the revised version in February 2016 under the title Business Continuity Manual for Local Governments During Major Disasters (Fig. 1-1-4). The Cabinet Office holds workshops for relevant municipal employees in partnership with the Fire and Disaster Management Agency, as well as undertaking initiatives that directly support municipalities in preparing BCPs. The Cabinet Office will continue to support local governments in strengthening and enhancing their business continuity systems through such initiatives.

Fig. 1-1-3 Current Status of Formulation of Business Continuity Plans by Local Governments



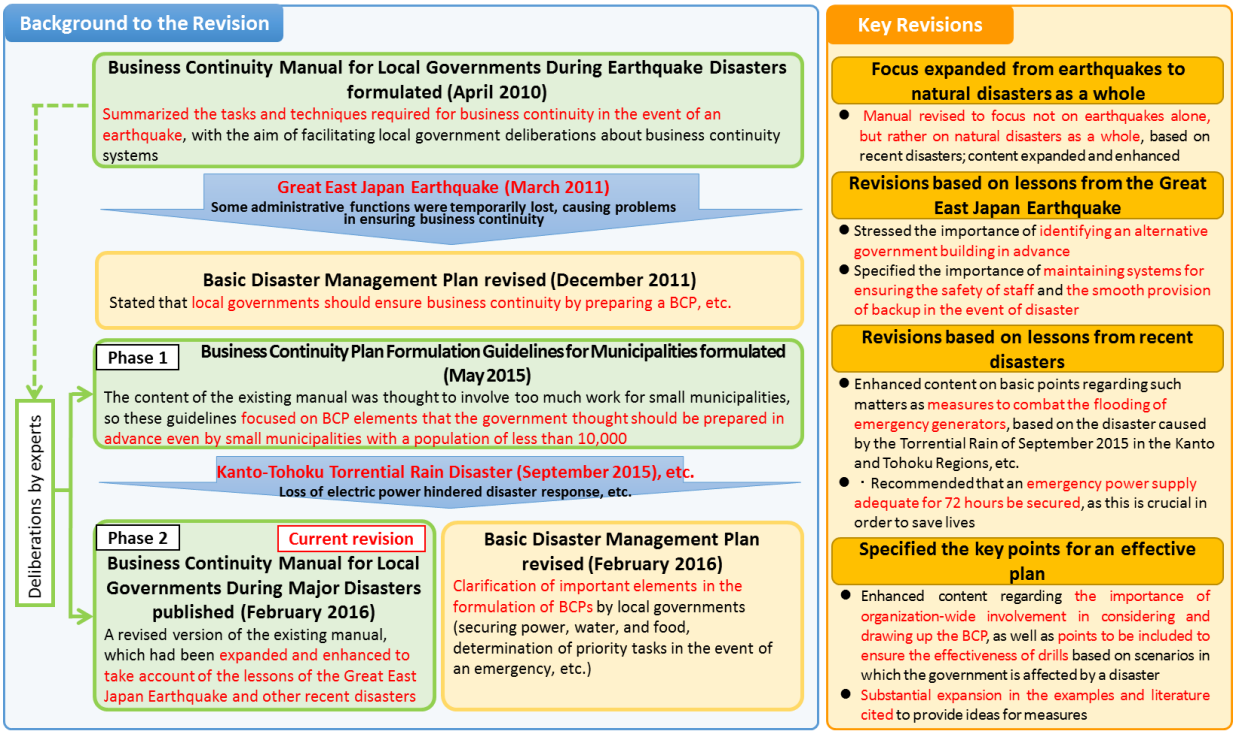
Source: November 2009 Survey of Business Continuity Plans Based on an Earthquake Disaster (Cabinet Office (Disaster Management) and Ministry of Internal Affairs and Communications, Fire and Disaster Management Agency Survey)

April 2011 Local Government Information Management Report (March 2012) Ministry of Internal Affairs and Communications Local Administration Bureau Regional Information Policy Office Survey

August 2013 BCP Formulation Rate for Large-Scale Earthquakes and Other Natural Disasters (preliminary figures) (Ministry of Internal Affairs and Communications, Fire and Disaster Management Agency Survey)

December 2015 Survey of the Current Status of the Formulation of Business Continuity Plans and the Formulation of Specific Criteria for the Issuance of Evacuation Advisories and Orders by Local Governments (Ministry of Internal Affairs and Communications, Fire and Disaster Management Agency Survey)

Fig. 1-1-4 Revision of the Business Continuity Manual for Local Governments During Earthquake Disasters



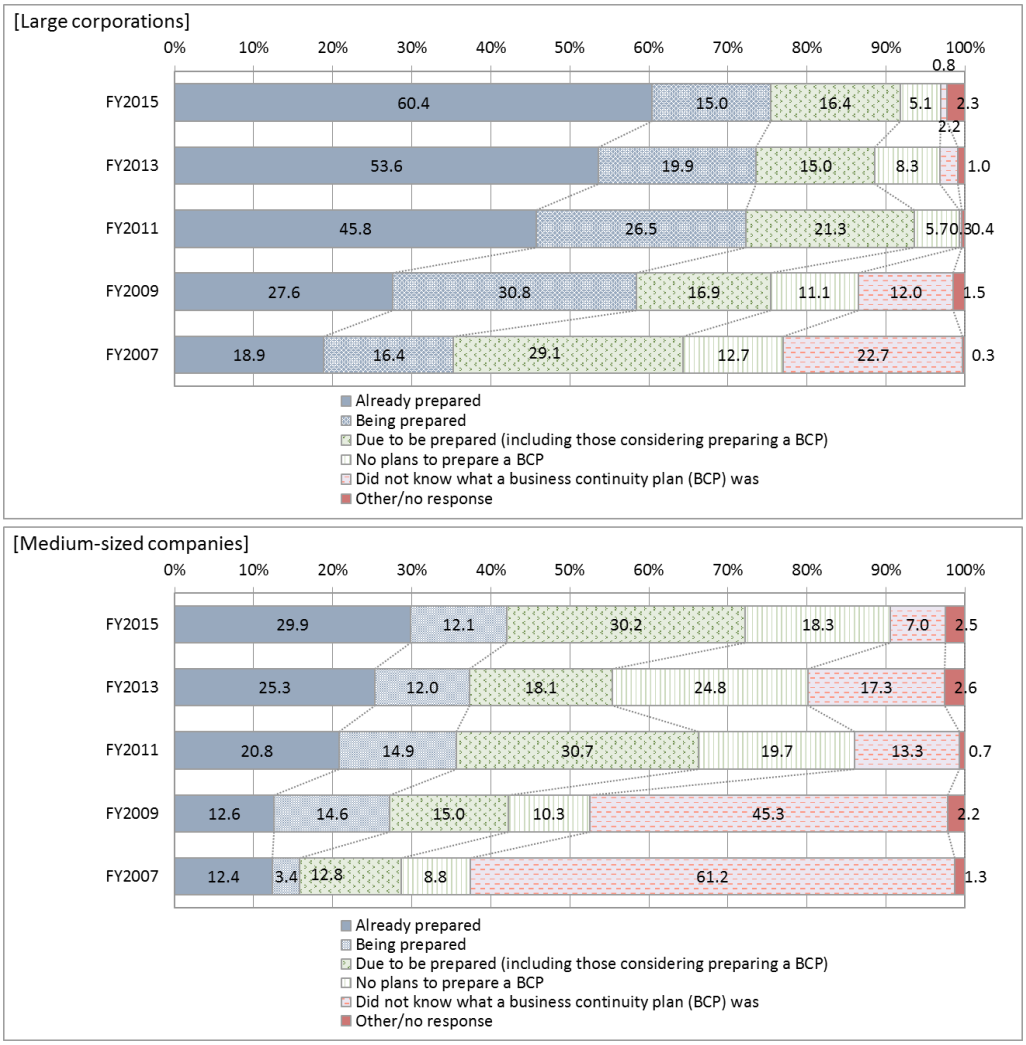
Source: Cabinet Office

(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 preparation of BCPs was on the rise, with 60.4% of large corporations (up from 53.6% in the previous survey) and 29.9% of medium-sized companies (up from 25.3% in the previous survey) having already prepared a BCP. When companies currently in the process of preparing a BCP are also included, these figures rise to just under 80% and just over 40%, respectively (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. The risk most commonly envisaged by these companies was “Earthquakes, typhoons, and other natural disasters,” cited by 98.3% of large corporations and 93.8% of medium-sized companies, followed by “New forms of influenza and other infectious diseases,” and “IT system outages at server/data centers belonging to outsourcing contractors,” among others. Overall, 58.2% of the companies engaged in management that takes into account specific risks had prepared a BCP, demonstrating that some companies do take risks into account in their management, even if they have not formulated a BCP (Fig. 1-1-5).

In the Business Continuity Guidelines that it published in August 2013, the Cabinet Office sought to encourage companies not merely to formulate a plan based on the concept of business continuity management (BCM), but also to approach this task as part of their corporate management. In addition, as there are several consultative bodies focused on business continuity (such as the Disaster Risk Reduction Industry Conference of Japan) that involve numerous companies, the Cabinet Office is working in partnership with them to promote more effective initiatives.

Fig. 1-1-5 BCP Preparation by Large Corporations and Medium-Sized Companies



Source: Cabinet Office

1-5 Effective Use of Disaster-Proof Relics

Disaster-proof relics are structures, natural objects, records, activities, and information that convey to the next generation the lessons learned from past disasters by our ancestors. For example, in Miyako City, Iwate Prefecture, there is a stone monument inscribed with the lessons learned from the tsunami triggered by the 1933 Sanriku Earthquake; houses built on ground higher than this stone monument were not damaged by the tsunami triggered by the Great East Japan Earthquake. Thus, it is important for disaster risk reduction to pass on these lessons to future generations using disaster-proof relics. In many cases, disaster-proof relics are located in a local community, helping to raise awareness of disaster risks in residential areas.

In FY2015, the Cabinet Office established the Investigative Committee on the Compilation and Use of Disaster-proof Relics in order to ensure that people know of the existence of disaster-proof relics in their local communities and use them to gain a knowledge of disasters. The committee conducted a survey of types of disaster-proof relics and their usage, and compiled a report on these usage methods. For instance, one specific example of the use of such relics can be found in Aichi Prefecture, where a map of local disaster-proof relics (A Guide to Disaster Prevention and Mitigation Based on Historical Records of Earthquakes) has been put together, enabling people to explore local disaster-proof relics on foot and learn about past disasters in the region.

As people can readily learn from disaster-proof relics in this way, the Cabinet Office intends to utilize the Investigative Committee's findings by establishing a website about disaster-proof relics and promoting its use.

Fig. 1-1-6 Usage Example: A Guide to Disaster Prevention and Mitigation Based on Historical Records of Earthquakes (Aichi Prefecture)

Column: A New Evacuation Drill Using a Smartphone Game Devised by Bosai Girl

Bosai Girl (Disaster Prevention Girl) is an organization led by women in their 20s and 30s, who undertake activities aimed at promoting disaster preparedness among women of their own age and young people. Young people have a key role to play in providing mutual help in the event of disaster, but they regard disaster preparedness as uncool and too much trouble, and are said to have little interest in the topic. Consequently, Bosai Girl undertakes activities aimed at getting the disaster preparedness message across in a stylish and easily comprehensible way, in order to change attitudes to disaster preparedness among young people.

One of the organization's activities is LUDUSOS, a next-generation evacuation drill that uses a GPS-based smartphone game. In this drill, participants split up into two teams and compete to win points by visiting places such as temporary evacuation sites and support stations for stranded persons within the time limit. While playing the game, participants also have to answer quiz questions about disaster preparedness, enabling them to have fun while learning what they need to do if they have to evacuate.

The next-generation evacuation drill LUDUSOS
Photograph courtesy of Bosai Girl

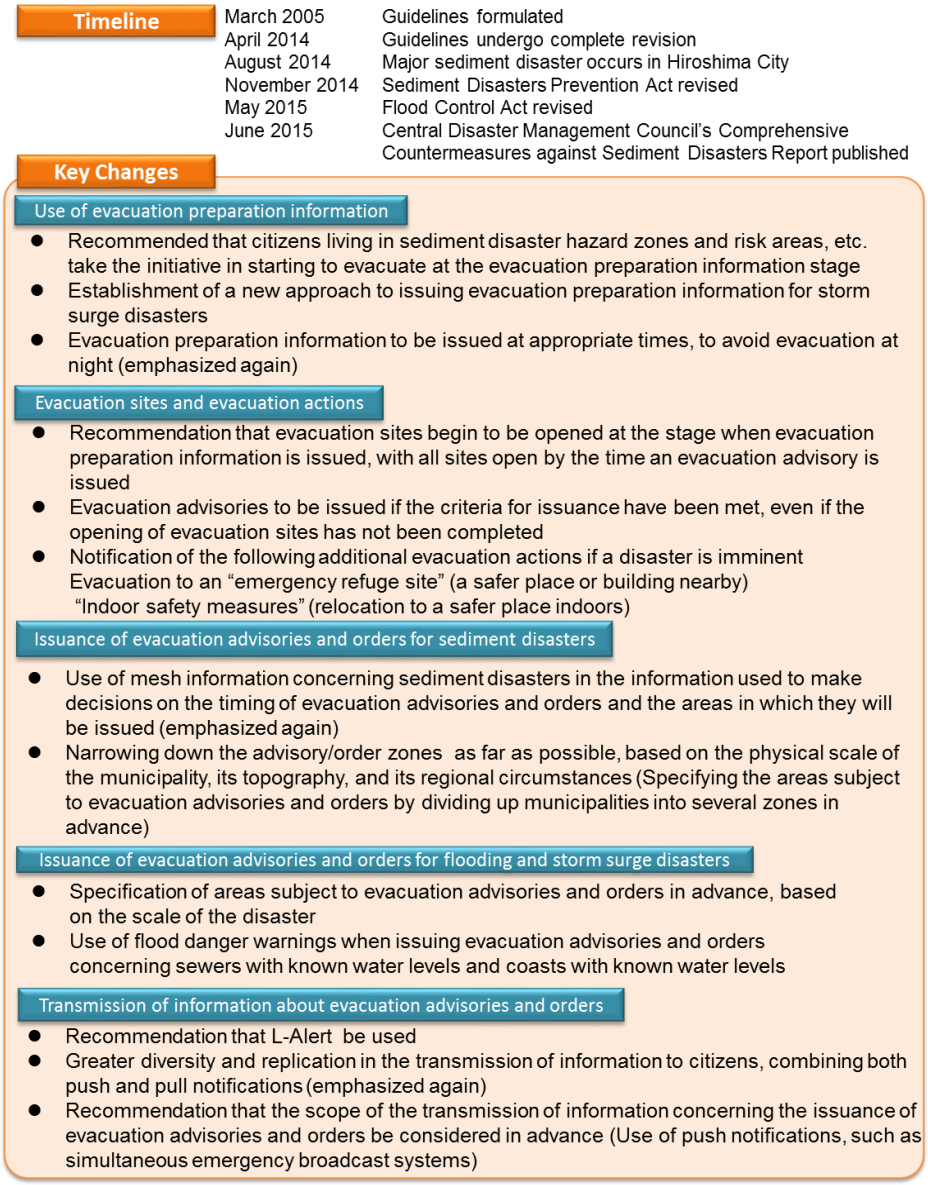
Section 2: Disaster Response and Preparedness

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 new systems that had been introduced in the intervening years, as well as incorporating the lessons of the Great East Japan Earthquake and other disasters. 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 Hazard Areas (Act No. 57 of 2000; hereinafter “Sediment Disasters Prevention Act”) was revised in November. Furthermore, the Working Group for Studying Comprehensive Countermeasures against Sediment Disasters established under the Central Disaster Management Council’s Disaster Management Implementation Committee considered such matters as the use of evacuation preparation information and the issuance of evacuation advisories and orders at appropriate times for appropriate areas, producing a report (hereinafter “the WG Report”) in June 2015. In addition, the Flood Control Act (Act No. 193 of 1949) was revised in May 2015 to address the high incidence of flood damage. Based on these developments, the Guidelines for Producing a Decision and Dissemination Manual for Evacuation Advisories and Orders were revised in August 2015 (Fig. 1-1-7).

Fig. 1-1-7 Guidelines for Producing a Decision and Dissemination Manual for Evacuation Advisories and Orders (revised August 2015)



Source: Cabinet Office

Content added to the revised guidelines based on the revision of the Sediment Disasters Prevention Act and the Working Group Report covered such matters as the use of evacuation preparation information (recommendations for voluntary evacuation and early issuance to avoid evacuation at night); efforts to tailor evacuation actions to the conditions, such as wind or rain levels; ensuring greater diversity and replication in the transmission of information concerning evacuation advisories and orders, combining both push and pull notifications; and the need to start opening designated emergency evacuation sites as soon as evacuation preparation information is issued and to notify residents of their opening.

Content reflecting revisions to the Flood Control Act included the issuance of evacuation advisories and orders to areas expected to experience inundation, based on the scale of the disaster; more extensive guidance concerning the evacuation of underground shopping arcades and the like; additional methods of using rainfall inundation warnings when adding rainfall inundation arising from sewers with known water levels to the list of events subject to the issuance of an evacuation advisory; and additional methods of using storm surge inundation warnings when issuing evacuation advisories and orders concerning storm surges along coasts with

known water levels.

The Guidelines set out those matters that municipalities should think about as the barest minimum when considering criteria for issuing evacuation advisories and orders and methods of transmitting these; municipalities with more advanced or flexible systems can go beyond the Guidelines to ensure more appropriate operation of their systems.

The Guidelines are based on current technology and knowledge within the relevant organizations, so the government intends to continue revising them in the future to create better guidelines as operational circumstances change and new technologies and knowledge are developed.

2-2 Securing Evacuation Shelters and Improving Their Quality

Regulations relating to evacuation shelters, specifying designated evacuation shelters and the improvement of the living environment, were established for the first time in the June 2013 revision of the Disaster Countermeasures Basic Act. In response, the Cabinet Office has encouraged efforts by municipalities to ensure a suitable living environment at evacuation shelters, by such means as the August 2013 publication of the Guidelines for Ensuring Satisfactory Living Conditions at Evacuation Shelters. At the same time, the results of a fact-finding survey published by the Cabinet Office in March 2015 showed that, as of October 1, 2014, 54% of municipalities had designated evacuation shelters, while 45% had designated welfare evacuation shelters. The survey also revealed that 34% of municipalities had not put in place a system for supporting vulnerable people, while 33% had not even thought about setting up an advice desk. Following situations that have arisen in recent disasters, various problems have been pointed out in relation to efforts to provide an appropriate living environment at evacuation shelters, including the need to improve toilet facilities there.

Accordingly, 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)

The Cabinet Office has also partly revised the Guidelines for Ensuring Satisfactory Living Conditions at

Evacuation Shelters that it published in August 2013, based on the Investigative Committee's findings.

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.

Column: Toilets in Times of Disaster

Flush toilets stop working if power cuts occur or the water supply and sewerage system is disrupted in the aftermath of a disaster. Delays in treating excreta not only pose a problem in terms of hygiene and comfort, but also make people reluctant to use the toilet. This leads to people restricting their food and water intake, which can cause serious health problems. Accordingly, it is vital to think ahead and make provision for toilets that can be used in the event of disaster.

There is a variety of types of toilet that can be used in times of disaster; consideration must be given to their systematic acquisition and stockpiling, taking into account the conditions in which they will function at evacuation shelters and the like, as well as the difficulty involved in procuring them (see Guidelines for Securing and Managing Toilets at Evacuation Shelters). Four types of toilet are outlined below; individual households could consider keeping a stock of portable toilets as part of their emergency supply kit, for example.

Type	Photograph (Illustration)
◆ Portable toilet ・ A bag that can be attached to an existing pedestal toilet	 
◆ Simple toilet ・ A small toilet that can be placed in a room (ready-for-use and self-assembly versions are available)	 
◆ Temporary toilet ・ The same type of toilet used at events and construction sites (ready-for-use and self-assembly versions are available)	 
◆ Manhole toilet ・ Installation of a toilet pedestal or compartment over a sewerage manhole or other drainage system	

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 (*). Moreover, given that a large number of foreign nationals will be visiting Japan for the Tokyo 2020 Olympic and Paralympic Games, multilingual information about evacuation sites will be required. Until now, there has been no nationwide standard for evacuation site signage, with signs indicating evacuation sites displaying a range of different pictograms, which can vary from one local government to another. Accordingly, the Cabinet Office, the Fire and Disaster Management Agency, and other relevant ministries and agencies established a liaison committee to consider the standardization of evacuation site signs. Following its deliberations, the committee decided that a Japan Industrial Standard (hereinafter "JIS") should be established for the symbols to be used on signs to denote the different types of disaster. On March 22, 2016, the Hazard Specific Symbols (JIS Z 8210 Amendment 6) and Hazard Specific Evacuation Guidance Sign System (JIS Z 9098) relating to types of signage for guiding people to evacuation sites using those symbols were instituted/revised. Going forward, local governments will put in place signage for evacuation sites that uses the hazard specific symbols.

(*) 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. 1-1-8 Symbols Representing Different Types of Disaster

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

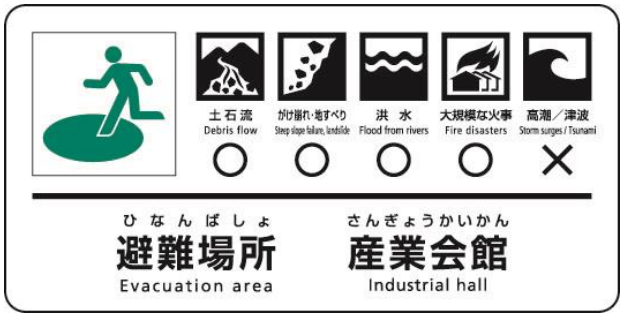
The following decisions were made in establishing this JIS.

- The evacuation methods for tsunami and storm surge are similar, so these have been combined under a single symbol
- The evacuation methods for flood and rainfall inundation are similar, so these have been combined under a single symbol
- Debris flow and slope failure / landslide are different phenomena, so separate symbols have been established
- Earthquakes are represented by the phenomena that they cause (for example, tsunami, widespread fire, etc.)
- Volcanoes require evacuation to a shelter or similar, so efforts will be made to notify people of these
- Symbols for tsunami evacuation sites and tsunami evacuation buildings already exist, so these will continue to be used

Fig. 1-1-9 Existing JIS-Prescribed Symbols for Evacuation Sites, etc.

Evacuation site	Tsunami evacuation site	Tsunami evacuation building	Evacuation shelter
			

Fig. 1-1-10 Example of Evacuation Site Signage



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

3-1 Promotion of Volunteer Activities Widely Contributing to DRR

Twenty-one years have passed since the Great Hanshin Awaji Earthquake, which ushered in what has been called a new era of volunteerism. Japan has dealt with numerous disasters since then, including the marine accident involving the M.V. Nakhodka, the Chuetsu Earthquake in Niigata Prefecture, and various disasters caused by torrential rain. Now, when a major disaster strikes, it has become standard practice for a disaster volunteer center – generally run by the social welfare council in the disaster-stricken area – to be set up, with numerous volunteers from across the country coming to the area in their capacity as private citizens to assist with activities that support the people and areas affected. At the same time, due in part to the enactment of the Act on Promotion of Specified Non-profit Activities (the NPO Act), disaster-focused NPOs and NGOs such as volunteer groups with disaster response know-how and specialist skills, and intermediate support organizations that support such groups have begun to actively undertake a diverse range of support activities. Following the Great East Japan Earthquake, a large number of volunteers played an active role in recovery and reconstruction in disaster-afflicted areas, while international NGOs and NPOs funded by grants and donations undertook a variety of support activities. However, the immense damage and the extensive area affected meant that a number of issues emerged, including the tendency of such support activities to be thinly spread over the whole of the disaster-stricken region and the fact that they did not evolve into coordinated initiatives. To prepare for a major disaster such as a Nankai Trough earthquake or Tokyo inland earthquake, which are feared likely to occur in the near future, more people need to become routinely involved in volunteer activities that assist with disaster risk reduction and to support disaster victims and disaster-stricken areas in the event of disaster; indeed, the whole of society might have to support such volunteer activities.

Amid this situation, to consider such issues, 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. In FY2015, it summarized the various issues surrounding volunteer activities and is due to consider measures and compile recommendations to address these in FY2016.

<Members of the Investigative Committee on Promoting Volunteer Activities Widely Contributing to Disaster Risk Reduction>

Nobuyuki Kurita	Director, Non-Profit Organization Rescue Stock Yard
Manabu Sako	Chairman of National Volunteer and Civil Service Promotion Center Manager of Regional Welfare Department of Japan, National Council of Social Welfare
Mashiho Suga	Associate Professor, Faculty of Safety Science Department of Safety Management, Kansai University
Ryota Takahashi	Director, Planning & Public Relations Department, Central Community Chest of Japan
Yoshiteru Murosaki (Chairperson)	Director, Education Center for Disaster Reduction, University of Hyogo
Mikio Yamasaki	Director, Regional Alliances Section, University of Kochi
Mika Yamanokawa	Director, Human Resources and General Administration Dept., MS&AD Insurance Group Holdings, Inc.

(As of the end of March 2016; listed in order of the Japanese syllabary)

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

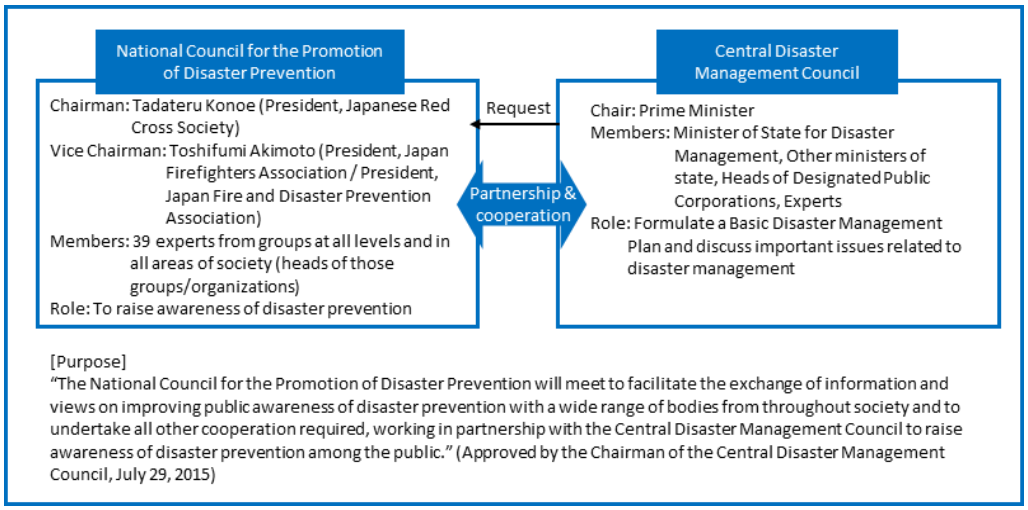
The Sendai Framework for Disaster Risk Reduction 2015 -2030 (SFDRR), which was adopted at the United Nations World Conference on Disaster Risk Reduction in Sendai in March 2015, prescribes that each country's government should encourage DRR initiatives by all stakeholders, including civil society, companies, volunteers, community groups, and the academic community. On the other hand, the lessons learned from the Great East Japan Earthquake and other past disasters suggest that 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, or even just 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 within the context of local, corporate, and volunteer frameworks." In addition, he expressed a desire to establish 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, in the hope that an initiative of this nature would culminate in improved public awareness of DRR. At this meeting, the members decided on the body's management and activity policies and initiatives going forward; in addition, Tadateru Konoe, President of the Japanese Red Cross Society, was chosen as the body's chairman, while Toshifumi Akimoto, President of both the Japan Firefighters Association and the Japan Fire and Disaster Prevention Association, was selected as its vice chairman.

Planning teams established within the National Council for the Promotion of Disaster Prevention are currently examining specific initiatives, with a view to undertaking awareness activities that leverage the extensive networks of the National Council's member bodies, which cover every area of society, as well as holding nationwide events that will help to promote DRR awareness among the public. The First National Conference on Promoting Disaster Risk Reduction, which will bring together a diverse array of bodies involved with DRR, is due to take place in August 2016. It will be hosted jointly by the Council for Promoting Disaster Risk Reduction, which mainly consists of industry groups associated with disaster management, and Disaster Management Bureau of the Cabinet Office.

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. 1-1-11 The Relationship between the National Council for the Promotion of Disaster Prevention and the Central Disaster Management Council



Source: Cabinet Office

Fig. 1-1-12 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

Source: Cabinet Office

3-3 Initiatives from the Perspective of Gender Equality

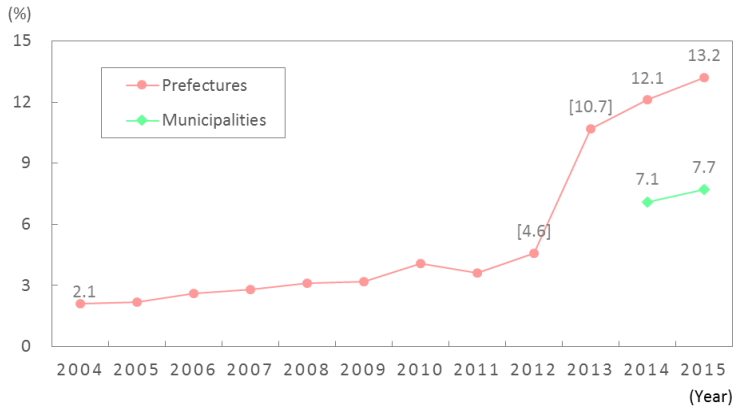
After the Great East Japan Earthquake, greater awareness developed concerning the need for expanding women's participation in the disaster management policy- and decision-making progress and for initiatives that

take into account differences in the needs of men and women.

The June 2012 revision of the Disaster Countermeasures Basic Act specified that members of voluntary disaster prevention organizations and/or individuals with a relevant academic background should be added to the membership of Local Disaster Management Councils, in addition to the staff of disaster management organizations who are already ex officio members, in order to reflect the views of a more diverse range of bodies in the preparation of Local Disaster Management Plans and the like.

Female representation on Local Disaster Management Councils is growing: women accounted for 13.2% of the members of Prefectural Disaster Management Councils (up 1.1 percentage points from the previous year) and 7.7% of the members of Municipal Disaster Management Councils (up 0.6 percentage points from the previous year), as of April 1, 2015. 2013 marked the first year when there was at least one woman on every Prefectural Disaster Management Council in the country. On the other hand, 28.6% of all Municipal Disaster Management Councils have no female members; in particular, there is not a single woman on more than half of the disaster management councils in towns and villages (Fig. 1-1-13).

Fig. 1-1-13 Female Representation on Local Disaster Management Councils



Notes: 1. Compiled from Cabinet Office, Progress of Local Government Measures Focused on Women or the Promotion of a Gender-Equal Society
2. Figures for April 1 each year, in principle.
3. Due to the impact of the Great East Japan Earthquake, figures for 2011 do not include parts of Iwate Prefecture (Hanamaki City, Rikuzentakata City, Kamaishi City, Otsuchi Town), Miyagi Prefecture (Onagawa Town, Minamisanriku Town), and Fukushima Prefecture (Minamisoma City, Shimogo Town, Hirono Town, Naraha Town, Tomioka Town, Okuma Town, Futaba Town, Namie Town, Iitate Village), while figures for 2012 do not include parts of Fukushima Prefecture (Kawauchi Village, Katsurao Village, Iitate Village).

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 (Fig. 1-1-14).

In addition, to ensure that the perspective of gender equality is reflected in Local Disaster Management Plans and Community Disaster Management Plans, so that the perspective of gender equality is incorporated into

disaster management measures, the Basic Plan encourages local governments to promote gender equality in disaster management and provide disaster management staff with disaster management and reconstruction training that incorporates the perspective of gender equality. To assist in the provision of such training courses, the Cabinet Office developed a training program based on the perspective of gender equality in FY2015, taking into account the May 2013 Guidelines on Disaster Management and Reconstruction Initiatives from a Gender Equality Perspective. It then implemented the program on a trial basis and conducted a study to identify its effects and issues.

The importance of female leadership and other ideas propounded by Japan were incorporated into the Sendai Framework for Disaster Risk Reduction 2015-2030, which was prepared at the Third UN World Conference on Disaster Risk Reduction in Sendai City in March 2015. Based on the Sendai Cooperation Initiative for Disaster Risk Reduction (March 14, 2015), the Ministry of Foreign Affairs has launched a program called Training to Promote Leadership by Women in Disaster Risk Reduction.

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.

Fig. 1-1-14 Attainment Targets in Field 11 of the Fourth Basic Plan for Gender Equality: Establish Disaster Management and Reconstruction Systems Based on the Perspective of Gender Equality

Item	Current	Target (Deadline)
Female Representation on Prefectural Disaster Management Councils	13.2% (2015)	30% (2020)
Female Representation on Municipal Disaster Management Councils	・Women as a proportion of the membership: 7.7% (2015) ・Women as a proportion of the membership: 10% (ASAP), aiming for 30% in due course (2020)	・Number of bodies with no women appointed as members: 515 (2014) ・Number of bodies with no women appointed as members: 0 (2030)
Women as a proportion of firefighters (Note 1)	2.4% (FY2015)	5% (early 2026)
Women as a proportion of fire corps volunteers (Note 2)	2.5% (FY2014)	5% for the time being (FY2026), with an eventual target of 10%

(Note 1) Firefighters are defined as staff assigned to fire department headquarters and fire stations who have a rank and uniform, and are employed in firefighting work.

(Note 2) Fire corps volunteers are defined as individuals who, while having another principal job, are members of a volunteer fire corps, which is a municipal fire service organization that engages in fire safety and disaster prevention activities out of a desire to protect members' own neighborhood.

Source: Cabinet Office

Column: Private Sector Efforts to Cultivate a Disaster Risk Reduction Industry

Japan is a country where disasters are frequent, but our nation's private sector companies have built up advanced technologies and know-how in the field of disaster risk reduction, based on the country's experiences of disaster over the years. The role of private sector companies is specified in the Sendai Framework for Disaster Risk Reduction 2015-2030, which was adopted at the Third UN World Conference on Disaster Risk Reduction in Sendai City in March last year. At the conference, Prime Minister Abe announced the Sendai Cooperation Initiative for Disaster Risk Reduction, through which Japan will contribute to the international community in the field of disaster risk reduction. Under this initiative, Japan will share the knowledge and technologies that it has cultivated over the years, providing a total of $4 billion dollars in financial support and conducting human resource development of 40,000 people over four years. Reliable infrastructure packages that combine both tangible and intangible elements are one of Japan's particular strengths: infrastructure exports rose from around ¥3 trillion in 2012 to around ¥9 trillion in 2013, and the country is aiming to reach ¥30 trillion by 2020.

Amid this situation, private sector companies are now embarking on inter-industry consultations focused on enhancing efforts to cultivate a disaster risk reduction industry and cooperation in the event of disaster. One example of this is the establishment in July last year of the Disaster Risk Reduction Industry Conference of Japan, which brings together companies from a variety of sectors, including Nikkan Kogyo Shimbun, Seven-Eleven Japan, and Mitsui Sumitomo Insurance. This body has established a number of subcommittees that are considering such themes as the sharing of disaster information held by individual companies and the question of how to ensure that business continuity in the event of disaster becomes a task addressed not merely by individual companies, but by society as a whole. Moreover, as public-private cooperation is vital when disaster strikes, the Disaster Risk Reduction Industry Conference of Japan holds meetings that offer its members and other private sector companies the opportunity to exchange opinions with the Cabinet Office, other relevant ministries and agencies, and local government practitioners on these themes (in FY2015, two round-table meetings on public-private cooperation took place, along with two meetings of the subcommittee on sharing information in the event of disaster, which were attended by representatives of both the public and private sectors). Thus, this organization is endeavoring to enhance efforts to cultivate a disaster risk reduction industry.

Then-Parliamentary Vice-Minister of the Cabinet Office Matsumoto gives the opening address at the First Round Table on Public-Private Cooperation

Column: Examples of Regional Disaster Preparedness Activities Based on Mutual Help

Various disaster preparedness activities are carried out in Japan's provincial regions, in a spirit of self-help and mutual help. This feature highlights key initiatives that received support in the FY2015 Community Disaster Management Plan Model Community Program.

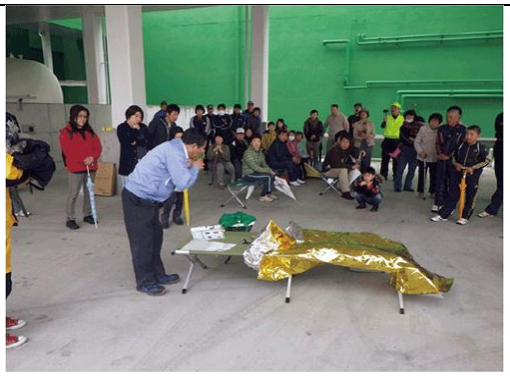
◇ **Preparation of a pre-disaster recovery plan in case of a Nankai Trough earthquake (Shimoji District, Kochi City, Kochi Prefecture)**

This district has prepared a tsunami evacuation plan and conducted local tsunami evacuation drills in preparation for a Nankai Trough earthquake. While the district is thought likely to suffer subsidence and flood damage, it did not have a pre-disaster recovery plan. The experiences of areas affected by the Great Hanshin Awaji Earthquake and the Great East Japan Earthquake show that thinking about a recovery plan after a disaster has already occurred is very difficult, but an exodus of local residents – primarily young people – is a concern if reconstruction does not proceed quickly. Accordingly, this district realized that it needed to provide hope for the future after lives have been saved and that it could take the initiative in working on measures that would save lives, with hope for the future as the starting point for its deliberations. As such, this district is preparing a Community Disaster Management Plan, beginning with a pre-disaster recovery plan, with the involvement of local residents, experts, and the City of Kochi.

A workshop held to facilitate the preparation of a Community Disaster Management Plan

◇ **Initiative based on partnerships between a local company and local residents' associations (Kawahigashi and Satoura Districts, Naruto City, Tokushima Prefecture)**

Otsuka Pharmaceutical has a plant in this district and has made the roof of the plant available to local residents as an evacuation site in the event of a tsunami, as well as conducting periodic tsunami evacuation drills. The outcomes of previous drills have demonstrated a need for greater awareness of disaster preparedness among local residents. Accordingly, the company has prepared Disaster Action Cards detailing the roles and actions of local residents in the event of disaster, to ensure that each and every resident is aware of what they should do to evacuate if a tsunami is imminent. In addition, it has held workshops at elementary school open days and at gatherings of local women's associations and voluntary organizations for disaster prevention, to enable local residents to participate in deliberations.



Hands-on training held to facilitate the preparation of a Community Disaster Management Plan

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)

UN member countries, coordinated by the United Nations Office for Disaster Risk Reduction (UNISDR), are currently 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, with the aim of promoting the SFDRR. Japan is playing an active role in this process. In FY2015, Japan contributed around $1.74 million to support the work of UNISDR.

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)

The SFDRR advocated the strengthening of the International Recovery Platform (IRP). Following a series of discussions by the Steering Committee and others, a strategic framework was formulated at the November 2015 meeting of the Steering Committee in Copenhagen, to serve 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. Japan provides funds to support the IRP's work through its financial contribution to UNISDR and also covers the costs of holding the International Recovery Forum. (FY2015: Support worth approximately $225,000 sourced from Japan's financial contribution to the UN, plus approximately ¥7 million to cover costs associated with holding the International Recovery Forum)

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.

To support the work of the ADRC, which was positioned in the Sendai Cooperation Initiative for Disaster Risk Reduction announced by Prime Minister Abe at the WCDRR as a mechanism for global and regional cooperation, the Government of Japan (Cabinet Office) is, as Chair of the ADRC Steering Committee, leading discussions among member countries and others concerning the future direction of the ADRC's activities based on the SFDRR.

A Japanese government delegation led by Vice-Minister for Policy Coordination Masao Nishikawa participated in the 12th Asian Conference on Disaster Reduction, which was held by the ADRC in Phuket in February 2016. During the session on tsunami preparedness, 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, it was 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.

Vice-Minister for Policy Coordination Nishikawa gives his keynote presentation at the 12th Asian Conference on Disaster Reduction

(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.

Japan was represented by State Minister of the Cabinet Office Fumiaki Matsumoto, who described the assistance that Japan has been providing in terms of statistical know-how to help other countries develop their own statistics, and explained our nation's disaster risk reduction systems. In addition, he announced that Japan would actively promote the SFDRR in Asia by such means as supporting efforts by countries worldwide to enhance governance.

State Minister of the Cabinet Office Matsumoto at the high-level meeting

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. The first meeting was hosted by Japan in 2009, the second by China in 2011, the third by the Republic of Korea in 2013, and the fourth by Japan again (in Tokyo) in 2015.

At the fourth meeting, Japan was represented by Minister of State for Disaster Management Taro Kono, China by Vice Minister of Civil Affairs Dou Yupei, and the Republic of Korea by Deputy Minister of Public Safety and

Security Lee Sung Ho. The three vice ministers shared information about responses to recent disasters in their countries and exchanged views and opinions concerning future approaches to trilateral disaster management cooperation. The meeting culminated in the signing of 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, which stated that the three countries would work together to promote the SFDRR, as well as engaging in joint education and training initiatives.

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. This resolution was jointly proposed by 142 countries, including Japan, as a follow up to the Third UN World Conference on Disaster Risk Reduction, which was held in Sendai City, Miyagi Prefecture in March 2015, and the 2030 Agenda for Sustainable Development, which was adopted by the UN General Assembly in September 2015.

The specific content of the resolution includes: (1) November 5 shall be designated as the World Tsunami Awareness Day; (2) the significance of preparedness for disasters through early warning systems, the utilization of traditional knowledge and Build Back Better (BBB) as well as the prompt dissemination of information are recognized; and (3) all member countries, organizations and individuals shall be asked to observe the World Tsunami Awareness Day in an appropriate manner in order to enhance awareness of tsunami.

The designation of November 5 derives from "Inamura no Hi" (the burning of rice sheaves), an anecdote about a villager who issued an early warning when a large tsunami occurred in Wakayama Prefecture on November 5, 1854 by setting fire to rice sheaves he had harvested himself, saving the lives of the villagers by making them evacuate and working to build the affected areas back better.

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.

Japanese and international versions of the World Tsunami Awareness Day Poster (Japanese and English)

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 Mt. Ontake Eruption:

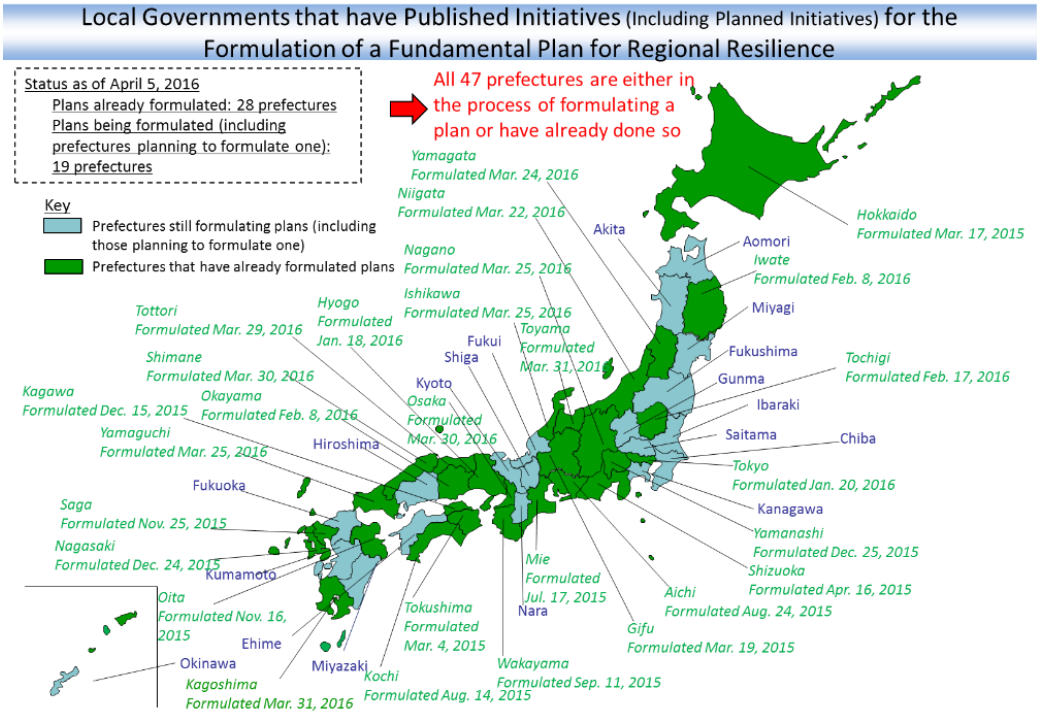
- Support for basic surveys aimed at the designation of sediment disaster hazard zones;
- Mandatory communication of sediment disaster alert information to municipalities;
- Strengthening of volcano monitoring and observation frameworks, including a review of continuously monitored volcanoes; and
- Promotion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

In conjunction with this, the Key Performance Indicators (KPIs) for each set of measures (hereinafter referred to in this section as "programs") to avoid the 45 "worst events that should never happen" were revised to reflect initiatives during FY2014, including efforts to develop more advanced indicators by means of achieving targets and efforts to enhance precision by gaining a prompt grasp of current figures. In addition, an Integrated Program Index (IPI) has been introduced on a trial basis, to furnish an understanding of the overall progress of the programs and facilitate comparison of the progress of individual programs.

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 local governments with support in the form of briefings by national government employees (57 briefings held in FY2015) to promote understanding concerning the

Regional Plan system. Moreover, a certain degree of consideration is given to local government initiatives implemented on the basis of such plans when relevant ministries and agencies make decisions about the allocation of 32 grants and subsidies under their jurisdiction (Fig. 1-1-15).

Fig. 1-1-15 Local Governments that have Published Initiatives (Including Planned Initiatives) for the Formulation of a Fundamental Plan for Regional Resilience



Source: National Resilience Promotion Office, Cabinet Secretariat

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. It featured 241 examples as of March 2016 and the Cabinet Office will continue to expand and update this publication going forward.

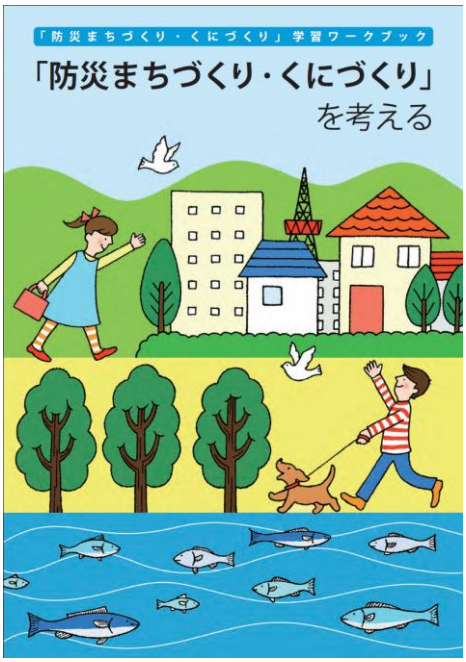
In conjunction with this, the Cabinet Office published guidelines in February 2016 that will enable third parties to certify private sector companies and other bodies actively implementing business continuity initiatives, etc. as Organizations Contributing to National Resilience (Fig. 1-1-16).

Fig. 1-1-16 *National Resilience: Anthology of Private Sector Initiatives*

Source: National Resilience Promotion Office, Cabinet Secretariat

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. The Cabinet Office will encourage its active use in school lessons and other settings (Fig. 1-1-17).

Fig. 1-1-17 *Thinking about How to Reduce Disaster Risks at the National and Community Levels*



Source: National Resilience Promotion Office, Cabinet Secretariat

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

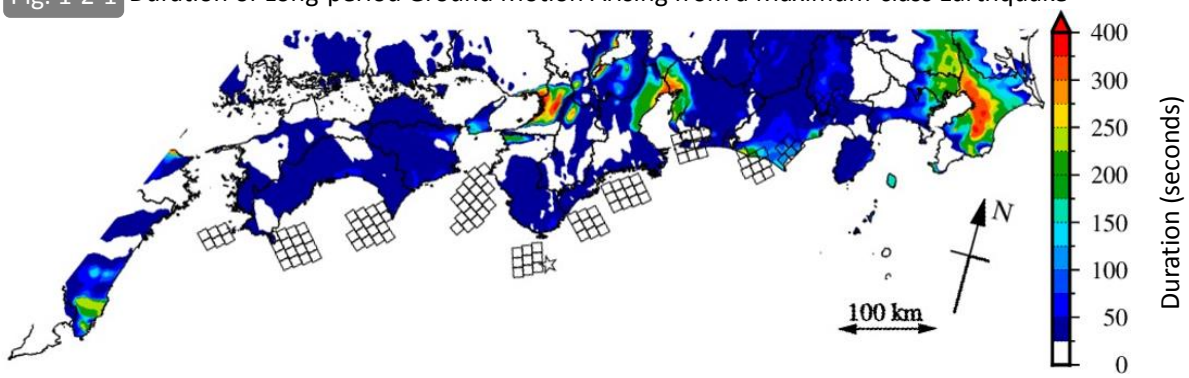
Long-period ground motion is seismic motion with a long period (duration of a single cycle back and forth), which is strongly excited by a large-scale earthquake with a shallow hypocenter. Long-period ground motion is transmitted further than seismic motion with a short period and is capable of causing 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, so it attracted the public's attention.

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. According to the Headquarters for Earthquake Research Promotion, the probability that a magnitude 8-9 earthquake will occur along the Nankai Trough within the next 30 years is around 70%, giving rise to concern that this could occur in the near future. Accordingly, the Cabinet Office's Committee for Modeling a Nankai Trough Megaquake and Committee for Modeling a Tokyo Inland Earthquake (both chaired by Katsuyuki Abe, Professor Emeritus of the University of Tokyo) jointly 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*.

From this report it became apparent that, in the event of a maximum-class earthquake with a magnitude of around 9 along the Nankai Trough, long-period ground motion would predominate and that the surface tremors caused by long-period ground motion would continue for a long time in the three major metropolitan areas (Fig. 1-2-1).

Fig. 1-2-1 Duration of Long-period Ground Motion Arising from a Maximum-class Earthquake



Source: Cabinet Office

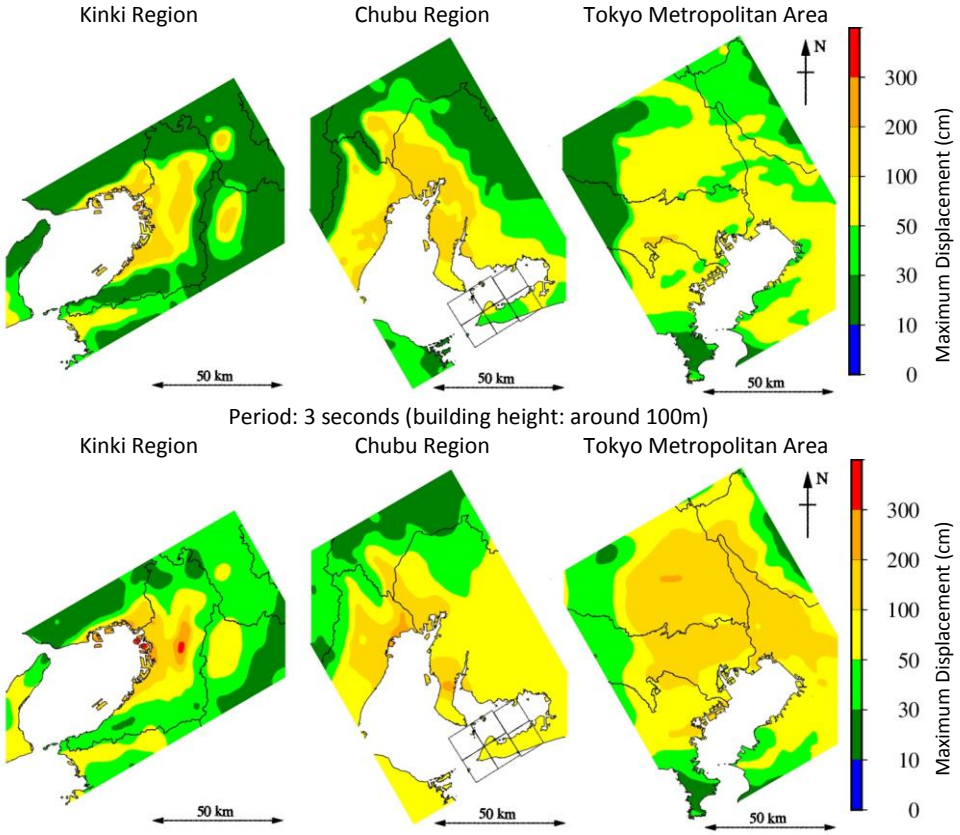
(1) Impact on the Structures of Tall Buildings

Regarding the envisaged impact of large tremors triggered by long-period ground motion on the structures of tall buildings, the report states that, even if a maximum-class earthquake occurred along the Nankai Trough, “there is likely to be a certain degree of leeway in terms of strength before buildings would collapse.” However, it would be desirable to conduct detailed inspections of individual tall buildings to examine the impact on their structures and to carry out any improvements required. Consequently, 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. Furthermore, in buildings with a natural period of 5-6 seconds (a height of around 200-300m), the sway is estimated to exceed 300cm at its greatest in parts of the Chubu and Kinki regions (Fig. 1-2-2).

Fig. 1-2-2 Sway on the Top Floor of Tall Buildings (Maximum Displacement)



Source: Cabinet Office

(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. Furthermore, items fitted with casters, which could slide easily, could move as much as or even more than the displacement caused by the swaying of the building, so they would become an extremely dangerous weapon. Consequently, measures to prevent furniture and the like being overturned, moving, or falling down are very important, to combat the effects not only of short-period tremors, but also long-period ground motion.

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. In addition, situations could occur in which people are at the mercy of the tremors and unable to move of their own volition. 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; managing stranded persons; and disaster management bases. An outline of each field of activity is as follows.

(a) Emergency Transportation Route Plan

This plan defines the roads for which passage should be secured in advance to facilitate seamless and rapid transport of people, goods, and fuel from around Japan with a focus on safeguarding human life, including transporting emergency forces and other groups across a wide area beginning immediately after a disaster. To facilitate rapid deployment of support forces and Disaster Medical Assistance Teams (DMAT) from across the country to disaster-stricken areas, it is vital to narrow down and select the minimum necessary emergency transportation routes in advance. Then when a disaster occurs, information about whether these roads are passable (and information about detours when roads are not passable) needs to be collected before working on other roads. Moreover, this information must be promptly shared with DRR-related organizations. In conjunction with road clearance and emergency repairs, removal of remaining vehicles and the imposition of traffic regulations will be required to facilitate the prompt passage of emergency vehicles by dealing with the acute road traffic paralysis expected to occur in the event of a Tokyo inland earthquake. In preparation for this, the plan aims to ensure that information, including map details, is broadly shared among DRR-related organizations in advance, and defines specific procedures for sharing information and securing the passage of emergency vehicles during a disaster.

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

The first 72 hours after a disaster will be crucial to rescue efforts aimed at saving lives amidst the massive damage that a Tokyo inland earthquake will cause. Thus, the maximum number of forces from police and firefighting organizations within disaster-affected prefectures likely to have suffered immense damage (hereinafter "local emergency forces") must be mobilized for rescue, first aid, firefighting, and other first response activities immediately after a disaster strikes. In addition, the national government must bring in support forces from around the country as quickly as possible to the areas where extensive damage is predicted. Therefore, the plan defines the policy on deploying emergency forces as well as specific procedures for the initial response phase. In addition to local emergency forces consisting of police and firefighting organizations mobilized within the disaster-affected prefectures, these forces must also include Police Disaster Response Units, Emergency Fire Response Teams, and Disaster Relief Units of the Self-Defense Forces from across the country (hereinafter "regional support forces").

(c) Plan for Medical Activities

A Tokyo inland earthquake will produce a large number of casualties caused by collapsed buildings, fires, and other damage, and damage to medical facilities will also necessitate moving a large number of patients to other hospitals. This is expected to drastically increase medical needs in Tokyo and the three neighboring prefectures affected by the disaster. At the same time, this area is home to a large number of medical institutions, including 150 disaster base hospitals (over 20% of the country's 695 disaster base hospitals as of April 2015), which have advanced care functions, facilities with earthquake-resistant structures, and the necessary equipment and stockpiles of supplies. Accordingly, full use will need to be made of these medical resources. Therefore, the plan stipulates that a system should be established to ensure that medical care functions within the disaster-affected region, primarily at disaster base hospitals, enabling medical teams – including DMAT mobilized from around Japan – to promptly conduct support operations and respond to the immense medical needs there. Moreover, in conjunction with this, the plan states that a system should be put in place that enables patients with serious conditions not treatable in the disaster-affected region to be transported to other areas for treatment once stabilized, to alleviate the burden on medical institutions within the region in question.

(d) Plan for Goods Procurement

In a Tokyo inland earthquake, supplies stockpiled by local governments and households will run out in a matter of days. Meanwhile, it will take disaster-affected local governments time to ascertain accurate information in the initial phase of the disaster, and the ability of the private sector to secure supplies will also be impeded. This means that disaster-affected local governments alone will likely not be able to quickly procure the needed supply volumes. Therefore, the plan stipulates that the national government will procure the goods estimated to be necessary mainly to support people at evacuation shelters, and arrange for the emergency transport of goods to the disaster-affected region without waiting for specific requests from disaster-affected prefectures. It also details procedures for goods procurement and supply based on this push-type assistance conducted immediately after a disaster.

(e) Plan for Fuel Supplies

A Tokyo inland earthquake will cause damage to many oil refineries, oil depots, LP gas import bases, and similar facilities. Even so, while securing national fuel supplies, it is necessary to quickly and seamlessly secure supplies of fuel needed for emergency response activities and to continue operations at key facilities. Therefore, the plan defines procedures for prioritizing continued supply to oil-supplying facilities at disaster

management bases and other locations, and to preferentially supply key facilities whose business continuity is specifically needed, under a supply framework based on cooperation between oil refiners and other corporations that transcends corporate affiliations.

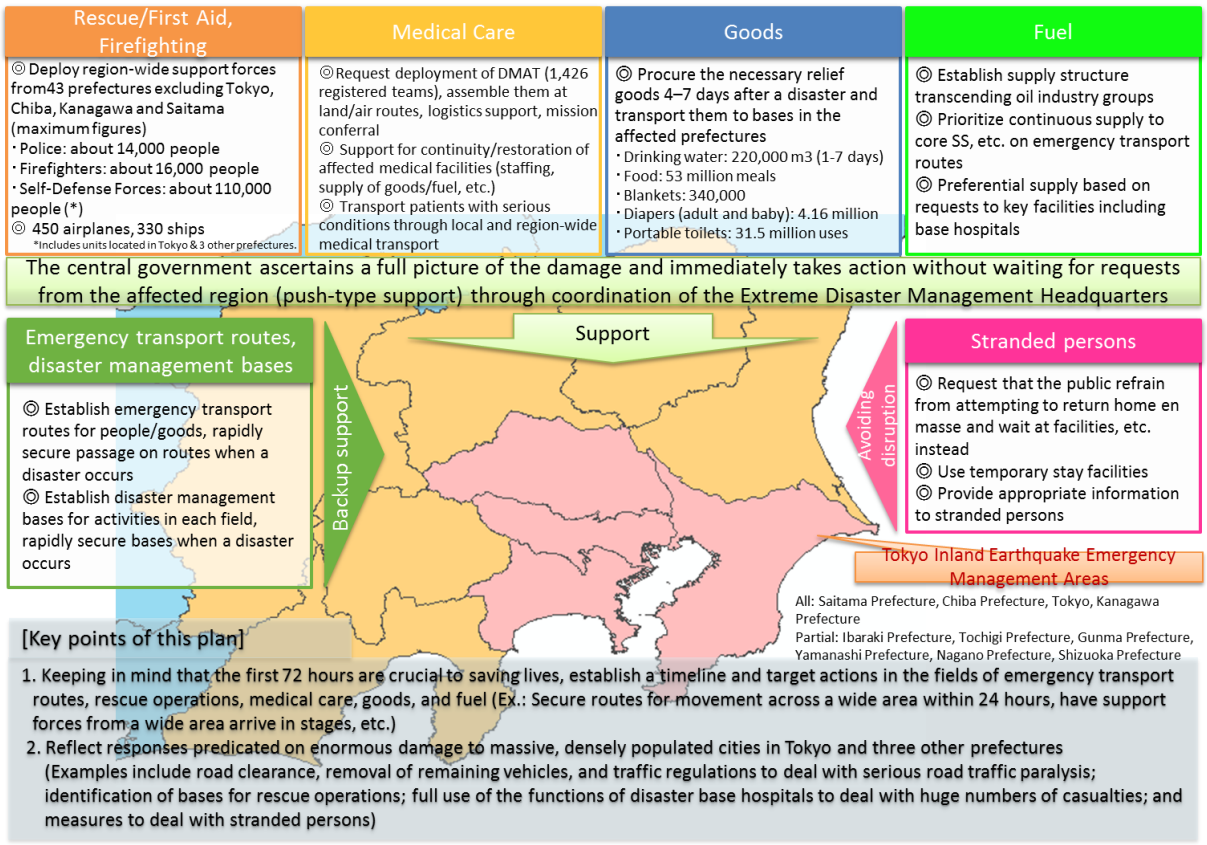
(f) Plan for Managing Stranded Persons

According to the Central Disaster Management Council's damage scenarios, around 4.9 million people would be stranded in Tokyo because they live too far away to enable them to return home on foot or by other means.

There are concerns that these stranded persons could hinder emergency response activities of all kinds once they begin to move on foot, etc. In addition, large numbers of people will congregate in and around railway stations, which is expected to cause disruption.

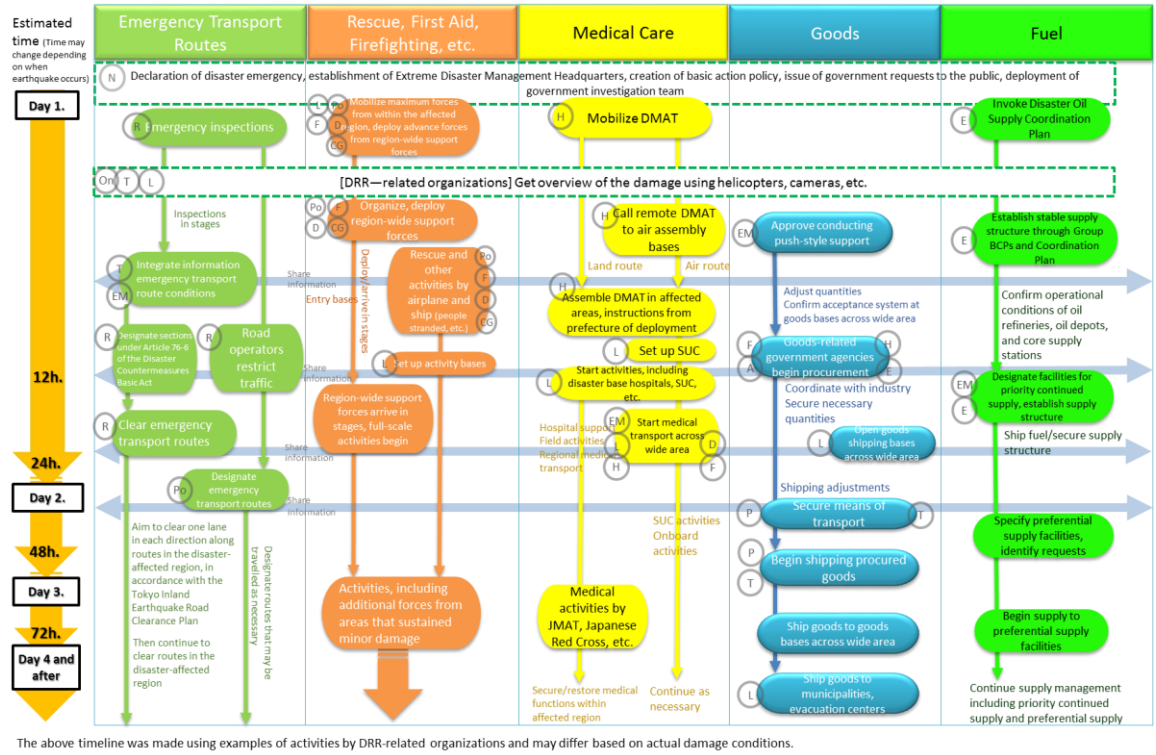
Therefore, the plan prescribes that the flow of people all returning home at once should be minimized by adhering to the principle of avoiding unnecessary journeys, that temporary stay facilities and the like should be utilized, and that information should be provided to stranded persons, in order to expedite and facilitate emergency response activities by preventing disruption arising from stranded persons all trying to return home at once in the event of a Tokyo inland earthquake.

Fig. 1-2-3 Outline of Plan for Specific Emergency Countermeasures and Activities for Tokyo Inland Earthquake



Source: Cabinet Office

Fig. 1-2-4 Estimated Timeline (Image) of Activities in a Tokyo Inland Earthquake



Note: N = National government/ L = Prefectural government/ R = Road management authority/ T = Ministry of Land, Infrastructure, Transport and Tourism/ Po = National Police Agency/ F = Fire and Disaster Management Agency/ EM = Extreme Disaster Management Headquarters/ D = Ministry of Defense/ CG = Japan Coast Guard/ On = Onsite team/ H = Ministry of Health, Labour and Welfare/ A = Ministry of Agriculture, Forestry and Fisheries of Japan/ E = Ministry of Economy, Trade and Industry/ P = Private sectors
Source: Cabinet Office

Column: Promoting Measures to Prevent Fire Following a Major Earthquake by Promoting the Use of Earthquake-Sensitive Circuit Breakers

The report by the Central Disaster Management Council's Working Group to Investigate Tokyo Inland Earthquake Measures indicated that if a fire caused by a Tokyo inland earthquake spread through urban areas, it had the potential to destroy up to 410,000 homes and claim up to 16,000 lives.

According to analyses of the Great Hanshin Awaji Earthquake and the Great East Japan Earthquake, more than half of all fires that have broken out after recent earthquakes have had electrical causes; these include incidents where flammable items scattered by the quake have ignited, such as items of furniture that toppled over near an electric heater that was in use, and incidents where an item of furniture toppled over and came into contact with an extension lead, with the resultant damage causing a short circuit.

To prevent such electrical fires, the Cabinet Office, the Fire and Disaster Management Agency, and Ministry of Economy, Trade and Industry (METI) have joined forces to help to popularize earthquake-sensitive circuit breakers, which automatically shut off the current within the home in the event of a major earthquake. The March 2015 revision of the Basic Plan for the Promotion of Tokyo Inland Earthquake Emergency Measures set a target of raising the take-up rate of these devices to 25% by FY2024 in densely built-up areas, where the spread of fire is a concern.

A variety of earthquake-sensitive circuit breakers is available on the market, from models that feature an earthquake-sensitive cut-off device incorporated into the distribution panel to simple products costing just a few thousand yen, which shut off the existing distribution panel switch when the tremors of an earthquake cause a weighted ball to fall. Accordingly, in February 2015, the aforementioned government

bodies released guidelines for evaluating the performance of these various devices and launched a third-party certification system.

In addition, the Interior Wiring Regulations, a private sector standard (issued by the Japan Electric Association) aimed at ensuring the safety of electrical equipment used in homes and the like, were revised in March 2016 and came into operation. The revised version included a recommendation that distribution panels equipped with an earthquake-sensitive cut-off function be installed in newly built houses in densely built-up areas that pose a significant risk in the event of an earthquake, etc., in accordance with the Basic Plan for Housing (National Plan).

Various responses to these moves by the government are being seen, including local government subsidies for installation costs and initiatives by real estate businesses. However, coordinated actions by whole regions are required to prevent the spread of fire through urban areas in the aftermath of a major earthquake, so there will be a continuing need for relevant organizations, local governments, business operators, and local residents' associations, among others, to take steps to prevent fires breaking out as a result of an earthquake.

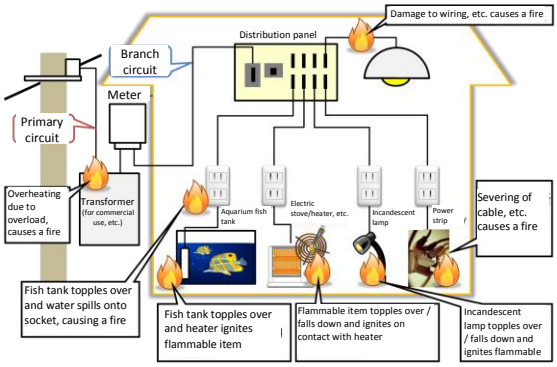


Fig. 1 Main Sites Where Electrical Fires Start

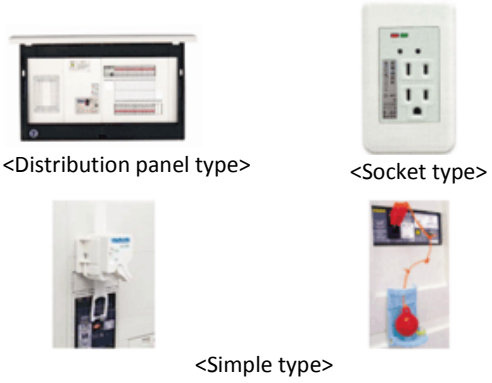


Fig. 2 Examples of Earthquake-Sensitive Circuit Breakers

*Densely built-up areas that pose a significant risk in the event of an earthquake, etc. [Basic Plan for Housing (approved by the Cabinet in March 2016)]: Densely built-up areas where there is a high risk of fire spreading or which would be very difficult to evacuate, entailing difficulty in ensuring the minimum level of safety in the event of an earthquake, etc. and consequently pose a significant risk (approximately 4,450ha nationwide) (FY2015 preliminary figure)

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. This eruption once again raised awareness of various issues concerning volcano disaster risk management measures. In response, the government established the Working Group for the Promotion of Volcano Disaster Prevention under the Central Disaster Management Council. In March 2015, following deliberations by experts and relevant ministries and agencies, which also took into account discussions by the Coordinating Committee for the Prediction of Volcanic Eruptions and other relevant investigative committees, the Working Group 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. 1-2-5).

Fig. 1-2-5 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)

Source: Cabinet Office

As a result of this revision, the Act stated that the Prime Minister should draw up Basic Guidelines on the Comprehensive Promotion of Measures for Active Volcanoes (hereinafter “Basic Guidelines”) and designate areas with a particular need for a warning and evacuation system due to their high likelihood of a volcanic eruption that would result in human casualties as volcanic eruption hazard zones. It also specified that prefectures and municipalities designated as such zones should establish Volcanic Disaster Management Councils consisting of relevant individuals with expertise in volcanic regions, such as experts from meteorological observatories and volcanologists, to discuss the development of warning and evacuation systems. Moreover, it stated that once these Councils had gathered the relevant expert views, matters concerning the development of warning and evacuation systems should be positioned as part of the Local Disaster Management Plan. In response, the Prime Minister released the Basic Guidelines on February 22, 2016, based on the findings of the Central Disaster Management Council, and designated the volcanic eruption hazard zones (140 municipalities in 23 prefectures) (Fig. 1-2-6). Other provisions added in the revision including a stipulation that the owners of facilities for attracting visitors, where climbers and other people gather, and those of facilities used by vulnerable people must draw up a plan detailing the steps that must be taken to ensure the swift, smooth evacuation of users (evacuation implementation plan).

Fig. 1-2-6 List of Volcanic Eruption Hazard Zones

(Designated on February 22, 2016)

Name of Volcano	Prefecture	Municipality	No. of municipalities	Name of Volcano	Prefecture	Municipality	No. of municipalities
Atosanupuri	Hokkaido	Teshikaga Town	1	Asamayama	Gunma	Naganohara Town, Tsumagoi Village	6
Meakandake	Hokkaido	Kushiro City, Ashoro Town, Shiranuka Town	3		Nagano	Komoro City, Saku City, Karuizawa Town, Miyota Town	
Taisetsuzan	Hokkaido	Kamikawa Town, Higashikawa Town, Biei Town	3	Niigata-Yakeyama	Niigata	Itoigawa City, Myoko City	3
Tokachidake	Hokkaido	Furano City, Biei Town, Kamifurano Town, Nakafurano Town, Minamifurano Town, Shintoku Town	6		Nagano	Otari Village	
Tarumaesan	Hokkaido	Tomakokomai City, Chitose City, Shiraoi Town	3	Midagahara	Toyama	Toyama City, Kamiichi Town, Tateyama Town	3
Kuttara	Hokkaido	Noboribetsu City, Shiraoi Town	2	Yakedake	Nagano	Matsumoto City	2
Usuzan	Hokkaido	Date City, Sobetsu Town, Toyako Town	3		Gifu	Takayama City	
Hokkaido-Komagatake	Hokkaido	Nanae Town, Shikabe Town, Mori Town	3	Norikuradake	Nagano	Matsumoto City	2
Esan	Hokkaido	Hakodate City	1		Gifu	Takayama City	
Iwakisan	Aomori	Hirosaki City, Ajigazawa Town, Nishimeya Village, Fujisaki Town, Itayanagi Town, Tsuruta Town	6	Ontakesan	Nagano	Agematsu Town, Otaki Village, Kiso Town	5
Hakkodasan	Aomori	Aomori City, Towada City	2		Gifu	Takayama City, Gero City	
Towada	Aomori	Towada City	3	Hakusan	Ishikawa	Hakusan City	2
	Akita	Kazuno City, Kosaka Town			Gifu	Shirakawa Village	
Akita-Yakeyama	Akita	Kazuno City, Senboku City	2	Fujisan	Yamanashi	Fujiyoshida City, Tsuru City, Minobu Town, Nishikatsura Village, Oshino Village, Yamanakamo Village, Narusawa Village, Fujikawaguchiko Town	15
Iwatesan	Iwate	Morioka City, Hachimantai City, Takizawa City, Shizukuishi Town	4		Shizuoka	Mishima City, Fujinomiya City, Fuji City, Gotemba City, Susono City, Nagaizumi Town, Oyama Town	
Akita-Komagatake	Iwate	Shizukuishi Town	2	Hakoneyama	Kanagawa	Hakone Town	1
	Akita	Senboku City		Izu-Tobu Volcanoes	Shizuoka	Ito City, Izu City	2
Chokaisan	Akita	Yurihonjo City, Nikaho City	4	Izu-Oshima	Tokyo	Oshima Town	1
	Yamagata	Sakata City, Yuza Town		Niijima	Tokyo	Niijima Village	1
Kurikomayama	Iwate	Ichinoseki Sity	4	Kozushima	Tokyo	Kozushima Village	1
	Miyagi	Kurihara City		Miyakejima	Tokyo	Miyake Village	1
	Akita	Yuzawa City, Higashinaruse Village		Hachijojima	Tokyo	Hachijo Town	1
Zaozan	Miyagi	Zao Town, Shichigashuku Town, Kawasaki Town	5	Aogashima	Tokyo	Aogashima Village	1
	Yamagata	Yamagata City, Kaminoyama City		Tsurumidake and Garandake	Oita	Beppu City, Usa City, Yufu City, Hiji Town	4
Azumayama	Yamagata	City of Yonezawa	3	Kujusan	Oita	Taketa City, Yufu City, Kokonoe Town	3
	Fukushima	Fukushima City, Inawashiro Town		Asosan	Kumamoto	Aso City, Takamori Town, Minamiaso Village	3
Adatarayama	Fukushima	Fukushima City, Koriyama City, Nihonmatsu City、Motomiya City, Otama Village, Inawashiro Town	6	Unzendake	Nagasaki	Shimabara City, Unzen City, MinamiShimabara City	3
Bandaisan	Fukushima	Aizuwakamatsu City, Kitakata City, Kitashiobara Village, Bandai Town, Inawashiro Town, Yugawa Village	6	Kirishimayama	Miyazaki	Miyakonojo City, Kobayashi City, Ebino City, Takaharu Town	6
Nasudake	Fukushima	Shimogo Town, Nishigo Village	4		Kagoshima	Kirishima City, Yusui Town	
	Tochigi	Nasushiobara City, Nasu Town		Sakurajima	Kagoshima	Kagoshima City, Tarumizu CIty	2
Nikko-Shiranesan	Tochigi	Nikko City	3	Satsuma-Iojima	Kagoshima	Misima Village	1
	Gunma	Numata City, Katashina Village		Kuchinoerabujima	Kagoshima	Yakushima Town	1
Kusatsu-Shiranesan	Gunma	Nakanojo Town, Naganohara Town, Tsumagoi Village, Kusatsu Town	5	Suwanosejima	Kagoshima	Toshima Village	1
	Nagano	Takayama Village		[Total] 49 volcanos	23 prefectures	140 municipalities	Total 155

Source: Cabinet Office

In December 2015, the Committee to Draft a Guide to Preparing Evacuation Plans in Case of a Volcanic Eruption was established to draw up a guide to which owners of facilities for attracting visitors, etc. could refer when preparing an evacuation implementation plan. Following its deliberations, the Guide to Preparing Volcanic Eruption Evacuation Plans for Facilities for Attracting Visitors was published in March 2016. The Committee is continuing its deliberations, with the aim of enhancing this guide and also revising the Guide to Preparing Detailed and Practical Evacuation Plans in Case of Volcanic Eruption (March 2012).

To further promote volcano disaster risk management measures, the Investigative Committee on Promoting Volcano Disaster Risk Management Measures (whose name was changed to the Committee on Volcano Disaster Risk Management Measures at the time of its second meeting) was established to strengthen partnerships among various relevant organizations and promote more integrated volcano disaster risk management measures by continuing to carry out follow-up work on the report's recommendations.

One such recommendation concerns the establishment of volcano monitoring and observation systems; to strengthen such systems, the Japan Meteorological Agency (JMA) is enhancing its observation facilities near calderas to detect precursory phenomena associated with phreatic eruptions. In addition, the Geospatial Information Authority of Japan has improved power supply facilities at electronic reference stations near volcanoes and put in place autonomous / portable equipment for observing crustal deformation.

To ensure that user-friendly volcano disaster risk management information is provided, the JMA has begun publishing Explanations of Volcanic Activity, which clearly state that they are published on an irregular basis, and eruption notices, which swiftly communicate the fact that an eruption has occurred. It has also sought to improve information about volcanoes by such means as changing the keyword used in forecasts and Level 1 volcanic alerts from "Normal" to "Remember that it is an active volcano."

In addition to these activities, the Working Group on the Development of Evacuation Shelters on Active Volcanoes has met nine times since May 2015 to consider approaches to developing evacuation shelters, evacuation buildings, and other evacuation facilities. In December last year, it published the Guide to Enhancing Evacuation Shelters, etc. on Active Volcanoes.

Column: Upgrading Evacuation Shelters on Active Volcanoes

The eruption of Mount Ontake on September 27, 2014 caused immense harm, with many people killed or injured near the caldera. However, most of the people who took refuge in nearby huts were reported to have been unharmed, demonstrating that evacuation shelters were somewhat effective in enabling people to escape from cinders and the like in the event of a sudden eruption. This led to the awareness that such shelters needed to be enhanced.

Accordingly, the Disaster Management Bureau of the Cabinet Office established a working group of volcanologists and experts in impact resistance to consider the development of evacuation shelters. As well as looking at conventional reinforced concrete evacuation shelters, this working group examined ways of ensuring the safety of climbers and others by using existing huts and the like at high altitudes that are difficult to reach with construction materials and equipment, as in the case of Mount Ontake.

In the course of their deliberations, the working group members made use of the crash test facilities at the National Defense Academy to conduct simulations of the impact resistance of wooden roofs reinforced with an advanced fiber (aramid fiber) used in ballistic vests and the like, and put together the necessary specifications. In December 2015, the working group published the Guide to Enhancing Evacuation Shelters, etc. on Active Volcanoes.

It is hoped that steady progress will be made in promoting disaster management measures on active volcanoes, with relevant local governments, relevant organizations, and operators and owners of facilities

near calderas coming together as a community to consider how to reinforce existing facilities and install new evacuation shelters.

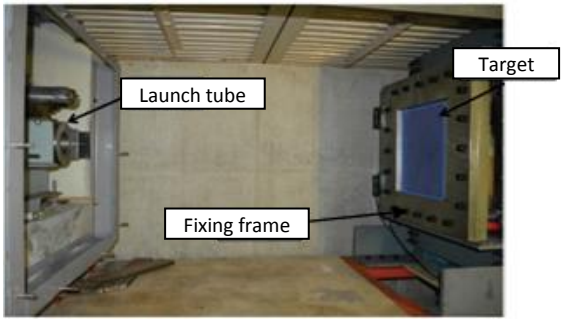


Fig. 1 Impact Test Facility, National Defense Academy

Fig. 2 Effect of reinforcement with aramid fiber
A roof reinforced with the advanced fiber absorbed the impact when a fist-sized cinder crashed into it

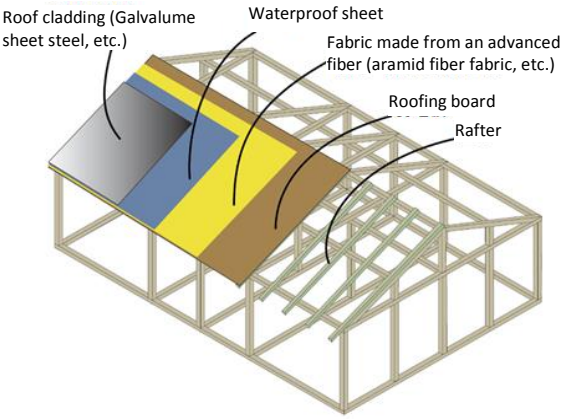


Fig. 3 Illustration of the reinforcement of a hut roof

Fig. 4 Example of refurbishment work on a roof being reinforced with aramid fiber
(Ministry of the Environment: Ebino Eco Museum Center)

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 and a number of major rivers have been inundated as a result.

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

The Kinugawa River after breaching its banks in Joso City, Ibaraki Prefecture
(Geospatial Information Authority of Japan Taken by an unmanned aerial vehicle (UAV) on September 10, 2015)

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.

After meeting five times, the working group prepared a report that recommended improvement measures for the future, covering not only evacuation measures in the event of floods, which are becoming increasingly common, but also emergency measures in general, from initial response to dissemination. Among these, the practical tasks identified as a result of the Kanto-Tohoku Torrential Rain can be summarized under the following six categories.

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

In the city of Joso, which suffered huge damage, very few residents were aware of hazard maps and few understood the meaning of the river water levels that formed the basis for decisions concerning evacuation.

(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

In municipalities affected by the Kanto-Tohoku Torrential Rain, problems included a lack of adequate prior consideration concerning the timing of the issuance of evacuation advisories and orders, the zones for which they should be issued, and the places to which residents should evacuate. As a result, the issuance of evacuation advisories and orders was delayed and some zones that should have been covered were missed out. Evacuation implementation plans, etc. had not been prepared for hospitals and other facilities used by vulnerable people, so there were cases in which rescue took a long time because the facilities had been cut off by flooding.

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

Details of rainfall, river water levels, and evacuation advisories and orders, among other information, were not communicated reliably, while the information that was provided did not result in residents, etc. taking appropriate action to evacuate.

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

The municipalities affected by the Kanto-Tohoku Torrential Rain lacked adequate experience and know-how, causing confusion in their response to the disaster. Backup was sent from other municipalities to areas where the extent of the disaster had reached a certain level. However, in areas where the situation was particularly chaotic, there was not enough spare capacity to properly delegate tasks to the dispatched backup staff according to needs on the ground, so they were not utilized effectively in many cases.

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

Cases were seen in which the response was not necessarily adequate in terms of the management of evacuation shelters and support systems for vulnerable people, among others.

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

When the Kanto-Tohoku Torrential Rain struck, numerous volunteers rushed to the area from across the country and were indispensable in helping to return the disaster-affected region to normal, playing a major role in various aspects of the response. However, it was apparent that information was not being shared fully between government bodies and volunteers.

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. 1-2-7).

To ensure that the content of the report will be effective and guarantee an accurate response in the event of disaster, all actors – residents, government bodies (the national government, prefectures, municipalities, etc.), volunteers, relevant organizations (medical institutions, social welfare councils, etc.), and news media, etc. – will need to undertake autonomous disaster risk reduction initiatives based on repeated grassroots efforts before disaster strikes. Accordingly, it is vital to conduct practical drills regularly. Going forward, the government intends to put together the Guide to Flood Response for Municipalities (tentative name), which will set out the key points that municipalities should cover in responding to disaster, from preparations under normal circumstances to the initial response to a disaster, emergency measures, and recovery in the aftermath. This will enable even municipalities with no experience of disaster to respond swiftly and accurately should a disaster strike.

Fig. 1-2-7 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**

Source: Cabinet Office

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.

The main role of this Commission, whose members include representatives of the Cabinet Office and other relevant ministries and agencies and local governments, is to take national responsibility for verifying the effectiveness of the emergency response plans drawn up by each region and grant approval for those that meet the necessary standard. The Nuclear Emergency Preparedness Commission is chaired by the Prime Minister, with the Chief Cabinet Secretary, Minister of the Environment, Cabinet Office Minister of State for Nuclear Emergency Preparedness, and the Chairman of the NRA as vice-chairs, and all Ministers of State and the Deputy Chief Cabinet Secretary for Crisis Management, among others, serving as commissioners.

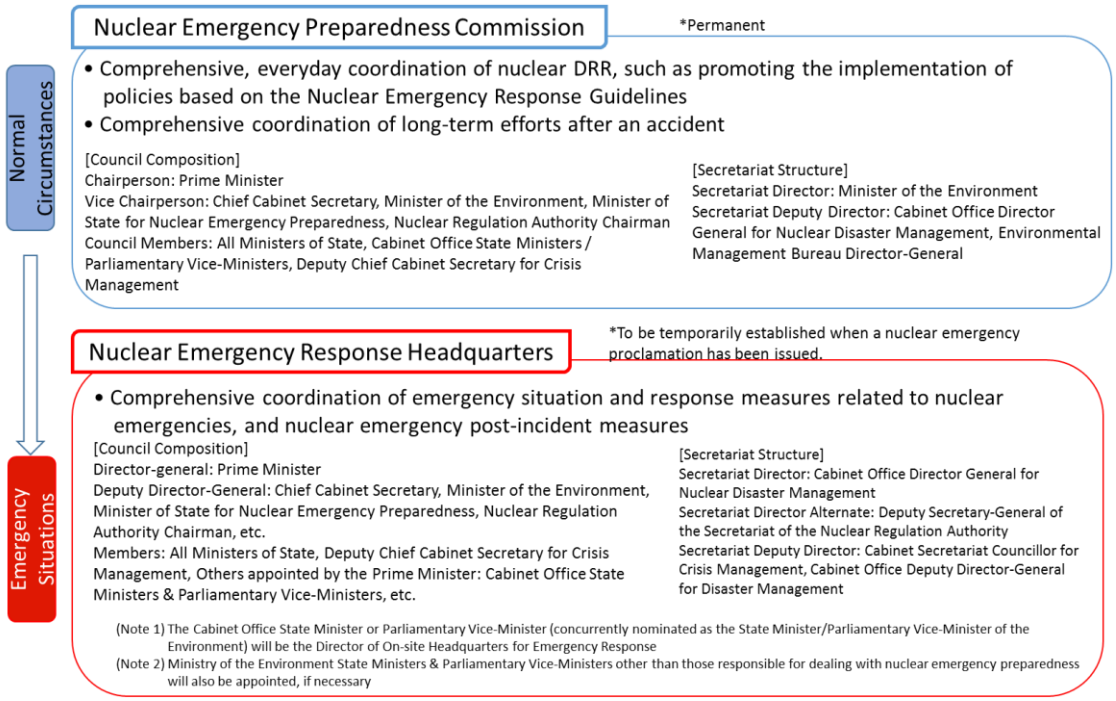
1-2 Nuclear Emergency Preparedness System in an Emergency

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. The Prime Minister will serve as Director-General of the Nuclear Emergency Response Headquarters, with the Chief Cabinet Secretary, Minister of the Environment, Cabinet Office Minister of State for Nuclear Emergency Preparedness, and the Chairman of the NRA as deputy directors-general, and all Ministers of State and the Deputy Chief Cabinet Secretary for Crisis Management, among others, serving as regular members.

In the Headquarters, the NRA holds primary responsibility for decisions on technical and specialized matters (on-site), while matters relating to the procurement of equipment and supplies required to deal with the nuclear facilities and all matters associated with the response outside the facilities (off-site) are handled by the relevant ministries and agencies, based on the directions of the director-general (the Prime Minister). The organization headed by the Cabinet Office Director General for Nuclear Disaster Management that was launched on October 14, 2014 will serve as the Secretariat of the Nuclear Emergency Response Headquarters.

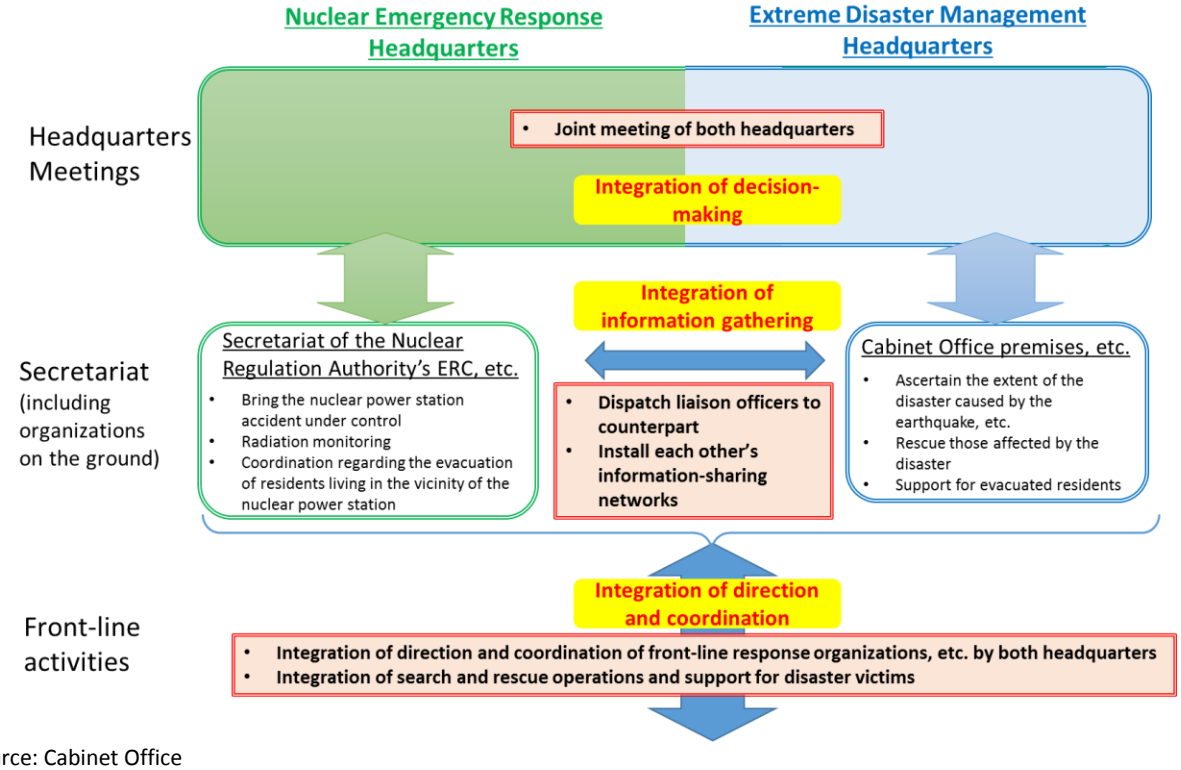
Moreover, at a meeting in July 2015, the Central Disaster Management Council revised the Basic Disaster Management Plan to enhance the system for dealing with a complex disaster (a disaster in which a natural disaster triggers a nuclear emergency). This revision sought to integrate information gathering, decision making, and direction and coordination in the event of a complex disaster, enabling the Extreme Disaster Management Headquarters (which deals with natural disasters) and the Nuclear Emergency Response Headquarters (which deals with nuclear emergencies) to make decisions at joint meetings. 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 station accident. The exercise included a joint meeting concerning the natural disaster and nuclear emergency and a review of cooperation between the secretariats of the two headquarters.

Fig. 1-3-1 Nuclear Emergency Preparedness Systems Under Emergency and Non-emergency Conditions



Source: Cabinet Office

Fig. 1-3-2 Illustration of Responses by Both Headquarters in the Event of a Major Complex Disaster



Source: Cabinet Office

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 once in FY2012 and twice in FY2013. On April 22, 2015, the NRA revised the guidelines again after considering nuclear emergency response measures focused on Fukushima Daiichi Nuclear Power Station; the scope of protective measures in the event of a plume passing through an area outside the Urgent Protective action Planning Zone (UPZ) and the judgment criteria for instituting such measures; the deletion of references to predictive techniques; and the development of mechanisms to facilitate the consolidation of emergency monitoring results and the swift sharing thereof. The NRA also 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.

In conjunction with this, the NRA put in place a medical care system equipped to deal with a nuclear emergency, prescribing the facility requirements for high-dose exposure medical support centers, comprehensive medical support centers for nuclear emergencies, nuclear disaster base hospitals, and cooperating medical institutions for nuclear emergencies. On the same day, the NRA designated five facilities as high-dose exposure medical support centers: the National Institute of Radiological Sciences, Hirosaki University, Fukushima Medical University, Hiroshima University, and Nagasaki University. In addition, it designated four facilities as comprehensive medical support centers for nuclear emergencies: Hirosaki University, Fukushima Medical University, Hiroshima University, and Nagasaki University.

On March 29, 2016, the Study Team on Nuclear Emergency Preparedness Measures met to begin considering approaches to nuclear emergency response measures relating to nuclear fuel facilities and the like.

2-2 Emergency Response Efforts

Crisis management initiatives by the NRA include the revision of the NRA's Disaster Management Operational Plans, Initial Response Manual, Manual on Standards for Local Responses to Nuclear Emergencies, and Civil Protection Plan 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 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 Nuclear Emergency Response Manual, 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, thereby contributing to efforts to ensure a smooth and accurate response by the government as a whole in the event of an emergency. Furthermore, in the 2015 Comprehensive Nuclear Emergency Response Exercise, the Cabinet Office Director General for Nuclear Disaster Management worked in partnership with the NRA. The NRA has continued its ongoing efforts to maintain and enhance its initial response capabilities in accordance with its Initial Response Manual, by such means as providing practical training and upgrading mobile communication devices for use in disaster management (upgrading models and updating address books).

The Secretariat of the NRA participates in disaster prevention drills held by nuclear operators and the NRA is endeavoring to improve its emergency response capabilities, with a focus on such areas as approaches to sharing a wider range of information between the Secretariat of the NRA's Emergency Response Center (ERC) and rapid response centers at nuclear facilities. In addition, at the debriefing on the disaster prevention drills held by nuclear operators in FY2015, the NRA used evaluation indicators drafted by its secretariat on the basis of common issues in such drills identified in the previous year's briefing as the basis for an exchange of opinions regarding the results of a trial evaluation of the drills. Through this, the NRA verified that the findings from the drills conducted to date had been used to steadily enhance the content of the drills, making them more advanced.

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. Furthermore, the Emergency Radiation Monitoring Information Sharing and Disclosure System began operating in June 2015, enabling the results of emergency monitoring to be swiftly consolidated, shared with relevant parties, and published.

Pursuant to the Comprehensive Radiation Monitoring Plan (approved by the Monitoring Coordination Council on August 2, 2011, revised April 1, 2014), the NRA conducts monitoring related to the Fukushima Daiichi Nuclear Power Station accident. It monitors aerial radiation rates in Fukushima Prefecture and throughout Japan, and publishes its results weekly. In May and November 2015, experts from the Environment Laboratories of the International Atomic Energy Agency (IAEA) visited Japan and jointly collected ocean water samples around the Fukushima Daiichi Nuclear Station with the NRA, as they had done in November 2014, concluding again that the Japanese data was highly reliable. On February 10, 2016, shortly before the fifth anniversary of the accident at Fukushima Daiichi Nuclear Power Station, the NRA collated the monitoring results for the last five years and discussed the direction that should be taken in revising future approaches to monitoring.

In addition, to study the impact of radiation in the areas around nuclear facilities and environmental radiation levels nationwide, the IAEA provided support for environmental radiation level surveys in all 47 prefectures, ocean water radiation analyses in areas around nuclear power plants (all 16 seas), and radiation surveys conducted by the locations and neighboring prefectures of nuclear facilities (24 prefectures). To improve radioactivity analysis skills among local government employees and enhance the effectiveness of emergency monitoring, the NRA held three training courses: the Environmental Radioactivity Analysis Training Course, the Practical Training Course in Monitoring, and the Training Course on Emergency Monitoring Centers.

2-4 Accidents and Problems

The Nuclear Reactor Regulation Act requires nuclear operators to report accidents that occur at nuclear power facilities to the NRA, while the Radiation Disease Prevention Act requires that operators dealing with radioisotopes do the same. Of the reports received in FY2015, six came from nuclear operators and two from operators dealing with radioisotopes.

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.

However, when the March 11, 2011 Great East Japan Earthquake triggered the nuclear accident at Tokyo Electric Power Company's Fukushima Nuclear Power Station, various problems arose and there was considerable confusion when actually evacuating local residents. This was because the Fukushima Prefecture Local Disaster Management Plan detailing nuclear emergency response measures that had been drawn up had not been based on the scenario of a nuclear emergency triggered by an earthquake or other natural disasters, and also because the lack of local government disaster prevention wireless systems and the damage caused to communications equipment by the earthquake and tsunami made it difficult to transmit information to local residents. Accordingly, relevant local governments were required to prepare an Evacuation Plan providing more specific information about ways for local residents to evacuate.

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. Ensuring that the content of Local Disaster Management Plans is highly specific and effective is crucial, so the government is expected to provide proactive support regarding measures to tackle issues that are difficult for local governments alone to resolve in developing more specific Evacuation Plans and measures to assist vulnerable people.

Fig. 1-3-3 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.

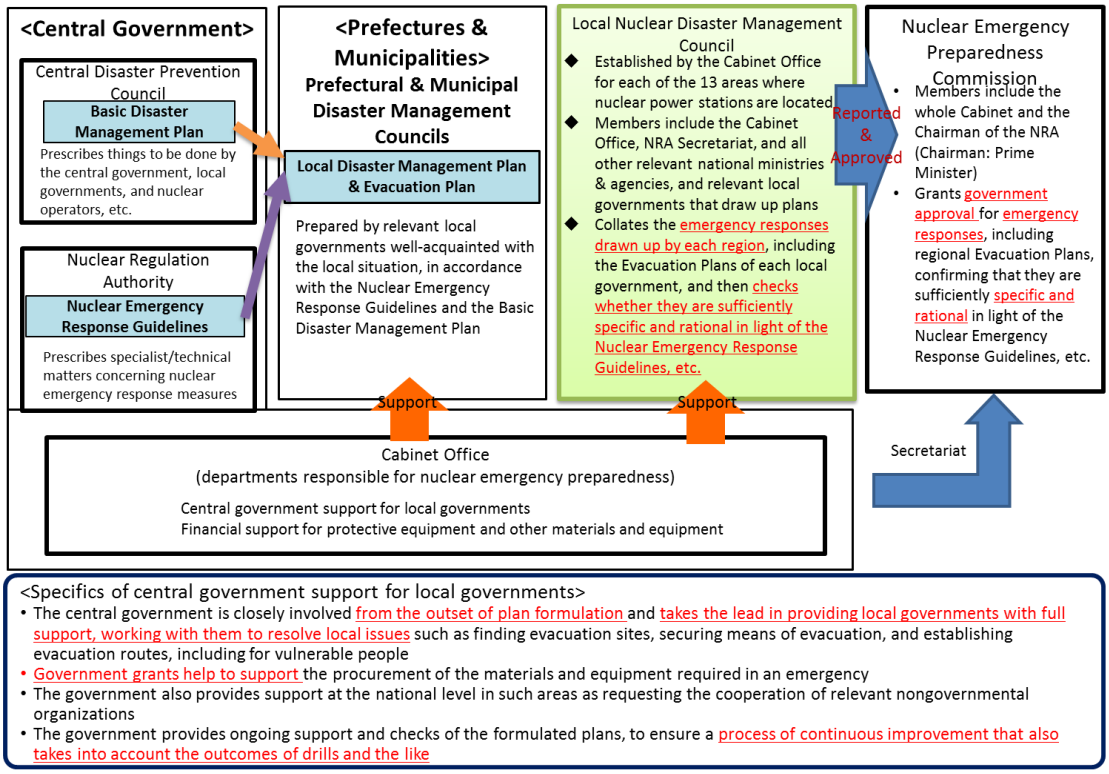
Source: Cabinet Office

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. A PDCA review cycle is introduced for regions whose emergency response has been checked: in addition to support for enhancing the emergency response and making it more specific, followed by checks of the emergency response (Plan), a drill is carried out by the Local Nuclear Disaster Management Council based on the checked emergency response (Do), areas for improvement are identified from the outcomes of the drill (Check), and the emergency response of the region in question is improved on the basis of those areas for improvement (Action). Thus, the local disaster preparedness system goes through an ongoing process of enhancement.

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. 1-3-4 Formulation of Local Disaster Management Plans and Evacuation Plans



Source: Cabinet Office

Fig. 1-3-5 List of Regions Whose Emergency Response Has Been Approved by the Nuclear Emergency Preparedness Commission

		Sendai Region	Ikata Region	Takahama Region
Relevant Local Governments	Prefecture	Kagoshima	Ehime, Oita, Yamaguchi	Fukui, Kyoto, Shiga, Gifu
	Municipality	Satsumasendai City, Ichikikushikino City, Akune City, Kagoshima City, Izumi City, Hioki City, Aira City, Satsuma Town, Nagashima Town	Ikata Town, Yawatahama City, Ozu City, Seiyo City, Uwajima City, Iyo City, Uchiko Town, Kaminoseki Town	Takahama Town, Ohi Town, Obama City, Wakasa Town, Maizuru City, Ayabe City, Nantan City, Kyotamba Town, Fukuchiyama City, Miyazu City, Ine Town, Takashima City
Nuclear Emergency Preparedness Commission Date Held		September 12, 2014	October 6, 2015	December 18, 2015
Local Nuclear Disaster Management Council Date Held		September 5, 2014 (Held as a special meeting of the Working Team)	August 26, 2015	December 16, 2015
Working Group Meetings Held		・ November 5 and 22, 2013 ・ June 10, 2014 (All held as Working Team meetings)	・ November 8, 2013 ・ May 16, 2014 ・ February 13, March 27, June 12, 22, 29, July 9, 10, 21, and August 24, 2015 (Held as Working Team meetings through February 13, 2015)	・ May 27 and December 24, 2013 ・ March 3, 18, June 26 and December 2, 2014 ・ March 25, August 6, and November 25, 2015 (Held as Working Team meetings through December 2, 2014)

*The representatives of relevant local governments participated as members of Local Nuclear Disaster Management Councils or observers

Source: Cabinet Office

In the Ikata region, the working group assisting the Ikata Local Nuclear Disaster Management Council has met a total of 11 times to date, to consider the emergency response in the event of a nuclear emergency. The Ikata Region Emergency Response was put together at the August 26, 2015 meeting of the Ikata Local Nuclear Disaster Management Council.

The four key points of the Ikata Region Emergency Response are as follows.

(1) The PAZ (within a radius of around 5km of the power plant, encompassing around 5,000 people) will be evacuated immediately in the event of a General Emergency. Evacuation sites will be secured outside the 30km radius.

(2) Evacuation of medical institutions, residents of social welfare facilities, those requiring care support in their own homes, and children at schools and nurseries will begin at an early stage following an accident, before a General Emergency is announced. Those whose health would be at risk if evacuated when not absolutely necessary will remain in facilities equipped with radiation protection.

(3) The Sadamisaki Peninsula (the area of the peninsula located within a radius of 5-30km, encompassing around 5,000 people) has special geographic conditions, so it has been designated as a zone subject to the same evacuation and other protection measures as the PAZ. To facilitate a response to a range of situations, the response will incorporate a combination of multiple protection measures, including evacuation by land, sea, and air, as well as sheltering indoors.

(4) People in the UPZ (within a radius of around 5-30km from the power plant, encompassing around 110,000 people) will be advised to shelter indoors in the event of a General Emergency. Temporary relocation will be carried out within about a week in areas where emergency environmental radiation monitoring shows that the radiation dose is above a certain level. Evacuation sites capable of dealing with the 110,000 or so people from within the UPZ will be secured.

Based on the awareness that there is no such thing as too many disaster preparedness measures, Ehime Prefecture has informed the Ikata Local Nuclear Disaster Management Council that it will work with relevant local governments to further enhance evacuation measures, while the national government has expressed its intention to continue providing support via the Ikata Local Nuclear Disaster Management Council. Moreover, Shikoku Electric Power Company has stated that it will address the matters that it should deal with as a nuclear operator, such as ensuring the availability of vehicles for people with disabilities. Furthermore, four front-line response organizations – the Self-Defense Forces, Japan Coast Guard, police, and firefighters – have announced that they will provide support as required in response to requests from relevant prefectures and municipalities in the event of unforeseen circumstances. Accordingly, the responses of relevant local governments, including Ehime Prefecture, Yamaguchi Prefecture, and Oita Prefecture, and of relevant ministries and agencies were deemed to be specific, and were confirmed to be sufficiently specific and rational in light of the Nuclear Emergency Response Guidelines, etc.

In the Fukui area, subcommittees have been established for each region – Tsuruga, Mihama, Ohi, and Takahama – to consider the specific issues that should be resolved in the relevant region. In the Takahama region, the Takahama Region Subcommittee has been established under the Fukui Area Local Nuclear Disaster Management Council and has met a total of 14 times to date, to consider the emergency response in the event of a nuclear emergency. The Takahama Region Emergency Response was put together at the December 16, 2015 meeting of the Fukui Area Local Nuclear Disaster Management Council.

The three key points of the Takahama Region Emergency Response are as follows.

(1) The PAZ (with a population of around 9,000 people) will be evacuated immediately in the event of a General Emergency. Multiple evacuation sites will be secured outside the 30km radius.

(2) Evacuation of medical institutions, residents of social welfare facilities, those requiring care support in their own homes, and children at schools and nurseries will begin at an early stage following an accident, before a General Emergency is announced. Those whose health would be at risk if evacuated will remain in facilities equipped with radiation protection.

(3) People in the UPZ (with a population of around 170,000 people) will be advised to shelter indoors in the event of a General Emergency. Temporary relocation will be carried out within about a week in areas where emergency environmental radiation monitoring shows that the radiation dose has exceeded a certain level. Multiple evacuation sites capable of dealing with the 170,000 or so people from within the UPZ will be secured.

Based on the awareness that there is no such thing as too many disaster preparedness measures, Fukui, Kyoto, and Shiga prefectures have informed the Fukui Area Local Nuclear Disaster Management Council that they will work with relevant local governments to further enhance evacuation measures, while the national government has expressed its intention to continue providing support via the Fukui Area Local Nuclear Disaster Management Council. Moreover, Kansai Electric Power Company has stated that it will address the matters that it should deal with as a nuclear operator, such as ensuring the availability of vehicles for people with disabilities. Furthermore, four front-line response organizations – the Self-Defense Forces, Japan Coast Guard, police, and firefighters – have announced that they will provide support as required in response to requests from relevant prefectures and municipalities in the event of unforeseen circumstances. Accordingly, the responses of relevant local governments, including Fukui Prefecture, Kyoto Prefecture, and Shiga Prefecture, and of relevant ministries and agencies were deemed to be specific, and were confirmed to be sufficiently specific and rational in light of the Nuclear Emergency Response Guidelines, etc.

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). Moreover, the Basic Policy on Economic and Fiscal Management and Reform 2015 approved by the Cabinet in June 2015 states, “The government will continue to improve and strengthen nuclear disaster monitoring measures and will secure evacuation routes by formulating evacuation plans, introducing drills, improving roads, and implementing other measures.”

Nuclear disaster medical assistance team vehicle

Radiation medicine exercise

Under Article 12 (1) of the Act on Special Measures Concerning Nuclear Emergency Preparedness (Act No. 156 of 1999), the Prime Minister is required to designate an emergency response base facility (known as “an off-site center”) for each nuclear site, for the coordination of emergency response measures.

The requirements that off-site centers must satisfy are prescribed in the Cabinet Office Ordinance on Off-site Centers Pursuant to the Act on Special Measures Concerning Nuclear Emergency Preparedness (Ministry of Education, Culture, Sports, Science and Technology and Ministry of Economy, Trade and Industry Ordinance No. 3 of September 14, 2012). Based on the lessons from the accident at Fukushima Daiichi Nuclear Power Station, the siting requirements for off-site centers were revised in September 2012 to state specifically that off-site centers should be sited within a radius of 5-30km from the power station (i.e. within the Urgent Protective action Planning Zone (UPZ)).

In light of this revision, the off-site centers for Hokkaido Electric Power Company’s Tomari Power Station, Hokuriku Electric Power Company’s Shika Power Station, and Shikoku Electric Power Company’s Ikata Power Station were relocated and the new facilities were designated as off-site centers in July 2015, after seeking the views of the NRA and the relevant local governments, in accordance with the provisions of Article 12 of the Act.

Fig. 1-3-6 List of Off-site Centers and Alternative Facilities for Commercial Power Reactors

Nuclear Site	Off-site Center		Alternative Facility	
	Name	Location	Name	Address
Tomari Nuclear Power Station, Hokkaido Electric Power Co, Inc.	Hokkaido Nuclear Emergency Preparedness Center	141-1 Minamihoni, Kyowa-cho, Iwanai-gun, Hokkaido	Kimobetsu-cho Rural Environment Improvement Center	264-4 Aza-fushimi, Kimobetsu-cho, Abuta-gun, Hokkaido
			Suttsu Town General Culture Center	187-1 Aza-Kaishincho, Suttsu-cho, Suttsu-gun, Hokkaido
Higashidori Nuclear Power Station, Tohoku Electric Power Co, Inc.	Higashidori-mura Disaster Prevention Center	5-35 Oaza-Sunagomata, Aza-Sawauchi, Higashidori-mura, Shimokita-gun, Aomori	Aomori Prefectural Nuclear Power Safety Center	400-1 Oaza-Kurauchi Aza-Sasazaki, Rokkasho-mura, Kamikita-gun, Aomori
			Aomori Prefectural Government	1-1-1 Nagashima, Aomori-shi, Aomori
Tokai Power Station and Tokai No2 Power Station, The Japan Atomic Power Company	Ibaraki Prefecture Nuclear Power Off-site Center	11601-12 Nishi-jusan-bugyo, Hitachinaka-shi, Ibaraki	Ibaraki Teacher Training Center	1410 Taira-machi, Kasama-shi, Ibaraki
			Tsukuba International Congress Center	2-20-3 Takezono, Tsukuba-shi, Ibaraki
Kashiwazaki-Kariwa Nuclear Power Station, Tokyo Electric Power Co., Inc.	Niigata Prefecture Nuclear Emergency Preparedness Center	5-48 Sanwa-cho, Kashiwazaki-shi, Niigata	Niigata Prefectural Government	4-1 Shinko-cho, Chuo-ku, Niigata-shi, Niigata
			Sanwa District General Office	444 Inokuchi, Sanwa-ku, Joetsu-shi, Niigata

Nuclear Site	Off-site Center		Alternative Facility	
	Name	Location	Name	Address
Shika Nuclear Power Station, Hokuriku Electric Power Company	Ishikawa Prefecture Shika Off-site Center	2-7 Nishiyamadai, Shika-machi, Hakui-gun, Ishikawa	Ishikawa Prefectural Government	1-1 Kuratsuki, Kanazawa-City
			Oku-Noto General Office	10-11-1 Sue, Mii-machi, Wajima-shi
Prototype Fast Breeder Reactor Monju, Japan Atomic Energy Agency	Fukui Prefecture Tsuruga Nuclear Emergency Preparedness Center	99-11-47 Kanayama, Tsuruga-shi, Fukui	Fukui Prefecture Ohi Nuclear Emergency Preparedness Center	1-1-1 Seiwa, Ohi-cho, Ohi-gun, Fukui
FUGEN Decommissioning Engineering Center, Japan Atomic Energy Agency			Fukui Prefecture Takahama Nuclear Emergency Preparedness Center	35-14 Sonobe, Takahama-cho, Ohi-gun, Fukui
Tsuruga Nuclear Power Station, The Japan Atomic Power Co., Inc.			Fukui Lifelong Learning & Women's Center	14-1 Shimorokujo-cho, Fukui-shi, Fukui
Mihama Power Station, Kansai Electric Power Co., Inc.	Fukui Prefecture Mihama Nuclear Emergency Preparedness Center	1-6 Kenohana, Sata 64, Mihama-cho, Mikata-gun, Fukui	Fukui Prefecture Ohi Nuclear Emergency Preparedness Center	1-1-1 Seiwa, Ohi-cho, Ohi-gun, Fukui
			Fukui Prefecture Takahama Nuclear Emergency Preparedness Center	35-14 Sonobe, Takahama-cho, Ohi-gun, Fukui
			Fukui Lifelong Learning & Women's Center	14-1 Shimorokujo-cho, Fukui-shi, Fukui
Ohi Power Station, Kansai Electric Power Co., Inc.	Fukui Prefecture Ohi Nuclear Emergency Preparedness Center	1-1-1 Seiwa, Ohi-cho, Ohi-gun, Fukui	Fukui Prefecture Tsuruga Nuclear Emergency Preparedness Center	99-11-47 Kanayama, Tsuruga-shi, Fukui
			Fukui Prefecture Mihama Nuclear Emergency Preparedness Center	1-6 Kenohana, Sata 64, Mihama-cho, Mikata-gun, Fukui
			Fukui Lifelong Learning & Women's Center	14-1 Shimorokujo-cho, Fukui-shi, Fukui
Takahama Power Station, Kansai Electric Power Co., Inc.	Fukui Prefecture Takahama Nuclear Emergency Preparedness Center	35-14 Sonobe, Takahama-cho, Ohi-gun, Fukui	Fukui Prefecture Tsuruga Nuclear Emergency Preparedness Center	99-11-47 Kanayama, Tsuruga-shi, Fukui
			Fukui Prefecture Mihama Nuclear Emergency Preparedness Center	1-6 Kenohana, Sata 64, Mihama-cho, Mikata-gun, Fukui
			Fukui Lifelong Learning & Women's Center	14-1 Shimorokujo-cho, Fukui-shi, Fukui
Shimane Nuclear Power Station, Chugoku Electric Power Co., Inc.	Shimane Prefecture Nuclear Emergency Preparedness Center	52 Uchinakabara-cho, Matsue-shi, Shimane	Shimane Prefecture Izumo Joint Government Building	1139 Otsu-cho, Izumo-shi, Shimane
			Shimane Prefecture Nita Administration Offices	555-4 Okuizumo-cho, Nita-gun, Shimane
Ikata Power Station, Shikoku Electric Co., Inc.	Ehime Prefecture Off-site Center	5-175-3 Uwachounomachi, Seiyo-shi, Ehime	Ehime Prefectural Government	4-4-2 Ichibancho, Matsuyama-shi, Ehime
			Tobe-Town Bunkakaikan	1410 Miyauchi, Tobe-cho, Iyogun
Genkai Nuclear Power Station, Kyushu Electric Power Co., Inc.	Saga Prefecture Off-site Center	2-5 Nishinohama-cho, Karatsu-shi, Saga	Saga Prefectural Government	1-1-59, Jonai, Saga-shi, Saga
			Nagasaki Prefecture Firefighters Training School	663-6 Morizono-machi, Omura-shi, Nagasaki
Sendai Nuclear Power Station, Kyusyu Electric Power Co., Inc.	Kagoshima Prefecture Nuclear Emergency Preparedness Center	1-3 Kanda-cho, Satsuma-sendai-shi, Kagoshima	Kagoshima Prefecture Firefighters Training School	1020-1 Nagasato, Higashiichiki-cho, Hioki-shi, Kagoshima
			Kagoshima Prefectural Government Building	10-1 Kamoikeshinmachi, Kagoshima-shi, Kagoshima

*Does not include the Onagawa, Fukushima, or Hamaoka regions, whose off-site centers are due for relocation.
Source: Cabinet Office

Ehime Prefecture Off-site Center

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. However, systematic measures have not necessarily been taken to assure the safety of disaster response personnel carrying out emergency response measures in the event of a nuclear emergency, particularly the staff of private sector business operators and civil servants (excluding police, firefighters, the Self-Defense Forces, and other front-line response organizations) responding to the emergency at off-site locations (in the area around the nuclear facility).

Accordingly, the Cabinet Office set up an investigative committee in July 2015 to consider ways to promote the safety of off-site disaster response personnel from a specialist and technical perspective. The report, which was published in January 2016 after six meetings of the committee, set out the broad direction to be taken in the division of roles among the relevant bodies to ensure the safety of off-site disaster response personnel. Going forward, the Cabinet Office will work to flesh out the committee's recommendations and bring them to fruition.

The committee's findings covered the following areas.

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

- National and local government disaster response personnel and their duties are to be clearly specified by each body in their disaster prevention plans, etc.
- The specific duties of private sector business operators are to be determined in advance, in consultation with the national and local government bodies requesting that these duties be carried out.
- The committee mainly focused on the initial response, until the temporary relocation of local residents has been completed.

(2) Approaches to appropriate protection measures in an emergency

- The committee listed the protective equipment required (e.g. masks) in each of three phases (before discharge, during discharge, and after deposition).
- The national government is to be responsible for specialist and technical judgments concerning the need for protection measures tailored to the situation.
- Mechanisms and systems for communicating information need to be considered, to ensure that decisions can be conveyed immediately to those on the ground.

(3) Routine training, education, and exercises

- Disaster response personnel require training, etc. to ensure that they understand the specific equipment and knowledge needed.

- Explanations of protective measures are to be tailored to the duties of the course participants, such as those responsible for driving vehicles.

(4) Approaches to managing exposure dose in an emergency

- The exposure dose of national and local government personnel is to be managed by the organization for which they work.
- Bodies requesting that duties be carried out by private sector business operators will forecast exposure dose before the duties are carried out and will specify the dose limit; operators are to ensure that exposure doses are kept within this limit.
- Consideration will be given to the preservation of records concerning long-term exposure dose, including existing efforts in the private sector.

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

- If any specific problems, such as mental or physical illness, arise after disaster response duties have been carried out, it will be necessary to address these in an appropriate way.

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 drills organized by relevant prefectural governments are carried out with the participation of prefectural governors and local governments, as well as national and regional front-line response organizations, namely the police, firefighters, the Japan Coast Guard, and the Self-Defense Forces. They include exercises in evacuating local citizens and conducting inspections when evacuating each area.

In regions where the Local Disaster Management Plan and Evacuation Plan have been enhanced and made more specific, the Local Nuclear Disaster Management Council provides the necessary support in such areas as planning and implementing the drills, promoting the widespread use of evaluation methods, and operating the PDCA cycle via the drills, with the goal of verifying the specificity and effectiveness of the Local Disaster Management Plan and Evacuation Plan.

Meeting of the Satsumasendai City Disaster Response Headquarters

Vehicle inspections at a checkpoint when evacuating the area (Kagoshima City)

Fig. 1-3-7 Nuclear Emergency Response Exercises Held by Local Governments in FY2015

	Region	Name of Drill	Date
1	Tomari	Hokkaido Nuclear Emergency Response Exercise	October 21, 2015 and February 5, 2016
2	Higashidori	Aomori Prefecture Nuclear Emergency Response Exercise	October 27, 2015
3	Onagawa	Miyagi Prefecture Nuclear Emergency Response Exercise	October 30, 2015
4	Fukushima	Fukushima Prefecture Nuclear Emergency Response Exercise	November 26 and 28, 2015
5	Tokai Dai-ni	Ibaraki Prefecture Nuclear Emergency Response Exercise	March 11, 2016
6	Kashiwazaki-Kariwa	Niigata Prefecture Nuclear Emergency Response Exercise	February 5, 2016
7	Shika	Ishikawa Prefecture & Toyama Prefecture Joint Nuclear Emergency Response Exercise	November 23, 2015
8	Fukui area	1) Fukui Prefecture Nuclear Emergency Response Exercise 2) Kyoto Prefecture Nuclear Emergency Response Exercise 3) Shiga Prefecture Nuclear Emergency Response Exercise 4) Gifu Prefecture Nuclear Emergency Response Exercise	1) October 16 and November 15, 2015 2) November 28, 2015 3) July 12, 2015 4) November 29, 2015
9	Hamaoka	Shizuoka Prefecture Nuclear Emergency Response Exercise	January 15 and February 3, 2016
10	Shimane	Shimane Prefecture & Tottori Prefecture Joint Nuclear Emergency Response Exercise	October 23 and 25, 2015
11	Ikata	Comprehensive Nuclear Emergency Response Exercise	November 8 and 9, 2015
12	Genkai	1) Saga Prefecture, Nagasaki Prefecture & Fukuoka Prefecture Joint Nuclear Emergency Response Exercise 2) Saga Prefecture Nuclear Emergency Response Exercise	1) November 28, 2015 2) January 22, 2016
13	Sendai	Kagoshima Prefecture Nuclear Emergency Response Exercise (Based on the Sendai Region Emergency Response)	December 20, 2015

Source: Cabinet Office

(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. These training sessions were held on 26 occasions in FY2015. The main topics covered in the training are as follows.

- Basic knowledge concerning radiation
- Handling of radiation meters and how to put on and take off protective clothing, etc.
- Basic approach to radiation protection in accordance with the Nuclear Emergency Response Guidelines
- Approaches to the division of roles in nuclear emergency preparedness activities, etc.

(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. These training sessions were held on 8 occasions in FY2015. The main topics covered in the training are as follows. (Fig. 1-3-8)

- Basic knowledge concerning radiation
- Handling of radiation meters and how to put on and take off protective clothing, etc.
- Basic approach to radiation protection in accordance with the Nuclear Emergency Response Guidelines, etc.

(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. The objective of tabletop exercises is to verify and improve the Local Disaster Management Plans and Evacuation Plans prepared by the local governments of areas where nuclear power stations are sited. These training sessions and exercises were held on 6 occasions in FY2015. The main topics covered in the training are as follows.

- Approaches to radiation protection in accordance with the Nuclear Emergency Response Guidelines
- Activities at off-site centers (OFCs) (classroom learning and practical training)
- Tabletop exercise based on drill scenarios, etc.

Lecture: Basic knowledge concerning radiation

Practical training: How to put on and take off protective clothing, etc.

Fig. 1-3-8 Training Course for Drivers of Buses and Other Commercial Vehicles: List of Sessions in FY2015

	Name of Local Government	Venue	Date	Number of Participants
1	Shiga Prefecture	JA-SHIGACHUOKAI Shiga Prefecture Agricultural Education and Information Center	July 1, 2015	32
2	Fukui Prefecture	Obama City Cultural Hall	January 28, 2016	38
3	Shiga Prefecture	Hotel Sunroute Hikone	February 17, 2016	29
4	Ehime Prefecture	Kokudo Kyushi Ferry Saganoseki Office	March 9, 2016	10
5	Ehime Prefecture	Ehime Trucking Association Training Center	March 11, 2016	12
6	Ehime Prefecture	Ehime Trucking Association Training Center	March 11, 2016	16
7	Fukushima Prefecture	Iwaki Joint Government Building	March 14, 2016	15
8	Ehime Prefecture	Matsuyama Sightseeing Port	March 17, 2016	20

Source: Cabinet Office

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.

Accordingly, the government has sought to share its knowledge and experience of nuclear emergency preparedness with other countries 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. In addition, Japan conducts surveys of the IAEA's standards regarding off-site nuclear emergency preparedness and the systems/management of major countries engaging in nuclear power generation.

(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 reciprocal invitations to exercises and regular exchanges of opinions with such bodies as the Department of Energy (DOE), the Federal Emergency Management Agency (FEMA), and the Nuclear Regulatory Commission (NRC), based on the U.S.-Japan Bilateral Commission on Civil Nuclear Cooperation framework established in 2012 under the Emergency Management Working Group (EMWG).

More specifically, in FY2015, Japan and the U.S.A. held two exchanges of opinions and issued three reciprocal invitations to exercises under this framework, exchanging opinions regarding such matters as both countries' experiences and lessons regarding the accident at Fukushima Daiichi Nuclear Power Station and other nuclear emergencies, as well as their on-site emergency organizations, and human resource development and training programs. Japan participated in a tabletop exercise held in the U.S. state of Ohio in May 2015. In July that year, Japan observed the Southern Exposure 2015 exercise, a comprehensive nuclear emergency response exercise held at the Robinson nuclear plant in South Carolina, with a scenario involving the loss of cooling functions due to an unknown cause, leading to the widespread release of radioactive material. The following month, the two countries shared their views on the structure and scenario of that exercise. In November last year, Japan invited relevant individuals from the U.S.A. to observe the Comprehensive Nuclear Emergency Response Exercise held to verify systems for responding to a nuclear emergency, and representatives of the two countries held an exchange of views.

(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 (MoC) was signed on May 5, 2015. The MoC was inspired by a common desire to engage in cooperation and dialogue concerning the management of emergencies in the event of a nuclear accident. In particular, based on the awareness that cooperation in the field of the protection of residents, disaster prevention, and emergency response would contribute to the welfare and safety of the people of both countries. In particular, Japan and France are keen to strengthen bilateral cooperation in the management of nuclear accidents, in light of the accident at Fukushima Daiichi Nuclear Power Station on March 11, 2011.

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.

A delegation of 11 observers from four countries was invited to observe the two-day Comprehensive Nuclear Emergency Response Exercise held in November 2015 to verify the nuclear emergency response systems at the Ikata Power Station of Shikoku Electric Power Company, Inc. (hereinafter “Shikoku Electric’s Ikata Power Station”). During this exercise, the members of the delegation observed the evacuation of residents and the declaration of a nuclear emergency by the Prime Minister.

(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).

INEX is a “question-driven” tabletop nuclear emergency preparedness exercise organized by the OECD/NEA. INEX-5, which is the sixth such exercise, is based on a scenario focused on decision-making processes when a complex disaster causes the loss of communication functions. Japan is currently preparing for the next drill, in 2016.

(3) Surveys of International Standards, etc.

December 2015 saw the first meeting of the IAEA’s new Emergency Preparedness and Response Standards Committee (EPReSC), which has been established to examine the IAEA’s standards regarding off-site nuclear

emergency preparedness and the systems/management of major countries engaging in nuclear power generation. Japan attended this meeting, participating in discussions with experts from the IAEA and other member countries.

Section 4: 2015 Comprehensive Nuclear Emergency Response Exercise

4-1 Overview of Exercise

(1) Positioning and Objectives

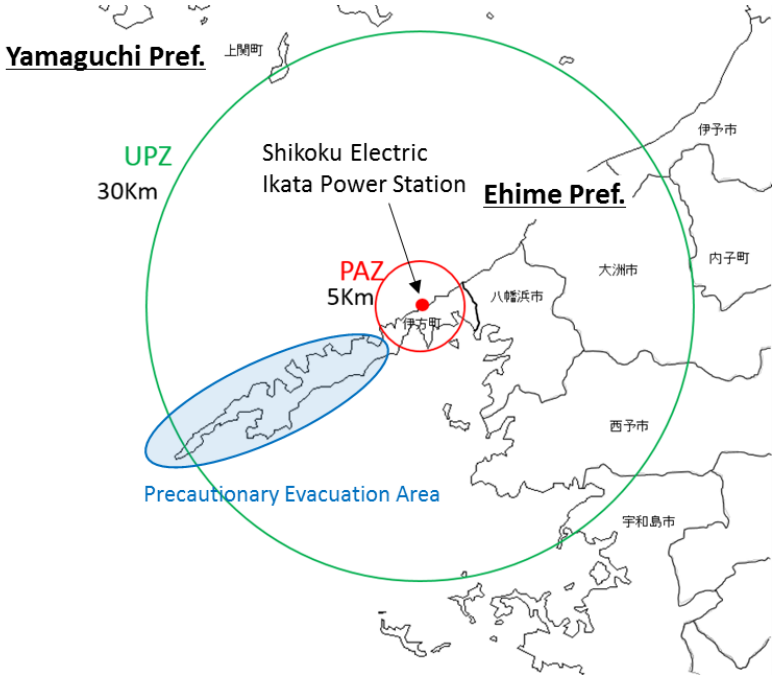
The Comprehensive Nuclear Emergency Response Exercise is a joint exercise involving the national government, local governments, and power industry operators, in accordance with the Act on Special Measures Concerning Nuclear Emergency Preparedness. Based on the scenario of a nuclear emergency, it aims 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

(2) Timing and Power Plant

The exercise was held on November 8 and 9, 2015, focusing on Shikoku Electric's Ikata Power Station. Fig. 1-3-9 shows a map of the area concerned.

Fig. 1-3-9 Ikata Region Priority Zones for Nuclear Emergency Response



*PAZ: Precautionary Action Zone
*UPZ: Urgent Protective Action Planning Zone
*Precautionary Evacuation Area (area where preparations are made for the same evacuation and other protection measures as the PAZ)

Source: Cabinet Office

Fig. 1-3-10 Content of the 2015 Comprehensive Nuclear Emergency Response Exercise

	8th	9th
AM	Alert issued due to earthquake	**Response to General Emergency (Field Training Exercise in Response to a General Emergency)**
	Nuclear Operator's Drill (bringing situation under control)	**Response to Alert (Exercise in Rapid Establishment of an Initial Response System)**
		Site Area Emergency occurs
		Response to Site Area Emergency (Exercise in Making Decisions Concerning the Evacuation Plan, etc. Based on Collaboration Between National and Local Bodies) ○ Exercise in running a joint meeting of the Extreme Disaster Management Headquarters & Nuclear Emergency Response Headquarters ○ Exercise in evacuating residents requiring support from the PAZ and Precautionary Evacuation Area
PM		General Emergency occurs
		Response to General Emergency (Exercise in Making Decisions Concerning the Evacuation Plan, etc. Based on Collaboration Between National and Local Bodies) ○ Exercise in running a joint meeting of the Extreme Disaster Management Headquarters & Nuclear Emergency Response Headquarters ○ Exercise in evacuating residents from the PAZ and Precautionary Evacuation Area

<Function-specific drills (1)>
・Evacuation of residents from the PAZ & Precautionary Evacuation Area
・Residents of the UPZ shelter indoors

<Function-specific drills (2)>
・Emergency environmental radiation monitoring
・Temporary relocation of residents from the UPZ

<Function-specific drill (3)>
・Transport and treatment of contaminated patients

Source: Cabinet Office

(3) Participants

- Governmental organizations: Cabinet Secretariat, Cabinet Office, NRA, and other relevant ministries and agencies
- Local governments: Ehime Prefecture, Ikata Town, Uwajima City, Yawatahama City, Ozu City, Iyo City, Seiyo City, Uchiko Town, Yamaguchi Prefecture, Kaminoseki Town, and other relevant prefectures and municipalities
- Nuclear operator: Shikoku Electric Power Company, Inc.
- Relevant organizations: National Institute of Radiological Sciences, Japan Atomic Energy Agency, etc.

(4) Accident Scenario

In this scenario, the loss of off-site power supply due to the effects of the earthquake escalates into a General Emergency due to the loss of function in the reactor water injection system, resulting in the release of radioactive material.

(5) Content of Exercise

This exercise was held with the aim of further improving the effectiveness of the Evacuation Plan based on the Ikata Region Emergency Response. It involved decision-making and operational drills tailored to a situation in which roads on Ehime Prefecture's Sadamisaki Peninsula had been damaged by a disaster, requiring evacuation to be carried out by sea as well. The main elements covered in the exercise are as follows.

- Exercise in Rapid Establishment of an Initial Response System
- Exercise in Making Decisions Concerning the Evacuation Plan, etc. Based on Collaboration Between National and Local Bodies
- Field Training Exercise in Response to a General Emergency

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.

Key personnel gather information
(Ehime Prefecture Off-site Center)

(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. At the Prime Minister's Office, the Prime Minister declared a nuclear emergency in response to the General Emergency and, with the participation of relevant Cabinet ministers, held a meeting of the Nuclear Emergency Response Headquarters at which they discussed the government's response guidelines regarding the evacuation of residents and other protection measures.

The Prime Minister declares a nuclear emergency immediately after a General Emergency
(Prime Minister's Office)

(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. Stable iodine agents were urgently distributed in the town's Iyo and Seto districts, and residents were evacuated via overland routes on buses, etc. to designated evacuation shelters. Residents of the town's Misaki district were evacuated by sea from Misaki Port to Oita Prefecture on a ferry and a Maritime Self Defense Force vessel. In each evacuation, a video transmission device mounted on an Ehime Prefectural Police Department helicopter was used to gain an understanding of the situation and steps were taken to alleviate traffic congestion, such as providing the buses with a police escort and imposing traffic restrictions at major intersections.

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.

Column: Nuclear Emergency Response Measures Focused on Nuclear-Powered Vessels

The Supervisory Committee of the Central Disaster Management Council has put together the Manual on Responding to Nuclear Emergencies on Nuclear-powered Vessels (August 2004), detailing the measures to be taken in the event of a nuclear emergency on one of the nuclear-powered vessels that call at Japanese ports (U.S. aircraft carriers and submarines). This document will form the basis for cooperation by relevant ministries in responding to such an emergency.

The NRA prepared new Nuclear Emergency Response Guidelines (October 2012) regarding measures in the event of an emergency at a nuclear power station, based on the lessons of the accident at Fukushima Daiichi Nuclear Power Station and recent international standards. As a result of reviews carried out as needed, these underwent full revisions in April and August 2015.

A working committee of experts was set up in November 2015 to consider the steps that should be taken in light of such developments. This working committee discussed the judgment criteria for a state of emergency beginning with evacuation and sheltering indoors, and reached the conclusion that the criteria governing an accident on a nuclear-powered vessel should be revised in accordance with the criteria for nuclear power stations (see table). After interviews with the local governments with authority over ports where nuclear-powered vessels call and a review of the latest international standards, the working committee recommended the following on March 30, 2016.

- Implementation of protection measures on the basis of a timeline
- Gathering of information at an earlier stage and clarification of the information to be gathered
- Positioning of the movement of nuclear-powered vessels in the event of a disaster, etc.

In terms of the scope of the emergency measures, the working committee referred to the concepts of the PAZ and UPZ in the Nuclear Emergency Response Guidelines and estimated the distances to be used on the basis of the latest knowledge. As a result, it confirmed that the distances specified in the existing manual are actually on the safe side.

(Table) Revisions to the Manual on Responding to Nuclear Emergencies on Nuclear-powered Vessels (November 20, 2015, Supervisory Committee of the Central Disaster Management Council)

	Before Revision	After Revision
Normal Standard	10 minutes or more at 1 location OR at 2 locations 5μ Sv/h	5μ Sv/h
Judgment Criteria in an Emergency	10 minutes or more at 1 location OR at 2 locations 100μ Sv/h	10 minutes or more at 1 location OR at 2 locations 5μ Sv/h

Part 2
Outline of Disaster Management Measures Implemented in FY2014

Overview

1. Legislation

Laws enacted included the Act to Partially Revise the Disaster Countermeasures Basic Act, the Act for Partial Amendment of the Act on Special Zones for Reconstruction in Response to the Great East Japan Earthquake, and the Act for Partial Amendment of the Sediment Disaster Prevention Act.

2. Science and Technology Research

The government promoted research on such topics as earthquakes, tsunami, storm and flood disasters, volcanic disasters, snow disasters, fires, disasters caused by hazardous materials, and nuclear disasters.

3. Disaster Prevention

As well as furthering efforts to put in place disaster prevention facilities, the government promoted the development of disaster management bases to deal with major earthquakes. In addition, it enhanced information and communications systems relating to various kinds of disaster, carried out seismic retrofits of facilities and equipment, sought to raise awareness of disaster preparedness, and conducted various education and training programs.

4. National Land Conservation

Focusing on areas with an urgent need for improved disaster preparedness, the government carried out various projects, including flood control and forest conservation initiatives, countermeasures for landslides, countermeasures for steep slope failures, coastal projects, initiatives to prevent disasters involving agricultural land, measures to combat subsidence, and measures to prevent flooding in sewerage systems.

5. Disaster Recovery

(1) Emergency Disaster Control Measures

The government implemented various support measures in response to disasters that occurred in FY2014, including gathering information about the extent of the damage, dispatching staff, applying the Disaster Relief Act, and designating Disasters of Extreme Severity.

(2) Disaster Recovery Projects

The government undertook the Project to Recover Public Civil Engineering Works Damaged by Disaster and the Project to Recover Facilities for Agriculture, Forestry and Fisheries Damaged by Disaster.

(3) Fiscal and Financial Measures

The government implemented various fiscal and financial measures, including loans by the Japan Finance Corporation and other bodies, loans to local governments from the Fiscal Loan Fund, disaster insurance payments, and measures financed by tax allocations to local governments and local government bonds.

(4) Post-Disaster Reconstruction Measures

In response to the Great East Japan Earthquake and other disasters, the government implemented reconstruction measures in the agriculture, forestry and fishery industry and the housing sector.

6. International Cooperation in Disaster Risk Reduction

Following the adoption of the Sendai Framework for Disaster Risk Reduction 2015-2030 at the Third UN World Conference on Disaster Risk Reduction (held in Sendai City, Miyagi Prefecture in March 2015), the government sought to ensure that the Framework was implemented in each country by supporting efforts in developing countries to build resilience to disasters. As such, Japan promoted international cooperation in disaster risk reduction that leveraged our nation’s knowledge and technology, including ODA, financial contributions to international organizations, and multilateral cooperation in disaster risk reduction via the Asian Disaster Reduction Center.

Chapter 1 Legislation

Act to Partially Revise the Disaster Countermeasures Basic Act (Act No. 114 of 2014)

There are fears that in the event of a Tokyo inland earthquake or other major disaster, road damage could result in severe traffic congestion or a large number of abandoned vehicles. Alternatively, cars could be stranded or abandoned if heavy snowfall makes driving difficult. Accordingly, this act was enacted in November 2014 to bolster measures to deal with abandoned vehicles, among others.

Cabinet Order on the Establishment of Relevant Cabinet Orders Pursuant to the Enforcement of the Act to Partially Revise the Disaster Countermeasures Basic Act (Cabinet Order No. 366 of 2014)

The Act to Partially Revise the Disaster Countermeasures Basic Act (Act No. 114 of 2014) instituted measures to enhance the steps that road managers could take to deal with abandoned vehicles, in order to facilitate the immediate clearance of roads and the prompt passage of emergency vehicles in the event of a major disaster. This Cabinet Order was enacted in November 2014 to partially revise the Order for Enforcement of the Disaster Countermeasures Basic Act (Cabinet Order No. 288 of 1962) and introduce revisions to other relevant cabinet orders that had become necessary as a result of the entry into force of that act.

Act for Partial Amendment of the Act on Special Zones for Reconstruction in Response to the Great East Japan Earthquake (Act No. 32 of 2014)

This act was enacted in May 2014. The changes that it introduced included removing some of the documents to be attached to application forms under the provisions of Article 40 (1) of the Compulsory Purchase of Land Act in relation to land restructuring projects, taking into account the implementation status of such projects; stipulating that the usage period relating to land restructuring projects under the provisions of Article 123 (1) of said act shall be one year; adding small housing estate facility development projects to the list of land restructuring projects; and stipulating that facilities developed in small housing estate facility development projects shall be regarded as collective housing facilities pursuant to the City Planning Act.

Act for Partial Amendment of the Coast Act (Act No. 61 of 2014)

This act was revised in June 2014 to promote appropriate coastal maintenance and management to strengthen coastal disaster prevention and mitigation measures to prepare for a large tsunami triggered by an earthquake such as one in the Nankai Trough, which has a 70% probability of occurring within the next 30 years. Another reason for its revision was to address the dilapidated state of seawalls and other coastal protection facilities, which were the result of intensive development during Japan's period of high economic growth.

Act for Partial Amendment of the Sediment Disaster Prevention Act (Act No. 109 of 2014)

This act was revised in light of the Hiroshima City sediment disaster caused by torrential rain in August 2014. The revised act imposed on prefectural governments an obligation to publish the results of basic surveys and an obligation for prefectural governors to notify municipal mayors of sediment disaster alert information, as well as ensuring widespread public awareness of this information. In addition, it stipulated the specific matters to be described in the Local Disaster Management Plans of municipalities that have been designated as sediment disaster hazard zones.

Chapter 2 Science and Technology Research

1. Disasters in General

(1) Promotion of Disaster Management Science and Technology Research by the Council for Science, Technology and Innovation

The Council for Science, Technology and Innovation sought to promote research and development (R&D) in such areas as science and technology research and crisis management techniques to strengthen disaster prevention and mitigation functions, in accordance with the Science and Technology Basic Plan and the Comprehensive Strategy on Science, Technology and Innovation, among others.

Within the context of the Cross-ministerial Strategic Innovation Promotion Program (SIP), which was founded to bring science, technology and innovation to fruition in a way that cuts across ministries and fields, the Council has promoted R&D by establishing "Enhancement of societal resiliency against natural disasters" as one of SIP's key areas of focus. As part of the Impulsing PAradigm Change through disruptive Technologies Program (ImPACT), the Council launched the Tough Robotics Challenge, which aims to develop remote autonomous robots capable of operating in extreme disaster environments.

(FY2014 Settled Amount: included in the ¥50 billion figure for expenditure on science, technology and innovation promotion)

(FY2014 Settled Amount: included in the ¥55 billion fund for innovative technology R&D put in place in the FY2013 supplementary budget)

(2) R&D of Remote Sensing Technologies for Disaster Management

The National Institute of Information and Communications Technology (NICT) has been working on the development of higher-performance remote sensing technology to be installed on aircraft, etc. It has also used this technology in the development of technologies for identifying changes in the ground's surface to gain an understanding of a disaster and technologies for the swift relay of data.

(3) R&D of Disaster Information and Communications Systems, etc.

NICT undertook R&D of technology capable of high-precision, three-dimensional measurement of wind direction and wind speed in the skies over cities. This will assist in forecasting disasters and gaining an understanding of disaster situations.

(4) R&D of IT to Enhance Firefighting Capabilities in a Major Disaster

FDMA's National Research Institute of Fire and Disaster conducted a R&D project concerning methods of providing information to help to improve emergency response capabilities at the municipal level, so that firefighters and municipal employees can make appropriate decisions even when facing a major disaster without prior experience. This R&D project was inspired by the fact that the earthquake and tsunami involved in the Great East Japan Earthquake were bigger than anticipated and caused a huge amount of damage.

(FY2014 Settled Amount: ¥29 million)

(5) R&D for Ensuring Safety in Firefighting

The National Research Institute of Fire and Disaster conducted the following R&D projects for ensuring safety in firefighting.

- Drafting standards for helmets and other firefighting equipment and firefighting to address the fact that fires in well-insulated, air-tight houses tend to be fierce
- Research into fire trucks and elemental technologies to facilitate emergency response in areas inundated by tsunami
- Development focused on the commercialization of instruments for forecasting secondary collapses to prevent damage and injury caused by a secondary collapse during rescue operations at the site of a sediment collapse

(FY2014 Settled Amount: ¥34 million)

(6) Promotion Program for Science and Technology of Fire and Disaster Management (Competitive Funding Program)

Through its Promotion Program for Science and Technology of Fire and Disaster Management (a competitive funding program), FDMA promoted a R&D project based on collaboration between industry, academia and government, with the participation of fire departments. This R&D project focused on topics that reflect the needs of fire

departments, which undertake firefighting and disaster management activities, or contribute to the achievement of targets set out in government policies.

(FY2014 Settled Amount: ¥148 million)

(7) R&D of Firefighting Robots to Enhance Disaster Countermeasures

The National Research Institute of Fire and Disaster finalized the design of its R&D program focused on firefighting robots. The aim of this program is to develop firefighting robots equipped with autonomous and interactive technologies that leverage G-space and ICT, so that the robots can enter the sites of disasters affecting energy and industrial infrastructure that are inaccessible to humans, to gather information and douse the facilities on fire.

(FY2014 Settled Amount: ¥204 million)

(8) Satellite and Other Technologies for Observing and Monitoring Natural Disasters

The Japan Aerospace Exploration Agency (JAXA) launched the Advanced Land Observing Satellite-2 (ALOS-2, also called Daichi-2) in May 2014. ALOS-2 went into full operation in November that year. This assisted domestic and overseas disaster management organizations in ascertaining the situation following disasters by providing images obtained from monitoring of the disaster-affected area.

(FY2014 Settled Amount: included in the ¥113.968 billion grant for management expenses, etc.)

(9) Monitoring and Forecasting Research

The National Research Institute for Earth Science and Disaster Resilience (NIED) sought to mitigate the damage caused by earthquakes, volcanoes, torrential rain, sediment, heavy snowfalls, and other natural disasters by working to unravel the mechanisms behind these natural disasters and developing technologies that enable them to be monitored and forecast with greater precision.

(FY2014 Settled Amount: included in the ¥7.020 billion grant for management expenses, etc.)

(10) Integrated Research on Disaster Prevention

NIED conducted research aimed at providing high-quality hazard and risk information concerning earthquakes and other disasters and creating a user-friendly system that leverages that information. Its goal in doing so was to enable individuals, local governments, and the national government to make and carry out their own disaster preparedness plans.

(FY2014 Settled Amount: included in the ¥7.020 billion grant for management expenses, etc.)

(11) Research Concerning the Prevention of Disasters Involving Agricultural Crops and Infrastructure

The National Agriculture and Food Research Organization (NARO) and the National Institute for Agro-Environmental Sciences (NIAES) conducted research concerning the cultivation of cold- and damp-resistant crop varieties and technologies to prevent meteorological disasters that affect crops, including cold-weather damage, snow disasters, wind damage, frost damage, damage from excess moisture, drought damage, and damage from high temperatures.

NARO also conducted research concerning technologies that use high-precision monitoring and the like to prevent disasters involving agricultural land and soil. In addition, it conducted research focused on disaster prevention and mitigation technologies to protect agricultural facilities and facilities for coastal agricultural land against major earthquakes, torrential rain, and tsunami, among other disasters.

(12) Research into Technologies for Disaster Risk Reduction at Fishing Ports, on Coasts, and in Fishing Villages

The Fisheries Research Agency conducted research concerning fishing port facilities and coastal protection facilities capable of withstanding major earthquakes and tsunami, in order to reinforce disaster risk reduction functions in fishing villages.

(13) Research into Technologies for Disaster Risk Reduction on Marine Vessels

The National Maritime Research Institute conducted research aimed at establishing techniques for evaluating the safety of risk assumptions and techniques for analyzing the causes of accidents involving marine vessels by replicating those accidents.

(14) Research into Technologies for Disaster Risk Reduction at Ports, on Coasts, and at Airports

The Port and Airport Research Institute (PARI)

conducted research focused on protecting local communities against major earthquakes and tsunami, as well as research concerning efforts to evaluate and counter the effects of climate change on high waves, storm surges, and topographical changes, in order to build safe, secure communities.

(15) Research Concerning Emergency Photography in the Event of Disasters, etc.

The Geospatial Information Authority of Japan (GSI) considered ways of using both digital airborne cameras and synthetic aperture radar (SAR), a form of radar imaging which is particularly useful for volcano monitoring, in order to swiftly ascertain and provide information on the extent of damage caused by disasters such as earthquakes, volcanic eruptions, and flooding. The objective of this is to assist relevant organizations in responding rapidly to disasters.

(FY2014 Settled Amount: ¥99 million)

(16) Research on Risk Management Framework against Excessive Force and Catastrophic Multiple Disasters

In order to reduce the damage caused by excessive force and catastrophic multiple natural disasters, the National Institute for Land and Infrastructure Management (NILIM) of the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) developed techniques for defining disaster scenarios and for analyzing disaster risk and impact. It also developed techniques for evaluating the effects of critical disaster prevention infrastructure for multiple natural disasters including earthquakes and flooding.

(FY2014 Settled Amount: ¥24 million)

(17) Research Concerning Meteorological and Hydrological Phenomena

The Japan Meteorological Agency (JMA) – primarily its Meteorological Research Institute – promoted research concerning technologies that contribute to its meteorological services. In particular in the area of meteorological observation and forecasting, it conducted research concerning the development of technologies for monitoring and forecasting localized torrential rain. Moreover, it improved its numerical models to contribute to promoting measures against global warming.

(FY2014 Settled Amount: ¥1.754 billion)

2. Contingency Planning against an Earthquake

2-1 Earthquake Research

(1) Headquarters for Earthquake Research Promotion

The Headquarters for Earthquake Research Promotion (Director: the Minister of Education, Culture, Sports, Science and Technology; hereinafter "the Earthquake Research Headquarters") is the central body responsible for promoting the government's earthquake research. It promoted earthquake research in accordance with policies such as "New Promotion of Earthquake Research - Comprehensive Basic Policies for the Promotion of Seismic Research through the Observation, Measurement, and Survey -" (revised September 2012). The Ministry of Education, Culture, Sports, Science and Technology (MEXT) comprehensively promoted surveys of active faults, in accordance with the policies of the Earthquake Research Headquarters.

(FY2014 Settled Amount: ¥1.532 billion)

(2) Dense Oceanfloor Network System for Earthquakes and Tsunamis

In the anticipated focal region of a Nankai Trough earthquake, MEXT installed and managed a network of oceanfloor systems capable of dense observation of specific targets, with the aim of unraveling the mechanism that causes earthquakes and tsunami and providing information about these phenomena swiftly and accurately. The system off the Kii Peninsula has already begun operating and the entire network, including the system off the Kii channel, is due to begin operating in FY2015. (Described below: Chapter 2 3-1 (1))

(FY2014 Settled Amount: ¥247 million)

(3) Development of the Seafloor Observation Network for Earthquakes and Tsunamis Along the Japan Trench

In the Japan Trench, which runs from the waters off Hokkaido to the waters off the Boso Peninsula, MEXT put in place a cable-linked observation network (seismometers and pressure gauges) capable of being deployed densely over an extensive area, aiming to put the network into operation in FY2015. The objective of this is to unravel the mechanism that causes earthquakes and tsunami and provide information about these

phenomena swiftly and accurately. (Described below: Chapter 2 3-1 (2))

(FY2014 Settled Amount: ¥1.826 billion)

(4) Promotion of Basic Research Concerning the Forecasting of Earthquakes and Their Hazards

In accordance with the "Promotion of Earthquake and Volcano Hazards Observation and Research Program for Mitigating Disasters (Proposal)" (FY2014-2018), MEXT promoted basic research by national university corporations, among others, concerning the forecasting of earthquakes and seismic activity, as well as tsunami, powerful tremors, and other phenomena triggered by earthquakes that could cause a disaster (hazards).

(5) Geodynamics Research

The Japan Agency for Marine-Earth Science and Technology (JAMSTEC) conducted research concerning the dynamics of solid earth phenomena from the earth's surface all the way to its core, in order to build up knowledge concerning the causes of seismic and volcanic activity, the evolution of island arcs and continental crust, and global environmental change, among others. Based on this, it advanced a new hypothesis for the birth of continents.

(FY2014 Settled Amount: included in the ¥33.512 billion grant for management expenses, etc.)

(6) Operation of Long-Term Deep Sea Floor Observatories, etc.

JAMSTEC operated and conducted observational research at Long-Term Deep Sea Floor Observatories off Kushiro and Tokachi, off Muroto Cape, and off Hatsushima Island in Sagami Bay.

(FY2014 Settled Amount: included in the ¥33.512 billion grant for management expenses, etc.)

(7) Promotion of the Ocean Drilling in the 21st Century

JAMSTEC reached a conclusion on the policy for promoting future plans after considering the technical issues faced by plans for drilling in the Nankai Trough seismogenic zone and the appropriateness of the drilling plans. The plan for the installation of a long-term borehole monitoring system has been altered because of a cooperation project involving Japan and India, so installation is now due to take place in FY2015 or later.

(FY2014 Settled Amount: included in the ¥33.512 billion grant for management expenses, etc.)

(8) Strategic Research Projects on Earthquake Disaster Prevention

MEXT undertook projects including the "Special Project for the Mitigation of Great Disasters which the Vulnerability of Cities Causes" and the "Project for Research on Earthquake Disaster Prevention in the Nankai Trough Region." Its aim in doing so is to mitigate earthquake damage in regions with a high probability of experiencing an earthquake within the next 30 years and regions where an earthquake is expected to cause immense damage.

(FY2014 Settled Amount: ¥1.573 billion)

(9) Active Fault Research

The National Institute of Advanced Industrial Science and Technology (AIST) conducted research concerning the distribution, geometry and past behavior of eight major faults across the country (six inland and two offshore fault zones).

(10) Subduction Zone Earthquake Research

AIST operated and maintained observation points in the Tonankai and Nankai earthquake zones, using these to measure groundwater levels (water pressure), groundwater temperatures, crustal deformation, and seismic waves. In addition, it conducted studies of tsunami deposits in coastal areas of Hokkaido, Aomori, Iwate, Chiba, Shizuoka, Mie, Wakayama, and Kochi prefectures as part of its research aimed at learning more about past tsunami. (Described below: Chapter 2 3-1 (3))

(11) Earthquake Hazard Assessment Research

AIST compiled comprehensive geological information concerning the southern coastal zone of the Ishikari Depression and published it as a collection of seamless geoinformation.

(12) Promotion of Earthquake Prediction Research

The Coordinating Committee for Earthquake Prediction (CCEP; secretariat: GSI) exchanged information concerning research on earthquake prediction and monitoring nationwide and examined it from an academic viewpoint. In addition, GSI edited the monitoring data reported to the CCEP for publication in the CCEP Report.

(FY2014 Settled Amount: ¥8 million)

(13) Crustal Movement Research Using Geodetic Methods

GSI monitored crustal movement by such means as continuous GNSS monitoring using GNSS-based control stations and the like, satellite radar interferometry (SAR interference analysis), continuous monitoring of tide levels, and leveling. It then provided the information gathered concerning crustal movement to organizations involved in disaster management to assist them in deciding on disaster countermeasures.

(FY2014 Settled Amount: ¥1.431 billion)

(14) Comprehensive Analysis of Crustal Activity

GSI carried out an integrated analysis of data obtained from the monitoring of crustal movement using GNSS and other equipment, along with various other data. It then provided the Earthquake Research Committee and other bodies with a report on its detailed analysis of crustal movement.

(FY2014 Settled Amount: ¥2 million)

(15) Study on the Characteristics of Crustal Deformation in a Strain Concentration Zone

GSI used intensive monitoring of crustal deformation to ascertain the distribution of crustal deformation in a strain concentration zone in the central Niigata Prefecture portion of the Niigata-Kobe Tectonic Zone. Through modeling based on numerical simulations and the like, it gained greater knowledge of the crustal deformation process and provided basic data that will assist in the long-term forecasting of inland earthquakes.

(FY2014 Settled Amount: ¥6 million)

(16) Research Concerning Advanced GNSS-based Control Station Error Analysis to Improve Crustal Movement Monitoring Capabilities

GSI built a system that comprehensively analyzes information on errors in GNSS time series. The system aims to provide useful information that will assist decisions on whether an observed anomalous signal is one that should be monitored more closely or not.

(FY2014 Settled Amount: ¥7 million)

(17) Research Concerning the Efficient Generation of Information about Land Vulnerabilities for Preparing Earthquake Hazard Maps

Following the systematization of earthquake hazard maps (liquefaction hazard maps and earthquake disaster prevention maps) during the previous fiscal year, GSI carried out trials in model zones to examine various techniques for the development of information about land vulnerabilities (geomorphological classification data) in areas for which such maps need to be prepared. As a result, it succeeded in establishing an efficient technique.

(FY2014 Settled Amount: ¥11 million)

(18) Research Concerning Ionospheric Correction Techniques for Advanced Monitoring of Crustal Movements Using Repeat-pass Satellite Interferometric SAR

GSI updated the technique for SAR ionospheric correction, which was developed in the previous fiscal year. GSI confirmed that the technique generally works under various ionospheric conditions.

(FY2014 Settled Amount: ¥9 million)

(19) Development of Systems for Monitoring the Sticking and Sliding of Plate Boundaries Based on Crustal Movement Data from a Wide Area

GSI developed a technique that incorporates micro-plate motion and seafloor crustal movement data, and also installed equipment that will facilitate the preparation of the input data required for this and the integrated analysis of both inland and offshore data.

(FY2014 Settled Amount: ¥15 million)

(20) Study on Spatially Detailed Detection of Temporal Variation in Ground Surface Displacement by InSAR Time Series Analysis

GSI embarked on efforts to integrate error reduction processing techniques based on numerical weather models into interferometric SAR time series analysis. It also conducted a study of the impact of vegetation on interferometric SAR time series analysis.

(FY2014 Settled Amount: ¥12 million)

(21) Development of Technology for Improving Temporal Resolution in Crustal Movement Estimates Using GNSS

GSI developed advanced GNSS analysis technology to reduce errors in GNSS time series data. GSI also developed techniques to extract crustal movements efficiently from GNSS time series.

(FY2014 Settled Amount: ¥6 million)

(22) Earthquake Research

The Japan Meteorological Agency (JMA) – primarily its Meteorological Research Institute – promoted research on earthquakes. To improve the ability to detect unusual seismic activity and crustal deformation in areas such as the Tokai region, where a megaquake is supposed to occur, the JMA conducted research aiming to develop more advanced monitoring and earthquake simulation techniques.

(FY2014 Settled Amount: ¥30 million)

(23) Seismic Observation, etc.

The JMA conducted seismic observation, crustal strain monitoring, and geomagnetic observation across the country. In addition, it gathered earthquake data from the basic survey and monitoring networks of relevant organizations and used it in disaster management information, as well as passing it on to the Earthquake Research Committee of the Headquarters for Earthquake Research Promotion. (Described below: Chapter 3 2-3 (20), 3-3 (5))

(FY2014 Settled Amount: included in the ¥1.789 billion sum)

(24) Seafloor Geodetic Observation, etc.

The Japan Coast Guard gained an understanding of plate motion by such means as studies of topography and active faults at plate boundaries where megaquakes might occur, seafloor geodetic observation using seafloor stations, crustal movement monitoring using DGPS and tide stations, and monitoring via satellite laser ranging.

(FY2014 Settled Amount: ¥236 million)

2-2 Research on Earthquake Countermeasures in General

(1) Disaster Mitigation Research

Using its 3-D Full-Scale Earthquake Testing Facility (E-Defense), among others, NIED conducted research on earthquake resistance technologies for buildings such as those that are likely to be affected by long-period ground motion with a long duration caused by an oceanic trench megaquake of a type that could occur in the future.

(FY2014 Settled Amount: included in the ¥7.020 billion sum)

(2) Research Concerning Earthquake Disaster Prevention at Fishing Ports, on Coasts, and in Fishing Villages

The Fisheries Research Agency conducted research on technologies for preventing disasters and mitigating damage in fishing ports and villages. This included seismic observation in areas home to fishing ports and villages, and research concerning the earthquake resistance of fishing port and coastal protection facilities.

(3) Research Concerning Earthquake Disaster Prevention and Mitigation for Agricultural Facilities

NARO conducted research on technologies for verifying the earthquake resistance of agricultural irrigation ponds and seismic retrofit technologies for such ponds, as well as technologies for verifying the earthquake resistance of dilapidated dams and surrounding slopes. In addition, it conducted research on methods of verifying the earthquake resistance of major agricultural pipelines against Level 2 seismic motion.

(4) Observation of Strong Earthquake Motion

NILIM continued to maintain and manage its strong earthquake motion observation network and to monitor and analyze seismic motion, in order to clarify the damage mechanisms of civil engineering structures and establish rational seismic design methods.

(FY2014 Settled Amount: ¥11 million)

(5) Research Concerning Techniques and Standards for Evaluating the Seismic Safety of Cladding Materials

In light of the high rate of damage suffered by tiles, mortar, and other forms of exterior cladding as a result of seismic motion, NILIM considered and compiled a report on tests for evaluating the seismic safety performance of wet tile finished exterior walls in terms of preventing peel-off.

(FY2014 Settled Amount: ¥15 million)

(6) Research Concerning Seismic Design and Building Techniques for Bridges, etc. in the Cold Region

The Public Works Research Institute conducted research concerning techniques for evaluating the earthquake resistance of structures in an earthquake and seismic retrofit technologies, in order to ensure that earthquakes do not cause

structural damage or disasters arising from the ground conditions characteristic of the cold region.

(7) Research Concerning Earthquake Disaster Prevention for Civil Engineering Facilities at Ports, on Coasts, and at Airports

PARI conducted research concerning such matters as the observation of strong earthquake motion in areas with ports and airports; the development of diagnostic technologies and measures to improve the disaster preparedness of industrial complexes composed of a large, diverse array of facilities; and seismic performance evaluation techniques and seismic retrofit methods for pile structures.

(8) Research on Immediate Damage Estimation Technology to Improve Crisis Management for Mega-Earthquake

NILIM built a system that enables high-precision estimates of the distribution of seismic motion from seismograms obtained immediately after an earthquake. The system allows early grasp of damage to infrastructures based on facility data. In the development of the system, NILIM also considered how to provide information to meet the needs of Disaster Response Headquarters.

(FY2014 Settled Amount: ¥11 million)

(9) R&D of Technologies for Enhancing the Safety of Buildings against Megaquakes, etc.

The Building Research Institute (BRI) conducted research on technologies for creating more advanced input seismic motion and structural analysis models that will help to increase the accuracy of estimates of buildings' responses to megaquakes, etc. It also developed techniques for evaluating seismic performance that will help to ensure the ongoing usability of government buildings and evacuation facilities, among others, in the aftermath of an earthquake.

(10) Research on Technologies for Disaster Reduction Planning in Coastal Cities

In order to support disaster reduction planning through tsunami countermeasures, NILIM developed and enhanced a tsunami evacuation simulator for assessing the safety of tsunami evacuation; a draft guide for deliberations on ensuring the functionality of disaster management bases; and tools to support local governments in implementing measures to counter liquefaction. (Described below: Chapter 2 3-2 (2))

(FY2014 Settled Amount: ¥13 million)

(11) Study of Techniques for Assessing the Priority Level of Strategic Seismic Reinforcement Measures at Sewerage System Facilities

NILIM sought to establish techniques for evaluating the priority level of seismic reinforcement measures with a view to ensuring that seismic reinforcement measures are carried out efficiently at sewerage system facilities, which constitute an important lifeline. Accordingly, it gathered information concerning evaluation indicators for determining priority levels and considered quantification methods for each indicator.

(FY2014 Settled Amount: ¥10 million)

(12) Research Concerning Megaquake Damage Mitigation Technologies for Medium- to Low-rise Buildings

To analyze the effects of using fiber-reinforced concrete, NILIM carried out structural testing of a life-size frame specimen consisting of a single story with a single span incorporating a secondary wall. Through this, it verified that the secondary wall portion did not collapse or suffer any other undue damage until the story drift angle reached about 1/50 rad and that the reduction in stress resilience was gradual.

(FY2014 Settled Amount: ¥17 million)

(13) Research Concerning the Evaluation of Vulnerable Urban Areas and the Effectiveness of Disaster Countermeasures Against Fires in Urban Districts Following an Earthquake

With the aim of improving disaster prevention performance in urban districts thought likely to be at risk of fire following an earthquake, NILIM conducted fire tests, fire evacuation case studies, and fact-finding surveys of urban areas located on slopes, in order to develop technologies for evaluating disaster prevention performance, taking into account such matters as recent improvements in the performance of buildings in this regard and topographical conditions.

(FY2014 Settled Amount: ¥13 million)

3. Contingency Planning against a Tsunami

3-1 Tsunami Research

(1) Dense Oceanfloor Network System for Earthquakes and Tsunamis

(Described above: Chapter 2 2-1 (2))

In the anticipated focal region of a Nankai Trough earthquake, MEXT installed and managed a network of oceanfloor systems capable of dense observation of specific targets, with the aim of unraveling the mechanism that causes earthquakes and tsunami and providing information about these phenomena swiftly and accurately. The system off the Kii Peninsula has already begun operating and the entire network, including the Kii Peninsula system, is due to begin operating in FY2015.

(FY2014 Settled Amount: ¥247 million)

(2) Development of the Seafloor observation network for earthquakes and tsunamis along the Japan Trench

(Described above: Chapter 2 2-1 (3))

In the Japan Trench, which runs from the waters off Hokkaido to the waters off the Boso Peninsula, MEXT put in place a cable-linked observation network (seismometers and pressure gauges) capable of being deployed densely over an extensive area, aiming to put the network into operation in FY2015. Its aim in doing so is to unravel the mechanism that causes earthquakes and tsunami and provide information about these phenomena swiftly and accurately.

(FY2014 Settled Amount: ¥1.826 billion)

(3) Subduction Zone Earthquake Research

(Described above: Chapter 2 2-1 (10))

AIST operated and maintained observation points in the Tonankai and Nankai earthquake zones, using these to measure groundwater levels (water pressure), groundwater temperatures, crustal deformation, and seismic waves. In addition, it conducted studies of tsunami deposits in coastal areas of Hokkaido, Aomori, Iwate, Chiba, Shizuoka, Mie, Wakayama, and Kochi prefectures as part of its research aimed at learning more about past tsunami.

(4) Tsunami Research

The Japan Meteorological Agency (JMA) – primarily its Meteorological Research Institute – conducted research concerning the development of more advanced real-time tsunami forecasting techniques using multipoint observation data and research concerning the modeling of the succeeding waves of far-field tsunami and their damping characteristics, in order to improve the precision of tsunami forecasting.

(FY2014 Settled Amount: ¥12 million)

3-2 Research on Tsunami Countermeasures in General

(1) Development and Empirical Study of a Disaster Prevention and Mitigation System for Agricultural Communities

NARO conducted research to increase the safety of agricultural communities against tsunami. Specifically, it developed a comprehensive disaster prevention and mitigation system that uses agricultural land and facilities as dissipation facilities and conducted an empirical study of techniques for forming disaster-resilient local communities.

(2) Research on Technologies for Disaster Reduction Planning in Coastal Cities

(Described above: Chapter 2 2-2 (10))

In order to support disaster reduction planning through tsunami countermeasures, NILIM developed and enhanced a tsunami evacuation simulator for assessing the safety of tsunami evacuation; a draft guide for deliberations on ensuring the functionality of disaster management bases; and tools to support local governments in implementing measures to counter liquefaction.

(FY2014 Settled Amount: ¥13 million)

(3) Research Concerning Tsunami Disaster Prevention for Civil Engineering Facilities at Ports, on Coasts, and at Airports

PARI's research focused on such areas as the development of technologies for forecasting the extent of damage to tsunami disaster prevention facilities resulting from earthquakes and tsunami, the development of methods of verifying the performance of structures in the face of a maximum-height tsunami, and the development of techniques for estimating the drift of floating debris following an earthquake disaster.

(4) Research Concerning Measures for the Stable Maintenance of Port Activities in the Event of a Tsunami

NILIM developed tsunami evacuation simulation technology for use in proposing effective tsunami evacuation planning techniques in port areas; it also improved tsunami observation technology using high-frequency radar. In addition, to restore the environment in port areas adversely affected by tsunami, it used field surveys and the like to evaluate tidal exchange technologies for harbor entrance breakwaters and developed techniques for promoting the restoration of eelgrass (*Zostera marina*) beds.

(FY2014 Settled Amount: ¥7 million)

(5) Research Concerning the Use of Natural and Local Infrastructure to Create Tsunami-resistant Communities

Regarding natural topographic and planimetric features with a disaster mitigation effect as natural and local infrastructure, NILIM gathered examples of such features and held workshops, with a view to reflecting this knowledge in the creation of tsunami-resistant communities; it also conducted hydraulic model tests to assess the disaster mitigation effect and the limits thereof.

(FY2014 Settled Amount: ¥18 million)

(6) Research Concerning Tsunami Disaster Prevention at Fishing Ports, on Coasts, and in Fishing Villages

The Fisheries Research Agency conducted research on technologies for preventing disasters and mitigating damage in fishing ports and villages. This included research concerning tsunami countermeasures at fishing port and coastal protection facilities.

4. Contingency Planning against Storm and Flood Disasters

(1) Dense Weather Observation Using Remote Sensing

To facilitate detailed measurement of environmental information such as wind speed and atmospheric pollutants on a city-wide scale, NICT conducted R&D of sensor technology for three-dimensional measurement close to the earth's surface and in midair at around 100m intervals, and of systems for processing and transmitting the measured data over a network more or less in real time, according to its purpose.

(2) Research on Measures to Prevent Disaster in Mountainous Areas in the Event of Torrential Rain or an Earthquake

The Forestry and Forest Products Research Institute (FFPRI) conducted research concerning the mechanisms by which slope collapses, landslides, and debris flows occur and the functions of forests in preventing collapse; this knowledge is required to develop measures to prevent disaster in mountainous areas in the event of torrential rain or an earthquake.

(3) Research Concerning High Wave and Storm Surge Disaster Prevention for Civil Engineering Facilities at Ports, on Coasts, and at Airports

PARI's research focused on such areas as building a database that combines centralized processing and analysis of data obtained from the observation of oceanographic phenomena with estimated values, examining design conditions regarding external forces in respect of unusually high waves, and evaluating changes in oceanic forces resulting from medium- to long-term climate change.

(4) Research Concerning High Wave and Storm Surge Disaster Prevention at Fishing Ports, on Coasts, and in Fishing Villages

The Fisheries Research Agency conducted research on technologies for preventing disasters and mitigating damage in fishing ports and villages. This included research concerning high wave and storm surge disaster countermeasures at fishing port and coastal protection facilities.

5. Contingency Planning against Volcanic Disasters

(1) Basic Research on Forecasting Volcanic Eruptions

In accordance with the "Promotion of Earthquake and Volcano Hazards Observation and Research Program for Mitigating Disasters (Proposal)" (FY2014-2018), MEXT promoted basic research by national university corporations, among others, concerning the forecasting of volcanic eruptions, as well as the forecasting of eruption sequences and eruptions of volcanic ash and magma.

As well as publishing geological maps of the volcanoes Mount Zao and Mount Kuju, AIST conducted research on the materials science

aspects of changes in magma composition and processes leading to eruption focused on five volcanoes that have erupted (Nishinoshima, Kuchinoerabu-jima, Mount Ontake, Sakurajima, and Mount Aso), with the aim of assisting in the forecasting of future activity.

GSI measured volcanic changes and carried out mobile observation to provide basic data for predicting volcanic eruptions.

(2) Research Concerning Volcanic Phenomena

The Japan Meteorological Agency (JMA) – primarily its Meteorological Research Institute – promoted research aimed at more advanced monitoring of volcanoes, focusing on such areas as more advanced technologies for immediate grasping of identification and prediction of volcanic phenomena. In addition, through the Coordinating Committee for the Prediction of Volcanic Eruptions, it promoted research concerning the prediction of volcanic eruptions.

(FY2014 Settled Amount: ¥24 million)

(3) Promotion of Submarine Volcanic Eruption Prediction

The Japan Coast Guard conducted studies and magnetic surveys of temperature distribution and the distribution of color changes in water due to submarine volcanic activity around the Nanpo Islands and Ryukyu Islands. In addition, it continued to enhance charts providing basic information concerning submarine volcanoes, to assist in the gathering and provision of accurate information concerning the prediction of submarine volcanic eruptions.

(FY2014 Settled Amount: ¥12 million)

6. Contingency Planning against Snow Disasters

(1) Research Concerning Avalanche Occurrence and Flows

The FFPRI continued to carry out observations aimed at detecting avalanches and conducted research concerning meteorological conditions when avalanches occur, as well as investigating avalanche flows. In addition, based on findings from surveys of forest damage caused by surface avalanches, the braking effect of forests on surface avalanches was examined.

7. Countermeasure against Fires

(1) Research Concerning Fires

FDMA conducted the following researches.

・ Research concerning investigation of the causes of accidents involving fires or the spillage of hazardous materials, etc.

The Agency conducted systematic research aimed at developing more advanced technology for investigating causes of accidents involving fires or the spillage of hazardous materials, etc. This covered topics including materials and equipment for on-site inspections, sample collection and analysis methods, methods of replicating fire phenomena, and procedures for deducing and identifying the causes of fires. (Described below: Chapter 2 8 (1))

(FY2014 Settled Amount: ¥25 million)

・ Research concerning efforts to ensure safety against increasingly diverse types of fire

The Agency conducted R&D aimed at ensuring the safety of the public and firefighters against increasingly diverse types of fire. To this end, it analyzed actual cases of fire, including fires that occurred following the Great East Japan Earthquake; gained an understanding of fire risks and combustion properties in buildings closely associated with daily life; established effective technologies for transmitting alarms; and established technologies to support firefighting.

(FY2014 Settled Amount: ¥30 million)

(2) General Research Concerning Forest Fires

The FFPRI conducted research concerning the risk of forest fires occurring and spreading, to assist in combating forest fires.

(3) R&D of Technologies to Improve Building Fire Safety

The BRI developed technologies for evaluating the fire safety of internal and external cladding materials used in green buildings.

8. Contingency Planning against Hazardous Materials

(1) Research Concerning the Prevention of Disasters Due to Hazardous Materials

FDMA conducted the following research.

・ Promotion of safety measures at outdoor tank storage facilities

An earthquake or other external force could

damage outdoor tank storage facilities containing a large quantity of hazardous materials, resulting in a spillage that would have a serious impact. As such, efforts have been made over the years to improve earthquake proofing of such facilities through repeated revisions of technical standards based on lessons learned from damage and spillages caused by previous earthquakes. As the Central Disaster Management Council and other bodies have pointed out the risk of a major earthquake, such as a Nankai Trough earthquake, seismic motion assumptions are under review. Accordingly, the Agency analyzed the situation at sites outdoor tank storage facilities and conducted an evaluation and analysis of their safety. (Described below: Chapter 3 8-3 (3))

(FY2014 Settled Amount: ¥35 million)

・ Measures to prevent accidents at hazardous materials facilities

To assist in the development of measures to prevent accidents, the Agency collated examples of accidents involving hazardous materials from reports submitted by fire departments via the Agency's statistical research system and analyzed accident causes and trends; it then sent the results to prefectural governments, among other bodies.

In addition, to promote public-private partnership in the arena of measures to prevent accidents involving hazardous materials, the Agency held meetings of the Information and Liaison Committee on Measures to Prevent Accidents Involving Hazardous Materials, etc., at which participants exchanged views concerning efforts to promote measures to prevent such accidents.

(FY2014 Settled Amount: ¥10 million)

・ Deliberations concerning a survey on safety measures tailored to the use of new technologies and materials

The Agency considered approaches to safety measures at hazardous materials facilities by identifying foreseeable fire hazards arising from new usage patterns, such as the installation of solar panels at hazardous materials facilities. (Described below: Chapter 3 8-3 (3))

(FY2014 Settled Amount: ¥7 million)

・ Research concerning efforts to improve the safety of hazardous substances and hazardous materials facilities

To prevent and mitigate damage to large-scale hazardous materials facilities in the event of a multi-segment megaquake which is likely to occur, the Agency conducted research on the mechanisms by which tsunamis damage petroleum tanks and measures to prevent such damages. It also conducted research on more precise and detailed forecasting of tremors in areas with petroleum complexes, as well as on damage forecasting. In addition, due to increased demand for petroleum products in the aftermath of the Great East Japan Earthquake, from the perspective of environmental protection and in consideration of social demand for the recycling of resources, it is necessary to prevent fires involving "recycled resources and materials", such as fuels made from recycled resources and scrap metal. To this end, FDMA conducted research on methods of evaluating the fire hazard posed by recycled resources and materials, and developed optimum firefighting technologies for fires involving recycled resources and materials, which can be difficult to extinguish.

(FY2014 Settled Amount: ¥36 million)

・ Research concerning investigation of the causes of accidents involving fires or the spillage of hazardous materials, etc.

(Described above: Chapter 2 7 (1))

The Agency conducted systematic research aimed at developing more advanced technology for investigating causes of accidents involving fires or the spillage of hazardous materials, etc. This covered topics including materials and equipment for on-site inspections, sample collection and analysis methods, methods of replicating fire phenomena, and procedures for deducing and identifying the causes of fires.

(FY2014 Settled Amount: ¥25 million)

(2) Research Concerning the Prevention of Explosions, etc.

AIST developed technologies for measuring phenomena associated with the ignition/explosion safety of explosive chemical substances, hydrogen and other flammable gases, and slightly flammable materials such as new forms of coolant, as well as developing simulation technologies. It also conducted R&D of technologies for evaluating and reducing the impact of explosions. In addition, in the course of its industrial safety research, AIST added data to its explosion safety information

database and chemical disaster database, thereby enhancing common basic technologies.

9. Contingency Planning against Nuclear Disasters

(1) Research on the Handling of Agricultural Land and Crops in Response to a Nuclear Accident

NARO conducted research focused on the development of technologies for decontaminating heavily contaminated soil following a nuclear accident and ascertaining the extent of the discharge of radioactive materials from soil on agricultural land. It also conducted research focused on explaining the dynamics of the transfer of radioactive substances to agricultural crops and the like, and the development of technologies for inhibiting that transfer.

(2) Evaluation of Seismic Safety of Nuclear Power Reactor Facilities

The Nuclear Regulation Authority (NRA) sought to conduct stringent evaluations and checks of the earthquake and tsunami resistance of nuclear power stations and other facilities based on the new regulatory requirements. To this end, it gathered views informed by the Great East Japan Earthquake and reflected them in enhancements to the technical basis for examinations of compliance with the new regulatory requirements.

(FY2014 Settled Amount: ¥1.740 billion)

(3) Evaluation and Research to Ensure Safety against a Severe Accident at Nuclear Power Reactor Facilities

The NRA enhanced its knowledge base by participating in cooperative international examinations, thereby ensuring that it would be capable of preventing escalation in the event of a severe accident at nuclear power reactor facilities.

(FY2014 Settled Amount: ¥527 million)

10. Contingency Planning against Other Disasters

(1) R&D of Global Environmental Measurement Technologies

NICT conducted R&D in such areas as light and radio wave sensor technologies, and analysis and verification technologies, to facilitate high-precision measurement of clouds, precipitation, and greenhouse gases (CO_2, etc.) in the atmosphere and oceanosphere.

(2) Research Concerning Improvements to the Water Quality of Mine Wastewater

The Ministry of Economy, Trade and Industry (METI) conducted R&D aimed at reducing the volume of mine water and improving its quality by filling in caverns inside mines, thereby also preventing the collapse of such caverns.

(FY2014 Settled Amount: ¥62 million)

Chapter 3 Disaster Prevention

1. Disasters in General

1-1 Education and Training

(1) Government Education and Training Initiatives

On Disaster Prevention Day on September 1, the government held an exercise in running the government headquarters based on the scenario of a Tokyo inland earthquake. In addition, it held earthquake and tsunami disaster management drills with the participation of the public on and around Tsunami Preparedness Day on November 5. It also held training courses for central and local government staff, among others, aimed at cultivating specialists in disaster management.

(FY2014 Settled Amount: ¥137 million)

(2) National Police Agency Education and Training Initiatives

The National Police Agency conducted education and training programs for senior prefectural police force officers, focusing on emergency disaster control measures. In addition, it instructed prefectural police forces to carry out policing drills with a focus on disasters, working in partnership with relevant organizations.

Police disaster response units also conducted joint practical drills. In particular, the interprefectural emergency rescue units that form the core of the rapid response units within police disaster response units conducted joint exercises, while mobile police communications units formulated specific plans for dispatch in the event of a disaster and carried out practical drills to facilitate faster information gathering and secure means of communication.

(3) Ministry of Internal Affairs and Communications Emergency Communications Drill, etc.

In partnership with the regional Emergency Communication Committee in each area, the Ministry of Internal Affairs and Communications (MIC) drew up communications plans to prepare for a disaster and conducted practical communications drills with central and local government bodies, among others. Through these efforts, MIC further promoted efforts to enhance emergency communications systems, in order to ensure smooth communications in the event of a disaster. It also provided radio station licensees with guidance concerning the inspection of communications facilities.

(FY2014 Settled Amount: ¥8 million)

(4) Japan Broadcasting Corporation Education and Training Initiatives

The Japan Broadcasting Corporation (hereinafter "NHK") conducted a comprehensive exercise that also involved regional support networks to ensure that it would be able to broadcast in the event of a major disaster. In addition, NHK's local stations carried out their own drills.

(FY2014 Settled Amount: NHK expenditure: ¥14 million)

(5) Fire and Disaster Management College Education and Training Initiatives

FDMA's Fire and Disaster Management College conducted education and training programs for staff involved in fire safety at the national and prefectural level, as well as for municipal firefighters and fire corps volunteers. Through its programs and tabletop exercises, the College taught course participants the knowledge and skills that they will require as leaders to strengthen fire and disaster management systems against all kinds of disaster, including fires, storm and flood disasters, earthquakes, tsunami, and disasters involving hazardous materials.

(FY2014 Settled Amount: ¥311 million)

(6) Deliberations Concerning Fire Academy Education and Training Initiatives

FDMA held a review meeting concerning the education and training initiatives at fire academies, considering the contents, the facilities and the personnel for the education and training provided to firefighters. It then revised the Standards for Fire Academy Education and Training.

(FY2014 Settled Amount: ¥2 million)

(7) Ministry of Justice Education and Training Initiatives

The Ministry of Justice (MOJ) conducted a communications drill based on the MOJ Emergency Contact System, which consists of satellite phones, in order to ensure that relevant MOJ organizations have a means of exchanging information with one another in a disaster or other emergency, as well as facilitating efforts to gather and pass on information about disasters, etc. swiftly and without fail.

(FY2014 Settled Amount: ¥75 million)

(8) Enhancing Education about Disaster Preparedness

Based on the lessons of the Great East Japan Earthquake, the Ministry of Education, Culture, Sports, Science and Technology (MEXT) developed and promoted the widespread adoption of new teaching methods and educational techniques for education about disaster preparedness. It also established and enhanced schools' systems for cooperating with relevant local disaster management organizations. In addition, it held courses for teaching staff due to take charge of disaster preparedness classes.

(FY2014 Settled Amount: ¥99 million)

(9) Disaster Preparedness Camp Promotion Project

MEXT sought to promote hands-on activities with a focus on disaster preparedness education for young people. To this end, with the assistance of local residents and parents, it implemented a disaster preparedness education program to give them first-hand experience of such things as lighting fires and living in tents, based on the assumption that schools and the like will be used as evacuation shelters. Through this, it promoted greater understanding of the kinds of disasters envisaged in each area and the response in the event that disaster should strike. MEXT also publicized the outcomes of this program at forums and in newsletters.

(FY2014 Settled Amount: ¥12 million)

(10) National Hospital Organization Education and Training Initiatives

The National Hospital Organization conducted training in disaster medical care for physicians, nurses, and other medical professionals.

(11) Training in Measures against NBC Disasters and Terrorism

The Ministry of Health, Labour and Welfare (MHLW) sought to cultivate physicians and other medical professionals capable of responding appropriately to disasters involving nuclear, biological, or chemical agents (NBC disasters) or terrorism. To this end, it conducted training aimed at providing medical professionals at emergency and critical care centers and disaster base hospitals with the specialist knowledge, skills, and crisis management abilities required to deal with NBC disasters and terrorism.

(FY2014 Settled Amount: ¥6 million)

(12) Disaster Medical Assistance Team (DMAT) Training and Exercises

The MHLW conducted training for physicians, nurses, and other medical professionals, with the aim of cultivating DMAT members.

The MHLW provided DMAT members with financial aid to assist with the cost of disaster exercises.

(FY2014 Settled Amount: ¥67 million)

(13) Financial Assistance for Japanese Red Cross Society Relief Worker Cultivation Programs

The MHLW provided the Japanese Red Cross Society with financial assistance for costs associated with the training of personnel for relief teams involved in responding to major disasters.

(FY2014 Settled Amount: ¥16 million)

(14) Disaster Relief Leader Cultivation and Training Program

The International Communication Center for Persons with Disabilities, which was established by the MHLW, conducted programs aimed at cultivating disaster volunteer leaders who can assist with rescue and support activities and disaster leaders conversant with approaches to disaster response suited to the specific needs of people with visual and/or hearing impairments. The aim of this was to facilitate the provision of support carefully designed to meet the needs of people with disabilities in the event of a disaster.

(FY2014 Settled Amount: ¥2 million)

(15) Mental Health Promotion Program

The MHLW provided financial assistance for specialist training in measures to combat post-traumatic stress disorder (PTSD), with the aim of enhancing and bolstering advice services provided by mental health and welfare centers, public health centers, and hospitals concerning PTSD, from which victims of crime or disaster can suffer.

(FY2014 Settled Amount: included in the ¥14 million sum)

(16) MLIT College of Land, Infrastructure, Transport and Tourism Education and Training Initiatives

The Ministry of Land, Infrastructure, Transport

and Tourism (MLIT) College of Land, Infrastructure, Transport and Tourism provided lectures on general knowledge and skills concerning disasters and disaster management as part of its training courses for MLIT staff and the employees of local governments, etc. dealing with the administration of land, infrastructure, transport and tourism. In particular, the Earthquake and Tsunami Countermeasures, Crisis Management Measures [Natural Disasters and Accidents.], and Technical Emergency Control Force (TEC-FORCE) courses included task-oriented research and exercises aimed at providing participants with a comprehensive and advanced knowledge, as well as improving their ability to manage crises.

(17) JMA Education and Training Initiatives

As well as promoting widespread knowledge of meteorological phenomena, the Japan Meteorological Agency (JMA) held briefings about forecasts and warnings as needed for relevant staff members at organizations involved in disaster management. The university and training departments of the Meteorological College provided education in the knowledge and skills required in the provision of various weather services, thereby enhancing staff capabilities.

(FY2014 Settled Amount: ¥121 million)

(18) Japan Coast Guard Education and Training Initiatives, etc.

The Japan Coast Guard (JCG) provided its staff with education concerning responses in the event of various disasters and conducted disaster response drills in partnership with relevant organizations. It also provided guidance to marine vessel operators to assist in the prevention of marine accidents and maritime disasters.

(19) Ministry of Defense Education and Training Initiatives

The Ministry of Defense (MOD) conducted exercises to enhance its ability to respond to a wide variety of large-scale disasters, tailoring them respectively to the features of duties of the Ground Self-Defense Force (GSDF), the Maritime Self-Defense Forces (MSDF) and the Air Self-Defense Force (ASDF) (hereinafter referred to as “the SDF”) and the scales of the SDFs.

In addition, the MOD conducted Joint Exercise for Rescue (JXR), as well as actively participating in general disaster prevention drills, etc. conducted by local governments, in order to maintain and enhance its disaster response capability by improving emergency response, cooperation procedures among the SDF, and information sharing under the joint operations system in which the SDF may jointly operate to respond to disasters.

(FY2014 Settled Amount: ¥507 million)

1-2 Development of Facilities and Equipment for Disaster Management

(1) Enhancement of the Central Disaster Management Radio Communications System

The Cabinet Office took appropriate steps to ensure the stable operation of the Central Disaster Management Radio Communications System. In addition, to prepare for a Tokyo inland earthquake or other major disaster, it equipped designated public corporations with multiplex radio communications and multifunctional satellite communications equipment.

(FY2014 Settled Amount: ¥1.293 billion)

(2) Enhancement of the Central Disaster Management Radio Communications System Following Relocation to Central Government Building No.8

The departments of the Cabinet Office responsible for disaster management relocated from Central Government Building No.5 to Central Government Building No.8. Accordingly, the Central Disaster Management Radio Communications System was relocated to Building No.8, with equipment being replaced and upgraded due to the move.

(FY2014 Settled Amount: ¥239 million)

(3) Upgrading of Materials and Equipment for Disaster-related Police Activities

The National Police Agency equipped prefectural police forces with the rescue and relief materials, equipment, and helicopters required for disaster-related police activities, as well as seeking to enhance disaster prevention functions by such means as the seismic retrofit of police facilities. In addition, to improve the disaster response capabilities of police disaster response units, among others, it promoted efforts to enhance facilities for disaster-focused police training exercises, which are used for systematic, phased exercises tailored to the

specialisms, experience, and abilities of participating units and staff.

(FY2014 Settled Amount: ¥36.765 billion)

(4) Promotion of the Disaster Prevention Frameworks Program

MIC and FDMA promoted selective upgrading of disaster prevention frameworks, including the development of disaster prevention facilities and use of ICT in fire and disaster management by local governments, with the aim of promoting the development of safe, secure, disaster-resilient communities. Specifically, they did so through a package of local government finance measures in the form of the disaster prevention frameworks program.

(5) Upgrading of NHK's Emergency Power Supply System

NHK upgraded its emergency power supply system to ensure the stability of broadcasts in the event of a major disaster.

(FY2014 Settled Amount: NHK expenditure ¥3.638 billion)

(6) Securing Telecommunications Networks, etc.

MIC provided the telecommunications carriers with guidance to promote the construction of disaster-resilient telecommunications facilities by taking steps to combat power cuts and prevent flooding, as well as improving the reliability of transmission lines. It also encouraged them to utilize emergency messaging services, which facilitate efforts to confirm the safety of people in disaster-stricken areas.

(7) Deployment of Mobile Communications Equipment for Use in Disaster Management

MIC established a stockpile of mobile communications equipment for use in disaster management that could be swiftly loaned out if requested by local governments, etc. in disaster-stricken areas, to provide a means of communication in the event of an earthquake or other major disaster. It also continued to enhance systems to facilitate efforts to transport mobile radio equipment to areas affected by disaster.

(FY2014 Settled Amount: ¥37 million)

(8) Enhancement of Radio Communications Equipment for Use in Fire and Disaster Management

FDMA upgraded its functions of disaster information gathering and sharing by enhancing radio communications equipment for use in fire and disaster management nationwide, in order to facilitate faster and more reliable gathering and sharing of information between the national government, prefectural governments, and municipalities in the event of disaster.

(FY2014 Settled Amount: ¥274 million)

(9) Upgrading of Facilities, Materials and Equipment for Emergency Fire Response Teams

FDMA provided municipalities, etc. with financial aid to upgrade firetrucks and the like, to facilitate the systematic enhancement of Emergency Fire Response Teams and the construction of more effective systems, in order to strengthen the entire nation's ability to respond to a Nankai Trough Earthquake or other major disasters.

(FY2014 Settled Amount: ¥7.184 billion)

(10) Upgrading of Fire and Disaster Management Facilities

FDMA provided municipalities, etc. with financial aid to upgrade fire and disaster management facilities, in order to ensure that they can respond appropriately to major disasters arising from earthquakes, volcanic eruptions, and the like, as well as to special types of disaster and growing demand for ambulance services, thereby ensuring the safety and security of residents in daily life.

(FY2014 Settled Amount: ¥2.335 billion)

(11) Maintenance of Materials and Equipment for Dealing with NBC and Terrorism Disasters

FDMA carried out maintenance of materials and equipment for special advanced rescue teams (special vehicles with advanced rescue tools, vehicles with large decontamination systems, vehicles fitted with large blowers, and vehicles equipped with water jet cutters), as well as materials and equipment for dealing with NBC and terrorism disasters.

(FY2014 Settled Amount: ¥27 million)

(12) Promotion of Measures to Protect Cultural Properties against Disaster

The Agency for Cultural Affairs provided financial

aid for projects to protect cultural properties against fire or theft, thereby ensuring that they can be passed on to the next generation. These projects included the installation and refurbishment of fire and crime prevention equipment, the development of facilities for the preservation and use of such properties, and the evaluation of seismic capacity and seismic retrofit of buildings.

(FY2014 Settled Amount: included in the ¥27.528 billion sum)

(13) Improvement of Disaster Base Hospitals

The MHLW provided financial aid for the improvement of disaster base hospitals.

(FY2014 Settled Amount: ¥250 million)

(14) Enhancement of Widespread Disaster and Emergency Medical Information Systems

The MHLW provided financial aid for the development of a network linking the MHLW with public health centers, fire departments, and hospitals, in order to facilitate efforts by prefectures to reorganize and enhance existing Emergency Medical Information Center initiatives and gather comprehensive information about disaster medical care, including the operating status of medical institutions in the event of a disaster; the status of physicians, nurses, and other staff; and disaster medical assistance teams (DMAT).

(FY2014 Settled Amount: ¥47 million)

(15) Improvement of Social Welfare Facilities

The MHLW provided financial aid for improvements at welfare facilities for disabled people deemed necessary as part of disaster prevention measures.

(FY2014 Settled Amount: included in the ¥16.081 billion sum)

The MHLW also provided financial aid for improvements at community-based special nursing homes for the aged deemed necessary as part of disaster prevention measures.

(FY2014 Settled Amount: included in the ¥18.198 billion sum)

In addition, the MHLW provided financial aid for improvements at child welfare facilities deemed necessary as part of disaster prevention measures.

(FY2014 Settled Amount: included in the ¥3.036 billion sum)

(16) Enhancement of Disaster Prevention Measures and Facilities at Fishing Ports and Fishing Villages

The Ministry of Agriculture, Forestry and Fisheries (MAFF) sought to publicize guidelines for the development of disaster-resilient fishing communities, in order to guarantee the safety of residents, fishing port workers, and visitors in the event of an earthquake, tsunami, storm surge, or other disaster, as well as ensuring that fishing port facilities and cargo handling functions can be maintained. In addition, it promoted disaster risk reduction measures in fishing communities through such initiatives as the upgrading of disaster prevention facilities by several villages working together; the enhancement of embankments and other coastal protection facilities, as well as evacuation routes; and the seismic retrofit of fishing port and cargo handling facilities.

(FY2014 Settled Amount: included in the ¥126.775 billion sum

*Also partly covered by subsidies for development of rural areas)

(17) Encouragement of Efforts to Strengthen the Disaster Preparedness Functions of Agricultural Communities and Mountain Villages

MAFF provided grants for forest roads to assist in the smooth implementation of fire prevention and firefighting activities.

It also provided grants for the upgrading of evacuation facilities in case of disaster.

(FY2014 Settled Amount: included in the ¥4.324 billion sum

*Also partly covered by subsidies for development of rural areas and subsidies for the reinforcement of foundations for regional revitalization (allocated to the Cabinet Office))

(18) Utilization of Farm Irrigation Facilities in an Emergency

MAFF upgraded water storage tanks for use in firefighting, irrigation blocks, and hydrants to enable farm irrigation facilities to be used to supply water for firefighting and daily life in an emergency.

(FY2014 Settled Amount: included in the ¥149.445 billion sum)

(19) Enhancement of Residential Land Risk Assessment Systems for Disaster-stricken Areas

MLIT worked with prefectural governments and

other bodies to support them in developing systems for conducting residential land risk assessments in disaster-stricken areas. The objective of this was to expedite efforts to gain an accurate understanding of the extent of damage to residential land following a major earthquake or other disaster, and to prevent or mitigate secondary disasters, as well as facilitating prompt recovery from disaster.

(20) Upgrading of Radio Communications Equipment for River and Road Management

MLIT will continue efforts to upgrade the integrated IP network that seamlessly connects the multiplex radio communications network with the optical fiber network. Its aim in doing so is to maintain the communications infrastructure that facilitates the transmission of information required in river and road management and disaster response, including telephone calls, river information, road information, radar rainfall data, images from monitoring cameras, and videoconferences. In addition, it will implement earthquake and tsunami countermeasures in response to the Great East Japan Earthquake and other disasters. It will also progressively introduce the Kokudokoutsuu LAnd Mobile system By Digital Access (K-LAMBDA / K-λ) mobile communications system for river and road management.

(21) Development of the Divert Support System

MLIT put in place the Divert Support System to assist in the selection of the best alternative airport in the event that multiple airports are closed due to a major disaster. This system selects the airport to which an aircraft should divert, taking into account the aircraft's position and remaining fuel.

(FY2014 Settled Amount: ¥2.632 billion)

(22) Upgrading of Meteorological Observation Facilities, etc.

The JMA launched the Geostationary Meteorological Satellite "Himawari-8" to prevent and mitigate disasters due to typhoons, torrential rain, heavy snowfall, and other natural phenomena.

(FY2014 Settled Amount: ¥19.968 billion)

(23) Upgrading of Patrol Boats, etc.

The JCG upgraded patrol boats and aircraft, enhanced the electronic chart system, and improved sea marks.

(FY2014 Settled Amount: ¥105.820 billion)

(24) Enhancement of Maritime Disaster Management Systems

The JCG secured disaster management materials and equipment to enable it to deal with accidents involving the spillage of oil or hazardous liquids, as well as putting in place systems to ensure that patrol boats and aircraft can deal with such incidents swiftly and accurately.

(FY2014 Settled Amount: ¥103 million)

(25) Introduction of Renewable Energy at Disaster Management Bases, etc.

The Ministry of the Environment (MOE) established a fund to support local government projects involving the introduction of autonomous distributed energy systems powered by renewable energy at public or private facilities that could become disaster management bases, to prepare for a major disaster caused by an earthquake or typhoon, etc.

(FY2014 Settled Amount: ¥22.000 billion)

1-3 Other

(1) Promotion of National Resilience

Amid fears that a major disaster might be imminent, the government sought to promote cross-cutting inter-ministerial initiatives to enhance national resilience, focusing on efforts to protect human life no matter what situation might arise and to prevent irreparable damage to key administrative and socioeconomic functions. To this end, the government prepared the Fundamental Plan for National Resilience and considered efficient, effective methods of promoting priority measures, as well as issues to be tackled.

(FY2014 Settled Amount: ¥110 million)

(2) Expenditure on Projects to Promote Practical Actions for Disaster Risk Reduction

The Cabinet Office organized various events aimed at building momentum for a popular movement to reduce the damage caused by disasters. These events were primarily centered on Disaster Prevention Day, Disaster Prevention Week, and Tsunami Preparedness Day. It also undertook initiatives to promote widespread knowledge and raise awareness of disaster risk reduction, by such means as establishing a general web portal focused on disaster preparedness.

(FY2014 Settled Amount: ¥86 million)

(3) Project to Promote Partnerships with Disaster Prevention Volunteers (involving a range of organizations)

With the involvement of practitioners and experts, the Cabinet Office held the Round Table on Region-wide Volunteer Activities in the Event of a Major Disaster, to consider approaches to cooperation between nongovernmental organizations and central and local government bodies in the event of a major disaster, as well as examining issues and initiatives to be implemented before disaster strikes. A report was then prepared with the panel's recommendations. With the involvement of NPOs and NGOs focused on disaster relief and the staff of social welfare councils, the Cabinet Office also organized an exercise to foster cooperation in practical volunteer activities, based on the scenario of a Tokyo inland earthquake. In addition, through the Investigative Committee on Volunteer Activities, which brings together a range of figures with links to volunteer activities to discuss various issues, the Cabinet Office created forums for communication and facilitated efforts to identify and examine issues.

(FY2014 Settled Amount: ¥19 million)

(4) Promotion of Efforts to Build Business Continuity Systems Throughout Society

The Cabinet Office established techniques for evaluating the business continuity plans of ministries and agencies, to ensure that a business continuity system encompassing all national government ministries and agencies has been put in place. In addition, it considered ways of securing the requisite environment for the execution of government functions at alternative locations in the event of a Tokyo inland earthquake. Furthermore, to support initiatives aimed at ensuring that local governments have put business continuity systems in place, the Cabinet Office considered revisions to the Business Continuity Manual for Local Governments.

(FY2014 Settled Amount: ¥26 million)

(5) Nationwide Roll-out of Community Disaster Management Plans

The 2013 revision of the Disaster Countermeasures Basic Act introduced a system of Community Disaster Management Plans to be implemented jointly at the community level, to encourage local communities to improve their own disaster management capabilities in a spirit of self-help and mutual help. The Cabinet Office conducted surveys aimed at the nationwide roll-out of these plans and implemented a model district program to distribute information about them.

(FY2014 Settled Amount: ¥24 million)

(6) Deliberations Concerning Surveys of Disaster Victim Support and Reconstruction Measures

Having gathered information about initiatives by various local governments, the Cabinet Office prepared a guide for local governments featuring examples thereof. The initiatives included the preparation of manuals on systems for conducting fact-finding surveys concerning the application of the Act on Support for Reconstructing Livelihoods of Disaster Victims and surveys of damage to homes, as well as various housing-related measures for the emergency phase, tailored to the local characteristics of the disaster-stricken area. In addition, the Cabinet Office conducted a survey of victim registries and prepared the Practical Guidelines on the Preparation of Victim Registries (for Municipalities).

(FY2014 Settled Amount: included in the ¥43 million sum)

(7) Management Grant for a Designated Facility Promoting Earthquake Disaster Prevention Measures (The Great Hanshin Awaji Earthquake Memorial - Disaster Reduction and Human Renovation Institution)

The Cabinet Office promoted projects being undertaken by a designated facility promoting earthquake disaster prevention measures (The Great Hanshin Awaji Earthquake Memorial - Disaster Reduction and Human Renovation Institution) by providing financial aid to cover part of the costs of the following projects being conducted by the Institution: (i) the collection, preservation, and display of materials concerning the Great Hanshin Awaji Earthquake and other earthquake disasters in Japan and overseas, and the dissemination of information about these; (ii) the development of personnel with comprehensive practical disaster management abilities; (iii) research concerning comprehensive disaster management, including approaches to recovery and reconstruction measures.

(FY2014 Settled Amount: included in the ¥251 million sum)

(8) PR Focused on Disaster Management

As well as preparing the White Paper *Disaster Management in Japan* in accordance with the Disaster Countermeasures Basic Act, the Cabinet Office conducted various PR activities to provide people at all levels of society with accurate knowledge concerning disaster management. These activities included operating and managing a website for the swift provision of information in the event of disaster and publishing the *Bosai* newsletter, which provides user-friendly explanations of recent disaster risk reduction measures.

(FY2014 Settled Amount: ¥18 million)

(9) Promotion of Gender Equality in Local Disaster Management

Gender equality centers took the lead in conducting model initiatives focused on disaster management and reconstruction that took into account gender equality perspectives and were tailored to local circumstances, based on the May 2013 Guidelines on Disaster Management and Reconstruction Initiatives from a Gender Equality Perspective. The Cabinet Office promoted widespread awareness of the effects of these initiatives and issues arising from them.

(FY2014 Settled Amount: included in the ¥15 million sum)

(10) Survey and Examination of Disaster Prevention Plans

The Cabinet Office sought to increase the effectiveness of both the Basic Disaster Management Plan and the promotion of disaster management measures based it. To this end, it conducted a survey and considered ways of improving the Basic Disaster Management Plan to ensure that it fulfills its function as a set of guidelines that form the basis of Disaster Management Operational Plans and Local Disaster Management Plans.

(FY2014 Settled Amount: included in the ¥8 million sum)

(11) Exercise to Test Medical Care Functions Using Civilian Vessels

To ascertain the feasibility and potential issues involved in using civilian vessels to approach disaster stricken areas and provide medical care functions, the Cabinet Office conducted an exercise on a civilian vessel furnished with medical supplies and equipment, examining its effectiveness and identifying any operational issues.

(FY2014 Settled Amount: included in the ¥42 million sum)

(12) Local Disaster Countermeasures to Deal with a Major Disaster

As soon as any disasters occurred in FY2014, the Cabinet Office dispatched staff to the area to gather information about the extent of the disaster. Where necessary, it also dispatched a government investigation team to the area and implemented swift, accurate emergency disaster control measures, including providing local government heads with the requisite guidance and advice.

(FY2014 Settled Amount: included in the ¥61 million sum)

(13) Expenditure on Deliberations Required for Building a Supplies Procurement Mechanism Based on Public-Private Cooperation

To facilitate the provision of supplies to disaster-stricken areas in the event of a major disaster, the Cabinet Office conducted a survey of initiatives by relevant ministries and agencies and private sector business operators. In addition, it undertook deliberations on the construction of a mechanism based on public-private cooperation in the procurement of supplies and conducted exercises to verify its effectiveness.

(FY2014 Settled Amount: included in the ¥9 million sum)

(14) Promotion of Standardization in Disaster Response Operations

To promote a swift, effective response by central and local government and designated public corporations in the event of disaster, the Cabinet Office participated in international conferences on the standardization of disaster response operations and undertook deliberations within Japan.

(FY2014 Settled Amount: ¥17 million)

(15) Promotion of Efforts to Secure Evacuation Shelters and Improve Their Quality

The Cabinet Office conducted a fact-finding survey to consider measures to encourage local

government initiatives based on the Guidelines for Ensuring Satisfactory Living Conditions at Evacuation Shelters, which were compiled in FY2013.

(FY2014 Settled Amount: included in the ¥10 million sum)

(16) Promotion of Measures against Major Disasters

The National Police Agency examined plans to dispatch units from the wider region in the event of a major disaster. In addition, it sought to strengthen disaster-related policing measures by such means as putting in place disaster-resilient police information and communications infrastructure, as well as using video footage transmitted from helicopters and communications satellites to gather and distribute information from the scene of a disaster.

(FY2014 Settled Amount: ¥1.544 billion)

(17) Upgrading of Traffic Safety Facilities to Prepare for Disaster

To ensure the safe, smooth passage of traffic in the event of a disaster and secure evacuation routes for residents and emergency transport routes without fail, the National Police Agency promoted efforts to upgrade traffic safety facilities to prepare for a disaster. These facilities included vehicle detectors, infrared beacons, additional power supply units for traffic signals, and traffic management centers.

(FY2014 Settled Amount: included in the ¥18.877 billion sum)

(18) Enhancement of Road Traffic Information

The National Police Agency and MLIT promoted efforts to gather and provide accurate road traffic information through the use of infrared beacons, traffic information signs, and variable-message road signs.

To ensure safe, smooth road traffic, the National Police Agency, MIC, and MLIT promoted efforts to upgrade the Vehicle Information and Communication System (VICS), which supplies information about disasters, traffic congestion, and traffic restrictions in real time to the car navigation unit. To this end, they continued to expand the service area and enhance the information provided.

The National Police Agency and MLIT promoted more advanced information gathering and communication, providing road users with road traffic information via traffic information signs, variable-message road signs, and the Japan Road Traffic Information Center. Furthermore, MLIT strove to offer information about the outlook for imposing and lifting restrictions in areas where it provides forewarning of traffic restrictions due to torrential rain and the like, in order to increase convenience for road users.

The National Police Agency promoted efforts to develop a system that combines information about travel routes being used by vehicles, gathered by police via infrared beacons (probe information) with private sector probe information held by car navigation systems. Its aim in doing so is to enable information about traffic in disaster-stricken areas to be used in police activities following a disaster and to swiftly communicate this information to the public. It also promoted efforts to develop disaster-resilient systems through the distributed installation of devices providing traffic information.

(FY2014 Settled Amount: ¥7 million)

(19) Disaster Countermeasures for Radio Stations

When issuing licenses for the radio stations of organizations involved in disaster management and conducting regular inspections thereof, MIC continued to provide licensees with guidance concerning operational safety measures in case of disaster; backup radio and power supply equipment, and the installation of private power generation equipment in case of power cuts; and the need to conduct drills to prepare for a major disaster.

(20) Maintenance and Operation of Emergency Information Transmission Networks

Disasters can cause massive damage to telecommunications facilities or lead to ordinary communications networks becoming congested. Accordingly, MIC operated an emergency information transmission network to facilitate the efficient sharing of information between national government and telecommunications operators in order to ensure an immediate understanding of the extent of the damage in such a situation.

(FY2014 Settled Amount: ¥4 million)

(21) Encouraging Widespread Use of the Public Information Commons

MIC held the Study Group of Ideal State of Common Infrastructure for Information Transmission in Times of Disaster and put together the Dissemination Acceleration Package, which

centers on swift dissemination of the system nationwide and the enhancement of the information provided. The Public Information Commons has been renamed “L-Alert,” to make the name easier for the public to remember.

(22) Stable Operation of the J-Alert National Early Warning System

J-Alert is a satellite-based system that instantly transmits ballistic missile launch alerts, tsunami warnings, earthquake early warnings, and other information about emergencies to residents by automatically activating municipal simultaneous emergency broadcast systems and the like. To ensure the optimal environment for receiving transmissions at all times and facilitate the system’s stable operation, FDMA operated a dual station system, featuring a second master station with the same functions as the first, and also carried out round-the-clock monitoring of the stations, as well as other maintenance and management.

(FY2014 Settled Amount: ¥281 million)

(23) Promotion of Revisions of Local Disaster Management Plans

To promote revisions of Local Disaster Management Plans, FDMA provided local governments with advice, in order to ensure that their plans were specific, practical, and tailored to local circumstances. In addition, it used the Local Disaster Management Plan database to enhance disaster management frameworks, by such means as promoting mutual support across local administrative boundaries via the exchange of information between local governments. It also used the database to promote appropriate revisions to plans via comparisons and verification of plan content.

(24) Operation and Enhancement of the e-College for Disaster Prevention and Crisis Management Education

To enable people who cannot easily participate in group-based disaster prevention and crisis management education to receive training in these fields, FDMA operated the e-College, which is an online disaster prevention and crisis management education system. In addition, to improve the quality of education provided, it enhanced the content of the e-College’s courses.

(FY2014 Settled Amount: ¥7 million)

(25) Revitalization of Voluntary Disaster Management Organizations, etc.

To improve local disaster management capabilities, FDMA conducted on-demand workshops to promote the formation and enhancement of voluntary disaster management organization liaison committees. In addition, it promoted widespread awareness of the Guide to Voluntary Disaster Management Organizations, highlighted examples of best practice, and publicized teaching materials on the subject of disaster preparedness, thereby revitalizing voluntary disaster management organizations and the like.

(FY2014 Settled Amount: ¥20 million)

(26) Enhancement of Emergency Fire Response Team Dispatch Systems and Information and Communications Functions

Emergency Fire Response Team was created to serve as a support team for fire services across the country, in order to ensure that lifesaving activities are carried out swiftly and effectively in the aftermath of a major disaster within Japan. To ensure that these teams are mobilized swiftly and accurately, FDMA revised the Basic Plan for the Formation of Emergency Fire Response Teams and Development of Facilities. Moreover, the Agency held joint exercises for Emergency Fire Response Teams in each of the six regional blocks, in order to improve the technical skills of team members, strengthen partnerships between teams, and prepare for the Fifth National Joint Exercise of Emergency Fire Response Teams, which was due to take place in FY2015.

(FY2014 Settled Amount: ¥87 million)

To facilitate the agile and effective operation of Emergency Fire Response Teams, FDMA refurbished the mobilization information system, which is used to manage information about the positions and operational statuses of Emergency Fire Response Teams. It also carried out appropriate maintenance of the system.

(FY2014 Settled Amount: ¥60 million)

To facilitate the agile and effective operation of Emergency Fire Response Teams, FDMA refurbished the helicopter mobilization management system, which is used to manage information about the positions and operational statuses of Emergency

Fire Response Team helicopters. It also carried out appropriate maintenance of the system.

(FY2014 Settled Amount: ¥313 million)

(27) Promotion of the Use of Digital Fire Emergency Wireless Systems, etc.

As part of its efforts to promote a systematic switch to the use of digital equipment by fire services, FDMA dispatched advisors to fire service organizations to facilitate the swift, efficient introduction of radio equipment capable of being used by multiple fire departments within a wider region.

(FY2014 Settled Amount: ¥11 million)

The Great East Japan Earthquake and other disasters showed that emergency broadcast systems and fire and ambulance radio systems have an important part to play in the efforts of municipalities to gain an understanding of the extent of a disaster, as well as in emergency rescue and medical care. Accordingly, MIC provided financial assistance to cover part of the cost of switching to digital radio equipment, thereby promoting more effective use of radio frequencies.

(FY2014 Settled Amount: ¥4.438 billion)

(28) Enhancement and Strengthening of Local Disaster Management Capabilities Centered on Volunteer Fire Corps

FDMA took measures to enhance and strengthen the capabilities of fire corps volunteers by such means as conducting PR activities to encourage people to become fire corps volunteers; dispatching advisors to volunteer fire corps to assist them in bolstering their capabilities; holding the National Conference for Female Fire Corps Volunteers and the National Firefighting Skills Contest; and improving equipment, education, and training for volunteer fire corps.

(FY2014 Settled Amount: ¥470 million)

(29) Enhancement and Strengthening of Ambulance Services

FDMA enhanced and strengthened ambulance services in order to increase survival rates. To this end, it investigated and considered various issues concerning ambulance services and carried out the following: (i) promotion of cooperation between firefighting facilities and medical facilities; (ii) examination of approaches to the education of ambulance crews; and (iii) investigation and consideration to build a system for triage.

(FY2014 Settled Amount: ¥64 million)

(30) Promotion of Advanced Rescue Skills

To promote advances in rescue skills, FDMA held meetings of the Investigative Committee on Advanced Rescue Skills, as well as organizing the National Fire and Rescue Symposium and practical exercises, thereby helping to improve the rescue skills and knowledge of rescue teams.

(FY2014 Settled Amount: ¥23 million)

(31) Promotion of Integration of Fire Departments

FDMA promoted efforts to enhance the capabilities of municipal fire services through integration of fire departments by implementing the requisite local government finance measures for the priority areas of integration of fire departments at the request of local governments, etc.

(FY2014 Settled Amount: ¥6 million)

(32) Measures to Combat Critical Incident Stress among Municipal Firefighters and Fire Corps Volunteers

FDMA strengthened measures to combat critical incident stress by providing support for initiatives in this area undertaken by fire departments. It also conducted training to improve the skills of registered members of emergency mental health support teams.

(FY2014 Settled Amount: ¥2 million)

(33) Strengthening the Functions of Emergency Fire Response Teams

The Basic Plan for the Formation of Emergency Fire Response Teams and Development of Facilities was revised in March 2014 to take account of the lessons of the Great East Japan Earthquake. In accordance with this plan, FDMA enhanced Emergency Fire Response Teams and bolstered their rapid response systems by leveraging the system for the free use of national property, etc. (Article 50 of the Fire and Disaster Management Organization Act) to equip such teams with special vehicles (vehicles with equipment for responding to tsunami and major storm and flood damage, and vehicles capable of functioning as a base for coordinating disaster response).

(FY2014 Settled Amount: ¥1.144 billion)

(34) Improvement of Local Government Disaster Response Capabilities

FDMA dispatched disaster management experts to conduct lectures aimed at improving the ability of municipalities to deal with disasters such as earthquakes and tsunami.

(FY2014 Settled Amount: ¥9 million)

(35) Establishment of Business Continuity Systems for Disaster and Emergency Response

FDMA ensured that it could swiftly and accurately respond to disasters and emergencies in the event that its headquarters were damaged by a Tokyo inland earthquake or other disaster. To this end, it furnished an alternative base with the facilities, materials and equipment that it would require to fulfill such functions as gathering information about the extent of a disaster from across the country and mobilizing Emergency Fire Response Teams.

(FY2014 Settled Amount: ¥5 million)

(36) Upgrading of the J-Alert National Early Warning System

FDMA provided grants to cover the full cost of installing automatic activation equipment in municipalities, all of which have already installed the J-Alert receiver as of the beginning of fiscal 2014, in order to facilitate the swift, accurate communication of information to residents in the event of a disaster.

(FY2014 Settled Amount: ¥571 million)

(37) Maintenance of MOJ Response Capabilities in the Event of Disaster

The MOJ sought to ensure that it could continue to carry out its duties without the risk of any public security issues, even if a disaster affected its offices and detention facilities. Accordingly, it maintained and strengthened disaster management and public security capabilities at its offices and detention facilities.

(FY2014 Settled Amount: included in the ¥118 million sum)

(38) MOJ Initiatives to Secure Essential Administrative Functions in the Immediate Aftermath of a Major Disaster

The MOJ implemented the following measures to prevent a deterioration in public security resulting from the escape of inmates from correctional facilities.

- Provision and updating of surveillance cameras and other comprehensive security systems, private power generators and storage batteries, and emergency food supplies at correctional facilities
- Provision and updating of digital radio equipment at correctional facilities
- Examination and establishment of systems for sharing information with relevant organizations about the extent of the damage to correctional facilities

(FY2014 Settled Amount: included in the ¥1.249 billion sum)

(39) Strengthening and Promotion of Disaster Risk Reduction Measures for Educational Facilities

To ensure children's safety, MEXT expedited measures to prevent the collapse of ceilings, etc. in school gymnasiums and other facilities. It also strengthened and promoted comprehensive, systematic disaster risk reduction measures by considering ways to bolster the disaster management functions of school facilities and cultivating emergency risk assessors.

(FY2014 Settled Amount: ¥163 million)

(40) Upgrading of the DMAT Secretariat System

The MHLW provided financial assistance for the running of the DMAT Secretariat, which supervises DMAT and conducts ongoing skills training of DMAT members.

It also provided financial aid to cover the cost of chartering helicopters, which are used to insert disaster medicine experts into disaster-stricken areas without delay to ascertain the extent of the damage caused by a disaster from a medical perspective and ensure that medical care is provided swiftly and accurately.

(FY2014 Settled Amount: ¥74 million)

(41) Support for the Activities of Disaster Base Hospitals, etc.

The MHLW provided financial aid to cover the following.

- Expenses incurred by disaster base hospitals as a result of participating in and assisting with disaster management exercises organized by national government alone or in partnership with local governments
- Expenses associated with the activities of DMAT dispatched to disaster-stricken areas

(FY2014 Settled Amount: ¥5 million)

(42) Promotion of Home Medical Care Partnership Systems

The MHLW sought to ensure that people requiring home medical care would be able to continue benefiting from medical services even in the event of disaster. To this end, it provided financial aid to promote partnerships involving medical institutions, with a view to the comprehensive, ongoing provision of home medical care based on multidisciplinary collaboration in the community.

(43) Project to Support the Building of Regional Welfare Support Networks in Case of Disaster

The MHLW provided financial assistance for projects aimed at building regional welfare support networks involving private sector business operators and other bodies, to facilitate an urgent response to the needs of vulnerable people in the event of disaster (elderly people, people with disabilities, and others requiring support).

(FY2014 Settled Amount: included in the ¥18.909 billion sum)

(44) Widespread Dissemination of Information about Preventing Disaster in Mountainous Areas

MAFF implemented a package of measures to mitigate the damage caused by disasters in mountainous areas, combining hard infrastructure, such as forest conservation facilities, with soft infrastructure, such as local evacuation systems. Among its initiatives was one focused on providing residents with map data for mountainous areas at risk in the event of disaster.

(FY2014 Settled Amount: included in the ¥1.698 billion sum)

(45) Upgrading of the Disaster Preparedness Information Network for National Land Development and Improvement Facilities

MAFF upgraded facilities for relaying observation data to enhance systems that gather and collate key data (such as details of water levels and other data considered important from a disaster preparedness perspective) and enable government organizations and facility managers to share it in real time. Its aim in doing so was to prevent damage to communities and state-owned facilities as a result of disaster.

(FY2014 Settled Amount: included in the ¥20.630 billion sum)

(46) Promotion of Disaster Mitigation Measures for Agricultural Land and Facilities

MAFF prepared standards and guidelines for the selective, efficient implementation of disaster mitigation measures for agricultural land and facilities, thereby promoting measures that will immediately be effective in terms of comprehensive disaster mitigation, including reducing human casualties.

(FY2014 Settled Amount: ¥53 million)

(47) Support for SMEs in Preparing Business Continuity Plans

The Japan Finance Corporation provided low-interest loans to enable SMEs to install equipment that will assist in disaster risk reduction, based on business continuity plans prepared by the SMEs themselves.

(48) Expenses Associated with Surveys to Investigate Disaster-resistant Electrical Equipment

The Ministry of Economy, Trade and Industry (METI) conducted surveys aimed at preventing or mitigating accidents and damage involving power generation and distribution equipment as a result of natural disasters, such as a megaquake of the kind thought likely to occur in the near future; tsunami; or intense heavy rains or squalls, which are becoming increasingly severe. In addition, it conducted technical studies aimed at revising technical standards (safety standards).

(FY2014 Settled Amount: ¥116 million)

(49) Grant for Expenses Associated with Surveys of the Stress Resilience of Renewable Energy Power Generation Equipment

With the cooperation of operators, METI conducted a survey of the stress resilience of wind power generation, hydroelectric power generation, and other renewable energy power generation equipment. It then analyzed the results and reflected them in revisions to technical standards as needed, thereby facilitating the building of safer renewable energy power generation equipment and securing the supply of electricity, which is an essential lifeline.

(FY2014 Settled Amount: ¥27 million)

(50) Project to Enhance Petroleum Product Shipping Functions

METI provided support for the introduction of a three-piece emergency equipment set at oil refineries (consisting of an emergency generator, an emergency communications system (using satellite communications, etc.), and oil drum filling and shipment equipment).

(FY2014 Settled Amount: ¥2.005 billion)

(51) Grant for Enhancing Petroleum Product Storage and Supply Functions

METI provided financial assistance for the construction and refurbishment of tanks and other storage and supply facilities, to facilitate more strategic distributed storage of Government-Stockpiled Oil and ensure that the stockpiled oil can be supplied in a highly agile manner in an emergency.

(FY2014 Settled Amount: ¥508 million)

(52) Outsourcing Costs for Management of Government-Stockpiled Oil

(Petroleum)

In the course of managing the national petroleum stockpiling bases, to ensure that such oil can be made available as needed, METI implemented land conservation and disaster risk reduction measures, including measures to protect facilities and equipment against tsunami and liquefaction, as well as enhancing their earthquake resistance.

(FY2014 Settled Amount: ¥40.458 billion)

(53) Outsourcing Costs for Management of Government-Stockpiled Oil

(Liquefied Petroleum Gas)

To ensure the appropriate management of facilities national LPG stockpiling bases, METI implemented land conservation and disaster risk reduction measures, including the repair of facilities and equipment and measures to protect them against tsunami and liquefaction, as well as enhancing their earthquake resistance.

(FY2014 Settled Amount: included in the ¥11.595 billion sum)

(54) Oil Stockpiling Program Subsidy

METI paid oil refiners, etc. a subsidy equivalent to the cost of leasing their tanks, thereby augmenting Government-Stockpiled Oil stored in the form of such products as gasoline and diesel.

(FY2014 Settled Amount: ¥28.976 billion)

(55) Program of Measures to Encourage the Use of Petroleum Products

METI partially subsidized the cost of installing such equipment as petroleum product storage tanks and generators in evacuation shelters and hospitals, among others, in order to encourage fuel stockpiling by consumers and facilitate a stable supply of energy in the event of disaster.

(FY2014 Settled Amount: ¥411 million)

(56) Petroleum Product Distribution Network Maintenance and Strengthening Program

METI sought to ensure a stable supply of petroleum products in each region and in the event of a disaster or other emergency. Accordingly, it supported human resource development initiatives aimed at stabilizing the management of petroleum product distributors by reducing operational costs, as well as enhancing the ability of fuel service stations to respond to a disaster.

(FY2014 Settled Amount: ¥880 million)

(57) Regional Energy Supply Base Development Program

METI sought to ensure a stable supply of petroleum products by providing assistance with the cost of removing underground storage tanks at fuel service stations; replacing underground tanks, putting in place larger tanks, and introducing private power generators, in order to bolster their ability to respond to a disaster; and installing simplified measuring devices in areas underserved by fuel service stations.

(FY2014 Settled Amount: ¥2.112 billion)

(58) Program to Support the Development of Local Disaster Preparedness Frameworks Focused on LPG

METI supported efforts by LPG dealers, etc. to enhance their disaster preparedness frameworks and conduct drills, in order to ensure that LPG Supply Disaster Response Cooperation Plans will be implemented without fail should an envisaged major disaster occur.

(FY2014 Settled Amount: ¥781 million)

(59) Establishment of Systems for Securing Emergency Transport Networks in the Event of Disaster

MLIT acquired satellite phones to ensure that it

has a swift, stable, reliable means of obtaining and communicating information about the extent of the damage to transport-related facilities and the operational status of modes of transport in the event of a disaster, as well as ensuring that it can undertake emergency transport.

(FY2014 Settled Amount: ¥25 million)

(60) Fundamental Land Classification Survey

MLIT conducted the national government's Fundamental Land Classification Survey, which presents user-friendly information about Land History Survey about Disasters and Developments. This information includes details of the land's original natural conditions, which may have become obscured as the land has been modified, as well as details of modifications that have been made and the history concerning disasters and developments in the area.

(FY2014 Settled Amount: ¥57 million)

(61) Centralized Provision of Disaster Management Information Held by MLIT

MLIT's Disaster Information Center is a website through which the public can access the disaster management information held by MLIT, presented in a user-friendly manner. MLIT used the Disaster Information Center to provide a centralized hub where the public can easily obtain real-time rainfall data, view real-time radar images, and access details of MLIT's response to disasters.

(62) Enhancement of Systems for Communicating Information in the Event of Disaster

MLIT established a Communications Headquarters to ensure the swift provision of information about the impact of disasters on roads should a disaster occur. This centralized system enabled road administrators to share information about areas where traffic restrictions had been imposed and the outlook for the lifting of those restrictions.

(63) Active Improvement of Cadastral Promotion

Having learned that the high rate of progress in cadastral survey in areas affected by the Great East Japan Earthquake contributed to the rapid pace of recovery and reconstruction initiatives, MLIT actively promoted the improvement of cadastral promotion in areas where major disasters are anticipated.

(FY2014 Settled Amount: ¥15.434 billion)

(64) Development of the Digital Japan Basic Map

The Geospatial Information Authority of Japan (GSI) developed and updated the Digital Japan Basic Map to serve as new digital basic map data, replacing conventional topographic map data. The Digital Japan Basic Map coordinates geospatial information depicting topographic information required for national land management and disaster management, such as relief features, land status, and structures with basic map information such as details of roads and buildings, which are reference points for determining location.

(FY2014 Settled Amount: ¥226 million)

(65) Provision of Information to Foreign Visitors to Japan in the Event of Disaster

The Japan Tourism Agency created guidelines for accommodation and tourism facilities regarding the preparation of manuals for assisting foreign visitors in the event of a disaster. It also created guidelines for local governments concerning the inclusion of such matters into Local Disaster Management Plans, and publicized these guidelines in the relevant quarters. In addition, it publicized an app that it had developed to provide push notifications to foreign tourists visiting Japan.

(66) Provision of Basic Information Concerning Natural Disasters

To obtain basic data for the preparation of hazard maps, GSI scrutinized aerial photographs and conducted field surveys as part of its investigation of landform classification and the distribution of disaster management facilities, and then used this to provide data on vulnerable landforms and topographic data for volcano disaster risk management.

(FY2014 Settled Amount: ¥13 million)

(67) Issuance and Communication of Forecasts, Warnings, and Other Information

As well as publishing timely and appropriate forecasts, warnings, and other information, the JMA strove to prevent and mitigate disaster by providing relevant organizations with this information. It also operated a radiofax service providing weather maps and current details of waves, ocean currents, and sea ice, along with outlook charts for these phenomena.

(68) Promotion of Efforts to Upgrade the Johkasou (Septic Tank) Record System

The MOE prepared a manual and conducted model projects to promote efforts by local governments to upgrade their johkasou record systems.

(FY2014 Settled Amount: ¥13 million)

(69) Evaluation and Verification of the Disaster Risk Reduction Functions of Natural Ecosystems

As well as gathering domestic and overseas examples of disaster risk reduction measures that make use of the functions of natural ecosystems, the MOE evaluated and verified the disaster risk reduction functions of natural ecosystems.

(FY2014 Settled Amount: ¥11 million)

(70) Expenditure on Improving Ability to Deal with Disasters

The Ministry of Defense (MOD) sought to improve its ability to deal with nuclear and other disasters. It also promoted seismic retrofit to maintain and strengthen the functions of its camps and bases, etc. that will serve as hubs for disaster response.

(FY2014 Settled Amount: ¥147.317 billion)

2. Contingency Planning against an Earthquake

2-1 Education and Training

(1) Earthquake Early Warning Drills

The Cabinet Office, FDMA, and the JMA worked with relevant organizations to conduct disaster drills across the country in June and November (Tsunami Preparedness Day), calling on the public to participate actively, so that people can make a disaster drill for the proper action in the situation when receiving an earthquake early warning.

(2) National Police Agency Education and Training Initiatives

The National Police Agency conducted education and training programs for senior prefectural police force officers, focusing on emergency disaster control measures in the event of an earthquake. In addition, it conducted exercises focused on the set-up and running of Emergency Disaster Countermeasures Headquarters. It also instructed prefectural police forces to carry out the education and training required for contingency planning against an earthquake disaster.

Furthermore, the National Police Agency instructed prefectural police forces to make use of the Rules of the Road in classes for holders of driving licenses, etc. to raise awareness among drivers regarding the steps that they should take in the event of disaster.

(3) Fire and Disaster Management Agency Earthquake Response Exercises

As well as participating in the Government Comprehensive Disaster Management Drill and tabletop exercises, FDMA conducted its own tabletop exercises and muster drills focused on earthquake and tsunami response, in order to bolster the functions of its Disaster Management Headquarters in the event of a major disaster.

Moreover, the Agency held joint exercises for Emergency Fire Response Teams in each of the six national blocks, in order to improve the technical skills of team members, as well as strengthening partnerships between units and enhancing cooperation with other organizations.

(4) Comprehensive Drill for Large-scale Tsunami Disaster

In accordance with the Comprehensive Disaster Management Drill Framework, MLIT conducted a drill based on the scenario of a Nankai Trough megaquake, following a plan that MLIT itself had prepared. Working in partnership with Wakayama Prefecture and other relevant local governments and designated public corporations, MLIT conducted drills featuring such elements as the communication of earthquake and tsunami information, the evacuation of residents, searches for tsunami victims, rescue and relief operations, and emergency drainage and road obstacle elimination by the Technical Emergency Control Force (TEC-FORCE) to facilitate search and rescue operations.

(5) Tsunami Warning Communication Drills, etc.

As well as conducting drills at key national hubs (Headquarters and Osaka Regional Headquarters) to speed up the issuance of tsunami warnings, the JMA actively participated and cooperated in drills organized by local governments, etc. In addition, it conducted drills to test the Earthquake Assessment Committee for Areas under Intensified Measures against Earthquake Disaster and undertook work

related to information on the Tokai Earthquake, etc.

(6) JCG Earthquake Response Exercises

The JCG provided disaster response education and training for staff involved in responding to earthquakes and conducted earthquake response drills in partnership with relevant organizations.

2-2 Development of Facilities and Equipment for Disaster Management

(1) Maintenance and Management of Region-wide Disaster Management Bases

The Cabinet Office maintained and managed the Tachikawa Substitute Facility of the Government Headquarters for Disaster Countermeasures and the key wide-area disaster prevention bases in the Tokyo Bay waterfront area (Ariake no Oka and Higashi Ogishima regions), which will serve as operational bases for emergency disaster control measures in the event that a Tokyo inland earthquake triggers an extensive disaster.

(FY2014 Settled Amount: ¥100 million)

(2) Promotion of Facility Upgrades for the Establishment of National On-site Disaster Management Headquarters

Nagoya Joint Government Office Building No. 2 is one of the locations in Aichi Prefecture where a local response headquarters might be set up in the event of a Nankai Trough megaquake. Accordingly, the Cabinet Office considered the designs required to refurbish facilities that will assist in the smooth conduct of local response headquarters operations, as well as examining designs for the necessary information and communications infrastructure. (Described below: Chapter 3 3-2 (5))

(FY2014 Settled Amount: ¥117 million)

(3) Promotion of the Project for Seismic Retrofit of Public Facilities, etc.

In order to ensure the safety of residents through minimizing the damage in the event of an earthquake or other major disaster, MIC and FDMA promoted the seismic retrofit of public facilities that will serve as bases for local government disaster countermeasures and public facilities that are designated emergency evacuation sites and designated evacuation shelters through a package of local government finance measures.

(4) Development of Central Government Buildings Equipped with the Functions Required to Withstand an Earthquake

In light of the fact that the central government buildings that will serve as bases for earthquake disaster management operations are not sufficiently resistant to earthquakes, the Ministry of Finance (MOF) and MLIT developed central government buildings with the functions required for earthquake disaster management.

(FY2014 Settled Amount: ¥10.814 billion)

(5) Improvement of Facilities at National Universities

To prevent earthquake damage to buildings and ensure the safety of students, etc., MEXT promoted efforts to reinforce their disaster prevention functions by providing support for seismic retrofit of school buildings and other facilities.

(FY2014 Settled Amount: included in the ¥156.395 billion sum)

(6) Improvement of Public School Facilities

As well as being places of learning and a focus of children's social lives, public school facilities serve as evacuation shelters for local residents in the event of disaster. As such, MEXT carried out seismic retrofit of public school buildings, etc. to reinforce their disaster prevention functions.

(FY2014 Settled Amount: included in the ¥276.074 billion sum
*Includes the portion for Okinawa, which is allocated to the Cabinet Office)

(7) Improvement of Private School Facilities

To ensure the safety of children and young people in the event of a major disaster, MEXT provided government subsidies for the seismic retrofit of private school buildings, etc. to reinforce their disaster prevention functions.

(FY2014 Settled Amount: ¥17.372 billion)

(8) Improvement of Local Physical Education Facilities

As well as being venues for community sporting activities, local physical education facilities serve as evacuation shelters in the event of disaster. As such, MEXT provided government subsidies for the seismic retrofit of facilities deemed to be insufficiently resistant to earthquakes.

(FY2014 Settled Amount: included in the ¥107.966

billion sum
*Includes the portion for Okinawa, which is allocated to the Cabinet Office)

(9) Seismic Retrofit of Medical Facilities

The MHLW provided financial assistance for the evaluation of seismic capacity of hospitals providing government-regulated medical care.

(FY2014 Settled Amount: ¥7 million)

In addition, it provided financial assistance for the seismic improvement of wards and other buildings at hospitals providing government-regulated medical care and hospitals that have buildings whose seismic index of structure is Is 0.3 or lower.

(FY2014 Settled Amount: ¥466 million)

(10) Water Resources Development Facilities Improvement Project

The MHLW and MLIT promoted seismic retrofit and renovation of water resource development facilities by local governments, to ensure a stable supply of safe, high-quality drinking water in the event of a disaster.

(FY2014 Settled Amount: ¥8.827 billion)

(11) National Hospital Organization Facility Improvements

The National Hospital Organization sought to improve the earthquake resistance of its facilities by replacing dilapidated buildings.

(12) National Rehabilitation and Support Institution Facility Improvement Project

The National Rehabilitation Center for Persons with Disabilities carried out seismic retrofit of its hospital buildings.

(FY2014 Settled Amount: ¥1.667 billion)

(13) Simple Water Supply Facilities Improvement Project

The MHLW, MLIT, and the Cabinet Office promoted seismic retrofit and renovation of simple water supply facilities by local governments, to ensure a stable supply of safe, high-quality drinking water in the event of a disaster.

(FY2014 Settled Amount: ¥5.067 billion)

(14) Financial Assistance for Guidance and Supervisory Administration

The MHLW, MLIT, and the Cabinet Office provided financial assistance for the partial outsourcing of administrative work relating to the cost of promoting seismic retrofit and renovation of water supply facilities by local governments, to ensure a stable supply of safe, high-quality drinking water in the event of a disaster.

(FY2014 Settled Amount: ¥70 million)

(15) Promotion of Forest Conservation Projects

In an effort to ensure that earthquakes do not trigger a disaster in mountainous areas and to minimize any damage should such a disaster occur, MAFF selectively enhanced forest conservation facilities in mountainous areas that would be at a high risk of a disaster in the event of an earthquake.

(FY2014 Settled Amount: included in the ¥81.028 billion sum)

(16) Enhancement of Disaster Prevention Capabilities at Fishing Ports and Fishing Villages

In accordance with the Third Long-Term Plan for Development of Fishing Ports and Fishing Grounds (formulated in March 2012), MAFF implemented earthquake and tsunami countermeasures at key fishing ports in areas under intensified measures against earthquake disaster. Specifically, it implemented measures to counter liquefaction and improve the earthquake resistance of wharves and developed breakwaters with a highly robust structure. (Described below: Chapter 3 3-2 (4))

(FY2014 Settled Amount: included in the ¥126.775 billion sum
*Also partly covered by subsidies for development of rural areas)

(17) Enhancement of Coastal Protection Facilities

MAFF and MLIT tackled the risk posed by earthquakes by enhancing coastal protection facilities in areas believed to be at risk of a major earthquake. (Described below: Chapter 3 3-2 (5) and 4-2 (3)).

(FY2014 Settled Amount: included in the ¥4.786 billion sum (MAFF) and the ¥32.971 billion sum (MLIT))

(18) Restoration and Regeneration of Coastal Disaster-Prevention Forests Devastated by the Great East Japan Earthquake

MAFF promoted the development of coastal disaster-prevention forests devastated by the Great East Japan Earthquake, taking into account their

disaster mitigation functions in the event of a tsunami. In doing so, it sought to secure an adequate width of forest and utilize artificial embankments, while also giving consideration to the topographic conditions in each disaster-stricken area and the status of efforts to build consensus locally.

(FY2014 Settled Amount: included in the ¥8.510 billion sum)

(19) Seismic Retrofit of Government Buildings. Designated as Disaster Management Bases

Based on the results of evaluations of the seismic capacity of government buildings, MLIT carried out seismic retrofit of 16 facilities deemed to be in urgent need of improvement, including Kobe National Government Building No. 2.

(FY2014 Settled Amount: included in the ¥22.384 billion sum)

(20) Acquisition of Construction Machinery

MLIT acquired the machinery required for securing emergency transportation routes in the event of disaster.

(21) Promotion of Efforts to Create Earthquake-resilient Communities

MLIT carried out the following projects to enhance core public facilities in order to improve disaster preparedness in cities.

・ Enhancement of urban parks that will serve as evacuation sites, evacuation routes, and bases for disaster management activities

(FY2014 Settled Amount: included in the ¥29.574 billion sum
Also partly covered by the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant)

・ Street improvement projects on roads that will be used as evacuation routes in densely built-up areas, etc.

(FY2014 Settled Amount: Included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant)

・ Enhanced land readjustment projects involving the development of evacuation sites and evacuation routes in conjunction with efforts to promote city structures that reduce disaster risk

(FY2014 Settled Amount: Included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant)

・ Loan of funds for urban development to local governments seeking to acquire land to develop urban parks for use as evacuation sites

(FY2014 Settled Amount: included in the ¥1.289 billion sum)

It also carried out the following projects to promote disaster-resilient city structures.

・ Comprehensive urban disaster risk reduction promotion programs in densely built-up areas and other urban areas that pose a high risk from the perspective of disaster preparedness

(FY2014 Settled Amount: Included in the Disaster Prevention and Safety Grant)

・ Land readjustment projects for urban regeneration in densely built-up areas of the three major metropolitan areas

(FY2014 Settled Amount: Included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant)

・ Urban land redevelopment projects in densely built-up areas that pose a high risk from the perspective of disaster preparedness

(FY2014 Settled Amount: included in the ¥6.484 billion sum
*Also partly covered by the Social Capital Improvement Grant, etc.)

・ Utilization of the urban regeneration improvement plan program to assist in the development of waterproof water storage tanks, storage warehouses, and evacuation spaces

(FY2014 Settled Amount: Included in the Social Capital Improvement Grant)

・ Implementation of urban safety promotion projects to ensure the safety of those present in areas with a high concentration of urban functions at the time of a disaster

(FY2014 Settled Amount: ¥133 million)

・ Surveys to consider the promotion of disaster risk reduction measures for underground shopping malls

(FY2014 Settled Amount: ¥33 million)

・ Preparation of plans for disaster risk reduction measures at underground shopping malls and implementation of underground shopping mall disaster prevention promotion projects to support the refurbishment of evacuation routes and underground facilities on the basis of those plans.

(FY2014 Settled Amount: ¥4 million)

・ A major disaster such as a Nankai Trough earthquake or Tokyo inland earthquake is expected to result in a large number of stranded persons and injured people. To make advance provision for such an eventuality as part of the functions of a city, MLIT encouraged efforts to enhance facilities that will serve as centers for accommodating stranded persons, etc. in the event of a disaster.

(FY2014 Settled Amount: ¥1 million)

MLIT provided financial assistance for projects in built-up areas focused on the comprehensive enhancement of housing and public facilities, among others, to facilitate a more flexible response to policy issues such as the updating of urban functions and the improvement of densely built-up areas.

(FY2014 Settled Amount: Included in the Social Capital Improvement Grant, etc.)

(22) Measures to Strengthen the Sewerage System against Earthquakes

MLIT sought to use programs such as the Program of Comprehensive Anti-Earthquake Measures for Sewerage Systems to ensure that sewerage systems can fulfill the minimum necessary functions in the event of an earthquake. Accordingly, it promoted seismic retrofit and tsunami resistance improvements of key facilities, along with back-up sewerage measures in case of damage.

(FY2014 Settled Amount: included in the ¥5.466 billion sum
Also partly covered by the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant)

(23) Measures to Increase Earthquake Resistance and Combat Liquefaction around Rivers

In light of the fact that numerous embankments were damaged by liquefaction, MLIT promoted measures to increase the earthquake- and liquefaction-resistance of embankments and floodgates, thereby endeavoring to prevent and mitigate damage.

(24) Development of Facilities for Sediment Disasters

MLIT promoted the development of facilities fo sediment disasters in sediment disaster risk areas, where there is a high risk that an earthquake could cause collapses that would impact disaster management bases, key transport networks, and evacuation routes, as well as being a factor in settlements becoming cut off.

(25) Earthquake Disaster Prevention Measures on Roads

To prepare for a major disaster, MLIT promoted efforts to secure alternative routes, among other network improvements, and also undertook various road improvement projects, such as seismic retrofit of bridges and the removal of utility poles along emergency transport routes.

(26) Promotion of the Removal of Substandard Houses

MLIT provided financial assistance for local government housing district improvement projects targeting areas with a high concentration of substandard houses, which are dangerous or hazardous from a security or hygiene perspective. These projects involve not only the removal of substandard houses and construction of new homes for the existing residents, but also the development of community roads and children's playgrounds.

(FY2014 Settled Amount: Included in the Social Capital Improvement Grant, etc.)

(27) Promotion of the Replacement of Dilapidated Public Housing

MLIT provided grants including the Disaster Prevention and Safety Grant to cover part of the cost of local government seismic retrofit programs and projects focused on the replacement of existing public housing with poor earthquake resistance.

(FY2014 Settled Amount: Included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant)

(28) Measures against Major Earthquakes at Ports

MLIT sought to guarantee certain marine transport functions to facilitate the transport of

emergency supplies and the continuation of economic activities in coastal areas with a high concentration of inhabitants and/or industry, even in the event of a major earthquake. Accordingly, it carried out work to increase the earthquake resistance of piers and port roads.

(FY2014 Settled Amount <Port Development Projects>: Direct management: included in the ¥281.448 billion sum
Financial assistance: included in the ¥31.054 billion sum)

(29) Promotion of Comprehensive Disaster Preparedness Measures for Residential Land

In order to prevent and mitigate damage to residential land due to landslides and liquefaction triggered by major earthquakes, MLIT provided financial assistance for the cost of conducting surveys to ascertain the location and scale of large tracts of land reclaimed by means of banking and determining the likelihood of residential land suffering liquefaction.

(FY2014 Settled Amount: Included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant)

(30) Enhancement of Information and Communications Infrastructure

MLIT promoted the enhancement of information and communications infrastructure, to facilitate swift and accurate information gathering and its communication to relevant organizations in the event of disaster, as well as assisting in the provision of information to river users.

Furthermore, based on experiences from disasters such as the Great East Japan Earthquake, it will increase the disaster resilience of information and communications equipment by promoting seismic reinforcement measures, tsunami countermeasures, and measures against power cuts.

(31) Disaster Preparedness Measures at General Waste Disposal Facilities

The anticipated Tokyo inland earthquake and/or Nankai Trough megaquake are expected to generate disaster waste well in excess of the volume that resulted from the Great East Japan Earthquake. Accordingly, the MOE provided support via the Grant Program for Establishing a Sound Material-Cycle Society, among others, to fund municipal projects aimed at improving the disaster management functions of general waste disposal facilities.

(FY2014 Settled Amount: ¥95.879 billion)

2-3 Other

(1) Promotion of Measures against Earthquakes

The Cabinet Office considered estimates of the human, physical, and economic damage that a Tokyo inland earthquake might cause and examined measures to mitigate that damage. In addition, it considered long-period ground motion due to a megaquake along the Nankai Trough or Sagami Trough. (Described below: Chapter 3 3-3 (1))

(FY2014 Settled Amount: ¥222 million)

(2) Development of a Comprehensive Disaster Information System

The Cabinet Office developed and operated a comprehensive disaster information system to support the government's initial response to disasters by sharing information held by organizations involved in disaster management, such as estimates of the damage in the immediate aftermath of an earthquake and geospatial intelligence. (Described below: Chapter 3 3-3 (2) and 5-3 (2))

(FY2014 Settled Amount: ¥336 million)

(3) Promotion of the Preparation of Plans for Promoting Urban Regeneration and Ensuring Safety

The Cabinet Office encouraged both the public and private sectors to prepare plans for promoting urban regeneration and ensuring safety by supporting the gathering and analysis of basic data, in order to ensure the safety of those present in Urban Renaissance Urgent Redevelopment Areas.

(FY2014 Settled Amount: ¥8 million)

(4) Promotion of Transport Measures

The National Police Agency coordinated with relevant prefectural police forces and formulated a plan for traffic restrictions in the event of a major disaster of the kind expected to occur in due course. Moreover, as well as ensuring the accurate operation of area-wide traffic control systems, it promoted the enhancement of traffic safety facilities.

(5) Promotion of Seismic Retrofits of Buildings

The MOJ carried out a systematic program of seismic retrofit and reconstruction of offices to more earthquake-resistant buildings, as appropriate to the scale of the office and the findings from evaluations of the seismic capacity of correctional facilities and other government facilities for the administration of justice and legal affairs.

(FY2014 Settled Amount: ¥20.181 billion)

(6) Promotion of Seismic Retrofit of Government Buildings and Lodgings

The MOF carried out a systematic seismic retrofit program for government buildings with inadequate seismic performance from the perspective of ensuring the safety of those in the building when an earthquake strikes.

(FY2014 Settled Amount: ¥4.995 billion)

(7) Earthquake Disaster Preparedness Measures for Railway Facilities

MLIT provided financial assistance for part of the cost of the seismic retrofit of major railway stations and elevated bridges, with a view to guaranteeing such public functions as ensuring the safety of as many rail users as possible and securing temporary evacuation sites and emergency transport routes in case of a Tokyo inland earthquake, Nankai Trough earthquake, or other major earthquake.

(FY2014 Settled Amount: ¥1.590 billion
*Also partly covered by the ¥11.279 billion subsidy for the cost of urban railway development programs (high-speed underground railways))

(8) Promotion of the Evaluation of Seismic Capacity and Seismic Retrofit of Buildings

As well as striving to ensure the unerring enforcement of the Act on Promotion of Seismic Retrofitting of Buildings in order to mitigate damage due to the collapse of homes and other buildings in the event of an earthquake, MLIT provided financial assistance for projects aimed at improving the earthquake resistance of homes and other buildings.

(FY2014 Settled Amount: included in the ¥81.356 billion sum
Partly covered by the Social Capital Improvement Grant, etc.)

(9) Development of an Emergency Risk Assessment Scheme for Disaster-stricken Buildings and Relevant Support Activities

MLIT carried out human resource development and put in place implementation and support systems for an emergency risk assessment scheme for disaster-stricken buildings, to facilitate swift assessment and provision of information concerning the risk posed by buildings damaged by an earthquake.

(10) Seismic Retrofit of Airports

MLIT carried out seismic retrofit of airports that play a key role in air transport, to ensure that such airports can continue to function in the event of an earthquake.

(FY2014 Settled Amount: ¥6.760 billion)

(11) Provision of Information on Active Fault Zones Nationwide

GSI collated and provided detailed information about the location and topographic classification of major active faults thought likely to be the focus of extensive damage in the event of an earthquake.

(FY2014 Settled Amount: ¥18 million)

(12) Management of Key Wide-Area Disaster Prevention Bases

MLIT undertook appropriate maintenance and management of key wide-area disaster prevention bases and conducted drills focused on the transport of emergency supplies, to ensure that region-wide emergency disaster control measures can be carried out smoothly in the event of a Tokyo inland earthquake, Nankai Trough earthquake, or other major disaster.

(FY2014 Settled Amount: ¥24 million)

(13) Development of a Key Wide-Area Disaster Prevention Base in the Keihanshin Metropolitan Area

MLIT promoted the development of the Sakai Senboku Port Sakai 2-ku key wide-area disaster prevention base, to improve emergency repair activities and other disaster response capabilities in the event of a major earthquake in the Keihanshin Metropolitan Area.

- Development of green space with advanced support functions

(FY2014 Settled Amount <Port Development Projects>: Direct management: included in the

¥281.448 billion sum
Financial assistance: included in the ¥31.054 billion sum)

(14) Establishment of Systems for Public-Private Partnerships in the Distribution of Relief Supplies Following a Disaster

MLIT established a consultative committee to discuss the construction of disaster-resilient logistics systems in areas where major disasters are expected and promoted the establishment of systems for public-private partnerships in the distribution of relief supplies. In addition, it provided support for the installation of emergency power supply systems at private sector logistics facilities selected by the consultative committee.

(FY2014 Settled Amount:
Grant: ¥125 million)

(15) Program for the Urgent Promotion of Safety Measures for Existing Elevators

MLIT sought to encourage efforts to ensure the safety of existing elevators in the event that an earthquake results in people being trapped inside or causes the elevator to travel with its doors open. Accordingly, it provided support for the installation of safety devices (emergency control devices equipped with P-wave detectors, seismic retrofit devices for major components, and devices to protect passengers if the elevator travels with its doors open) as a measure against disaster.

(16) Initiatives for the Maintenance of Marine Transport Functions

To maintain port functions in the event of a major earthquake, MLIT prepared port business continuity plans (BCPs) and designated emergency waterways for three major bays. In addition, it promoted disaster prevention and mitigation measures by establishing joint committees for wide area disaster management, thereby building frameworks for cooperation between the national government, port management bodies, and port users. (Described below: Chapter 3 3-3 (4))

(FY2014 Settled Amount <Port Development Projects>: Direct management: included in the ¥281.448 billion sum
Financial assistance: included in the ¥31.054 billion sum)

(17) Seismic Retrofit of Honshu-Shikoku Bridges (Honshi-Bisan Line)

MLIT carried out seismic retrofit of Honshu-Shikoku Bridges (the Honshi-Bisan Line) to prevent and mitigate damage due to a Nankai Trough earthquake or other major earthquake.

(FY2014 Settled Amount: ¥3.301 billion)

(18) Matters Concerning the Collection of Reports and On-site Inspections for Designated Port Facilities Subject to the Technical Standards

MLIT prepared guidelines setting out procedures that port management bodies should follow when collecting reports and conducting on-site inspections concerning the management of designated port facilities subject to the technical standards by private sector business operators, etc. Furthermore, it instructed port management bodies to collect reports on the maintenance of such facilities.

(19) Issuance and Communication of Information on the Tokai Earthquake

The JMA issued information on the Tokai Earthquake, including findings from observation in areas under intensified measures against earthquake disaster. In addition, it communicated this information to organizations involved in disaster management and to news media so that relevant organizations could put appropriate disaster management systems into action.

(20) Issuance and Communication of Earthquake Early Warnings and Earthquake Information

Based on the results of seismic observation, the JMA sought to prevent and mitigate disasters by issuing earthquake early warnings and earthquake information, and communicating them to organizations involved in disaster management and to news media. (Described below: Chapter 3 3-3 (5))

(FY2014 Settled Amount: included in the ¥1.789 billion sum)

3. Contingency Planning against a Tsunami

3-1 Education and Training

(1) National Police Agency Education and Training Initiatives

The National Police Agency conducted education and training programs for senior prefectural police

force officers, focusing on emergency disaster control measures in the event of a tsunami. In addition, it conducted exercises focused on the set-up and running of Emergency Disaster Countermeasures Headquarters. It also instructed prefectural police forces to carry out the education and training required for contingency planning against a tsunami.

3-2 Development of Facilities and Equipment for Disaster Management

(1) Maintenance and Management of Region-wide Disaster Management Bases

(Described above: Chapter 3 2-2 (1))

The Cabinet Office maintained and managed the Tachikawa Substitute Facility of the Government Headquarters for Disaster Countermeasures and the key wide-area disaster prevention bases in the Tokyo Bay waterfront area (Ariake no Oka and Higashi Ogishima regions), which will serve as operational bases for emergency disaster control measures in the event that a Tokyo inland earthquake triggers an extensive disaster.

(FY2014 Settled Amount: ¥100 million)

(2) Promotion of Facility Upgrades for the Establishment of Government Local Response Headquarters

(Described above: Chapter 3 2-2 (2))

Nagoya Joint Government Office Building No. 2 is one of the locations in Aichi Prefecture where a local response headquarters might be set up in the event of a Nankai Trough megaquake. Accordingly, the Cabinet Office considered the designs required to refurbish facilities that will assist in the smooth conduct of local response headquarters operations, as well as examining designs for the necessary information and communications infrastructure.

(FY2014 Settled Amount: ¥117 million)

(3) Development of Coastal Disaster-Prevention Forests

MAFF sought to ensure that coastal disaster-prevention forests fulfill their functions in preventing disaster by guarding against sandstorm damage, wind damage, and tidal damage. In addition, it carried out land development to create a suitable growing environment and planted trees, taking into account local circumstances and giving consideration to the effects of such forests in mitigating the damage caused by tsunami.

(FY2014 Settled Amount: included in the ¥81.028 billion sum)

(4) Enhancement of Disaster Prevention Capabilities at Fishing Ports and Fishing Villages

(Described above: Chapter 3 2-2 (16))

In accordance with the Third Long-Term Plan for Development of Fishing Ports and Fishing Grounds (formulated in March 2012), MAFF implemented earthquake and tsunami countermeasures at key fishing ports in areas under Intensified measures against earthquake disaster. Specifically, it implemented measures to counter liquefaction and improve the earthquake resistance of wharves and developed breakwaters with a highly robust structure.

(FY2014 Settled Amount: included in the ¥126.775 billion sum
*Also partly covered by subsidies for development of rural areas)

(5) Enhancement of Coastal Protection Facilities

MAFF and MLIT tackled the risk posed by tsunami by enhancing coastal protection facilities in areas believed to be at risk of large scale earthquake. (Described below: Chapter 3 4-2 (3)).

(FY2014 Settled Amount: included in the ¥4.786 billion sum (MAFF) and the ¥32.971 billion sum (MLIT))

(6) Research Concerning Advanced Techniques for the Reconstruction of Coastal Disaster-Prevention Forests

In partnership with other organizations, the Forestry and Forest Products Research Institute (FFPRI) conducted research concerning the development of more advanced techniques for the reconstruction of coastal disaster-prevention forests devastated by the Great East Japan Earthquake and prepared a booklet to encourage the widespread adoption of those techniques.

(7) Tsunami Countermeasures for Rivers

In light of the immense damage caused by the tsunami triggered by the Great East Japan Earthquake, MLIT endeavored to prevent and mitigate damage by promoting such initiatives as the elevation of embankments and the introduction of automated and remotely operated floodgates, etc.

(8) Promotion of Efforts to Create Tsunami-resilient Communities

The following projects were undertaken to promote tsunami-resilient urban development.

Comprehensive urban disaster risk reduction promotion programs in urban areas that pose a high risk from the perspective of disaster preparedness due to the damage that would be caused by a tsunami in the event of a Nankai Trough earthquake or other earthquake

(FY2014 Settled Amount: Included in the Disaster Prevention and Safety Grant)

- Enhancement of urban parks that will serve as evacuation sites, evacuation routes, and bases for disaster management activities

(FY2014 Settled Amount: included in the ¥29.574 billion sum

Also partly covered by the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant)

- Street improvement projects on roads that will be used as evacuation routes

(FY2014 Settled Amount: Included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant)

- Enhanced land readjustment projects involving the development of evacuation sites and evacuation routes in conjunction with efforts to promote city structures that reduce disaster risk

(FY2014 Settled Amount: Included in the Social Capital Improvement Grant)

- Loan of funds for urban development to local governments seeking to acquire land to develop urban parks for use as evacuation sites

(FY2014 Settled Amount: included in the ¥1.289 billion sum)

- Land readjustment projects for urban regeneration that will enhance disaster preparedness by such means as the development of roads to be used as evacuation routes

(FY2014 Settled Amount: Included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant)

- Utilization of the urban regeneration improvement plan program to assist in the development of earthquake-resistant water storage tanks, storage warehouses, and evacuation spaces

(FY2014 Settled Amount: Included in the Social Capital Improvement Grant)

(9) Tsunami Evacuation Measures at Ports

As well as notifying port management bodies of the Guideline for Tsunami Evacuation Measures for Ports and Harbors (formulated in September 2013), MLIT promoted the formulation of evacuation measures and the development of tsunami evacuation facilities that take account of the specific features of the port or harbor in question.

(FY2014 Settled Amount <Port Development Projects>: Direct management: included in the ¥281.448 billion sum

Financial assistance: included in the ¥31.054 billion sum)

(10) Promotion of Prior Measures to Prevent and Mitigate Damage to Ports from Major Earthquakes and Tsunami

MLIT sought to ensure that socioeconomic systems would not fail should a disaster such as the Nankai Trough earthquake or Tokyo inland earthquake cause immense damage, as expected. Accordingly, it sought to improve the earthquake- and tsunami-resistance of port facilities by such means as the installation of breakwaters with a highly tenacious structure.

(FY2014 Settled Amount <Port Development Projects>: Direct management: included in the ¥281.448 billion sum

Financial assistance: included in the ¥31.054 billion sum)

3-3 Other

(1) Promotion of Measures against Earthquakes

(Described above: Chapter 3 2-3 (1))

The Cabinet Office considered estimates of the human, physical, and economic damage that a Tokyo inland earthquake might cause and examined measures to mitigate that damage. In addition, it considered long-period ground motion due to a megaquake along the Nankai Trough or Sagami Trough.

(FY2014 Settled Amount: ¥222 million)

(2) Development of a Comprehensive Disaster Information System

(Described above: Chapter 3 2-3 (2))

The Cabinet Office developed and operated a comprehensive disaster information system to support the government's initial response to disasters by sharing information held by organizations involved in disaster management, such as estimates of the damage in the immediate aftermath of an earthquake and geospatial intelligence. (Described below: Chapter 3 5-3 (2))

(FY2014 Settled Amount: ¥336 million)

(3) Promotion of Transport Measures

As well as ensuring the accurate operation of area-wide traffic control systems, the National Police Agency promoted the enhancement of traffic safety facilities.

(4) Initiatives for the Maintenance of Marine Transport Functions

(Described above: Chapter 3 2-3 (16))

To maintain port functions in the event of a major earthquake, MLIT prepared port business continuity plans (BCPs) and designated emergency waterways for three major bays. In addition, it promoted disaster prevention and mitigation measures by establishing joint committees for wide area disaster management, thereby building frameworks for cooperation between the national government, port management bodies, and port users.

(FY2014 Settled Amount <Port Development Projects>: Direct management: included in the ¥281.448 billion sum
Financial assistance: included in the ¥31.054 billion sum)

(5) Issuance and Communication of Tsunami Warnings, etc.

(Described above: Chapter 2 2-1 (23), 2-3 (20))

The JMA sought to prevent and mitigate disasters by issuing tsunami warnings based on the results of seismic observation, as well as issuing observation data without delay in the event that a tsunami is observed offshore or along the coast. It also communicated this information to organizations involved in disaster management and to news media.

(FY2014 Settled Amount: included in the ¥1.789 billion sum)

(6) Promotion of Tsunami Preparedness Measures

The JCG developed tsunami information maps that vessels in and around various ports can utilize in their tsunami preparedness measures, in case a Nankai Trough earthquake triggers a tsunami. In addition, it provided submarine topography data to assist local governments, etc. in setting tsunami inundation assumptions and preparing tsunami hazard maps.

(FY2014 Settled Amount: ¥153 million)

4. Contingency Planning against Storm and Flood Disasters

4-1 Education and Training

(1) National Police Agency Education and Training Initiatives

The National Police Agency conducted education and training programs for senior prefectural police force officers, focusing on emergency disaster control measures in the event of a storm and flood disaster. In addition, it conducted exercises focused on the set-up and running of Emergency Disaster Countermeasures Headquarters. It also instructed prefectural police forces to carry out the education and training required for contingency planning against storm and flood disasters.

4-2 Development of Facilities and Equipment for Disaster Management

(1) Preparations to Prevent Sediment Disasters at Medical Facilities

The MHLW provided financial assistance for preparations to prevent sediment disasters at medical facilities identified in the Survey of Urgent Sediment Disaster Inspections of Facilities with Vulnerable People (1998, Ministry of Construction) as being located in a debris flow hazard zone, a landslide hazard area, or a steep slope failure hazard area, etc.

(FY2014 Settled Amount: included in the ¥2.994 billion sum)

(2) Promotion of Forest Conservation Projects

MAFF promoted the development of forest conservation facilities to establish national land where people can live safely and securely, due to the maintenance and strengthening of the functions of forests in conserving headwater and preventing disaster in mountainous areas.

(FY2014 Settled Amount: included in the ¥81.028 billion sum)

(3) Enhancement of Coastal Protection Facilities

MAFF and MLIT tackled the risk posed by storm surges and waves by enhancing coastal protection facilities in areas below sea level, which are extremely vulnerable to flooding.

(FY2014 Settled Amount: included in the ¥4.786 billion sum (MAFF) and the ¥32.971 billion sum (MLIT))

(4) Comprehensive Disaster Preparedness Measures for Agricultural Land

MAFF promoted the comprehensive development of ponds, etc. in order to increase the level of disaster preparedness and safety throughout each community in an efficient and effective manner.

(FY2014 Settled Amount: included in the ¥56.155 billion sum
*Also partly covered by subsidies for development of rural areas)

(5) Acquisition of Construction Machinery

MLIT acquired the machinery required for measures against storm and flood disasters.

(6) Upgrading of Information and Communications Equipment for River, Dam, and Road Management

Along with telemetry systems for gathering hydrological, road, and meteorological data, including figures for rainfall, water levels, road temperatures, MLIT installed alarm systems and monitoring cameras to provide alerts about rising river water levels due to dam discharge and the like. It also put in place multiparameter (MP) radar, which provides high-precision rainfall data in real time. It also continued to promote the development of more advanced river information systems and promoted the sharing of data held by national government departments and local governments. Furthermore, based on experiences from disasters such as the Great East Japan Earthquake, the Great Kii Peninsula Flood Disaster, and the Kanto-Tohoku Torrential Rain, it increased the disaster resilience of information and communications equipment by promoting seismic reinforcement measures, tsunami and flood countermeasures, and measures against power cuts.

(7) Upgrading of Flood Prevention Facilities

MLIT developed monitoring facilities to facilitate the swift and accurate transmission of information such as flood forecasts for rivers under its direct management, which it publishes in partnership with the JMA.

(FY2014 Settled Amount: ¥115 million)

(8) Installation of Facilities for Sediment Disasters

MLIT promoted the installation of erosion control and landslide prevention facilities in mountain streams at risk of debris flow and landslide hazard areas. In addition, it supported efforts by prefectures to install steep slope failure prevention facilities in steep slope failure hazard areas.

(9) Disaster Prevention Measures on Roads

To prepare for a major disaster, MLIT promoted efforts to secure alternative routes, among other network improvements. It also implemented measures to prevent slope disasters on roads and avoided areas with a risk of disaster when developing roads.

4-3 Other

(1) Promotion of Measures against Major Flood Disasters

The Cabinet Office conducted basic studies to examine measures for evacuating residents living in areas that would be flooded if the embankments of the Tone or Ara Rivers collapsed or there was a storm surge in Tokyo Bay. Specifically, it summarized and evaluated flood attributes, such as problematic flood depths and durations, as well as evacuation types and methods.

(FY2014 Settled Amount: ¥14 million)

(2) Enhancement of Storm and Flood Disaster Warning Systems

The National Police Agency sought to enhance warning and policing systems by instructing Regional Police Bureaus and prefectural police forces to identify disaster risk areas in advance; establish policing frameworks at an early stage in situations where a disaster is expected; consider and implement the dispatch of units; and ensure that swift evacuation guidance is provided without fail, in partnership with local governments and relevant organizations.

(3) Promotion of Measures against Storm and Flood Disasters

FDMA continued to issue requests and provide advice to local governments concerning such matters as the establishment of frameworks for implementing emergency disaster control measures; the swift and accurate issuance and transmission of evacuation advisories and orders; the dissemination of information about measures to be taken in disaster risk areas and details of designated emergency evacuation sites; the step up of evacuation measures for people requiring assistance to evacuate; and the implementation of disaster management drills.

(4) Promotion of Disaster Management Measures for Facilities with People Requiring Assistance During a Disaster

To protect facilities with people requiring assistance during a disaster, MAFF sought to ensure that such facilities were aware of relevant mountain disaster hazard zones and agricultural landslide hazard areas. In addition, it promoted disaster risk reduction measures via forest conservation programs and disaster risk reduction programs for agricultural land.

(5) Education and Awareness Activities to Prevent Disaster in Mountainous Areas

MAFF held the Mountain Disaster Prevention Campaign (May 20 – June 30) to promote awareness of the need to prevent disasters in mountainous areas among residents, as well as raising awareness of disaster management in general.

(6) Promotion of Disaster Management Measures for Facilities Used by People Requiring Special Consideration in Disaster Prevention

MLIT selectively promoted the use of sediment disaster prevention facilities as measures to protect facilities used by people requiring special consideration in disaster prevention against sediment disasters. In addition, it revised the Act on Promotion of Sediment Disaster Countermeasures in Sediment Disaster Hazard Areas (Sediment Disasters Prevention Act) in November 2014 to enhance and strengthen warning and evacuation systems, including specifying in the Local Disaster Management Plans of municipalities the method that will be used to communicate information to the facilities in question.

(7) Promotion of Efforts to Develop Information Infrastructure for Rivers

In addition to the existing radar rain gauge and ground observation network, which monitors rainfall, MLIT is installing an XRAIN (MLIT X-band MP radar network), which can carry out more detailed rainfall monitoring more or less in real time. MLIT's expectation is that XRAIN will be useful in carrying out appropriate river management and disaster risk reduction activities to combat flood and sediment disasters caused by localized torrential downpours and localized heavy rain ("guerrilla rainstorms"), which have become more frequent in recent years. MLIT also provides rainfall information online and had established a network of 38 observation points by FY2014. It also put in place a flood forecasting system that uses data from these radar rain gauges to carry out detailed runoff analysis.

(8) Provision of River Information

To facilitate a swift emergency response in the event of disaster, MLIT provided river information, including real-time radar rain gauge data, flood forecasts, and flood alerts. It also promoted the use of terrestrial digital broadcasting and various other means of transmission to provide detailed river information.

(9) Real-time Exchange of River and Weather Information between MLIT and JMA

MLIT and the JMA jointly provide flood forecasts in accordance with the Flood Control Act and the Meteorological Service Act. To make these forecasts and their other services more advanced, MLIT and the JMA exchanged river and weather information in real time.

(10) River Basin Management and Flood Control Measures

MLIT promoted comprehensive flood control measures, including river basin storage and infiltration projects aimed at enhancing rivers and sewerage systems, and securing water retention and retardation functions in river basins that mainly consist of built-up areas, which suffer severe flooding. In addition, to mitigate the damage caused by rainfall inundation, MLIT worked with local governments to formulate plans incorporating soft infrastructure such as land use restrictions, thereby

promoting comprehensive measures against rainfall inundation.

(11) Promotion of Comprehensive Measures against Urban Flood Disasters

In accordance with the Specified Urban River Inundation Countermeasures Act, MLIT promoted the joint preparation of river basin flood control plans by river managers, sewerage system managers, and local governments in the basins of urban rivers that could cause significant flood damage. It also promoted comprehensive measures against urban flood disasters, such as channel improvements carried out by river managers based on these plans.

(12) Preparation and Publication of Anticipated Damage Zone Maps

To further enhance and strengthen warning and evacuation systems in accordance with the Sediment Disasters Prevention Act, MLIT supported municipalities in preparing and publishing sediment disaster hazard maps and kept track of their progress. It also worked with relevant local governments to raise public awareness of disaster preparedness and enhance preparations for disaster.

(13) Promotion of Measures on Flood Plains

MLIT sought to promote flood protection of homes in areas where it is difficult to implement early flood control measures due to the upstream and downstream balance, even though those areas frequently suffer flood damage. Specifically, it promoted the construction of ring levees and the elevation of residential land.

(14) Promotion of Comprehensive Measures against Sediment Disasters

MLIT implemented a comprehensive package of measures against sediment disasters, combining hard infrastructure (such as the development of erosion control dams that assign the highest priority to the protection of human life) with soft infrastructure (such as the development of warning and evacuation systems). Other soft infrastructure measures included support for prefectures in the designation of sediment disaster hazard zones and the development of information infrastructure. In addition, MLIT conducted urgent surveys in accordance with the Sediment Disasters Prevention Act in areas at imminent risk of a major sediment disaster due to the natural damming of rivers as a result of a deep-seated landslide, and sought to ensure widespread awareness of information concerning areas expected to suffer damage. Furthermore, as well as developing a large-scale collapse monitoring system, MLIT sought to strengthen its crisis management frameworks.

(15) Education and Awareness Activities to Prevent Sediment Disasters

With the aim of helping to prevent and mitigate damage to human life and property due to sediment disasters, MLIT organized Sediment Disaster Prevention Month and Slope Failure Prevention Week. As part of these campaigns, it promoted PR activities concerning sediment disaster prevention, conferred awards on those who had made an outstanding contribution to preventing sediment disasters, sought to promote widespread awareness of hazardous areas, conducted inspections, and carried out warning and evacuation drills.

(16) Flood Prevention Education and Awareness Activities

To promote a deeper understanding of flood prevention among the public and seek widespread cooperation in this area, MLIT organized various events and activities in partnership with prefectures and flood control groups during Flood Control Month. In addition, it organized flood prevention training courses for the staff of municipalities and other organizations, as well as lectures in flood prevention techniques for flood fighting corps members.

(17) Issuance and Communication of Forecasts, Warnings, and Other Information

The JMA issued and communicated warnings and other disaster prevention and weather information, in order to facilitate emergency disaster control measures by local governments, such as judgments concerning evacuation advisories and orders, as well as assisting the public in taking voluntary steps to reduce disaster risk.

5. Contingency Planning against Volcanic Disasters

5-1 Education and Training

(1) National Police Agency Education and Training Initiatives

The National Police Agency conducted education

and training programs for senior prefectural police force officers, focusing on emergency disaster control measures in the event of a volcanic disaster. It also instructed prefectural police forces to carry out the education and training required for contingency planning against a volcanic disaster and to establish policing frameworks at an early stage in situations where a disaster is expected.

5-2 Development of Facilities and Equipment for Disaster Management

(1) Promotion of Forest Conservation Projects in Volcanic Regions

MAFF promoted the development of forest conservation facilities to prevent and mitigate mountain disasters in volcanic regions.

(FY2014 Settled Amount: included in the ¥81.028 billion sum)

(2) Promotion of Volcano Erosion Control Programs

MLIT promoted facility improvements to ensure the safety of residents in volcanic regions. In addition, it worked with relevant organizations to promote the formulation of Volcanic Sediment and Erosion Control Plans for Urgent Measures for Volcanic Disaster Reduction, which consist of measures focused on both hard and soft infrastructure, in order to mitigate the damage caused by sediment disasters in the event of a volcanic eruption.

Moreover, to prevent a sediment disaster following the ash fall resulting from the 2014 eruption of Mount Ontake, MLIT conducted an urgent survey in accordance with the Sediment Disasters Prevention Act, using helicopters and field surveys to gain an understanding of the extent of the ash fall. It then provided local governments with the findings from its simulation calculations of debris flows after the ash fall.

MLIT also installed monitoring cameras and sensors, as well as putting in place masonry erosion control dams as an emergency measure.

5-3 Other

(1) Promotion of Measures against Volcanic Disasters

The Cabinet Office encouraged the establishment of Volcanic Disaster Management Councils in volcanic regions where initiatives have been delayed and provided support for the preparation of specific, practical plans for region-wide evacuation in response to various phenomena, including pyroclastic flows and snowmelt type mudflows.

(FY2014 Settled Amount: ¥49 million)

(2) Development of a Comprehensive Disaster Information System

(Described above: Chapter 3 2-3 (2), 3-3 (2))

The Cabinet Office developed and operated a comprehensive disaster information system to support the government's initial response to disasters by sharing information held by organizations involved in disaster management, such as estimates of the damage in the immediate aftermath of an earthquake and geospatial intelligence.

(FY2014 Settled Amount: ¥336 million)

(3) Promotion of Measures against Active Volcanoes

FDMA worked with relevant ministries and agencies to promote volcano disaster risk management measures through Volcanic Disaster Management Councils and other collaborative bodies. In addition, it continued to provide relevant local governments with requests and advice concerning such matters as the enhancement of evacuation facilities and methods of communicating evacuation information, the strengthening of rescue preparedness, and the implementation of disaster management drills.

(4) Education and Awareness Activities to Prevent Volcanic Disasters

MLIT conducted awareness activities to prevent volcanic disasters, including providing support for the Volcanic Sabo Forum, which aims to serve as a forum for the local governments of volcanic regions to exchange information about volcanoes and the safety of the areas around them, as well as providing local governments and residents with a deeper understanding of Volcanic Sediment and Erosion Control Projects and other measures against a volcanic eruption.

(5) Continuous Monitoring of Crustal Movement in Volcanic Regions

In order to monitor volcanic deformations precisely, GSI conducted continuous three-dimensional monitoring of crustal movement using

GNSS-based control stations (GNSS continuous monitoring facilities), a remote GNSS monitoring system (REGMOS), and an Automated Polar System (APS), among others.

(6) Preparation of Anticipated Damage Zone Maps

To examine measures to combat disasters due to sediment movement phenomena triggered by volcanic eruptions, MLIT promoted the preparation of sediment disaster hazard maps in accordance with the Guide to Mapping Areas Liable to Suffer a Sediment Disaster Due to a Volcanic Eruption (Draft). In addition, it supported the preparation and use of volcano disaster risk management maps based on the Guidelines for Preparing Volcano Disaster Risk Management Maps, to establish an evacuation system before disaster strikes.

(7) Issuance and Communication of Volcanic Warnings, etc.

The JMA monitored volcanoes and issued volcanic warnings based on its findings in a timely and appropriate manner, as well as issuing warnings to organizations involved in disaster management, thereby striving to prevent and mitigate disaster. In addition, it promoted the establishment and improvement of evacuation plans and volcanic alert levels via joint deliberations by Volcanic Disaster Management Councils.

(FY2014 Settled Amount: ¥882 million)

6. Contingency Planning against Snow Disasters

6-1 Education and Training

(1) National Police Agency Education and Training Initiatives

The National Police Agency actively promoted policing drills with a focus on snow disasters, instructing prefectural police forces to carry out rescue drills in partnership with relevant organizations and to establish appropriate warning and policing systems, as well as systems for rescue operations.

6-2 Development of Facilities and Equipment for Disaster Management

(1) Protection of Private Social Welfare Facilities against Snow Disasters

The MHLW included costs associated with the removal of snow in the subsidy provided to private social welfare facilities to which the administration of public assistance facilities, etc. in special heavy snowfall areas has been entrusted.

(2) Promotion of Forest Conservation Projects in Snow Zones

To protect villages, etc. in snow zones from damage due to avalanches, MAFF promoted the development of forests and the installation of guard rails to prevent avalanches. In addition, it restored and maintained areas where melting snow had caused hillside collapse.

(FY2014 Settled Amount: included in the ¥81.028 billion sum)

(3) Securing the Passage of Road Traffic in Winter

To maintain the stability of road traffic in specified snow coverage and cold districts during winter, MLIT carried out projects associated with snow removal, protection against snow, prevention of snow and ice damage, and snow removal equipment, in accordance with the Act on Special Measures concerning Maintenance of Road Traffic in Specified Snow Coverage and Cold Districts. In addition, it implemented measures to ensure that the areas around railway stations, city centers, and routes used by children to travel to and from school remained free from obstacles in winter, to maintain an especially safe and comfortable environment for pedestrians.

(4) Promotion of Efforts to Create Snow-resilient Communities

To ensure that cities continue to function at times of heavy snowfall, MLIT undertook systematic road improvements in cities, taking into account snow coverage and the accumulation of snow over time. In addition, it further promoted measures to deal with fallen snow by melting it or washing it away using treated wastewater or sewerage system facilities.

(FY2014 Settled Amount: included in the ¥5.466 billion sum
*Also partly covered by the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant)

(5) Measures against Sediment Flows Due to Snowmelt and Avalanches

MLIT promoted improvements to erosion and

sediment control facilities, among others, to prevent sediment flows due to snowmelt and avalanches.

(6) Prevention of Snow Disasters at Airports

MLIT enhanced snow removal at airports and put in place snow removal equipment to secure air traffic in snowy cold regions.

(FY2014 Settled Amount: ¥1.663 billion)

6-3 Other

(1) PR and Educational Activities to Prevent Snow Disasters

As well as gaining an accurate understanding of facts concerning the occurrence of snow disasters and providing information to relevant organizations, the National Police Agency instructed prefectural police forces to analyze and consider facts concerning the occurrence of snow disasters and to conduct PR and awareness activities via in-house and public newsletters, as well as via patrols.

(2) Promotion of Measures against Snow Disasters

FDMA continued to provide relevant local governments with requests and advice concerning such matters as the establishment of initial response preparedness to disaster, thorough gathering and communication of weather and other information, accident prevention measures during clearing snow, and the development of evacuation guidance systems for vulnerable people, etc.

(3) Education and Awareness Activities to Prevent Avalanche Disasters in Villages

With the aim of helping to prevent and mitigate damage to human life and property due to avalanche disasters, MLIT organized Avalanche Disaster Prevention Week. As part of this campaign, it promoted PR activities concerning avalanche disaster prevention, conferred awards to those who had made an outstanding contribution to preventing avalanche disasters, sought to promote widespread awareness of hazardous areas, and conducted inspections of avalanche prevention facilities, etc.

(4) Issuance and Communication of Forecasts, Warnings, and Other Information

As well as issuing timely and appropriate forecasts, warnings, and other information about snowfall, snow depth, and avalanches, the JMA strove to prevent and mitigate disaster by providing this information to organizations involved in disaster management and to news media.

7. Contingency Planning against Fires

7-1 Education and Training

(1) Fire and Disaster Management College Education and Training Initiatives

FDMA's Fire and Disaster Management College conducted education and training programs for staff involved in fire safety at the national and prefectural level, as well as for municipal firefighters and fire corps volunteers. Through its programs, the College taught course participants the knowledge and skills that they will require as leaders, covering such areas as fire prevention, fire control, and rescue and ambulance services in the event of a fire.

(2) Japan Coast Guard Education and Training Initiatives

The JCG provided accident response education and training for staff involved in responding to fires on board vessels and conducted firefighting drills in partnership with relevant organizations.

7-2 Development of Facilities and Equipment for Disaster Management

(1) Precautions against Forest Fires

To prevent forest fires, MAFF developed forest roads to assist in regional projects aimed at promoting widespread efforts to prevent forest fires, such as the National Forest Fire Prevention Campaign, as well as strengthening prevention frameworks and facilitating fire safety and firefighting activities.

It also developed firebreaks and fire prevention roads in national forests.

(FY2014 Settled Amount: included in the ¥73.268 billion sum

*Also partly covered by subsidies for development of rural areas and subsidies for the reinforcement of foundations for regional revitalization)

(2) Loans to Fund the Construction and Purchase of Fireproof Buildings to Assist in Preventing Disaster

The Japan Housing Finance Agency provided loans to fund the construction and purchase of fireproof buildings that both use land efficiently and assist in preventing disaster.

(3) Upgrading of Firefighting Systems at Airports

MLIT systematically updated fire trucks for chemical fires at airports managed by national government, in order to improve their performance.

(FY2014 Settled Amount: ¥904 million)

7-3 Other

(1) Upgrading of Fire Prevention Systems, etc.

To mitigate the damage caused by fire, FDMA upgraded fire prevention systems as follows.

- Measures to prevent fire, and guidance and education focused on the fire safety equipment sector

  (FY2014 Settled Amount: ¥1 million)

- Promotion of prevention of fire caused by ignition of products and liaison and coordination in the investigation of causes of fires

  (FY2014 Settled Amount: ¥13 million)

- Responses to international trends in fire safety equipment, etc.

  (FY2014 Settled Amount: ¥16 million)

- Promotion of residential fire prevention measures

  (FY2014 Settled Amount: ¥10 million)

- Promotion of efforts to remedy violations of fire safety legislation

  (FY2014 Settled Amount: ¥21 million)

- Comprehensive planning of fire and disaster management technology

  (FY2014 Settled Amount: ¥6 million)

- More effective fire prevention and restructuring of regulation systems

  (FY2014 Settled Amount: ¥33 million)

(2) Upgrading of Forest Fire Prevention Systems, etc.

FDMA and MAFF jointly held the National Forest Fire Prevention Campaign to raise awareness of forest fire prevention. In addition, FDMA further promoted the program for designated areas to take robust measures against forest fires.

(3) Promotion of Building Safety Measures

To ensure the fire safety of buildings, MLIT promoted the preparation of maintenance plans for designated special buildings used by a large number of people, as well as promoting regular inspections, the preparation of inspection reports, and disaster prevention surveys of such buildings. Based on these, it sought to encourage efforts to undertake appropriate maintenance and carry out any refurbishment needed.

8. Contingency Planning against Hazardous Materials

8-1 Education and Training

(1) National Police Agency Education and Training Initiatives

To promote safety measures aimed at preventing disasters due to hazardous materials, the National Police Agency provided education and training programs at the Kanto Regional Police School for prefectural police officers responsible for dealing with hazardous materials. Specifically, these programs covered such topics as relevant legislation, guidelines for supervision and enforcement, and basic knowledge concerning hazardous materials.

(2) Fire and Disaster Management College Education and Training Initiatives

FDMA's Fire and Disaster Management College conducted education and training programs for staff involved in fire safety at the national and prefectural level, as well as for municipal firefighters. These programs covered such areas as firefighting activities in response to disasters involving hazardous materials or petroleum complexes.

(3) Maritime Disaster Management Drills

The JCG provided disaster response education and training for staff involved in responding to disasters associated with hazardous materials, etc. and conducted accident response drills in partnership with relevant organizations.

8-2 Development of Facilities and Equipment for Disaster Management

(1) Measures against a Major Petroleum Disaster

METI provided financial assistance for the materials and equipment required by the Petroleum Association of Japan to respond to disasters

involving major crude oil spills at sea. It also provided funding for research into disaster response technologies and for international conferences, thereby putting in place systems for dealing with crude oil spills and similar disasters.

(FY2014 Settled Amount: ¥827 million)

8-3 Other

(1) Safety Management Measures for Explosives

To ensure the proper storage, management, and handling of explosives by operators of businesses that handle explosives, the National Police Agency instructed prefectural police forces to conduct meticulous on-site inspections of places where explosives are handled and to work in partnership with relevant organizations.

(2) Measures to Prevent Disasters Due to Hazardous Materials

The National Police Agency instructed prefectural police forces to work closely with relevant organizations to strengthen enforcement regarding vehicles carrying hazardous materials and to provide guidance concerning compliance with safety standards.

(3) Requests and Advice Concerning Hazardous Materials Regulations

FDMA promoted the following preventive measures in accordance with the Fire Service Act.

- Establishment of technical standards for ensuring the safety of hazardous materials (Described above: Chapter 2 8 (1))

Deliberations concerning a survey on safety measures tailored to the use of new technologies and materials

Deliberations concerning safety measures to prevent complex disasters at handling facilities for fueling

Promotion of safety measures at outdoor tank storage facilities

(FY2014 Settled Amount: ¥67 million)

- Measures to prevent accidents at hazardous materials facilities, etc. (Described above: Chapter 2 8 (1))

(FY2014 Settled Amount: ¥10 million)

- Improvement of the accuracy of hazardous materials databases; prompt identification of new hazardous substances and evaluation of their risk, etc.

(FY2014 Settled Amount: ¥12 million)

(4) Promotion of Disaster Management Measures at Petroleum Complexes, etc.

FDMA conducted research concerning approaches to disaster drills to strengthen the functions of prefectural disaster management headquarters at petroleum complexes and the like. Its aim in doing so was to enhance systems for the sharing of information with relevant organizations in the event of disaster, which is the main role disaster management headquarters, as well as bolstering frameworks for cooperation with relevant organizations and conveying information to residents. Moreover, it held the Skills Contest for Self-defense Organizations for Disaster Prevention at Petroleum Complexes, etc. to increase the skills and morale of such organizations.

(FY2014 Settled Amount: ¥5 million)

FDMA and METI examined the layout of facilities on the site of new business establishments handling both petroleum and high-pressure gas, and issued the necessary requests and advice.

(FY2014 Settled Amount: ¥1 million)

(5) Establishment of the New Rapid Response Units to Deal with Disasters Involving Energy or Industrial Infrastructure (Dragon Hyper Command Units)

FDMA added the new units to the Emergency Fire Response Team structure: the Dragon Hyper Command Units, rapid response units that specialize in disasters involving energy or industrial infrastructure, such as petroleum tank fires and chemical plant explosions. The Agency also used the system for the free use of national property, etc. (Article 50 of the Fire and Disaster Management Organization Act) to equip these units with the vehicles and other items that they need for their work (such as large water cannon trucks equipped with an extending hose and high-capacity water supply pump trucks).

(FY2014 Settled Amount: ¥322 million)

(6) Strengthening and Enhancement of Safety Measures for High-Pressure Gas, Explosives, and Town Gas

METI implemented projects focused on the

preparation of technical standards in response to technical progress and to investigations and analyses of the causes of accidents involving high-pressure gas, explosives, and town gas. It also considered how those standards should operate.

(FY2014 Settled Amount: ¥96 million)

(7) Guidance Concerning the Prevention of Disasters Involving High-Pressure Gas and Explosives

METI conducted on-site inspections of manufacturers and provided them with operational safety education guidance, as well as conducting training courses for coordinators involved in enforcement at the prefectural level.

(8) Program for Improving Site Safety at Petroleum Complexes, etc.

To improve site safety at petroleum complexes and the like, METI identified issues that need to be tackled by regulatory authorities and issues that plant operators need to take the lead in tackling.

(FY2014 Settled Amount: ¥20 million)

(9) Development of Safety Management Technology for LPG Supply Businesses

As well as research focused on greater efficiency in bulk storage tank inspections, METI conducted research into next-generation LPG safety systems that use microcomputer meters equipped with wireless capabilities, which ensures that they can continue to function even in the event of a power cut following a disaster. In addition, it analyzed data on accidents involving LPG and formulated measures to reduce the number of accidents, and also conducted activities to raise safety awareness among consumers.

(FY2014 Settled Amount: ¥327 million)

(10) Oil Refining Industry Safety Measures Program

METI analyzed the causes of accidents and conducted tests in order to obtain the data required to prevent accidents at oil refineries and the like and to establish and revise the technical standards in the High Pressure Gas Safety Act.

(FY2014 Settled Amount: ¥205 million)

(11) Establishment of Safety Measures for the Marine Transport of Hazardous Materials

Having fully evaluated and considered the formulation and incorporation of international standards, MLIT established safety measures tailored to the specific attributes of hazardous materials. Moreover, to prevent accidents during the marine transport of hazardous materials, MLIT conducted various on-site inspections and pre-shipment inspections of vessels used to transport hazardous materials.

(FY2014 Settled Amount: ¥15 million)

(12) Safety and Disaster Management Measures for Vessels Carrying Hazardous Materials and Cargo Handling of Hazardous Materials

The JCG provided guidance regarding the navigation safety of vessels carrying hazardous materials through high-density traffic areas and appropriate cargo handling in large tanker berths.

(13) Provision of Environmental Conservation Information for Coastal Waters

To facilitate the swift implementation of appropriate clean-up measures following an oil spill, the JCG continued its efforts to provide environmental conservation information for coastal waters by establishing a database of natural and social information about coastal waters that can be displayed on an electronic screen along with nautical chart data and projections of the dispersal and drift of the oil.

(FY2014 Settled Amount: ¥1 million)

(14) Enhancement of the Drift Projection System

High-precision drift projections are required to ensure proper clean-up work in the event of an oil spill, so the JCG put in place drift projection correction buoys that can be constantly monitored, in order to evaluate and correct drift projections.

(FY2014 Settled Amount: ¥11 million)

(15) Registration of Oil Spill Clean-up Experts by Field

With the cooperation of relevant administrative bodies, the JCG compiled standardized information concerning domestic experts in each field, in accordance with the National Contingency Plan for Oil Pollution Preparedness and Response. In addition, it strove to put in place a system that would enable this information to be supplied in response to requests from relevant administrative bodies and local governments, etc.

(16) Provision of Environmental Conservation Information for Coastal Waters

To facilitate an appropriate response to pollution accidents involving oil or other substances from the perspective of environmental conservation, the MOE published maps incorporating information about coastal areas that could suffer particularly significant environmental impacts (coastal vulnerability maps) and gathered information to promote their use by local government staff, as well as to update them.

(FY2014 Settled Amount: ¥3 million)

9. Contingency Planning against Nuclear Disasters

9-1 Education and Training

(1) National Police Agency Education and Training Initiatives

The National Police Agency conducted education and training programs for senior prefectural police force officers, focusing on basic knowledge concerning nuclear energy, emergency disaster control measures in the event of a nuclear accident, and radiation dose monitoring. In addition, it instructed prefectural police forces to carry out policing drills with a focus on nuclear emergencies, working in partnership with relevant organizations.

(2) Fire and Disaster Management College Education and Training Initiatives

FDMA's Fire and Disaster Management College conducted education and training programs for staff involved in fire safety at the national and prefectural level, as well as for municipal firefighters. These programs covered firefighting activities in response to nuclear emergencies.

(3) Course on the Safe Transport of Radioactive Material

To ensure the safe transport of radioactive material, MLIT sought to promote widespread awareness of standards based on legislation and specific operational guidelines among those working in the transport sector, as well as increasing their safety knowledge. In addition, it strove to ensure that all transport managers had mastered the requisite specialist knowledge.

(FY2014 Settled Amount: ¥1 million)

(4) Training, etc. in Environmental Radiation Monitoring

The Nuclear Regulation Authority (NRA) held training courses for local government employees and others, to improve their radioactivity analysis skills and enhance the effectiveness of emergency monitoring.

(FY2014 Settled Amount: ¥202 million)

9-2 Development of Facilities and Equipment for Disaster Management

(1) Further Enhancement of Nuclear Emergency Preparedness Measures

To enhance and strengthen nuclear emergency preparedness measures, the Cabinet Office provided support for costs associated with activities including the maintenance and management of emergency contact networks linking the municipalities where nuclear power stations are sited with the prefectural government, etc.; the acquisition of materials and equipment such as radiation survey meters; the organization of drills, training courses, and briefings for residents living in the vicinity of plants concerning the advance distribution of Potassium Iodine (KI) tablets; and the development of off-site centers.

(FY2014 Settled Amount: ¥13.000 billion)

(2) Support for Reconstruction of Off-site Centers in Miyagi and Fukushima Prefectures

The off-site centers serving as bases for Local Nuclear Emergency Response headquarters in Miyagi Prefecture and Fukushima Prefecture were rendered unusable by the Great East Japan Earthquake. Accordingly, the Cabinet Office provided support for the cost of reorganizing works for an interim off-site center in Miyagi Prefecture and rebuilding off-site centers in two locations, in the north and the south of the Hamadori area of Fukushima Prefecture.

(FY2014 Settled Amount: ¥2.116 billion)

(3) Enhancement of Disaster Risk Reduction Measures Around Nuclear Power Stations

The Cabinet Office provided support for costs associated with radiation protection measures for facilities where persons who are unable to evacuate immediately in an emergency and require assistance in evacuation and other residents can shelter indoors and for emergency response bases. In

addition, it provided support for costs associated with the stockpiling of materials, equipment, and supplies required when sheltering indoors at facilities where radiation protection measures have been taken.

(FY2014 Settled Amount: ¥17.517 billion)

(4) Disaster Risk Reduction Measures for Nuclear Installations, etc.

The NRA put in place nuclear emergency response support systems and other nuclear emergency prevention systems.

(FY2014 Settled Amount: ¥3.879 billion)

9-3 Other

(1) Strengthening of Measures to Safeguard Residents, etc. in Priority Zones in Case of Nuclear Emergency

The Cabinet Office provided support for the cost of deploying simple radiation survey meters and other radiation meters at public facilities, etc. Its main aim in doing so was to contribute to swift and appropriate measures to safeguard residents by developing an environment in which residents living in the vicinity of nuclear power generation facilities can easily measure radiation, thereby promoting a deeper understanding of radiation among such residents.

(FY2014 Settled Amount: ¥27 million)

(2) Risk Communication on Radioactive Material in Foods

In partnership with relevant ministries and agencies, local governments, and consumer groups, the Consumer Affairs Agency (CAA) held public meetings keeping the consumer's perspective in mind, for consumers to gain a deeper understanding of radioactive material in foods and to enable them to act on the basis of their view. CAA supported follow-up training and provided information via websites and email newsletters to communicators (people who are able to provide a community with accurate information about radioactive material in foods) who had been trained in FY2013.

As one of its endeavors to provide information, CAA continued to publish *Food and Radiation Q&A*, a booklet providing accurate information about radioactive material in food and answering questions in a user-friendly way, as well as publishing *Food and Radiation Q&A Mini*, a new publication in a handier format.

(FY2014 Settled Amount: General Account: ¥22 million; Post-disaster Reconstruction Special Account: ¥11 million)

(3) Enhancement of Local Administration of Consumer Affairs and Development of Radioactive Material Testing Systems

In light of growing concern among consumers regarding the mislabeling of food and other food safety and security issues, the Consumer Affairs Agency supported local food safety and security initiatives. In addition, to support efforts by diverse bodies – including those with responsibility for such areas as childcare, the environment, welfare, and industry – to tackle consumer issues, the Consumer Affairs Agency provided grants to revitalize local administration of consumer affairs, on top of its basic fund for local governments.

(FY2014 Settled Amount: included in the ¥3.000 billion sum)

Moreover, to ensure food safety and security in the area of food and radioactivity, in light of the nuclear power plant accident, it lent out radioactive material testing equipment and conducted workshops on its use.

(4) Promotion of Nuclear Emergency Response Measures

FDMA provided local governments with advice and support in revising Local Disaster Management Plans; promoted widespread use of handbooks, etc.; and provided advice and cooperation for nuclear emergency response exercises. In addition, it investigated and collated information on the materials and equipment required for firefighting activities in the event of an accident involving radioactive material or radiation and put together a summary of the approach that should be taken. It also revised teaching materials for fire defense personnel on the subject of responding to accidents involving radioactive material.

(FY2014 Settled Amount: ¥7 million)

10. Other Disaster Countermeasures

10-1 Education and Training

(1) Fire and Disaster Management College Education and Training Initiatives

FDMA's Fire and Disaster Management College conducted education and training programs for staff involved in fire safety at the national and prefectural level, as well as for municipal firefighters. These programs covered firefighting activities in response to disasters stemming from biological or chemical agents.

(2) Disaster Prevention Education for Seafarers

MLIT provided safety and health education for seafarers, etc. via general public media.

(FY2014 Settled Amount: ¥2 million)

(3) Measures to Prevent Industrial Accidents Involving Seafarers

In accordance with the Basic Plan Concerning Disaster Prevention for Seafarers, MLIT prepared the Implementation Plan Concerning Disaster Prevention for Seafarers in order to promote effective, specific measures to prevent industrial accidents involving seafarers. MLIT also encouraged voluntary efforts by ship-owners to prevent disasters involving seafarers and its Safety Management and Seafarers Labor Inspection Officers carried out auditing and guidance of vessels and workplaces.

(FY2014 Settled Amount: ¥67 million)

10-2 Other

(1) Enhancement of Measures against Special Types of Disaster

FDMA worked in partnership with relevant organizations to bolster measures to prevent special types of disaster. In addition, it examined firefighting activities and disaster management systems aimed at enhancing and strengthening fire safety and disaster management measures, as well as disaster risk reduction measures.

(FY2014 Settled Amount: ¥0 million)

(2) Measures to Prevent Industrial Accidents

In accordance with the Industrial Accident Prevention Plan, the MHLW deployed systematic measures to prevent industrial accidents. As there has been a series of serious fires caused by explosions at chemical plants and the like, the MHLW sought to ensure thorough implementation of risk assessments that also take into account infrequent operations and abnormal situations. In addition, it sought to prevent industrial accidents in the course of recovery and reconstruction work in the aftermath of the Great East Japan Earthquake, for example, landslides occurring in the course of work to repair roads and restore other infrastructure of daily life. Furthermore, based on the lessons of the accident at Fukushima Daiichi Nuclear Power Station, the MHLW instructed electric power companies and others to make the necessary preparations for emergency response work, including ensuring the availability of sufficient spare dosimeters for use during emergency work in the event of a nuclear accident and formulating an emergency response plan in advance to manage exposure dose.

(3) Mine Safety Supervision

To prevent injury and pollution at mines, METI conducted on-site inspections in accordance with the Mine Safety Act and the Act on Special Measures for Pollution Caused by the Metal Mining Industry, etc.

(4) Ensuring the Safety of Lifeline Utility Facilities

METI conducted on-site inspections in accordance with relevant legislation to ensure the appropriate maintenance and operation of facilities involved in the supply of electricity and gas.

(5) Gas Pipe Deterioration Inspection Support Program

To ensure public safety, METI provided financial assistance for part of the cost of civil engineering work required for the replacement and repair of aging underground piping (gas pipes) at risk of corrosion, in cases where those gas pipes were located on the site of buildings of key significance from a safety perspective.

(FY2014 Settled Amount: ¥182 million)

(6) Town Gas Safety Information PR Program

METI maintained and managed the gas disaster management support system to facilitate information sharing with relevant bodies, including national government, industry groups, and gas suppliers in the event of an earthquake or other major disaster.

(FY2014 Settled Amount: ¥38 million)

(7) Supervision of Foreign Vessels

MLIT sought to prevent marine accidents by weeding out vessels that do not comply with International Convention for the Safety of Life at Sea or other international standards (substandard vessels). Accordingly, it continued to enhance the Port State Control (PSC) Officer system and carried out PSC of foreign vessels calling at Japanese ports.

(FY2014 Settled Amount: ¥95 million)

Chapter 4 National Land Conservation

1. Flood Control Projects, etc.

The Ministry of Land, Infrastructure, Transport and Tourism (MLIT) urgently needs to implement disaster prevention and mitigation measures in case of a flood or sediment disaster caused by a major typhoon or by a Nankai Trough or Tokyo inland earthquake of the kind deemed likely to occur. It must also urgently take steps to deal with aging river management facilities, etc. that were developed during the period of high economic growth.

Based on this awareness, MLIT assigned priority to the following in the FY2014 budget, helping to ensure that measures to address these issues would begin to be effective as soon as possible.

- MLIT promoted disaster prevention and mitigation initiatives aimed at increasing national resilience, prioritizing preventive measures that combine hard and soft infrastructure to guard against earthquake, tsunami, flood disasters, and sediment disasters, as well as measures to prevent repeated disasters in areas where immense disasters have already occurred.
- To prepare for an increase in costs arising from maintenance, management, and replacement, MLIT promoted strategic maintenance, management, and replacement efforts, including reducing the total cost via technology development and the formulation of plans to extend operational life.
- To expedite recovery and reconstruction in areas affected by the Great East Japan Earthquake, MLIT promoted the repair and enhancement of embankments and other infrastructure.

(FY2014 Settled Amount: ¥947.058 billion)

1-1 Disaster Prevention and Mitigation

(1) Earthquake and Tsunami Countermeasures in Case of a Nankai Trough Earthquake, Tokyo Inland Earthquake, or Other Major Earthquake

To prepare for a major earthquake of the kind deemed likely to occur, MLIT sought not only to protect human life, but also to ensure that socioeconomic systems would not fail in the event of disaster by promoting efforts to build tsunami-resistant communities and carrying out selective enhancement of the necessary social capital. It also promoted disaster risk reduction measures based on a combination of innovation and practical capabilities.

(2) Flood Control Measures in Case of a Major Flood Disaster, etc.

MLIT selectively implemented preventive flood control measures to ensure the safety and security of the public in daily life. These included measures aimed at contributing to a radical increase in flood control safety and measures to strengthen embankments, taking into account the likelihood of disaster and the extent of the damage envisaged should a disaster occur. In addition, MLIT intensively implemented measures to prevent repeated disasters in areas that have already suffered catastrophic flood disasters.

(3) Measures against a Sediment Disaster in Case of a Deep-seated Landslide or Volcanic Eruption, etc.

MLIT promoted measures to protect areas designated as disaster management bases from sediment disasters due to deep-seated landslides and measures to facilitate the swift and effective implementation of emergency disaster mitigation measures in the event of a volcanic eruption. In addition, MLIT intensively implemented measures to prevent repeated disasters in areas that have already suffered catastrophic sediment disasters.

1-2 Strategic Maintenance, Management, and Replacement

MLIT sought to use laser scanners and other new observation technologies that facilitate efficient inspections in order to swiftly reach a primary diagnosis, and used cloud technologies for sharing information with front-line operatives. At the same time, while striving to reduce total costs, it also promoted the repair and replacement of river management facilities whose performance had deteriorated with age.

1-3 Future Waterfront Development

In partnership with local governments, residents, and private sector companies, MLIT implemented comprehensive initiatives to further efforts to preserve and regenerate enriched river environments, as well as advancing urban and

regional development that makes full use of the attractions of rivers.

2. Forest Conservation Projects

The Ministry of Agriculture, Forestry and Fisheries (MAFF) implemented the following forest conservation projects in a systematic and comprehensive manner, in accordance with the Forest Improvement and Conservation Works Master Plan, to develop national land where people can live safely and securely, and create forests that help to cultivate abundant water resources.

2-1 Forest Conservation Projects in National Forests

MAFF implemented forest conservation projects in mountainous areas with the aim of restoring and improving denuded hillsides in national forests and preventing the collapse of at-risk hillsides. In addition, MAFF carried out reservoir area protection forest development projects on denuded land and in degraded forests in inland reservoir areas, with the aim of cultivating land and forests capable of fulfilling their headwater conservation and sediment runoff prevention functions.

(FY2014 Settled Amount: included in the ¥25.511 billion sum)

2-2 Forest Conservation Projects in Privately Owned Forests

(1) Direct Control Projects

・ Direct control forest conservation projects

MAFF implemented direct control forest conservation projects in privately owned forests in 16 districts with ongoing projects.

・ Direct control landslide prevention projects

MAFF implemented projects focused on landslides associated with forest conservation in 10 districts with ongoing projects (including districts where direct control forest conservation projects were also being carried out). (Described below: Chapter 4 3-1)

(FY2014 Settled Amount: included in the ¥14.681 billion sum)

・ Surveys concerning forest conservation plans, etc.

To facilitate the effective promotion of forest conservation projects, MAFF carried out hillside conservation surveys, studies analyzing quantity surveying criteria for forest conservation projects, surveys aimed at developing more advanced forest conservation technologies, and surveys concerning measures to combat disasters in mountainous areas of river basins.

(FY2014 Settled Amount: ¥131 million)

(2) Subsidized Projects

・ Special emergency projects involving forest conservation, etc. following Disasters of Extreme Severity

MAFF carried out special emergency projects involving forest conservation, etc. following Disasters of Extreme Severity in four districts that had suffered immense damage due to disasters caused by typhoons or intense heavy rains, etc.

・ Comprehensive program of hillside forest conservation measures

MAFF carried out forest repair and conservation projects to restore denuded land on hillsides, etc. in river basins of significance from the perspective of conserving national land around cities and villages.

MAFF carried out landslide prevention projects in areas with a high risk of damage to settlements and public facilities, where there was an urgent need for measures to address this risk. (Described below: Chapter 4 3-1 (2))

Through the appropriate installation of forest conservation infrastructure and development of forests, MAFF protected coastal areas against sandstorm damage, wind damage, and tidal damage, as well as protecting inland areas against wind damage. In addition, it undertook forest development projects to prevent and mitigate the damage caused by avalanches.

・ Reservoir area protection forest development projects

In areas upstream of dams and other important headwaters, as well as in protection forests that serve as a source of water for settlements, MAFF maintained and developed forests where the soil has excellent moisture penetration and retention capacity, in order to provide a stable supply of high-quality water and assist in the conservation of national land by maintaining and enhancing headwater conservation functions. In addition, it installed infrastructure required to regenerate denuded land and degraded forests, and promoted comprehensive, wide-ranging forestry development.

(FY2014 Settled Amount: included in the ¥36.975

billion sum)

3. Landslide Control Projects

3-1 Projects under MAFF Jurisdiction

(1) Directly Managed Projects

MAFF carried out the following projects.

・ Directly managed landslide control projects

MAFF carried out projects involving engineering work to prevent landslides in areas with a high risk of damage to agricultural land and facilities, where there was an urgent need for measures to address this risk due to landslide activity having been observed and where the scale of the work required was especially large.

(FY2014 Settled Amount: ¥1.531 billion)

・ Directly managed landslide prevention projects

(Described above: Chapter 4 2-2 (1))

MAFF implemented projects focused on landslides associated with forest conservation in 10 districts with ongoing projects (including districts where direct control forest conservation projects were also being carried out).

(FY2014 Settled Amount: included in the ¥14.681 billion sum)

・ Landslide surveys

MAFF conducted surveys aimed at preventing landslides, in order to protect agricultural land and facilities from landslide disasters.

(FY2014 Settled Amount: included in the ¥212 million sum for basic technology research expenditure)

(2) Subsidized Projects

MAFF carried out the following projects.

・ Landslide control projects

MAFF carried out these projects, prioritizing areas with a high risk of damage to agricultural land and facilities, where there was an urgent need for measures to address this risk due to landslide activity having been observed.

(FY2014 Settled Amount: included in the ¥56.155 billion sum)

・ Landslide prevention projects

MAFF carried these out in areas with a high risk of damage to settlements and public facilities, where there was an urgent need for measures to address this risk.

(FY2014 Settled Amount: included in the ¥36.975 billion sum)

3-2 Projects under MLIT Jurisdiction

MLIT developed landslide prevention facilities to ensure the stability of both national land and the lives of the people by preventing and mitigating damage to homes, public buildings, rivers, roads, and other public facilities caused by landslides and the like. In addition, it supported prefectural efforts to put in place warning and evacuation systems by identifying sites at risk of a landslide and designating them as sediment disaster hazard zones, etc.

Moreover, it sought to prevent repeated disasters by putting in place emergency landslide prevention facilities where heavy rain or earthquakes had caused new landslides or landslide phenomena had intensified, where the nature of the risk was such that it could not be left unaddressed for economic reasons or from the perspective of the stability of people's lives.

4. Steep Slope Failure Prevention Projects

MLIT supported prefectural efforts to install steep slope failure prevention infrastructure in steep slope failure hazard areas and to put in place warning and evacuation systems by designating areas as sediment disaster hazard zones.

5. Coastal Projects

(1) Projects under MAFF Jurisdiction

MAFF promoted the development of safe and thriving farming and fishing communities by selectively implementing measures against storm surges in coastal areas of particular importance from the perspective of conserving national land.

(FY2014 Settled Amount: ¥4.786 billion)

(2) Projects under MLIT Jurisdiction

MLIT enhanced coastal protection facilities against storm surges and coastal erosion, as well as conducting the surveys required to facilitate project implementation.

(FY2014 Settled Amount: included in the ¥32.971 billion sum)

6. Disaster Prevention Projects Targeting Agricultural Land

MAFF carried out the following disaster prevention projects targeting agricultural land.

6-1 Directly Managed Projects

・ Comprehensive disaster prevention projects targeting state-owned agricultural land, etc.

In agricultural communities where changing natural and social conditions have led to a decline in the functionality of agricultural land and facilities across an extensive area or where there is a risk of disaster, MAFF has implemented agricultural drainage facility development projects to tackle these issues.

(FY2014 Settled Amount: ¥20.630 billion)

6-2 Subsidized Projects

・ Disaster prevention projects targeting agricultural land

To prevent or minimize flood damage to agricultural land and facilities, MAFF implemented disaster prevention and mitigation projects in rural communities and programs for the deployment of emergency measures and facilities in response to special natural disasters.

(FY2014 Settled Amount: included in the ¥56.806 billion sum)

7. Disaster-related Projects

(1) Projects under MAFF Jurisdiction

MAFF carried out the following disaster-related projects.

・ Disaster-related projects focused on farming facilities, etc.

To prevent disaster-stricken farming facilities suffering repeated disasters, MAFF implemented disaster-related projects focused on agricultural facilities, such as the upgrading of adjacent facilities in conjunction with disaster recovery projects.

(FY2014 Settled Amount: ¥3.001 billion)

・ Direct control emergency disaster-related projects involving forest conservation, etc. and emergency disaster-related forest conservation projects

To prevent the recurrence of disaster, MAFF conducted emergency repair and improvement projects in the same year that disaster occurred in areas where torrential rain, etc. had denuded hillsides or caused landslides for the first time, or had exacerbated previous damage of this nature.

(FY2014 Settled Amount: ¥6.493 billion)

・ Forest collapse prevention projects

MAFF implemented projects to restore forests devastated by Disasters of Extreme Severity, in cases where there was a need for prompt action.

(FY2014 Settled Amount: ¥6 million)

・ Balance of the subsidy rate for groups to which the Act on Special Provision for Underdeveloped Regions is applicable

(FY2014 Settled Amount: ¥570 million)

・ Disaster-related projects focused on fishing ports

MAFF implemented disaster-related projects for fishing ports to prevent fishing port infrastructure, etc. suffering repeated disasters; disaster-related projects for the restoration of environmental facilities in fishing villages; and disaster-related projects involving urgent measures to deal with large pieces of driftwood, etc. washed up on the coast.

(FY2014 Settled Amount: ¥72 million)

(2) Projects under MLIT Jurisdiction (Rivers, etc.)

MLIT carried out disaster-related projects focused on rivers, etc.

(FY2014 Settled Amount:
Direct management: ¥4.146 billion
Subsidy: included in the ¥23.639 billion sum)

(3) Projects under MLIT Jurisdiction (Ports)

MLIT implemented disaster-related projects to increase the effectiveness of port facilities and coastal protection facilities in order to prevent the recurrence of disasters.

(FY2014 Settled Amount: ¥229 million)

8. Land Subsidence Countermeasures Projects

(1) Groundwater Surveys (Conservation Surveys)

MAFF conducted surveys in areas where groundwater is used for agricultural purposes, in order to ascertain the extent of subsidence and other impediments to the use of groundwater and to shed light on the mechanism that causes these impediments.

(FY2014 Settled Amount: included in the ¥212 million sum for basic technology research

expenditure)

(2) Land Subsidence Prevention Projects, etc.

The Ministry of Economy, Trade and Industry (METI) carried out the following projects to prevent subsidence.

・ Industrial water supply projects to prevent subsidence

METI carried out six reconstruction projects to promote the installation of industrial water supply facilities, to provide an alternative to the use of groundwater.

(FY2014 Settled Amount: ¥445 million)

・ Groundwater level monitoring surveys

METI carried out ongoing monitoring of groundwater levels to measure the effects of regulations in areas designated under the Industrial Water Act.

(FY2014 Settled Amount: ¥0.3 million)

(3) River Projects for Low-lying Areas

MLIT carried out the following projects.

・ Groundwater conservation and management surveys

MLIT continued to evaluate the results of groundwater conservation and management surveys conducted in the vicinity of Class A river systems nationwide in order to contribute to the appropriate conservation and management of groundwater and assist in the formulation of measures to prevent subsidence and other impediments to the use of groundwater.

(FY2014 Settled Amount: ¥6 million)

・ Subsidence leveling, etc.

The Geospatial Information Authority of Japan conducted leveling in areas of major subsidence nationwide and monitored ground deformation in conjunction with the results of measurements taken by local governments.

(4) Surveys of Groundwater Measures

MLIT investigated the implementation status of measures to prevent subsidence on the Nobi Plain, the Chikugo-Saga Plain, and the northern Kanto Plain; collated and analyzed groundwater data; and quantitatively analyzed the relationship between the quantity of groundwater collected, groundwater levels, and subsidence. Using the results, it considered measures to ensure more appropriate groundwater use and conservation.

(FY2014 Settled Amount: ¥29 million)

(5) Land Subsidence Prevention Projects, etc.

The Ministry of the Environment (MOE) published an overview of areas of subsidence nationwide based on measurements and other information provided by local governments. It also considered management strategies for promoting the conservation and effective use of groundwater, while preventing subsidence. In addition, the MOE evaluated the practicality of observation techniques based on satellite data that enables elevation across an extensive area to be measured with high precision, and considered incorporating them into the system for monitoring subsidence.

(FY2014 Settled Amount: ¥15 million)

9. Measures to Strengthen the Sewerage System against Flooding

In recent years, the volume of stormwater runoff has been on the rise, due to progressive urbanization and increasingly frequent intense heavy rains well in excess of the volume that sewerage systems were designed to handle. Accordingly, MLIT used the Comprehensive Program to Mitigate Flood Damage to the Sewerage System and other initiatives to strengthen measures against flooding.

(FY2014 Settled Amount: included in the ¥5.466 billion sum
Also partly covered by the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant)

(1) Public Sewerage System Projects

Municipalities served as the main project implementing bodies in undertaking initiatives aimed at channeling rainwater from urban areas into rivers, etc.

(2) Urban Storm Drainage System Projects

Municipalities served as project implementing bodies in undertaking initiatives aimed at removing rainwater from urban areas without public sewerage systems.

(3) Rainwater Regional Sewerage System Projects

In areas where individual municipalities carry out sewage treatment, prefectures served as project implementing bodies in implementing measures

against extensive floods spanning multiple municipal districts.

10. Other Projects

(1) Disaster Risk Reduction Project Bonds, etc.

The Ministry of Internal Affairs and Communications made ¥71.6 billion in disaster risk reduction project bonds (natural disaster prevention projects) available for projects being undertaken by local governments alone to prevent the occurrence or escalation of disasters in disaster hazard areas listed in Local Disaster Management Plans. In addition, it made available ¥66.2 billion in general corporate bonds (for rivers, etc.) for projects being undertaken by local governments alone that involve the construction of river management facilities or erosion control equipment, or other forest conservation and flood control projects.

(2) Protection Forest Maintenance and Management Programs

As well as promoting designation of protection forests in accordance with the National Forest Plan, MAFF implemented programs to promote the appropriate management of protection forests, including administration associated with the designation and cancellation of protection forests status, and efforts to ascertain the management status of protection forests.

(FY2014 Settled Amount: ¥495 million)

(3) Project to Deal with Special Underground Air-raid Shelters

MLIT implemented a project focused on trenches built during wartime as special underground air-raid shelters, backfilling those that were still extant and considered to pose a significant danger.

(FY2014 Settled Amount: included in the ¥4.089 billion sum)

(4) Projects to Prevent Mining Pollution from Disused Mines, etc.

METI provided financial assistance for projects undertaken by local governments to prevent mining pollution from disused mines in cases where the operator with responsibility for preventing pollution was insolvent or no longer existed. In addition, where operators with responsibility for preventing pollution were conducting pit water treatment projects at disused mines, METI provided financial assistance for part of the cost of dealing with pollution not caused by the operator in question.

(FY2014 Settled Amount: included in the ¥2.408 billion sum)

Moreover, METI conducted surveys to evaluate the advisability of applying new technologies that could potentially be used for pit water treatment and investigate their cost-effectiveness.

(FY2014 Settled Amount: included in the ¥19 million sum)

(5) Railway Disaster Prevention Projects

MLIT provided financial assistance for disaster prevention projects undertaken by passenger railway companies to combat rockfalls and avalanches, and to protect coasts, as well as for the Seikan Tunnel disaster prevention project being undertaken by the Japan Railway Construction, Transport and Technology Agency.

(FY2014 Settled Amount: ¥1.216 billion)

(6) Measures to Address Aging Railway Facilities

As more than 70 years have passed since the majority of railway operators were founded, the average age of bridges, tunnels, and other structures exceeds their serviceable life. Accordingly, MLIT encouraged local railway operators to carry out large-scale improvements to bridges and tunnels, and to implement modifications to extend their operational life.

(FY2014 Settled Amount: ¥283 million)

(7) Costs for Promoting Disaster Countermeasures and Other Emergency Projects

MLIT implemented 40 projects, including emergency measures to prevent repeated disasters in areas that suffered natural disasters in FY2014 and FY2013.

(FY2014 Settled Amount: included in the ¥8.736 billion sum)

(8) Measures to Address Aging General Waste Disposal Facilities

Many of the general waste disposal facilities developed to combat dioxins have become dilapidated with age and lack the capacity to deal with local waste, as well as posing an increased risk of accidents. Accordingly, the MOE provided support in the form of the Grant Program for Establishing a Sound Material-Cycle Society for projects to improve general waste disposal facilities

implemented by municipalities.

(FY2014 Settled Amount: included in the ¥95.286 billion sum)

(9) Promotion of Johkasou (Septic Tank) Improvements

The MOE provided a government grant for municipal projects focused on johkasou improvements, to encourage the construction of disaster-resilient johkasou (decentralized domestic wastewater treatment facilities).

(FY2014 Settled Amount: included in the ¥7.570 billion sum)

Chapter 5 Disaster Recovery

1. Emergency Disaster Control Measures

1-1 Measures in Response to 2014 Typhoon 8, etc.

(1) National Police Agency Response

The National Police Agency, relevant Regional Police Bureaus, and relevant prefectural police forces established disaster liaison offices or similar departments and carried out such tasks as gathering information, rescuing disaster victims, and guarding disaster stricken areas. Mobile police communications units began working to secure police communications immediately after the disaster struck and transmitted video footage from the scene to the National Police Agency, etc. In addition, the National Police Agency dispatched a government investigation team consisting of Agency staff to the area.

(2) MEXT Response

The Ministry of Education, Culture, Sports, Science and Technology (MEXT) asked relevant prefectural boards of education and other relevant organizations to take the necessary steps to ensure the safety of schoolchildren and others, and to prevent secondary disasters. It also strove to gather information about the extent of the disaster.

In addition, the National Research Institute for Earth Science and Disaster Resilience (NIED) conducted an on-site inspection of the sediment disaster in Nagiso Town and published online the results of its survey and analysis of the cause of the disaster, the process by which it occurred, and the extent of the damage.

(3) Special Measures Concerning Electricity Charges

The Ministry of Economy, Trade and Industry (METI) approved applications from general electricity utilities to apply special charges or other supply conditions not in accordance with their General Supply Provisions (such as extending the payment deadline for charges) to those affected by disaster in the region to which the Disaster Relief Act was applied (Nagano Prefecture and Yamagata Prefecture).

(4) SME Agency Response

The Small and Medium Enterprise Agency (SME Agency) set up special advice centers at government-affiliated financial institutions, etc. in Yamagata and Nagano prefectures, as well as providing disaster relief loans and easing conditions for the repayment of existing debt, among other measures.

(5) MLIT Response

The Ministry of Land, Infrastructure, Transport and Tourism (MLIT), immediately after the disaster occurred, started not only survey of damage of infrastructure by the disaster, but also supporting municipalities.

For example, MLIT dispatched liaison staff to 14 prefectures and 23 municipalities, and they obtained information about the damage and needs of local governments, and gave technical advice based on the needs.

Moreover, MLIT swiftly dispatched the Technical Emergency Control Force (TEC-FORCE) to disaster-stricken sites in Nagano Prefecture to give technical support, including survey of damage by the disaster. MLIT also dispatched helicopters for aerial surveys of the damaged area, lighting vehicles for 24-hour-works and drainage pump trucks for drying up the flooded area for early recovery and for prevention of a secondary disaster.

1-2 Measures in Response to Torrential Rain in August 2014 (Hiroshima Sediment Disaster)

(1) National Police Agency Response

The National Police Agency, relevant Regional Police Bureaus, and relevant prefectural police forces established emergency disaster security headquarters or similar organizations and carried out such tasks as gathering information, rescuing disaster victims, providing evacuation guidance in evacuation order areas, and guarding disaster stricken areas. In addition, in response to a request for support from Hiroshima Prefectural Public Safety Commission, it dispatched approximately 2,000 personnel to assist in rescuing disaster victims and searching for missing persons. The personnel dispatched included members of the inter-prefectural emergency rescue units of the Metropolitan Police Department and the prefectural police forces of Tottori, Shimane, Okayama,

Yamaguchi, Osaka, Hyogo, Aichi, Mie, Shiga, Nara, Kagawa, Tokushima, Ehime, and Kochi. Mobile police communications units began working to secure police communications immediately after the disaster struck and transmitted video footage from the scene to the National Police Agency, etc. In addition, the National Police Agency dispatched staff to the National On-site Disaster Management Office.

(2) MEXT Response

MEXT established an Emergency Disaster Management Headquarters and asked relevant prefectural boards of education and other relevant organizations to take the necessary steps to ensure the safety of schoolchildren and others, and to prevent secondary disasters. It also strove to gather information about the extent of the disaster.

NIED submitted maps showing the extent of the disaster that it had obtained using unmanned aerial vehicles to the command center of the on-site disaster management headquarters. In addition, as well as conducting research and development to understand the three-dimensional structure of the group of cumulonimbus clouds that brought about the sediment disaster, NIED provided support for the installation of a system for collating and sharing disaster information at the disaster volunteer center in Hiroshima City.

(3) Special Measures for Disaster-Stricken Gas Consumers

METI approved applications from general gas utilities and community gas utilities to apply special charges or other supply conditions not in accordance with their General Supply Provisions (such as extending the payment deadline for charges) to those affected by disaster in the region to which the Disaster Relief Act was applied (Hiroshima Prefecture).

(4) Special Measures Concerning Electricity Charges

METI approved applications from general electricity utilities to apply special charges or other supply conditions not in accordance with their General Supply Provisions (such as extending the payment deadline for charges) to those affected by disaster in the region to which the Disaster Relief Act was applied (Hiroshima Prefecture).

(5) SME Agency Response

The SME Agency set up special advice centers at government-affiliated financial institutions, etc. in Kyoto, Hyogo, Hiroshima, Tokushima, and Kochi prefectures, as well as providing disaster relief loans and easing conditions for the repayment of existing debt, among other measures.

In addition, it instituted Safety Net Guarantee No.4, which guarantees 100% of the amount of a loan up to the credit limit under a separate program from the ordinary guarantee system, designating 27 municipalities in Hokkaido, Kyoto, Hyogo, Nara, Hiroshima, Tokushima, Kochi, and Fukuoka prefectures as being eligible for its application.

(6) MLIT Response

MLIT, immediately after the disaster occurred, started not only survey of damage of infrastructure by the disaster, but also supporting municipalities.

For example, MLIT dispatched liaison staff to 15 prefectures and 87 municipalities, and they obtained information about the damage and needs of local governments, and gave technical advice based on the needs. Moreover, MLIT swiftly dispatched the Technical Emergency Control Force (TEC-FORCE) to disaster-stricken sites in Hiroshima Prefecture, Kyoto Prefecture, Hyogo Prefecture, Gifu Prefecture, Yamaguchi Prefecture, Kochi Prefecture and Hokkaido Prefecture to give technical support, including survey of damage by the disaster. MLIT also dispatched helicopters for aerial surveys of the damaged areas, lighting vehicles for 24-hour-works and drainage pump trucks for drying up the flooded area for early recovery and for prevention of a secondary disaster.

1-3 Measures in Response to the 2014 Mt. Ontake Eruption

(1) National Police Agency Response

The National Police Agency, Kanto Regional Police Bureau, and relevant prefectural police forces established emergency disaster security headquarters or similar organizations and carried out such tasks as gathering information, rescuing disaster victims, and providing evacuation guidance for climbers. In addition, in response to a request for support from Nagano Prefectural Public Safety Commission, it dispatched approximately 240 personnel to assist in searching for missing persons. The personnel dispatched included members of the

inter-prefectural emergency rescue units of the Metropolitan Police Department and Gifu Prefectural Police. Mobile police communications units began working to secure police communications immediately after the disaster struck and transmitted video footage from the scene to the National Police Agency, etc. In addition, the National Police Agency dispatched staff to the On-site Major Disaster Management Headquarters.

(2) MEXT Response

MEXT established an Emergency Disaster Management Headquarters and asked relevant prefectural boards of education and other relevant organizations to take the necessary steps to ensure the safety of schoolchildren and others, and to prevent secondary disasters. It also strove to gather information about the extent of the disaster.

In addition, NIED collected samples of the ash fall deposits and surveyed the area over which they were distributed, as well as providing data to the Coordinating Committee for the Prediction of Volcanic Eruptions.

(3) SME Agency Response

The SME Agency set up special advice centers at government-affiliated financial institutions, etc. in Nagano Prefecture, as well as providing disaster relief loans and easing conditions for the repayment of existing debt, among other measures.

(4) MLIT Response

MLIT, immediately after the disaster occurred, started not only survey of damage of infrastructure by the disaster, but also supporting municipalities.

For example, MLIT dispatched liaison staff to 2 prefectures and 4 municipalities, and they obtained information about the damage and needs of local governments, and gave technical advice based on the needs. Moreover, MLIT swiftly dispatched the Technical Emergency Control Force (TEC-FORCE) to disaster-stricken sites in Nagano Prefecture and Gifu Prefecture to give technical support, including survey of damage by the disaster. MLIT also dispatched helicopters for aerial surveys of the damaged areas, lighting vehicles for 24-hour-works and backhoes for early recovery and for prevention of a secondary disaster.

1-4 Measures in Response to the Earthquake Centered in Northern Nagano Prefecture

(1) National Police Agency Response

The National Police Agency, Kanto Regional Police Bureau, and relevant prefectural police forces established disaster security headquarters or similar organizations and carried out such tasks as gathering information, rescuing disaster victims, and guarding disaster stricken areas. In addition, it dispatched approximately 110 personnel – including members of the inter-prefectural emergency rescue units of the Metropolitan Police Department and the prefectural police forces of Niigata, Shizuoka, Toyama, Ishikawa, and Aichi – to assist in rescuing disaster victims. Mobile police communications units began working to secure police communications immediately after the disaster struck and transmitted video footage from the scene to the National Police Agency, etc. In addition, the National Police Agency dispatched a government investigation team consisting of Agency staff to the area.

(2) MEXT Response

MEXT established a Disaster Liaison Office and asked the Nagano Prefectural Board of Education and other relevant organizations to take the necessary steps to ensure the safety of schoolchildren and others, and to prevent secondary disasters. It also strove to gather information about the extent of the disaster.

NIED supplied data to the Headquarters for Earthquake Research Promotion. In addition, at the request of Hakuba Village Office, it provided support for the use of the e-community platform that NIED developed on the basis of its research into systems for collating and sharing disaster information, to assist in the issuance of disaster victim certificates, etc.

(3) Special Measures Concerning Electricity Charges

METI approved applications from general electricity utilities to apply special charges or other supply conditions not in accordance with their General Supply Provisions (such as extending the payment deadline for charges) to those affected by disaster in the region to which the Disaster Relief Act was applied (Nagano Prefecture).

(4) SME Agency Response

The SME Agency set up special advice centers at government-affiliated financial institutions, etc. in Nagano Prefecture, as well as providing disaster relief loans and easing conditions for the repayment of existing debt, among other measures.

(5) MLIT Response

MLIT, immediately after the disaster occurred, started not only survey of damage of infrastructure by the disaster, but also supporting municipalities.

For example, MLIT dispatched liaison staff to 2 prefectures and 5 municipalities, and they obtained information about the damage and needs of local governments, and gave technical advice based on the needs. Moreover, MLIT swiftly dispatched the Technical Emergency Control Force (TEC-FORCE) to disaster-stricken sites in Nagano Prefecture to give technical support, including survey of damage by the disaster. MLIT also dispatched helicopters for aerial surveys of the damaged area, lighting vehicles for 24-hour-works and satellite communication vehicles for establishment of communication and for prevention of a secondary disaster.

1-5 Measures in Response to Heavy Snowfall Starting in December 2014

(1) National Police Agency Response

The National Police Agency and relevant prefectural police forces established liaison offices or similar departments. In addition, the National Police Agency instructed prefectural police forces to thoroughly implement measures to prevent snow disasters, such as measures to prevent accidents during snow removal operations. Relevant prefectural police forces used helicopters, etc. to check on isolated areas and conducted patrols from bases at evacuation shelters.

(2) MEXT Response

MEXT asked prefectural boards of education and other relevant organizations to take the necessary steps to ensure the safety of schoolchildren and others, and to prevent secondary disasters. It also strove to gather information about the extent of the disaster.

NIED conducted on-site surveys in Tokushima Prefecture to ascertain the extent of the disaster, including power cuts and isolation due to heavy snow, as well as investigating the snow and ice phenomena that caused it, and the damage from avalanches and the causes thereof. It published its findings online.

(3) Special Measures Concerning Electricity Charges

METI approved applications from general electricity utilities to apply special charges or other supply conditions not in accordance with their General Supply Provisions (such as extending the payment deadline for charges) to those affected by disaster in the region to which the Disaster Relief Act was applied (Tokushima Prefecture).

(4) SME Agency Response

The SME Agency set up special advice centers at government-affiliated financial institutions, etc. in Tokushima Prefecture, as well as providing disaster relief loans and easing conditions for the repayment of existing debt, among other measures.

(5) MLIT Response

MLIT, immediately after the disaster occurred, started not only survey of damage of infrastructure by the disaster, but also supporting municipalities.

For example, MLIT dispatched liaison staff to 3 prefectures and 42 municipalities, and they obtained information about the damage and needs of local governments, and gave technical advice based on the needs. Moreover, MLIT swiftly dispatched the Technical Emergency Control Force (TEC-FORCE) to disaster-stricken sites in Tokushima Prefecture to give technical support, including snow removal. MLIT also dispatched lighting vehicles for 24-hour-works and snow removers for maintenance of road traffic and for prevention of a secondary disaster.

1-6 Measures to Address Other Disasters

(1) Special Measures for Disaster-Stricken Gas Consumers

Having received applications from utilities following the disaster caused by 2014 Typhoon 11, METI approved applications from general gas utilities and community gas utilities to apply special charges or other supply conditions not in accordance with their General Supply Provisions (such as extending the payment deadline for charges) to those affected by disaster in part of the region to which the Disaster Relief Act was applied (Kochi Prefecture).

In addition, following the disaster caused by torrential rain in August 2014 (in Kyoto and Hyogo), METI approved applications from general gas utilities and community gas utilities to apply special charges or other supply conditions not in accordance with their General Supply Provisions (such as extending the payment deadline for charges) to those affected by disaster in the region to which the Disaster Relief Act was applied (Kyoto and Hyogo prefectures).

(2) Special Measures Concerning Electricity Charges

Following the disaster caused by Typhoons 12 and 11, METI approved applications from general electricity utilities to apply special charges or other supply conditions not in accordance with their General Supply Provisions (such as extending the payment deadline for charges) to those affected by disaster in the region to which the Disaster Relief Act was applied (Kochi and Tokushima prefectures).

In addition, following the disaster caused by torrential rain in August 2014 (Kyoto and Hyogo prefectures), METI approved applications from general electricity utilities to apply special charges or other supply conditions not in accordance with their General Supply Provisions (such as extending the payment deadline for charges) to those affected by disaster in the region to which the Disaster Relief Act was applied (Kyoto and Hyogo prefectures).

(3) Disposal of Disaster Waste

The Ministry of the Environment (MOE) provided financial assistance for projects associated with the collection, transfer, and disposal of waste carried out by local governments due to a disaster.

(FY2014 Settled Amount: ¥3.733 billion)

(4) Disaster Relief Dispatches of the Self-Defense Forces

The Ministry of Defense (MOD) incurred expenses associated with Special Job Allowance for Disaster Relief and meals for those involved in disaster relief operations as necessary expenditure directly associated with disaster relief dispatches.

(FY2014 Settled Amount: ¥739 million)

2. Disaster Recovery Projects

2-1 Project to Recover Public Civil Engineering Works Damaged by Disaster

(1) Forest Conservation Facilities, etc.

The Ministry of Agriculture, Forestry and Fisheries (MAFF) carried out the following disaster recovery projects.

・ Direct Control Projects

MAFF carried out projects to restore forest conservation facilities damaged in disasters in 2011, 2013, and 2014.

In addition, it carried out projects to restore coastal protection facilities under the jurisdiction of the Rural Development Bureau that was damaged in disasters in 2011.

The national government also undertook projects to restore fishing port facilities and coastal protection facilities under the jurisdiction of the Fisheries Agency that had been damaged by the Great East Japan Earthquake, implementing these projects on behalf of the administrators of the disaster-stricken facilities.

(FY2014 Settled Amount: included in the ¥23.171 billion sum)

Disaster Relief Dispatches in FY2014 (MOD)

	Number of dispatches	Total number of personnel	Total number of vehicles	Total number of aircraft	Total number of vessels
Responses to storm, flood and earthquake disasters	13	50,522	8,239	560	0
Transporting emergency patients	407	2,239	0	442	0
Search and rescue	17	1,457	271	36	0
Assisting firefighting	73	7,285	539	162	0
Other	11	4,764	572	32	0
Total	521	66,267	9,621	1,232	0

Number of Weather Alerts, etc. Issued (April 2014 – March 2015) (Japan Meteorological Agency (JMA))

Type	Emergency Warning (Total Number Issued by JMA)	Warning (Total Number Issued by JMA)
Windstorms	2	239
Blizzards	0	118
Heavy Rain	5	858
Heavy Snow	0	118
Storm Surge	2	32
High Sea	2	325
Flood	—	681
Total	11	2,371

*The Emergency Warning system came into operation on August 30, 2013.

Number of Tsunami Warnings and Advisories Issued (April 2014 – March 2015) (JMA)

Tsunami Forecast Region Center	Major Tsunami Warning	Tsunami Warning	Tsunami Advisory
All Japanese Centers	0	0	3
Total	0	0	3

Number of Earthquake Early Warnings (Alerts/Forecasts) Issued (April 2014 – March 2015) (JMA)

Issuing Office	Earthquake Early Warning (Alert)		Earthquake Early Warning (Forecast)
	Earthquake Emergency Warning	Earthquake Alert	Earthquake Forecast
Headquarters	1	5	924

*Earthquake Early Warnings (seismic intensity of 6-lower or more) have been positioned as Emergency Warnings since August 30, 2013.

Number of Volcanic Warnings and Forecasts Issued (April 2014 – March 2015) (JMA)

Issuing Office	Warning (Residential Areas) Warning (Foot of Volcano)	Warning (Near Crater) Warning (Surrounding Waters)	Forecast
Sapporo	—	1	1
Sendai	—	1	—
Headquarters	—	8	—
Osaka	—	—	—
Fukuoka	—	4	—
Okinawa	—	—	—
Total	0	14	1

・ Subsidized Projects

MAFF carried out projects to restore forest conservation facilities damaged in disasters in 2011, 2012, 2013, and 2014.

In addition, it carried out projects to restore coastal protection facilities and landslide prevention facilities under the jurisdiction of the Rural Development Bureau that was damaged in disasters in 2011, 2013, and 2014.

MAFF completed the restoration of fishing port facilities and coastal protection facilities under the jurisdiction of the Fisheries Agency that had been damaged in disasters in 2012. In addition, it ensured the smooth commencement of projects focused on recovery from disasters in 2013 and 2014.

(FY2014 Settled Amount: ¥103.714 billion)

(2) Rivers, etc.

MLIT carried out the following disaster recovery projects.

・ Directly Managed Projects

MLIT carried out projects to restore rivers, dams, coastlines, and erosion control facilities damaged in disasters in 2011, 2013, and 2014. In addition, it carried out projects to restore national highways under its direct control that had been damaged by torrential rain, etc.

(FY2014 Settled Amount: ¥40.203 billion)

・ Subsidized Projects

MLIT completed the repair of damage resulting from disasters in 2012 and carried out recovery

projects addressing damage from disasters in 2013 and 2014.

(FY2014 Settled Amount: ¥118.020 billion)

(3) Ports, etc.

MLIT carried out the following disaster recovery projects.

・ Directly Managed Projects

MLIT completed the restoration of port facilities and coastal protection facilities that had been damaged in disasters in 2013. In addition, it carried out projects focused on recovery from disasters in 2011 and 2014.

(FY2014 Settled Amount: ¥18.911 billion)

・ Subsidized Projects

MLIT completed the restoration of port facilities and coastal protection facilities that had been damaged in disasters in 2012. In addition, it carried out projects focused on recovery from disasters in 2011, 2013, and 2014.

(FY2014 Settled Amount: ¥19.966 billion)

2-2 Project to Recover Facilities for Agriculture, Forestry and Fisheries Damaged by Disaster

(1) Facilities for Agriculture, Forestry and Fisheries

MAFF carried out the following disaster recovery projects.

・ Directly Managed Projects

To repair damage to facilities that were being constructed or had been completed as part of directly managed land improvement projects in accordance with the Land Improvement Act, MAFF carried out recovery projects addressing damage from disasters in 2011 and 2014.

(FY2014 Settled Amount: ¥9.817 billion)

・ Subsidized Projects

Pursuant to the provisions of National Government Temporary Defrayment Act for Reconstruction of Disaster Stricken Facilities for Agriculture, Forestry and Fisheries, MAFF provided financial assistance for disaster recovery projects carried out by local governments and land improvement districts. In addition, it carried out projects focused on farmland, farming facilities, forestry facilities, fisheries facilities, and facilities for the joint use of the agriculture, forestry, and fisheries industries, based on a policy of completing the restoration work within three years, including the year in which the disaster occurred.

(FY2014 Settled Amount: ¥43.888 billion)

(2) National Forest Projects (Excluding Forest Conservation)

MAFF completed the repair of damage to forest road infrastructure associated with national forest projects (excluding forest conservation projects) resulting from disasters in 2013 and repaired 86.0% of the damage from disasters in 2014.

(FY2014 Settled Amount: ¥1.134 billion)

2-3 Project to Recover Cultural and Educational Facilities Damaged by Disaster

MEXT carried out the following disaster recovery projects.

(1) Projects for Recovery of Facilities at National Universities Damaged by Disaster

MEXT carried out projects for the recovery of facilities at national universities damaged by disaster.

(FY2014 Settled Amount: included in the ¥156.395 billion sum)

(2) Projects for Recovery of Public School Facilities Damaged by Disaster

MEXT carried out projects for the recovery of public school facilities damaged by disaster.

(FY2014 Settled Amount: ¥16.436 billion)

(3) Projects for Recovery of Private School Facilities Damaged by Disaster

MEXT carried out projects for the recovery of private school facilities damaged by disaster.

(FY2014 Settled Amount: ¥72 million)

(4) Projects for Recovery of Public Social Education, Sports, and Cultural Facilities Damaged by Disaster

MEXT carried out projects for the recovery of public social education, sports, and cultural facilities damaged by disaster.

(FY2014 Settled Amount: ¥3.874 billion)

(5) Projects for Recovery of National Youth Education Facilities Damaged by Disaster

MEXT carried out projects for the recovery of national youth education facilities damaged by disaster.

(FY2014 Settled Amount: ¥325 million)

(6) Projects for Repair and Restoration of Cultural Properties Damaged by Disaster

The Agency for Cultural Affairs provided subsidies from the national treasury to fund projects for the repair and restoration of cultural properties designated by the national government that had been damaged by disaster.

(FY2014 Settled Amount: ¥3.108 billion)

2-4 Project to Recover Welfare Facilities, etc. Damaged by Disaster

The Ministry of Health, Labour and Welfare (MHLW) carried out the disaster recovery projects listed in the table below (FY2014 Expenditure on the Project to Recover Welfare Facilities, etc. Damaged by Disaster).

2-5 Other Disaster Recovery Projects

(1) Project to Support Efforts to Eliminate Commercial Radio Reception Problems

The Ministry of Internal Affairs and Communications (MIC) provided support for efforts to install broadcast relay stations to eliminate problems in receiving radio broadcasts, to ensure that the public can not only receive a variety of information under normal circumstances, but also obtain the information they need to keep themselves and their property safe in the event of disaster.

(2) Restoration of the Probation and Parole System

The Ministry of Justice (MOJ) operated offender rehabilitation centers to facilitate the reconstruction of probation and parole systems in areas affected by the Great East Japan Earthquake.

(FY2014 Settled Amount: ¥203 million)

(3) Restoration of Regional Legal Affairs Bureaus

The Head Office of the Mito District Legal Affairs Bureau and the Kesennuma Branch Office of the Sendai Legal Affairs Bureau were damaged by the Great East Japan Earthquake, so the MOJ relocated them to temporary buildings, where their administrative work continued.

(FY2014 Settled Amount: ¥78 million)

FY2014 Expenditure on the Project to Recover Welfare Facilities, etc. Damaged by Disaster

(Unit: Thousand Yen)

Category / Item	2013 Disasters		2014 Disasters		Total	
	Budget	Settled Amount	Budget	Settled Amount	Budget	Settled Amount
Social welfare facilities	1,176,334	1,132,298	255,324	240,981	1,431,658	1,373,279
Medical facilities		712,337		8,514	0	720,851
Facilities at public medical institutions		645,880		0	0	645,880
Facilities at institutions providing government-regulated medical care		66,457		8,514	0	74,971
Facilities for the training of medical personnel		0		0	0	0
Nurses' accommodation		0		0	0	0
Other		0		0	0	0
Health and sanitation facilities	2,714	2,714	43,806	1,505	46,520	4,219
Water facilities	350,000	168,540	350,000	424,112	700,000	592,652
Water supply facilities		104,639		357,667	0	462,306
Rural water facilities		63,901		66,445	0	130,346
Total	1,529,048	2,015,889	649,130	675,112	2,178,178	2,691,001

(4) Urban Disaster Recovery Projects, etc.

MLIT provided financial assistance for disaster recovery projects undertaken by local governments, etc. to restore public works infrastructure (parks) and city infrastructure, as well as projects to remove sand and earth deposited by disasters. In addition, it provided financial assistance for ash removal projects carried out by municipalities on residential land where volcanic eruptions caused a large quantity of ash fall.

(FY2014 Settled Amount: ¥1.643 billion)

MLIT provided financial assistance for disaster recovery projects undertaken to restore public works infrastructure (parks) and city infrastructure in areas affected by the Great East Japan Earthquake, in accordance with the Act on National Treasury's Sharing of Expenses for Project to Recover Public Civil Engineering Works Damaged by Disaster and the Act on Special Fiscal Aid and Subsidy for Recovery from the Great East Japan Earthquake.

(FY2014 Settled Amount: ¥366 million)

(5) Public Housing, etc.

MLIT provided financial assistance for part of the cost of local government projects for the recovery of existing public housing damaged by disasters in 2014.

(FY2014 Settled Amount: ¥98 million)

(6) Project to Recover Railways Damaged by Disaster

MLIT provided financial assistance for part of the cost of work carried out by railway operators to repair railway infrastructure damaged by earthquakes or torrential rain, etc.

(FY2014 Settled Amount: ¥978 million)

(7) Project to Recover Waste Disposal Facilities Damaged by Disaster

The MOE provided financial assistance for local government projects carried out to restore waste disposal facilities damaged by disaster to their original form.

(FY2014 Settled Amount: ¥47 million)

3. Fiscal and Financial Measures

3-1 Disaster Loans

(1) Okinawa Development Finance Corporation Loans

The Okinawa Development Finance Corporation provided disaster loans for the operators of SMEs and micro enterprises, and people working in the agriculture, forestry or fishery industries, who were affected by the Great East Japan Earthquake or typhoons.

(FY2014 Settled Amount: ¥258 million)

(2) Loan of Fiscal Investment Funds

The MOF approved plans to loan the following sums to local governments from the Fiscal Loan Fund.

(FY2014 Settled Amount: ¥78.359 billion)

Long-term Loans to Local Governments
Fiscal Loan Fund

(Unit: Thousand Yen)

Category	Amount
Value of Disaster Recovery Loans Issued (Planned)	
Ordinary account	76,001,400
Extraordinary account for recovery and reconstruction projects related to the Great East Japan Earthquake	2,357,700
Total	78,359,100

(3) Welfare And Medical Service Agency Loans

In providing Welfare And Medical Service Agency loans, full consideration was given to securing funding for loans to cover expenses associated with the restoration of disaster-stricken hospitals, etc. and steps were taken to relax terms and conditions in situations where loans were to be used to fund reconstruction.

(4) Japan Finance Corporation Loans (for the General Public)

As part of its work in providing loans for the general public, the Japan Finance Corporation gave full consideration to securing the requisite loan funds to support reconstruction and recovery by disaster-stricken SME operators, etc. and took steps to offer flexible loans tailored to individual circumstances.

In addition, it lowered the rate of interest for disaster relief loans in respect of disasters designated as Disasters of Extreme Severity, thereby providing financial support to assist disaster-stricken

SME operators in resuming their business.

(5) Japan Finance Corporation Loans (for People Engaged in the Agriculture, Forestry, or Fisheries Industries)

As part of its work in providing loans for people engaged in the agriculture, forestry, or fisheries industries, the Japan Finance Corporation loaned the funds required to stabilize and maintain the economic viability of disaster-stricken individuals in those industries.

(FY2014 Settled Amount: ¥59.165 billion (of which, ¥50.136 billion took the form of disaster-related loans))

(6) Japan Finance Corporation Loans (for SMEs)

As part of its work in providing loans for SMEs, the Japan Finance Corporation gave full consideration to demand for funds among disaster-stricken SME operators, etc. and adopted a flexible response tailored to individual circumstances.

In addition, it lowered the rate of interest for disaster relief loans in respect of disasters designated as Disasters of Extreme Severity, thereby providing financial support to assist disaster-stricken SME operators in resuming their business.

Japan Finance Corporation Loans (for SMEs)

(Unit: Number, Million Yen)

Disaster	Disaster Loans	
	Number	Amount
Great East Japan Earthquake	929	56,503
Heavy rains, etc. due to 2013 Typhoon 18	2	70
Total	931	56,573

(7) Shoko Chukin Bank Loans

The Shoko Chukin Bank gave full consideration to demand for funds among disaster-stricken SME operators, etc. and adopted a flexible response tailored to individual circumstances.

In addition, it lowered the rate of interest for disaster relief loans in respect of disasters designated as Disasters of Extreme Severity, thereby providing financial support to assist disaster-stricken SME operators in resuming their business.

Shoko Chukin Bank Loans

(Unit: Number, Million Yen)

Disaster	Disaster Loans	
	Number	Amount
Great East Japan Earthquake	208	10,706
Heavy snow from December 5, 2014	1	10
Heavy snow, etc. from February 14, 2014	3	200
Total	212	10,916

Disaster Loans Provided (FY2014)

(Unit: Number, Million Yen)

Disaster	Disaster Loans	
	Number	Amount
Heavy rains, etc. from August 9, 2013	1	6,000
2013 Typhoon 18	2	40,000
2013 Typhoon 26	1	17,500
Heavy snow, etc. from February 14, 2014	66	670,800
Heavy rains due to the approach of 2014 Typhoon 8	5	68,600
Heavy rains, etc. due to 2014 Typhoon 12	3	37,000
2014 Typhoon 11	12	105,400
Heavy rains from August 15, 2014	38	398,000
Heavy rains from August 19, 2014	17	100,300
Mt. Ontake Eruption Disaster	1	30,000
2014 earthquake centered in northern Nagano Prefecture	19	335,700
Great East Japan Earthquake	11,032	83,301,970
Total	11,197	85,111,270

(8) Special Measures Concerning Credit Guarantees Offered by Credit Guarantee Corporations

Credit guarantee corporations supported reconstruction and recovery by disaster-stricken SME operators by applying special measures, such establishing a separate credit guarantee category and lowering guarantee fees.

It responded swiftly and flexibly to natural disasters by such means as instituting Safety Net Guarantee No.4 as soon as the Disaster Relief Act was applied, thereby further contributing to the safety and security of disaster-stricken SME operators.

In addition, it implemented disaster-related guarantees in respect of disasters designated as Disasters of Extreme Severity, thereby providing financial support to assist disaster-stricken SME operators in resuming their business.

Special Measures Concerning Credit Guarantees Offered by Credit Guarantee Corporations

(Unit: Number, Million Yen)

Disaster	Number of Guarantees	Value of Guarantees
Great East Japan Earthquake	11,246	183,739
2014 Typhoon 12	2	14
2014 Typhoon 11	2	22
Heavy rains from August 15, 2014	6	83
Heavy rains from August 19, 2014	6	75
Other disasters	154	2,045
Total	11,416	185,977

(9) Advanced Disaster Recovery Projects

Prefectures and the Organization for Small & Medium Enterprises and Regional Innovation, Japan (SMRJ) provided loans to partially fund collective efforts by SME operators to restore business infrastructure damaged by major disasters.

(10) Same-day Disaster Relief Loans for Members of the Small Enterprise Mutual Relief Scheme

The SMRJ arranged low-interest loans on the day of application, in principle, for disaster-stricken members of the Small Enterprise Mutual Relief Scheme located in an area to which the Disaster Relief Act had been applied.

(11) Japan Housing Finance Agency Loans

The Japan Housing Finance Agency provided post-disaster housing reconstruction loans to fund construction and repair work, in order to facilitate the swift reconstruction of homes affected by disasters.

3-2 Disaster Insurance

(1) Earthquake Reinsurance

The MOF operates an earthquake reinsurance scheme in accordance with the Act on Earthquake Insurance. In the initial budget for FY2014, it set a limit of ¥6.7386 trillion as the maximum sum that the government should pay in reinsurance claims per earthquake.

(FY2014 Settled Amount: ¥3.724 billion)

(2) Disaster Compensation for the Agriculture, Forestry, and Fishery Industries

MAFF provided the following disaster compensation to make up for losses sustained by people in the agriculture, forestry, and fishery industries as a result of unforeseen and accidental events, thereby helping to maintain and stabilize their business.

- MAFF implemented agricultural mutual aid schemes focused on agricultural disasters, in accordance with Act on Compensation for Agricultural Loss.

  (FY2014 Settled Amount: ¥54.199 billion)

- MAFF implemented forest insurance schemes focused on forest disasters, in accordance with Government Managed Forest Insurance Act.

  (FY2014 Settled Amount: ¥1.963 billion)

- MAFF implemented fishery mutual aid schemes focused on fishery disasters, in accordance with Fishery Accident Compensation Act.

  (FY2014 Settled Amount: ¥6.733 billion)

- MAFF implemented fishing boat damage and shipowner liability insurance schemes, in accordance with Fishing Vessel Damage Compensation Act.

  (FY2014 Settled Amount: ¥5.918 billion)

3-3 Tax Allocations to Local Governments and Local Government Bonds

MIC implemented the following fiscal support measures for disaster recovery.

(1) Measures financed by tax allocations to local governments

a. Grant of Special Local Allocation Tax

(Unit: Million Yen)

Category	Prefectures	Municipalities	Total
In respect of disasters in the current year	18,523	44,376	63,711
In respect of disasters in previous years	6,922	8,490	1,901
Other	5,536	23,127	32,361
Total	30,981	75,993	113,024

b. Sums Factored into Ordinary Tax Allocations as Standard Financial Needs Due to Repayment of Principal and Interest on Disaster Recovery Loans

(Unit: Million Yen)

Category	Prefectures	Municipalities	Total
Disaster recovery costs	78,667	23,943	107,977

c. Advances of Ordinary Tax Allocations

(Unit: Million Yen)

Date of Issue	Recipient Bodies	Sum Granted	Number of Bodies	Disaster
Jul 23, 2014	Municipalities	422	2	Heavy rains due to the approach of Typhoon 8
Aug 20, 2014	Municipalities	2,580	2	Typhoons 12 and 11
Aug 25, 2014	Municipalities	1,634	2	Heavy rains from August 15
Aug 27, 2014	Municipalities	2,323	1	Heavy rains from August 19
Oct 8, 2014	Municipalities	428	2	Mt. Ontake Eruption
FY2014 total	Prefectures	-	-	
	Municipalities	7,387	9	
	Total	7,387	9	

(2) Value of Disaster-related Loans to Local Governments Issued (Planned) (Ordinary Account)

(Unit: Million Yen)

Category	Prefectures	Designated Cities	Municipalities	Municipalities Total	Total
Subsidized / directly managed disaster recovery projects in respect of the current year	27,324.8	1,604.4	11,974.6	13,579.0	40,903.8
Subsidized / directly managed disaster recovery projects in respect of previous years	10,662.5	359.6	2,665.5	3,025.1	13,687.6
Non-subsidized disaster recovery projects in respect of the current year	7,792.8	3,259.9	5,192.4	8,452.3	16,245.1
Non-subsidized disaster recovery projects in respect of previous years	828.8	76.2	1,711.9	1,788.1	2,616.9
Loans to supplement revenue shortfall, etc.	0.0	0.0	0.0	0.0	0.0
Small projects to recover public civil engineering works damaged by disaster, etc.	0.0	0.0	405.2	405.2	405.2
Small disaster recovery projects for agricultural land, etc.	0.0	0.0	682.2	682.2	682.2
Disaster recovery projects for local public enterprises, etc.	25.6	0.0	1,332.6	1,332.6	1,358.2
Fire recovery projects	0.0	16.8	142.4	159.2	159.2
Total	46,634.5	5,316.9	24,106.8	29,423.7	76,058.2

4. Post-Disaster Reconstruction Measures, etc.

4-1 Livelihood Recovery Support Payment for Disaster Victims

The Cabinet Office covered 50% (80% in the case of the Great East Japan Earthquake) of the cost of the livelihood recovery support payment for disaster victims, which is paid to the victims of disasters in accordance with the Act on Support for Reconstructing Livelihoods of Disaster Victims.

(FY2014 Settled Amount: ¥449 million)

4-2 Reconstruction Measures in Response to the Mt. Unzen Eruption

(1) Measures by MAFF

MAFF promoted and supported measures to prevent disaster in mountainous areas to ensure local safety and security; these included stream rehabilitation and hillside repair work in the form of forest conservation projects.

(2) Measures by MLIT

As well as upgrading erosion control facilities in the Mizunashi River basin, MLIT promoted improvements to the warning and evacuation system for pyroclastic and debris flows, such as providing video footage from monitoring cameras and other information.

4-3 Reconstruction Measures in Response to the Great Hanshin-Awaji Earthquake

(1) Special Local Government Finance Measures for Disaster Reconstruction Projects

MIC maintained the issuance rate for local government bonds to cover local government contributions to projects subsidized by the national treasury at 90% in the case of land readjustment projects and urban land redevelopment projects implemented by disaster-stricken local governments in Urban Disaster Recovery Promotion Areas in accordance with the Act on Special Measures concerning Reconstruction of Urban Districts Damaged by Disaster. In addition, it implemented ordinary tax allocation measures in respect of the repayment of principal and interest on these.

(2) Measures to Secure Housing for Disaster Victims

MLIT undertook integrated housing and urban redevelopment projects, under which an integrated approach was taken to housing construction and the development of roads, parks, and other infrastructure, as well as the clearance or rebuilding of dilapidated houses and development of public facilities in high-density residential districts.

In addition, it continued to support the rebuilding of housing via post-disaster housing reconstruction loans provided by the Japan Housing Finance Agency.

(FY2014 Settled Amount: Included in the Social Capital Improvement Grant, etc.)

(3) Promotion of Extensive Development Projects for the Regeneration of Disaster-stricken Areas

MLIT continued to promote and support urban land redevelopment projects aimed at the regeneration of Urban Disaster Recovery Promotion Areas, the provision of housing for disaster victims, and the development of new cities.

(FY2014 Settled Amount: Included in the Social Capital Improvement Grant)

4-4 Measures in Response to the Miyake Island Eruption

(1) Measures by MAFF

MAFF promoted and supported measures to prevent disaster in mountainous areas to ensure local safety and security; these included stream rehabilitation and hillside repair work in the form of forest conservation projects.

(2) Measures by MLIT

MLIT supported the upgrading of erosion control facilities to prevent disasters due to mud flows and driftwood.

4-5 Reconstruction Measures in Response to the Mid Niigata Prefecture Earthquake in 2004

(1) Measures by MAFF

・ Forest conservation projects to prevent disaster in mountainous areas

MAFF intensively and swiftly implemented direct control landslide prevention projects across an extensive area centered on the cities of Nagaoka

and Ojiya, where the earthquake had caused major landslides.

(2) Measures by MLIT

MLIT implemented the following measures.

・ Road projects

MLIT worked in partnership with local communities to promote such initiatives as establishing the "Chuetsu Road Trip Highway" as one of the scenic highways of Japan, with the aim of promoting the reconstruction and revitalization of the Chuetsu (Mid Niigata Prefecture) region. In addition, taking note of the lessons of the Mid Niigata Prefecture Earthquake, MLIT promoted efforts to supplement the disaster management functions of Roadside Stations (Michi-no-eki).

・ Promotion of measures against sediment disasters

The Imo River basin suffered particularly severe devastation due to a large number of sediment disasters, with the river channel blocked by major collapses. Accordingly, MLIT implemented intensive measures against sediment disasters in the course of its erosion control projects in this area.

4-6 Reconstruction Measures in Response to the Iwate-Miyagi Inland Earthquake in 2008

(1) Measures by MAFF

MAFF promoted and supported measures to prevent disaster in mountainous areas to ensure local safety and security; these included stream rehabilitation and hillside repair work in the form of forest conservation projects.

(2) Measures by MLIT

The Kurikoma mountain range suffered particularly severe devastation due to a large number of sediment disasters, with the river channel blocked by major collapses. Accordingly, MLIT implemented intensive measures against sediment disasters in this area.

(FY2014 Settled Amount: included in the ¥9.832 billion sum)

4-7 Reconstruction Measures in Response to the Mt. Kirishima (Shinmoedake) Eruption

(1) Measures by MLIT

In case of debris flows, MLIT promoted measures including the construction of erosion control facilities and the establishment of a monitoring system using debris flow sensors.

4-8 Reconstruction Measures in Response to the Great East Japan Earthquake

(1) Reconstruction Agency Response

The Reconstruction Agency recorded as a single budget item all expenditure relating to reconstruction measures in the aftermath of the Great East Japan Earthquake carried out as part of its remit to supervise and monitor reconstruction projects being undertaken by various government departments, including support for disaster victims, community recovery and reconstruction, industrial development and the securing of employment, and reconstruction and regeneration following the nuclear emergency.

The Reconstruction Agency swiftly and smoothly promoted reconstruction in the aftermath of the Great East Japan Earthquake through expenditure on reconstruction measures in the form of expenditure associated with new support for municipalities to provide a carefully tailored response to their varying needs. This support included assisting residents to return home to expedite the reconstruction and regeneration of Fukushima, as well as efforts to maintain areas to which residents cannot currently return and prevent them from becoming wastelands.

(FY2014 Settled Amount: ¥119.591 billion)

(2) Disaster Recovery Project for Joint Facilities of SME Associations

In light of the immense damage resulting from the Great East Japan Earthquake, the SME Agency provided financial assistance with the cost of upgrading facilities based on reconstruction project plans formulated by SMEs and other groups, focusing in particular on areas where reconstruction is lagging behind (areas affected by tsunami inundation in Iwate, Miyagi, and Fukushima Prefectures and evacuation order areas in Fukushima Prefecture).

(FY2014 Settled Amount: included in the ¥28.400 billion sum)

(3) Support for Workout for Restructuring Debt Owed by Individual Debtors

The Financial Services Agency provided

operational support, including financial assistance with the necessary legal fees, for disaster victims who have become unable to repay their existing debt due to the impact of the Great East Japan Earthquake and are seeking to restructure debt using the Guidelines of Workout for Restructuring Debt Owed by Individual Debtors.

(FY2014 Settled Amount: ¥43 million)

(4) Reconstruction Measures by the Japan Legal Support Center (Houterasu)

The MOJ implemented the following measures by the Japan Legal Support Center ("JLSC" Houterasu).

- To respond to growing demand for professional support in settling legal problems faced by disaster victims, the JLSC provided free legal consultations with attorneys and free consultations with other professionals at sub-branch offices established in disaster-stricken areas. In addition, the JLSC provided mobile consultation services in which attorneys visit temporary housing facilities by a mobile "meeting" vehicle in which legal consultations may be provided.
- By the Toll-Free Telephone Service for Earthquake Victims (0120-078309), the JLSC provided information on the legal system that could be of use in settling legal problems and rebuilding people's lives, and consultation centers, concerning various problems caused by the disaster, such as the double loan problem and claiming compensation for damages for the nuclear power station accident.
- Based on the "Act on Special Measures Concerning Legal Aid by Japan Legal Support Center for the Victims of the Great East Japan Earthquake", the JLSC provided Great East Japan Earthquake Legal Aid (providing Representation Aid, Documentation Aid and Legal Consultation Aid for individuals who, as of March 11, 2011, were domiciled in a municipal district (excluding those in Tokyo) to which the Disaster Relief Act was applied in respect of the Great East Japan Earthquake, concerning disputes caused by the Great East Japan Earthquake, regardless of that individual's financial status).

(FY2014 Settled Amount: ¥900 million)

(5) Reconstruction Measures Associated with Administrative Processing of Registrations

The MOJ implemented the following measures as preconditions for the reconstruction of areas affected by the Great East Japan Earthquake.

- Establishment of special offices providing advice on registrations and a dedicated toll-free number for disaster victims
- Enhancement of systems for the administrative processing of registrations associated with reconstruction

(FY2014 Settled Amount: ¥120 million)

(6) Enhancement of Human Rights Protection Activities

The MOJ provided human rights counseling regarding various human rights issues stemming from the disaster, such as discrimination against people on the grounds of harmful rumors about radiation exposure. In addition, it sought to educate the public and raise awareness via symposiums and lectures on human rights, among others, with the aim of preventing new human rights violations.

(FY2014 Settled Amount: ¥25 million)

(7) MLIT Response

- MLIT implemented comprehensive urban disaster risk reduction promotion programs to support the formulation of reconstruction and urban development plans in areas that suffered particularly severe devastation as a result of tsunami, as well as supporting the development of public facilities and landscaped areas, etc.

  (FY2014 Settled Amount: Included in Great East Japan Earthquake Reconstruction Grants)

- MLIT implemented a program of emergency measures to prevent repeated disaster on the site of developed residential land that had already suffered landslides or collapse due to the Great East Japan Earthquake

  (FY2014 Settled Amount: Included in Great East Japan Earthquake Reconstruction Grants)

- MLIT implemented projects focused on encouraging the residents of districts affected by the Great East Japan Earthquake, which had subsequently been deemed inappropriate for use as residential land, to relocate to another area as a group

  (FY2014 Settled Amount: Included in Great East

Japan Earthquake Reconstruction Grants)

- MLIT implemented projects focused on measures to counter liquefaction to prevent the re-liquefaction of urban areas that had already suffered damage from liquefaction
  (FY2014 Settled Amount: Included in Great East Japan Earthquake Reconstruction Grants)

- MLIT undertook studies of effective and efficient construction methods, to promote an integrated approach to measures against liquefaction in respect of public facilities and adjacent residential land in built-up areas
  (FY2014 Settled Amount: Included in Great East Japan Earthquake Reconstruction Grants)

- As part of the reconstruction of urban areas affected by the tsunami, MLIT developed green spaces to serve as tsunami buffers, which directly help to mitigate tsunami damage in inundation zones, as well as developing urban parks capable of functioning as evacuation sites
  (FY2014 Settled Amount: Included in Great East Japan Earthquake Reconstruction Grants)

- MLIT developed roads (land readjustment projects) associated with relocation to higher ground, based on reconstruction plans for areas that suffered catastrophic tsunami damage
  (FY2014 Settled Amount: Included in Great East Japan Earthquake Reconstruction Grants)

- MLIT promoted urgent and sound reconstruction of urban areas via land readjustment projects for urban regeneration (such as land readjustment projects for town center reconstruction), to address the reconstruction of urban districts that suffered immense damage over an extensive area
  (FY2014 Settled Amount: Included in Great East Japan Earthquake Reconstruction Grants)

- MLIT promoted land acquisition projects for the urgent development of core urban areas for reconstruction (collective facilities for the creation of core urban areas for tsunami preparedness)
  (FY2014 Settled Amount: Included in Great East Japan Earthquake Reconstruction Grants)

4-9 Measures to Address Other Disasters

(1) Reconstruction Measures in Response to the Mt. Usu Eruption

MAFF promoted measures to prevent disaster in mountainous areas to ensure local safety and security; these included stream rehabilitation and hillside repair work in the form of forest conservation projects on Mount Usu.

Chapter 6 International Cooperation in Disaster Risk Reduction

1. Multilateral Cooperation

(1) Promotion of International Cooperation in Disaster Risk Reduction

The Cabinet Office promoted international cooperation in disaster risk reduction via the United Nations Office for Disaster Risk Reduction (UNISDR) and intra-regional cooperation in disaster risk reduction via the Asian Disaster Reduction Center (ADRC) and other bodies. In addition, it promoted international cooperation in disaster risk reduction by giving presentations about Japan's knowledge at such international conferences as the Third UN World Conference on Disaster Risk Reduction and the Asian Conference on Disaster Reduction. As the host country of the Third UN World Conference on Disaster Risk Reduction, Japan conducted research and disseminated information with the aim of contributing to the formulation of a new set of guidelines for international disaster risk reduction initiatives, to take effect in 2015.

(FY2014 Settled Amount: ¥171 million)

(2) Hosting the UN World Conference on Disaster Risk Reduction

The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted as the successor framework to the Hyogo Framework for Action (HFA) in March 2015, at the Third UN World Conference on Disaster Risk Reduction, which was hosted by Japan. In addition, the government updated the international community on progress with the reconstruction of disaster-stricken areas in the aftermath of the Great East Japan Earthquake and disseminated Japan's experience and knowledge in the field of disaster risk reduction worldwide.

(FY2014 Settled Amount: ¥1.083 billion)

(3) Promotion of the International Cooperation of ICT Systems for Disaster Management

The Ministry of Internal Affairs and Communications promoted the international cooperation of Japanese ICT systems for disaster management, taking into account needs in each country. In partnership with private sector companies or through the International Telecommunication Union (ITU), it made proactive approaches to the countries in the ASEAN region and elsewhere that suffer from frequent natural disasters, promoting field trials of such ICT systems cultivated on the abundant experience and know-how built up in Japan over many years. In December 2014, in collaboration with the ITU and the government of the Philippines, it launched a joint project involving field trials of the Movable and Deployable ICT Resource Unit (MDRU) on the island of Cebu in the Philippines, which suffered from severe typhoon damage in 2013. This unit is radio communications equipment transported to areas stricken by disasters for the emergency restoration of communications functions.

(FY2014 Settled Amount: Included in the contribution / support project budget for the ITU, etc. (¥614 million) and for a part of the assistance projects for overseas expansion of ICT (¥908 million))

(4) Promotion of International Cooperation and International Contributions in Firefighting

FDMA organized the International Forum on Fire and Disaster Management, which introduces the fire safety and disaster management technologies, systems, and frameworks built up by Japan over the years to a wider audience, which is mainly drawn from Asian countries. It contributed to improving fire safety and disaster management capabilities in the countries concerned, as well as helping to build relationships of trust with fire safety and disaster management authorities in the country.

(FY2014 Settled Amount: ¥14 million)

(5) Promotion of the International Rescue Team Japanese Fire-Service Overseas Dispatch System

In order to further strengthen the International Rescue Team Japanese Fire-Service, FDMA improved the dispatch system. In addition, it further enhanced the education and training provided to the members of this team by such means as organizing joint exercises for the members across the country, cultivating the instructors who are at the heart of the education and training system, and holding seminars for all fire departments registered at the International Rescue Team Japanese Fire-Service.

(FY2014 Settled Amount: ¥16 million)

(6) Promotion of Infrastructure Systems for Fire Safety and Disaster Management Overseas

FDMA promoted Japanese infrastructure systems for fire safety and disaster management in foreign countries, holding workshops and other events featuring displays and demonstrations of fire safety and disaster management equipment, vehicles, and materials in emerging economies which face a growing risk of fire or explosion due to rapid growth in the population or economy.

(FY2014 Settled Amount: ¥1 million)

(7) Financial Contributions to International Organizations

To promote the steady implementation of the Hyogo Framework for Action 2005–2015 in partnership with the UN and others, the Ministry of Foreign Affairs (MOFA) made a financial contribution to UNISDR, which is at the heart of these efforts. In addition, it supported the activities of the UN Office for the Coordination of Humanitarian Affairs (UNOCHA), which manages and runs ReliefWeb, a website that provides information about disasters around the world in real time.

(FY2014 Settled Amount: ¥915 million)

(8) Promotion of International Cooperation in Satellite-based Disaster Management

The Japan Aerospace Exploration Agency (JAXA) contributed to efforts to ascertain the status of disasters overseas by providing countries in the Asia-Pacific region with a total of 341 (FY2006 – end of March 2015) sets of disaster-related data from satellites via international initiatives such as Sentinel Asia.

(FY2014 Settled Amount: included in the ¥113.968 billion grant for management expenses, etc.)

(9) Support for Overseas Business Expansion in the Disaster Management Field

The Ministry of Land, Infrastructure, Transport and Tourism (MLIT) promoted activities including the formulation by the UN of international targets and indicators for disasters involving water, to contribute to efforts to promote measures against such disasters worldwide and develop an environment conducive to the overseas deployment of Japanese technologies for reducing the risk of water-related disasters.

(FY2014 Settled Amount: ¥65 million)

(10) Global Map Development

The Geospatial Information Authority of Japan served as the secretariat for the Global Mapping project, in which geospatial information authorities worldwide are working together to develop geospatial information that conforms to a standardized specification. In addition, when major disasters occurred, it used the Global Map to prepare maps of the disaster-stricken area for use in disaster management.

(FY2014 Settled Amount: ¥31 million)

(11) International Cooperation in Meteorological Services

The Japan Meteorological Agency (JMA) provided other countries in the Asia-Pacific region with Geostationary Meteorological Satellite images to assist in monitoring typhoons and torrential rain, as well as supplying them with data on typhoon analysis and forecasting, seasonal forecast data, and climate monitoring information. In addition, it carried out activities to support application technologies and human resource development.

(12) Provision of Northwest Pacific Tsunami Advisory

In order to help to mitigate tsunami disasters in the Northwest Pacific, the JMA provided countries in the Northwest Pacific with forecasts of tsunami arrival times and heights, in partnership with the Pacific Tsunami Warning Center, part of the USA's National Oceanic and Atmospheric Administration.

(13) Promotion of Eco–DRR (Ecosystem–based Disaster Risk Reduction) Measures

At the Sixth World Parks Congress, which was held in November 2014 in Australia, the Ministry of the Environment led a discussion and formulated guidelines on the role of protected areas in promoting reconstruction in the aftermath of natural disasters and helping to mitigate disasters, based on the Sanriku Fukko (Reconstruction) National Park initiative and the outcomes of the 1st Asia Parks Congress, which was held in Sendai in November 2013.

(FY2014 Settled Amount: ¥32 million)

2. Bilateral Cooperation

(1) Cooperation with Developing Countries

MOFA and other relevant ministries and agencies continued to utilize Japan's abundant experience, talent, and technologies to provide developing countries with assistance in the field of disaster management, by means of technical cooperation, grant aid, and loan assistance.

(2) Utilization of the Science and Technology Research Partnership for Sustainable Development (SATREPS) in the Field of Disaster Prevention and Mitigation

The Japan International Cooperation Agency (JICA), and the Japan Science and Technology Agency (JST) implemented the Science and Technology Research Partnership for Sustainable Development (SATREPS). This is a program in which researchers from Japan and developing countries conduct international collaborative research aimed at obtaining new knowledge that will lead to the solution of global issues and advancing science and technology. Another objective is to use the international joint research format to improve the ability of developing countries to conduct research and development independently and develop frameworks for ongoing activities that will assist in resolving the problems that they face. The two agencies undertook cooperation in the field of disaster prevention and mitigation, which is one of the research fields on which SATREPS focuses.

(FY2014 Settled Amount: included in the grants for JICA and JST management expenses)

(3) Building of New Cooperative Relationships Between Japan and China in the Field of Earthquake Disaster Prevention Research

In accordance with the Memorandum of Understanding on Strengthening Science and Technology Cooperation in the Field of Earthquakes (May 2009) and the agreement between JST and the Ministry of Science and Technology of the People's Republic of China (MOST) to make earthquake disaster prevention one of the research fields that they jointly support (May 2011), MEXT promoted research in such fields as observation and measurement, technologies for increasing the earthquake resistance of structures, and earthquake disaster mitigation, with the objective of helping to advance research cooperation between the two countries going forward.

(4) Promotion of International Cooperation in Disaster Prevention and Measures to Tackle Climate Change

MLIT sought to support efforts by emerging economies and developing countries to create safe, secure, disaster-resilient societies and to strengthen cooperation relationships between Japan and emerging economies, etc. To this end, it utilized frameworks for collaborative dialogue in the field of disaster management to organize workshops on disaster prevention and measures to combat climate change, as well as implementing measures to support the construction of risk management and disaster prevention frameworks in developing countries, etc.

(FY2014 Settled Amount: included in the ¥1.010 billion sum)

Part 3
Disaster Management Plan for FY2016

Overview

1. Science and Technology Research

In the area of science and technology research, the government will promote research and development in the field of disaster management and mitigation; research concerning earthquakes and tsunami, including Japan Trench earthquakes, and Tokai, Tonankai and Nankai earthquakes; and research concerning various other disasters, such as storm and flood disasters, volcanoes, snow disasters, and fire.

2. Disaster Prevention

As regards disaster prevention, the government will promote the following: the implementation of various education and training programs aimed at staff of public institutions and the general public; the enhancement of the disaster management frameworks of public institutions and their response to disasters; and the seismic retrofit of school facilities and other buildings. It will also develop disaster-resilient communities.

3. National Land Conservation

The government will promote various projects aimed at national land conservation, including flood control and forest conservation initiatives, measures to combat landslides and steep slope failures, coastal projects, initiatives to prevent disasters involving agricultural land, disaster-related projects, measures to combat subsidence, and measures to prevent flooding in sewerage systems.

4. Disaster Recovery

In the area of emergency disaster control measures, the government will promote the development of disaster management frameworks to facilitate swift and appropriate rescue operations in the event of disaster. As far as disaster recovery is concerned, the government will aim to achieve prompt recovery and reconstruction of disaster-stricken areas by such means as the provision of livelihood recovery support payments for disaster victims, as well as implementing disaster recovery projects focused on forest conservation facilities, rivers, and ports, among others.

5. International Cooperation in Disaster Risk Reduction

The government will promote efforts to ensure that the Sendai Framework for Disaster Risk Reduction 2015-2030, which was formulated at the Third UN World Conference on Disaster Risk Reduction in Japan in March 2015, is widely implemented and becomes firmly established. In addition, the government will undertake disaster relief and cooperation for disaster risk reduction with a focus on developing countries, through the provision of technical cooperation, grant aid, and loan assistance.

Chapter 1 Science and Technology Research

1. Disasters in General

(1) Promotion of Disaster Management Science and Technology Research by the Council for Science, Technology and Innovation

The Council for Science, Technology and Innovation will seek to promote research and development (R&D) in such areas as science and technology research and crisis management techniques to strengthen disaster prevention and mitigation functions, in accordance with the Fifth Science and Technology Basic Plan and the Comprehensive Strategy on Science, Technology and Innovation, among others.

(2) Cross-ministerial Strategic Innovation Promotion Program (SIP)

To bring science, technology and innovation to fruition in a way that cuts across ministries and fields, the Council for Science, Technology and Innovation has established "Enhancement of societal resiliency against natural disasters" as one of the topics addressed by the Cross-ministerial Strategic Innovation Promotion Program (SIP). As natural disasters become more severe, the societies that they impact become more vulnerable, but the concept of resilience (minimizing damage and recovering from disaster promptly, to return to normal life as quickly as possible) has begun to take hold since the Great East Japan Earthquake. Based on this concept, the government will promote R&D activities aimed at sharing disaster-related information through the development of the latest technologies for more advanced disaster forecasting, prevention, and response, as well as the sharing of information, with the aim of achieving an improvement in the practical disaster management and mitigation skills of national and local governments, companies, and the public.

FY2016 Budget:
included in the ¥50 billion figure for expenditure on science, technology and innovation promotion

FY2015 Budget:
included in the ¥50 billion figure for expenditure on science, technology and innovation promotion

(3) Impulsing Paradigm Change through Disruptive Technologies Program (ImPACT)

The Impulsing PAradigm Change through disruptive Technologies Program (ImPACT) promotes high-risk, high impact, ambitious R&D that aims to achieve a major transformation in future approaches to the economy, society, and industry. The Council for Science, Technology and Innovation will promote the Tough Robotics Challenge as one of the R&D programs undertaken within the context of ImPACT, with the aim of creating remote autonomous robots capable of operating in extreme disaster environments.

FY2016 Budget:
included in the ¥55 billion fund for innovative technology R&D put in place in the FY2013 supplementary budget

FY2015 Budget:
included in the ¥55 billion fund for innovative technology R&D put in place in the FY2013 supplementary budget

(4) R&D of Remote Sensing Technologies for Disaster Management

The National Institute of Information and Communications Technology (NICT) will work on the development of higher-performance remote sensing technology to be installed on aircraft, etc. In addition, it will conduct R&D aimed at bringing to fruition sensing technologies that utilize millimeter waves and terahertz radiation, which will contribute to the rescue of disaster victims and the prevention of secondary disasters.

FY2016 Budget:
included in the grant for NICT management expenses

FY2015 Budget:
included in the grant for NICT management expenses

(5) R&D of Disaster Information and Communications Systems, etc.

NICT will undertake R&D of systems capable of high-precision measurement of rain, wind direction and wind speed, and water vapor in the skies over cities, etc., as well as being able to swiftly process and transmit this data over a network. This will assist in forecasting disasters and gaining an understanding of disaster situations.

(6) Deployment, etc. of Research Output in the Field of Resilient ICT

While information and communication systems were badly damaged by the Great East Japan Earthquake, leaving them unable to function adequately, this did at least result in a strong awareness of their importance as social infrastructure. Under these circumstances, NICT's Resilient ICT Research Center, which was established in the disaster-stricken Tohoku region (in April 2012) as a center for R&D based on collaboration between industry, academia and government, will promote research focused on information and communications technologies that will assist in disaster response, such as wireless mesh technology and technologies for analyzing information posted on social media. In addition, by participating in local government disaster management drills, it will encourage the use of resilient ICT systems that leverage the latest ICT.

(7) R&D Focused on Improving Firefighting Capabilities and Performance in the Event of Disaster

It is feared that a Nankai Trough megaquake or Tokyo inland earthquake could result in a major conflagration spreading through urban areas. To prepare for such an eventuality, the government will conduct R&D aimed at creating more advanced simulations of the spread of fire through urban areas; unraveling the phenomena of fire whirls and flying sparks, which are factors in the spread of fire damage; and utilizing these findings in providing evacuation guidance to residents and fighting fires. In addition, to improve firefighting performance in the event of disaster, the government will develop fire trucks capable of operating in areas where large amounts of rubble have accumulated. In conjunction with this, based on the lessons of the Hiroshima Sediment Disaster and other disasters, the government will conduct R&D focused on such topics as the use of aerial images from UAVs, etc. in search and rescue activities, and techniques for clearing areas cluttered with accumulated rubble.

FY2016 Budget: ¥33 million
FY2015 Budget: ¥0
Difference: ¥33 million

(8) Promotion Program for Science and Technology of Fire and Disaster Management (Competitive Funding Program)

Through its Promotion Program for Science and Technology of Fire and Disaster Management (a competitive funding program), FDMA will promote a R&D project based on collaboration between industry, academia and government, with the participation of fire departments. This R&D project will focus on topics that reflect the needs of fire departments, which undertake firefighting and disaster management activities, or contribute to the achievement of targets set out in government policies, such as the Comprehensive Strategy on Science, Technology and Innovation 2015 (approved by the Cabinet on June 19, 2015).

FY2016 Budget: ¥128 million
FY2015 Budget: ¥138 million
Difference: -¥10 million

(9) R&D of Firefighting Robots to Enhance Disaster Countermeasures

The National Research Institute of Fire and Disaster will conduct R&D focused on firefighting robots. The aim of this program is to develop firefighting robots equipped with autonomous and interactive technologies that leverage G-space and ICT, so that the robots can enter the sites of disasters affecting energy and industrial infrastructure that are inaccessible to humans, to gather information and douse the facilities on fire.

FY2016 Budget: ¥259 million
FY2015 Budget: ¥225 million
Difference: ¥34 million

(10) Satellite and Other Technologies for Observing and Monitoring Natural Disasters

The Japan Aerospace Exploration Agency (JAXA) will manage the Advanced Land Observing Satellite-2 (Daichi-2) and assist efforts to ascertain the situation following major disasters by providing domestic and overseas disaster management organizations with images obtained from monitoring of the disaster-affected area.

FY2016 Budget:
included in the ¥105.343 billion grant for management expenses, etc.
FY2015 Budget:
included in the ¥114.472 billion grant for management expenses, etc.

(11) R&D for Real-time Observation and Forecasting of Disasters

The National Research Institute for Earth Science and Disaster Resilience (NIED) will conduct R&D using the nationwide seismic observation network, which covers both land and sea, with the aim of mitigating the damage arising from earthquakes with hypocenters in inland areas, especially a Tokyo inland earthquake of the kind feared likely to occur, as well as ocean trough megaquakes and aftershocks in the Nankai Trough and Japan Trough, among others, and also volcanic disasters.

(Current status) NIED has been developing, managing, and enhancing various observation and monitoring systems to unravel the mechanisms that trigger earthquakes and volcanic eruptions. It has carried out technological development aimed at high-precision forecasting of disasters by combining observation data with models.

(Goal) NIED will continue to ensure the stable operation of observation systems focused on earthquakes, volcanoes, and tsunami. Moreover, in addition to conducting research into instant seismic motion and tsunami forecasting using data from the nationwide seismic observation network on both land and sea, it will use the volcano observation network and remote-sensing technology to conduct research aimed at learning more about volcanic activity and eruption phenomena and examining approaches to risk communication of volcanic disasters.

FY2016 Budget:
included in the ¥7.021 billion grant for management expenses

FY2015 Budget:
included in the ¥7.020 billion grant for management expenses

(12) Promotion of Basic R&D to Reduce Disaster Risk

NIED will evaluate the hazards and risks of all types of natural disaster and assess the current level of resilience. In addition, it will form partnerships and collaborative relationships through the sharing and use of disaster information among various sectors and conduct R&D of disaster countermeasures and technologies that will comprehensively enhance Japan's ability to prevent, respond to, and recover from disasters, aiming to ensure that these penetrate the whole of society. In the fields of storm and flood disaster, sediment disaster, and snow and ice disaster, NIED will conduct R&D focused on the development of technologies for predicting guerrilla rainstorms (localized downpours of torrential rain) and hazard evaluation technologies, among others, and will seek to achieve the social implementation of its research output through initiatives in partnership with stakeholders.

(Current status) To mitigate the damage from natural disasters, NIED has been working on unraveling the mechanisms that trigger such disasters and developing technology for higher-precision observation and forecasting. It has also conducted R&D of hazard and risk assessments for natural disasters and R&D aimed at the utilization of disaster risk information. In particular, it revised the National Seismic Hazard Maps for Japan and developed a cloud-based system for public-private collaboration.

(Goal) NIED will conduct R&D focused on technologies for the early detection of meteorological disasters that apply advanced multi-sensing technology and numerical simulation technology, as well as seeking to develop more advanced techniques for hazard and risk evaluation of natural disasters. It will develop a system for estimating and ascertaining the extent of a disaster in real time. It will conduct R&D of more advanced technologies for the sharing of disaster-related information, as well as the standardization thereof. It will conduct R&D of more advanced disaster countermeasures and technologies based on disaster-related information, as well as the standardization thereof.

FY2016 Budget:
included in the ¥7.021 billion grant for management expenses

FY2015 Budget:
included in the ¥7.020 billion grant for management expenses

(13) Research Concerning the Prevention of Disasters Involving Agricultural Crops and Infrastructure

The National Agriculture and Food Research Organization (NARO) will conduct research concerning the cultivation of cold- and damp-resistant crop varieties and technologies to prevent meteorological disasters that affect crops, including cold-weather damage, snow disasters, wind damage, frost damage, damage from excess moisture, drought damage, and damage from high temperatures. It will also conduct research into technologies that use high-precision monitoring and the like to prevent disasters involving agricultural land and soil, as well as research focused on disaster prevention and mitigation technologies to protect agricultural facilities and facilities for coastal agricultural land against major earthquakes, torrential rain, and tsunami, among other disasters.

(14) Research into Technologies for Disaster Risk Reduction at Fishing Ports, on Coasts, and in Fishing Villages

The Japan Fisheries Research and Education Agency (FRA), among others, will conduct research concerning fishing port facilities and coastal protection facilities capable of withstanding major earthquakes and tsunami, in order to reinforce disaster risk reduction functions in fishing villages.

(15) Research into Technologies for Disaster Risk Reduction on Marine Vessels

The National Institute of Maritime, Port and Aviation Technology (MPAT) will conduct research aimed at establishing techniques for evaluating the safety of risk assumptions and techniques for analyzing the causes of accidents involving marine vessels by replicating those accidents, in order to assess the risk of marine vessel operation and take steps to ensure safety.

(16) Research into Technologies for Disaster Risk Reduction at Ports, on Coasts, and at Airports

In order to form a sustainable society, MPAT will conduct research into technologies for mitigating the damage and facilitating recovery from the largest-possible earthquakes, tsunami, storm surges, and high waves.

(17) Research Concerning Emergency Photography in the Event of Disasters, etc.

The Geospatial Information Authority of Japan (GSI) will consider ways of using both digital airborne cameras and synthetic aperture radar (SAR), a form of radar imaging which is particularly useful for volcano monitoring, in order to swiftly ascertain and provide information on the extent of damage caused by disasters such as earthquakes, volcanic eruptions, and flooding. The objective of this is to assist relevant organizations in responding rapidly to disasters.

FY2016 Budget: ¥99 million
FY2015 Budget: ¥99 million
Difference: ¥0

(18) Research Concerning Meteorological and Hydrological Phenomena

The Japan Meteorological Agency (JMA) – primarily its Meteorological Research Institute – will promote basic and applied research concerning technologies that contribute to its meteorological services. In particular, in the area of meteorological observation and forecasting, it will conduct research concerning technologies for monitoring and forecasting localized torrential rain, among other phenomena. Moreover, it will improve its numerical models to contribute to measures against global warming.

FY2016 Budget: ¥907 million
FY2015 Budget: ¥932 million
Difference: -¥25 million

2. Contingency Planning against an Earthquake

2-1 Earthquake Research

(1) Headquarters for Earthquake Research Promotion

The Headquarters for Earthquake Research Promotion (Director: the Minister of Education, Culture, Sports, Science and Technology; hereinafter “the Earthquake Research Headquarters”) will serve as the government’s central body for promoting earthquake research in accordance with policies such as “New Promotion of Earthquake Research” (revised September 2012). The Ministry of Education, Culture, Sports, Science and Technology (MEXT) will comprehensively promote surveys of active faults, in accordance with the aforementioned policy, among others.

(Current status) The government is implementing various projects to facilitate the smooth running of the Earthquake Research Headquarters and contribute to deliberations on its long-term evaluations.

(Goal) The government will support the long-term evaluations conducted by the Headquarters by carrying out surveys and observation of earthquake and tsunami activity.

FY2016 Budget: ¥1.042 billion
FY2015 Budget: ¥1.383 billion
Difference: -¥341 million

(2) Dense Oceanfloor Network System for Earthquakes and Tsunamis

In the anticipated focal region of a Nankai Trough earthquake, MEXT will develop and manage a network of oceanfloor systems capable of dense observation of specific targets, with the aim of unraveling the mechanism that causes earthquakes and tsunami and providing information about these phenomena swiftly and accurately. (Described below: Chapter 1 3-1 (1))

(Current status) MEXT has completed installation of the system in both the Kii Peninsula and the Kii Channel. (FY2015)

(Goal) MEXT will steadily operate this system. (FY2016)

FY2016 Budget: ¥530 million
FY2015 Budget: ¥562 million
Difference: -¥32 million

(3) Development of the Seafloor Observation Network for Earthquakes and Tsunamis Along the Japan Trench

In the Japan Trench, which runs from the waters off Hokkaido to the waters off the Boso Peninsula, MEXT will develop a cable-linked observation network (seismometers and pressure gauges) capable of being deployed densely over an extensive area, aiming to put the network into operation in FY2015. Its aim in doing so is to unravel the mechanism that causes earthquakes and tsunami and provide information about these phenomena swiftly and accurately. (Described below: Chapter 1 3-1 (2))

(Current situation) MEXT has completed installation in the waters off Ibaraki and Fukushima, among others, and has begun operating the system. (FY2015)

(Goal) MEXT will steadily operate this system. (FY2016)

FY2016 Budget: ¥531 million
FY2015 Budget: ¥461 million
Difference: ¥70 million

(4) Promotion of Basic Research Concerning the Forecasting of Earthquakes and Their Hazards

In accordance with the "Promotion of Earthquake and Volcano Hazards Observation and Research Program for Mitigating Disasters (Proposal)" (FY2014-2018), MEXT will promote basic research by national university corporations, among others, concerning the forecasting of earthquakes and seismic activity, as well as tsunami, powerful tremors, and other phenomena (hazards).

(Current status) Up to and including the previous five-year plan (through FY2013), MEXT principally conducted research aimed at earthquake prediction.

(Goal) As well as forecasting earthquakes, MEXT will forecast hazards (through FY2018).

(5) R&D of Marine Seismogenic Zones

The Japan Agency for Marine-Earth Science and Technology (JAMSTEC) will conduct detailed studies and observational research focused on crustal structure and activity, as well as evaluating disaster potential by means of earthquake and tsunami simulations based on observation data, etc.

FY2016 Budget:
included in the ¥30.618 billion grant for management expenses
FY2015 Budget:
included in the ¥32.605 billion grant for management expenses

(6) Promotion of Comprehensive Ocean Drilling Science Using Advanced Drilling Technology

In addition to conventional observation techniques, JAMSTEC will collect samples and data by means of ocean drilling and conduct research aimed at unraveling the dynamics of crustal activity and the circulation of substances, as well as plate and magma formation and change processes, among other phenomena. Moreover, it will develop drilling technologies and technologies for conducting observation below the sea floor.

FY2016 Budget:
included in the ¥30.618 billion grant for management expenses

FY2015 Budget:
included in the ¥32.605 billion grant for management expenses

(7) Strategic Research Projects on Earthquake Disaster Prevention

MEXT will undertake projects including the "Special Project for the Mitigation of Great Disasters which the Vulnerability of Cities Causes" and the "Project for Research on Earthquake Disaster Prevention in the Nankai Trough Region." Its aim in doing so is to mitigate earthquake damage in regions with a high probability of experiencing an earthquake within the next 30 years and regions where an earthquake is expected to cause immense damage.

(Current status) MEXT is currently implementing projects that contribute to earthquake disaster prevention.

(Goal) MEXT will build a safe, secure society by contributing to the disaster prevention plans of national and local governments and raising individual awareness of disaster preparedness.

FY2016 Budget: ¥1.180 billion
FY2015 Budget: ¥1.289 billion
Difference: -¥109 million

(8) Active Fault Research

The National Institute of Advanced Industrial Science and Technology (AIST) will seek to discover more about past seismic activity by gathering information about active faults in socially important regions and coastal and marine areas, incorporating knowledge from the fields of topography, geology, and geophysics. In addition, it will assemble information about crustal stress and subsurface structure, in order to evaluate the potential for earthquakes to occur.

(Current status) 559 active segments (indicator: number of active segments for which the results of the evaluation of active fault activity have been published online) (FY2014)

(Goal) 580 active segments (FY2018)

(9) Subduction Zone Earthquake Research

For the purpose of short-term forecasting of Tokai, Tonankai, and Nankai earthquakes, AIST will put in place facilities for the observation of groundwater and crustal movement and analyze observation data, as well as using topographical and geological techniques to discover more about multi-segment earthquakes and huge tsunami experienced in the past and forecast the scale of tsunami. (Described below: Chapter 1 3-1 (3))

(Current status) 16 locations (indicator: number of locations in the Tonankai and Nankai region in which groundwater, etc. observation facilities have been installed and number of locations providing data that can be used by the JMA for continuous monitoring) (FY2014) and 8 areas (indicator: number of areas where tsunami inundation history surveys have been completed and inundation history maps drawn up) (FY2014)

(Goal) Planned: 20 locations (FY2018) (groundwater) and 11 areas (FY2018) (tsunami)

(10) Earthquake Hazard Assessment Research

AIST will compile a full range of geological information concerning the plains on which Japan's metropolitan areas are sited, for the purpose of evaluating surface deformation and conducting seismic ground motion evaluation, including the potential for soil liquefaction. In addition, it will seek to discover more about underground source fault models and deformation mechanisms.

(Current status) 4 areas (indicator: number of areas for which seamless geoinformation has been compiled) (FY2014)

(Goal) Due to be compiled for 6 areas (FY2018)

(11) Promotion of Research Concerning the Sampling of Crustal Movement Information to Assist in Disaster Management and Mitigation

GSI will conduct research concerning the sampling of crustal movement information using geodetic measurement technology, with the objective of enhancing monitoring and learning more about crustal activity. In addition, it will exchange information concerning research on earthquake prediction and monitoring nationwide via the Coordinating Committee for Earthquake Prediction (CCEP), examining it from an academic viewpoint and making its findings available.

FY2016 Budget: included in the ¥81 million sum
FY2015 Budget: included in the ¥83 million sum

(12) Geodetic Monitoring of Crustal Movement

GSI will monitor crustal movement by such

means as continuous GNSS monitoring using GNSS-based control stations and satellite radar interferometry (SAR interference analysis), among others. In addition, it will provide the information gathered concerning crustal movement to organizations involved in disaster management to assist them in deciding on disaster countermeasures. (Described below: Chapter 2 5-3 (5))

(Current status) 99.63% of observation data from GNSS-based control stations obtained (FY2014)

(Goal) At least 99.5% (ongoing annual goal from FY2016)

FY2016 Budget: included in the ¥1.283 billion sum

FY2015 Budget: included in the ¥1.289 billion sum

(13) Earthquake Research

The JMA – primarily its Meteorological Research Institute – will promote research concerning earthquakes, focusing on areas such as the development of advanced earthquake early warnings and rapid source-parameter estimation of megaquakes. To improve the ability to detect unusual seismic activity and crustal deformation in areas such as the Tokai region, where a megaquake is supposed to occur, the JMA will conduct research aiming to develop more advanced monitoring techniques.

FY2016 Budget: ¥31 million

FY2015 Budget: ¥30 million

Difference: ¥1 million

(14) Seismic Observation, etc.

Among other activities, the JMA will conduct seismic observation, crustal strain monitoring, and geomagnetic observation across the country. In addition, it will gather earthquake data from the basic survey and monitoring networks of the JMA and other relevant organizations and use it in disaster management information, as well as passing it on to the Earthquake Research Committee of the Headquarters for Earthquake Research Promotion. (Described below: Chapter 2 2-4 (16) and 3-3 (7))

FY2016 Budget: ¥1.611 billion

FY2015 Budget: ¥2.478 billion

Difference: -¥867 million

(15) Seafloor Geodetic Observation, etc.

The Japan Coast Guard will gain an understanding of plate motion by such means as studies of topography and active faults at plate boundaries where megaquakes might occur, seafloor geodetic observation using seafloor stations, crustal movement monitoring using DGPS and tide stations, and monitoring via satellite laser ranging.

FY2016 Budget: ¥66 million

FY2015 Budget: ¥223 million

Difference: -¥157 million

2-2 Research on Earthquake Countermeasures in General

(1) R&D Aimed at Improving the Resilience of Social Infrastructure

NIED will conduct R&D using its 3-D Full-Scale Earthquake Testing Facility (E-Defense) and other research infrastructure to help to improve the resilience of Japan to megaquakes of the kind feared likely to occur, such as a Nankai Trough megaquake or a Tokyo inland earthquake.

(Current status) NIED has been conducting field trials of next-generation structures that will reduce damage to reinforced concrete structures, as well as maintaining, managing, and lending out its laboratory facilities, and providing support for experiments (through FY2015).

(Goal) NIED will continue to maintain, manage, and lend out its laboratory facilities, and provide support for experiments. In addition, it will conduct research that contributes to the development of more advanced earthquake disaster mitigation technology and more resilient social infrastructure through demonstration experiments and field tests, as well as research concerning seismic evaluations using simulation technology.

FY2016 Budget:

included in the ¥7.021 billion grant for management expenses

FY2015 Budget:

included in the ¥7.020 billion grant for management expenses

(2) Research Concerning Earthquake Disaster Prevention at Fishing Ports, on Coasts, and in Fishing Villages

The FRA, among others, will conduct research on technologies for preventing disasters and mitigating damage in fishing ports and villages. This will include research concerning the earthquake resistance of fishing port and coastal protection facilities.

(3) Research Concerning Earthquake Disaster Prevention and Mitigation for Agricultural Facilities

NARO will conduct research on technologies for verifying the earthquake resistance of agricultural irrigation ponds and seismic retrofit technologies for such ponds, as well as technologies for verifying the earthquake resistance of dilapidated dams and surrounding slopes. In addition, it will conduct research on methods of verifying the earthquake resistance of major agricultural pipelines against Level 2 seismic motion.

(4) Observation of Strong Earthquake Motion

The National Institute for Land and Infrastructure Management (NILIM) of the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) will continue to maintain and manage its strong earthquake motion observation network and to monitor and analyze seismic motion, in order to clarify the damage mechanisms of civil engineering structures and establish rational seismic design methods.

FY2016 Budget: ¥11 million
FY2015 Budget: ¥11 million
Difference: ¥0

(5) R&D of Technologies for Enhancing the Safety of Buildings against Megaquakes, etc.

The Building Research Institute (BRI) will conduct R&D of technologies for enhancing the safety of buildings against megaquakes, etc.

(Current status) The BRI has conducted research on technologies for creating more advanced input seismic motion and structural analysis models that will help to increase the accuracy of estimates of buildings' responses to megaquakes, etc. (FY2013–FY2015) and developed techniques for evaluating seismic performance that will help to ensure the ongoing usability of government buildings and evacuation facilities, among others, in the aftermath of an earthquake (FY2013–FY2015).

(Goal) The BRI will use its research output as technical data for developing technical standards and improving relevant systems. In addition, it will continue to conduct R&D of technologies for enhancing the safety of buildings against megaquakes, etc. (FY2016)

(6) Research Concerning Earthquake Disaster Prevention for Civil Engineering Facilities at Ports, on Coasts, and at Airports

To reduce the damage caused by earthquake disasters, MPAT will conduct research into waveform forecasting and damage prediction in relation to the largest-possible earthquakes, as well as developing technologies for mitigating the damage due to such earthquakes, and conducting research concerning the interaction of earthquakes, tsunami, and high waves with the ground.

(7) Research Concerning Megaquake Damage Mitigation Technologies for Medium- to Low-rise Buildings

By devising new approaches to the materials used and the balance of the substructure and the superstructure, among others, NILIM will investigate earthquake resistance technologies that reduce the earthquake damage to medium- to low-rise buildings to a level at which the continued use of the building is possible. It will also examine guidelines for achieving the widespread adoption of these technologies.

FY2016 Budget: ¥13 million
FY2015 Budget: ¥13 million
Difference: -¥2 million

(8) Research Concerning the Evaluation of Vulnerable Urban Areas and the Effectiveness of Disaster Countermeasures Against Fires in Urban Districts Following an Earthquake

With the aim of improving disaster prevention performance in urban districts thought likely to be at risk of fire following an earthquake, NILIM will conduct fire tests, build data, and undertake case studies of the evacuation of urban areas located on slopes in the event of fire, in order to develop technologies for evaluating disaster prevention performance, taking into account such matters as recent improvements in the performance of

buildings in this regard and topographical conditions.

FY2016 Budget: ¥11 million
FY2015 Budget: ¥13 million
Difference: -¥2 million

(9) Research Contributing to Disaster Management and Mitigation and the Strategic Maintenance of Railway Facilities

To prepare for a major earthquake, MLIT will develop technology that will contribute to disaster management and mitigation measures, such as the development of earthquake-resistant structures. In addition, with a view to strategic maintenance, it will develop technology that will help to achieve greater efficiency in maintenance and the management thereof by improving the precision of maintenance and reducing costs.

FY2016 Budget: included in the ¥289 million sum
FY2015 Budget: included in the ¥344 million sum

(10) Research Concerning Techniques for Assessing the Safety and Reusability of Buildings Damaged by Fires Caused by Earthquakes

With the objective of establishing techniques for assessing safety and reusability during the recovery phase of fireproof buildings that have been affected by earthquake and fire, NILIM will undertake research aimed at categorizing the damage suffered by buildings and their structures, as well as categorizing the applicable measures and techniques, and will then conduct research to evaluate the safety of the major structural components that have been damaged. (Described below: Chapter 1 7 (4))

FY2016 Budget: ¥15 million
FY2015 Budget: ¥17 million
Difference: -¥2 million

3. Contingency Planning against a Tsunami

3-1 Tsunami Research

(1) Dense Oceanfloor Network System for Earthquakes and Tsunamis

(Described above: Chapter 1 2-1 (2))

In the anticipated focal region of a Nankai Trough earthquake, MEXT will develop and manage a network of oceanfloor systems capable of dense observation of specific targets, with the aim of unraveling the mechanism that causes earthquakes and tsunami and providing information about these phenomena swiftly and accurately.

(Current status) MEXT has completed installation of the system in both the Kii Peninsula and the Kii Channel. (FY2015)

(Goal) MEXT will steadily operate this system. (FY2016)

FY2016 Budget: ¥530 million
FY2015 Budget: ¥562 million
Difference: -¥32 million

(2) Development of the Seafloor observation network for earthquakes and tsunamis along the Japan Trench

(Described above: Chapter 1 2-1 (3))

In the Japan Trench, which runs from the waters off Hokkaido to the waters off the Boso Peninsula, MEXT will develop a cable-linked observation network (seismometers and pressure gauges) capable of being deployed densely over an extensive area, aiming to put the network into operation in FY2015. Its aim in doing so is to unravel the mechanism that causes earthquakes and tsunami and provide information about these phenomena swiftly and accurately.

(Current situation) MEXT has completed installation in the waters off Ibaraki and Fukushima, among others, and has begun operating the system. (FY2015)

(Goal) MEXT will steadily operate this system. (FY2016)

FY2016 Budget: ¥531 million
FY2015 Budget: ¥461 million
Difference: ¥70 million

(3) Subduction Zone Earthquake Research

(Described above: Chapter 1 2-1 (9))

For the purpose of short-term forecasting of Tokai, Tonankai, and Nankai earthquakes, AIST will put in place facilities for the observation of groundwater and crustal movement and analyze observation data, as well as using topographical and geological techniques to discover more about multi-segment earthquakes and huge tsunami experienced in the past and forecast the scale of tsunami.

(Current status) 16 locations (indicator: number of locations in the Tonankai and Nankai region in which groundwater, etc. observation facilities have been installed and number of locations providing data that can be used by the JMA for continuous monitoring) (FY2014) and 8

areas (indicator: number of areas where tsunami inundation history surveys have been completed and inundation history maps drawn up) (FY2014)

(Goal) Planned: 20 locations (FY2018) (groundwater) and 11 areas (FY2018) (tsunami)

(4) Tsunami Research

The JMA – primarily its Meteorological Research Institute – will conduct research concerning the development of more advanced real-time tsunami forecasting techniques using multipoint observation data and research concerning the modeling of the succeeding waves of far-field tsunami and their damping characteristics, in order to improve the precision of tsunami forecasting.

FY2016 Budget: ¥11 million

FY2015 Budget: ¥13 million

Difference: -¥2 million

3-2 Research on Tsunami Countermeasures in General

(1) Development and Empirical Study of a Disaster Prevention and Mitigation System for Agricultural Communities

NARO will conduct research to increase the safety of agricultural communities against tsunami. Specifically, it will develop a comprehensive disaster prevention and mitigation system that uses agricultural land and facilities as dissipation facilities and conduct an empirical study of techniques for forming disaster-resilient local communities.

(2) Research Concerning Tsunami Disaster Prevention at Fishing Ports, on Coasts, and in Fishing Villages

The Fisheries Research Agency, among others, will conduct research on technologies for preventing disasters and mitigating damage in fishing ports and villages. This will include research concerning tsunami countermeasures at fishing port and coastal protection facilities.

(3) Research Concerning the Strengthening of the Tsunami Resilience of Coastal Disaster-Prevention Forests

The Forestry and Forest Products Research Institute (FFPRI) will conduct research aimed at strengthening the tsunami resilience of regenerated coastal disaster-prevention forests. Specifically, it will conduct research concerning criteria for evaluating whether the banking is suitable for planting and the development of banking techniques that will ensure root system development.

(4) Research Concerning Tsunami Disaster Prevention for Civil Engineering Facilities at Ports, on Coasts, and at Airports

In order to mitigate the damage caused by tsunami, MPAT will conduct research concerning the establishment of higher-precision real-time forecasting technologies and the formation of ports that demonstrate a high level of resilience and good disaster prevention capabilities even in the face of a maximum-height tsunami.

(5) Research Concerning the Use of Natural and Local Infrastructure to Create Tsunami-resistant Communities

Focusing on the use of existing natural topographic features in disaster mitigation, as a swift and practical measure against tsunami whose height exceeds that of an embankment, NILIM will carry out experiments to establish methods of evaluating their disaster mitigation effect and limits thereof, and will conduct workshops aimed at increasing their applicability at the sites where they are actually located.

FY2016 Budget: ¥18 million

FY2015 Budget: ¥19 million

Difference: -¥1 million

4. Contingency Planning against Storm and Flood Disasters

(1) Dense Weather Observation Using Remote Sensing

NICT will conduct R&D focused on measurement technologies that use electromagnetic waves, such as radar and lidar, to swiftly and accurately measure rain, wind direction and wind speed, and water vapor. It will also conduct R&D of technologies capable of processing and transmitting the measured values more or less in real time.

(2) Research on Measures to Prevent Disaster in Mountainous Areas in the Event of Torrential Rain or an Earthquake

The FFPRI will conduct research concerning the mechanisms by which slope collapses, landslides, and debris flows occur and the functions of forests

in preventing collapse; this knowledge is required to develop measures to prevent disaster in mountainous areas in the event of torrential rain or an earthquake.

(3) Research Concerning High Wave and Storm Surge Disaster Prevention at Fishing Ports, on Coasts, and in Fishing Villages

The Japan Fisheries Research and Education Agency, among others, will conduct research on technologies for preventing disasters and mitigating damage in fishing ports and villages. This will include research concerning high wave and storm surge disaster countermeasures at fishing port and coastal protection facilities.

(4) Development of Disaster Management and Mitigation Technologies to Address Sediment Disasters Caused by Sudden Natural Phenomena

To contribute to the management and mitigation of sediment disasters caused by sudden natural phenomena, the Public Works Research Institute (PWRI) will conduct research concerning the monitoring of sediment movement, the evaluation of risks from sediment movement, and measures to prevent and mitigate damage due to sediment movement.

(5) Research Concerning High Wave and Storm Surge Disaster Prevention for Civil Engineering Facilities at Ports, on Coasts, and at Airports

MPAT will conduct research concerning the forecasting of storm surges and high waves, as well as assumptions about the damage caused by largest-possible storm surges and high waves, taking into account the impact of climate change. It will also conduct research focused on mitigating the damage caused by largest-possible storm surges and high waves.

(6) Research into High-precision Sediment Disaster Forecasting Techniques Using Real-time Observation and Monitoring Data

NILIM will develop information concerning the risk of sediment disasters that has a higher degree of forecasting accuracy than existing rainfall information alone, making it easier to convey the urgency of evacuation in order to encourage residents to evacuate.

FY2016 Budget: ¥12 million
FY2015 Budget: ¥13 million
Difference: -¥1 million

(7) Study of Methods to Reduce Risks of Flood Damage Integrated with Urban Planning under Climate Change

NILIM will conduct research concerning integrated flood risk assessment techniques based on the specific example of flooding in cities, as well as conducting research focused on frameworks for building low-risk societies and specific procedures for deploying measures, with a view to building low-risk societies capable of responding to new circumstances, including climate change, aging and declining population, and the impending threat of a major disaster.

FY2016 Budget: ¥19 million
FY2015 Budget: ¥20 million
Difference: -¥1 million

(8) Research Concerning Efforts to Ensure the Safety of Port Areas against Storm Surge Disasters

To increase the safety of port areas against storm surges and ensure the sustainability of socioeconomic infrastructure in coastal regions, NILIM will conduct research aimed at developing more advanced observation of tide levels and waves in bay areas, more advanced calculation of storm surges in port areas, and the evaluation of external forces acting on tidal protection facilities

FY2016 Budget: ¥6 million
FY2015 Budget: ¥0 million
Difference: ¥6 million

5. Contingency Planning against Volcanic Disasters

(1) Basic Research on Forecasting Volcanic Eruptions

In accordance with the “Promotion of Earthquake and Volcano Hazards Observation and Research Program for Mitigating Disasters (Proposal)” (FY2014-2018), MEXT will promote basic research by national university corporations, among others, concerning the forecasting of volcanic eruptions, as well as the forecasting of eruption sequences and eruptions of volcanic ash and magma.

(Current status) Up to and including the previous five-year plan (through FY2013), MEXT principally conducted research aimed at forecasting volcanic eruptions.

(Goal) As well as forecasting volcanic eruptions, MEXT will forecast hazards (through

FY2018).

To promote research into the forecasting of volcanic eruptions, AIST will conduct geological surveys of the eruption history of active volcanoes, as well as the damage that they have caused and their activity status. In addition, it will conduct observational and experimental research aimed at modeling eruption mechanisms and magma ascent processes.

(Current status) 21 maps published (indicator: number of geological maps of volcanoes published after clarifying their eruption history) (FY2014)

(Goal) 22 maps due to be published (FY2018)

(2) Integrated Program for Next Generation Volcano Research and Human Resource Development

To assist in mitigating volcanic disasters, MEXT will promote collaborative and interdisciplinary research focused on the integration of observation, forecasting, and countermeasures, as well as promoting efforts to secure and cultivate volcanologists.

(Goal) To boost volcano research in Japan, in addition to conventional observational research, MEXT will promote volcano research based on collaboration with other fields and interdisciplinary approaches, with a focus on the integration of observation, forecasting, and countermeasures. Furthermore, it will aim to secure and cultivate highly skilled volcanologists with wide-ranging knowledge.

FY2016 Budget: ¥670 million

(3) Research Concerning Volcanic Phenomena

The JMA – primarily its Meteorological Research Institute – will promote research focused on such areas as more advanced technologies for immediate grasping and prediction of volcanic phenomena. In addition, through the Coordinating Committee for the Prediction of Volcanic Eruptions (CCPVE), it will work closely with relevant organizations to promote research concerning the prediction of volcanic eruptions.

FY2016 Budget: ¥48 million
FY2015 Budget: ¥22 million
Difference: ¥126 million

(4) Promotion of Submarine Volcanic Eruption Prediction

The Japan Coast Guard will conduct studies and magnetic surveys of temperature distribution and the distribution of color changes in water due to submarine volcanic activity around the Nanpo Islands and Ryukyu Islands. In addition, it will continue to enhance charts providing basic information concerning submarine volcanoes, to assist in the gathering and provision of accurate information concerning the prediction of submarine volcanic eruptions.

FY2016 Budget: ¥12 million
FY2015 Budget: ¥12 million
Difference: ¥0

6. Contingency Planning against Snow Disasters

(1) Research Concerning Avalanche Occurrence and Flows

The FFPRI will continue to carry out observations aimed at detecting avalanches and conduct research concerning meteorological conditions when avalanches occur, as well as investigating avalanche flows. In addition, based on findings from surveys of forest damage caused by surface avalanches, the braking effect of forests on surface avalanches will be examined.

(2) Research on Measures against Snow Disasters

With the objective of supporting efforts to ensure the safe, reliable provision of road traffic services in snow coverage and cold districts in winter, PWRI will conduct research concerning the development of efficient road management technologies for use in cold and snowy environments and the development of effective and efficient measures and technologies for preventing traffic accidents in winter. In addition, to mitigate snow and ice disasters, it will conduct research aimed at improving the forecasting of the impact of blizzards on visibility, as well as enhancing the performance of measures and facilities to counter blizzards.

7. Countermeasure against Fires

(1) Research Concerning Fires

FDMA will conduct the following researches.

- Surveys concerning investigation of the causes of accidents involving fires or the spillage of hazardous materials, etc.

To obtain knowledge that will be useful in the future development of fire safety measures in response to unusual types of fire, the Agency will investigate the causes of fires. In addition, it will conduct systematic research aimed at developing more advanced technology for investigating the causes of fires, including materials and equipment for on-site inspections, sample collection and analysis methods, methods of replicating fire phenomena, and procedures for deducing and identifying the causes of fires. (Described below: Chapter 1 8 (1))

FY2016 Budget: ¥18 million
FY2015 Budget: ¥20 million
Difference: -¥2 million

・ R&D concerning fire prevention and the mitigation of damage caused by fires

In order to facilitate effective fire prevention measures, the Agency will conduct R&D concerning efforts to improve fire investigation capabilities and concerning effective evacuation from buildings.

FY2016 Budget: ¥28 million
FY2015 Budget: ¥0
Difference: ¥28 million

(2) General Research Concerning Forest Fires

The FFPRI will conduct research concerning the risk of forest fires occurring and spreading, to assist in combating forest fires.

(3) R&D of Technologies to Improve Building Fire Safety

The BRI will conduct R&D of technologies for enhancing the safety of buildings against fires.

(Current status) The BRI has developed technologies for evaluating the fire safety of internal and external cladding materials used in green buildings (FY2013–FY2015).

(Goal) The BRI will use its research output as technical data for developing technical standards and improving relevant systems. In addition, it will continue to conduct R&D of technologies for enhancing the safety of buildings against fires. (FY2016)

(4) Research Concerning Techniques for Assessing the Safety and Reusability of Buildings Damaged by Fires Caused by Earthquakes

(Described above: Chapter 1 2-2 (10))

With the objective of establishing techniques for assessing safety and reusability during the recovery phase of fireproof buildings that have been affected by earthquake and fire, NILIM will undertake research aimed at categorizing the damage suffered by buildings and their structures, as well as categorizing the applicable measures and techniques, and will then conduct research to evaluate the safety of the major structural components that have been damaged.

FY2016 Budget: ¥15 million
FY2015 Budget: ¥17 million
Difference: -¥2 million

8. Contingency Planning against Hazardous Materials

(1) Research Concerning the Prevention of Disasters Due to Hazardous Materials

FDMA will conduct the following research.

・ Promotion of safety measures at outdoor tank storage facilities

Even during the Great East Japan Earthquake, sites with outdoor tank storage facilities reported hardly any accidents involving the spillage of hazardous materials. Nevertheless, the Agency is making progress with deliberations concerning assumptions about the seismic motion of a Nankai Trough earthquake and other earthquakes, and will examine the seismic safety of sites with outdoor tank storage facilities in respect of earthquakes on an unprecedented scale. (Described below: Chapter 2 8-3 (3))

FY2016 Budget: ¥24 million
FY2015 Budget: ¥28 million
Difference: -¥4 million

・ Measures to prevent accidents at hazardous materials facilities, etc.

The Agency will use information about accidents involving hazardous materials to analyze the causes of such accidents and relevant trends, and will provide prefectures, etc. with the results. In addition, it will publish its findings in the White Paper on Fire Safety. In addition, the Agency will hold meetings of the Information and Liaison Committee on Measures to Prevent Accidents Involving Hazardous Materials, etc., to consider efforts to promote measures to prevent such accidents. (Described below: Chapter 2 8-3 (3))

FY2016 Budget: ¥11 million
FY2015 Budget: ¥11 million
Difference: -¥0 million

・ Deliberations concerning a survey on safety measures tailored to the use of new technologies and materials

Sites with outdoor tank storage facilities holding large volumes of hazardous materials must undergo operational safety inspections and various inspections to check the integrity of the tanks after repair work has been carried out, for example. The Agency will investigate more advanced, efficient inspection techniques using new technologies, with the aim of reducing the number of accidents and minimizing inspection costs, while still guaranteeing safety through inspections that achieve a higher level of precision than conventional techniques. (Described below: Chapter 2 8-3 (3))

FY2016 Budget: ¥11 million
FY2015 Budget: ¥16 million
Difference: -¥5 million

・ R&D concerning efforts to minimize accidents and disasters involving hazardous materials

The Agency will conduct R&D in the following areas to develop more resilient oil tanks and other industrial and energy facilities and more efficient firefighting techniques and technologies: (1) high-precision forecasting of earthquake damage to oil tanks (including identification of the characteristics of short-period ground motion, which has a high likelihood of damaging the oil tank itself, and the impact of long-period ground motion on individual tanks, arising from differences in their subsurface structures); (2) powerful foam-based extinguishing technologies tailored to the scale of the fire and the type of oil in the tanks; and (3) technologies for more appropriate fire risk assessment and safety management during firefighting when the highly reactive chemical substances stored and handled at petrochemical complexes (such as water-reactive substances and self-ignition by heat accumulation substances) are involved.

FY2016 Budget: ¥27 million
FY2015 Budget: ¥0
Difference: ¥27 million

・ Surveys concerning investigation of the causes of accidents involving fires or the spillage of hazardous materials, etc.
(Described above: Chapter 1 7 (1))

To obtain knowledge that will be useful in the future development of fire safety measures in response to unusual types of fire, the Agency will investigate the causes of fires. In addition, it will conduct systematic research aimed at developing more advanced technology for investigating the causes of fires, including materials and equipment for on-site inspections, sample collection and analysis methods, methods of replicating fire phenomena, and procedures for deducing and identifying the causes of fires.

FY2016 Budget: ¥18 million
FY2015 Budget: ¥20 million
Difference: -¥2 million

(2) Research Concerning the Prevention of Explosions, etc.

AIST will conduct research concerning the explosion safety of gunpowder and other explosive chemical substances and of hydrogen and other flammable gases, as well as conducting research concerning techniques for their use. In addition, it will develop technologies for preventing and reducing the impact of explosions. In the area of industrial safety, it will develop a database of accidents and conduct research into common key technologies.

(Current status) In FY2015, AIST entered new accidents and detailed analysis of serious accidents analyzed using the PFA accident analysis technique into the Relational Information System for Chemical Accidents Database (RISCAD) and made this database available to the public online.

(Goal) AIST will compile examples of disasters and collate technical information that it will make available to the whole of society, for the safety and peace of mind of the public. AIST will continue to enter new accidents and detailed analyses of accidents into RISCAD.

9. Contingency Planning against Nuclear Disasters

(1) Research on the Handling of Agricultural Land and Crops in Response to a Nuclear Accident

NARO will conduct research focused on the development of technologies for decontaminating heavily contaminated soil following a nuclear accident and ascertaining the extent of the discharge of radioactive materials from soil on agricultural land. It will also conduct research

focused on explaining the dynamics of the transfer of radioactive substances to agricultural crops and the like, and the development of technologies for inhibiting that transfer.

(2) Safety Evaluation of the Earthquake and Tsunami Resistance of Nuclear Power Stations

The Nuclear Regulation Authority (NRA) will conduct stringent evaluations and checks of the earthquake and tsunami resistance of nuclear power stations and other facilities based on the new regulatory requirements. To this end, it will gather views informed by the Great East Japan Earthquake and reflect them in enhancements to the technical basis for examinations of compliance with the new regulatory requirements.

(Current status) Number of NRA technical reports and research reports, etc. prepared during the projects implemented (results of studies in FY2014): 10

(Goal) 5 (FY2015)

FY2016 Budget: ¥1.905 billion

FY2015 Budget: ¥1.906 billion

Difference: -¥1 million

(3) Measures against Severe Accidents at Nuclear Power Stations, etc.

To prevent severe accidents at nuclear power stations, etc. and ensure an appropriate response should such an accident occur, the NRA will enhance technical knowledge and analysis codes to enable the NRA to check the appropriateness of accident management measures itself.

(Current status) Number of guidelines, etc. compiled for use when considering future regulatory requirements (results of studies in FY2014): 4

(Goal) 3 (FY2015)

FY2016 Budget: ¥1.443 billion

FY2015 Budget: ¥1.051 billion

Difference: ¥392 million

10. Other Disaster Countermeasures

R&D of global environmental measurement technologies

NICT will conduct R&D in such areas as light and radio wave sensor technologies, and analysis and verification technologies, to facilitate high-precision measurement of clouds and precipitation, etc. in the atmosphere and oceanosphere.

Chapter 2 Disaster Prevention

1. Disasters in General

1-1 Education and Training

(1) Government Education and Training Initiatives

As well as holding a comprehensive disaster management drill on Disaster Prevention Day on September 1, the government will hold earthquake and tsunami disaster management drills with the participation of the public on and around Tsunami Preparedness Day on November 5. It will also hold training courses for national and local government staff, among others, aimed at cultivating specialists in disaster management.

FY2016 Budget: ¥238 million
FY2015 Budget: ¥251 million
Difference: -¥13 million

(2) Promotion of Disaster Management Measures in Private Sector Centers for Early Childcare and Education, Kindergartens, and Nurseries, etc.

The Cabinet Office will bear the cost of disaster management education and other disaster management measures undertaken by private sector Centers for Early Childcare and Education, kindergartens, and nurseries, etc. to be prepared for fires, earthquakes, and other disasters.

FY2016 Budget: ¥1.092 billion
FY2015 Budget: ¥73 million
Difference: ¥1.018 billion

(3) National Police Agency Education and Training Initiatives

The National Police Agency will conduct education and training programs for senior prefectural police force officers, focusing on emergency disaster control measures. In addition, it will instruct prefectural police forces to carry out drills with a focus on disasters, working in partnership with relevant organizations.

Police disaster response units will also conduct joint practical drills. In particular, the interprefectural emergency rescue units that form the core of the rapid response units within police disaster response units will conduct joint exercises, while mobile police communications units will carry out practical drills to facilitate faster information gathering and secure means of communication.

(4) Ministry of Internal Affairs and Communications Emergency Communications Drill, etc.

In partnership with the regional Emergency Communication Conference in each area, the Ministry of Internal Affairs and Communications (MIC) draws up communications plans to prepare for a disaster and conducts communications drills with national and local government bodies, among others, in order to ensure smooth communications in the event of a disaster. It will also provide radio station licensees with guidance concerning the inspection of communications facilities.

FY2016 Budget: ¥13 million
FY2015 Budget: ¥14 million
Difference: -¥1 million

(5) Japan Broadcasting Corporation Education and Training Initiatives

The Japan Broadcasting Corporation (hereinafter "NHK") will engage in education and training and disseminate knowledge on the subject of disaster preparedness, in order to ensure that it can make and receive broadcasts in the event of disaster.

(6) Fire and Disaster Management College Education and Training Initiatives

FDMA's Fire and Disaster Management College will conduct education and training programs for staff involved in fire safety at the national and prefectural level, as well as for municipal firefighters and fire corps volunteers. Through its programs and tabletop exercises, the College will teach course participants the knowledge and skills that they will require as leaders to strengthen fire and disaster management systems against all kinds of disaster, including fires, storm and flood disasters, earthquakes, tsunami, and disasters involving hazardous materials.

FY2016 Budget: ¥304 million
FY2015 Budget: ¥320 million
Difference: -¥16 million

(7) Ministry of Justice Education and Training Initiatives

The Ministry of Justice (MOJ) will conduct a communications drill based on the MOJ Emergency Contact System, which consists of satellite phones, in order to ensure that relevant MOJ organizations have a means of exchanging information with one another in a disaster or other emergency, as well as

facilitating efforts to gather and pass on information about disasters, etc. swiftly and without fail.
(Current status) 100%
(Goal) 100%
FY2016 Budget: ¥93 million
FY2015 Budget: ¥77 million
Difference: ¥16 million

(8) Enhancing Education about Disaster Preparedness

The Ministry of Education, Culture, Sports, Science and Technology (MEXT) will support communities and schools working on the development of techniques for providing education tailored to local circumstances in relation to issues faced by communities in schools in the area of school safety, with a particular focus on disaster preparedness. In addition, it will support communities and schools endeavoring to build safety management systems and collaborative frameworks that involve local residents and relevant organizations. It will also conduct training for teachers and other staff at schools.

FY2016 Budget: ¥239 million
FY2015 Budget: ¥231 million
Difference: ¥8 million

(9) National Hospital Organization Education and Training Initiatives

The National Hospital Organization will conduct training in disaster medical care for physicians, nurses, and other medical professionals.

(10) Training in Measures against NBC Disasters and Terrorism

The Ministry of Health, Labour and Welfare (MHLW) will cultivate physicians and other medical professionals capable of responding appropriately to disasters involving nuclear, biological, or chemical agents (NBC disasters) or terrorism. To this end, it will conduct training aimed at providing medical professionals at emergency and critical care centers and disaster base hospitals with the specialist knowledge, skills, and crisis management abilities required to deal with NBC disasters and terrorism.

FY2016 Budget: ¥6 million
FY2015 Budget: ¥6 million
Difference: ¥0

(11) Financial Assistance for Japanese Red Cross Society Relief Worker Cultivation Programs

The MHLW will provide the Japanese Red Cross Society with financial assistance for costs associated with the training of personnel for relief teams involved in responding to major disasters.

FY2016 Budget: ¥6 million
FY2015 Budget: ¥7 million
Difference: ¥0

(12) Disaster Relief Leader Cultivation and Training Program

The International Communication Center for Persons with Disabilities, which was established by the MHLW, will conduct programs aimed at cultivating disaster volunteer leaders who can assist with rescue and support activities and disaster leaders conversant with approaches to disaster response suited to the specific needs of people with visual and/or hearing impairments. The aim of this is to facilitate the provision of support carefully designed to meet the needs of people with disabilities in the event of a disaster.

FY2016 Budget: ¥2 million
FY2015 Budget: ¥2 million
Difference: ¥0

(13) Mental Health Promotion Program

The MHLW will provide financial assistance for specialist training in measures to combat post-traumatic stress disorder (PTSD), with the aim of enhancing and bolstering advice services provided by mental health and welfare centers, public health centers, and hospitals concerning PTSD, from which those who have been victims of crime or disaster can suffer.

FY2016 Budget: included in the ¥7 million sum
FY2015 Budget: included in the ¥7 million sum

(14) Training of Disaster Medical Care Coordinators

The MHLW will conduct training for personnel (Disaster Medical Care Coordinators) involved in coordinating dispatch of medical teams at the Dispatch Coordination Headquarters established under the prefectural Disaster Response Headquarters in the event of a disaster.

FY2016 Budget: ¥10 million
FY2015 Budget: ¥10 million
Difference: ¥0

(15) MLIT College of Land, Infrastructure, Transport and Tourism Education and Training Initiatives

In its courses, which include Earthquake and Tsunami Countermeasures, Crisis Management, and Technical Emergency Control Force (TEC-FORCE), the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) College of Land, Infrastructure, Transport and Tourism will provide MLIT staff and the employees of local governments, etc. dealing with the administration of land, infrastructure, transport and tourism with training incorporating task-oriented research and exercises aimed at providing participants with a comprehensive and advanced knowledge, as well as improving their ability to manage crises. In addition, it will provide lectures on general knowledge and skills concerning disasters and disaster management, as needed.

(16) JMA Education and Training Initiatives

As well as promoting widespread knowledge of meteorological phenomena, the Japan Meteorological Agency (JMA) will hold briefings about forecasts and warnings as needed for relevant staff members at organizations involved in disaster management. The university and training departments of the Meteorological College will provide education in the knowledge and skills required in the provision of various weather services, thereby enhancing staff capabilities.

FY2016 Budget: ¥125 million
FY2015 Budget: ¥127 million
Difference: -¥2 million

(17) Japan Coast Guard Education and Training Initiatives, etc.

The Japan Coast Guard (JCG) will provide its staff with education concerning responses in the event of various disasters and conduct disaster response drills in partnership with relevant organizations. It will also provide guidance to marine vessel operators to assist in the prevention of marine accidents and maritime disasters.

(18) Ministry of Defense Education and Training Initiatives

The Ministry of Defense (MOD) will conduct exercises to enhance its ability to respond to a wide variety of large-scale disasters, tailoring them respectively to the features of duties of the Ground Self-Defense Force (GSDF), the Maritime Self-Defense Force (MSDF) and the Air Self-Defense Force (ASDF) (hereinafter referred to as “the SDF”) and the scales of the SDFs.

In addition, the MOD will conduct Joint Exercise for Rescue (JXR), as well as actively participating in general disaster prevention drills, etc. conducted by local governments, in order to maintain and enhance its disaster response capability by improving emergency response and cooperation procedures among the SDF, and information sharing under the joint operations system in which the SDF may jointly operate to respond to disasters.

FY2016 Budget: ¥199 million
FY2015 Budget: ¥513 million
Difference: -¥314 million

1-2 Development of Facilities and Equipment for Disaster Management

(1) Enhancement of the Central Disaster Management Radio Communications System

The Cabinet Office will enhance the Central Disaster Management Radio Communications System to ensure communication between the Prime Minister’s Office and other major government offices, designated administrative organizations, designated public corporations, and local governments. Following on from FY2016, the Cabinet Office will take appropriate steps to ensure the stable operation of the Central Disaster Management Radio Communications System. In addition, to prepare for a Tokyo inland earthquake or other major disaster, it will equip designated public corporations with multiplex radio communications or multifunctional satellite communications equipment.

FY2016 Budget: ¥1.156 billion
FY2015 Budget: ¥1.176 billion
Difference: -¥20 million

(2) Upgrading of Materials and Equipment for Disaster-related Police Activities

The National Police Agency will equip prefectural police forces with the rescue and relief materials, equipment, and helicopters required for disaster-related police activities, as well as seeking to enhance disaster prevention functions by such means as the seismic retrofit of police facilities. In addition, to improve the disaster response capabilities of police disaster response units, among others, it will promote efforts to enhance facilities for disaster-focused police training exercises.

FY2016 Budget: ¥26.544 billion
FY2015 Budget: ¥29.254 billion
Difference: -¥2.710 billion

(3) Promotion of the Disaster Prevention Frameworks Program

MIC and FDMA will promote selective upgrading of disaster prevention frameworks including the development of disaster prevention facilities and use of ICT in fire and disaster management by local governments, with the aim of promoting the development of safe, secure, disaster-resilient communities. Specifically, they will do so through a package of local government finance measures in the form of the disaster prevention frameworks program.

(4) Upgrading of NHK's Emergency Power Supply System

NHK will seek to upgrade its emergency power supply system to ensure the stability of broadcasts in the event of a major disaster.

(5) Securing Telecommunications Networks, etc.

MIC will provide the telecommunications carriers with guidance to promote the construction of disaster-resilient telecommunications facilities by taking steps to combat power cuts and prevent flooding, as well as improving the reliability of transmission lines. It will also encourage them to utilize emergency messaging services, which facilitate efforts to confirm the safety of people in disaster-stricken areas.

(6) Deployment of Mobile Communications Equipment for Use in Disaster Management

MIC will establish stockpiles of mobile communications equipment for use in disaster management that can be swiftly loaned out if requested by local governments, etc. in disaster-stricken areas, to provide a means of communication in the event of an earthquake or other major disaster. It will also continue to enhance systems to facilitate efforts to transport mobile radio equipment to areas affected by disaster.

FY2016 Budget: ¥35 million
FY2015 Budget: ¥37 million
Difference: -¥1 million

(7) Enhancement of Radio Communications Equipment for Use in Fire and Disaster Management

FDMA will strive to upgrade its functions of disaster information gathering and sharing by enhancing radio communications equipment for use in fire and disaster management nationwide, in order to facilitate faster and more reliable gathering and sharing of information between the national government, prefectural governments, and municipalities in the event of disaster.

FY2016 Budget: ¥504 million
FY2015 Budget: ¥369 million
Difference: ¥135 million

(8) Upgrading of Facilities, Materials and Equipment for Emergency Fire Response Teams

FDMA will provide municipalities, etc. with financial aid to upgrade firetrucks and the like, to facilitate the systematic enhancement of Emergency Fire Response Teams and the construction of more effective systems, in order to strengthen the entire nation's ability to respond to a Nankai Trough Earthquake or other major disasters.

(Current status) Number of registered teams: 5,301 (end of FY2015)
(Goal) Number of registered teams: 6,000 (end of FY2018)

FY2016 Budget: ¥4.895 billion
FY2015 Budget: ¥4.898 billion
Difference: -¥3 million

(9) Upgrading of Fire and Disaster Management Facilities

FDMA will provide municipalities, etc. with financial aid to upgrade fire and disaster management facilities, in order to ensure that they can respond appropriately to major disasters arising from earthquakes, volcanic eruptions, and the like, as well as to special types of disaster and growing demand for ambulance services, thereby ensuring the safety and security of residents in daily life.

FY2016 Budget: ¥1.437 billion
FY2015 Budget: ¥1.578 billion
Difference: -¥141 million

(10) Deployment of Vehicles, Materials, and Equipment for Dealing with NBC and Terrorism Disasters

FDMA will enhance the ability of Emergency Fire Response Teams to deal with nuclear, biological, and

chemical (NBC) and terrorism disasters by deploying the vehicles, materials, and equipment for dealing with such disasters to special advanced rescue teams, etc.

(Current status) Deployment of vehicles, materials, and equipment at all major fire departments nationwide

(Goal) Deploy vehicles, materials, and equipment to enhance ability to respond to NBC and terrorism disasters, as preparedness for the Tokyo 2020 Olympic and Paralympic Games (by FY2019)

FY2016 Budget: ¥40 million

FY2015 Budget: ¥42 million

Difference: -¥2 million

(11) Promotion of Measures to Protect Cultural Properties against Disaster

The Agency for Cultural Affairs will provide financial aid for projects to protect cultural properties against fire or theft, thereby ensuring that they can be passed on to the next generation. These projects will include the installation and refurbishment of fire and crime prevention equipment, the development of facilities for the preservation and use of such properties, and the evaluation of seismic capacity and seismic retrofit of buildings.

(Current status) Number of nationally designated, etc. cultural properties whose designation, etc. has been canceled due to loss or damage: 0 (FY2015)

(Goal) Number of nationally designated, etc. cultural properties whose designation, etc. has been canceled due to loss or damage: 0 (FY2016)

FY2016 Budget: included in the ¥25.806 billion sum

FY2015 Budget: included in the ¥25.524 billion sum

(12) Improvement of Disaster Base Hospitals

The MHLW will provide financial aid for the improvement of disaster base hospitals.

FY2016 Budget: included in the ¥2.545 billion sum

FY2015 Budget: included in the ¥2.545 billion sum

(13) Enhancement of Widespread Disaster and Emergency Medical Information Systems

The MHLW will provide financial aid for the development of a network linking the MHLW with public health centers, fire departments, and hospitals, in order to facilitate efforts by prefectures to reorganize and enhance existing Emergency Medical Information Center initiatives and gather comprehensive information about disaster medical care, including the operating status of medical institutions in the event of a disaster; the status of physicians, nurses, and other staff; and disaster medical assistance teams (DMAT).

FY2016 Budget: ¥47 million

*Also included in the ¥15.025 billion sum

FY2015 Budget: ¥47 million

*Also included in the ¥13.434 billion sum

Difference: ¥0

(14) Improvement of Social Welfare Facilities

The MHLW will provide financial aid for improvements at welfare facilities for disabled people deemed necessary as part of disaster prevention measures.

FY2016 Budget: included in the ¥6.956 billion sum

FY2015 Budget: included in the ¥2.561 billion sum

The MHLW will provide financial aid for improvements at community-based special nursing homes for the aged deemed necessary as part of disaster prevention measures.

FY2016 Budget: included in the ¥2.066 billion sum

FY2015 Budget: included in the ¥758 million sum

The MHLW will provide financial aid for improvements at child welfare facilities for disabled people deemed necessary as part of disaster prevention measures.

FY2016 Budget: included in the ¥5.662 billion sum

FY2015 Budget: included in the ¥5.662 billion sum

(15) Provision of Medical Equipment and Materials for Staging Care Units (SCU)

The MHLW will provide financial assistance for the cost of providing staging care units (SCUs) – temporary medical facilities set up at airports, etc.

to enable seriously injured people who cannot be treated in the disaster-stricken area to be transferred by air to medical facilities outside the area in question – with medical equipment and materials.

FY2016 Budget: included in the ¥15.025 billion sum

(16) Enhancement of Disaster Prevention Measures and Facilities at Fishing Ports and Fishing Villages

The Ministry of Agriculture, Forestry and Fisheries (MAFF) will seek to publicize guidelines for the development of disaster-resilient fishing communities, in order to guarantee the safety of residents, fishing port workers, and visitors in the event of an earthquake, tsunami, storm surge, or other disaster, as well as ensuring that fishing port facilities and cargo handling functions can be maintained. In addition, it will promote disaster risk reduction measures in fishing communities through such initiatives as the upgrading of disaster prevention facilities by several villages working together; the enhancement of embankments and other coastal protection facilities, as well as evacuation routes; and the seismic retrofit of fishing port and cargo handling facilities. (Described below: Chapter 2 2-2 (13))

FY2016 Budget: included in the ¥92.584 billion sum

*Also partly covered by subsidies for development of rural areas

FY2015 Budget: included in the ¥108.680 billion sum

*Also partly covered by subsidies for development of rural areas

(17) Encouragement of Efforts to Strengthen the Disaster Preparedness Functions of Agricultural Communities and Mountain Villages

MAFF will provide grants for forest roads to assist in the smooth implementation of fire prevention and firefighting activities.

It will also provide grants for the upgrading of evacuation facilities in case of disaster.

FY2016 Budget: included in the ¥2.643 billion sum

*Also partly covered by subsidies for development of rural areas and subsidies for the reinforcement of foundations for regional revitalization (allocated to the Cabinet Office)

FY2015 Budget: included in the ¥2.726 billion sum

*Also partly covered by subsidies for development of rural areas and subsidies for the reinforcement of foundations for regional revitalization (allocated to the Cabinet Office)

(18) Utilization of Farm Irrigation Facilities in an Emergency

MAFF will upgrade water storage tanks for use in firefighting, irrigation blocks, and hydrants to enable farm irrigation facilities to be used to supply water for firefighting and daily life in an emergency.

FY2016 Budget: included in the ¥106.650 billion sum

FY2015 Budget: included in the ¥106.650 billion sum

(19) Enhancement of Residential Land Risk Assessment Systems for Disaster-stricken Areas

MLIT will continue to work with prefectural governments and other bodies to support them in developing systems for conducting residential land risk assessments in disaster-stricken areas. The objective of this is to expedite efforts to gain an accurate understanding of the extent of damage to residential land following a major earthquake or other disaster, and to prevent or mitigate secondary disasters, as well as facilitating prompt recovery from disaster.

(20) Upgrading of Radio Communications Equipment for River and Road Management

MLIT will continue efforts to upgrade the integrated IP network that seamlessly connects the multiplex radio communications network with the optical fiber network. Its aim in doing so is to maintain the communications infrastructure that facilitates the transmission of information required in river and road management and disaster response, including telephone calls, river information, road information, radar rainfall data, images from monitoring cameras, and videoconferences. In addition, it will implement earthquake and tsunami countermeasures in response to the Great East Japan Earthquake and other disasters. It will also progressively introduce the Kokudokoutsuu LAnd Mobile system By Digital Access (K-LAMBDA / K-λ) mobile communications system for river and road management.

(21) Loan of Funds for Disaster Mitigation Work on Residential Land

The Japan Housing Finance Agency will provide loans for disaster mitigation work on residential land, to assist in funding the construction of retaining walls, drainage facilities, or other disaster mitigation work recommended or ordered under the Act on the Regulation of Residential Land Development, the Act on Prevention of Disasters Caused by Steep Slope Failure, or the Building Standards Act.

(22) Management of Key Wide-Area Disaster Prevention Bases

MLIT will promote the management of key wide-area disaster prevention bases, which will serve as bases for recovery and reconstruction in the event of disaster.

FY2016 Budget: ¥77 million

*Also included in the ¥231.712 billion sum

FY2015 Budget: ¥75 million

*Also included in the ¥231.411 billion sum

(23) Upgrading of Meteorological Observation Facilities, etc.

The JMA will start the operation of the Geostationary Meteorological Satellite "Himawari-9" as a backup to prevent and mitigate disasters due to typhoons, torrential rain, heavy snowfall, and other natural phenomena.

FY2016 Budget: ¥19.190 billion

FY2015 Budget: ¥19.073 billion

Difference: ¥117 million

(24) Upgrading of Patrol Boats, etc.

The JCG will upgrade patrol boats and aircraft, etc., as well as enhancing the electronic chart system and improving sea marks.

FY2016 Budget: ¥77.928 billion

FY2015 Budget: ¥78.448 billion

Difference: -¥520 million

(25) Enhancement of Maritime Disaster Management Systems

The JCG will ensure that patrol boats and aircraft are furnished with disaster management materials and equipment to enable them to respond swiftly and accurately to accidents involving the spillage of oil or hazardous liquids.

FY2016 Budget: ¥75 million

FY2015 Budget: ¥79 million

Difference: -¥4 million

1-3 Relocation of Housing from Land at Risk of Disaster

Project promoting group relocation for disaster mitigation

MLIT will support the group relocation of homes from areas where disasters have occurred, in accordance with the Act on Special Financial Support for Promoting Group Relocation for Disaster Mitigation, or from districts deemed inappropriate for use as residential land in areas designated as disaster hazard areas under Article 39 (1) of the Building Standards Act.

FY2016 Budget: ¥44 million

FY2015 Budget: ¥44 million

Difference: ¥0

1-4 Other

(1) Promotion of National Resilience

In accordance with the Fundamental Plan for National Resilience and the Action Plan for National Resilience, which is formulated each fiscal year, the Cabinet Secretariat's National Resilience Promotion Office will promote cross-cutting inter-ministerial initiatives to enhance national resilience by considering efficient, effective methods of promoting priority measures, as well as examining issues to be tackled.

FY2016 Budget: ¥164 million

FY2015 Budget: ¥163 million

Difference: ¥1 million

(2) Expenditure on Projects to Promote Practical Actions for Disaster Risk Reduction

In accordance with the Basic Policy for Promoting Nationwide Movement for Disaster Reduction (approved by the Central Disaster Management Council on April 21, 2006) and *Initiatives for Bringing to Fruition a Nationwide Movement for Disaster Reduction* (Expert Panel, December 13, 2006), the Cabinet Office will seek to build momentum for a popular movement in which individuals, households, communities, companies, and groups, etc. routinely undertake actions and investment to reduce disaster over the long term.

FY2016 Budget: ¥127 million

FY2015 Budget: ¥110 million

Difference: ¥17 million

(3) Project to Promote Partnerships with Disaster Prevention Volunteers (involving a range of organizations)

The Cabinet Office will gain an overview of the current status of activities by disaster prevention volunteers, identify a wide range of issues, and have an investigative committee of experts put together a set of recommendations concerning volunteer activities that will not only be helpful when responding to disasters, but also make a broader contribution to disaster preparedness, including under normal circumstances, as well as making recommendations concerning approaches to support for such activities. In addition, it will organize social events aimed at swelling the ranks of volunteers, identify and study examples of best practice, and hold collaborative exercises with the involvement of government bodies and volunteers.

FY2016 Budget: ¥20 million
FY2015 Budget: ¥20 million
Difference: ¥0

(4) Promotion of Efforts to Build Business Continuity Systems Throughout Society

To ensure that adequate national government ministry and agency business continuity systems are put in place, the Cabinet Office will have experts evaluate business continuity plans (BCPs) and will investigate revisions to those BCPs based on the outcomes of the evaluations. In addition, to support initiatives aimed at ensuring that local governments have put business continuity systems in place, the Cabinet Office will investigate the initiatives and measures put in place by local governments. Furthermore, to promote the establishment of business continuity systems by private sector companies and groups and collaborative public-private initiatives focused on disaster preparedness activities, it will conduct a fact-finding survey to ascertain the preparation status of BCPs, as well as examining the current state of collaborative public-private initiatives and considering relevant measures.

FY2016 Budget: ¥41 million
FY2015 Budget: ¥51 million
Difference: -¥10 million

(5) Promotion of Improved Community Disaster-resistance

The 2013 revision of the Disaster Countermeasures Basic Act introduced a system of Community Disaster Management Plans, to encourage local communities to improve their own disaster management capabilities in a spirit of self help and mutual help. The Cabinet Office will support communities in preparing these plans, in order to raise awareness of this system and promote widespread participation.

FY2016 Budget: ¥42 million
FY2015 Budget: ¥49 million
Difference: -¥8 million

(6) Deliberations Concerning Surveys of Disaster Victim Support and Reconstruction Measures

The Cabinet Office will undertake the necessary deliberations to ensure the provision of finely tuned disaster victim support that takes the victims' perspectives into account. In addition, it will consider measures to achieve swift and smooth progress in post-disaster reconstruction and will seek to share these with relevant organizations.

FY2016 Budget: ¥55 million
FY2015 Budget: ¥58 million
Difference: -¥3 million

(7) Management Grant for Specified Facilities Promoting Earthquake Disaster Prevention Measures (The Great Hanshin Awaji Earthquake Memorial - Disaster Reduction and Human Renovation Institution)

The Cabinet Office will promote projects being undertaken by a designated facility promoting earthquake disaster prevention measures (The Great Hanshin Awaji Earthquake Memorial - Disaster Reduction and Human Renovation Institution) by providing financial aid to cover part of the costs of the Institution's initiatives, including those focused on the collection, preservation, and display of materials concerning the Great Hanshin-Awaji Earthquake and other earthquake disasters in Japan and overseas, and the dissemination of information about these.

FY2016 Budget: ¥251 million
FY2015 Budget: ¥251 million
Difference: ¥0

(8) PR Focused on Disaster Management

As well as preparing the White Paper *Disaster Management in Japan* in accordance with the Disaster Countermeasures Basic Act, the Cabinet Office will conduct a wide range of PR activities

focused on disaster management, such as operating and managing a website to provide accurate knowledge and information concerning disaster management, and publishing the *Bosai* newsletter, which provides user-friendly explanations of DRR measures.

FY2016 Budget: ¥18 million
FY2015 Budget: ¥18 million
Difference: ¥0

(9) Promotion of Gender Equality in Local Disaster Management

The Cabinet Office will use its website and other means to share information and promote widespread awareness of model disaster management and reconstruction initiatives from a gender equality perspective, tailored to local circumstances.

FY2016 Budget: ¥0
FY2015 Budget: ¥0
Difference: ¥0

(10) Promotion of Initiatives for Enhancing Disaster Prevention Plans

To increase the effectiveness of the Basic Disaster Management Plan, the Cabinet Office will ascertain the needs of relevant organizations in regard to the Basic Disaster Management Plan and consider improvement measures in light of these. In addition, it will promote initiatives aimed at achieving disaster mitigation targets based on the Basic Plan for the Promotion of Tokyo Inland Earthquake Emergency Measures (amended in March 2015).

FY2016 Budget: ¥20 million
FY2015 Budget: ¥20 million
Difference: ¥0

(11) Local Disaster Countermeasures to Deal with a Major Disaster

In response to disasters in FY2016, the Cabinet Office will dispatch staff to the area to gather information about the extent of the disaster. Where necessary, it will also dispatch a government investigation team to the area and implement swift, accurate emergency disaster control measures, including providing local government heads with the requisite guidance and advice.

FY2016 Budget: ¥75 million
FY2015 Budget: ¥79 million
Difference: -¥4 million

(12) Promotion of Standardization in Disaster Response Operations

The Cabinet Office will conduct a basic survey to assist in addressing the international standardization of disaster response operations and facilitate deliberations concerning the formulation of guidelines for the standardization of disaster countermeasures by the Working Group for the Promotion of Standardization of Disaster Countermeasures.

FY2016 Budget: ¥22 million
FY2015 Budget: ¥16 million
Difference: ¥6 million

(13) Promotion of Efforts to Secure Evacuation Shelters and Improve Their Quality

The Cabinet Office will implement model projects and hold forums to encourage municipal initiatives focused on the provision of welfare evacuation shelters for vulnerable people who would be unable to cope in an ordinary evacuation shelter, as well as initiatives aimed at enhancing the quality of life in evacuation shelters by such means as improving toilet facilities.

FY2016 Budget: ¥30 million
FY2015 Budget: ¥20 million
Difference: ¥10 million

(14) Promotion of Measures against Major Disasters

The National Police Agency will formulate and examine plans to dispatch units from the wider region in the event of a major disaster. In addition, it will seek to strengthen disaster-related policing measures by such means as putting in place disaster-resilient police information and communications infrastructure, as well as using video footage transmitted from helicopters and communications satellites to gather and distribute information from the scene of a disaster.

FY2016 Budget: ¥3.248 billion
FY2015 Budget: ¥1.768 billion
Difference: ¥1.481 billion

(15) Upgrading of Traffic Safety Facilities to Prepare for Disaster

To prepare for disaster, the National Police Agency will promote efforts to upgrade traffic safety facilities, including vehicle detectors, infrared beacons, additional power supply units for traffic signals, and traffic management centers.

FY2016 Budget: included in the ¥17.717 billion sum
FY2015 Budget: included in the ¥18.166 billion sum

(16) Enhancement of Road Traffic Information

The National Police Agency and MLIT will promote efforts to gather and provide accurate road traffic information through the use of infrared beacons and ETC 2.0, traffic information signs, and variable-message road signs.

The National Police Agency will also promote efforts to enhance the environment for the provision of traffic information in the event of disaster by using probe information held by private sector business operators.

Furthermore, the National Police Agency, MIC, and MLIT will promote initiatives contributing to the enhancement of road traffic information provided using the Vehicle Information and Communication System (VICS).

In addition, MLIT will strive to offer information about the outlook for imposing and lifting restrictions in areas where it provides forewarning of traffic restrictions due to torrential rain and the like, in order to increase convenience for road users.

FY2016 Budget: ¥52 million
FY2015 Budget: ¥35 million
Difference: ¥17 million

(17) Disaster Countermeasures for Radio Stations

When issuing licenses for the radio stations of organizations involved in disaster management and conducting regular inspections thereof, MIC will continue to provide licensees with guidance concerning operational safety measures in case of disaster; backup radio and power supply equipment, and the installation of private power generation equipment in case of power cuts; and the need to conduct drills to prepare for a major disaster.

(18) Maintenance and Operation of Emergency Information Transmission Networks

Disasters can cause massive damage to telecommunications facilities or lead to ordinary communications networks becoming congested. Accordingly, MIC will operate an emergency information transmission network to facilitate the efficient sharing of information between national government and telecommunications operators in order to ensure an immediate understanding of the extent of the damage in such a situation.

FY2016 Budget: ¥5 million
FY2015 Budget: ¥6 million
Difference: -¥1 million

(19) Promotion of Widespread Use of L-Alert

In light of the Dissemination Acceleration Package put together at the Study Group of Ideal State of Common Infrastructure for Information Transmission in Times of Disaster and the outcomes of a pilot project funded under the FY2014 supplementary budget, MIC will promote initiatives aimed at further dissemination and development of this system, including encouraging the provision of information about lifeline utilities.

FY2016 Budget: ¥0
FY2015 Budget: ¥0
Difference: ¥0

(20) Promotion of the Use of Digital Fire Emergency Wireless Systems, etc.

The Great East Japan Earthquake and other disasters showed that emergency broadcast systems and fire and ambulance radio systems have an important part to play in the efforts of municipalities to gain an understanding of the extent of a disaster, as well as in emergency rescue and medical care. Accordingly, MIC will provide financial assistance to cover part of the cost of switching to digital radio equipment, thereby promoting more effective use of radio frequencies.

FY2016 Budget: ¥1.185 billion
FY2015 Budget: ¥3.465 billion
Difference: -¥2.279 billion

(21) Measures to Promote Widespread Adoption of Teleworking

Teleworking has the potential to be effective in ensuring business continuity in the event of disaster, but SMEs have been slow to introduce it. Accordingly, focusing mainly on SMEs, MIC will implement measures to encourage its widespread adoption and development, including holding seminars to encourage its introduction and gathering information about companies that currently use teleworking.

(Current status) Percentage of employed home-based teleworkers who spend at least one day per week working from home for the whole day: 3.9% (results of an FY2014 survey)

(Goal) 10% (FY2020)

FY2016 Budget: included in the ¥720 million sum

FY2015 Budget: ¥150 million

(22) Encouraging the Installation of Public Wireless LAN Environments in Disaster Management Bases, etc.

MIC will support local governments, etc. that are installing public wireless LAN environments in disaster management bases, etc., to ensure that in the event of disaster, residents and others can obtain disaster-related information from local governments and other bodies swiftly and accurately, and can take appropriate steps to minimize the damage following a disaster.

FY2016 Budget: included in the ¥1.526 billion sum

FY2015 Budget: ¥250 million

(23) Support for Communication with Foreign Visitors to Japan in the Event of Disaster

To support smooth communication at evacuation shelters and other locations in the event that foreign visitors to Japan are caught up in a disaster, MIC will carry out research and development aimed at enhancing the accuracy of translation provided by multilingual speech translation systems and expanding the range of languages offered. It will also develop translation applications that are useful in real-life situations.

FY2016 Budget: ¥1.260 billion

FY2015 Budget: ¥1.383 billion

Difference: -¥123 million

(24) Encouraging the Development of Disaster Management Systems Using the G-spatial Information Center (G-Space 2.0)

Blended with ICT, geospatial information will bring about fresh innovations. Accordingly, to prepare for its use in a diverse array of fields, MIC will use the G-spatial Information Center (due to begin operating in FY2016) to build on the outcomes of social pilot projects involving the construction of disaster management systems, etc. recommended at the G-Space × ICT Conference (June 2013) and promote initiatives aimed at nationwide use.

FY2016 Budget: included in the ¥237 million sum

(25) Stable Operation of the J-Alert National Early Warning System

J-Alert is a satellite-based system that instantly transmits ballistic missile launch alerts, earthquake early warnings, tsunami warnings, and other information about emergencies to residents. FDMA will carry out maintenance and management of the system, to ensure that each organization able to receive information has the optimal environment for receiving transmissions at all times, as well as facilitating the system's stable operation.

FY2016 Budget: ¥397 million

FY2015 Budget: ¥283 million

Difference: ¥104 million

(26) Promotion of Revisions to Local Disaster Management Plans

To promote revisions of Local Disaster Management Plans, FDMA will provide local governments with advice, in order to ensure that their plans are specific, practical, and tailored to local circumstances. In addition, it will use the Local Disaster Management Plan database to enhance disaster management frameworks, by such means as promoting mutual support across local administrative boundaries via the exchange of information between local governments. It will also use the database to promote appropriate revisions to plans via comparisons and verification of plan content.

(27) Operation and Enhancement of the e-College for Disaster Prevention and Crisis Management Education

To enable people who cannot easily participate in group-based disaster prevention and crisis management education to receive training in these fields, FDMA will operate the e-College. In addition, to improve the quality of education provided, it will enhance the content of the e-College's courses.

FY2016 Budget: ¥12 million

FY2015 Budget: ¥14 million

Difference: -¥2 million

(28) Enhancement of Emergency Fire Response Team Dispatch Systems and Information and Communications Functions

To facilitate the swift, safe dispatch and effective operation of Emergency Fire Response Teams, FDMA will hold joint exercises for such teams in each of the regional blocks, revise various plans,

and update the mobilization information system used to manage details of the positions and operational statuses of Emergency Fire Response Teams.

FY2016 Budget: ¥211 million
FY2015 Budget: ¥379 million
Difference: -¥168 million

(29) Securing Funds for Expenditure Required for Mobilization of Emergency Fire Response Teams

When Emergency Fire Response Teams are mobilized by order of the Director-General of FDMA in the event of a major disaster or special disaster, pursuant to the provisions of Article 44 (5) of the Fire and Disaster Management Organization Act, FDMA will secure funds to cover the National Treasury's share of the expenses arising from their activities, in accordance with the provisions of Article 49 of the Fire and Disaster Management Organization Act.

FY2016 Budget: ¥10 million
FY2015 Budget: ¥10 million
Difference: ¥0

(30) Enhancement and Strengthening of Local Disaster Management Capabilities Centered on Volunteer Fire Corps

FDMA will seek to strengthen volunteer fire corps by supporting local government initiatives to encourage women and young people to join and play an active role in volunteer fire corps, as well as by holding contests to bolster local disaster management capabilities, and enhancing equipment, education, and training. In addition, it will revitalize voluntary disaster management organizations by cultivating local disaster management leaders in partnership with volunteer fire corps.

FY2016 Budget: ¥651 million
FY2015 Budget: ¥630 million
Difference: ¥21 million

(31) Enhancement and Strengthening of Ambulance Services

FDMA will enhance and strengthen ambulance services in order to increase survival rates. To this end, it will investigate and consider various issues concerning ambulance services and carry the following: (i) promotion of cooperation between firefighting facilities and medical facilities; (ii) examination of approaches to the education of ambulance crews; and (iii) investigation and consideration to build a system for triage.

FY2016 Budget: ¥54 million
FY2015 Budget: ¥64 million
Difference: -¥10 million

(32) Promotion of Advanced Rescue Skills

To overcome various issues faced in conducting increasingly complex and diverse fire rescue operations and develop more advanced rescue skills, FDMA will hold meetings of the Investigative Committee on Advanced Rescue Skills, as well as organizing the National Fire and Rescue Symposium, thereby helping to improve the rescue skills and knowledge of rescue teams.

FY2016 Budget: ¥17 million
FY2015 Budget: ¥15 million
Difference: ¥2 billion

(33) Promotion of Integration of Fire Departments

FDMA will promote efforts to enhance the capability of municipal fire services through integration of fire departments by implementing the requisite government finance measures for the priority areas of integration of fire departments and sending advisors at the request of local governments, etc.

FY2016 Budget: ¥5 million
FY2015 Budget: ¥7 million
Difference: -¥2 million

(34) Measures to Combat Critical Incident Stress among Municipal Firefighters and Fire Corps Volunteers

To strengthen measures against critical incident stress among fire corps volunteers, FDMA will implement initiatives to enhance the skills and increase the number of registered members of emergency mental health support teams. In addition, it will provide support for critical incident stress measures undertaken by fire departments, etc.

FY2016 Budget: ¥4 million
FY2015 Budget: ¥4 million
Difference: ¥0

(35) Establishment of Business Continuity Systems for Disaster and Emergency Response

FDMA will seek to ensure that it can swiftly and accurately respond to disasters and emergencies in the event that its headquarters are damaged by a

Tokyo inland earthquake or other disaster. To this end, it will furnish an alternative base with the facilities, materials and equipment that it would require to fulfill such functions as gathering information about the extent of a disaster from across the country and mobilizing Emergency Fire Response Teams.

FY2016 Budget: ¥4 million
FY2015 Budget: ¥3 million
Difference: ¥1 million

(36) Improvement of Local Government Disaster Response Capabilities

In partnership with relevant local governments, FDMA will conduct tabletop exercises focused on collaboration and the transmission of information, based on scenarios involving major earthquakes, to facilitate a swift and efficient initial response by the Agency and prefectures should disaster strike.

FY2016 Budget: ¥8 million
FY2015 Budget: ¥0
Difference: ¥8 million

(37) Maintenance of MOJ Response Capabilities in the Event of Disaster

The MOJ will seek to ensure that it can continue to carry out its duties without the risk of any public security issues, even if a disaster affects its offices and detention facilities. Accordingly, it will maintain disaster management and public security capabilities at its offices and detention facilities.

(Current status) Use of emergency services in the event of disaster
Provision of supplies required for rescuing inmates
Strengthening of the immigration control system in the event of disaster
100% for each (FY2015)
(Goal) 100% for each (FY2016)

FY2016 Budget: ¥52 million
FY2015 Budget: ¥64 million
Difference: -¥12 million

(38) MOJ Initiatives to Secure Essential Administrative Functions in the Immediate Aftermath of a Major Disaster

The MOJ will implement the following to prevent a deterioration in public security resulting from the escape of inmates from correctional facilities.

- Installation and updating of surveillance cameras and other comprehensive security systems, digital radios, private power generators and storage batteries, and emergency food supplies at correctional facilities
- Examination and establishment of systems for sharing information with relevant organizations about the extent of the damage to correctional facilities

(Current status) 100% (FY2015)
(Goal) 100% (FY2016)

FY2016 Budget: ¥1.004 billion
FY2015 Budget: ¥779 million
Difference: ¥225 million

(39) Maintenance of the Public Security Intelligence Agency's Ability to Deal with a Major Disaster or Other State of Emergency

The Public Security Intelligence Agency will maintain a service for confirming the safety of employees so that its first response system can be put into action swiftly to ensure that no public security problems occur in the event of a major disaster or other state of emergency.

FY2016 Budget: ¥0.5 million
FY2015 Budget: ¥1 million
Difference: -¥0.5 million

(40) Strengthening and Promotion of Disaster Risk Reduction Measures for Educational Facilities

To ensure children's safety, MEXT will expedite seismic reinforcement measures targeting nonstructural elements, as well as strengthening and promoting comprehensive, systematic disaster risk reduction measures by considering ways to bolster the disaster management functions of school facilities and cultivating emergency risk assessors.

FY2016 Budget: ¥56 million
FY2015 Budget: ¥174 million
Difference: -¥118 million

(41) Support for the Activities of Disaster Base Hospitals, etc.

The MHLW will provide the following financial aid.

- Expenses incurred by disaster base hospitals as a result of participating in and assisting with disaster management exercises organized by national government alone or in partnership with local governments
- Expenses associated with the activities of DMAT dispatched to disaster-stricken areas

FY2016 Budget: ¥9 million
FY2015 Budget: ¥9 million
Difference: ¥0

(42) Project to Support the Building of Regional Welfare Support Networks in Case of Disaster

The MHLW will provide financial assistance for projects aimed at building regional welfare support networks involving private sector business operators and other bodies, to facilitate an urgent response to the needs of vulnerable people in the event of disaster (elderly people, people with disabilities, and others requiring support).

FY2016 Budget: included in the ¥29.089 billion sum
FY2015 Budget: included in the ¥28.268 billion sum

(43) Upgrading of the DMAT System

The MHLW will conduct training for physicians, nurses, and other medical professionals, with the aim of cultivating DMAT members.

The MHLW will provide financial assistance for the running of the DMAT Secretariat, which supervises DMAT and conducts ongoing skills training of DMAT members.

It will also provide financial aid to cover the cost of chartering helicopters, which are used to insert disaster medicine experts into disaster-stricken areas without delay to ascertain the extent of the damage caused by a disaster from a medical perspective and ensure that medical care is provided swiftly and accurately.

FY2016 Budget: ¥223 million
FY2015 Budget: ¥171 million
Difference: ¥53 million

(44) Development of Disaster Medical Care Frameworks at the National Hospital Organization

The National Hospital Organization will put in place a system for the dispatch of first response medical teams to ensure that medical care is provided in the event of disaster.

(45) Widespread Dissemination of Information about Preventing Disaster in Mountainous Areas

MAFF will implement a package of measures to mitigate the damage caused by disasters in mountainous areas, combining hard infrastructure, such as forest conservation facilities, with soft infrastructure, such as local evacuation systems. This will include an initiative focused on providing residents with map data for mountainous areas at risk in the event of disaster.

FY2016 Budget: included in the ¥6.141 billion sum
FY2015 Budget: included in the ¥2.700 billion sum

(46) Upgrading of the Disaster Preparedness Information Network for National Land Development and Improvement Facilities

MAFF will upgrade facilities for relaying observation data to enhance systems that gather and collate key data (such as details of water levels and other data considered important from a disaster preparedness perspective) and enable government organizations and facility managers to share it in real time. Its aim in doing so is to prevent damage to communities and state-owned land development and improvement facilities as a result of disaster.

(Current status) Reduction in the area of agricultural land at risk of flood damage, etc.: 73,000 ha (FY2014)
(Goal) 100,000 ha (FY2016)

FY2016 Budget: ¥358 million
FY2015 Budget: ¥421 million
Difference: -¥63 million

(47) Support for SMEs in Preparing Business Continuity Plans

The Japan Finance Corporation will provide low-interest loans to enable SMEs to install equipment that will assist in disaster risk reduction, based on business continuity plans prepared by the SMEs themselves.

(48) Expenditure on Surveys to Examine Operational Safety Systems for Electric Facilities

The Ministry of Economy Trade and Industry (METI) will consider measures to expedite the repair of electricity lifelines in the event of a natural disaster.

(Current status) METI conducted a basic survey to examine measures to prevent damage to hydroelectric power generation equipment and downstream harm caused by damage to dams, and produced a manual. (FY2015)
(Goal) Construction of electrical equipment and electricity systems that are resilient

against natural disasters

FY2016 Budget: included in the ¥270 million sum

FY2015 Budget: included in the ¥270 million sum

(49) Expenditure on Outsourcing the Management of Government-Stockpiled Oil and Government Stockpiling Facilities in Preparation for Release in an Emergency

(Petroleum)

In the course of managing the national petroleum stockpiling bases, to ensure that such oil can be made available as needed, METI will implement land conservation and disaster risk reduction measures, including measures to protect facilities and equipment against tsunami and liquefaction, as well as enhancing their earthquake resistance.

(Current status) Diagnostic, inspection, and remedial work, including measures to increase earthquake and tsunami resistance and counter liquefaction at national petroleum stockpiling bases (underway in FY2015)

(Goal) Remedial work, etc. to be completed at all national petroleum stockpiling bases by FY2017

FY2016 Budget: included in the ¥42.494 billion sum

FY2015 Budget: included in the ¥43.050 billion sum

(50) Expenditure on Outsourcing the Management of Government-Stockpiled Oil and Government Stockpiling Facilities in Preparation for Release in an Emergency

(Liquefied Petroleum Gas)

To ensure the appropriate management of facilities national LPG stockpiling bases, METI will implement land conservation and disaster risk reduction measures, including the repair of facilities and equipment and measures to protect them against tsunami and liquefaction, as well as enhancing their earthquake resistance.

(Current status) Steady promotion of efforts to build up Government-Stockpiled LPG and establish Government-Stockpiled LPG facilities with the capacity to hold 1.5 million tons, and establishment of a system for the smooth and steady release of the stockpile in an emergency (underway in FY2015)

(Goal) Steady promotion of efforts to build up Government-Stockpiled LPG and establish Government-Stockpiled LPG facilities with the capacity to hold 1.5 million tons, and establishment of a system for the smooth and steady release of the stockpile in an emergency

FY2016 Budget: included in the ¥9.520 billion sum

FY2015 Budget: included in the ¥8.398 billion sum

(51) Oil Stockpiling Program Subsidy

METI will pay oil refiners, etc. a subsidy equivalent to the cost of leasing their tanks, thereby augmenting Government-Stockpiled Oil stored in the form of such products as gasoline and diesel.

(Current status) Increase in Government-Stockpiled Oil Products in private sector tanks (equivalent to approximately four days' worth of regional demand in the 10 regions nationwide) (underway in FY2015)

(Goal) Efficient management of Government-Stockpiled Oil Products in private sector tanks (equivalent to approximately four days' worth of regional demand in the 10 regions nationwide)

FY2016 Budget: included in the ¥28.600 billion sum

FY2015 Budget: included in the ¥28.450 billion sum

(52) Program of Measures to Encourage the Use of Petroleum Products

METI will partially subsidize the cost of installing such equipment as petroleum product storage tanks and generators in evacuation shelters and hospitals, among others, in order to encourage fuel stockpiling by consumers and facilitate a stable supply of energy in the event of disaster.

(Current status) Securing of "defensive stockpiles" of oil products for at least 100 socially important infrastructure facilities (such as hospitals and evacuation shelters) each fiscal year (underway in FY2015)

(Goal) Securing of "defensive stockpiles" of oil products for at least 100 socially important infrastructure facilities (such as hospitals and evacuation shelters) each fiscal year (to be completed in FY2018)

FY2016 Budget: ¥670 million

FY2015 Budget: ¥750 million

Difference: -¥80 million

(53) Petroleum Product Distribution Network Maintenance and Strengthening Program

To ensure a stable supply of petroleum products in each region and in the event of a disaster or other emergency, METI will support human resource development initiatives aimed at enhancing the ability of fuel service stations to respond to a disaster.

(Current status) Maintenance and securing of at least one service station in each municipality, maintenance and strengthening of petroleum products distribution networks, and improvement of disaster response capabilities (underway in FY2015)

(Goal) Maintenance and securing of at least one service station in each municipality, maintenance and strengthening of petroleum products distribution networks, and improvement of disaster response capabilities (to be completed in FY2018)

FY2016 Budget: ¥770 million

FY2015 Budget: ¥485 million

Difference: -¥285 million

(54) Regional Energy Supply Base Development Program

To ensure a stable supply of petroleum products, including in times of disaster, METI will provide support for costs associated with the replacement of underground storage tanks at fuel service stations with larger tanks and the installation of private power generators, etc.

(Current status) Maintenance and securing of at least one service station in each municipality, maintenance and strengthening of petroleum products distribution networks, and improvement of disaster response capabilities (underway in FY2015)

(Goal) Maintenance and securing of at least one service station in each municipality, maintenance and strengthening of petroleum products distribution networks, and improvement of disaster response capabilities (to be completed in FY2018)

FY2016 Budget: ¥3.050 billion

FY2015 Budget: ¥3.394 billion

Difference: -¥344 million

(55) Program to Support the Development of Local Disaster Preparedness Frameworks Focused on LPG

METI will support efforts by LPG dealers, etc. to enhance their disaster preparedness frameworks and conduct drills, in order to ensure that LPG Supply Disaster Response Cooperation Plans will be implemented without fail should an envisaged major disaster occur.

(Current status) Improvement of LPG disaster response capabilities through drills in each of the nine regions nationwide (underway in FY2015)

(Goal) Improvement of LPG disaster response capabilities through drills in each of the nine regions nationwide

FY2016 Budget: included in the ¥800 million sum

FY2015 Budget: included in the ¥703 million sum

(56) Project to Promote the Business Restructuring and Increased Resilience of Petroleum Complexes

To be prepared in case of damage caused by seismic motion, liquefaction, or lateral spreading due to a Tokyo inland earthquake or other quake, METI will provide support for (i) measures to increase the earthquake resistance of equipment at oil refineries, etc. and combat liquefaction; (ii) safety stop measures for equipment; and (iii) measures to augment back-up capabilities in respect of other oil refineries, etc.

(Current status) Progress with seismic retrofit of oil refineries: 26% (FY2015)

(Goal) 100% (FY2019)

FY2016 Budget: included in the ¥13.000 billion sum

FY2015 Budget: included in the ¥11.500 billion sum

(57) Centralized Provision of Disaster Management Information within MLIT

MLIT's Disaster Information Center is a website through which the public can access the disaster management information held by MLIT, presented in a user-friendly manner. MLIT will use the Disaster Information Center to provide a centralized hub where the public can easily obtain real-time rainfall data, view real-time radar images, and access details of MLIT's response to disasters.

(58) Enhancement of Systems for Communicating Information in the Event of Disaster

MLIT will establish a Communications Headquarters to ensure the swift provision of information about the impact of disasters on roads should a disaster occur. This centralized system will enable road administrators to share information about areas where traffic restrictions have been imposed and the outlook for the lifting of those restrictions.

(59) Active Improvement of Cadastral Promotion

To contribute to efforts to reduce risk before disaster strikes and expedite recovery and reconstruction in the aftermath of disaster, MLIT will selectively promote cadastral survey in regions where a major disaster is expected. In addition, it will selectively make available information about boundaries between public land under the direct control of the government and private land, focusing primarily on the area expected to experience tsunami inundation as a result of the Nankai Trough earthquake.

(Current status) Progress with cadastral survey: 51% (end of FY2014)

(Goal) 57% (end of FY2019)

FY2016 Budget: ¥11.621 billion

FY2015 Budget: ¥11.540 billion

Difference: ¥81 million

(60) Enhancing Major Disaster Response Frameworks by Technical Emergency Control Force (TEC-FORCE)

MLIT will promote efforts to strengthen the frameworks by the Technical Emergency Control Force (TEC-FORCE) which consists of staff of Regional Development Bureaus, etc., and responds to major natural disasters. TEC-FORCE provides disaster-stricken local governments with survey of damage by the disaster and prevents the damage from becoming more extensive, as well as swiftly implementing technical support to expedite recovery in the disaster-stricken area.

FY2016 Budget: included in the ¥2.651992 trillion sum

FY2015 Budget: included in the ¥2.647038 trillion sum

(61) Fundamental Land Classification Survey

MLIT will conduct the national government's Fundamental Land Classification Survey, which presents user-friendly information about Land History Survey about Disasters and Developments. This information includes details of the land's original natural conditions, which may have become obscured as the land has been modified, as well as details of modifications that have been made and the history concerning disasters and developments in the area.

(Current status) Progress with the Fundamental Land Classification Survey (Land History Survey about Disasters and Developments): 77.0% of total area (status as of the end of FY2014)

(Goal) 100% (FY2019)

FY2016 Budget: ¥52 million

FY2015 Budget: ¥53 million

Difference: -¥1 million

(62) Construction of Disaster-resilient Logistics Systems

MLIT will hold meetings of councils whose members are drawn from the ranks of logistics business operators, etc., to consider the use of diverse means of transport in shipping relief supplies.

(Current status) Percentage of regions expected to be affected by a Tokyo inland earthquake or Nankai Trough earthquake, where councils whose members include representatives of national and local governments, experts, and a diverse array of logistics business operators have been established: 17% (FY2014)

(Goal) 100% (FY2017)

FY2016 Budget: ¥11 million

FY2015 Budget: ¥8 million

Difference: ¥3 million

(63) The Use of the Digital Japan Basic Map and Basic Information Concerning Disasters in the Promotion of Disaster Management Measures

The Geospatial Information Authority of Japan (GSI) will develop and update the Digital Japan Basic Map, which serves as the basis for maps of Japan's national land. In addition, it will contribute to disaster and risk management measures by preparing Volcanic Base Maps detailing such information as the topography of the areas around volcanoes and putting together data on vulnerable topography, which identifies landforms that would be vulnerable to earthquake tremors.

FY2016 Budget: included in the ¥484 million sum
FY2015 Budget: included in the ¥449 million sum

(64) Establishment of Systems for Securing Emergency Transport Networks in the Event of Disaster

As well as furnishing its headquarters and District Transport Bureaus, etc. with emergency communications equipment, MLIT will ensure that emergency transport can be carried out swiftly and unfailingly in the event of disaster by working with relevant organizations to formulate plans for emergency transport in the event of a major disaster and conduct relevant drills.

FY2016 Budget: ¥36 million
FY2015 Budget: ¥37 million
Difference: -¥1 million

(65) Provision of Information to Foreign Visitors to Japan in the Event of Disaster

The Japan Tourism Agency will use transport gateways and tourist information centers to publicize the Safety Tips app, which was developed to provide foreign tourists visiting Japan with information in the event of disaster. It will also disseminate information on apps and websites frequently used by foreign travelers.

(66) Issuance and Communication of Forecasts, Warnings, and Other Information

As well as publishing timely and appropriate forecasts, warnings, and other information, the JMA will strive to prevent and mitigate disaster by providing relevant organizations with this information. It will also operate a radiofax service providing weather maps and current details of waves, ocean currents, and sea ice, along with outlook charts for these phenomena.

(67) Promotion of Efforts to Upgrade the Johkasou (Septic Tank) Record System

To encourage local governments to strengthen the infrastructure for managing johkasou to facilitate recovery from disaster, the Ministry of the Environment (MOE) will conduct surveys concerning new adoption of the johkasou record system and implement model projects aimed at enhancing the ability to deal with disasters by equipping the johkasou record system with a geographic information system (GIS).

(Current status) Number of local governments that have equipped their johkasou record systems with a GIS: 80 (end of FY2013)
(Goal) 110 (FY2018)

FY2016 Budget: ¥13 million
FY2015 Budget: ¥16 million
Difference: -¥3 million

(68) Expenditure on Improving Ability to Deal with Disasters

The MOD will seek to enhance its ability to deal with various types of disaster by such means as promoting seismic retrofit to maintain and strengthen the functions of its camps and bases, etc. that will serve as hubs for disaster response.

FY2016 Budget: ¥114.735 billion
FY2015 Budget: ¥181.595 billion
Difference: -¥66.860 billion

2. Contingency Planning against an Earthquake

2-1 Education and Training

(1) Earthquake Early Warning Drills

The Cabinet Office, FDMA, and the JMA will work with relevant organizations to conduct disaster drills across the country in June and November (around the time of Tsunami Preparedness Day), calling on the public to participate actively, so that people can make a disaster drill for the proper action in the situation when receiving an earthquake early warning.

(2) National Police Agency Education and Training Initiatives

The National Police Agency will conduct education and training programs for senior prefectural police force officers, focusing on emergency disaster control measures in the event of an earthquake. In addition, it will conduct exercises focused on the set-up and running of Emergency Disaster Countermeasures Headquarters. It will also instruct prefectural police forces to carry out the education and training required for contingency planning against an earthquake disaster.

Furthermore, the National Police Agency will instruct prefectural police forces to make use of the Rules of the Road in classes for holders of driving licenses, etc. to raise awareness among drivers regarding the steps that they should take in the event of disaster.

(3) Fire and Disaster Management Agency Earthquake Response Exercises

As well as participating in the Government Comprehensive Disaster Management Drill and tabletop exercises, FDMA will conduct its own tabletop exercises and muster drills focused on earthquake and tsunami response, in order to bolster the functions of its Disaster Management Headquarters in the event of a major earthquake.

(4) Earthquake and Tsunami Disaster Management Drills

As well as holding a comprehensive disaster management drill on Disaster Prevention Day on September 1, MLIT will hold a comprehensive drill for large-scale tsunami disaster on World Tsunami Awareness Day on November 5, with the objective of mitigating the damage caused by a large-scale tsunami triggered by an earthquake and promoting widespread awareness of the knowledge about tsunami.

(5) Tsunami Warning Communication Drills, etc.

As well as conducting drills at key national hubs (Headquarters and Osaka Regional Headquarters) to speed up the issuance of tsunami warnings, the JMA will actively participate and cooperate in drills organized by local governments, etc. In addition, it will conduct drills to test the Earthquake Assessment Committee for Areas under Intensified Measures against Earthquake Disaster and undertook work related to information on the Tokai Earthquake, etc.

(6) JCG Earthquake Response Exercises, etc.

The JCG will provide staff involved in responding to earthquakes and tsunami with education about disaster response and will conduct earthquake response drills in partnership with relevant organizations. (Described below: Chapter 2 3-1 (2))

FY2016 Budget: ¥4 million
FY2015 Budget: ¥4 million
Difference: ¥0

2-2 Development of Facilities and Equipment for Disaster Management

(1) Maintenance and Management of Region-wide Disaster Management Bases

The Cabinet Office will maintain and manage the Tachikawa Substitute Facility of the Government Headquarters for Disaster Countermeasures and the key wide-area disaster prevention bases in the Tokyo Bay waterfront area (Ariake no Oka and Higashi Ogishima regions), which will serve as operational bases for emergency disaster control measures in the event that a Tokyo inland earthquake, etc. triggers an extensive disaster. (Described below: Chapter 2 3-2 (1))

FY2016 Budget: ¥115 million
FY2015 Budget: ¥141 million
Difference: -¥26 million

(2) Promotion of Facility Upgrades for the Establishment of National On-site Disaster Management Headquarters

At facilities where an on-site disaster management headquarters might be set up in the event of a Nankai Trough earthquake, the Cabinet Office will carry out refurbishments that will assist in the smooth conduct of the operations of such headquarters. (Described below: Chapter 2 3-2 (2))

FY2016 Budget: ¥26 million
FY2015 Budget: ¥71 million
Difference: -¥45 million

(3) Promotion of the Project for Seismic Retrofit of Public Facilities, etc.

In order to ensure the safety of residents through minimizing the damage in the event of an earthquake or other major disasters, MIC and FDMA will promote the seismic retrofit of public facilities that will serve as bases for local government disaster countermeasures and public facilities that are designated as evacuation shelters in Local Disaster Management Plans through a package of local government finance measures.

(4) Development of Central Government Buildings Equipped with the Functions Required to Withstand an Earthquake

In light of the fact that the central government buildings that will serve as bases for earthquake disaster management operations are not sufficiently resistant to earthquakes, the Ministry of Finance (MOF) and MLIT will develop government buildings with the functions required for earthquake disaster management.

FY2016 Budget: ¥8.812 billion
FY2015 Budget: ¥6.165 billion
Difference: ¥2.647 billion

(5) Improvement of Facilities at National Universities

To prevent earthquake damage to buildings and ensure the safety of students, etc., MEXT will promote efforts to reinforce their disaster prevention functions by providing support for seismic retrofit of school buildings and other facilities.

(Current status) Percentage of national universities where seismic retrofit has been carried out (as of May 1, 2015): 96.4%

*Following implementation of projects funded by the budget for FY2015, this figure is forecast to rise to approximately 98%, so the seismic retrofit program will be mostly complete, apart from at universities where seismic reinforcement measures have been delayed due to specific circumstances, such as campus relocation projects and hospital redevelopment projects.

FY2016 Budget: included in the ¥41.800 billion sum

FY2015 Budget: included in the ¥48.690 billion sum

(6) Improvement of Public School Facilities

As well as being places of learning and a focus of children's social lives, public school facilities serve as evacuation shelters for local residents in the event of disaster. As such, MEXT will carry out seismic retrofit of public school buildings, etc. to reinforce their disaster prevention functions.

(Current status) Percentage of public elementary and junior high schools where seismic retrofit has been carried out (as of April 1, 2015): 95.6%

*Following implementation of projects funded by the budget for FY2015, this figure is forecast to rise to approximately 98%, so the seismic retrofit program will be mostly complete, apart from at schools where seismic reinforcement measures have been delayed due to the specific circumstances of the local government.

FY2016 Budget: included in the ¥80.309 billion sum

(Includes the portion for Okinawa, which is allocated to the Cabinet Office)

FY2015 Budget: included in the ¥72.496 billion sum

(Includes the portion for Okinawa, which is allocated to the Cabinet Office)

(7) Improvement of Private School Facilities

MEXT will seek to encourage the seismic retrofit of school facilities and reinforcement of disaster prevention functions, with the objective of ensuring the safety of children and young people in the event of a major disaster. Accordingly, it will support the structural alteration (rebuilding) of school buildings, etc. to improve their earthquake resistance, as well as seismic retrofit projects and maintenance work to enhance disaster prevention functions. It will aim to ensure that seismic retrofit is completed as soon as possible.

(Current status) Seismic retrofit completion:

[Kindergartens — high schools] 83.5%

(as of April 1, 2015)

[Universities and colleges] 87.6%

(as of May 1, 2015)

FY2016 Budget: ¥4.475 billion

FY2015 Budget: ¥1.189 billion

Difference: ¥3.285 billion

(8) Improvement of Local Physical Education Facilities

As well as being venues for community sporting activities, local physical education facilities serve as evacuation shelters in the event of disaster. As such, MEXT will provide government subsidies for the seismic retrofit of facilities deemed to be insufficiently resistant to earthquakes.

FY2016 Budget: included in the ¥35.749 billion sum

(*Includes the portion for Okinawa, which is allocated to the Cabinet Office)

FY2015 Budget: included in the ¥28.605 billion sum

(*Includes the portion for Okinawa, which is allocated to the Cabinet Office)

(9) Seismic Retrofit of Medical Facilities

The MHLW will provide financial assistance for medical institutions requiring urgent upgrades to enhance their earthquake preparedness, which are specified in the five-year plans prepared by prefectural governors in accordance with Article 2 of the Act on Special Measures for Earthquake Disaster Countermeasures.

FY2016 Budget: included in the ¥2.545 billion sum

FY2015 Budget: included in the ¥2.545 billion sum

It will also provide financial assistance for the evaluation of seismic capacity of hospitals providing government-regulated medical care.

FY2016 Budget: ¥13 million

FY2015 Budget: ¥16 million

Difference: -¥3 million

Furthermore, the MHLW will provide financial assistance for the seismic improvement of wards and other buildings at hospitals providing government-regulated medical care and hospitals that have buildings whose seismic index of structure is Is 0.3 or lower.

FY2016 Budget: included in the ¥2.545 billion sum

FY2015 Budget: included in the ¥2.545 billion sum

(10) Seismic Retrofit of Water Supply Facilities, etc.

The MHLW will encourage local governments, etc. to carry out seismic retrofit of water supply facilities required to ensure a stable supply of safe, high-quality drinking water in the event of a disaster and of health and sanitation facilities that will serve as centers for preventing and treating disease.

(Current status) Percentage of seismic-compliant trunk mains for water supply: 36% (end of FY2014)

(Goal) 50% (end of FY2022)

FY2016 Budget: ¥13.000 billion

FY2015 Budget: ¥5.000 billion

Difference: ¥8.000 billion

(11) National Hospital Organization Facility Improvements

The National Hospital Organization will seek to improve the earthquake resistance of its facilities by replacing dilapidated buildings.

(12) Promotion of Forest Conservation Projects

In an effort to ensure that earthquakes do not trigger a disaster in mountainous areas and to minimize any damage should such a disaster occur, MAFF will selectively enhance forest conservation facilities in mountainous areas that would be at a high risk of a disaster in the event of an earthquake. (Described below: Chapter 2 3-2 (3), Chapter 2 4-2 (2), Chapter 2 5-2 (2), Chapter 2 6-2 (3), and Chapter 3 2)

FY2016 Budget: included in the ¥59.723 billion sum

*Also partly covered by subsidies for development of rural areas

FY2015 Budget: included in the ¥61.570 billion sum

*Also partly covered by subsidies for development of rural areas

(13) Enhancement of Disaster Prevention Capabilities at Fishing Ports and Fishing Villages

Based on the Third Long-Term Plan for Development of Fishing Ports and Fishing Grounds, which was formulated in March 2012, MAFF will promote earthquake countermeasures such as the implementation of seismic reinforcement measures at fishing port facilities, etc., as well as promoting tsunami countermeasures such as defense-in-depth through the use of breakwaters and seawalls, taking into account the lessons learned from the Great East Japan Earthquake. (Described below: Chapter 2 3-2 (4))

(Current status) Percentage of hub fishing ports where seismic retrofit has been carried out: 20% (FY2009 reference value)

(Goal) 65% (FY2016)

FY2016 Budget: included in the ¥92.584 billion sum

*Also partly covered by subsidies for development of rural areas

FY2015 Budget: included in the ¥108.680 billion sum

*Also partly covered by subsidies for development of rural areas

(14) Enhancement of Coastal Protection Facilities

MAFF and MLIT will tackle the risk posed by earthquakes by promoting the enhancement of coastal protection facilities in areas believed to be at risk of a major earthquake. (Described below: Chapter 2 3-2 (5) and 4-2 (3), Chapter 3 5)

FY2016 Budget: included in the ¥27.748 billion sum

*Also partly covered by subsidies for development of rural areas, the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥34.638 billion sum

*Also partly covered by subsidies for development of rural areas, the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

(15) Seismic Retrofit of Farm Irrigation Facilities, etc.

MAFF will tackle the risk posed by earthquakes by promoting the seismic retrofit of farm irrigation facilities in areas believed to be at risk of a major earthquake.

(Current status) Percentage of seismic design and verification work carried out on key structural elements of national land development and improvement facilities: 51% (FY2014)

(Goal) Approximately 60% (FY2016)

FY2016 Budget: included in the ¥204.975 billion sum

*Also partly covered by subsidies for development of rural areas

FY2015 Budget: included in the ¥166.333 billion sum

*Also partly covered by subsidies for development of rural areas

(16) Promotion of Seismic Retrofit of Government Buildings

MLIT will promote seismic retrofit of government buildings that do not have the requisite seismic performance, in order to ensure the safety of human life, bolster disaster preparedness performance, and support the development of disaster-resilient communities.

In conjunction with this, it will also implement seismic reinforcement measures in respect of the ceilings of government buildings containing large spaces.

(Current status) Seismic retrofit of government buildings (percentage of total area): 89% (end of FY2014)

(Goal) 95% (FY2020)

FY2016 Budget: included in the ¥17.725 billion sum

FY2015 Budget: included in the ¥17.726 billion sum

(17) Acquisition of Construction Machinery

MLIT will acquire the machinery required for securing emergency transportation routes in the event of disaster.

FY2016 Budget: included in the ¥2.458960 trillion sum

FY2015 Budget: included in the ¥2.480345 trillion sum

(18) Promotion of Efforts to Create Earthquake-resilient Communities

MLIT will carry out the following projects to enhance core public facilities in order to improve earthquake preparedness in cities.

・ Enhancement of urban parks that will serve as evacuation sites, evacuation routes, sites for supporting those waiting to return home, and bases for disaster management activities

(Current status) Included in the 12.9m^2/person area of public water and green space secured (FY2013)

(Goal) Included in the 14.1m^2/person area secured (FY2020)

FY2016 Budget: included in the ¥28.355 billion sum

*Also partly covered by the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

FY2015 Budget: included in the ¥28.213 billion sum

*Also partly covered by the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

・ Street improvement projects on roads that will be used as evacuation routes in densely built-up areas, etc.

FY2016 Budget: included in the ¥1.663694 trillion sum

*Also partly covered by the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

FY2015 Budget: included in the ¥1.660173 trillion sum

*1 Also partly covered by the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

*2 Includes part of the effect of the abolition of the Special Account for Social Infrastructure Improvement

・ Enhanced land readjustment projects involving the development of evacuation sites and evacuation routes in conjunction with efforts to promote city structures that reduce disaster risk

FY2016 Budget:

included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

FY2015 Budget:

included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

・ Loan of funds for urban development to local governments seeking to acquire land to develop urban parks for use as evacuation sites
FY2016 Budget: included in the ¥1.664 billion sum
FY2015 Budget: included in the ¥1.595 billion sum

It will also carry out the following projects to promote city structures that will be resilient in the face of an earthquake disaster.

・ Comprehensive urban disaster risk reduction promotion programs in densely built-up areas and other urban areas that pose a high risk from the perspective of disaster preparedness
(Current status) Area of land classed as "densely built-up areas that pose a significant risk in the event of an earthquake, etc.": 4,450 ha (interim figure for FY2015)
(Goal) Land classed as "densely built-up areas that pose a significant risk in the event of an earthquake, etc." to be broadly eliminated (FY2020)
FY2016 Budget:
included in the Disaster Prevention and Safety Grant
FY2015 Budget:
included in the Disaster Prevention and Safety Grant

・ Land readjustment projects for urban regeneration that will enhance disaster preparedness by such means as enhancements to densely built-up areas in the three major metropolitan areas and the development of roads to be used as evacuation routes
(Current status) Area of land classed as "densely built-up areas that pose a significant risk in the event of an earthquake, etc.": 4,450 ha (interim figure for FY2015)
(Goal) Land classed as "densely built-up areas that pose a significant risk in the event of an earthquake, etc." to be broadly eliminated (FY2020)
FY2016 Budget:
included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant
FY2015 Budget:
included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

・ Urban land redevelopment projects in densely built-up areas that pose a high risk from the perspective of disaster preparedness
FY2016 Budget: included in the ¥8.362 billion sum
*Also partly covered by the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant
FY2015 Budget: included in the ¥8.629 billion sum
*Also partly covered by the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

・ Utilization of the urban regeneration improvement plan program to assist in the development of earthquake-resistant water storage tanks, storage warehouses, and evacuation spaces
FY2016 Budget:
included in the Social Capital Improvement Grant
FY2015 Budget:
included in the Social Capital Improvement Grant

・ Implementation of urban safety promotion projects to ensure the safety of those present in areas with a high concentration of urban functions at the time of a disaster
FY2016 Budget: ¥204 million
FY2015 Budget: ¥266 million
Difference: -¥62 million

・ A major disaster such as a Nankai Trough earthquake or Tokyo inland earthquake is expected to result in a large number of stranded persons and injured people. To make advance provision for such an eventuality as part of the functions of a city, MLIT will encourage efforts to enhance facilities that will serve as centers for accommodating stranded persons, etc. in the event of a disaster.
FY2016 Budget: ¥3.000 billion
FY2015 Budget: ¥3.000 billion
Difference: ¥0

・ Preparation of plans for disaster risk reduction measures at underground shopping malls and implementation of underground shopping mall disaster prevention promotion projects to support the refurbishment of evacuation routes and underground facilities on the basis of those plans.
FY2016 Budget: ¥871 million
FY2015 Budget: ¥906 million
Difference: -¥35 million

・ To encourage efforts to prevent the spread of fire in densely built-up areas, MLIT will support the planting of vacant lots in such areas to make them more effective in preventing the spread of fire.
(Goal) Percentage of cities in the three major metropolitan areas that have "densely built-up areas that pose a significant risk in the event of an earthquake" and have implemented disaster management and mitigation measures by planting vacant lots: 100% (FY2018)
FY2016 Budget:
included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant
FY2015 Budget: ¥60 million
Difference:

・ In core districts with a high concentration of urban functions, MLIT will support the construction of business continuity districts with a stable supply of energy in the event of disaster.
FY2016 Budget: ¥365 million
FY2015 Budget: ¥348 million
Difference: ¥17 million

(19) Measures to Strengthen the Sewerage System against Earthquakes

Using programs such as the Program of Comprehensive Anti-Earthquake Measures for Sewerage Systems, which was established in 2009, and the Second Edition of the Sewage System BCP Manual (for Earthquakes and Tsunami), which was formulated in March 2012, MLIT will promote comprehensive measures against earthquakes that combine disaster prevention through seismic retrofit and tsunami resistance improvements with disaster mitigation (making provision for manhole toilets and storage warehouses), an approach that seeks to minimize the damage to sewerage system functions, based on the assumption that damage will occur. Its objective in doing so is to ensure that sewerage systems can fulfill the minimum necessary functions in the event of an earthquake.

In addition, it will promote systematic structural alterations, including functional improvement such as seismic retrofit and measures to extend operational life.
(Current status) Percentage of major sewer functions guaranteed in the event of disaster: approximately 46% (end of FY2014)
(Goal) Approximately 60% (end of FY2020)
(Current status) Percentage of sewage treatment plant functions guaranteed in the event of disaster: approximately 32% (end of FY2014)
(Goal) Approximately 40% (end of FY2020)
FY2016 Budget:
included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant
FY2015 Budget:
included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

(20) Measures to Increase Earthquake Resistance and Combat Liquefaction around Rivers

In light of the fact that numerous embankments were damaged by liquefaction, MLIT will promote measures to increase the earthquake- and liquefaction-resistance of embankments and floodgates, thereby endeavoring to prevent and mitigate damage.
FY2016 Budget: included in the ¥795.266 billion sum
*In addition, measures will be funded using the Disaster Prevention and Safety Grant
FY2015 Budget: included in the ¥820.172 billion sum
*In addition, measures will be funded using the Disaster Prevention and Safety Grant

(21) Development of Facilities for Sediment Disasters

MLIT will promote the development of facilities for sediment disasters in sediment disaster risk areas, where there is a high risk that an earthquake

could cause collapses that would impact disaster management bases, key transport networks, and evacuation routes, as well as being a factor in settlements becoming cut off.

FY2016 Budget: included in the ¥795.266 billion sum

*In addition, measures will be funded using the Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥820.172 billion sum

*In addition, measures will be funded using the Disaster Prevention and Safety Grant

(22) Earthquake Disaster Prevention Measures on Roads

To prepare for a major disaster, MLIT will promote efforts to put in place missing links to secure alternative routes and will also undertake various road improvement projects, such as seismic retrofit of bridges and the removal of utility poles along emergency transport routes.

FY2016 Budget: included in the ¥1.663694 trillion sum

*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥1.660173 trillion sum

*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

(23) Promotion of the Removal of Substandard Houses

MLIT will provide financial assistance for local government housing district improvement projects targeting areas with a high concentration of substandard houses, which are dangerous or hazardous from a security or hygiene perspective. These projects involve not only the removal of substandard houses and construction of new homes for the existing residents, but also the development of community roads, etc.

FY2016 Budget:
included in the Social Capital Improvement Grant, etc.

FY2015 Budget:
included in the Social Capital Improvement Grant, etc.

(24) Improvement of the Disaster Prevention Performance of Urban Residential Areas

MLIT will provide financial assistance for projects in built-up areas focused on the comprehensive development of housing, facilities to support daily life, and public facilities, among others, to facilitate a more flexible response to policy issues such as the updating of urban functions and the improvement of densely built-up areas.

(Current status) Area of land classed as “densely built-up areas that pose a significant risk in the event of an earthquake, etc.”: 4,450 ha (interim figure for FY2015)

(Goal) Land classed as “densely built-up areas that pose a significant risk in the event of an earthquake, etc.” to be broadly eliminated (FY2020)

FY2016 Budget: included in the ¥11.720 billion sum

*Also partly covered by the Social Capital Improvement Grant, etc.

FY2015 Budget: included in the ¥13.050 billion sum

*Also partly covered by the Social Capital Improvement Grant, etc.

(25) Promotion of the Replacement of Dilapidated Public Housing, etc.

MLIT will provide grants including the Disaster Prevention and Safety Grant to cover part of the cost of local government seismic retrofit programs and projects focused on the replacement of existing public housing with poor earthquake resistance.

FY2016 Budget:
included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

FY2015 Budget:
included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

(26) Promotion of Prior Measures to Prevent and Mitigate Damage to Ports from Major Earthquakes and Tsunami

To ensure that socioeconomic systems will not fail should a disaster such as the Nankai Trough earthquake or Tokyo inland earthquake cause immense damage, as expected, MLIT will seek to improve the earthquake- and tsunami-resistance of port facilities. (Described below: Chapter 2 3-2 (7))

FY2016 Budget: included in the ¥231.712 billion sum

*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥231.441 billion sum

*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

(27) Promotion of Comprehensive Disaster Preparedness Measures for Residential Land

In order to prevent and mitigate damage to residential land, MLIT will promote detailed surveys aimed at preparing maps of large tracts of land reclaimed by means of banking under the Project to Promote Seismic Retrofit of Residential Land, as well as providing residents with information and developing measures to prevent damage.

(Current status) Percentage of maps of large tracts of land reclaimed by means of banking published: 34.9% (October 2015)

Number of people able to check information about large tracts of land reclaimed by means of banking in the area where they live: approximately 63 million (October 2015)

(Goal) Percentage of maps of large tracts of land reclaimed by means of banking published: 70% (FY2020)

Number of people able to check information about large tracts of land reclaimed by means of banking in the area where they live: approximately 90 million (FY2020)

FY2016 Budget:

included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

FY2015 Budget:

included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

(28) Enhancement of Information and Communications Infrastructure

MLIT will promote the enhancement of information and communications infrastructure, to facilitate swift and accurate information gathering and its communication to relevant organizations in the event of disaster, as well as assisting in the provision of information to river users.

Furthermore, based on experiences from disasters such as the Great East Japan Earthquake, it will increase the disaster resilience of information and communications equipment by promoting seismic reinforcement measures, tsunami countermeasures, and measures against power cuts.

(29) Promotion of Efforts to Increase the Resilience of Ports at Industrial Complexes

MLIT will support seismic retrofit by private sector business operators via the provision of interest-free loans and special measures under the tax system for seismic retrofit of privately owned revetments along sea lanes, in order to maintain the functions of sea lanes leading to piers or petroleum product terminals that have undergone seismic retrofit, as well as facilitating the shipment of emergency supplies and fuel supplies.

FY2016 Budget: included in the ¥231.712 billion sum

FY2015 Budget: included in the ¥231.411 billion sum

(30) Disaster Preparedness Measures at General Waste Disposal Facilities

The anticipated Tokyo inland earthquake and/or Nankai Trough megaquake are expected to generate disaster waste well in excess of the volume that resulted from the Great East Japan Earthquake. Accordingly, the MOE will facilitate swift recovery and reconstruction in the event of disaster by using the Grant Program for Establishing a Sound Material-Cycle Society, etc. to fund municipal projects aimed at improving the disaster management functions of general waste disposal facilities.

FY2016 Budget: included in the ¥35.023 billion sum

FY2015 Budget: included in the ¥39.835 billion sum

2-3 Other

(1) Promotion of Measures against Earthquakes

In order to consider comprehensive disaster preparedness measures focused on major earthquakes that risk causing immense damage over a wide area, the Cabinet Office will conduct a basic study entailing a re-evaluation of earthquake

and tsunami assumptions based on the latest scientific knowledge, as well as deliberations concerning assumptions about the resultant damage. (Described below: Chapter 2 3-3 (1))

(Goal) Deliberations concerning estimates of seismic motion and tsunami caused by a subduction-zone earthquake in the Japan Trench / Kuril-Kamchatka Trench and assumptions of the resultant damage (re-evaluation) (FY2016)

FY2016 Budget: ¥200 million
FY2015 Budget: ¥243 million
Difference: -¥43 million

(2) Verification of Specific Plans for Emergency Measures and Activities in the Event of a Nankai Trough Earthquake or Tokyo Inland Earthquake

To enhance the effectiveness of specific plans for emergency measures in the event of a major earthquake (Nankai Trough earthquake or Tokyo inland earthquake), the Cabinet Office will verify the content of plans for securing emergency transport routes, ensuring the provision of medical care within disaster-stricken areas, and procuring and coordinating the transport of relief supplies.

FY2016 Budget: ¥90 million
FY2015 Budget: ¥70 million
Difference: ¥20 million

(3) Promotion of the Preparation of Plans for Promoting Urban Regeneration and Ensuring Safety

The Cabinet Office will put in place a financial assistance system that offers support for the gathering and analysis of basic data required for the preparation of plans for promoting urban regeneration and ensuring safety, in order to promote the preparation of such plans and thereby ensure the safety and security of cities.

FY2016 Budget: ¥38 million
FY2015 Budget: ¥45 million
Difference: -¥7 million

(4) Enhancement of Comprehensive Disaster Information Systems

The Cabinet Office will develop and operate a comprehensive disaster information system to support the government's initial response to disasters by sharing information held by organizations involved in disaster management, such as estimates of the damage in the immediate aftermath of an earthquake and geospatial intelligence. (Described below: Chapter 2 3-3 (2) and 5-3 (2))

FY2016 Budget: ¥266 million
FY2015 Budget: ¥307 million
Difference: -¥41 million

(5) Promotion of Transport Measures

The National Police Agency will ensure the proper operation of area-wide traffic control systems.

Moreover, it will instruct prefectural police forces to promote efforts to upgrade traffic safety facilities to prepare for a disaster and to conduct comprehensive and practical drills based on plans for traffic restrictions, etc. in partnership with the police forces of neighboring prefectures.

(6) Promotion of Seismic Retrofits of Buildings

The MOJ will carry out a systematic program of seismic retrofit and reconstruction of offices to more earthquake-resistant buildings, as appropriate to the scale of the office and the findings from evaluations of the seismic capacity of correctional facilities and other government facilities for the administration of justice and legal affairs.

(Current status) Seismic retrofit completion: 77% (FY2012)

(Goal) 81% (FY2018)

FY2016 Budget: ¥21.148 billion
FY2015 Budget: ¥19.005 billion
Difference: ¥2.143 billion

(7) Promotion of Seismic Retrofit of Government Buildings and Lodgings

The MOF will carry out a systematic seismic retrofit program for government buildings with inadequate seismic performance from the perspective of ensuring the safety of those in the building when an earthquake strikes.

FY2016 Budget: ¥3.098 billion
FY2015 Budget: ¥4.191 billion
Difference: -¥1.093 billion

(8) Promotion of Measures against a Megaquake, in Accordance with the MLIT Plan for Measures against a Nankai Trough Megaquake and the MLIT Plan for Measures against a Tokyo Inland Earthquake

On April 1, 2014, MLIT published the MLIT Plan for Measures against a Nankai Trough Megaquake and the MLIT Plan for Measures against a Tokyo

Inland Earthquake, in preparation for such earthquakes. MLIT conducts drills and promotes earthquake and tsunami countermeasures based on these plans. (Described below: Chapter 2 3-3 (4))

(9) Earthquake Disaster Preparedness Measures for Railway Facilities

MLIT will instruct railway operators to promote earthquake disaster preparedness measures focused on railway facilities. In addition, in preparation for a Nankai Trough earthquake and a Tokyo inland earthquake, it will further promote seismic reinforcement measures targeting major stations, viaducts and other railway facilities, and the Honshu-Shikoku Bridges (Honshi-Bisan Line).

FY2016 Budget: ¥124 million

*Also partly covered by the ¥3.632 billion subsidy for comprehensive programs of safety measures for railway facilities and the ¥2.160 billion subsidy for the cost of urban railway development programs (high-speed underground railways)

FY2015 Budget: ¥100 million

*Also partly covered by the ¥1.814 billion subsidy for comprehensive programs of safety measures for railway facilities and the ¥7.588 billion subsidy for the cost of urban railway development programs (high-speed underground railways)

Difference: ¥24 million

(10) Promotion of the Evaluation of Seismic Capacity and Seismic Retrofit of Buildings

As well as striving to ensure the proper operation of the Act on Promotion of Seismic Retrofitting of Buildings in order to mitigate damage due to the collapse of homes and other buildings in the event of an earthquake, MLIT will provide financial assistance for projects aimed at improving the earthquake resistance of homes and other buildings.

(Current status) Percentage of homes that have undergone seismic retrofit: approximately 82%; percentages of buildings used by large numbers of people that have undergone seismic retrofit: approximately 85% (2013)

(Goal) Percentage of homes that have undergone seismic retrofit: approximately 95%; percentage of buildings used by large numbers of people that have undergone seismic retrofit: approximately 95% (2020)

FY2016 Budget: ¥12.000 billion

*Also partly covered by the Social Capital Improvement Grant, etc.

FY2015 Budget: ¥18.000 billion

*Also partly covered by the Social Capital Improvement Grant, etc.

Difference: -¥6.000 billion

(11) Development of an Emergency Risk Assessment Scheme for Disaster-stricken Buildings and Relevant Support Activities

MLIT will promote human resource development and the enhancement of implementation and support systems for emergency risk assessment of disaster-stricken buildings, to facilitate swift assessment and provision of information concerning the risk posed by buildings damaged by an earthquake.

(12) Seismic Retrofit of Airports

MLIT will carry out seismic retrofit of airports that play a key role in air transport, to ensure that such airports can continue to function in the event of an earthquake.

FY2016 Budget: included in the ¥384.514 billion sum

FY2015 Budget: included in the ¥369.539 billion sum

(13) Provision of Information on Active Fault Zones Nationwide

GSI will collate and provide detailed information about the location and topographic classification of major active faults thought likely to be the focus of extensive damage in the event of an earthquake.

FY2016 Budget: included in the ¥37 million sum

FY2015 Budget: included in the ¥31 million sum

(14) Initiatives for the Maintenance of Marine Transport Functions

To maintain port functions in the event of a major earthquake, MLIT will promote disaster management and mitigation measures, such as the preparation of port BCPs, as well as emergency waterways and other sea lane clearance plans. In addition, it will promote the establishment of joint committees for wide area disaster management, thereby building frameworks for cooperation between the national government, port management bodies, and port users. (Described below: Chapter 2 3-3 (5))

FY2016 Budget: included in the ¥231.712 billion sum

*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥231.411 billion sum

*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

(15) Issuance and Communication of Earthquake Prediction Information Reports and Information on the Tokai Earthquake

The JMA will provide the Prime Minister with reports on earthquake prediction information as soon as it recognizes that a major earthquake is liable to occur in an area under intensified measures against earthquake disaster. In doing so, as well as publishing information on the Tokai Earthquake, it will notify organizations involved in disaster management, etc. so that they can put appropriate disaster management systems into action.

(16) Issuance and Communication of Earthquake Early Warnings and Earthquake Information

(Described above: Chapter 1 2-1 (14))

The JMA will strive to prevent and mitigate disasters by publishing earthquake early warnings and earthquake information based on the results of seismic observation, as well as communicating this information to organizations involved in disaster management, etc. (Described below: Chapter 2 3-3 (7))

FY2016 Budget: ¥1.611 billion

FY2015 Budget: ¥2.478 billion

Difference: -¥867 million

(17) Provision of Information about Minimum Water Levels in Case of a Megaquake

To secure rapid marine transport routes in the event of a megaquake, the JCG will carry out leveling and provide information about minimum water levels, which will be used in indicating water depth on nautical charts.

FY2016 Budget: ¥5 million

FY2015 Budget: ¥0

Difference: ¥5 million

3. Contingency Planning against a Tsunami

3-1 Education and Training

(1) National Police Agency Education and Training Initiatives

The National Police Agency will conduct education and training programs for senior prefectural police force officers, focusing on such matters as emergency disaster control measures in the event of a tsunami disaster and ways of ensuring the safety of police officers undertaking disaster-related police activities. It will also instruct prefectural police forces to carry out the education and training required for contingency planning against a tsunami disaster.

(2) JCG Earthquake Response Exercises, etc.

(Described above: Chapter 2 2-1 (6))

The JCG will provide staff involved in responding to earthquakes and tsunami with education about disaster response and will conduct earthquake response drills in partnership with relevant organizations.

FY2016 Budget: ¥4 million

FY2015 Budget: ¥4 million

Difference: ¥0

3-2 Development of Facilities and Equipment for Disaster Management

(1) Maintenance and Management of Region-wide Disaster Management Bases

(Described above: Chapter 2 2-2 (1))

The Cabinet Office will maintain and manage the Tachikawa Substitute Facility of the Government Headquarters for Disaster Countermeasures and the key wide-area disaster prevention bases in the Tokyo Bay waterfront area (Ariake no Oka and Higashi Ogishima regions), which will serve as operational bases for emergency disaster control measures in the event that a Tokyo inland earthquake, etc. triggers an extensive disaster.

FY2016 Budget: ¥115 million

FY2015 Budget: ¥141 million

Difference: -¥26 million

(2) Promotion of Facility Upgrades for the Establishment of Government Local Response Headquarters

(Described above: Chapter 2 2-2 (2))

At facilities where an on-site disaster management headquarters might be set up in the event of a Nankai Trough earthquake, the Cabinet Office will carry out refurbishments that will assist in the smooth conduct of the operations of such headquarters.

FY2016 Budget: ¥26 million

FY2015 Budget: ¥71 million

Difference: -¥45 million

(3) Development of Coastal Disaster-Prevention Forests

MAFF will undertake appropriate maintenance of coastal disaster-prevention forests to ensure that they fulfill their functions in preventing disaster by guarding against sandstorm damage, wind damage, and tidal damage. In addition, it will carry out land development to create a suitable growing environment and will plant trees, taking into account local circumstances and giving consideration to the effects of such forests in mitigating the damage caused by tsunami. (Described below: Chapter 2 4-2 (2), 5-2 (2), 6-2 (3), Chapter 3 2)

FY2016 Budget: included in the ¥59.723 billion sum

*Also partly covered by subsidies for development of rural areas

FY2015 Budget: included in the ¥61.570 billion sum

*Also partly covered by subsidies for development of rural areas

(4) Enhancement of Disaster Prevention Capabilities at Fishing Ports and Fishing Villages

(Described above: Chapter 2 2-2 (13))

Based on the Third Long-Term Plan for Development of Fishing Ports and Fishing Grounds, which was formulated in March 2012, MAFF will promote earthquake countermeasures such as the implementation of seismic reinforcement measures at fishing port facilities, etc., as well as promoting tsunami countermeasures such as defense-in-depth through the use of breakwaters and seawalls, taking into account the lessons learned from the Great East Japan Earthquake.

(Current status) Percentage of hub fishing ports where seismic retrofit has been carried out:
20% (FY2009 reference value)
(Goal) 65% (FY2016)

FY2016 Budget: included in the ¥92.584 billion sum

*Also partly covered by subsidies for development of rural areas

FY2015 Budget: included in the ¥108.680 billion sum

*Also partly covered by subsidies for development of rural areas

(5) Enhancement of Coastal Protection Facilities

(Described above: Chapter 2 2-2 (14))

MAFF and MLIT will tackle the risk posed by tsunami by promoting the enhancement of coastal protection facilities in areas believed to be at risk of a major earthquake. (Described below: Chapter 2 4-2 (3), Chapter 3 5)

FY2016 Budget: included in the ¥27.748 billion sum

*Also partly covered by subsidies for development of rural areas, the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥34.638 billion sum

*Also partly covered by subsidies for development of rural areas, the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

(6) Tsunami Countermeasures for Rivers

In light of the immense damage caused by the tsunami triggered by the Great East Japan Earthquake, MLIT will endeavor to prevent and mitigate damage by promoting such initiatives as the elevation of embankments and the introduction of automated and remotely operated floodgates, etc.

FY2016 Budget: included in the ¥795.266 billion sum

*In addition, measures will be funded using the Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥820.172 billion sum

*In addition, measures will be funded using the Disaster Prevention and Safety Grant

(7) Promotion of Prior Measures to Prevent and Mitigate Damage to Ports from Major Earthquakes and Tsunami

(Described above: Chapter 2 2-2 (26))

To ensure that socioeconomic systems will not fail should a disaster such as the Nankai Trough

earthquake or Tokyo inland earthquake cause immense damage, as expected, MLIT will seek to improve the earthquake- and tsunami-resistance of port facilities.

FY2016 Budget: included in the ¥231.712 billion sum

*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥231.411 billion sum

*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

(8) Promotion of Efforts to Create Tsunami-resilient Communities

MLIT will carry out the following projects to enhance core public facilities in order to improve tsunami preparedness in cities.

・ Enhancement of urban parks that will serve as evacuation sites, evacuation routes, and bases for disaster management activities

(Current status) Included in the 12.9m^2 area of public water and green space secured (FY2013)

(Goal) Included in the 14.1m^2 area secured (FY2020)

FY2016 Budget: included in the ¥28.355 billion sum

*Also partly covered by the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

FY2015 Budget: included in the ¥28.213 billion sum

*Also partly covered by the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

・ Street improvement projects on roads that will be used as evacuation routes

FY2016 Budget: included in the ¥1.663694 trillion sum

*Also partly covered by the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

FY2015 Budget: included in the ¥1.660173 trillion sum

*1 Also partly covered by the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

*2 Includes part of the effect of the abolition of the Special Account for Social Infrastructure Improvement

・ Enhanced land readjustment projects involving the development of evacuation sites and evacuation routes in conjunction with efforts to promote city structures that reduce disaster risk

FY2016 Budget:

included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

FY2015 Budget:

included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

・ Loan of funds for urban development to local governments seeking to acquire land to develop urban parks for use as evacuation sites

FY2016 Budget: included in the ¥1.664 billion sum

FY2015 Budget: included in the ¥1.595 billion sum

MLIT will carry out the following projects to promote city structures that will be resilient in the face of a tsunami disaster.

・ Comprehensive urban disaster risk reduction promotion programs in urban areas that pose a high risk from the perspective of disaster preparedness due to the damage that would be caused by a tsunami in the event of a Nankai Trough earthquake or other earthquake

FY2016 Budget:

included in the Disaster Prevention and Safety Grant

FY2015 Budget:

included in the Disaster Prevention and Safety Grant

・ Land readjustment projects for urban regeneration that will enhance disaster preparedness by such means as the development of roads to be used as evacuation routes

FY2016 Budget:

included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

FY2015 Budget:

included in the Disaster Prevention and Safety Grant and the Social Capital Improvement

Grant

・ Utilization of the urban regeneration improvement plan program to assist in the development of earthquake-resistant water storage tanks, storage warehouses, and evacuation spaces
FY2016 Budget:
included in the Social Capital Improvement Grant
FY2015 Budget:
included in the Social Capital Improvement Grant

・ In areas expected to suffer immense damage as a result of a tsunami triggered by a Nankai Trough earthquake, MLIT will support the development of core urban areas, with the aim of maintaining the functions of cities that serve the public good.
FY2016 Budget:
included in the Disaster Prevention and Safety Grant

(9) Promotion of Tsunami Countermeasures at Government Buildings

As well as securing temporary evacuation sites in case of a tsunami, MLIT will comprehensively and effectively promote tsunami countermeasures at government buildings, in order to maintain their functions as disaster management bases and promote the prompt restoration of administrative functions.

FY2016 Budget: included in the ¥17.725 billion sum
FY2015 Budget: included in the ¥17.726 billion sum

(10) Implementation of Tsunami Evacuation Measures at Ports

As well as encouraging local governments to prepare evacuation plans and develop tsunami evacuation facilities that take account the specific nature of ports, MLIT will support private sector business operators who are developing distribution facilities equipped with evacuation functions (facilities for taking shelter, etc.), thereby ensuring that ports can fulfill evacuation functions in the event of disaster.

FY2016 Budget: included in the ¥231.712 billion sum
*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant
FY2015 Budget: included in the ¥231.411 billion sum
*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

3-3 Other

(1) Promotion of Measures against Earthquakes

(Described above: Chapter 2 2-3 (1))

In order to consider comprehensive disaster preparedness measures focused on major earthquakes that risk causing immense damage over a wide area, the Cabinet Office will conduct a basic study entailing a re-evaluation of earthquake and tsunami assumptions based on the latest scientific knowledge, as well as deliberations concerning assumptions about the resultant damage.

(Goal) Deliberations concerning estimates of seismic motion and tsunami caused by a subduction-zone earthquake in the Japan Trench / Kuril-Kamchatka Trench and assumptions of the resultant damage (re-evaluation) (FY2016)

FY2016 Budget: ¥200 million
FY2015 Budget: ¥243 million
Difference: -¥43 million

(2) Enhancement of Comprehensive Disaster Information Systems

(Described above: Chapter 2 2-3 (4))

The Cabinet Office will develop and operate a comprehensive disaster information system to support the government's initial response to disasters by sharing information held by organizations involved in disaster management, such as estimates of the damage in the immediate aftermath of an earthquake and geospatial intelligence.

FY2016 Budget: ¥266 million
FY2015 Budget: ¥307 million
Difference: -¥41 million

(3) Promotion of Transport Measures

The National Police Agency will ensure the proper operation of area-wide traffic control systems. Moreover, it will instruct prefectural police forces to promote efforts to upgrade traffic safety facilities to

prepare for a disaster.

(4) Promotion of Measures against a Megaquake, in Accordance with the MLIT Plan for Measures against a Nankai Trough Megaquake and the MLIT Plan for Measures against a Tokyo Inland Earthquake

(Described above: Chapter 2 2-3 (8))

On April 1, 2014, MLIT published the MLIT Plan for Measures against a Nankai Trough Megaquake and the MLIT Plan for Measures against a Tokyo Inland Earthquake, in preparation for such earthquakes. MLIT conducts drills and promotes earthquake and tsunami countermeasures based on these plans.

(5) Initiatives for the Maintenance of Marine Transport Functions

(Described above: Chapter 2 2-3 (14))

To maintain port functions in the event of a major earthquake, MLIT will promote disaster management and mitigation measures, such as the preparation of port BCPs, as well as emergency waterways and other sea lane clearance plans. In addition, it will promote the establishment of joint committees for wide area disaster management, thereby building frameworks for cooperation between the national government, port management bodies, and port users.

FY2016 Budget: included in the ¥231.712 billion sum

*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥231.411 billion sum

*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

(6) Promotion of Tsunami Preparedness Measures for Passengers and Ships

MLIT will ensure that shipping business operators are fully aware of the Guide to Preparing Passenger Evacuation Manuals (formulated in March 2013) and the Guide to Preparing Tsunami Evacuation Manuals for Marine Vessels (formulated in March 2014). In addition, it will promote tsunami evacuation measures for passengers and ships by providing the cooperation and support required for the preparation of tsunami evacuation manuals.

(7) Issuance and Communication of Tsunami Warnings, etc.

(Described above: Chapter 1 2-1 (14), Chapter 2 2-3 (16))

The JMA will seek to prevent and mitigate disasters by publishing tsunami warnings based on the results of seismic observation, as well as publishing observation data without delay in the event that a tsunami is observed offshore or along the coast. It will also communicate this information to organizations involved in disaster management, etc.

FY2016 Budget: ¥1.611 billion

FY2015 Budget: ¥2.478 billion

Difference: -¥867 million

(8) Promotion of Tsunami Preparedness Measures

The JCG will develop tsunami information maps that can be used for developing tsunami preparedness measures for ports and marine vessels in their vicinity, in case a Nankai Trough megaquake or Tokyo inland earthquake triggers a tsunami. In addition, it will provide submarine topography data to assist local governments, etc. in setting tsunami inundation assumptions and preparing tsunami hazard maps.

(Current status) Availability of tsunami preparedness information: 54% (FY2015)

(Goal) 100% (FY2018)

FY2016 Budget: ¥5 million

FY2015 Budget: ¥154 million

Difference: -¥149 million

4. Contingency Planning against Storm and Flood Disasters

4-1 Education and Training

National Police Agency Education and Training Initiatives

The National Police Agency will conduct education and training programs for senior prefectural police force officers, focusing on emergency disaster control measures in the event of a storm and flood disaster. In addition, it will conduct exercises focused on the set-up and running of Emergency Disaster Countermeasures Headquarters. It will also instruct prefectural police forces to carry out the education and training required for contingency planning against a storm and flood disaster.

4-2 Development of Facilities and Equipment for Disaster Management

(1) Preparations to Prevent Sediment Disasters at Medical Facilities

The MHLW will provide financial assistance for preparations to prevent sediment disasters at medical facilities identified in the Survey of Urgent Sediment Disaster Inspections of Facilities with Vulnerable People (1998, Ministry of Construction) as being located in a debris flow hazard zone, a landslide hazard area, or a steep slope failure hazard area, etc.

FY2016 Budget: included in the ¥2.545 billion sum

FY2015 Budget: included in the ¥2.545 billion sum

(2) Promotion of Forest Conservation Projects

MAFF will promote the development of forest conservation facilities to establish national land where people can live safely and securely, due to the maintenance and strengthening of the functions of forests in conserving headwater and preventing disaster in mountainous areas. (Described below: Chapter 2 5-2 (2), 6-2 (3), Chapter 3 2)

FY2016 Budget: included in the ¥59.723 billion sum

*Also partly covered by subsidies for development of rural areas

FY2015 Budget: included in the ¥61.570 billion sum

*Also partly covered by subsidies for development of rural areas

(3) Enhancement of Coastal Protection Facilities

(Described above: Chapter 2 2-2 (14), 3-2 (5))

MAFF and MLIT will tackle the risk posed by storm surges and waves by promoting the enhancement of coastal protection facilities in areas below sea level, which are extremely vulnerable to flooding. (Described below: Chapter 3 5)

FY2016 Budget: included in the ¥27.748 billion sum

*Also partly covered by subsidies for development of rural areas, the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥34.638 billion sum

*Also partly covered by subsidies for development of rural areas, the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

(4) Comprehensive Disaster Preparedness Measures for Agricultural Land

MAFF will promote comprehensive measures to deal with issues such as the effect of torrential rain on ponds, etc. in order to increase the level of disaster preparedness and safety throughout each community in an efficient and effective manner. (Described below: Chapter 3 8 (1))

(Current status) Reduction in the area of agricultural land at risk of flood damage, etc.: 73,000 ha (FY2014)

(Goal) 100,000 ha (FY2016)

FY2016 Budget: included in the ¥50.768 billion sum

*Also partly covered by subsidies for development of rural areas

FY2015 Budget: included in the ¥28.015 billion sum

*Also partly covered by subsidies for development of rural areas

(5) Acquisition of Construction Machinery

MLIT will acquire the machinery required for measures against storm and flood disasters.

FY2016 Budget: included in the ¥795.266 billion sum

FY2015 Budget: included in the ¥820.172 billion sum

(6) Upgrading of Information and Communications Equipment for River, Dam, and Road Management

Along with telemetry systems for gathering hydrological, road, and meteorological data, including figures for rainfall, water levels, road temperatures, MLIT will install alarm systems and monitoring cameras to provide alerts about rising river water levels due to dam discharge and the like. It will also put in place multiparameter (MP) radar, which provides high-precision rainfall data in real time. Moreover, it will continue to promote the development of more advanced river information systems and promote the sharing of data held by national government departments and local governments. Furthermore, based on experiences from disasters such as the Great East Japan Earthquake, the Great Kii Peninsula Flood Disaster,

and the Kanto-Tohoku Torrential Rain, it will increase the disaster resilience of information and communications equipment by promoting seismic reinforcement measures, tsunami and flood countermeasures, and measures against power cuts.

(7) Development of Facilities for Sediment Disasters

MLIT will promote the installation of erosion control and landslide prevention facilities in mountain streams at risk of debris flow and landslide hazard areas. In addition, it will support efforts by prefectures to install steep slope failure prevention facilities in steep slope failure hazard areas.

FY2016 Budget: included in the ¥795.266 billion sum

*In addition, measures will be funded using the Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥820.172 billion sum

*In addition, measures will be funded using the Disaster Prevention and Safety Grant

(8) Disaster Prevention Measures on Roads

To prepare for a major disaster, MLIT will promote efforts to put in place missing links to secure alternative routes, among other network improvements. It will also implement measures to prevent slope disasters on roads and avoid areas with a risk of disaster when developing roads.

FY2016 Budget: included in the ¥1.663694 trillion sum

*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥1.660173 trillion sum

*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

(9) Contingency Planning against High Wave and Storm Surge Disasters at Ports

MLIT will undertake contingency planning for high wave and storm surge disasters by promoting the development of port facilities to avoid a deterioration in port functions and other risks.

FY2016 Budget: included in the ¥231.712 billion sum

*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥231.411 billion sum

*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

(10) Measures to Strengthen the Sewerage System against Flooding

Progressive urbanization and increasingly frequent intense heavy rains well in excess of the volume that sewerage systems were designed to handle have caused the volume of storm water runoff to rise. In response, to ensure safety in cities, MLIT will implement public sewerage system projects and urban sewer system projects aimed at channeling rainwater from urban areas into rivers and preventing flood damage by developing storm trunks and rainwater storage and infiltration facilities. (Described below: Chapter 3 9)

(Current status) Completion rate of measures to strengthen the sewerage system against urban flooding: approximately 56% (end of FY2014)

(Goal) Approximately 62% (end of FY2020)

FY2016 Budget:

included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

FY2015 Budget:

included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

4-3 Other

(1) Promotion of Evacuation Measures in the Event of Sediment or Water-related Disasters

Based on the outcomes of deliberations by the Working Group for Studying Comprehensive Countermeasures against Sediment Disasters and the Working Group on Study on Evacuation and Emergency Response Measures at the Time of Flood Disasters, the Cabinet Office will consider and promote measures that bring together government bodies and residents, to ensure that each and every citizen can take appropriate evacuation steps in the event of a sediment or water-related disaster.

(Goal) Preparation of guidelines for action that will serve as a framework for evacuation by

residents (FY2016)
FY2016 Budget: ¥50 million
FY2015 Budget: ¥50 million
Difference: ¥0

(2) Enhancement of Police Systems to Deal with Storm and Flood Disasters

The National Police Agency will enhance warning and policing systems by instructing Regional Police Bureaus and prefectural police forces to identify disaster risk areas in advance; establish policing frameworks at an early stage in situations where a disaster is expected; consider and implement the dispatch of units; and ensure that swift evacuation guidance is provided without fail, in partnership with local governments and relevant organizations.

(3) Promotion of Measures against Storm and Flood Disasters

FDMA will issue requests and provide advice to local governments concerning such matters as the establishment of frameworks for implementing emergency disaster control measures; the swift and accurate issuance and transmission of evacuation advisories and orders; the dissemination of information about measures to be taken in disaster risk areas and details of designated emergency evacuation sites; the step up of evacuation measures for people requiring assistance to evacuate; and the implementation of disaster management drills.

(4) Promotion of Disaster Management Measures for Facilities with People Requiring Assistance During a Disaster

The following measures will be promoted, in response to "Concerning the Implementation of Comprehensive Measures against Sediment Disasters at Facilities with Vulnerable People" (January 1999; joint circular issued by the Ministry of Education, the Ministry of Health and Welfare, the Forestry Agency, the Ministry of Construction, and the Fire and Disaster Management Agency).

To protect facilities with people requiring assistance during a disaster, MAFF will ensure that such facilities are aware of relevant mountain disaster hazard zones and agricultural landslide hazard areas. In addition, it will promote disaster risk reduction measures via forest conservation programs and disaster risk reduction programs for agricultural land.

FY2016 Budget: included in the ¥110.491 billion sum
*Also partly covered by subsidies for development of rural areas
FY2015 Budget: included in the ¥89.585 billion sum
*Also partly covered by subsidies for development of rural areas

(5) Education and Awareness Activities to Prevent Disaster in Mountainous Areas

To prevent disasters in mountainous areas, MAFF will hold the Mountain Disaster Prevention Campaign (May 20 - June 30) to promote awareness of mountain disaster hazard zones among residents, as well as raising awareness of disaster management in general.

(6) MLIT Water-related Disaster Management and Mitigation Measures

In light of the increasingly frequent and catastrophic nature of major disasters caused by massive typhoons, etc. in recent years, MLIT is seeking to strengthen initiatives by fleshing out the measures that should be taken in the event of a water-related disaster. To this end, it has set up the MLIT Task Force on Water-related Disaster Management and Mitigation Measures, which is headed by the Minister of Land, Infrastructure and Transport, and is promoting measures against water-related disasters.

(7) Promotion of Disaster Management Measures for Facilities Used by People Requiring Special Consideration in Disaster Prevention

MLIT will selectively promote the use of sediment disaster prevention facilities as measures to protect facilities used by people requiring special consideration in disaster prevention. Moreover, in accordance with the Act on Promotion of Sediment Disaster Countermeasures in Sediment Disaster Hazard Areas (Sediment Disasters Prevention Act), which was revised in November 2014, it will enhance and strengthen warning and evacuation systems, including specifying in the Local Disaster Management Plans of municipalities the method that will be used to communicate information to the facilities in question.

FY2016 Budget: included in the ¥795.266 billion sum
*In addition, measures will be funded using the

Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥820.172 billion sum

*In addition, measures will be funded using the Disaster Prevention and Safety Grant

(8) Promotion of Efforts to Develop Information Infrastructure for Rivers

MLIT has been selectively installing an XRAIN network (MLIT X-band MP radar network) in cities designated by government ordinance, where people and assets are concentrated, and in areas that have suffered immense water-related or sediment disasters in recent years. By the end of FY2015, almost all cities designated by government ordinance were covered by XRAIN. MLIT will also seek to make flood forecasting more precise using this radar rain gauge data and more detailed runoff analysis.

(9) Provision of River Information

To ensure appropriate maintenance and management of observation facilities and facilitate a swift emergency response in the event of disaster, MLIT will provide river information, including real-time radar rain gauge data, flood forecasts, and flood alerts. It will also promote the use of terrestrial digital broadcasting and various other means of transmission to provide detailed river information, in order to support residents in taking appropriate steps for evacuation, etc.

(10) Real-time Exchange of River and Weather Information between MLIT and JMA

MLIT and the JMA jointly provide flood forecasts in accordance with the Flood Control Act and the Meteorological Service Act. To make these forecasts and their other services more advanced, MLIT and the JMA will exchange river and weather information in real time.

(11) River Basin Management and Flood Control Measures

MLIT will promote comprehensive flood control measures, including river basin storage and infiltration projects aimed at enhancing rivers and sewerage systems, and securing water retention and retardation functions in river basins that mainly consist of built-up areas, which suffer severe flooding. In addition, to mitigate the damage caused by rainfall inundation, MLIT will work with local governments to formulate plans incorporating soft infrastructure such as land use restrictions, thereby promoting comprehensive measures against rainfall inundation.

(12) Promotion of Comprehensive Measures against Urban Flood Disasters

In accordance with the Specified Urban River Inundation Countermeasures Act, MLIT will promote the joint preparation of river basin flood control plans by river managers, sewerage system managers, and local governments in the basins of urban rivers that could cause significant flood damage. It will also promote comprehensive measures against urban flood disasters, such as channel improvements carried out by river managers based on these plans.

(13) Preparation and Publication of Anticipated Damage Zone Maps

MLIT will promote the preparation of maps of expected inundation areas to indicate areas likely to be affected by a largest-possible rainfall (flooding/rainfall inundation) or storm surge event, and will also support the preparation of municipal hazard maps.

To further enhance and strengthen warning and evacuation systems in accordance with the Sediment Disasters Prevention Act, MLIT will support municipalities in preparing and publishing sediment disaster hazard maps and keep track of their progress. It will also work with relevant local governments to raise public awareness of disaster preparedness and enhance preparations for disaster.

(14) Promotion of Measures on Flood Plains

MLIT will promote flood protection of homes in areas where it is difficult to implement early flood control measures due to the upstream and downstream balance, even though those areas frequently suffer flood damage. Specifically, it will promote the construction of ring levees and the elevation of residential land.

(15) Promotion of Comprehensive Measures against Sediment Disasters

MLIT will implement a comprehensive package of measures against sediment disasters, combining hard infrastructure (such as the development of erosion control dams that prioritize the protection of human life) with soft infrastructure (such as the

development of warning and evacuation systems). Other soft infrastructure measures will include support for prefectures in the designation of sediment disaster hazard zones and the development of information infrastructure. In addition, MLIT will conduct urgent surveys in accordance with the Sediment Disasters Prevention Act in areas at imminent risk of a major sediment disaster due to the natural damming of rivers as a result of a deep-seated landslide, and ensure widespread awareness of information concerning areas expected to suffer damage.

FY2016 Budget: included in the ¥795.266 billion sum

*In addition, measures will be funded using the Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥820.172 billion sum

*In addition, measures will be funded using the Disaster Prevention and Safety Grant

(16) Education and Awareness Activities to Prevent Sediment Disasters

With the aim of helping to prevent and mitigate damage to human life and property due to sediment disasters, MLIT will organize Sediment Disaster Prevention Month and Slope Failure Prevention Week. As part of these campaigns, it will promote PR activities concerning sediment disaster prevention, confer awards on those who have made an outstanding contribution to preventing sediment disasters, promote widespread awareness of hazardous areas, conduct inspections, and carry out warning and evacuation drills.

(17) Flood Prevention Education and Awareness Activities

To promote a deeper understanding of flood prevention among the public and seek widespread cooperation in this area, MLIT will organize various events and activities in partnership with prefectures and flood control groups during Flood Control Month. In addition, it will organize flood prevention training courses for the staff of municipalities and other organizations, as well as lectures in flood prevention techniques for flood fighting corps members.

(18) Measures against Flooding at Underground Stations, etc.

MLIT will promote measures such as water sealing plates and watertight gates to combat flooding at underground stations (doorways and tunnels, etc.) where local government hazard maps indicate that flood damage is likely.

FY2016 Budget:

- Included in the ¥3.632 billion subsidy for comprehensive programs of safety measures for railway facilities
- Included in the ¥2.160 billion subsidy for the cost of urban railway development programs (high-speed underground railways)

FY2015 Budget:

- Included in the ¥1.814 billion subsidy for comprehensive programs of safety measures for railway facilities
- Included in the ¥7.588 billion subsidy for the cost of urban railway development programs (high-speed underground railways)

(19) Issuance and Communication of Forecasts, Warnings, and Other Information

The JMA will publish and communicate meteorological information for disaster prevention, such as forecasts and warnings concerning weather, storm surges, and floods, in order to facilitate emergency disaster control measures by local governments, such as judgments concerning evacuation advisories and orders, as well as assisting the public in taking voluntary steps to reduce disaster risk.

5. Contingency Planning against Volcanic Disasters

5-1 Education and Training

National Police Agency Education and Training Initiatives

The National Police Agency will conduct education and training programs for senior prefectural police force officers, focusing on emergency disaster control measures in the event of a volcanic disaster. It will also instruct prefectural police forces to carry out the education and training required for contingency planning against a volcanic disaster and to establish policing frameworks at an early stage in situations where a disaster is expected.

5-2 Development of Facilities and Equipment for Disaster Management

(1) Promotion of Measures to Deal with Ash in Private Sector Centers for Early Childcare and Education, Kindergartens, and Nurseries, etc.

The Cabinet Office will bear costs arising from the removal of fallen ash from private sector Centers for Early Childcare and Education, kindergartens, and nurseries, etc. located in areas designated as ash prevention areas, pursuant to the provisions of the Act on Special Measures for Active Volcanoes.

FY2016 Budget: ¥34 million
FY2015 Budget: ¥22 million
Difference: ¥12 million

(2) Promotion of Forest Conservation Projects in Volcanic Regions

(Described above: Chapter 2 2-2 (12), 3-2 (3), 4-2 (2))

MAFF will promote the development of forest conservation facilities to prevent and mitigate mountain disasters in volcanic regions. (Described below: Chapter 2 6-2 (3), Chapter 3 2)

FY2016 Budget: included in the ¥59.723 billion sum
*Also partly covered by subsidies for development of rural areas
FY2015 Budget: included in the ¥61.570 billion sum
*Also partly covered by subsidies for development of rural areas

(3) Promotion of Volcano Erosion Control Programs

MLIT will promote facility improvements to ensure the safety of residents in volcanic regions. In addition, it will work with relevant organizations to promote the formulation of Volcanic Sediment and Erosion Control Plans for Urgent Measures for Volcanic Disaster Reduction, which consist of measures focused on both hard and soft infrastructure, in order to mitigate the damage caused by sediment disasters in the event of a volcanic eruption.

FY2016 Budget: included in the ¥795.266 billion sum
*In addition, measures will be funded using the Disaster Prevention and Safety Grant
FY2015 Budget: included in the ¥820.172 billion sum
*In addition, measures will be funded using the Disaster Prevention and Safety Grant

(4) Provision of Machinery for Dealing with Ash

MLIT will provide the machinery required for the Sakurajima Ash Removal Project.

FY2016 Budget: included in the ¥1.663694 trillion sum
FY2015 Budget: included in the ¥1.660173 trillion sum
*Includes part of the effect of the abolition of the Special Account for Social Infrastructure Improvement

5-3 Other

(1) Promotion of Measures against Volcanic Disasters

In light of the lessons from the 2014 Mt. Ontake Eruption and the 2015 revision of the Act on Special Measures for Active Volcanoes, MLIT will promote volcano disaster risk management measures in volcanic regions, strengthen monitoring and observation frameworks, consider the enhancement of research frameworks, and examine response measures in the event of a major ash fall.

(Current status) Percentage of concrete practical evacuation plans formulated for a volcanic eruption: 15% (FY2014)
(Goal) 100%

FY2016 Budget: ¥204 million
FY2015 Budget: ¥101 million
Difference: ¥103 million

(2) Enhancement of Comprehensive Disaster Information Systems

(Described above: Chapter 2 2-3 (4), 3-3 (2))

The Cabinet Office will develop and operate a comprehensive disaster information system to support the government's initial response to disasters by sharing information held by organizations involved in disaster management, such as estimates of the damage in the immediate aftermath of an earthquake and geospatial intelligence.

FY2016 Budget: ¥266 million
FY2015 Budget: ¥307 million
Difference: -¥41 million

(3) Promotion of Measures against Active Volcanoes

FDMA will work with relevant ministries and

agencies to promote volcano disaster risk management measures through Volcanic Disaster Management Councils and other collaborative bodies. In addition, it will provide relevant local governments with requests and advice concerning such matters as the enhancement of evacuation facilities and methods of communicating evacuation information, the strengthening of rescue preparedness, and the implementation of disaster management drills.

(4) Education and Awareness Activities to Prevent Volcanic Disasters

MLIT will conduct awareness activities to prevent volcanic disasters, including providing support for the Volcanic Sabo Forum, which aims to serve as a forum for the local governments of volcanic regions to exchange information about volcanoes and the safety of the areas around them, as well as providing local governments and residents with a deeper understanding of Volcanic Sediment and Erosion Control Projects and other measures against a volcanic eruption.

(5) Geodetic Monitoring of Crustal Movement

(Described above: Chapter 1 2-1 (12))

GSI will monitor crustal movement by such means as continuous GNSS monitoring using GNSS-based control stations and satellite radar interferometry (SAR interference analysis), among others. In addition, it will provide the information gathered concerning crustal movement to organizations involved in disaster management to assist them in deciding on disaster countermeasures.

(Current status) 99.63% of observation data from GNSS-based control stations obtained (FY2014)

(Goal) At least 99.5% (ongoing annual goal from FY2016)

FY2016 Budget: included in the ¥1.283 billion sum

FY2015 Budget: included in the ¥1.289 billion sum

(6) Enhancement of Warning and Evacuation Systems by Volcanic Disaster Management Councils

MLIT will consider volcano hazard maps from the perspective of sediment disasters caused by volcanic eruptions, as well as participating in deliberations on the various warning and evacuation systems.

(7) Issuance and Communication of Volcanic Warnings, etc.

The JMA will publish volcanic warnings based on the results of its observation of volcanoes in a timely and appropriate manner, as well as issuing warnings to organizations involved in disaster management, thereby striving to prevent and mitigate disaster. In addition, it will promote the establishment and improvement of evacuation plans and volcanic alert levels via joint deliberations by Volcanic Disaster Management Councils.

FY2016 Budget: ¥1.047 billion

FY2015 Budget: ¥704 million

Difference: ¥343 million

6. Contingency Planning against Snow Disasters

6-1 Education and Training

National Police Agency Education and Training Initiatives

The National Police Agency will instruct prefectural police forces to carry out rescue drills in partnership with relevant organizations and to establish appropriate warning and policing systems, as well as systems for rescue operations.

6-2 Development of Facilities and Equipment for Disaster Management

(1) Promotion of Measures to Prevent Snow Disasters at Private Sector Centers for Early Childcare and Education, Kindergartens, and Nurseries, etc.

The Cabinet Office will bear the cost of snow removal at private sector Centers for Early Childcare and Education, kindergartens, and nurseries, etc. located in special heavy snowfall areas.

FY2016 Budget: ¥97 million

FY2015 Budget: ¥59 million

Difference: ¥37 million

(2) Protection of Private Social Welfare Facilities against Snow Disasters

The MHLW includes costs associated with the removal of snow in the subsidy provided to private social welfare facilities to which the administration of public assistance facilities, etc. in special heavy snowfall areas has been entrusted.

FY2016 Budget: ¥6 million
FY2015 Budget: ¥6 million
Difference: ¥0

(3) Promotion of Forest Conservation Projects in Snow Zones

(Described above: Chapter 2 2-2 (12), 3-2 (3), 4-2 (2), 5-2 (2))

To protect villages, etc. in snow zones from damage due to avalanches, MAFF will promote the development of forests and the installation of guard rails to prevent avalanches. In addition, it will restore and maintain areas where melting snow has caused hillside collapse. (Described below: Chapter 3 2)

FY2016 Budget: included in the ¥59.723 billion sum
*Also partly covered by subsidies for development of rural areas
FY2015 Budget: included in the ¥61.570 billion sum
*Also partly covered by subsidies for development of rural areas

(4) Securing the Passage of Road Traffic in Winter

To maintain the stability of road traffic in specified snow coverage and cold districts during winter, MLIT will promote projects associated with snow removal, protection against snow, prevention of snow and ice damage, and snow removal equipment, in accordance with the Act on Special Measures concerning Maintenance of Road Traffic in Specified Snow Coverage and Cold Districts. In addition, it will promote measures to ensure that the areas around railway stations, city centers, and routes used by children to travel to and from school remain free from obstacles in winter, to maintain an especially safe and comfortable environment for pedestrians.

It will also promote the following measures to improve systems for snow removal: publishing details of sections of road where there is a risk of becoming stranded; closing roads to traffic at an early stage to undertake intensive snow removal; adjusting the timing of road closures with reference to the closure of national expressways, etc. that run in parallel with those roads; strengthening regional collaboration in the use of snowplows, etc.; encouraging road users to fit snow tires or chains, etc. to their vehicles; and providing information about road closures via Twitter.

FY2016 Budget: included in the ¥1.663694 trillion sum
*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant
FY2015 Budget: included in the ¥1.660173 trillion sum
*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

(5) Promotion of Efforts to Create Snow-resilient Communities

To ensure that cities continue to function at times of heavy snowfall, MLIT will undertake systematic road improvements in cities, taking into account snow coverage and the accumulation of snow over time. In addition, it will further promote measures to deal with fallen snow using treated wastewater or sewerage system facilities.

FY2016 Budget:
included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant
FY2015 Budget:
included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

(6) Measures against Sediment Flows Due to Snowmelt and Avalanches

MLIT will promote improvements to erosion and sediment control facilities, among others, to prevent sediment flows due to snowmelt and avalanches.

FY2016 Budget: included in the ¥795.266 billion sum
*In addition, measures will be funded using the Disaster Prevention and Safety Grant
FY2015 Budget: included in the ¥820.172 billion sum
*In addition, measures will be funded using the Disaster Prevention and Safety Grant

(7) Prevention of Snow Disasters at Airports

MLIT will enhance snow removal at airports and put in place snow removal equipment to secure air traffic in snowy cold regions.

FY2016 Budget: ¥1.394 billion
FY2015 Budget: ¥1.286 billion
Difference: ¥108 million

6-3 Other

(1) PR and Educational Activities to Prevent Snow Disasters

As well as gaining an accurate understanding of facts concerning the occurrence of snow disasters and striving to provide information to prevent them, the National Police Agency will instruct prefectural police forces to analyze and consider facts concerning the occurrence of snow disasters and to conduct PR and awareness activities via in-house and public newsletters, as well as via patrols.

(2) Promotion of Measures against Snow Disasters

To increase readiness to manage snow disasters, FDMA will provide relevant local governments with requests and advice concerning such matters as thorough gathering and communication of weather and other information, accident prevention measures during clearing snow, and the development of evacuation guidance systems for vulnerable people, etc.

(3) Education and Awareness Activities to Prevent Avalanche Disasters in Villages

With the aim of helping to prevent and mitigate damage to human life and property due to avalanche disasters, MLIT will organize Avalanche Disaster Prevention Week. As part of this campaign, it will promote PR activities concerning avalanche disaster prevention, confer awards on those who have made an outstanding contribution to preventing avalanche disasters, promote widespread awareness of hazardous areas, conduct inspections, and hold alert and evacuation drills, among other activities.

(4) Issuance and Communication of Forecasts, Warnings, and Other Information

As well as publishing timely and appropriate forecasts, warnings, and other information about snowfall, snow coverage, and avalanches, the JMA will strive to prevent and mitigate disaster by providing this information to organizations involved in disaster management, etc.

7. Contingency Planning against Fires

7-1 Education and Training

(1) Fire and Disaster Management College Education and Training Initiatives

FDMA'S Fire and Disaster Management College will conduct education and training programs for staff involved in fire safety at the national and prefectural level, as well as for municipal firefighters and fire corps volunteers. Through its programs, the College will teach course participants the knowledge and skills that they will require as leaders, covering such areas as fire prevention, fire control, and rescue and ambulance services in the event of a fire.

(2) JCG Fire Response Exercises, etc.

The JCG will provide staff involved in responding to fires on board marine vessels, etc. with education about responding to accidents and will conduct firefighting drills in partnership with relevant organizations.

FY2016 Budget: ¥2 million
FY2015 Budget: ¥2 million
Difference: ¥0

7-2 Development of Facilities and Equipment for Disaster Management

(1) Precautions against Forest Fires

To prevent forest fires, MAFF will develop forest roads to assist in regional projects aimed at promoting widespread efforts to prevent forest fires, such as the National Forest Fire Prevention Campaign, as well as strengthening prevention frameworks and facilitating fire safety and firefighting activities.

It will also develop firebreaks and fire prevention roads in national forests.

FY2016 Budget: included in the ¥66.202 billion sum
*Also partly covered by subsidies for development of rural areas and subsidies for the reinforcement of foundations for regional revitalization
FY2015 Budget: included in the ¥62.507 billion sum
*Also partly covered by subsidies for development of rural areas and subsidies for the reinforcement of foundations for regional revitalization

(2) Loans to Fund the Construction and Purchase of Fireproof Buildings to Assist in Preventing Disaster

The Japan Housing Finance Agency will provide loans to fund the construction and purchase of fireproof buildings that both use land efficiently and assist in preventing disaster.

(3) Upgrading of Firefighting Systems at Airports

MLIT will systematically update fire trucks for chemical fires at airports managed by national government, in order to improve their performance.

FY2016 Budget: ¥1.123 billion
FY2015 Budget: ¥938 million
Difference: ¥185 million

7-3 Other

(1) Upgrading of Fire Prevention Systems, etc.

To mitigate the damage caused by fire, FDMA will upgrade fire prevention systems as follows.

・ Measures to prevent fire, and guidance and education focused on the fire safety equipment sector
FY2016 Budget: ¥2 million
FY2015 Budget: ¥2 million
Difference: ¥0

・ Promotion of prevention of fire caused by ignition of products and liaison and coordination in the investigation of causes of fires
FY2016 Budget: ¥10 million
FY2015 Budget: ¥12 million
Difference: -¥2 million

・ Responses to international trends in fire safety equipment, etc.
FY2016 Budget: ¥9 million
FY2015 Budget: ¥14 million
Difference: -¥5 million

・ Promotion of residential fire prevention measures
FY2016 Budget: ¥10 million
FY2015 Budget: ¥11 million
Difference: -¥1 million

・ Promotion of efforts to remedy violations of fire safety legislation
FY2016 Budget: ¥18 million
FY2015 Budget: ¥23 million
Difference: -¥5 million

・ Comprehensive planning of fire safety technology
FY2015 Budget: ¥5 million
FY2015 Budget: ¥6 million
Difference: -¥1 million

・ More effective fire prevention and restructuring of regulation systems
FY2016 Budget: ¥23 million
FY2015 Budget: ¥30 million
Difference: -¥7 million

・ Promotion of fire safety measures at terminal buildings, etc. that take into account the needs of foreign visitors
FY2016 Budget: ¥6 million
FY2015 Budget: ¥9 million
Difference: -¥3 million

・ Strengthening the competitiveness of fire safety equipment, etc. that is compliant with Japanese standards
FY2016 Budget: ¥7 million
FY2015 Budget: ¥0
Difference: ¥7 million

(2) Upgrading of Forest Fire Prevention Systems, etc.

FDMA and MAFF will jointly hold the National Forest Fire Prevention Campaign to raise awareness of forest fire prevention. In addition, FDMA will further promote the program for designated areas to take robust measures against forest fires.

(3) Promotion of Building Safety Measures

To ensure the fire safety of buildings, MLIT will promote the preparation of maintenance plans for designated special buildings used by a large number of people, as well as promoting regular inspections, the preparation of inspection reports, and disaster prevention surveys of such buildings. Based on these, it will encourage efforts to undertake appropriate maintenance and carry out any refurbishment needed.

8. Contingency Planning against Hazardous Materials

8-1 Education and Training

(1) National Police Agency Education and Training Initiatives

To promote safety measures aimed at preventing disasters due to explosives and the like, the National Police Agency will provide education and training programs at the Kanto Regional Police School for prefectural police officers responsible for dealing with explosives. Specifically, these programs will cover such topics as relevant legislation, guidelines for supervision and enforcement, and basic knowledge concerning explosives.

(2) Fire and Disaster Management College Education and Training Initiatives

FDMA'S Fire and Disaster Management College will conduct education and training programs for staff involved in fire safety at the national and prefectural level, as well as for municipal firefighters. These programs will cover such areas as firefighting activities in response to disasters involving hazardous materials or petroleum complexes.

(3) JCG Exercises in Responding to Disasters Involving Hazardous Materials, etc.

The JCG will provide staff involved in responding to disasters involving hazardous materials with education about disaster response and will conduct accident response drills in partnership with relevant organizations.

FY2016 Budget: ¥11 million
FY2015 Budget: ¥11 million
Difference: ¥0

8-2 Development of Facilities and Equipment for Disaster Management

Project to develop systems for dealing with a major petroleum disaster

METI will provide support for the acquisition of the materials and equipment required by the Petroleum Association of Japan to respond to disasters involving major crude oil spills at sea. It will also provide support for disaster response technology research, international conferences, and systems for dealing with crude oil spills and similar disasters.

(Current status) Strengthening of crude oil spill clean-up capabilities at terminals within Japan and overseas (average oil clean-up capability at terminals in Japan: 900kl/hour) (underway in FY2015)

(Goal) Strengthening of crude oil spill clean-up capabilities at terminals within Japan and overseas (average oil clean-up capability at terminals in Japan: 900kl/hour)

FY2016 Budget: ¥900 million
FY2015 Budget: ¥920 million
Difference: -¥20 million

8-3 Other

(1) Safety Management Measures for Explosives

To ensure the proper storage, management, and handling of explosives by operators of businesses that handle explosives, the National Police Agency will instruct prefectural police forces to conduct meticulous on-site inspections of places where explosives are handled and to work in partnership with relevant organizations.

(2) Measures to Prevent Disasters Due to Hazardous Materials

The National Police Agency will instruct prefectural police forces to work closely with relevant organizations to strengthen enforcement regarding vehicles carrying hazardous materials and to provide guidance concerning compliance with safety standards.

(3) Requests and Advice Concerning Hazardous Materials Regulations

FDMA will promote the following preventive measures in accordance with the Fire Service Act.

- Deliberations concerning the development of technical standards for ensuring the safety of hazardous materials

Promotion of safety measures at outdoor tank storage facilities (Described above: Chapter 1 8 (1))

Deliberations concerning a survey on safety measures tailored to the use of new technologies and materials (Described above: Chapter 1 8 (1))

Smooth installation of emergency power supply systems that take into account the diverse approaches adopted by hazardous materials facilities, with a focus on national resilience, etc.

FY2016 Budget: ¥46 million
FY2015 Budget: ¥61 million
Difference: -¥15 million

・ Measures to prevent accidents at facilities with hazardous materials facilities, etc. (Described above: Chapter 1 8 (1))
FY2016 Budget: ¥11 million
FY2015 Budget: ¥11 million
Difference: ¥0

・ Improvement of the accuracy of hazardous materials databases; prompt identification of new hazardous substances and evaluation of their risk, etc.
FY2016 Budget: ¥11 million
FY2015 Budget: ¥14 million
Difference: -¥3 million

(4) Promotion of Disaster Management Measures at Petroleum Complexes, etc.

FDMA will conduct research concerning approaches to the sharing of information with public fire brigades and business establishments at petroleum complexes where fires have broken out. Moreover, it will hold the Skills Contest for Self-defense Organizations for Disaster Prevention at Petroleum Complexes, etc. to increase the skills and morale of such organizations.
FY2016 Budget: ¥10 million
FY2015 Budget: ¥13 million
Difference: -¥3 million

FDMA and METI will examine the layout of facilities on the site of new business establishments handling both petroleum and high-pressure gas, and issue the necessary requests and advice.
FY2016 Budget: ¥2 million
FY2015 Budget: ¥3 million
Difference: -¥1 million

(5) Enhancement of the Rapid Response Units to Deal with Disasters Involving Energy or Industrial Infrastructure (Dragon Hyper Command Units)

Dragon Hyper Command Units are rapid response units within the Emergency Fire Response Team structure, which specialize in disasters involving energy or industrial infrastructure, such as petroleum tank fires and chemical plant explosions. FDMA will use the system for the free use of national property, etc. (Article 50 of the Fire and Disaster Management Organization Act) to equip Dragon Hyper Command Units with the vehicles that are essential to their work.
(Current status) Number of units: 4 (FY2015)
(Goal) Number of units: 12 (end of FY2018)
FY2016 Budget: ¥400 million
FY2015 Budget: ¥418 million
Difference: -¥18 million

(6) R&D on the Formulation of Technical Standards Relating to High-Pressure Gas, etc.

To prevent accidents and disasters involving high-pressure gas and explosives, etc., thereby ensuring public safety, METI will conduct research aimed at the revision of technical standards. In addition, it will analyze information about accidents to identify the causes, consider measures to prevent recurrence, and implement projects that assist in enhancing and upgrading industrial safety infrastructure.
(Current status) Number of accidents involving high-pressure gas or explosives resulting in human casualties and number of people killed or injured (results of the FY2014 survey): high-pressure gas: 28 accidents, 70 people (calendar year basis); explosives: 29 accidents, 36 people
(Goal) Year-on-year reduction
FY2016 Budget: ¥115 million
FY2015 Budget: ¥109 million
Difference: ¥6 million

(7) Guidance Concerning the Prevention of Disasters Involving High-Pressure Gas and Explosives

METI will conduct on-site inspections of manufacturers and provide them with operational safety education guidance, as well as conducting training courses for coordinators involved in enforcement at the prefectural level.

(8) Development of Safety Management Technology for LPG Supply Businesses

METI will draft technical standards for the safe and efficient disposal of LPG bulk storage tanks, the re-use of residual gas, and the leak testing of gas-consuming equipment using microcomputer meters, etc. in the event of disaster. In addition, it will conduct surveys and analyze accident data with a view to reducing the number of accidents involving LPG, and will educate consumers about safety.
(Current status) Number of people killed or injured by LPG accidents: 77 (FY2014)
(Goal) 25 (FY2020)

FY2016 Budget: ¥261 million
FY2015 Budget: ¥275 million
Difference: -¥14 million

(9) Oil Refining Industry Safety Measures Program

With a view to preventing accidents at oil refineries and the like, establishing and revising technical standards in the High Pressure Gas Safety Act, and designing relevant systems, METI will supply relevant parties with details of the causes of accidents and measures to prevent recurrence, formulate guidelines to encourage business operators to conduct risk assessments, and obtain and examine data from experiments, etc.

(Current status) Number of disasters/accidents involving high-pressure gas resulting in human casualties and number of people killed or injured: 28 disasters/accidents, 70 people (results of the FY2014 survey)

(Goal) Year-on-year reduction

FY2016 Budget: ¥190 million
FY2015 Budget: ¥245 million
Difference: -¥55 million

(10) Establishment of Safety Measures for the Marine Transport of Hazardous Materials

Having fully evaluated and considered the formulation and incorporation of international standards, MLIT will establish safety measures tailored to the specific attributes of hazardous materials. Moreover, to prevent accidents during the marine transport of hazardous materials, MLIT will conduct various on-site inspections and pre-shipment inspections of vessels used to transport hazardous materials.

FY2016 Budget: ¥22 million
FY2015 Budget: ¥22 million
Difference: ¥0

(11) Safety and Disaster Management Measures for the Operation of Vessels Carrying Hazardous Materials and Cargo Handling of Hazardous Materials

The JCG will provide guidance regarding the navigation safety of vessels carrying hazardous materials through high-density traffic areas and appropriate cargo handling in large tanker berths, thereby enhancing safety and disaster management measures.

(12) Provision of Environmental Conservation Information for Coastal Waters

With the objective of facilitating the swift implementation of appropriate clean-up activities following an oil spill, the JCG will continue its efforts to provide environmental conservation information for coastal waters by building a database of natural and social information about coastal waters that can be displayed along with nautical chart data and projections of the dispersal and drift of the oil, among other information.

FY2016 Budget: ¥1 million
FY2015 Budget: ¥1 million
Difference: ¥0

(13) Enhancement of the Drift Projection System

To ensure proper clean-up work in the event of an oil spill, the JCG will enhance the system that enables it to provide high-precision drift projections by using buoys that can be continuously monitored to evaluate and correct drift projections.

FY2016 Budget: ¥11 million
FY2015 Budget: ¥11 million
Difference: ¥0

(14) Registration of Oil Spill Clean-up Experts by Field

With the cooperation of relevant administrative bodies, the JCG will compile standardized information concerning domestic experts in each field, in accordance with the National Contingency Plan for Oil Pollution Preparedness and Response. In addition, it will strive to put in place systems that will enable this information to be supplied in response to requests from relevant administrative bodies and local governments, etc.

(15) Provision of Environmental Conservation Information for Coastal Waters

To facilitate an appropriate response to pollution accidents involving oil or other substances from the perspective of environmental conservation, the MOE will publish maps incorporating information about coastal areas that could suffer particularly significant environmental impacts (coastal vulnerability maps) and gather information to promote their use by local government staff, as well as to update them.

(Current status) The MOE published maps reflecting information gathered in FY2014.

(Goal) The MOE will continue to gather information,

update maps, and publish them as needed.
FY2016 Budget: ¥3 million
FY2015 Budget: ¥3 million
Difference: ¥0

9. Contingency Planning against Nuclear Disasters

9-1 Education and Training

(1) Training Courses for Bus Drivers, etc.

To ensure emergency response capabilities in the event of an emergency in a region where a nuclear power plant is located, the Cabinet Office will hold training courses to improve the nuclear emergency preparedness capabilities both of local government employees who would be involved in off-site management and staff of private sector companies, such as bus drivers.

FY2016 Budget: ¥169 million
FY2015 Budget: ¥0
Difference: ¥169 million

(2) National Police Agency Education and Training Initiatives

The National Police Agency will conduct education and training programs for senior prefectural police force officers, focusing on basic knowledge concerning nuclear energy, emergency response measures in the event of a nuclear accident, and radiation dose monitoring. In addition, it will instruct prefectural police forces to carry out policing drills with a focus on nuclear emergencies, working in partnership with relevant organizations.

(3) Fire and Disaster Management College Education and Training Initiatives

FDMA's Fire and Disaster Management College will conduct education and training programs for staff involved in fire safety at the national and prefectural level, as well as for municipal firefighters. These programs will cover firefighting activities in response to nuclear emergencies.

(4) Course on the Safe Transport of Radioactive Material

MLIT will hold courses for transportation workers, etc. concerning transportation standards and specialist knowledge concerning the transport of radioactive material.

FY2016 Budget: ¥1 million
FY2015 Budget: ¥1 million
Difference: ¥0

(5) Training, etc. in Environmental Radiation Monitoring

The Nuclear Regulation Authority (NRA) will hold training courses for local government employees and others, to improve their radioactivity analysis skills and enhance the effectiveness of emergency monitoring.

FY2016 Budget: ¥243 million
FY2015 Budget: ¥240 million
Difference: ¥3 million

(6) JCG Nuclear Emergency Response Exercises, etc.

The JCG will provide staff involved in responding to nuclear emergencies with education about disaster response and will conduct accident response drills in partnership with relevant organizations.

FY2016 Budget: ¥4 million
FY2015 Budget: ¥4 million
Difference: ¥0

9-2 Development of Facilities and Equipment for Disaster Management

Disaster Risk Reduction Measures for Nuclear Installations, etc.

The NRA will put in place nuclear emergency response support systems and other nuclear emergency prevention systems.

(Current status) The NRA sought to maintain and enhance emergency response capabilities by examining and improving routine maintenance and technical specifications, etc. (FY2014)

(Goal) The NRA will endeavor to maintain and enhance emergency response capabilities by examining and improving routine maintenance and technical specifications, etc. (FY2015)

FY2016 Budget: ¥3.216 billion
FY2015 Budget: ¥3.523 billion
Difference: -¥307 million

9-3 Other

(1) Support for Reinforcing and Developing More Advanced Local Emergency Preparedness and Response Plan

In order to reinforce Local Emergency Preparedness and Response Plans and make them

more advanced, the Cabinet Office will provide the cost for local governments' provisions of materials and equipment required for disaster management activities, and the development of their emergency response capabilities through conducting disaster management drills. In particular, it will support the development of systems for the provision of medical care in the event of a nuclear emergency, based on the Nuclear Emergency Response Guidelines.

FY2016 Budget: ¥12.257 billion
FY2015 Budget: ¥12.170 billion
Difference: ¥87 million

(2) Establishment of Frameworks for International Collaboration in Nuclear Emergency Preparedness

To ensure continuous improvement of nuclear emergency preparedness initiatives, the Cabinet Office will conduct studies concerning the international standards of the International Atomic Energy Agency (IAEA), as well as the systems employed in other countries and the way in which they operate. It will also hold international conferences and seminars and host observers from relevant organizations in other countries at Nuclear Energy Disaster Prevention Drills in Japan.

FY2016 Budget: ¥50 million
FY2015 Budget: ¥0
Difference: ¥50 million

(3) Surveys Regarding Local Disaster Management Plans

The Cabinet Office will gather and collate local information required for emergency response measures, in case of a nuclear emergency. In addition, during the current fiscal year, it will prepare guidance offering useful information concerning the formulation of Local Emergency Preparedness and Response Plan, which it will provide to relevant local governments.

FY2016 Budget: ¥87 million
FY2015 Budget: ¥40 million
Difference: ¥47 million

(4) Risk Communication on Radioactive Material in Foods

The Consumer Affairs Agency will publish *Food and Radiation Q&A* to provide information about radioactive material in foods, hold public meetings and undertake other forms of risk communication in partnership with relevant ministries, agencies, local governments, and consumer groups.

(Current status) Level of understanding of participants in public meetings (results of a questionnaire distributed among participants in FY2014): 83%

FY2016 Budget: included in the ¥34 million sum
FY2015 Budget: included in the ¥39 million sum

(5) Enhancement of Local Administration of Consumer Affairs and Development of Radioactive Material Testing Systems

In light of the ongoing escalation of harm among elderly consumers and the promulgation of the revised Consumer Safety Act, the Consumer Affairs Agency will provide prefectures with a Local Consumer Protection Grant, in order to ensure powerful and stable support for grassroots consumer protection initiatives undertaken by local governments to ensure the safety and peace of mind of consumers.

FY2016 Budget: included in the ¥3.000 billion sum
FY2015 Budget: included in the ¥3.000 billion sum

Moreover, to ensure food safety and security in the area of food and radioactivity, in light of the nuclear power plant accident, it will continue to lend out radioactive material testing equipment and conduct workshops on its use.

(6) Promotion of Nuclear Emergency Response Measures

FDMA will provide local governments with advice and support in revising Local Disaster Management Plans; promote widespread use of handbooks, etc.; and provide advice and cooperation for nuclear emergency response exercises. In addition, it will examine firefighting activities and measures required in the event of an accident involving radioactive material or radiation.

FY2016 Budget: ¥6 million
FY2015 Budget: ¥8 million
Difference: -¥2 million

(7) Nuclear Emergency Response Measures Relating to Marine Transport

MLIT will furnish and maintain supplies for disaster management, put in place satellite telecommunications systems, and provide guidance concerning drills focused on managing disasters involving radioactive material, to ensure that

preparations are in place for dealing with an accident during marine transport of radioactive material, etc. or a nuclear emergency triggered by a disaster.

FY2016 Budget: ¥2 million
FY2015 Budget: ¥3 million
Difference: -¥1 million

10. Other Disaster Countermeasures

10-1 Education and Training

(1) Fire and Disaster Management College Education and Training Initiatives

FDMA'S Fire and Disaster Management College will conduct education and training programs for staff involved in fire safety at the national and prefectural level, as well as for municipal firefighters. These programs will cover firefighting activities in response to disasters stemming from biological or chemical agents.

(2) Disaster Prevention Education for Seafarers

MLIT will provide safety and health education for seafarers, etc. via general public media.

FY2016 Budget: ¥2 million
FY2015 Budget: ¥2 million
Difference: ¥0

(3) Measures to Prevent Industrial Accidents Involving Seafarers

In accordance with the Basic Plan Concerning Disaster Prevention for Seafarers, MLIT will prepare the Implementation Plan Concerning Disaster Prevention for Seafarers in order to promote effective, specific measures to prevent industrial accidents involving seafarers. MLIT will also encourage voluntary efforts by shipowners to prevent disasters involving seafarers and its Safety Management and Seafarers Labor Inspection Officers will carry out auditing and guidance of vessels and workplaces.

FY2016 Budget: ¥65 million
FY2015 Budget: ¥67 million
Difference: -¥2 million

10-2 Other

(1) Enhancement of Measures against Special Types of Disaster

FDMA will work in partnership with relevant organizations to bolster measures to prevent special types of disaster. In addition, it will examine firefighting activities and disaster management systems aimed at enhancing and strengthening fire safety and disaster management measures, as well as disaster risk reduction measures.

FY2016 Budget: ¥1 million
FY2015 Budget: ¥1 million
Difference: ¥0

(2) Measures to Prevent Industrial Accidents

In accordance with the Industrial Accident Prevention Plan, the MHLW will deploy systematic measures to prevent industrial accidents. It will endeavor to prevent disasters involving explosions and fires at chemical plants, etc., as well as preventing industrial accidents in the course of recovery and reconstruction work in the aftermath of the Great East Japan Earthquake, such as landslides during road repairs.

(Current status) Reductions in industrial accidents: 12.2% reduction in fatal accidents; 2.9% reduction in accidents causing death or injury that require operations to be suspended for 4 days or more (preliminary figures, comparison with 2012) (preliminary figures as of the end of December 2015)

(Goal) 15% or more reduction in fatal accidents; 15% or more reduction in accidents causing death or injury that require operations to be suspended for 4 days or more (final figures, comparison with 2012) (2017)

FY2016 Budget: included in the ¥294 million sum
FY2015 Budget: included in the ¥253 million sum

(3) Mine Safety Supervision

To prevent injury and pollution at mines, METI will conduct on-site inspections in accordance with the Mine Safety Act and the Act on Special Measures for Pollution Caused by the Metal Mining Industry, etc.

(4) Ensuring the Safety of Lifeline Utility Facilities

METI will conduct on-site inspections in accordance with relevant legislation to ensure the appropriate maintenance and operation of facilities involved in the supply of electricity and gas.

(5) Project to Support Seismic Retrofit of High-pressure Gas Equipment

METI will support seismic retrofit measures carried out by business operators in respect of existing spherical tanks that are not subject to the latest earthquake resistance standards and high-pressure gas equipment of high importance from the perspective of operational safety, with the aim of making this equipment compliant with the latest earthquake resistance standards.

(Current status) 499 units (including high-pressure gas energy equipment) have been made compliant with the latest earthquake resistance standards.

(Goal) Accelerate the seismic retrofit of high-pressure gas equipment.

FY2016 Budget: ¥216 million

(6) Project to Support Seismic Retrofit of High-pressure Gas Energy Equipment

METI will support seismic retrofit measures carried out by business operators in respect of existing spherical tanks that are not subject to the latest earthquake resistance standards and high-pressure gas energy equipment of high importance from the perspective of operational safety, with the aim of making this equipment compliant with the latest earthquake resistance standards.

(Current status) 499 units (including equipment other than high-pressure gas energy equipment) have been made compliant with the latest earthquake resistance standards.

(Goal) Accelerate the seismic retrofit of high-pressure gas energy equipment.

FY2016 Budget: ¥280 million

(7) Project to Promote Measures to Deal with Aging Underground Piping

To ensure public safety, METI will send notices to consumers who own aging underground piping at high risk of gas leaks due to corrosion, etc. It will also conduct studies and analyses concerning the risk posed by aging underground piping, including gathering technical data to inform decisions that will be made public.

(Current status) METI will investigate the correlation between the extent of corrosion of aging underground piping and the soil environment.

(Goal) METI will consider risk assessment techniques and formulate standards for cooperation requests/recommendations issued to consumers.

FY2016 Budget: ¥120 million

(8) Supervision of Foreign Vessels

MLIT will prevent marine accidents by weeding out vessels that do not comply with International Convention for the Safety of Life at Sea or other international standards (substandard vessels). Accordingly, it will continue to enhance the Port State Control (PSC) Officer system and carry out appropriate PSC of foreign vessels calling at Japanese ports.

FY2016 Budget: ¥98 million

FY2015 Budget: ¥98 million

Difference: ¥0

Chapter 3 National Land Conservation

1. Flood Control Projects, etc.

The Ministry of Land, Infrastructure, Transport and Tourism (MLIT) will prioritize the following to address challenges faced in implementing disaster management and mitigation measures and measures to tackle dilapidated infrastructure.

- MLIT will promote initiatives focused on preventive measures that combine hard and soft infrastructure to combat the flood and sediment disasters that are becoming increasingly frequent and catastrophic due to climate change and to reduce the risk from imminent major earthquakes. It will also focus its efforts on measures to prevent repeated disasters in areas where immense disasters have already occurred.
- In response to the aging of operation and maintenance facilities, MLIT will promote initiatives that seek to reduce overall costs by formulating plans for extending the operational life of such facilities.
- MLIT will support the development of attractive communities by creating waterfront areas with beautiful scenery and a rich natural environment.

  FY2016 Budget: included in the ¥795.266 billion sum

  *In addition, measures will be funded using the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

  FY2015 Budget: included in the ¥820.172 billion sum

  *In addition, measures will be funded using the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

1-1 Disaster Prevention and Mitigation

(1) Flood Control Measures against Increasingly Frequent and Catastrophic Flood Disasters Due to Climate Change

In light of the increasingly frequent and catastrophic damage caused by climate change, MLIT will systematically implement flood control measures against floods that occur comparatively often. In addition, it will intensively implement measures to prevent repeated disasters in areas where catastrophic flood disasters have already occurred.

Moreover, based on the assumption that major floods that cannot be completely prevented using infrastructure may occur, MLIT will seek to ensure that society as a whole is always prepared for such an eventuality. To this end, it will promote integrated and systematic measures incorporating both hard and soft infrastructure, with the aim of rebuilding the Society Sharing the Risk of Water Disasters.

(2) Measures against a Sediment Disaster in Case of Intense Heavy Rains or Volcanic Eruption, etc.

In addition to selectively developing erosion control dams as a preventive measure against sediment disasters stemming from intense heavy rains, such as the sediment disaster in Hiroshima in August 2014, MLIT will intensively implement measures to prevent repeated disasters in areas that have already suffered catastrophic sediment disasters.

Moreover, in light of recent volcanic activity, MLIT will promote the selective development of erosion control infrastructure in volcanic regions and the formulation of Volcanic Sediment and Erosion Control Plans for Urgent Measures for Volcanic Disaster Reduction.

(3) Earthquake and Tsunami Countermeasures in Case of a Nankai Trough Megaquake, Tokyo Inland Earthquake, or Other Major Earthquake

To prepare for major earthquakes such as the impending Nankai Trough megaquake and Tokyo inland earthquake, MLIT will move forward with the development of tsunami-resistant communities, based on the lessons of the Great East Japan Earthquake. In addition, it will selectively implement measures to increase the earthquake resistance of embankments and combat liquefaction, tailored to the specific nature of the damage that each earthquake is expected to cause.

1-2 Strategic Maintenance, Management, and Replacement

MLIT will steadily conduct inspections/diagnostics and carry out work to ensure that river management facilities, etc. can function fully. In addition, as well as promoting replacement and other initiatives aimed at reducing overall costs, MLIT will promote the introduction of new technologies and undertake human resource

development, with the aim of achieving more advanced and efficient maintenance and management.

1-3 Creation of Attractive Waterfront Areas and Formation of Enriched River Environments

MLIT will support efforts to develop attractive and dynamic communities through collaborative efforts by residents, companies, and government bodies to regenerate and create lively waterfront areas with beautiful scenery and a rich natural environment, so that they become a resource that enhances the value of the community.

2. Forest Conservation Projects

Based on an approach that seeks to prevent and mitigate disasters caused by intense heavy rains or earthquakes in mountainous areas before such disasters occur, the Ministry of Agriculture, Forestry and Fisheries (MAFF) will promote “green national resilience” in mountainous areas that are at risk in the event of disaster and are located near villages, etc., as well as in important reservoir areas. “Green national resilience” initiatives will seek to ensure the safety and security of communities through comprehensive forest conservation measures, such as the installation of forest conservation facilities and measures to extend their operational life, as well as improvements to degraded forests and coastal disaster-prevention forests.

FY2016 Budget: included in the ¥59.723 billion sum

*Also partly covered by subsidies for development of rural areas

FY2015 Budget: included in the ¥61.570 billion sum

*Also partly covered by subsidies for development of rural areas

2-1 Forest Conservation Projects in National Forests

MAFF will carry out the following forest conservation projects in national forests.

FY2016 Budget: included in the ¥20.497 billion sum

FY2015 Budget: included in the ¥21.121 billion sum

2-2 Forest Conservation Projects in Privately Owned Forests

MAFF will carry out the following projects.

(1) Direct Control Projects

・ Direct control forest conservation projects

MAFF will implement direct control forest conservation projects in privately owned forests in 14 districts with ongoing projects. (Described below: Chapter 3 3-1 (1))

FY2016 Budget: included in the ¥12.604 billion sum

FY2015 Budget: included in the ¥12.994 billion sum

・ Surveys concerning forest conservation plans, etc.

To facilitate the effective promotion of forest conservation projects, MAFF will carry out hillside conservation surveys, studies analyzing quantity surveying criteria for forest conservation projects, surveys aimed at extending the operational life of forest conservation facilities, and surveys concerning measures to combat disasters in mountainous areas of river basins.

FY2016 Budget: ¥183 million

FY2015 Budget: ¥184 million

Difference: -¥1 million

(2) Subsidized Projects

・ Forest conservation projects

MAFF will restore denuded hillsides, upgrade forests whose water and forest conservation functions have deteriorated, and enhance and maintain coastal disaster-prevention forests.

FY2016 Budget: included in the ¥24.683 billion sum

*Also partly covered by subsidies for development of rural areas

FY2015 Budget: included in the ¥25.302 billion sum

*Also partly covered by subsidies for development of rural areas

3. Projects Addressing Landslides

3-1 Projects under MAFF Jurisdiction

MAFF will carry out the following projects.

(1) Directly Managed Projects

・ Directly managed landslide control projects

MAFF will carry out projects involving engineering work to prevent landslides in areas with a high risk of damage to agricultural land and facilities, where there is an urgent need for measures to address this risk due to landslide activity having been observed and where the scale of the work required is especially large.

(Current status) Reduction in the area of agricultural land at risk of flood damage, etc.: 73,000 ha (FY2014)

(Goal) 100,000 ha (FY2016)

FY2016 Budget: ¥1.510 billion

FY2015 Budget: ¥1.850 billion

Difference: -¥340 million

・ Directly managed landslide prevention projects

MAFF will implement directly managed landslide prevention projects focused on landslides associated with forest conservation in 8 districts with ongoing projects (including districts where direct control forest conservation projects are also being carried out).

FY2016 Budget: included in the ¥12.604 billion sum

FY2015 Budget: included in the ¥12.994 billion sum

・ Landslide surveys

MAFF will conduct surveys aimed at preventing landslides, in order to protect agricultural land and facilities from landslide disasters.

FY2016 Budget:

included in the ¥222 million sum for basic technology research expenditure

FY2015 Budget:

included in the ¥211 million sum for basic technology research expenditure

(2) Subsidized Projects

・ Landslide control projects

MAFF will carry out these projects, prioritizing areas with a high risk of damage to agricultural land and facilities, where there is an urgent need for measures to address this risk due to landslide activity having been observed.

(Current status) Reduction in the area of agricultural land at risk of flood damage, etc.: 73,000 ha (FY2014)

(Goal) 100,000 ha (FY2016)

FY2016 Budget: included in the ¥50.768 billion sum

FY2015 Budget: included in the ¥28.015 billion sum

・ Landslide prevention projects

MAFF will carry these out in areas with a high risk of damage to settlements and public facilities, where there is an urgent need for measures to address this risk.

FY2016 Budget: included in the ¥24.683 billion sum

FY2015 Budget: included in the ¥25.032 billion sum

3-2 Projects under MLIT Jurisdiction

MLIT will develop landslide prevention facilities to ensure the stability of both national land and the lives of the people by preventing and mitigating damage to homes, public buildings, rivers, roads, and other public facilities caused by landslides and the like. In addition, it will support prefectural efforts to put in place warning and evacuation systems by identifying sites at risk of a landslide and designating them as sediment disaster hazard zones, etc.

Moreover, it will seek to prevent repeated disasters by putting in place emergency landslide prevention facilities where heavy rain or earthquakes have caused new landslides or landslide phenomena have intensified, where the nature of the risk is such that it cannot be left unaddressed for economic reasons or from the perspective of the stability of people's lives.

FY2016 Budget: included in the ¥795.266 billion sum

*In addition, measures will be funded using the Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥820.172 billion sum

*In addition, measures will be funded using the Disaster Prevention and Safety Grant

4. Projects Addressing Steep Slope Failure

MLIT will support prefectural efforts to install steep slope failure prevention infrastructure in steep slope failure hazard areas and to put in place warning and evacuation systems by designating areas as sediment disaster hazard zones.

FY2016 Budget:
funded using the Disaster Prevention and Safety Grant
FY2015 Budget:
funded using the Disaster Prevention and Safety Grant

5. Coastal Projects

MAFF and MLIT will selectively implement measures to combat earthquakes, tsunami, storm surges, and erosion in coastal areas of particular importance from the perspective of conserving national land.

FY2016 Budget: included in the ¥27.748 billion sum
*Also partly covered by subsidies for development of rural areas, the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant
FY2015 Budget: included in the ¥34.638 billion sum
*Also partly covered by subsidies for development of rural areas, the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

6. Disaster Prevention Projects Targeting Agricultural Land

MAFF will carry out the following disaster prevention projects targeting agricultural land.

6-1 Directly Managed Projects

・ Comprehensive disaster prevention projects targeting state-owned agricultural land, etc.

In agricultural communities where changing natural and social conditions have led to a decline in the functionality of agricultural land and facilities across an extensive area or where there is a risk of disaster, MAFF will implement agricultural drainage facility development projects to tackle these issues.

(Current status) Reduction in the area of agricultural land at risk of flood damage, etc.: 73,000 ha (FY2014)
(Goal) 100,000 ha (FY2016)
FY2016 Budget: ¥25.853 billion
FY2015 Budget: ¥22.392 billion
Difference: ¥3.461 billion

6-2 Subsidized Projects

・ Disaster prevention projects targeting agricultural land

To prevent or minimize flood damage to agricultural land and facilities, MAFF will implement disaster prevention and mitigation projects in rural communities and programs for the deployment of emergency measures and facilities in response to special natural disasters, etc.

(Current status) Reduction in the area of agricultural land at risk of flood damage, etc.: 73,000 ha (FY2014)
(Goal) 100,000 ha (FY2016)
FY2016 Budget: included in the ¥50.918 billion sum
*Also partly covered by subsidies for development of rural areas
FY2015 Budget: included in the ¥28.115 billion sum
*Also partly covered by subsidies for development of rural areas

7. Disaster-related Projects

(1) Projects under MAFF Jurisdiction

To prevent disaster-stricken agricultural, forestry, and fishery industry facilities and public civil engineering works from suffering repeated disasters, MAFF implemented disaster-related projects, such as the upgrading of adjacent facilities in conjunction with disaster recovery projects.

FY2016 Budget: ¥4.642 billion
FY2015 Budget: ¥5.007 billion
Difference: -¥365 million

(2) Projects under MLIT Jurisdiction

In the event that disaster recovery projects alone are not expected to be sufficiently effective in preventing repeated disasters, MLIT will incorporate new facility construction or improvement projects into disaster recovery projects. Moreover, MLIT will restore disaster-stricken river and erosion control infrastructure to their original form and undertake a certain amount of associated rehabilitation work to improve this infrastructure as a matter of urgency. In addition, it will urgently implement projects aimed at dealing with sediment collapse caused by torrential rain even where there is no damage to infrastructure apart from rivers.

FY2016 Budget: ¥11.009 billion
FY2015 Budget: ¥13.665 billion

Difference: -¥2.656 billion

8. Land Subsidence Countermeasures Projects

(1) Land Subsidence Countermeasures Projects

・ Groundwater surveys (conservation surveys)

MAFF will conduct surveys in areas where groundwater is used for agricultural purposes, in order to ascertain the extent of subsidence and other impediments to the use of groundwater and to shed light on the mechanism that causes these impediments.

FY2016 Budget:
included in the ¥222 million sum for basic technology research expenditure

FY2015 Budget:
included in the ¥211 million sum for basic technology research expenditure

・ Land subsidence countermeasures projects

To restore the effectiveness of agricultural land and facilities impaired as a result of subsidence, MAFF will implement projects including the enhancement of agricultural drainage facilities, prioritizing areas where measures are required as a matter of urgency.

(Current status) Reduction in the area of agricultural land at risk of flood damage, etc.: 73,000 ha (FY2014)

(Goal) 100,000 ha (FY2016)

FY2016 Budget: included in the ¥50.768 billion sum

*Also partly covered by subsidies for development of rural areas

FY2015 Budget: included in the ¥28.015 billion sum

*Also partly covered by subsidies for development of rural areas

(2) Land Subsidence Prevention Projects, etc.

The Ministry of Economy, Trade and Industry (METI) will carry out the following projects to prevent subsidence.

・ Industrial water supply projects to prevent subsidence

METI will carry out five reconstruction projects to promote the installation of industrial water supply facilities, to provide an alternative to the use of groundwater.

(Current status) Status of subsidence in designated subsidence areas (FY2013): 0.85-2.3cm/year

(Goal) – (The objective is to prevent subsidence by installing industrial water supply facilities.)

FY2016 Budget: ¥376 million

FY2015 Budget: ¥554 million

Difference: -¥178 million

・ Groundwater level monitoring surveys

METI will carry out ongoing monitoring of groundwater levels to measure the effects of regulations in areas designated under the Industrial Water Act.

(Current status) Declining groundwater levels leads to subsidence. These surveys involve ongoing observation of groundwater levels.

(Goal) – (The objective is to ascertain the state of groundwater levels through ongoing observation of groundwater levels.)

FY2016 Budget: ¥2 million

FY2015 Budget: ¥2 million

Difference: ¥0

(3) River Projects for Low-lying Areas

MLIT will carry out the following projects.

・ Groundwater conservation and management surveys

MLIT will continue to evaluate the results of groundwater surveys conducted in the vicinity of Class A river systems nationwide in order to contribute to the appropriate conservation and management of groundwater and assist in the formulation of measures to prevent subsidence and other impediments to the use of groundwater.

FY2016 Budget: ¥8 million

FY2015 Budget: ¥8 million

Difference: ¥0

・ Subsidence leveling, etc.

The Geospatial Information Authority of Japan will conduct leveling and ground deformation surveys using interferometric SAR technology in areas of major subsidence nationwide, as well as monitoring ground deformation in conjunction with the results of measurements taken by local governments.

FY2016 Budget: included in the ¥269 million sum

FY2015 Budget: included in the ¥283 million sum

(4) Surveys of Groundwater Measures

MLIT will ascertain the implementation status of measures to prevent subsidence on the Nobi Plain, the Chikugo-Saga Plain, and the northern Kanto Plain; collate and analyze groundwater data; and quantitatively evaluate the relationship between the quantity of groundwater collected, groundwater levels, and subsidence. Using the results, it will consider measures to ensure more appropriate groundwater use and conservation.

FY2016 Budget: ¥31 million
FY2015 Budget: ¥31 million
Difference: ¥0

(5) Land Subsidence Prevention Projects, etc.

The Ministry of the Environment (MOE) will publish an overview of areas of subsidence nationwide based on measurements and other information provided by local governments. In addition, it will evaluate the practicality of observation techniques based on satellite data that enables elevation across an extensive area to be measured with high precision, and considered incorporating them into the system for monitoring subsidence.

(Current status) The MOE publishes the *Overview of Ground Subsidence in Japan* every fiscal year. It uses satellite data to build up verified data concerning changes in ground levels.

(Goal) The MOE will continue to publish the *Overview of Ground Subsidence in Japan* every fiscal year. It will evaluate the practicality of subsidence monitoring techniques that use satellite data and will aim to revise the Guidelines for Monitoring Subsidence (FY2016).

FY2016 Budget: ¥16 million
FY2015 Budget: ¥14 million
Difference: ¥2 billion

9. Measures to Strengthen the Sewerage System against Flooding

(Described above: Chapter 2 4-2 (10))

Progressive urbanization and increasingly frequent intense heavy rains well in excess of the volume that sewerage systems were designed to handle have caused the volume of storm water runoff to rise. In response, to ensure safety in cities, MLIT will implement public sewerage system projects and urban sewer system projects aimed at channeling rainwater from urban areas into rivers and preventing flood damage by developing storm trunks and rainwater storage and infiltration facilities.

In addition, it will use the Comprehensive Program to Mitigate Flood Damage to the Sewerage System and other initiatives to selectively enhance sewer trunk lines, pumping stations, and stormwater storage facilities in a limited number of areas. Furthermore, MLIT will combine soft infrastructure measures, such as the preparation and publication of rainfall inundation hazard maps and the provision of rainfall data in real time with self-help initiatives by residents to promote comprehensive and efficient measures against floods, in an effort to minimize the damage caused by rainfall in excess of the volume that facilities were designed to handle.

(Current status) Completion rate of measures to strengthen the sewerage system against urban flooding: approximately 56% (end of FY2014)

(Goal) Approximately 62% (end of FY2020)

(Current status) Share of municipalities that have prepared and published hazard maps for largest-possible rainfall inundation and have conducted drills to improve residents' awareness of disaster preparedness (including tabletop exercises and communication drills) – (end of FY2014)

(Goal) Approximately 100% (end of FY2020)

FY2016 Budget:
included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

FY2015 Budget:
included in the Disaster Prevention and Safety Grant and the Social Capital Improvement Grant

10. Other Projects

(1) Disaster Risk Reduction Project Bonds, etc.

The Ministry of Internal Affairs and Communications is making disaster risk reduction project bonds (natural disaster prevention projects) available for projects being undertaken by local governments alone to prevent the occurrence or escalation of disasters in disaster hazard areas listed in Local Disaster Management Plans. In addition, it is making general corporate bonds (for projects

involving rivers, etc.) available for projects being undertaken by local governments alone that involve the construction of river management facilities or erosion control equipment, or other forest conservation and flood control projects.

(2) Protection Forest Maintenance and Management Programs

As well as promoting designation of protection forests in accordance with the National Forest Plan, MAFF will implement programs to promote the appropriate management of protection forests, including administration associated with the designation and cancellation of protection forest status, and efforts to ascertain the management status of protection forests.

FY2016 Budget: ¥491 million
FY2015 Budget: ¥491 million
Difference: -¥0 million

(3) Projects to Prevent Mining Pollution from Disused Mines, etc.

METI will provide financial assistance for projects undertaken by local governments to prevent mining pollution from disused mines in cases where the operator with responsibility for preventing pollution is insolvent or no longer exists. In addition, where operators with responsibility for preventing pollution are conducting pit water treatment projects at disused mines, METI will provide financial assistance for part of the cost of dealing with pollution not caused by the operator in question.

(Current status) Percentage of business establishments with pit water treatment plants compliant with effluent standards and other relevant management standards (FY2014): 97%
(Goal) 100% annually
FY2016 Budget: ¥2.050 billion
FY2015 Budget: ¥1.905 billion
Difference: ¥145 million

(4) Railway Disaster Prevention Projects

MLIT will provide financial assistance for disaster prevention projects undertaken by passenger railway companies to combat rockfalls and avalanches, and to protect coasts, as well as for the Seikan Tunnel disaster prevention project being undertaken by the Japan Railway Construction, Transport and Technology Agency.

FY2016 Budget: ¥1.030 billion
FY2015 Budget: ¥1.185 billion
Difference: -¥155 million

(5) Measures to Address Aging Railway Facilities

Many of the bridges, tunnels, and other railway facilities owned by railway operators have already exceeded their statutory serviceable lives, so the appropriate maintenance and management of these facilities is a key issue. Accordingly, MLIT will encourage local railway operators to reinforce and improve railway facilities in such a way as to extend their operational lives.

FY2016 Budget: included in the ¥3.632 billion sum
FY2015 Budget: ¥285 million

(6) Costs for Promoting Disaster Countermeasures and Other Emergency Projects

To ensure the safety and security of residents and other users in areas where natural disasters or serious traffic accidents have occurred, MLIT will implement urgent measures to prevent repeated disasters and recurrent accidents.

FY2016 Budget: ¥14.813 billion
FY2015 Budget: ¥16.832 billion
Difference: -¥2.019 billion

(7) Measures to Address Aging Port Facilities

To protect the lives and livelihoods of the public as existing port facilities age, MLIT will implement comprehensive and systematic measures to address aging port facilities, combining both hard and soft infrastructure measures, based on the approach of preventive maintenance, to ensure that such facilities can continue to function well into the future.

FY2016 Budget: included in the ¥231.712 billion sum
*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant
FY2015 Budget: included in the ¥231.411 billion sum
Included in the ¥829 million sum
*Also partly covered by the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

(8) Measures to Address Aging General Waste Disposal Facilities

Approximately 40% of the general waste disposal facilities developed to combat dioxins have become dilapidated with age and lack the capacity to deal with local waste, as well as posing an increased risk of accidents. Accordingly, the MOE will provide support in the form of the Grant Program for Establishing a Sound Material-Cycle Society for projects to improve general waste disposal facilities implemented by municipalities, thereby promoting the appropriate upgrading and refurbishment of such facilities, as well as ensuring the safety and security of local residents.

FY2016 Budget: ¥31.523 billion
FY2015 Budget: ¥38.889 billion
Difference: -¥7.366 billion

(9) Promotion of Johkasou (Septic Tank) Improvements

The MOE will provide a government grant for municipal projects focused on johkasou improvements, to encourage the construction of disaster-resilient johkasou (decentralized domestic wastewater treatment facilities).

(Current status) Population using johkasou which treats both black and grey water as a percentage of the total population (end of FY2014): 9%
(Goal) (FY2017): 12%

FY2016 Budget: ¥8.421 billion
FY2015 Budget: ¥8.421 billion
Difference: ¥0

Chapter 4 Disaster Recovery

1. Emergency Disaster Control Measures

1-1 Disaster Relief Dispatches of the Self-Defense Forces

The Ministry of Defense (MOD) will budget expenses associated with Special Job Allowance for Disaster Relief and meals for those involved in disaster relief operations as necessary expenditure directly associated with disaster relief dispatches.

FY2016 Budget: ¥760 million
FY2015 Budget: ¥748 million
Difference: ¥12 million

1-2 National Treasury's Share of Disaster Rescue Expenses

Pursuant to the Disaster Relief Act, the Cabinet Office will bear rescue expenses incurred in accordance with that Act.

FY2016 Budget: ¥200 million
FY2015 Budget: ¥200 million
Difference: ¥0

1-3 Payment of Disaster Condolence Grants, etc. and Loan of Disaster Assistance Funds

In accordance with the Act on Provision of Disaster Condolence Grant, the Cabinet Office will bear part of the cost of disaster condolence grants, etc. and loan the capital for disaster assistance funds.

(1) National Treasury's Share of Disaster Condolence Grants

In accordance with the Act on Provision of Disaster Condolence Grant, the Cabinet Office will bear part of the cost of disaster condolence grants, etc.

FY2016 Budget: ¥140 million
FY2015 Budget: ¥140 million
Difference: ¥0

(2) Loans of the Capital for Disaster Assistance Funds

The Cabinet Office will loan the capital for disaster assistance funds, which municipalities loan to the heads of households who have been badly injured by natural disasters of a specified scale and to the heads of households who have suffered a specified degree of damage to their homes or property, to assist them in rebuilding their lives.

FY2016 Budget: ¥150 million
FY2015 Budget: ¥200 million
Difference: -¥50 million

1-4 Livelihood Recovery Support Payment for Disaster Victims

Local Government Finance Measures to Contribute to the Fund for Livelihood Recovery Support Payments for Disaster Victims

In accordance with the Act on Support for Reconstructing Livelihoods of Disaster Victims, the Ministry of Internal Affairs and Communications (MIC) will continue to implement ordinary tax allocation measures in respect of the repayment of principal and interest on local government bonds to cover the contributions made by prefectures to the working assets of the Fund for Livelihood Recovery Support Payments for Disaster Victims.

1-5 Other Emergency Disaster Control Measures

Disposal of Disaster Waste

The Ministry of the Environment (MOE) will provide financial assistance for projects associated with the collection, transfer, and disposal of waste carried out by local governments due to a disaster.

FY2016 Budget: ¥200 million
FY2015 Budget: ¥200 million
Difference: ¥0

2. Disaster Recovery Projects

2-1 Project to Recover Public Civil Engineering Works, etc. Damaged by Disaster

(1) Forest Conservation Facilities, etc.

The Ministry of Agriculture, Forestry and Fisheries (MAFF) will carry out the following disaster recovery projects.

・ Direct Control Projects

MAFF will promote the smooth implementation of projects to restore forest conservation facilities damaged in disasters in 2016.

In addition, it will endeavor to ensure that projects to restore landslide prevention facilities damaged in disasters in 2016 progress smoothly.

MAFF will also promote the smooth

implementation of projects to restore fishing port facilities damaged in disasters in 2015 and 2016.

FY2016 Budget: ¥914 million

FY2015 Budget: ¥893 million

Difference: ¥21 million

・ Subsidized Projects

MAFF will complete the restoration of forest conservation facilities damaged in disasters in 2014 and ensure the smooth implementation of projects focused on recovery from disasters in 2015 and 2016.

In addition, it will complete projects to restore coastal protection facilities and landslide prevention facilities under the jurisdiction of the Rural Development Bureau that was damaged in disasters in 2014, and ensure the smooth implementation of projects focused on recovery from disasters in 2015 and 2016.

Furthermore, MAFF will complete the restoration of fishing port facilities and coastal protection facilities under the jurisdiction of the Fisheries Agency that walls damaged in disasters in 2014 and ensure the smooth implementation of projects focused on recovery from disasters in 2015 and 2016. (Described below: Chapter 4 2-2)

FY2016 Budget: included in the ¥12.039 billion sum

FY2015 Budget: included in the ¥12.137 billion sum

(2) Rivers, etc.

The Ministry of Land, Infrastructure, Transport and Tourism (MLIT) will carry out the following disaster recovery projects.

FY2016 Budget: ¥42.340 billion

FY2015 Budget: ¥39.684 billion

Difference: ¥2.656 billion

・ Directly Managed Projects

MLIT will promote the smooth implementation of projects to restore rivers, dams, coastal protection facilities, erosion control facilities, landslide prevention infrastructure, and fishing port facilities damaged in disasters in 2015 and 2016. It will also promote the smooth implementation of projects to restore roads damaged in disasters in 2016.

FY2016 Budget: ¥12.785 billion

FY2015 Budget: ¥11.265 billion

Difference: ¥1.520 billion

・ Subsidized Projects

MLIT will promote the smooth implementation of projects to restore rivers, coastal protection facilities, erosion control facilities, landslide prevention infrastructure, steep slope failure prevention infrastructure, roads, sewerage systems, parks, urban facilities, and port facilities damaged in disasters in 2014, 2015, and 2016, as well as projects to remove earth and sand deposited in those disasters. In addition, it will provide financial assistance for part of the cost of ash removal projects carried out by municipalities on municipal roads and residential land where volcanic eruptions caused a large quantity of ash fall.

FY2016 Budget: ¥29.555 billion

FY2015 Budget: ¥28.419 billion

Difference: ¥1.136 billion

2-2 Project to Recover Facilities for Agriculture, Forestry and Fisheries Damaged by Disaster

MAFF will carry out the following disaster recovery projects.

・ Directly Managed Projects

MAFF will repair damage to facilities that were being constructed or had been completed as part of directly managed land improvement projects in accordance with the Land Improvement Act, as well as repairing damage to forest road infrastructure associated with national forest projects (excluding forest conservation projects), based on a policy of completing restoration work within two years, including the year in which the disaster occurred. Specifically, it will complete recovery projects addressing damage from disasters in 2015 and ensure the smooth implementation of projects addressing damage from disasters in 2016.

FY2016 Budget: ¥1.680 billion

FY2015 Budget: ¥1.237 billion

Difference: ¥443 million

・ Subsidized Projects

Pursuant to the provisions of National Government Temporary Defrayment Act for Reconstruction of Disaster Stricken Facilities for Agriculture, Forestry and Fisheries, MAFF will provide financial assistance for disaster recovery projects carried out by local governments and land improvement districts. In addition, it will seek to ensure progress with projects focused on farmland,

farming facilities, forestry facilities, fisheries facilities, and facilities for the joint use of the agriculture, forestry, and fisheries industries, based on a policy of completing the restoration work within three years, including the year in which the disaster occurred.

FY2016 Budget: included in the ¥12.039 billion sum

FY2015 Budget: included in the ¥12.137 billion sum

2-3 Project to Recover Cultural and Educational Facilities Damaged by Disaster

(1) Projects for Recovery of Facilities at National Universities Damaged by Disaster

The Ministry of Education, Culture, Sports, Science and Technology (MEXT) will promote the smooth implementation of projects to restore facilities damaged in disasters in 2015, using grants for developing facilities at national universities.

FY2016 Budget: included in the ¥41.800 billion sum

FY2015 Budget: included in the ¥48.690 billion sum

(2) Projects for Recovery of Public School Facilities Damaged by Disaster

Pursuant to the Act on National Treasury's Sharing of Expenses for Recovery of Public School Facilities Damaged by Disaster, among other legislation, MEXT will provide financial assistance for part of the cost of repairing public school facilities damaged by disasters in 2016.

(Current status) Proportion of financial assistance provided in respect of disasters in 2016: 0%

(Goal) (FY2016 goal) Proportion of financial assistance provided in respect of disasters in 2016: 100%

FY2016 Budget: ¥355 million

FY2015 Budget: ¥347 million

Difference: ¥8 million

(3) Projects for Repair and Restoration of Cultural Properties Damaged by Disaster

The Agency for Cultural Affairs will provide subsidies from the national treasury to fund projects for the repair and restoration of cultural properties designated by the national government that have been damaged by disaster.

FY2016 Budget: included in the ¥25.806 billion sum

FY2015 Budget: included in the ¥25.524 billion sum

2-4 Project to Recover Water Supply Facilities, etc. Damaged by Disaster

The Ministry of Health, Labour and Welfare (MHLW) will implement the requisite projects to repair water supply facilities damaged by disaster.

FY2016 Budget: ¥350 million

FY2015 Budget: ¥350 million

Difference: ¥0

2-5 Other Disaster Recovery Projects

(1) Project to Support Efforts to Eliminate Commercial Radio Reception Problems

MIC will provide support for efforts to install broadcast relay stations to eliminate problems in receiving radio broadcasts, to ensure that the public can not only receive a variety of information under normal circumstances, but also obtain the information they need to keep themselves and their property safe in the event of disaster.

(Current status) Areas in which difficulties in receiving AM radio broadcasts have been resolved
(areas where difficulties are experienced in receiving all primary stations. All difficulties to be resolved by FY2018.) 9% (FY2014)

(Goal) Areas in which difficulties in receiving AM radio broadcasts have been resolved
(areas where difficulties are experienced in receiving all primary stations. All difficulties to be resolved by FY2018.) 100% (FY2018)

FY2016 Budget: ¥1.006 billion

FY2015 Budget: ¥1.446 billion

Difference: -¥440 million

(2) Projects to Support the Upgrading of Broadcasting Networks

To ensure that information essential to securing the lives and property of the populace is provided without fail, such as information about evacuation and the extent of a disaster, MIC will enhance the resilience of broadcasting networks, which serve as a means of transmitting important information to

communities when disaster strikes.

(Current status) Relocation of transmitter stations and/or development of supplementary FM stations or spare transmitter stations for all primary radio stations located in areas likely to be damaged by natural disasters, to be completed by FY2018: 45% (FY2014)

(Goal) Relocation of transmitter stations and/or development of supplementary FM stations or spare transmitter stations for all primary radio stations located in areas likely to be damaged by natural disasters, to be completed by FY2018: 100% (FY2018)

FY2016 Budget: ¥128 million
FY2015 Budget: ¥100 million
Difference: ¥28 million

(3) Restoration of Regional Legal Affairs Bureaus

The Head Office of the Mito District Legal Affairs Bureau and the Kesennuma Branch Office of the Sendai Legal Affairs Bureau, which were damaged by the Great East Japan Earthquake, will continue to carry out their administrative work in the temporary buildings to which they have been relocated.

(Current status) Coordination of the acquisition of the new temporary building for the Kesennuma Branch Office of the Sendai Legal Affairs Bureau was completed in March 2014; design of the new building for the Head Office of the Mito District Legal Affairs Bureau was completed by FY2014

(Goal) Building restoration is due to be completed in around March 2018, in the case of the Kesennuma Branch Office of the Sendai Legal Affairs Bureau, and by FY2020 in the case of the Head Office of the Mito District Legal Affairs Bureau.

FY2016 Budget: -
FY2015 Budget: -

(4) Public Housing, etc.

MLIT will provide financial assistance for local government projects to restore existing public housing, promoting the smooth implementation of projects to restore housing damaged in disasters in 2015 or earlier, as well as housing damaged in disasters in 2016.

FY2016 Budget: ¥100 million
FY2015 Budget: ¥100 million
Difference: ¥0

(5) Railway Disaster Recovery Projects

MLIT will provide financial assistance for projects carried out by railway operators to repair railway infrastructure damaged by earthquakes or torrential rain, etc. in FY2016.

FY2016 Budget: ¥68 million
FY2015 Budget: ¥68 million
Difference: ¥0

(6) Project to Recover Waste Disposal Facilities Damaged by Disaster

The MOE will provide financial assistance for local government projects carried out to restore waste disposal facilities damaged by disaster to their original form.

FY2016 Budget: ¥30 million
FY2015 Budget: ¥30 million
Difference: ¥0

3. Fiscal and Financial Measures

3-1 Disaster Loans

(1) Okinawa Development Finance Corporation Loans

The Okinawa Development Finance Corporation serves as the central comprehensive policy finance institution for Okinawa, providing the services provided by policy finance institutions on the mainland. As such, in the event of a disaster in Okinawa Prefecture, it will give full consideration to securing funding for loans and provide reconstruction loans with relaxed terms and conditions, as needed, in order to contribute to the reconstruction of disaster-stricken homes and the rebuilding of the businesses of disaster-stricken SME operators; operators of environmental sanitation businesses; people engaged in the agriculture, forestry, or fisheries industries; and operators of medical facilities.

(2) Disaster Loans (Private School Facilities)

The Promotion and Mutual Aid Corporation for Private Schools of Japan will provide reconstruction loans with relaxed terms and conditions to private schools that have suffered damage caused by a disaster.

FY2016 Budget: ¥200 million
FY2015 Budget: ¥200 million

Difference: ¥0

(3) Welfare And Medical Service Agency Loans

In providing Welfare And Medical Service Agency loans, full consideration will be given to securing funding for loans to cover expenses associated with the restoration of disaster-stricken hospitals, etc. and steps will be taken to relax terms and conditions in situations where loans are to be used to fund reconstruction.

(4) Loans Associated with the Agriculture, Forestry, and Fishery Industries

In accordance with Act on Financial Support of Farmers, Forestry Workers and Fishery Workers Suffering from Natural Disaster, MAFF will provide financial assistance for the cost of interest subsidies and compensation for loss provided by agricultural cooperatives, etc. In addition, it will give consideration to securing the requisite loan funds.

FY2016 Budget: ¥7 million

FY2015 Budget: ¥8 million

Difference: -¥1 million

(5) Japan Finance Corporation Loans (for People Engaged in the Agriculture, Forestry, or Fisheries Industries)

As part of its work in providing loans for people engaged in the agriculture, forestry, or fisheries industries, the Japan Finance Corporation will loan the funds required to stabilize and maintain the economic viability of disaster-stricken individuals in those industries and enable them to repair their facilities.

(6) Japan Finance Corporation Loans (for the General Public)

As part of its work in providing loans for the general public, the Japan Finance Corporation will give full consideration to demand for funds among disaster-stricken SME operators, etc. and adopt a flexible response tailored to individual circumstances.

In addition, it will lower the rate of interest for disaster relief loans in respect of disasters designated as Disasters of Extreme Severity, thereby providing financial support to assist disaster-stricken SME operators in resuming their business.

(7) Japan Finance Corporation Loans (for SMEs)

As part of its work in providing loans for SMEs, the Japan Finance Corporation will give full consideration to demand for funds among disaster-stricken SME operators, etc. and adopt a flexible response tailored to individual circumstances.

In addition, it will lower the rate of interest for disaster relief loans in respect of disasters designated as Disasters of Extreme Severity, thereby providing financial support to assist disaster-stricken SME operators in resuming their business.

(8) Shoko Chukin Bank Loans

The Shoko Chukin Bank will give full consideration to demand for funds among disaster-stricken SME operators, etc. and adopt a flexible response tailored to individual circumstances.

In addition, it will lower the rate of interest for disaster relief loans in respect of disasters designated as Disasters of Extreme Severity, thereby providing financial support to assist disaster-stricken SME operators in resuming their business.

(9) Credit Guarantees Offered by Credit Guarantee Corporations

Credit guarantee corporations will give full consideration to demand for funds among disaster-stricken SME operators, etc. and adopt a flexible response tailored to individual circumstances.

It will respond swiftly and flexibly to natural disasters by such means as instituting Safety Net Guarantee No.4 as soon as the Disaster Assistance Act is applied, thereby further contributing to the safety and security of disaster-stricken SME operators.

In addition, it will implement disaster-related guarantees in respect of disasters designated as Disasters of Extreme Severity, thereby providing financial support to assist disaster-stricken SME operators in resuming their business.

(10) Advanced Disaster Recovery Projects

Prefectures and the Organization for Small & Medium Enterprises and Regional Innovation, Japan (SMRJ) will provide loans to partially fund collective efforts by SME operators to restore business infrastructure damaged by major disasters.

(11) Disaster Relief Loans for Members of the Small Enterprise Mutual Relief Scheme

The SMRJ will arrange low-interest loans on the day of application, in principle, for disaster-stricken members of the Small Enterprise Mutual Relief Scheme located in an area to which the Disaster

Relief Act had been applied, up to the limit provided for by the mutual aid premium.

(12) Japan Housing Finance Agency Loans

The Japan Housing Finance Agency will provide post-disaster housing reconstruction loans to fund construction and repair work, in order to facilitate the swift reconstruction of homes affected by disasters.

3-2 Disaster Insurance

(1) Earthquake Reinsurance

The Ministry of Finance operates an earthquake reinsurance scheme in accordance with the Act on Earthquake Insurance. In FY2016, it has set a limit of ¥10.9902 trillion as the maximum sum that the government should pay in reinsurance claims per earthquake.

FY2016 Budget: ¥152.929 billion
FY2015 Budget: ¥139.123 billion
Difference: ¥13.806 billion

(2) Disaster Compensation for the Agriculture and Fishery Industries

MAFF will provide the following disaster compensation to make up for losses sustained by people in the agriculture and fishery industries as a result of unforeseen and accidental events, thereby helping to maintain and stabilize their business.

- MAFF will implement agricultural mutual aid schemes focused on agricultural disasters, in accordance with Act on Compensation for Agricultural Loss.
  FY2016 Budget: ¥87.410 billion
  FY2015 Budget: ¥88.134 billion
  Difference: -¥724 million

- MAFF will implement fishery mutual aid schemes focused on fishery disasters, in accordance with Fishery Accident Compensation Act.
  FY2016 Budget: ¥9.367 billion
  FY2015 Budget: ¥9.275 billion
  Difference: ¥92 million

- MAFF will implement fishing boat damage and shipowner liability insurance schemes, in accordance with Fishing Vessel Damage Compensation Act.
  FY2016 Budget: ¥8.523 billion
  FY2015 Budget: ¥9.256 billion
  Difference: -¥733 million

(3) Forestry Insurance

In accordance with the Forestry Insurance Act, the Forestry and Forest Products Research Institute will offer forestry insurance services in respect of forestry disasters, to compensate forest owners for forest-related losses incurred as a result of fire, weather-related disasters, or volcanic eruptions, thereby helping to maintain and stabilize forest management.

3-3 Local Government Bonds

MIC has allocated ¥71.1 billion to fund disaster recovery loans in the FY2016 Local Government Bond Program (ordinary account).

FY2016 Budget:
sum specified in the FY2016 Local Government Bond Program [¥71.100 billion]
FY2015 Budget:
sum specified in the FY2016 Local Government Bond Program [¥64.700 billion]

4. Post-Disaster Reconstruction Measures, etc.

4-1 Livelihood Recovery Support Payment for Disaster Victims

The Cabinet Office will cover 50% (80% in the case of the Great East Japan Earthquake) of the cost of the livelihood recovery support payment for disaster victims, which is paid to the victims of disasters in accordance with the Act on Support for Reconstructing Livelihoods of Disaster Victims.

FY2016 Budget: ¥600 million
FY2015 Budget: ¥600 million
Difference: ¥0

4-2 Reconstruction Measures in Response to the Mt. Unzen Eruption

(1) Measures by MAFF

MAFF will promote and support measures to prevent disaster in mountainous areas to ensure local safety and security; these include stream rehabilitation and hillside repair work in the form of forest conservation projects. (Described below: Chapter 4 4-4 (1) and 4-6)

FY2016 Budget: included in the ¥59.723 billion

sum
*Also partly covered by subsidies for development of rural areas
FY2015 Budget: included in the ¥61.570 billion sum
*Also partly covered by subsidies for development of rural areas

(2) Measures by MLIT

As well as upgrading erosion control facilities in the Mizunashi River basin, MLIT will promote improvements to the warning and evacuation system for pyroclastic and debris flows, such as providing video footage from monitoring cameras and other information.

FY2016 Budget: included in the ¥795.266 billion sum
FY2015 Budget: included in the ¥820.172 billion sum

4-3 Reconstruction Measures in Response to the Great Hanshin-Awaji Earthquake

(1) Special Local Government Finance Measures for Disaster Reconstruction Projects

MIC will maintain the issuance rate for local government bonds to cover local government contributions to projects subsidized by the national treasury at 90% in the case of land readjustment projects and urban land redevelopment projects implemented by disaster-stricken local governments in Urban Disaster Recovery Promotion Areas in accordance with the Act on Special Measures concerning Reconstruction of Urban Districts Damaged by Disaster. In addition, it will implement ordinary tax allocation measures in respect of the repayment of principal and interest on these.

(2) Measures to Secure Housing for Disaster Victims

Via post-disaster housing reconstruction loans provided by the Japan Housing Finance Agency, MLIT will continue to support the rebuilding of housing within six months of the lifting of restrictions in areas where building restrictions have been imposed.

(3) Promotion of Extensive Development Projects for the Regeneration of Disaster-stricken Areas

MLIT will continue to promote and support urban land redevelopment projects aimed at the regeneration of Urban Disaster Recovery Promotion Areas, the provision of housing for disaster victims, and the development of new core districts in cities.

FY2016 Budget:
included in the Social Capital Improvement Grant
FY2015 Budget:
included in the Social Capital Improvement Grant

4-4 Measures in Response to the Miyake Island Eruption

(1) Measures by MAFF

(Described above: Chapter 4 4-2 (1))

MAFF will promote and support measures to prevent disaster in mountainous areas to ensure local safety and security; these include stream rehabilitation and hillside repair work in the form of forest conservation projects. (Described below: Chapter 4 4-6)

FY2016 Budget: included in the ¥59.723 billion sum
*Also partly covered by subsidies for development of rural areas
FY2015 Budget: included in the ¥61.570 billion sum
*Also partly covered by subsidies for development of rural areas

(2) Measures by MLIT

MLIT will support the upgrading of erosion control facilities to prevent disasters due to mud flows and driftwood.

FY2016 Budget:
funded using the Disaster Prevention and Safety Grant
FY2015 Budget:
funded using the Disaster Prevention and Safety Grant

4-5 Reconstruction Measures in Response to the Mid Niigata Prefecture Earthquake in 2004

Measures by MLIT

・ Road projects

MLIT will continue to work in partnership with local communities to promote such initiatives as establishing the “Chuetsu Road Trip Highway” as one of the scenic highways of Japan, with the aim of

promoting the reconstruction and revitalization of the Chuetsu (Mid Niigata Prefecture) region. In addition, taking note of the lessons of the Mid Niigata Prefecture Earthquake, MLIT will continue to promote efforts to supplement the disaster management functions of Roadside Stations (Michi-no-eki).

・ Promotion of measures against sediment disasters

The Imo River basin suffered particularly severe devastation due to a large number of sediment disasters, with the river channel blocked by major collapses. Accordingly, MLIT will implement intensive measures against sediment disasters in the course of its erosion control projects in this area.

FY2016 Budget: included in the ¥2.458960 trillion sum

*In addition, measures will be funded using the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥2.480345 trillion sum

*In addition, measures will be funded using the Social Capital Improvement Grant and the Disaster Prevention and Safety Grant

4-6 Reconstruction Measures in Response to the Iwate-Miyagi Inland Earthquake in 2008

Measures by MAFF

(Described above: Chapter 4 4-2 (1), 4-4 (1))

MAFF will promote and support measures to prevent disaster in mountainous areas to ensure local safety and security; these include stream rehabilitation and hillside repair work in the form of forest conservation projects.

FY2016 Budget: included in the ¥59.723 billion sum

*Also partly covered by subsidies for development of rural areas

FY2015 Budget: included in the ¥61.570 billion sum

*Also partly covered by subsidies for development of rural areas

4-7 Reconstruction Measures in Response to the Mt. Kirishima (Shinmoedake) Eruption

In case of debris flows, MLIT will promote measures including the construction of erosion control facilities and the establishment of a monitoring system using debris flow sensors.

FY2016 Budget: included in the ¥795.266 billion sum

*In addition, measures will be funded using the Disaster Prevention and Safety Grant

FY2015 Budget: included in the ¥820.172 billion sum

*In addition, measures will be funded using the Disaster Prevention and Safety Grant

4-8 Reconstruction Measures in Response to the Great East Japan Earthquake

(1) Support for Those Affected by the Disaster

As well as continuing to support the rebuilding of disaster victims' homes, the Reconstruction Agency will bolster initiatives to support disaster victims, such as mental health care and community formation initiatives targeting long-term evacuees, in order to comprehensively and effectively address issues that could arise as reconstruction progresses.

FY2016 Budget: ¥111.384 billion

FY2015 Budget: ¥128.846 billion

Difference: -¥17.463 billion

(Major projects)

(i) Disaster rescue, etc. in accordance with the Disaster Relief Act

FY2016 Budget: ¥33.387 billion

FY2015 Budget: ¥40.612 billion

Difference: -¥7.225 billion

(ii) Grant for livelihood recovery support payments for disaster victims

FY2016 Budget: ¥18.906 billion

FY2015 Budget: ¥19.000 billion

Difference: -¥94 million

(iii) Comprehensive support grants for disaster victims

FY2016 Budget: ¥22.034 billion

FY2015 Budget: ¥5.890 billion

Difference: ¥16.145 billion

(iv) Emergency school counselor project

FY2016 Budget: ¥2.701 billion

FY2015 Budget: ¥2.721 billion

Difference: -¥20 million

(v) Mental health care support project for disaster victims
FY2016 Budget: ¥1.361 billion
FY2015 Budget: ¥1.590 billion
Difference: -¥229 million

(vi) Support to help children affected by the disaster to attend school
FY2016 Budget: ¥14.760 billion
FY2015 Budget: ¥17.958 billion
Difference: -¥3.198 billion

(vii) Providing information with a view to the reconstruction of disaster-stricken areas and promoting understanding of reconstruction measures
FY2016 Budget: ¥168 million
Difference: ¥168 million

(2) Post-disaster Housing and Community Reconstruction

The Reconstruction Agency will continue to implement the budgetary measures required for the steady reconstruction of communities in the aftermath of the disaster, taking into account such matters as the progress of housing reconstruction projects.
FY2016 Budget: ¥1.131831 trillion
FY2015 Budget: ¥1.348739 trillion
Difference: -¥216.908 billion

(Major projects)
(i) Rebuilding of roads and development of roads to support reconstruction
FY2016 Budget: ¥237.617 billion
FY2015 Budget: ¥197.478 billion
Difference: ¥40.139 billion

(ii) Great East Japan Earthquake Reconstruction Grants
FY2016 Budget: ¥147.695 billion
FY2015 Budget: ¥317.258 billion
Difference: -¥169.563 billion

(iii) Social Capital Improvement Grant (Reconstruction)
FY2016 Budget: ¥105.436 billion
FY2015 Budget: ¥117.132 billion
Difference: -¥11.696 billion

(iv) Disaster recovery projects
FY2016 Budget: ¥509.350 billion
FY2015 Budget: ¥547.033 billion
Difference: -¥37.683 billion

(v) Enhancement of agricultural, forestry, and fisheries infrastructure
FY2016 Budget: ¥38.843 billion
FY2015 Budget: ¥64.823 billion
Difference: -¥25.980 billion

(vi) Disposal of disaster waste
FY2016 Budget: ¥24.766 billion
FY2015 Budget: ¥10.502 billion
Difference: ¥14.264 billion

(vii) Project to develop a National Memorial Park (tentative name)
FY2016 Budget: ¥574 million
FY2015 Budget: ¥200 million
Difference: ¥373 million

(3) Regeneration of Industries and Occupations (Livelihoods)

With a view to the regeneration of independent local economies, the Reconstruction Agency will strengthen initiatives aimed at the recovery of sales channels and tourism reconstruction. In addition, it will promote the creation of employment and the revival of commerce through the establishment of companies in the region, as well as promoting efforts to address labor shortages.
FY2016 Budget: ¥137.400 billion
FY2015 Budget: ¥167.946 billion
Difference: -¥30.545 billion

(Major projects)
(i) Disaster-related loans
FY2016 Budget: ¥24.305 billion
FY2015 Budget: ¥30.672 billion
Difference: -¥6.367 billion

(ii) Grant for agricultural production measures following the Great East Japan Earthquake
FY2016 Budget: ¥3.312 billion
FY2015 Budget: ¥5.053 billion
Difference: -¥1.741 billion

(iii) Project to promote the recovery of sales channels for the seafood processing industry to facilitate reconstruction

FY2016 Budget: ¥1.802 billion
FY2015 Budget: ¥951 million
Difference: ¥851 million

(iv) Tourism reconstruction projects
FY2016 Budget: ¥4.951 billion
FY2015 Budget: ¥480 million
Difference: ¥4.471 billion

(v) Disaster recovery projects focused on joint facilities, such as those belonging to small and medium-sized enterprise cooperatives
FY2016 Budget: ¥29.000 billion
FY2015 Budget: ¥40.000 billion
Difference: -¥11.000 billion

(vi) Subsidies for the location of businesses for creating employment for supporting the self-reliance and return of disaster victims
FY2016 Budget: ¥32.000 billion
Difference: ¥32.000 billion

(vii) Projects associated with the Innovation Coast Initiative
FY2016 Budget: ¥14.478 billion
Difference: ¥14.478 billion

(viii) Projects to support the independence of business operators affected by the nuclear disaster
FY2016 Budget: ¥1.318 billion
Difference: ¥1.318 billion

(ix) Employment creation projects for business reconstruction
FY2016 Budget: ¥4.063 billion
FY2015 Budget: ¥12.200 billion
Difference: -¥8.137 billion

(x) Employment support projects in response to the nuclear disaster
FY2016 Budget: ¥4.245 billion
Difference: ¥4.245 billion

(xi) Interest subsidies to support special zones for reconstruction
FY2016 Budget: ¥1.920 billion
FY2015 Budget: ¥1.756 billion
Difference: ¥164 million

(xii) Business rehabilitation support via industrial recovery consultation centers and industrial reconstruction organizations
FY2016 Budget: ¥2.564 billion
FY2015 Budget: ¥3.060 billion
Difference: -¥496 million

(4) Reconstruction and Regeneration in the Aftermath of the Nuclear Disaster

In light of the Cabinet decision on June 12, 2015(*), the Reconstruction Agency will strengthen initiatives aimed at promoting the return of residents and rebuilding lives in 12 municipalities. In addition, it will expedite reconstruction and regeneration, by such means as promoting the disposal of waste contaminated with radioactive material, an area in which substantive progress is expected.

(*) Revision of the Policy for Accelerating Fukushima's Reconstruction from the Nuclear Disaster (June 12, 2015)

FY2016 Budget: ¥1.016655 trillion
FY2015 Budget: ¥780.122 billion
Difference: ¥236.533 billion

(Major projects)

(i) Grants to Accelerate the Revitalization of Fukushima
FY2016 Budget: ¥101.151 billion
FY2015 Budget: ¥105.570 billion
Difference: -¥4.419 billion

(ii) Regeneration projects to enhance the living environment in Fukushima and expedite the return of residents
FY2016 Budget: ¥7.561 billion
FY2015 Budget: ¥6.785 billion
Difference: ¥776 million

(iii) Measures to counter harmful rumors
FY2016 Budget: ¥1.731 billion
FY2015 Budget: ¥1.824 billion
Difference: -¥93 million

(iv) Support associated with the establishment of an integrated junior and senior high school in Futaba District, Fukushima Prefecture
FY2016 Budget: ¥2.625 billion
FY2015 Budget: ¥591 million
Difference: ¥2.034 billion

(v) Project to investigate and promote efforts to realize the Future Vision for 12 Municipalities in Fukushima

FY2016 Budget: ¥108 million
Difference: ¥108 million

(vi) Decontamination of soil, etc. contaminated with radioactive material

FY2016 Budget: ¥524.858 billion
FY2015 Budget: ¥417.376 billion
Difference: ¥107.482 billion

(vii) Projects for the disposal of waste contaminated with radioactive material, etc.

FY2016 Budget: ¥214.021 billion
FY2015 Budget: ¥138.681 billion
Difference: ¥75.340 billion

(viii) Development of interim storage facilities, etc.

FY2016 Budget: ¥134.616 billion
FY2015 Budget: ¥75.800 billion
Difference: ¥58.816 billion

(5) The "New Tohoku" Leading Model Projects, etc.

The Reconstruction Agency will strengthen support for the roll-out across disaster-stricken areas of know-how, etc. built up through the leading model projects, as well as promoting partnerships between a diverse array of bodies involved in reconstruction.

(i) Project for the running of the "New Tohoku" Public and Private Partnership Promotion Council

FY2016 Budget: ¥996 million
FY2015 Budget: ¥558 million
Difference: ¥438 million

(6) Expenditure on Promoting and Coordinating Reconstruction after the Great East Japan Earthquake

As well as filling in the gaps between reconstruction-related systems, the Reconstruction Agency will provide financial assistance for outsourcing government survey and planning projects and for soft infrastructure initiatives being undertaken by disaster-stricken prefectures.

FY2016 Budget: ¥1.500 billion
FY2015 Budget: ¥3.000 billion
Difference: -¥1.500 billion

(7) Special Local Allocation Tax for Post-disaster Reconstruction

MIC will seek to ensure that the financial burden on disaster-stricken local governments associated with recovery and reconstruction projects in the aftermath of the Great East Japan Earthquake do not affect the burden on local governments other than those affected by the disaster. Accordingly, it will secure a separate special local allocation tax for post-disaster reconstruction and will determine and allocate this on the basis of project implementation status.

FY2016

sum specified in the Local Government Finance Program: ¥480.175 billion

FY2015

sum specified in the Local Government Finance Program: ¥589.818 billion

(8) Reconstruction Measures by the Japan Legal Support Center (Houterasu)

As legal support for disaster victims, the Japan Legal Support Center will provide Information Services and Civil Legal Aid based on the Comprehensive Legal Support Act, and Great East Japan Earthquake Legal Aid based on "the Act on Special Measures Concerning Legal Aid by Japan Legal Support Center for the Victims of the Great East Japan Earthquake".

(Current status) 100%
(Goal) 100%

(9) Reconstruction Measures Associated with Administrative Processing of Registrations

The MOJ will implement the following measures as preconditions for the reconstruction of areas affected by the Great East Japan Earthquake.

- Outsourcing of consultation services concerning registrations for disaster victims and establishment of a dedicated toll-free number for disaster victims
- Enhancement of systems for the administrative processing of registrations associated with reconstruction

(Current status) 100%
(Goal) 100%

(10) Enhancement of Human Rights Protection Activities

Via the human rights bodies (MOJ Human Rights Bureau, Legal Affairs Bureaus / District Legal Affairs

Bureaus, and Human Rights Advisers), the MOJ will provide human rights counseling regarding various human rights issues stemming from the disaster. In addition, it will educate the public and raise awareness, with the aim of preventing new human rights violations.
(Current status) 100%
(Goal) 100%
FY2016 Budget: ¥25 million
FY2015 Budget: ¥25 million
Difference: ¥0

4-9 Reconstruction Measures in Response to Other Disasters

(1) Support for Debt Workout for People Affected by Natural Disasters

The Financial Services Agency will provide disaster victims who have become unable to repay their existing debt due to the impact of a natural disaster with financial assistance for the costs associated with obtaining support from lawyers or other professionals in order to carry out procedures for debt workout in accordance with the Guidelines of Workout for Restructuring Debt Owed by Victims of Natural Disasters (formulated on December 25, 2015).

FY2016 Budget: ¥4 million
Difference: ¥4 million

(2) Measures by MAFF

MAFF will promote measures to prevent disaster in mountainous areas to ensure local safety and security; these include stream rehabilitation and hillside repair work in the form of forest conservation projects on Mount Usu.

FY2016 Budget: included in the ¥59.723 billion sum
*Also partly covered by subsidies for development of rural areas
FY2015 Budget: included in the ¥61.570 billion sum
*Also partly covered by subsidies for development of rural areas

Chapter 5 International Cooperation in Disaster Risk Reduction

1. Multilateral Cooperation

(1) Expenditure on International Relations

The Cabinet Office will promote efforts to ensure that the Sendai Framework for Disaster Risk Reduction (SFDRR), which was formulated at the Third UN World Conference on Disaster Risk Reduction (WCDRR), is widely adopted and becomes firmly established. In addition, drawing on the experience, knowledge, and technologies acquired as a result of disasters in Japan, it will undertake strategic international cooperation in disaster risk reduction (DRR), as well as promoting multilateral DRR cooperation in Asia and bilateral DRR cooperation with China and South Korea, among others.

FY2016 Budget: ¥247 million
FY2015 Budget: ¥198 million
Difference: ¥49 million

(2) Expenditure on Promoting New International DRR Guidelines and Frameworks

To ensure that the SFDRR formulated at the Third WCDRR becomes firmly established and is steadily implemented both within Japan and overseas, the Cabinet Office will share information about Japanese initiatives. In addition, seeking to build capacity among DRR practitioners in each country, it will consider international DRR cooperation that will help the SFDRR to take root.

FY2016 Budget: ¥40 million
FY2015 Budget: ¥34 million
Difference: ¥6 million

(3) Promotion of the International Cooperation of ICT Systems for Disaster Management

The Ministry of Internal Affairs and Communications will promote the international cooperation of Japanese ICT systems for disaster management, taking into account needs in each country. In partnership with private sector companies or through the International Telecommunication Union (ITU), it will make proactive approaches to the countries in the ASEAN region and elsewhere that suffer from frequent natural disasters, promoting field trials of such ICT systems cultivated on the abundant experience and know-how built up in Japan over many years.

(Current status) (FY2011 & FY2012) Field trial in Indonesia
(FY2013) Indonesia requests Japanese ODA
(FY2014) Preparatory survey begins
(Goal) (FY2016 and after) International cooperation of Japanese ICT systems for disaster management through widespread adoption within countries that implemented the project, expansion to neighboring countries in Asia, etc., and expansion to other countries such as Latin America

FY2016 Budget:
Included as a part of packaged assistance projects for overseas expansion of ICT (¥772 million)
FY2015 Budget:
Included as a part of packaged assistance projects for overseas expansion of ICT (¥1.145 billion)

(4) Promotion of International Cooperation and International Contributions in Firefighting

FDMA will organize the International Forum on Fire and Disaster Management in order to share Japan's knowledge in the field of fire safety and disaster management with countries in Asia and build relationships of trust with fire safety and disaster management authorities in each country. In addition, it will hold the Japan - South Korea Fire and Disaster Management Seminar, with the aim of exchanging information about the fire and disaster management in Japan and South Korea.

FY2016 Budget: ¥5 million
FY2015 Budget: ¥5 million
Difference: ¥0

(5) Promotion of the International Rescue Team Japanese Fire-Service Overseas Dispatch System

In order to further strengthen the International Rescue Team Japanese Fire-Service, FDMA will seek to improve the rapid dispatch system. In addition, it will endeavor to further enhance the education and training, by such means as organizing joint exercises for the members across the country, cultivating instructors, and holding seminars for all fire departments registered at the International Rescue Team Japanese Fire-Service.

(Current status) Number of members participating

in joint exercises and seminars
FY2013: 227
FY2014: 213
FY2015: 189

(Goal) Based on a three-year cycle, all registered members of the International Rescue Team Japanese Fire-Service (599 members) to have participated in an exercise during each cycle

FY2016 Budget: ¥17 million
FY2015 Budget: ¥19 million
Difference: -¥2 million

(6) Promotion of Infrastructure Systems for Fire Safety and Disaster Management Overseas

FDMA will promote Japanese infrastructure systems for fire safety and disaster management in foreign countries, undertaking top-level sales pitches and holding workshops and other events featuring displays and demonstrations of fire safety and disaster management equipment and vehicles, etc. in emerging economies facing a growing risk of disaster due to rapid growth in the population or economy.

FY2016 Budget: ¥2 million
FY2015 Budget: ¥3 million
Difference: -¥1 million

(7) Financial Contributions to the UN and Other International Organizations, etc.

To promote the steady implementation of the SFDRR 2015–2030 and undertake educational activities regarding World Tsunami Awareness Day in partnership with the UN and others, the Ministry of Foreign Affairs (MOFA) will make a financial contribution to the United Nations Office for Disaster Risk Reduction (UNISDR), which is at the heart of these efforts. In addition, it will support the activities of bodies including the UN Office for the Coordination of Humanitarian Affairs (UNOCHA) which manages and runs ReliefWeb, a website that provides information about disasters around the world in real time.

FY2016 Budget: ¥381 million
FY2015 Budget: ¥209 million
Difference: ¥172 million

(8) Promotion of International Cooperation in Satellite-based Disaster Management

The Japan Aerospace Exploration Agency (JAXA) will use observation data from Advanced Land Observing Satellite-2 (Daichi-2) to contribute to efforts to ascertain the status of disasters overseas through international initiatives such as Sentinel Asia, which is led by Japan, with the aim of sharing satellite data concerning disasters with others in the Asia-Pacific region.

FY2016 Budget:
included in the ¥105.343 billion grant for management expenses, etc.
FY2015 Budget:
included in the ¥114.472 billion grant for management expenses, etc.

(9) Global Map Development

The Geospatial Information Authority of Japan will serve as the secretariat for the Global Mapping project, in which geospatial information authorities worldwide are working together to develop geospatial information that conforms to a standardized specification. In addition, it will use the Global Map in disaster management; for example, when major disasters occur, it will use the Global Map to prepare maps of the disaster-stricken area.

FY2016 Budget: included in the ¥23 million sum
FY2015 Budget: included in the ¥38 million sum

(10) Support for Overseas Business Expansion in the Disaster Management Field

Through support for the activities of the UN Secretary-General's Special Envoy for Disaster Risk Reduction and Water, the Ministry of Land, Infrastructure, Transport and Tourism (MLIT) will promote activities aimed at the achievement of international targets concerning water-related DRR, to contribute to efforts to promote measures against such disasters worldwide and develop an environment conducive to the overseas deployment of Japanese technologies for water-related DRR.

FY2016 Budget: ¥65 million
FY2015 Budget: ¥65 million
Difference: ¥0

(11) International Cooperation in Meteorological Services

The Japan Meteorological Agency (JMA) will provide other countries in the Asia-Pacific region with Geostationary Meteorological Satellite images to assist in monitoring typhoons and torrential rain, as well as supplying them with data on typhoon analysis and forecasting, seasonal forecast data, and

climate monitoring information. In addition, it will carry out activities to support application technologies and human resource development.

(12) Provision of Northwest Pacific Tsunami Advisory

In order to help to mitigate tsunami disasters in the Northwest Pacific, the JMA will provide countries in the Northwest Pacific with forecasts of tsunami arrival times and heights, in partnership with the Pacific Tsunami Warning Center, part of the USA's National Oceanic and Atmospheric Administration.

(13) Promotion of International Cooperation in Tackling Oil Spill Accidents, etc.

As well as taking part in joint oil spill clean-up drills organized by relevant organizations in each country, the Japan Coast Guard will participate in the Northwest Pacific Action Plan (NOWPAP), a marine environmental conservation initiative focused on the Sea of Japan and the Yellow Sea which is being undertaken by neighboring countries. Through these activities, it will promote international cooperation by striving to build systems that will enable relevant countries to work together in the event of an accident.

2. Bilateral Cooperation

(1) Cooperation with Developing Countries

MOFA and other relevant ministries and agencies will continue to utilize Japan's abundant experience, talent, and technologies to provide developing countries with assistance in the field of disaster relief and DRR, by means of technical cooperation, grant aid, and loan assistance.

FY2016 Budget:
included in the grant for JICA management expenses and grant aid, etc.
FY2015 Budget:
included in the grant for JICA management expenses and grant aid, etc.

(2) Utilization of the Science and Technology Research Partnership for Sustainable Development (SATREPS) in the Field of Disaster Prevention and Mitigation

The Japan International Cooperation Agency (JICA), the Japan Science and Technology Agency (JST), and the Japan Agency for Medical Research and Development (AMED) will implement the SATREPS program, which promotes international collaborative research aimed at resolving global issues in developing countries in conjunction with Japan's outstanding science and technology and Official Development Assistance (ODA) program. The three agencies will undertake cooperation in the field of disaster prevention and mitigation, which is one of the research fields on which SATREPS focuses.

FY2016 Budget:
included in the grants for JICA, JST, and AMED management expenses
FY2015 Budget:
included in the grants for JICA, JST, and AMED management expenses

(3) Promotion of International Cooperation in Disaster Prevention

MLIT will continue to leverage Japan's outstanding technologies and knowledge in the field of disaster prevention to contribute to efforts to improve the DRR functions of emerging economies, etc. In addition, to tap into infrastructure demand in such countries, it will continue to undertake bilateral Disaster Management Collaboration Dialogue initiatives that bring representatives of industry, academia, and government from both countries together to explore technologies and pursue solutions tailored to the specific disaster management challenges faced by each country. In addition, it will utilize the Japan Bosai Platform, which is an organization founded in June 2014 to establish cooperative frameworks involving industry, academia, and government.

FY2016 Budget: ¥30 million
FY2015 Budget: ¥35 million
Difference: -¥5 million

Appendix

TABLE OF CONTENTS: APPENDIX

1. Overview of Japan's National Land

2. Disasters in Japan

3. Laws and Systems

4. Organizations

5. Budget

6. Status of Disaster Management Facilities and Equipment

7. Trends in Numbers of Workers in Disaster Management

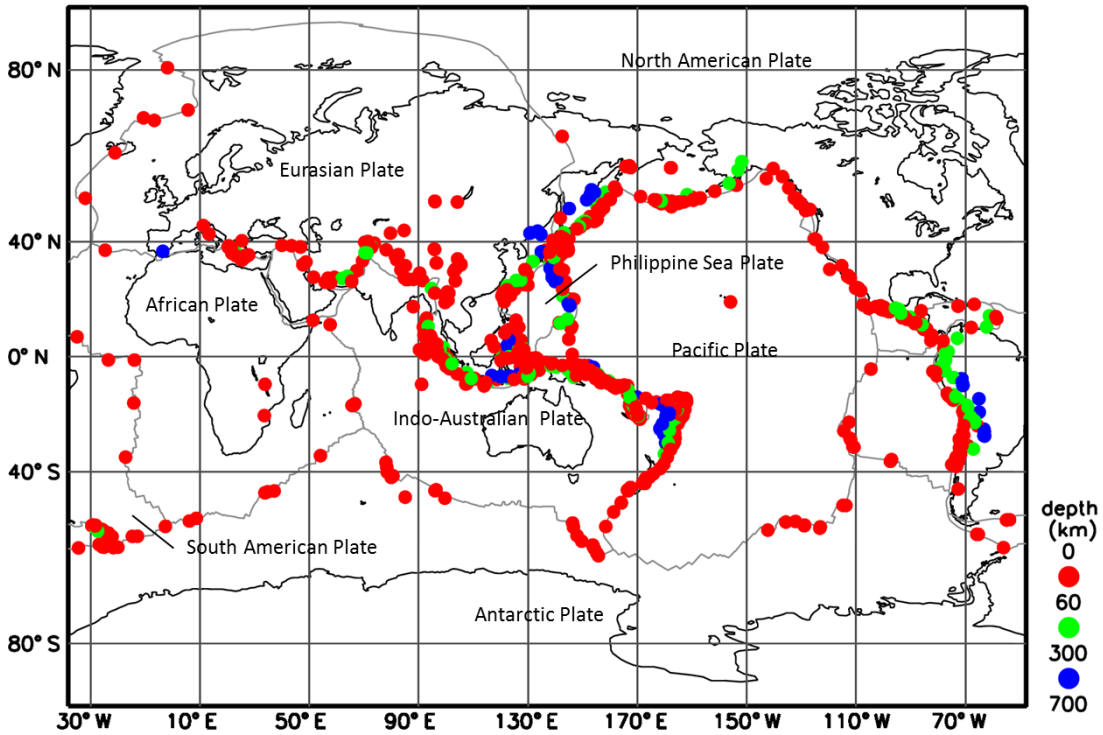
8. Various Policies and Measures

9. Japan's International Cooperation

10. Others

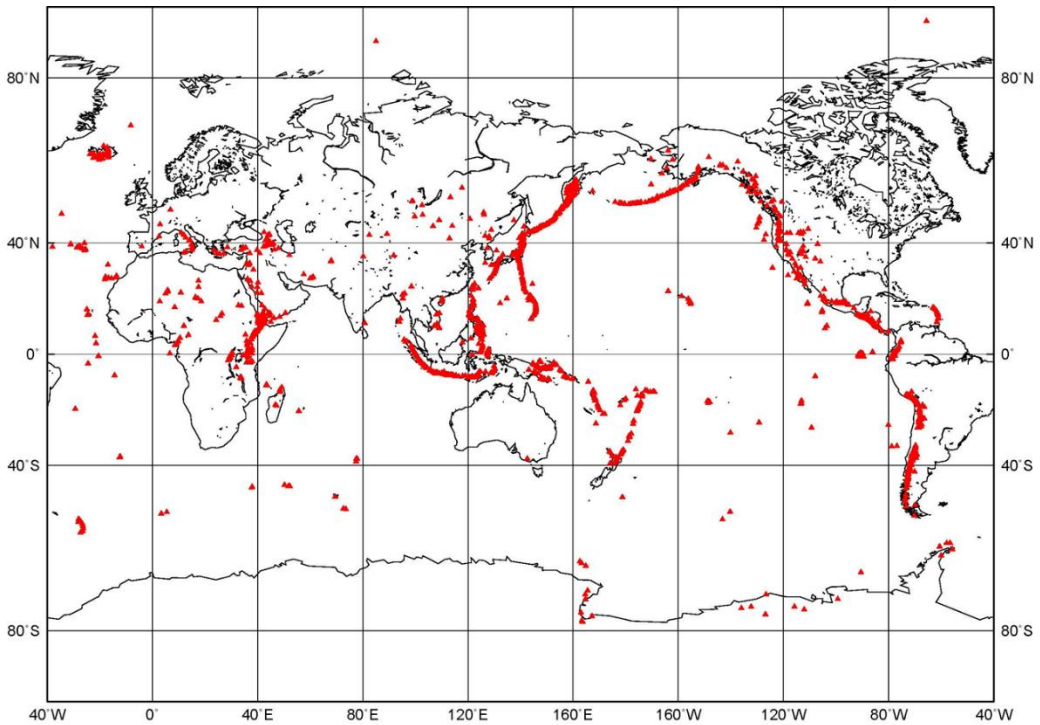
1. Overview of Japan's National Land

Fig. A-1 **Worldwide Hypocenter Distribution (for Magnitude 6 and Higher Earthquakes) and Plate Boundaries**



Note: 2006–2015
Source: Created by the Japan Meteorological Agency based on earthquake data from the U.S. Geological Survey

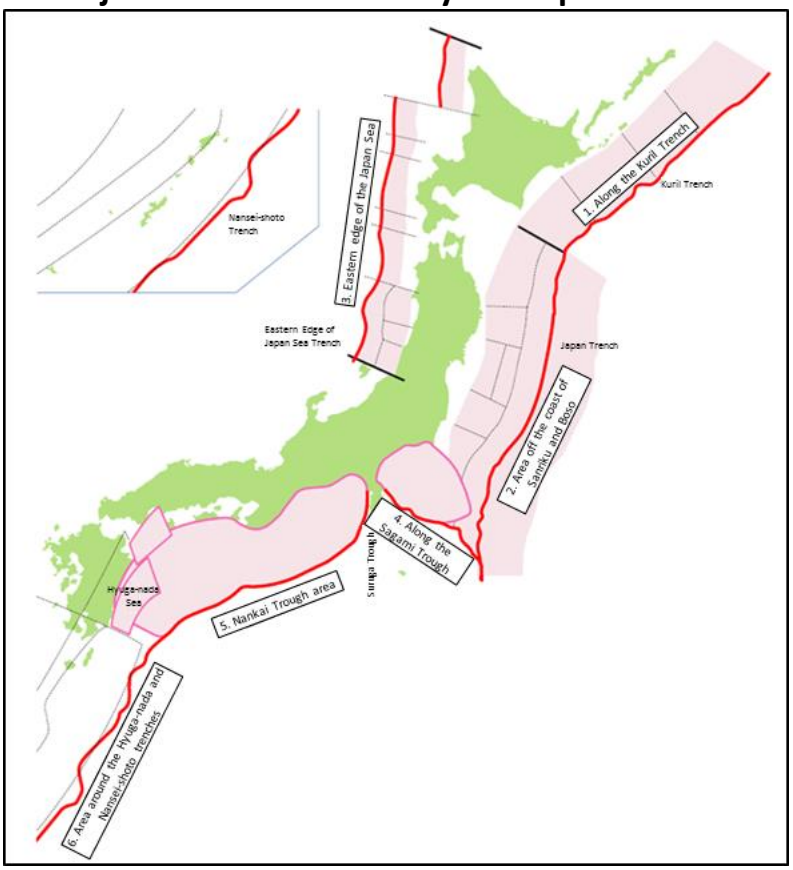
Fig. A-2 **Distribution of Volcanoes Worldwide**



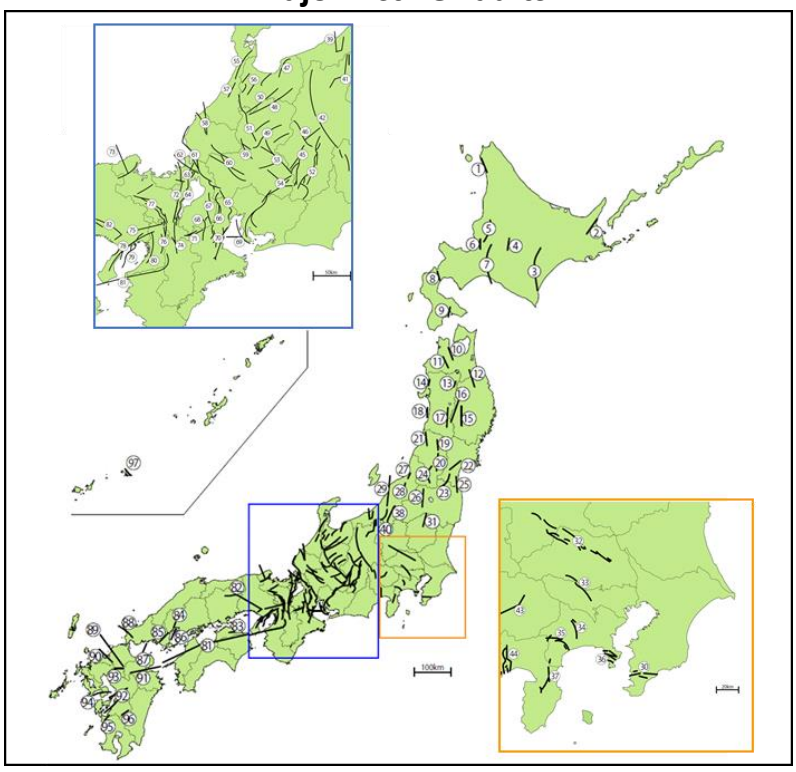
Source: Japan Meteorological Agency

Fig. A-3 **Overview of Major Trenches and Major Active Faults**

Major Trenches and Likely Earthquake Zones



Major Active Faults

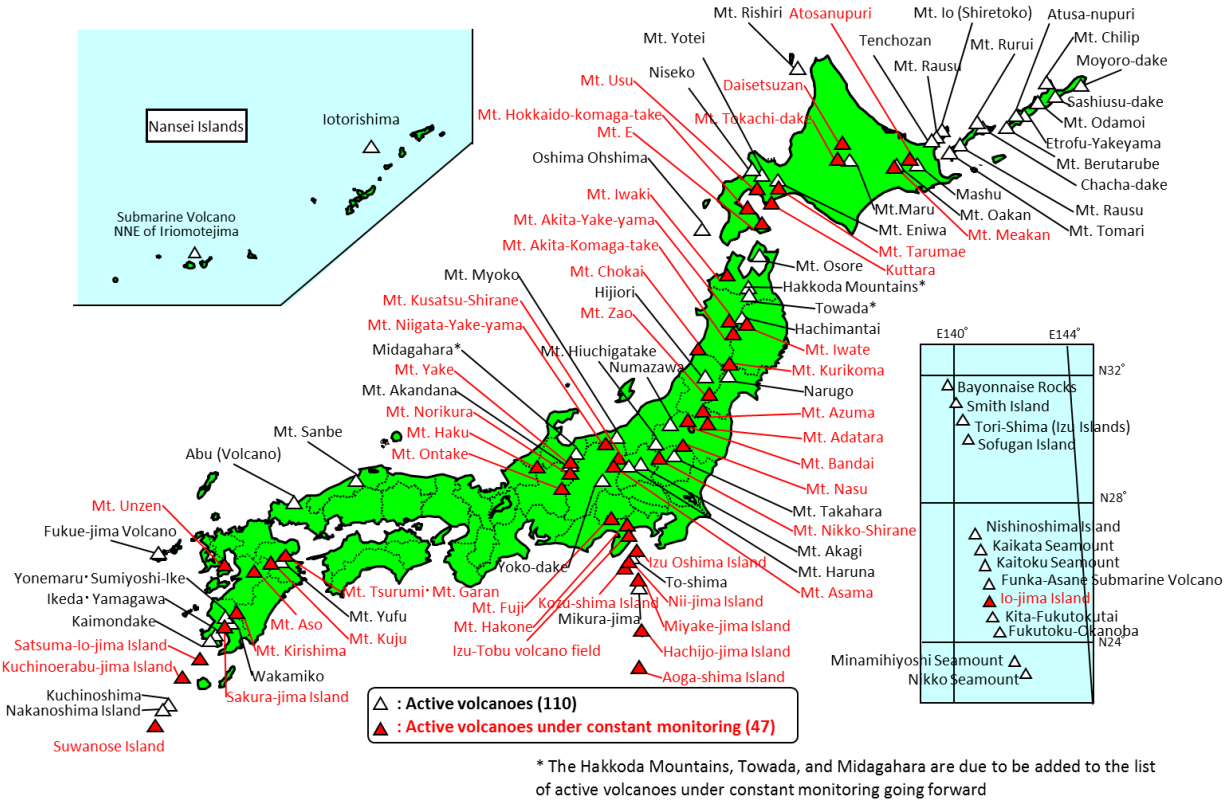


Source: Ministry of Education, Culture, Sports, Science and Technology

No.	Name of Fault	No.	Name of Fault
1	Shibetsu fault zone	55	Ouchigata fault zone
2	Tokachi-heiya fault zone	56	Tonami-heiya fault zone · Kurehayama fault zone
3	Furano fault zone	57	Morimoto Togashi fault zone
4	Mashike-sanchi-toen fault zone · Numata-Sunagawa fault zone	58	Fukui-heiya-toen fault zone
5	Toubetsu fault	59	Nagaragawa-joryu fault zone
6	Ishikari-teichi-toen fault zone	60	Noubi fault zone
7	Kuromatsunai-teichi fault zone	61,62	Yanagase Sekigahara fault zone
8	Hakodate-teiya-seien fault zone	63	Nosaka Shufukuji fault zone
9	Aomori-wan-seigan fault zone	64	Kohoku-sanchi fault zone
10	Tsugaru-sanchi-seien fault zone	65	Biwako-seigan fault zone
11	Oritsume fault	66	Gifu-Ichinomiya fault zone
12	Noshiro fault zone	67	Yoro-Kuwana-Yokkaichi
13	Kitakami-teichi-seien fault zone	68	Suzuka-toen fault zone
14	Shizukuishi-bonchi-seien - Mahiru-sanchi-toen fault zone	69	Suzuka-seien fault zone
15	Yokote-bonchi-toen fault zone	70	Tongu fault
16	Kitayuri fault	71	Nunobiki-sanchi-toen fault zone
17	Shinjo-bonchi fault zone	72	Kizugawa fault zone
18	Yamagata-bonchi fault zone	73	Mikata Hanaore fault zone
19	Shonai-heiya-toen fault zone	74	Yamada fault zone
20	Nagamchi-Rifu Line fault zone	75	Sourthern fault zone of Kyoto-bonchi-Nara-bonchi (Nara-bonchi-toen fault zone)
21	Fukushima-bonchi-seien fault zone	76	Arima-Takatsuki fault zone
22	Nagai-bonchi-seien fault zone	77	Ikoma fault zone
23	Futaba fault	78	Mitoke Kyoto Nishiyama fault zone
24	Aizu-bonchi-seien-toen fault zone	79	Rokko Awajishima fault zone
25	Kushigata-sanmyaku fault zone	80	Uemachi fault zone
26	Tsukioka fault zone	81,83,85, 86,89	Chuo-kozosen fault zone (Kongo-sanchi-toen – Iyonada)
27	Nagaoka-heiya-seien fault zone	82	Yamasaki fault zone
28	Tokyo-wan-hokuen fault	84	Nagao fault zone
29	Kamogawa-teichi fault zone	87	Itsukaichi fault zone
30	Sekiya fault	88	Iwakuni fault zone
31	Kanto-heiya hokuseiendan fault zone	90	Kikugawa fault zone
32	Motoarakawa fault zone	91	Nishiyama fault zone
33	Arakawa fault	92	Beppu-Haneyama fault zone
34	Tachikawa fault zone	93	Futagawa-Hinagu fault zone
35	Isehara fault	94	Mizunawa fault zone
36	Kannawa Kouzu-Matsuda fault zone	95	Unzen fault group
37	Miura-hanto fault group	96	Izumi fault zone
38	Kitaizu fault zone	97	Isewan fault zone
39	Tokamachi fault zone	98	Osaka-wan fault zone
40	Shinanogawa fault zone (Nagano-bonchi-seien fault zone)	99	Sarobetsu fault zone
41,42,44	Itoigawa-Shizuoka-kozosen fault system	100	Horonobe fault zone
43	Fujikawa-kako fault zone	101	Hanawa-higashi fault zone
45	Kiso-sanmyaku-seien fault zone	102	Takada-heiya fault zone
46	Sakaitoge Kamiya fault zone	103	Muikamachi fault zone
47	Atotsugawa fault zone	104	Sone-kyuryo fault zone
48	Takayama Oppara fault zone	105	Uozu fault zone
49	Ushikubi fault zone	106	Ube-oki fault group (Suounada fault group)
50	Shokawa fault zone	107	Akinada fault group
51	Inadani fault zone	108	Kego fault zone
52	Atera fault zone	109	Hitoyoshi-bonchi-nanen fault
53,54	Byoubuyama Enasan fault zone & Sanageyama fault zone	110	Miyakojima fault zone

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

Fig. A-4 Distribution of Active Volcanoes in Japan



* The Hakkoda Mountains, Towada, and Midagahara are due to be added to the list of active volcanoes under constant monitoring going forward

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

2. Disasters in Japan

Fig. A-5 Major Destructive Earthquakes in Japan (Since the Meiji Period)

Disaster		Date	Number of Fatalities and Missing Persons
Nobi Earthquake	(M8.0)	October 28, 1891	7,273
Meiji Sanriku Earthquake and Tsunami	(M8.25)	June 15, 1896	Approx. 22,000
Great Kanto Earthquake	(M7.9)	September 1, 1923	Approx. 105,000
1927 Kita Tango Earthquake	(M7.3)	March 7, 1927	2,925
Showa Sanriku Earthquake Tsunami	(M8.1)	March 3, 1933	3,064
1943 Tottori Earthquake	(M7.2)	September 10, 1943	1,083
Tonankai Earthquake	(M7.9)	December 7, 1944	1,251
Mikawa Earthquake	(M6.8)	January 13, 1945	2,306
Nankai Earthquake	(M8.0)	December 21, 1946	1,443
Fukui Earthquake	(M7.1)	June 28, 1948	3,769
Tokachi-oki Earthquake	(M8.2)	March 4, 1952	33
1960 Chile Earthquake and Tsunami	(Mw9.5)	May 23, 1960	142
1964 Niigata Earthquake	(M7.5)	June 16, 1964	26
1968 Tokachi-oki Earthquake	(M7.9)	May 16, 1968	52
1974 Izu-hanto-oki Earthquake	(M6.9)	May 9, 1974	30
1978 Izu-Oshima-kinkai Earthquake	(M7.0)	January 14, 1978	25
1978 Miyagi-ken-oki Earthquake	(M7.4)	June 12, 1978	28
Nihon-kai-chubu Earthquake	(M7.7)	May 26, 1983	104
Nagano-ken-seibu Earthquake	(M6.8)	September 14, 1984	29
Hokkaido-nansei-oki Earthquake	(M7.8)	July 12, 1993	230
Great Hanshin-Awaji Earthquake	(M7.3)	January 17, 1995	6,437
Niigata-ken-Chuetsu Earthquake	(M6.8)	October 23, 2004	68
Iwate–Miyagi Inland Earthquake	(M7.2)	June 14, 2008	23
Great East Japan Earthquake	(Mw9.0)	March 11, 2011	22,010
2016 Earthquake Centered in the Kumamoto Region of Kumamoto Prefecture	(M7.3)	April 16, 2016	49

*Mw: Moment magnitude

Notes:

1. The earthquakes listed before World War II are those with more than 1,000 fatalities and missing persons, while the earthquakes listed after World War II are those with more than 20 fatalities and missing persons.
2. The number of fatalities and missing persons from the Great Kanto Earthquake are based on the revised Chronological Scientific Table (2006), which changed the number from approximately 142,000 to approximately 105,000.
3. The number of fatalities and missing persons from the Great Hanshin-Awaji Earthquake is the current figure as of December 22, 2005. The number of fatalities directly caused by structures collapsing, fire, and other factors caused by seismic shaking on the day of the earthquake, excluding so-called “related deaths,” is 5,521.
4. The number of fatalities (including disaster-related fatalities) and missing persons from the Great East Japan Earthquake is the current figure as of March 1, 2016.
5. The details given for the 2016 Earthquake Centered in the Kumamoto Region of Kumamoto Prefecture refer solely to the main quake and show the toll as of May 18, 2016.

Source: Chronological Scientific Tables, Fire and Disaster Management Agency materials, National Police Agency materials, Comprehensive List of Destructive Earthquakes in Japan, Extreme Disaster Management Headquarters materials, Major Disaster Management Headquarters materials

Fig. A-6 Major Natural Disaster in Japan Since 1945

Date	Disaster	Main Disaster Areas	Number of Dead and Missing
January 13, 1945	Mikawa Earthquake (M6.8)	Southern Aichi	2,306
September 17-18, 1945	Typhoon Makurazaki	Western Japan (Especially in Hiroshima)	3,756
December 21, 1946	Nankai Earthquake (M8.0)	Various Places in West of Chubu	1,443
August 14, 1947	Mt. Asama Eruption	Around Mt. Asama	11
September 14-15, 1947	Typhoon Catherine	North of Tohoku	1,930
June 28, 1948	Fukui Earthquake (M7.1)	Around the Fukui Plains	3,769
September 15-17, 1948	Typhoon Ion	From Shikoku into Tohoku (Especially in Iwate)	838
September 2-4, 1950	Typhoon Jane	North of Shikoku (Especially in Osaka)	539
October 13-15, 1951	Typhoon Ruth	Nationwide (Especially in Yamaguchi)	943
March 4, 1952	Tokachi-oki Earthquake (M8.2)	Southern Hokkaido, Northern Tohoku	33
June 25-29, 1953	Torrential Rains	Kyushu, Shikoku, Chugoku (Especially Kitakyushu)	1,013
July 16-24, 1953	Torrential Rains	West of Tohoku (Especially in Wakayama)	1,124
May 8-12, 1954	Storm Disaster	Northern Japan, Kinki	670
September 25-27, 1954	Typhoon Toyamaru	Nationwide (Especially in Hokkaido and Shikoku)	1,761
July 25-28, 1957	Torrential Rains	Kyushu (Especially around Isahaya)	722
June 24, 1958	Mt. Aso Eruption	Around Mt. Aso	12
September 26-28, 1958	Typhoon Kanogawa	East of Kinki (Especially in Shizuoka)	1,269
September 26-27, 1959	Typhoon Ise-wan	Nationwide (Except for Kyushu, especially in Aichi)	5,098
May 23, 1960	Chile Earthquake Tsunami	Southern Coast of Hokkaido, Sanriku Coast, Shima Coast	142
January 1963	Snow Disasters	Hokuriku, Sanin, Yamagata, Shiga, Gifu	231
June 16, 1964	Niigata Earthquake (M7.5)	Niigata, Akita, Yamagata	26
September 10-18, 1965	Typhoons 23, 24, 25	Nationwide (Especially in Tokushima, Hyogo, Fukui)	181
September 23-25, 1966	Typhoons 24, 26	Chubu, Kanto, Tohoku (Especially in Shizuoka, Yamanashi)	317
July to August 1967	Torrential Rains	West of Chubu, Northern Tohoku	256
May 16, 1968	Tokachi-oki Earthquake (M7.9)	Southern Hokkaido and Tohoku Area centering around Aomori	52
July 3-15, 1972	Typhoons 6, 7, 9 and Torrential Rains	Nationwide (Especially in Kitakyushu, Shimane, Hiroshima)	447
May 9, 1974	Izu-hanto-oki Earthquake (M6.9)	Southern Tip of Izu-hanto	30
September 8-14, 1976	Typhoon 17 and Torrential Rains	Nationwide (Especially in Kagawa, Okayama)	171
January 1977	Snow Disaster	Tohoku, Northern Kinki, Hokuriku	101
August 7, 1977- October 1978	Mt. Usu Eruption	Hokkaido	3
January 14, 1978	Izu-Oshima-kinkai Earthquake (M7.0)	Izu-hanto	25
June 12, 1978	Miyagi-ken-oki Earthquake (M7.4)	Miyagi	28
October 17-20, 1979	Typhoon 20	Nationwide (Especially Tokai, Kanto, Tohoku)	115
December 1980 - March 1981	Snow Disasters	Tohoku, Hokuriku	152
July to August 1982	Torrential Rains and Typhoon 10	Nationwide (Especially in Nagasaki, Kumamoto, Mie)	439
May 26, 1983	Nihon-kai-chubu Earthquake (M7.7)	Akita, Aomori	104
July 20-29, 1983	Torrential Rains	East of Sanin (Especially in Shimane)	117
October 3, 1983	Miyake Is. Eruption	Around Miyake-jima Island	—
December 1983 - March 1984	Snow Disasters	Tohoku, Hokuriku (Especially in Niigata, Toyama)	131
September 14, 1984	Nagano-ken-seibu Earthquake (M6.8)	Western Nagano	29
November 15 - December 18, 1986	Izu-Oshima Eruption	Izu Oshima Island	—
November 17, 1990	Mr. Unzen Eruption	Nagasaki	44
July 12, 1993	Hokkaido-nansei-oki Earthquake (M7.8)	Hokkaido	230
July 31 - August7, 1993	Torrential Rains	Nationwide	79
January 17, 1995	Great Hanshin-Awaji Earthquake (M7.3)	Hyogo	6,437
March 31, 2000 - June 28, 2001	Mt. Usu Eruption	Hokkaido	—
June 25, 2001 - March 31, 2005	Miyake Is. Eruption and Niijima and Kozushima Is. Earthquake	Tokyo	1
October 20-21, 2004	Typhoon 23	Nationwide	98
October 23, 2004	Niigata-ken-Chuetsu Earthquake (M6.8)	Niigata	68
December 2005 - March 2006	Heavy Snowfalls	Japan Sea Coast centering around Hokuriku Area	152
July 16, 2007	Niigata Earthquake (M6.8)	Niigata	15
June 14, 2008	Iwate-Miyagi Inland Earthquake (M7.2)	Tohoku (Especially in Miyagi, Iwate)	23
December 2010 - March 2011	Snow Disasters	From Northern Japan through into Kanto-Koshinetsu Area (Especially in Yamanashi)	131
March 11, 2011	Great East Japan Earthquake (Mw9.0)	Eastern Japan (Especially in Miyagi, Iwate, Fukushima)	22,010
August 29 - September 7, 2011	Typhoon 12	Kinki, Shikoku	94
November 2011 - March 2012	Deep Snowfall from November 2011 onwards	From Northern Japan through into West Japan on the Japan Sea Coast	132
December 2012 - March 2013	Deep Snowfall from December 2012 onwards	From Northern Japan through into West Japan on the Japan Sea Coast	101
November 2013 - May 2014	Deep Snowfall from November 2013 onwards	From Northern Japan through into Kanto-Koshinetsu Area (Especially in Yamanashi)	93
August 20, 2014	Torrential Rains of August 2014	Hiroshima	76
September 27, 2014	2014 Eruption of Mt. Ontake	Nagano, Gifu	63
April 14 and 16, 2014	2016 Earthquake Centered in the Kumamoto Region of Kumamoto Prefecture	Kyushu Area	49

Notes:
1. The disasters listed resulted in fatalities and missing persons as follows: 500 or more for storm and flood disasters, 100 or more for snow disasters, and 10 or more for earthquakes, tsunamis, and volcanic eruptions. It also includes disasters for which governmental Major Disaster Management Headquarters were established based on the Disaster Countermeasures Basic Act.
2. The number of fatalities and missing persons for the Great Hanshin-Awaji Earthquake is the current figure as of December 22, 2005. The number of deaths directly caused by structural collapse, fire, and other factors caused by seismic shaking on the day of the earthquake, excluding so-called "related deaths," is 5,521.
3. The numbers of fatalities from the Miyake Is. Eruption and Niijima and Kozushima Is. Earthquake are from the earthquake of July 1, 2000.
4. The numbers of fatalities and missing persons since 2015 are from flash bulletins based on Cabinet Office summaries.
5. The number of fatalities (including disaster-related fatalities) and missing persons resulting from the Great East Japan Earthquake is the current figure as of March 1, 2016.
6. The number of fatalities (including disaster-related fatalities) and missing persons resulting from the Torrential Rains of August 2014 is the current figure as of December 18, 2015.
7. The details given for the 2016 Earthquake Centered in the Kumamoto Region of Kumamoto Prefecture show the toll as of May 18, 2016.

Source: Created by the Cabinet Office based on the meteorological almanac of Japan, Chronological Scientific Tables, National Police Agency materials, Fire and Disaster Management Agency materials, Extreme Disaster Management Headquarters materials, Major Disaster Management Headquarters materials, and Hyogo Prefecture materials

Fig. A-7 Major Natural Disasters in Japan in Recent Years

Date	Disaster	Main Disaster-affected Areas	Number of Dead and Missing
March 24, 2001	Geiyo Earthquake (M6.7)	Hiroshima, Ehime, Yamaguchi	2
April 3, 2001	Earthquake (M5.3) epicentered in central Shizuoka	Prefecture Shizuoka	0
July 11-13, 2001	Heavy rains in northern Kyushu Region	Fukuoka, Saga, Kumamoto, Nagasaki, Yamaguchi	0
August 20-13, 2001	Typhoon 11	Nationwide centering around Western Japan	6
September 6-13, 2001	Typhoon 16	Okinawa, Western Japan	0
September 8-12, 2001	Typhoon 15	Nationwide centering around Eastern Japan	8
July 9-11, 2002	Typhoon 6	Nationwide centering around Tohoku	7
July 13-16, 2002	Typhoon 7	Nationwide centering around Kagoshima	0
October 1-2, 2002	Typhoon 21	Hokkaido, Tohoku, Kanto, Chubu	4
May 26, 2003	Earthquake (M7.1) epicentered off coast of Miyagi Prefecture	Tohoku	0
July 18-21, 2003	Torrential rains from seasonal rain front	Kyushu	23
July 26, 2003	Earthquake (M6.4) epicentered in northern Miyagi Prefecture	Miyagi	0
August 7-10, 2003	Typhoon 10	Nationwide centering around Hokkaido	19
September 11-14, 2003	Typhoon 14	Nationwide centering around Okinawa	3
September 26, 2003	Tokachi-oki Earthquake (M8.0)	Hokkaido	2
July 12-13, 2004	Torrential rains in Niigata and Fukushima in July 2004	Niigata, Fukushima	16
July 17-18, 2004	Torrential rains in Fukui in July 2004	Fukui	5
July 29 - August 6, 2004	Heavy rains from and related to Typhoons 10 and 11	Chugoku, Shikoku	3
August 17-20, 2004	Heavy rains from and related to Typhoon 15	Tohoku, Shikoku	10
August 27-31, 2004	Typhoon 16	Nationwide centering around Western Japan	17
September 5, 2004	Earthquakes (M7.1, M7.4) epicentered off coast of Kii Peninsula/off the coast of Tokaido	Aichi, Mie, Wakayama	0
September 4-8, 2004	Typhoon 18	Nationwide centering around Chugoku	45
September 26-30, 2004	Typhoon 21	Nationwide centering around Western Japan	27
October 8-10 , 2004	Typhoon 22	East Japan on the Pacific Ocean side	9
October 18-21 , 2004	Typhoon 23	Nationwide centering around Kinki and Shikoku	98
October 23, 2004	2004 Niigata-ken Chuetsu Earthquake (M6.8)	Niigata	68
December 2004- March 2005	Snow disasters	Hokkaido, Tohoku, and Hokuriku Regions	88
March 20, 2005	Fukuoka-ken-Seihou-oki Earthquake (M7.0)	Fukuoka	1
June 27 - July 25, 2005	Heavy rains due to the seasonal rain front	From the southern Tohoku Region to the Kyushu Region	12
July 23, 2005	Earthquake (M6.0) epicentered in northwestern Chiba Prefecture	Tokyo, Saitama, Kanagawa and Chiba	0
August 16, 2005	Earthquake (M7.2) epicentered off coast of Miyagi Prefecture	Tohoku Region	0
August 25-26, 2005	Typhoon 11	Kanto and Tokai Regions	0
September 4-8, 2005	Typhoon 14	Nationwide centering around Chugoku, Shikoku, and Kyushu Regions	29
December 2005- March 2006	Torrential rains in 2006	Japan Sea side centering around Hokuriku Region	152
June 10 - July 29, 2006	Torrential rains due to seasonal rain front	Kanto, Chubu, Kinki, Chugoku, Kyushu Regions	33
September 15-20, 2006	Typhoon 13	Chugoku and Kyushu Regions	10
November 7, 2006	Tornado in town of Saroma	Hokkaido (Saroma-cho)	9
March 25 2007	Noto Hanto Earthquake (M6.9) of 2007	Ishikawa	1
April 15, 2007	Earthquake (M5.4) epicentered in central Mie Prefecture	Mie	0
July 5-17 2007	Heavy rains from Typhoon 4 and seasonal rain front	Chubu, Shikoku and Kyushu Regions	7
July 16, 2007	2007 Niigata Earthquake (M6.8)	Niigata	15
August 2-4, 2007	Typhoon 5	Kyushu Region	0
September 6-8, 2007	Typhoon 9	Tohoku, Kanto and Chubu Regions	3
September 13-18, 2007	Heavy rains from Typhoon 11 and rain front	Tohoku Region	4
October 1, 2007	Earthquake (M4.9) epicentered is western Kanagawa Prefecture	Kanagawa	0
February 23-24, 2008	Damage from low-pressure system	Hokkaido, Tohoku and Chubu Regions	4
June 14, 2008	Iwate-Miyagi Inland Earthquake (M7.2) of 2008	Tohoku Region (Especially Miyagi and Iwate)	23
July 24, 2008	Earthquake (M6.8) epicentered on northern coast of Iwate Prefecture	Hokkaido and Tohoku Regions	1
July 28-29, 2008	Damage from heavy rains	Hokuriku and Kinki Regions (Especially Hyogo)	6
August 26-31, 2008	Torrential rains at the end of August 2008	Tohoku, Kanto, Tokai and Chugoku Regions (Especially Aichi)	2
July 21-26, 2009	Torrential rains in northern Chugoku and Kyushu Regions in July 2009	Chugoku and Kyushu Regions (Especially Yamaguchi and Fukuoka)	35
August 10-11, 2009	2009 Typhoon 9	Kinki and Shikoku Regions (Especially Hyogo)	27
August 11, 2009	Earthquake (M6.5) epicentered in Suruga Bay	Tokai Region	1
October 7-8, 2009 2009	Typhoon 18	Tohoku, Kanto, Chubu and Kinki Regions	5
February 28, 2010	Tsunami from an earthquake epicentered on central Chilean coast	Tohoku, Kanto, Tokai, Kinki and Shikoku Regions	0
June 11 - July 19, 2010	Heavy rains due to 2010 seasonal rain front	Nationwide centering around Chugoku and Kyushu Regions	21
October 18-30, 2010	Heavy rains in Amami region of Kagoshima Prefecture	Kagoshima (Amami)	3

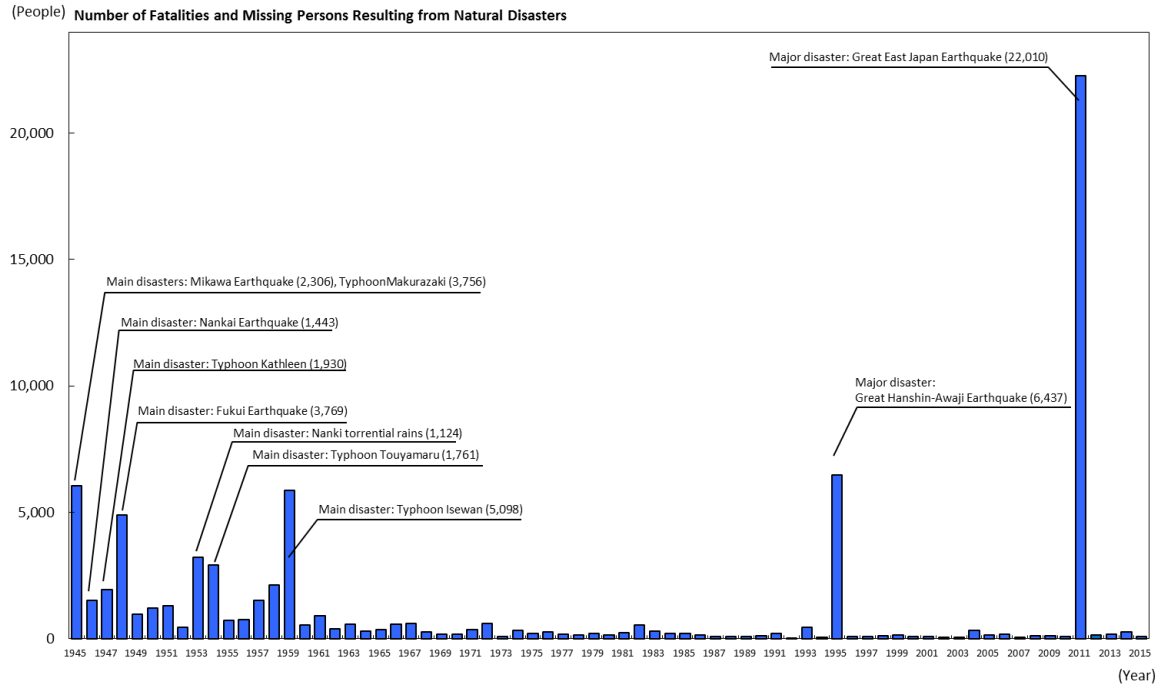
Date	Disaster	Main Disaster-affected Areas	Number of Dead and Missing
November 2010- March 2011	Heavy snows from November 2010	Hokkaido, Tohoku and Hokuriku Regions	131
January 26 - 2011	Mt. Kirishima (Shinmoedake) Eruption	Miyazaki and Kagoshima	0
March 11, 2011	Tohoku Region Pacific Coast Earthquake (Mw9.0) of 2011	Nationwide centering around Tohoku Region	22,010
July 19-24, 2011	2011 Typhoon 6	Kanto, Tokai, Kinki and Shikoku Regions	3
July 28-30, 2011	Torrential rains in Niigata and Fukushima in July 2011	Tohoku and Hokuriku Regions (Especially Niigata and Fukushima)	6
August 30 - 5 September 2011	2011 Typhoon 12	Kanto, Tokai, Kinki, Chugoku and Shikoku Regions	98
September 15-22, 2011	2011 Typhoon 15	Nationwide	19
November 2011- March 2012	Heavy snows in 2012	Hokkaido, Tohoku and Hokuriku Regions	132
May 6, 2012	Wind gusts occurring in May 2012	Kanto Region (Especially Ibaraki and Tochigi)	3
June 18-20, 2012	2012 Typhoon 4	Nationwide	1
July 2-9, 2012	Heavy rains from July 3, 2012	Nationwide centering around Kyushu and Okinawa Regions	2
July 11-14, 2012	Heavy rains from July 11, 2012	Nationwide centering around northern Kyushu Region	32
August 13-15, 2012	Heavy rains from August 13, 2012	Kinki and Chubu Regions	3
September 15-19, 2012	2012 Typhoon 16	Nationwide	0
September 28 - October 1, 2012	2012 Typhoon 17	Chubu, Kinki, Kyushu and Okinawa Regions	1
December 2012- March 2013	Heavy snows in 2013	Hokkaido, Tohoku and Hokuriku Regions	101
April 6-9, 2013	Low-pressure system from April 6, 2013	Nationwide	1
June 8 - August 9, 2013	Heavy rains in the 2013 rainy season	Tohoku and Chugoku Regions	17
August 23-28, 2013	Heavy rains from August 23, 2013	Nationwide centering around Chugoku Region	2
September 2 & 4, 2013	Tornados on September 2 and 4, 2013	Kanto region	0
September 15-16, 2013	2013 Typhoon 18	From Northern Japan to Western Japan on the Japan Sea side (especially Kinki)	7
October 15-16, 2013 October 24-26, 2013	2013 Typhoon 26 & 27	From Eastern Japan to Western Japan on the Pacific Ocean side (especially Kanto)	43
November 2013- March 2014	Heavy snows from the end of November 2013	Tohoku and Kanto-Koshinetsu Regions	93
July 6-11, 2014	2014 Typhoon 8	Nationwide	3
July 30 - August 11, 2014	2014 Typhoon 12 & 11	Nationwide	6
August 15-26, 2014	Torrential rains of August 2014 (Except Hiroshima Sediment Disaster)	Kinki, Hokuriku and Tokai Regions	8
August 20, 2014	Torrential rains of August 2014 (Hiroshima Sediment Disaster)	Hiroshima	76
September 27, 2014	2014 Eruption of Mt. Ontake	Nagano and Gifu	63
November 22, 2014	Earthquake epicentered in northern Nagano Prefecture	Nagano	0
December 2014 - March 2015	Heavy snows from the end of December 2014	Hokkaido, Tohoku, Hokuriku and Shikoku Regions	83
May 29, 2015	Kuchinoerabu-jima Eruption (Volcanic Alert Level 5)	Kagoshima	0
June 30, 2015	Eruption of Mt. Hakone (Volcanic Alert Level 3)	Kanagawa	0
July 16-18, 2015	2015 Typhoon 11	Various Places from Western to Eastern Japan	2
August 15, 2015	Volcanic activity at Sakurajima (Volcanic Alert Level 4)	Kagoshima	0
August 22-26, 2015	2015 Typhoon 15	Various Places in Western Japan	1
September 9-11, 2015	Torrential Rain of September 2015 in the Kanto and Tohoku Regions	Kanto and Tohoku Regions (especially Ibaraki, Tochigi, Miyagi)	8
September 27-28, 2015	2015 Typhoon 21	Okinawa	0
April 14 and 16, 2016	2016 Earthquake Centered in the Kumamoto Region of Kumamoto Prefecture	Kyushu Area	49

Notes:

1. Natural disasters for which an Information Office was set up in the Cabinet Office and which resulted in fatalities/missing persons.
2. Data for the Niigata-ken Chuetsu Earthquake (the Mid Niigata Prefecture Earthquake) includes so-called "related deaths."
3. The Great East Japan Earthquake (2011) includes damage from earthquakes deemed aftershocks.* The number of fatalities (including disaster-related fatalities) and missing persons is the current figure as of March 1, 2016.
   (*April 7 earthquake hypocentered off the coast of Miyagi Prefecture, April 11 earthquake hypocentered in the Hamadori region of Fukushima Prefecture, April 12 earthquake hypocentered in the Hamadori region of Fukushima Prefecture, May 22 earthquake hypocentered in northeastern Chiba Prefecture, July 25 earthquake hypocentered off the coast of Fukushima Prefecture, July 31 earthquake hypocentered off the coast of Fukushima Prefecture, August 12 earthquake hypocentered off the coast of Fukushima Prefecture, August 19 earthquake hypocentered off the coast of Fukushima Prefecture, September 10 earthquake hypocentered in northern Ibaraki Prefecture, October 10 earthquake hypocentered off the coast of Fukushima Prefecture, November 20 earthquake hypocentered in northern Ibaraki Prefecture, February 19, 2012, earthquake hypocentered in northern Ibaraki Prefecture, March 1 earthquake hypocentered off the coast of Ibaraki Prefecture, March 14 earthquake hypocentered off the eastern coast of Chiba Prefecture, June 18 earthquake hypocentered off the coast of Miyagi Prefecture, August 30 earthquake hypocentered off the coast of Miyagi Prefecture, December 7 earthquake hypocentered off the coast of Sanriku, and January 31, 2013, earthquake hypocentered in northern Ibaraki Prefecture)
4. The number of fatalities (including disaster-related fatalities) and missing persons resulting from the Torrential Rains of August 2014 is the current figure as of December 18, 2015.
5. The numbers of fatalities and missing persons since 2015 are from flash bulletins based on Cabinet Office summaries.
6. The details given for the 2016 Earthquake Centered in the Kumamoto Region of Kumamoto Prefecture show the toll as of May 18, 2016.

Source: Meteorological Almanac of Japan, Chronological Scientific Tables, National Police Agency materials, Fire and Disaster Management Agency Materials, Major Disaster Management Headquarters materials

Fig. A-8 Number of Fatalities and Missing Persons Resulting from Natural Disasters



Note: Of the fatalities in 1995, the deaths from the Great Hanshin-Awaji Earthquake include 919 so-called "related deaths" (Hyogo Prefecture).
The fatalities and missing persons in 2015 are based on flash bulletins from the Cabinet Office.
The earthquake/tsunami disaster figures for 2011 include earthquake-related fatalities from the Great East Japan Earthquake based on the Fire and Disaster Management Agency document, “Damage Conditions of the 2011 Tohoku Region Pacific Coast Earthquake (Great East Japan Earthquake)” (March 1, 2016).)

Source: Fatalities and missing persons for the year 1945 came only from major disasters (source: Chronological Scientific Table). Years 1946–1952 use the Japanese Meteorological Disasters Annual Report; years 1953–1962 use National Police Agency documents; years 1963 and after created by the Cabinet Office based on Fire and Disaster Management Agency materials.

Fig. A-9 Breakdown of Fatalities and Missing Persons Caused by Natural Disasters

(Unit: persons)

Year	Storm/Flood	Earthquake/ Tsunami	Volcano	Snow	Other	Total
1993	183	233	1	9	11	437
1994	8	3	0	21	7	39
1995	19	6,437	4	14	8	6,482
1996	21	0	0	28	35	84
1997	51	0	0	16	4	71
1998	80	0	0	28	1	109
1999	109	0	0	29	3	141
2000	19	1	0	52	6	78
2001	27	2	0	59	2	90
2002	20	0	0	26	2	48
2003	48	2	0	12	0	62
2004	240	68	0	16	3	327
2005	48	1	0	98	6	153
2006	87	0	0	88	2	177
2007	14	16	0	5	4	39
2008	21	24	0	48	7	100
2009	76	1	0	35	3	115
2010	31	0	0	57	1	89
2011	136	22,014	0	125	2	22,277
2012	43	0	0	101	0	144
2013	75	0	0	92	6	173
2014	109	0	63	108	0	280
2015	12	0	0	60	0	72

Notes: This table shows the number of deaths and missing persons between Jan. 1 and Dec. 31.
Fatalities and missing persons in 2015 are based on flash bulletins from the Cabinet Office.
(The earthquake/tsunami disaster figures for 2011 include earthquake-related fatalities from the Great East Japan Earthquake based on “Damage Conditions of the 2011 Tohoku Region Pacific Coast Earthquake (Great East Japan Earthquake)” (March 1, 2016).)

Source: Created by the Cabinet Office based on the Fire and Disaster Management Agency report "Status of Regional Disaster Management Administration"

Fig. A-10 Recent Major Natural Disasters (Since the Great Hanshin-Awaji Earthquake)

(Total: As of March 14, 2016)

Name of Disaster	Major Events	Human Casualties (persons)		Houses Damaged (houses)			Remarks
		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
The Great Hanshin-Awaji Earthquake (January 17, 2005)	Maximum seismic intensity of 7. Unprecedented major disaster in Western Japan. Became a turning point in DRR measures for national and local governments, with various DRR measures developed and strengthened.	6,437	43,792	104,906	144,274	—	・Establishment of Extreme Disaster Management Headquarters[*1] ・Establishment of Major Disaster Management Headquarters ・Inspection by Prime Minister ・Deployment of government survey team ・Invocation of Disaster Relief Act ・Invocation of Special Measures Act for Specified Disaster ・Designation as an extremely severe disaster
The Great East Japan Earthquake (March 11, 2011)	Maximum seismic intensity of 7. Tsunami caused extreme damage mainly along the coast of Eastern Japan, including Iwate, Miyagi, and Fukushima Prefectures.	22,010	6,220	121,809	278,496	3,352	・Establishment of Extreme Disaster Management Headquarters ・Establishment of On-site Extreme Disaster Management Headquarters ・Inspection by Prime Minister ・Deployment of government survey team ・Inspection by Minister of State for Disaster Management ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Invocation of Special Measures Act for Specified Disaster ・Designation as an extremely severe disaster
2000 Eruption of Mt. Usu (March 31, 2000 - June 28, 2001)	The Japan Meteorological Agency announced emergency volcano information and residents evacuated before the eruption began, resulting in no human casualties.	—	—	119	355	—	・Establishment of Major Disaster Management Headquarters ・Establishment of On-site Major Disaster Management Headquarters ・Inspection by Prime Minister ・Deployment of government survey team ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
2000 Miyake Is. Eruption and Niijima and Kozushima Is. Earthquake (June 25, 2000 - March 31, 2005)	A caldera was formed along with the summit eruption. Large amounts of volcanic gases were emitted over an extended period, and evacuation instructions were issued to all residents of the town of Miyake, which forced all residents to evacuate and live off the island.	1	15	15	20	—	・Establishment of Major Disaster Management Headquarters ・Inspection by Prime Minister ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
2004 Typhoon 23 (October 18-21, 2004)	Very large number of human casualties due to rising river levels, sediment disasters, and high waves nationally, but concentrated in the Kinki and Shikoku regions. The Maruyama River, Izushigawa River, and other Maruyama River system rivers overflowed their banks and flooded.	98	555	909	7,776	14,323	・Establishment of Major Disaster Management Headquarters ・Deployment of government survey team ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
2004 Niigata-ken-Chuetsu Earthquake (October 23, 2004)	Maximum seismic intensity of 7. Homes were destroyed, landslides and other disasters caused many human casualties, communities were isolated, people were forced to evacuate, and there was massive damage to homes, lifelines, transportation, and agricultural land.	68	4,805	3,175	13,810	—	・Establishment of Major Disaster Management Headquarters ・Inspection by Prime Minister ・Deployment of government survey team ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Invocation of Special Measures Act for Specified Disaster ・Designation as an extremely severe disaster
Fukuoka-ken-Seihouoki Earthquake (March 20, 2005)	Maximum seismic intensity of Lower 6. Homes were destroyed on Genkai Island and elsewhere, and window glass fell from buildings in Fukuoka City.	1	1,204	144	353	—	・Inspection by Prime Minister ・Deployment of government survey team ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Invocation of Remote Islands Development Act
2005 Typhoon 14 (September 4-8, 2005)	Record-breaking rains fell, mainly in the Kyushu region, and sediment disasters caused many human casualties.	29	179	1,178	3,692	7,159	・Deployment of government survey team ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
2006 Heavy Snowfalls (December 2005 - March 2006)	Following 1963, the second-largest number of fatalities and missing persons since WW II (on par with 1981.)	152	2,145	18	28	12	・Invocation of Disaster Relief Act
2006 Torrential Rains Due to Seasonal Rain Front (June 10–July 29, 2006)	Many fatalities due to sediment disasters in Nagano and Kagoshima Prefectures.	32	81	300	1,258	2,212	・Deployment of government survey team ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
2006 Typhoon 13 (September 15–20, 2006)	Damage due to strong winds from the Okinawa region to the Kyushu region, and a tornado in Nobeoka City, Miyazaki Prefecture.	10	448	159	514	189	・Deployment of government survey team ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Tornado in Saroma Hokkaido Prefecture (November 7, 2006)	Highest number of fatalities on record attributed to a tornado.	9	31	7	7	—	・Deployment of government survey team ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims

Name of Disaster	Major Events	Human Casualties (persons)		Houses Damaged (houses)			Remarks
		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
2007 Noto Hanto Earthquake (March 25, 2007)	Maximum seismic intensity of Upper 6. Disaster in mountainous regions with a high percentage of aging population and advancing depopulation.	1	356	686	1,740	—	・Inspection by Prime Minister ・Deployment of government survey team ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
2007 Heavy Rains from Typhoon 4 and Seasonal Rain Front (July 5-31, 2007)	The typhoon that made landfall in July was very powerful. Record rainfalls in various regions.	7	79	26	26	420	・Deployment of government survey team ・Invocation of Disaster Relief Act ・Designation as an extremely severe disaster
2007 Niigata Earthquake (July 16, 2007)	Maximum seismic intensity of Upper 6. Many human causalities due to homes collapsing. Damage to homes, lifelines, transportation, and nuclear power plants.	15	2,346	1,331	5,709	—	・Inspection by Prime Minister ・Deployment of government survey team ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
2008 Iwate-Miyagi Inland Earthquake (June 14, 2008)	Maximum seismic intensity of Upper 6. Many human causalities due to landslides and other sediment disasters. Many river channels became blocked (natural dams) in rivers in mountainous areas.	23	426	30	146	—	・Inspection by Prime Minister ・Deployment of government survey team ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Earthquake epicentered on Northern Coast of Iwate Prefecture (July 24, 2008)	Maximum seismic intensity of Lower 6. Earthquake with a deep hypocenter occurring inside a plate. Seismic intensity of Lower 5 and higher recorded in disaster-affected regions of inland Iwate and Miyagi Prefectures.	1	211	1	0	—	・Deployment of government survey team
Heavy Rains from July 28 (July 28-29, 2008)	Localized heavy rains in the Hokuriku and Kinki regions. Human casualties along the Togagawa River in Kobe City.	6	13	6	16	536	・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Torrential Rains at the End of August 2008 (August 26-31, 2008)	Record heavy rains in various regions, especially extensive flood damage in Aichi Prefecture.	2	7	6	7	3,106	・Deployment of government survey team ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims
July 2009 Torrential Rains in Chugoku and Northern Kyushu (July 19-26, 2009)	Record heavy rains in Yamaguchi and Fukuoka Prefectures due to seasonal rain front. Numerous fatalities from sediment disasters in Yamaguchi Prefecture and other prefectures.	35	59	52	99	2,137	・Inspection by Prime Minister ・Deployment of government survey team ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
2009 Typhoon 9 (August 8-11, 2009)	Heavy rains from the Chugoku and Shikoku regions to the Tohoku region due to the effects of the typhoon. Human casualties and homes damaged due to flooding in Hyogo Prefecture.	27	23	183	1,130	973	・Inspection by Prime Minister ・Deployment of government survey team ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Earthquake epicentered in Suruga Bay (August 11, 2009)	Maximum seismic intensity of Lower 6. Tomei Expressway closed due to slope collapse.	1	319	0	6	—	
2009 Typhoon 18 (October 6-8, 2009)	Destructive storm and heavy rains over a wide area from the Okinawa region to Hokkaido Prefecture due to the effects of the typhoon. Winds and rains in Aichi Prefecture caused partial damage and flood damage to many homes.	5	137	9	89	572	・Designation as an extremely severe disaster
Tsunami from Earthquake epicentered in Central Chilean Coast (February 27-28, 2010)	An earthquake struck the central coast of Chile just after noon on Feb. 27. A tsunami was approaching Japan the next day on the 28th, and a major tsunami warning and tsunami warning were issued at 9:33 a.m. on the 28th. Extensive fishery damage to aquaculture facilities.	0	0	0	0	6	・Designation as an extremely severe disaster
2010 Heavy Rains Due to Seasonal Rain Front (June 11 - July 19, 2010)	The seasonal rain front stalled over the region from Kyushu to Honshu from mid-June, with intermittent bursts of activity. Southern Kyushu received more than twice its average annual rainfall. There were large-scale landslides in Kagoshima Prefecture, and fatalities and missing persons mainly in Hiroshima and Gifu Prefectures.	21	21	42	74	1,786	・Inspection by Prime Minister ・Inspection by Minister of State for Disaster Management ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Heavy Rains in Amami Region of Kagoshima Prefecture (October 18-25, 2010)	The rain front stalled over the Amami region, with moist air flowing in from the south toward this rain front, creating unstable atmospheric conditions. The Amami region received intense rainfall of more than 120 mm per hour, with more than 800 mm of rainfall since the rains began.	3	2	10	479	119	・Inspection by Minister of State for Disaster Management ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Heavy Snows from November 2010 (November 1, 2010 – March 2011)	Record snows fell from the end of the year to the beginning of the following year in some areas of the Japan Sea side of Western Japan. Fishing boats overturned and sank along with other damage in Tottori and Shimane Prefectures.	128	1,491	9	12	6	・Cabinet meeting held ・Inspection by Minister of State for Disaster Management ・Invocation of Disaster Relief Act

Name of Disaster	Major Events	Human Casualties (persons)		Houses Damaged (houses)			Remarks
		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
Mt. Kirishima Eruption (Shinmoedake) (January 26, 2011-)	Shinmoedake continued to be highly active from January 26, erupting a total of 13 times until March 4 at 6:00 p.m. Falling ash from the eruptions was recorded over a wide area mainly to the southeast of the mountain, including Kirishima City, Kagoshima Prefecture, and Miyakonojo City, Miyazaki Prefecture.	0	42	0	0	0	・Cabinet meeting held (twice) ・Inspection by Minister of State for Disaster Management ・Designation as an area requiring the emergency development of evacuation facilities and an ash prevention area ・Invocation of Disaster Relief Act
2011 Typhoon 6 (July 12-24, 2011)	The typhoon made landfall in southern Tokushima Prefecture around 12:30 a.m. on July 20. At the time of landfall, maximum peak winds of 40m/s were recorded, and the large typhoon maintained its powerful force. Record heavy rains were recorded in Western Japan, with rainfall of more than 1,000 mm recorded in some pars of the Shikoku region since the rains began.	3	54	0	1	28	・Designation as an extremely severe disaster
July 2011 Niigata and Fukushima Torrential Rains (July 27-30, 2011)	Rain began falling in Niigata Prefecture and Aizu, Fukushima Prefecture, from around noon on the 27th. Intermittent intense rains of more than 80 mm per hour fell starting on the 28th. In Niigata and Fukushima Prefectures, record heavy rains exceeding the July 2004 Niigata and Fukushima Torrential Rains were recorded.	6	13	73	998	1,221	・Deployment of government survey team (twice) ・Local survey by Minister of State for Disaster Management ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
2011 Typhoon 12 (August 30 - September 6, 2011)	Record rains were recorded across a wide area from Western Japan to Northern Japan. Especially on the Kii Peninsula, the highest amount of rainfall since the rains began at 5:00 p.m. on August 30 exceeded 1,800 mm, and many river channels became blocked.	98	112	379	3,159	5,500	・Establishment of Major Disaster Management Headquarters ・Site inspection by Prime Minister Noda ・Deployment of government survey team (twice) ・Local survey by Minister of State for Disaster Management ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster (national)
2011 Typhoon 15 (September 15-22, 2011)	Strong winds and record rains were recorded across a wide area from Western Japan to Northern Japan. Total rainfall from 12:00 a.m., September 15 to 9:00 a.m., September 22 exceeded 1,000 mm in some parts of Kyushu and Shikoku, with many points recording rainfall of more than double the average rainfall for September.	19	337	33	1,577	2,145	・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Heavy Snows from November 2011 (November 2011 - March 2012)	Record snows fell mainly on the Japan Sea side, with cumulative snowfall of more than 28% higher than the average for the past 5 years. In addition, in some regions the depth of the snowfall was more than double the average for the past 30 years.	133	1,990	13	12	3	・Cabinet meeting held (twice) ・Local survey by Minister of State for Disaster Management (twice) ・Invocation of Disaster Relief Act
Wind Gusts in May 2012 (May 6, 2012)	Lightning strikes, wind gusts, and hail were recorded from the Tokai region to the Tohoku region. From Joso City to Tsukuba City, Ibaraki Prefecture, a tornado formed that was estimated to be one of the strongest (F3) recorded in Japan. Multiple tornadoes were recorded in the region from Mooka City, Tochigi Prefecture, to Hitachi-Omiya City, Ibaraki Prefecture, including a destructive tornado of approx. 32 km, the second longest recorded since statistics have been kept.	3	59	89	197	—	・Deployment of government survey team ・Local survey by Minister of State for Disaster Management ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims
2012 Typhoon 4 (June 18-20, 2012)	Heavy rains fell across a wide area from the Okinawa region to the Tohoku region due to the typhoon and seasonal rain front. Following the path of the typhoon, strong winds, high waves, and a storm surge were recorded across a wide area from the Okinawa region to the Tohoku region.	1	79	1	1	54	・Designation as an extremely severe disaster
Heavy Rains from June 21 to July 7, 2012 (June 21 - July 7, 2012)	Due to the effects of the seasonal rain front and a low-pressure system in the Yellow Sea forming above the seasonal rain front, from June 21 to July 7, rains were recorded from Western to Eastern Japan, and Northern Japan, with heavy rains in parts of Kyushu and other locations.	2	7	36 (*2)	180 (*2)	1,131 (*2)	・Deployment of government survey team ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
July 2012 Northern Kyushu Torrential Rains (July 11-14, 2012)	From July 11 to 14, moist air from the south flowed in toward the seasonal rain front that was stalled near Honshu, and heavy rains were recorded across a wide area from Western to Eastern Japan. Extremely heavy rains fell intermittently with thunder especially in the northern region of Kyushu.	32	27	363 (*3)	1,500 (*3)	3,298 (*3)	・Site inspection by Prime Minister Noda ・Deployment of government survey team (twice) ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Heavy Snows from November 2012 (November 2012-)	Due to the cold, there was a long stretch of low-temperature days in Northern Japan, with a large amount of snow falling mainly on the Japan Sea side. This resulted in record snowfall recorded mainly on the Japan Sea side of Northern Japan, including snowfall with a depth of 566 cm recorded at Sukayu, Aomori Prefecture.	103	1,517	5	7	2	・Cabinet meeting held ・Deployment of government survey team ・Invocation of Disaster Relief Act

Name of Disaster	Major Events	Human Casualties (persons)		Houses Damaged (houses)			Remarks
		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
Earthquake epicentered Near Awaji Island (April 13, 2013)	Maximum seismic intensity of Lower 6.	0	34	6	66	—	—
Heavy Rains in 2013 Seasonal Rain Front (Disaster due to torrential rains and destructive storms between June 8 and August 9, 2013)	・From June 8 to August 9, the seasonal rain front stalled from Kyushu to the vicinity of Honshu with intermittent bursts of activity. In addition, warm and very moist air surrounding a highpressure ridge flowed in even after the rainy season ended. During this time, Typhoons 4 and 7 approached Japan, causing heavy rains in various regions.	17	50	73	222	1,845	・Local survey by Prime Minister Abe ・Deployment of government survey team (seven times) ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Heavy Rains from August 23, 2013 (August 23-28, 2013)	Warm, moist air flowed in toward the rain front, creating extremely unstable atmospheric conditions and heavy rains mainly on the Japan Sea side of Eastern Japan, and Western Japan. On August 24, record heavy rains on par with the torrential rains of July 28 were recorded, especially in Shimane Prefecture. Some areas of Hokkaido Prefecture also received heavy rains.	2	4	8	14	288	・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Tornadoes on September 2 and 4, 2013 (September 2, 4, & 7, 2013)	・On September 2, F2 tornadoes were recorded in Saitama City, Koshigaya City, and Matsubushi Town, Saitama Prefecture, Noda City, Chiba Prefecture, and Bando City, Ibaraki Prefecture. ・On September 4, an F0 tornado was recorded in Sukumo City, Kochi Prefecture, an F0 tornado in Aki City, Kochi Prefecture, F1 tornadoes respectively from Kanuma City to Utsunomiya City, Tochigi Prefecture, and from Shioya Town, Shioya District to Yaita City, and F0 tornadoes from Ise City to Obata Town, Mie Prefecture. ・On September 7, F0 wind gusts were recorded in Komaki City, Hokkaido Prefecture.	0	67	13	38	0	・Deployment of government survey team (twice) ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims
Heavy Rains from 2013 Typhoon 18 (September 15-16, 2013)	On September 15, localized intense rains fell in Eastern Japan and Northern Japan. On the 16th, heavy rains fell across a wide area from Shikoku to Hokkaido. Record heavy rains fell especially in Fukui, Shiga, and Kyoto Prefectures. A total of ten F0–F1 tornadoes also occurred.	7	143	48	208	3,011	・Deployment of government survey team (five times) ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
2013 Typhoon 26 & 27 (October 14-16, 2013) (October 24-26, 2013)	Heavy rains fell mainly on the Pacific Ocean side of Eastern Japan and Northern Japan. Driving rains of more than 100 mm per hour fell especially in Oshima-machi, Tokyo Prefecture, with record rainfall of 824 mm recorded in 24 hours.	43	107	86	65	1,524	・Local survey by Prime Minister Abe ・Deployment of government survey team (once) ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Heavy Snows from November 2013 (November 2013 - March 26, 2014)	・Record heavy snowfall was recorded across a wide area from Northern Japan to Kanto-Koshinetsu. ・Especially from February 14 to 16, record heavy snows fell, substantially surpassing past snowfall depths mainly in the Kanto-Koshinetsu region, including Kofu (Yamanashi Prefecture) with 114 cm, Chichibu (Saitama Prefecture) with 98 cm, and Maebashi (Gunma Prefecture) with 73 cm of snowfall.	95	1,770	28	40	3	・Establishment of Major Disaster Management Headquarters ・Establishment of On-site Major Disaster Management Headquarters ・Site inspection by Prime Minister Abe ・Deployment of government survey team (five times) ・Invocation of Disaster Relief Act
2014 Typhoon 8 (July 6-11, 2014)	・Record heavy rains were recorded on Okinawa Island. ・Due to the effects of the moist southerly wind surrounding the typhoon and the seasonal rain front, some regions even far from the typhoon received localized driving rains.	3	67	14	3	331	・Deployment of government survey team (three times) ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims
Torrential Rains of August 2014							
2014 Typhoon 12 & 11 (July 30 - August 11, 2014)	<Typhoon 12> ・From the night of the 5th, heavy rains were recorded in the Chugoku and Tohoku regions. Especially in Yamaguchi Prefecture, localized driving rains of more than 100 mm per hour were recorded in some places. <Typhoon 11> Heavy rains fell across a wide area from Western Japan to Northern Japan. Especially in Kochi Prefecture, total rainfall from the 7th to the 11th, when the heaviest rains fell, was more than 1,000 mm. Total rainfall from the Shikoku region to the Tokai region was more than 600 mm. Atmospheric conditions were extremely unstable, with extremely strong winds including tornadoes in Tochigi Prefecture and other areas.	6	80	7	7	929	・Deployment of government survey team (twice) ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster

Name of Disaster	Major Events	Human Casualties (persons)		Houses Damaged (houses)			Remarks
		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
Heavy Rains from August 15, 2014 (August 15-26, 2014) *Excludes Hiroshima Sediment Disaster on August 20	・Extremely intense localized rains with thunder. The amount of rainfall that fell during the 2 days of the 16th and 17th set new records in places such as Fukuchiyama City, Kyoto Prefecture, and Takayama City, Gifu Prefecture, with heavy rains mainly in the Kinki, Hokuriku, and Tokai regions.	8	7	35	129	2,117	・Deployment of government survey team (twice) ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Hiroshima Sediment Disaster on August 20, 2014 (Disaster in Hiroshima Prefecture due to heavy rains from August 19, 2014)	・Warm, moist air flowed in toward the rain front, and extremely unstable atmospheric conditions were recorded mainly in the Chugoku region and northern Kyushu region. ・At 3:30 a.m. on the 20th, driving rains of approx. 120 mm per hour were recorded in Hiroshima Prefecture, and heavy rains, including a new record set for the highest recorded rainfall in a 24-hour period, were recorded.	76	68	179	217	1,086	・Establishment of Major Disaster Management Headquarters ・Establishment of On-site Major Disaster Management Headquarters ・Site inspection by Prime Minister Abe ・Deployment of government survey team (three times) ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
2014 Eruption of Mt. Ontake (September 27, 2014)	・Volcanic tremors started at 11:41 a.m. on September 27, with an eruption on the same day around 11:52 a.m. ・Volcanic smoke descended the southern slope and was recorded for more than 3 km. Therefore, a level 3 volcano warning (mountain access restricted) was issued, with entry within 4 km of the crater restricted. ・Many mountain climbers suffered casualties due to this eruption.	63	69	0	0	0	・Establishment of Major Disaster Management Headquarters ・Establishment of On-site Major Disaster Management Headquarters ・Deployment of government survey team (twice) ・Invocation of Disaster Relief Act
Earthquake with a Seismic Source in Northern Nagano Prefecture (November 22, 2014)	Maximum seismic intensity of Lower 6.	0	46	50	92	0	・Site inspection by Prime Minister Abe ・Deployment of government survey team (twice) ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
Heavy Snows from December 2014 (December 2014 - March 2015)	Due to the effects of a strong winter air-pressure pattern as well as a low-pressure system and cold air, heavy snows fell on the mountainous areas of the Japan Sea side from Northern Japan to Eastern Japan.	83	1,029	9	12	5	・Deployment of government survey team (once) ・Invocation of Disaster Relief Act
Kuchinoerabu-jima Eruption [Volcanic Alert Level 5] (May 29, 2015)	・An explosive eruption occurred at Shindake at 9:59 am on May 29. This eruption triggered a volcanic cloud of black-gray smoke that rose 9,000m above the crater rim and a pyroclastic flow that reached the northwestern coast (Mukaehama district). ・At 10:07 am, the JMA raised the Volcanic Alert Level from 3 to 5 (evacuate). ・The municipal ferry, Ferry-Taiyo, and other vessels were used to evacuate all those on the island at the time of the eruption to Yakushima (all individuals were confirmed to be safe)	0	1	To be confirmed			・Emergency Response Team convened ・Installation of government on-site communications office (Yakushima Town, Kagoshima) ・Inter-Agency Disaster Management Meeting held (six times) ・Site inspection by Prime Minister Abe (once) ・Deployment of government survey team (once) ・Invocation of Disaster Relief Act
Eruption of Mt. Hakone [Volcanic Alert Level 3] (June 30, 2015)	・A very small amount of volcanic ash was observed inside the crater, which was thought to have been the result of a very small eruption, so the JMA raised the volcanic alert level from 2 to 3 (Do not approach the volcano) at 12:30 on June 30 ・At the same time, Hakone-machi imposed a ban on entering the area within around 1km of the crater and issued an evacuation order for parts of the Ubako, Kamiyuba, Shimoyuba, and Hakone Sounkyo Bessochi areas, as well as evacuating residents, etc. from those areas	0	0	0	0	0	・Inter-Agency Disaster Alert Meeting held (twice) ・Deployment of a Cabinet Office advance information-gathering team
2015 Typhoon 11 (July 16-18, 2015)	・The typhoon and warm, moist air heading toward the typhoon caused increased rainfall, primarily over West and East Japan. The Kinki region in particular saw the highest rainfall in 24 hours since records began, with heavy rain in excess of the usual rainfall for the entire month of July in an ordinary year. ・This caused river flooding, damage to public civil engineering works, and suspension of transport services, mainly in West Japan.	2	59	2	5	79	・Appeal to the public by the Minister of State for Disaster Management (once) ・Inter-Agency Disaster Alert Meeting held (twice)

Name of Disaster	Major Events	Human Casualties (persons)		Houses Damaged (houses)			Remarks
		Fatalities/ Missing Persons	Injured	Completely Destroyed	Half Destroyed	Above-floor Flooding	
Volcanic activity at Sakurajima [Volcanic Alert Level 4] (August 15, 2015)	・At around 07:00 on August 15, a series of volcanic earthquakes centered on the island occurred. Rapid crustal movement indicative of inflation of the volcanic edifice was also observed. ・At 10:15 that day, the JMA raised the volcanic alert level from 3 to 4 (Prepare to evacuate) (caution required in Arimura-cho and Furusato-cho, within 3km of the Showa crater and the Minamidake summit crater). ・At 16:50 that day, Kagoshima City issued evacuation advisories to the residents of the Arimura district of Arimura-cho, the Furusato district of Furusato-cho (areas within 3km of the crater), and the Shioyagamoto district of Kurokami-cho. ・At 18:10 that day, evacuation of all residents (77 people from 51 households) in the areas subject to evacuation was completed.	0	0	0	0	0	・Inter-Agency Disaster Alert Meeting held (twice) ・Field survey by Parliamentary Vice Minister Matsumoto ・Deployment of a Cabinet Office liaison team (3 people of director level or below) to Kagoshima City Office (August 17-21)
2015 Typhoon 15 (August 22-26, 2015)	・The typhoon that made landfall near Arao City in Kumamoto Prefecture just after 06:00 on the 25th retained its powerful momentum as it moved northward to northern Kyushu, reaching the Sea of Japan during the daylight hours of the 25th. ・A maximum instantaneous wind speed of 71.0m was observed at 21:16 on the 23rd on Ishigaki Island, Okinawa Prefecture. In addition, the typhoon and warm, moist air flowing in from the south resulted in heavy rain over the Ryukyu Islands, West Japan, and the Tokai region, with more than 500mm of rain falling on Mie Prefecture in a single day on the 25th.	1	134	10	90	28	・Inter-Agency Disaster Alert Meeting held (once) ・Designation as an extremely severe disaster
Torrential Rain of September 2015 in the Kanto and Tohoku Regions [Including 2015 Typhoon 18] (September 7-11, 2015)	・After making landfall near Nishio City, Aichi Prefecture at around 09:30 on September 9, 2015 Typhoon 18 moved on to the Sea of Japan and turned into an extratropical cyclone at 15:00 that day. ・As a result of 2015 Typhoon 18 and weather fronts, heavy rain fell over a wide area from western to northern Japan. In particular, between the 9th and the 11th, a southerly wind flowing into the low-pressure system into which 2015 Typhoon 18 developed and, subsequently, a southeasterly wind from the vicinity of 2005 Typhoon 17 supplied flows of moist air that triggered a succession of line-shaped rainbands, causing record-breaking rainfall in the Kanto and Tohoku regions and prompting the issue of emergency heavy rain warnings for Tochigi, Ibaraki, and Miyagi prefectures.	8	80	80	7,022	1,925	・Emergency Response Team convened ・Minister of State for Disaster Management issues a list of requests to relevant ministries and agencies ・Deployment of a Cabinet Office advance information-gathering team [Tochigi, Ibaraki] ・Deployment of government survey team [Tochigi, Ibaraki] (once) ・Inter-Agency Disaster Alert Meeting held (once) ・Inter-Agency Disaster Management Meeting held (five times) ・Cabinet meeting held (twice) ・Site inspection by Prime Minister Abe [Tochigi, Ibaraki] ・Local survey by Minister of State for Disaster Management Yamatani [Ibaraki] ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Designation as an extremely severe disaster
2015 Typhoon 21 (September 27-28, 2015)	・2015 Typhoon 21 approached the Ishigaki and Yonaguni island areas with ferocious intensity during the day on the 28th. ・On Yonaguni Island, a maximum instantaneous wind speed of 81.1m was observed at 15:41 on the 28th, the highest figure since statistics began to be compiled. A severe gale buffeted Yaeyama and the surrounding area, while the Sakishima Islands saw stormy seas with high swells and the Okinawa Island area was also battered by rough seas.	0	0	10	27	285	・Inter-Agency Disaster Management Meeting held (once) ・Deployment of government survey team [Okinawa] (once) ・Invocation of Disaster Relief Act
2016 Earthquake Centered in the Kumamoto Region of Kumamoto Prefecture	・Around 09:26 p.m. on April 14, 2016 Maximum seismic intensity of 7 ・Around 01:25 a.m. on April 16, 2016 Maximum seismic intensity of 7	49	1,673	2,876	5,617	—	・Establishment of Major Disaster Management Headquarters ・Establishment of On-site Major Disaster Management Headquarters ・Deployment of government survey team ・Invocation of Disaster Relief Act ・Invocation of Act Concerning Support for the Reconstruction of Livelihoods of Disaster Victims ・Invocation of Special Measures Act for Specified Disaster ・Partial invocation of the Act on Reconstruction from Large-Scale Disasters ・Designation as an extremely severe disaster

*1 Established by a Cabinet meeting decision, and therefore not based on the Disaster Countermeasures Basic Act.

*2 The number of damaged houses in the July 2012 Northern Kyushu Torrential Rains contains some duplications.

*3 The number of damaged houses due to heavy rains from June 21 to July 7, 2012 contains some duplications.

*4 Fatalities from the Great Hanshin-Awaji Earthquake, the Great East Japan Earthquake and the Hiroshima Sediment Disaster on August 20, 2014 include disaster-related fatalities.

*5 The details given for the 2016 Earthquake Centered in the Kumamoto Region of Kumamoto Prefecture show the toll as of May 18, 2016.

Source: Cabinet Office, Major Disaster Management Headquarters materials

Fig. A-11 Establishment of Extreme Disaster Management Headquarters and Major Disaster Management Headquarters

As of April 21, 2016

	Name of Headquarters	Period of Establishment	Manager of Headquarters
1	Heavy Snowfall Major Disaster Management Headquarters	Jan. 29 - May 31, 1963	Minister of State
2	Niigata Earthquake Major Disaster Management Headquarters	Jun. 16 - Oct. 31, 1964	Minister of State
3	1965 Typhoon 23, 24, and 25 Major Disaster Management Headquarters	Sep. 17 - Dec. 17, 1965	Minister of State
4	1966 Typhoon 24 and 26 Major Disaster Management Headquarters	Sep. 26 - Dec. 27, 1966	Minister of State
5	1967 July and August Torrential Rains Major Disaster Management Headquarters	Jul. 9 - Dec. 26, 1967	Minister of State
6	1968 Tokachi-oki Earthquake Major Disaster Management Headquarters	May 16, 1968 - May 2, 1969	Minister of State
7	July 1972 Torrential Rains Major Disaster Management Headquarters	Jul. 8 - Dec. 19, 1972	Minister of State
8	1976 Typhoon 17 Major Disaster Management Headquarters	Sep. 13 - Dec. 10, 1976	Director General of National Land Agency (NLA)
9	1977 Mt. Usu Eruption Major Disaster Management Headquarters	Aug. 11, 1977 - Dec. 4, 1979	Director General of NLA
10	1978 Izu-Oshima-kinkai Earthquake Major Disaster Management Headquarters	Jan. 15 - Aug. 4, 1978	Director General of NLA
11	1978 Miyagi-ken-oki Earthquake Major Disaster Management Headquarters	Jun. 13 - Nov. 28, 1978	Director General of NLA
12	1979 Typhoon 20 Major Disaster Management Headquarters	Oct. 20 - Dec. 4, 1979	Director General of NLA
13	July and August 1982 Torrential Rains Major Disaster Management Headquarters	Jul. 24 - Dec. 24, 1982	Director General of NLA
14	1983 Nihon-kai-chubu Earthquake Major Disaster Management Headquarters	May 26 - Dec. 23, 1983	Director General of NLA
15	July 1983 Torrential Rains Major Disaster Management Headquarters	Jul. 23 - Dec. 23, 1983	Director General of NLA
16	1983 Miyake Island Eruption Major Disaster Management Headquarters	Oct. 4, 1983 - Jun. 5, 1984	Director General of NLA
17	1984 Nagano-ken-seibu Earthquake Major Disaster Management Headquarters	Sep. 16, 1984 - Feb. 19, 1985	Director General of NLA
18	1991 Mt. Unzen Eruption Major Disaster Management Headquarters	Jun. 4, 1991 - Jun. 4, 1996	Director General of NLA
19	1993 Hokkaido-nansei-oki Earthquake Major Disaster Management Headquarters	Jul. 13, 1993 - Mar. 31, 1996	Director General of NLA
20	August 1993 Torrential Rains Major Disaster Management Headquarters	Aug. 9, 1993 - Mar. 15, 1994	Director General of NLA
21	1995 Great Hanshin-Awaji Earthquake Major Disaster Management Headquarters	Jan. 17, 1995 - Apr. 21, 2002	Director General of NLA ↓ Minister of Great Hanshin-Awaji Earthquake Measures ↓ Director General of NLA ↓ Minister of State for Disaster Management
	Great Hanshin-Awaji Earthquake Extreme Disaster Management Headquarters[*1]	Jan. 17 - Apr. 28, 1995	Prime Minister
22	1997 Diamond Grace Oil Spill Major Disaster Management Headquarters	Jul. 2-11, 1997	Minister of Transport
23	2000 Mt. Usu Eruption Major Disaster Management Headquarters	Mar. 31, 2000 - Jun. 28, 2001[*2]	Director General of NLA ↓ Minister of State for Disaster Management
24	2000 Miyake Island Eruption and Niijima and Kozushima Island Earthquake Emergency Management Headquarters	Aug. 29, 2000 - May 15, 2002	Director General of NLA ↓ Minister of State for Disaster Management
	2000 Miyake Island Eruption Major Disaster Management Headquarters[*3]	May 16, 2002 - Mar. 31, 2005	
25	2004 Typhoon 23 Major Disaster Management Headquarters	Oct. 21, 2004 - Mar. 31, 2007	Minister of State for Disaster Management
26	2004 Mid Niigata Prefecture Earthquake Major Disaster Management Headquarters	Oct. 24, 2004 - Mar. 31, 2008	Minister of State for Disaster Management
27	2011 Great East Japan Earthquake Extreme Disaster Management Headquarters	Mar. 11, 2011 -	Prime Minister
28	2011 Typhoon 12 Major Disaster Management Headquarters	Sep. 4, 2011 - Dec. 26, 2014	Minister of State for Disaster Management
29	2014 Torrential Rains Major Disaster Management Headquarters	Feb. 18 - May 30, 2014	Minister of State for Disaster Management
30	August 2014 Torrential Rains Major Disaster Management Headquarters	Aug. 22, 2014 - Jan. 9, 2015	Minister of State for Disaster Management
31	2014 Mt. Ontake Eruption Major Disaster Management Headquarters	Sep. 28, 2014 – Nov. 9, 2015	Minister of State for Disaster Management
32	2016 Emergency Response Headquarters for the Earthquake Centered in the Kumamoto Region of Kumamoto Prefecture 2016	April 14, 2016 -	Minister of State for Disaster Management

Notes: The above are Extreme Disaster Management Headquarters and Major Disaster Management Headquarters based on the Disaster Countermeasures Basic Act (Act No. 223 of 1961).

*1 Established within the Cabinet Office based on a Cabinet meeting resolution, not based on the Disaster Countermeasures Basic Act.

*2 Based on reports that the eruption had subsided. Upon dissolution of the Headquarters, the Mt. Usu Eruption Disaster Restoration and Recovery Measures Council was established.

*3 The names of Niijima Island and Kozushima Island were changed with the conclusion of response measures.

Source: Cabinet Office

Fig. A-12 Deployment of Government Survey Teams (Since the Great Hanshin-Awaji Earthquake)

As of April 21, 2016

Year	Name of Disaster	Deployment Dates	Prefecture Surveyed	Team Leader
1995	1995 Hyogo-ken-Nanbu Earthquake (Great Hanshin-Awaji Earthquake)	Jan. 17-18	Hyogo	Director General of National Land Agency (NLA)
1997	July 1997 Torrential Rains from Seasonal Rain Front	Jul. 11-12	Kagoshima, Kumamoto	Director General of NLA
1998	End of August 1998 Torrential Rains	Aug. 28	Tochigi, Fukushima	Parliamentary Vice-Minister of National Land
1999	Heavy Rains Starting June 23, 1999	Jun. 30 - Jul. 1	Hiroshima	Director General of NLA
	Heavy Rains from 1999 Typhoon 18 and Rain Front	Sep. 25	Kumamoto	Director General of NLA
2000	2000 Eruption of Mt. Usu	Mar. 31 - Apr. 1	Hokkaido	Director General of NLA
	2000 Tottori-seibu Earthquake	Oct. 7	Tottori	Director General of NLA
2001	2001 Geiyo Earthquake	Mar. 29	Hiroshima, Ehime	Parliamentary Vice-Minister of Cabinet Office
2003	July Seasonal Rain Front Torrential Rains	Jul. 22	Kumamoto, Kagoshima	Minister of State for Disaster Management
	Northern Miyagi Earthquake	Jul. 27	Miyagi	Minister of State for Disaster Management
	2003Tokachi-oki Earthquake	Sep. 26-27	Hokkaido	State-Minister of the Cabinet Office
2004	July 2004 Niigata and Fukushima Torrential Rains	Jul. 14	Niigata	Minister of State for Disaster Management
		Jul. 15	Fukushima	State-Minister of the Cabinet Office
	July 2004 Fukui Torrential Rains	Jul. 20	Fukui	State-Minister of the Cabinet Office
	2004 Typhoon 21	Oct. 1	Mie	Minister of State for Disaster Management
	2004 Typhoon 22	Oct. 14	Shizuoka	State Minister of the Cabinet Office
	2004 Typhoon 23	Oct. 22	Hyogo, Kyoto	Minister of State for Disaster Management
		Oct. 22	Kagawa, Okayama	State-Minister of the Cabinet Office
	2004 Mid Niigata Prefecture Earthquake	Oct. 24	Niigata	Minister of State for Disaster Management
2005	Fukuoka-ken-Seihou-oki Earthquake	Mar. 20-21	Fukuoka	State-Minister of the Cabinet Office
	Miyagi-ken-oki Earthquake	Aug. 16-17	Miyagi	Parliamentary Vice-Minister of Cabinet Office
	2005 Typhoon 14	Sep. 9	Miyazaki	Minister of State for Disaster Management
2006	Heavy Rains from Seasonal Rain Front Starting July 4	Jul. 21	Nagano	Minister of State for Disaster Management
		Jul. 25	Kagoshima	State-Minister of the Cabinet Office
	2006 Typhoon 13	Sep. 19	Miyazaki	Minister of State for Disaster Management
	Tornado in Saroma, Hokkaido	Nov. 7-8	Hokkaido	Minister of State for Disaster Management
2007	2007 Noto-hanto Earthquake	Mar. 25-26	Ishikawa	Minister of State for Disaster Management
	Heavy Rains from Typhoon 4 and Seasonal Rain Front	Jul. 13	Kumamoto	State-Minister of the Cabinet Office
	2007 Niigata Earthquake	Jul. 16	Niigata	Minister of State for Disaster Management
2008	2008 Iwate-Miyagi Inland Earthquake	Jun. 14-15	Iwate, Miyagi	Minister of State for Disaster Management
	Earthquake Epicentered Along Northern Coast of Iwate Prefecture	Jul. 24	Iwate, Aomori	Minister of State for Disaster Management
	End of August 2008 Torrential Rains	Aug. 29	Aichi	Minister of State for Disaster Management
2009	July 2009 Torrential Rains in Chubu and Northern Kyushu	Jul. 22	Yamaguchi	Minister of State for Disaster Management
		Jul. 27	Fukuoka	Minister of State for Disaster Management
	2009 Typhoon 9	Aug. 11	Hyogo, Okayama	Minister of State for Disaster Management
2011	2011 Tohoku Earthquake and Tsunami (Great East Japan Earthquake)	Mar. 11	Miyagi	State-Minister of the Cabinet Office
		Mar. 12	Iwate	State-Minister of the Cabinet Office
		Mar. 12	Fukushima	Parliamentary Vice-Minister of Finance
	July 2011 Niigata and Fukushima Torrential Rains	Jul. 31	Niigata, Fukushima	Minister of State for Disaster Management
		Aug. 2	Fukushima	State-Minister of the Cabinet Office
	2011 Typhoon 12	Sep. 4-7	Wakayama, Nara, Mie	Parliamentary Vice-Minister of Cabinet Office
		Sep. 6	Nara	Minister of Land, Infrastructure, Transport and Tourism
2012	May 2012 Gust	May 7	Ibaraki, Tochigi	State-Minister of the Cabinet Office
	July 2012 Torrential Rains in Northern Kyushu	Jul. 13-14	Kumamoto, Oita	Minister of State for Disaster Management
		Jul. 21-22	Fukuoka, Oita, Kagoshima	Minister of State for Disaster Management

Year	Name of Disaster	Deployment Dates	Prefecture Surveyed	Team Leader
2013	Heavy Snowfall Starting End of November 2013	Mar. 4-5	Hokkaido	Parliamentary Vice-Minister of Cabinet Office, Special Advisor to the Prime Minister
	Heavy Rains with Seasonal Rain Front	Jul. 29-30	Shimane, Yamaguchi	State-Minister of the Cabinet Office
		Aug. 3	Yamagata, Fukushima	Parliamentary Vice-Minister of Cabinet Office
		Aug. 3	Niigata	Parliamentary Vice-Minister of Agriculture, Forestry and Fisheries
		Aug. 3	Iwate, Miyagi	Parliamentary Vice-Minister of Land, Infrastructure, Transport and Tourism
		Aug. 9	Shimane, Yamaguchi	Minister of State for Disaster Management
		Aug. 13	Akita	State-Minister of the Cabinet Office
		Aug. 13	Iwate, Akita	Parliamentary Vice-Minister of Cabinet Office
	Tornadoes on September 2 and 4	Sep. 3	Saitama	Parliamentary Vice-Minister of Cabinet Office
		Sep. 4	Chiba	Parliamentary Vice-Minister of Cabinet Office
	Heavy Rains from Typhoon 18	Sep. 17	Saitama	Parliamentary Vice-Minister of Cabinet Office
		Sep. 18	Kyoto	Acting Minister of State for Disaster Management
		Sep. 18	Shiga, Fukui	State-Minister of the Cabinet Office
		Sep. 19	Mie	Parliamentary Vice-Minister of Cabinet Office
		Sep. 19-20	Aomori, Iwate, Akita	Special Advisor to the Prime Minister
	Typhoon 26	Oct. 19	Oshimacho (Tokyo)	Minister of State for Disaster Management
2014	Heavy Winter Snowfall	Feb. 6	Akita	State-Minister of the Cabinet Office
		Feb. 17	Yamanashi	Parliamentary Vice-Minister of Cabinet Office
		Mar. 7	Tokyo, Yamanashi	State-Minister of the Cabinet Office, State-Minister of the Environment
		Mar. 10	Saitama	State-Minister of the Cabinet Office
		Mar. 15	Nagano, Gunma	State-Minister of the Cabinet Office
	Typhoon 8 and Seasonal Rain Front	Jul. 11	Nagano	Parliamentary Vice-Minister of Cabinet Office
		Jul. 12	Yamagata	Parliamentary Vice-Minister of Cabinet Office
		Jul. 14-15	Okinawa	Parliamentary Vice-Minister of Cabinet Office
	Typhoon 12 & 11	Aug. 11-13	Tokushima, Kochi	State-Minister of the Cabinet Office
		Aug. 11	Tochigi	Parliamentary Vice-Minister of Cabinet Office
	Heavy Rains Starting August 15	Aug. 18-19	Hyogo, Kyoto	State-Minister of the Cabinet Office
		Aug. 19	Gifu	Parliamentary Vice-Minister of Cabinet Office
	Heavy Rains in Hiroshima Prefecture Starting August 19	Aug. 20-21	Hiroshima	Minister of State for Disaster Management
		Sep. 6	Hiroshima	Minister of State for Disaster Management
		Sep. 17	Hiroshima	Parliamentary Vice-Minister of Cabinet Office
	Mt. Ontake Eruption	Sep. 28	Nagano	State-Minister of the Cabinet Office
		Oct. 11	Nagano	Minister of State for Disaster Management
		Nov. 23	Nagano	Parliamentary Vice-Minister of Cabinet Office
	Earthquake Epicentered in Northern Nagano Prefecture	Dec. 2	Nagano	Minister of State for Disaster Management
	December 2014 Heavy Winter Snowfall	Dec. 9	Tokushima	Minister of State for Disaster Management
2015	Eruption of Kuchinoerabu-jima	May 29-30	Kagoshima	State-Minister of the Cabinet Office
	Torrential Rain of September 2015 in the Kanto and Tohoku Regions	Sep. 11	Ibaraki, Tochigi	State-Minister of the Cabinet Office
	Typhoon 21	Sep. 30-Oct. 1	Okinawa	Parliamentary Vice-Minister of Cabinet Office
2016	2016 Earthquake Centered in the Kumamoto Region of Kumamoto Prefecture	Apr. 15	Kumamoto	State-Minister of the Cabinet Office

Source: Cabinet Office

Fig. A-13 Invocation History of the Disaster Relief Act (Since the Great Hanshin-Awaji Earthqauke)

As of April 21, 2016

Year	Name of Disaster	Date of Invocation	Prefecture	No. of Municipalities Invoking the Act
1995	1995 Hyogo-ken-Nanbu Earthquake (Great Hanshin-Awaji Earthquake)	Jan. 17	Hyogo	20
			Osaka	5
	Niigata-ken-Hokubu Earthquake	Apr. 1	Niigata	1
	July 1995 Seasonal Rain Front Torrential Rains	Jul. 11	Niigata	2
		Jul. 11, Jul. 12	Nagano	2
1997	July 1997 Seasonal Rain Front Torrential Rains	Jul. 1	Kagoshima	1
	1997 Typhoon 19	Sep. 16	Oita	1
			Miyazaki	4
			Kagoshima	1
1998	Early August 1998 Torrential Rains	Aug. 4	Niigata	3
	End of August 1998 Torrential Rains	Aug. 27	Fukushima	3
		Aug. 28	Ibaraki	1
		Aug. 27, Aug. 30	Tochigi	4
		Aug. 28	Saitama	1
		Aug. 3	Shizuoka	1
	1998 Typhoon 5	Sep. 16	Saitama	1
	1998 Typhoon 7	Sep. 22	Fukui	1
			Hyogo	1
			Nara	1
	Heavy Rains of September 23–25, 1998	Sep. 25	Kochi	6
	1998 Typhoon 10	Oct. 17	Okayama	4
1999	Heavy Rains Starting June 23, 1999	Jun. 29	Hiroshima	2
			Fukuoka	1
	Torrential Rains in Tsushima Region on August 27–28, 1999	Aug. 27	Nagasaki	1
	Heavy Rains from 1999 Typhoon 18 and Rain Front	Sep. 24	Yamaguchi	9
			Fukuoka	1
			Kumamoto	9
	Tokaimura Criticality Accident	Sep. 3	Ibaraki	2
	Heavy Rains Starting October 27, 1999	Oct. 28	Aomori	1
			Iwate	1
2000	2000 Eruption of Mt. Usu	Mar. 29	Hokkaido	3
	2000 Miyake Is. Eruption and Niijima and Kozushima Is. Earthquake	Jun. 26	Tokyo	1
	2000 Niijima and Kozushima Is. Earthquake	Jul. 1, Jul. 15	Tokyo	2
	2000 Typhoon 3	Jul. 8	Saitama	1
	Heavy Rains from 2000 Autumn Rain Front and Typhoon 14	Sep. 11	Aichi	21
			Gifu	1
	2000 Tottori-ken-Seibu Earthquake	Oct. 6	Tottori	6
			Shimane	2
2001	2001 Geiyo Earthquake	Mar. 24	Hiroshima	13
			Ehime	1
	Heavy Rains of September 6, 2001	Sep. 6	Kochi	2
	2001 Typhoon 16	Sep. 8, Sep. 11	Okinawa	2
2002	2002 Typhoon 6	Jul. 10	Iwate	1
		Jul. 11	Gifu	1
2003	July Seasonal Rain Front Torrential Rains	Jul. 19	Fukuoka	5
		Jul. 20	Kumamoto	1
	Northern Miyagi Earthquake	Jul. 26	Miyagi	5
	2003 Typhoon 10	Aug. 9	Hokkaido	3
2004	July 2004 Niigata and Fukushima Torrential Rains	Jul. 13	Niigata	7
	July 2004 Fukui Torrential Rains	Jul. 18	Fukui	5
	2004 Typhoon 10, Typhoon 11, and Related Heavy Rains	Jul. 31	Tokushima	2
	2004 Typhoon 15 and Heavy Rains from Rain Front	Aug. 17	Ehime	1
			Kochi	1

Year	Name of Disaster	Date of Invocation	Prefecture	No. of Municipalities Invoking the Act
2004	2004 Typhoon 16	Aug. 30	Okayama	9
			Kagawa	13
			Ehime	1
			Miyazaki	2
	2004 Typhoon 18	Sep. 7	Hiroshima	2
	2004 Typhoon 21	Sep. 29	Mie	5
			Ehime	4
			Hyogo	2
	2004 Typhoon 22	Oct. 9	Shizuoka	1
	2004 Typhoon 23	Oct. 2	Miyazaki	1
			Tokushima	4
			Kagawa	9
			Hyogo	18
			Gifu	1
			Kyoto	7
	2004 Mid Niigata Prefecture Earthquake	Oct. 23	Niigata	54
	2005 Fukuoka-ken-Seihou-oki Earthquake	Mar. 20	Fukuoka	1
	2005 Typhoon 14	Sep. 4	Tokyo	2
		Sep. 6	Yamaguchi	2
			Kochi	1
			Miyazaki	13
		Sep. 4	Kagoshima	1
	2006 Heavy Rains	Jan. 6, Jan. 8, Jan. 11, Jan. 13	Niigata	11
		Jan. 7, Jan. 12	Nagano	8
2006	June 2006 Extended Rain Landslide Disaster	Jun. 15	Okinawa	2
	Heavy Rains from Seasonal Rain Front Starting July 4	Jul. 19	Nagano	3
		Jul. 22	Kagoshima	6
			Miyazaki	1
	2006 Typhoon 13	Sep. 17	Miyazaki	1
	Tornado in Saroma, Hokkaido	Nov. 7	Hokkaido	1
2007	2007 Noto-hanto Earthquake	Mar. 25	Ishikawa	7
	Heavy Rains from Typhoon 4 and Seasonal Rain Front	Jul. 6	Kumamoto	1
	2007 Niigata Earthquake	Jul. 16	Niigata	10
	2007 Typhoon 5	Aug. 2	Miyazaki	1
	2007 Heavy Rains from Typhoon 11 and Rain Front	Sep. 17	Akita	2
2008	Low-Pressure System from February 23 to 24	Feb. 24	Toyama	1
	2008 Iwate-Miyagi Inland Earthquake	Jun. 14	Iwate	5
			Miyagi	2
	Heavy Rains Starting July 28	Jul. 28	Toyama	1
			Ishikawa	1
	End of August 2008 Torrential Rains	Aug. 28	Aichi	2
2009	July 2009 Torrential Rains in Chubu and Northern Kyushu	Jul. 21	Yamaguchi	2
		Jul. 24	Fukuoka	1
	2009 Typhoon 9	Aug. 9	Hyogo	3
			Okayama	1
2010	2010 Heavy Rains from Seasonal Rain Front	Jul. 14	Hiroshima	2
		Jul. 15	Yamaguchi	1
		Jul. 16	Hiroshima	1
	Heavy Rains in Amami Region, Kagoshima Prefecture	Oct. 20	Kagoshima	3
2011	Heavy Snowfall Starting November 2010	Jan. 27	Niigata	4
		Jan. 30	Niigata	2
		Jan. 31	Niigata	3
	Mt. Kirishima (Shinmoedake) Eruption	Jan. 30	Miyazaki	1
		Feb. 10	Miyazaki	1

Year	Name of Disaster	Date of Invocation	Prefecture	No. of Municipalities Invoking the Act
2011	2011 Tohoku Earthquake and Tsunami (Great East Japan Earthquake)	Mar. 11	Aomori	2
			Iwate	34
			Miyagi	35
			Fukushima	59
			Ibaraki	37
			Tochigi	15
			Chiba	8
			Tokyo	47
	July 2011 Niigata and Fukushima Torrential Rains	Jul. 29	Niigata	15
			Fukushima	9
	2011 Typhoon 12	Sep. 2	Mie	3
			Nara	10
			Wakayama	5
			Okayama	1
		Sep. 3	Tottori	2
	2011 Typhoon 15	Sep. 21	Aomori	1
			Fukushima	1
2012	Heavy Winter Snowfall	Jan. 14	Niigata	2
		Jan. 28	Niigata	4
		Jan.31	Niigata	1
		Feb. 1	Aomori	2
			Nagano	5
		Feb. 3	Niigata	4
		Feb. 4	Niigata	1
	May 2012 Gust	May 6	Ibaraki	4
			Tochigi	3
	Heavy Rains Starting July 3	Jul. 3	Fukuoka	1
			Oita	2
	Heavy Rains from Seasonal Rain Front Starting July 11	Jul. 12	Kumamoto	5
			Oita	1
		Jul. 13	Fukuoka	7
	Heavy Rains Starting August 13	Aug. 14	Kyoto	1
	2012 Typhoon 16	Sep. 15	Kagoshima	1
	November 27 Destructive Snow Storm	Nov. 27	Hokkaido	7
2013	Heavy Winter Snowfall	Feb. 22	Niigata	8
		Feb. 25	Niigata	1
		Feb. 26	Yamagata	1
		Feb. 28	Yamagata	1
	Snow Melt Landslide	May 1	Yamagata	1
	Heavy Rains Starting July 22	Jul. 22	Yamagata	4
	Heavy Rains Starting July 28	Jul. 28	Yamaguchi	3
			Shimane	1
	Heavy Rains Starting August 9	Aug. 9	Akita	3
			Iwate	1
	Heavy Rains Starting August 23	Aug. 23	Shimane	1
	September 2 Gust	Sep. 2	Saitama	2
	2013 Typhoon 18	Sep. 16	Saitama	1
			Kyoto	2
	2013 Typhoon 26	Oct. 16	Tokyo	1
			Chiba	1
2014	Heavy Winter Snowfall	Feb. 15	Nagano	4
			Gunma	1
			Yamanashi	16
		Feb. 17	Gunma	7
			Saitama	7
		Feb. 18	Gunma	1
			Yamanashi	3
		Feb. 21	Yamanashi	2

Year	Name of Disaster	Date of Invocation	Prefecture	No. of Municipalities Invoking the Act
2014	Heavy Rains from 2014 Typhoon 8	Jul. 9	Nagano	1
			Yamagata	1
	2014 Typhoon 12	Aug. 3	Kochi	1
	2014 Typhoon 11	Aug. 9	Kochi	3
			Tokushima	1
	Heavy Rains Starting August 15, 2014	Aug. 17	Kyoto	1
			Hyogo	1
	Heavy Rains Starting August 19, 2014	Aug. 20	Hiroshima	1
	Damage Related to Mt. Ontake Eruption	Sep. 27	Nagano	2
	Nagano Prefecture Kamishiro Fault Earthquake	Nov. 22	Nagano	3
	Heavy Snowfall Starting December 5	Dec. 8	Tokushima	3
2015	Eruption of Kuchinoerabu-jima	May 29	Kagoshima	1
	Torrential Rain of September 2015 in the Kanto and Tohoku Regions	Sep. 9	Ibaraki	10
			Tochigi	8
		Sep. 10	Miyagi	8
	2015 Typhoon 21	Sep. 28	Okinawa	1
2016	2016 Earthquake Centered in the Kumamoto Region of Kumamoto Prefecture	Apr. 14	Kumamoto	45

Source: Cabinet Office

Fig. A-14 Actual Designations of Extremely Severe Disasters in the Past Five Years

Title of Legislation	Disaster Name	Main Disaster-Affected Regions	Main Applicable Measures								Other Applicable Measures
			Art. 3, 4	Art. 5	Art. 6	Art. 7	Art. 12	Art. 16	Art. 17	Art. 19	Art. 24	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for the Tsunami of February 28, 2010	Tsunami of Feb. 28, 2010	Iwate, Miyagi Pref.				○ *2						
Disaster Designation and Identification of Essential Response Measures for Torrential Rains from June 11 to July 19, 2010	Seasonal Rain Front	Gifu, Hiroshima and Saga Pref.		○	○						○	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for the Districts of Yamakita-machi, Ashigara Kami -gun, Kanagawa Prefecture, and Oyamacho, Sunto-gun, Shizuoka Prefecture Due to Rainstorms and Torrential Rains from September 4 to 9, 2010	Typhoon 9	Kanagawa and Shizuoka Pref.		●							●	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Amami City, Kagoshima Prefecture Due to Torrential Rains from October 18 to 25, 2010	Torrential Rains	Kagoshima Pref.	●	●							●	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for the Great East Japan Earthquake	Great East Japan Earthquake	Aomori, Iwate, Miyagi, Fukushima, Ibaraki, Tochigi, Chiba, Niigata and Nagano Pref.	○	○	○	○ *2	○	○	○	○	○	○
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Specified Regions in 2010	2010 Regional Disasters	—	●	●							●	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for the District of Miyake-mura, Tokyo Prefecture Due to Volcanic Phenomena from 2000 to 2010	Miyake Island Volcanic Phenomena	Tokyo	●	●							●	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Aki City, Kochi Prefecture Due to Rainstorms from July 17 to 20, 2011	Typhoon 6	Mie, Wakayama and Kochi Pref.	●	●							●	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Torrential Rains from July 24 to August 1, 2011	July 2011 Niigata/ Fukushima Torrential Rains	Niigata and Fukushima Pref.	○	○			●	○		○	○	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Rainstorms and Torrential Rains from August 29 to September 7, 2011	Typhoon 12	Mie, Nara and Wakayama Pref.	○	○	○		●	○	○	○	○	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Rainstorms and Torrential Rains from September 15 to 23, 2011	Typhoon 15	Fukushima, Gifu and Hyogo Pref.		○	○						○	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Specified Regions in 2011	2011 Regional Disasters	—	●	●							●	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Torrential Rains and Rainstorms from June 8 to July 23, 2011	Seasonal Rain Front/Typhoon 4	Fukuoka, Kumamoto and Oita Pref.	○	○	○		●	○	○	○	○	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Specified Regions in 2012	2012 Regional Disasters	—	●	●							●	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Torrential Rains and Rainstorms from June 8 to August 9, 2013	Seasonal Rain Front/ Typhoon 4/ Typhoon 7	Iwate, Yamagata, Shimane and Yamaguchi Pref.	●	○	○						○ *1	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for the Districts of Gotsu City and Onan-cho, Ochigun, Shimane Prefecture Due to Heavy Rains from August 23 to 25, 2013	Torrential Rains	Shimane Pref.	●	●							●	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Rainstorms and Torrential Rains from September 15 to 17, 2013	Typhoon 18	Fukui, Shiga and Kyoto Pref.		○	○						○	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for the District of Oshima-machi, Tokyo Prefecture Due to Rainstorms on October 15 and 16, 2013	Typhoon 26	Tokyo	●	●			●				●	

Title of Legislation	Disaster Name	Main Disaster-Affected Regions	Main Applicable Measures									Other Applicable Measures
			Art. 3, 4	Art. 5	Art. 6	Art. 7	Art. 12	Art. 16	Art. 17	Art. 19	Art. 24	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Specified Regions in 2013	2013 Regional Disasters	—	●	●	●						●	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for the Districts of Nagiso-machi, Kiso-gun, Nagano Prefecture, and Shiiba-son, Higashi Usuki-gun, Miyazaki Prefecture Due to Rainstorms and Torrential Rains on July 9 and 10, 2014	Seasonal Rain Front/Typhoon 8	Nagano and Miyazaki Pref.		●							●	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Rainstorms and Heavy Rains from July 30 to August 25, 2014	Torrential Rains Caused by Typhoon 11/ Typhoon 12/ Seasonal Rain Front	Hokkaido, Kyoto, Hyogo, Osaka, Nara, Hiroshima, Tokushima, Ehime, and Kochi Pref.	○	○	○			○	○	○	○	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for the Districts of Sumoto City and Awaji City, Hyogo Prefecture Due to Rainstorms on October 13 and 14, 2014	Typhoon 19	Hyogo Pref.		●							●	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for the Districts of Ikeda-cho and Otari-mura, Kitaazumi-gun, Nagano Prefecture Due to the Earthquake of November 22, 2014.	Earthquake of Nov. 22, 2014	Nagano Pref	●	●							●	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Specified Regions in 2014	2014 Regional Disasters	—	●	●							●	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Torrential Rains and Rainstorms from June 2 to July 26, 2015	Seasonal Rain Front/Typhoon 9/ Typhoon 11/ Typhoon 12	Kumamoto Pref.	●	○							○ *1	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for the Districts of Odai Town, Taki-gun and Kihoku Town, Kitamuro-gun, Mie Prefecture Due to Rainstorms on August 24 and 26, 2015	Typhoon 15	Mie Pref.		●							●	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Rainstorms and Torrential Rains from September 7 to 11, 2015	Typhoon 18, etc.	Miyagi, Fukushima, Ibaraki, and Tochigi Pref.	●	○	○		●				○ *1	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for Specified Regions in 2015	2015 Regional Disasters	—	●	●							●	
Ordinance on the Extremely Severe Disaster Designation and Identification of Essential Response Measures for the 2016 Kumamoto Earthquake	2016 Kumamoto Earthquake	Kumamoto Pref., etc.	○	○	○		○	○	○	○	○	○

*1 Public works facilities were considered as regional disaster
*2 Limited to portions concerning item 3
[Legend]
○: Indicates a national disaster (Region is not specified, the disaster itself is specified).
●: Indicates a regional disaster (Disaster is specified at the municipal level.).
The applicable measures are the measures listed below prescribed in the Act on Special Financial Support to Deal with Extremely Severe Disasters.

[Main applicable measures]
Art. 3, 4: Special financial support for disaster recovery projects for public works facilities
Art. 5: Special measures on subsidies for disaster recovery projects for agricultural land
Art. 6: Special cases of subsidies for disaster recovery projects for agricultural, forestry, and fisheries shared-used facilities
Art. 7 (iii): Special financial support for disaster recovery projects for plant and animal aquaculture facilities
Art. 12: Special provision concerning disaster-related credit guarantees under the Small and Medium-sized Enterprise Credit Insurance Act
Art 16.: Subsidies for disaster recovery projects for public social and educational facilities
Art. 17: Subsidies for disaster recovery projects for private school facilities
Art. 19: Special cases of cost coverage for projects implemented by municipalities to prevent infectious diseases
Art. 24: Inclusion of funds for the redemption of principal and interest related to small disaster bonds in the standard budget request

[Other applicable measures]
Art. 8: Application of interim measures related to financing for agricultural, forestry, and fishery operators who are victims of natural disasters
Art. 9: Subsidies for projects to remove deposited earth and sand conducted by forestry associations
Art. 10: Subsidies for projects to remove floodwater conducted by land improvement districts
Art. 11: Subsidies for construction expenses for shared-use small fishing boats
Art. 11-2: Subsidies for disaster recovery projects for forests
Art. 14: Subsidies for disaster reconstruction projects for facilities including business cooperatives
Art. 20: Special cases of government loans based on the Act for the Welfare of Fatherless Families, motherless families and Widows
Art. 22: Special cases of subsidies for public housing construction projects for victims
Art. 25: Special cases of paying job seeker benefits based on the Employment Insurance Act

Fig. A-15 Response of Government Ministries and Agencies to Major Disasters Since 2014

15-1 Eruption of Kuchinoerabu-jima [Volcanic Alert Level 5]

(1) Damage

An explosive eruption of Kuchinoerabu-jima occurred at around 09:59 on May 29, 2015. A volcanic cloud of black-gray smoke rose more than 9,000m above the crater rim, while a pyroclastic flow reached the coast northwest of Shindake, as well as nearing the coast southwest of Shindake and flowing part of the way down the southeastern side. An increase in volcanic earthquakes was also observed immediately after the eruption. Following this eruption, JMA issued a Warning (Residential Areas) at 10:07 that day and raised the volcanic alert level from 3 (Do not approach the volcano) to 5 (Evacuate).

At 10:20, Yakushima-cho issued an evacuation order for all residents of the island, so all 137 people (118 residents of the island and 19 visitors) on the island at the time of the eruption were evacuated from the island the same day, using the municipal ferry, Ferry-Taiyo, prefectural fire and disaster management helicopters, and Japan Coast Guard patrol boats, among other vessels.

This eruption resulted in two human casualties, who suffered minor injuries, and caused power outages, while pyroclastic flows damaged around 300ha of broadleaf forest, as well as forest conservation facilities and forest roads.

At the time of the previous eruption of Kuchinoerabu-jima's Mt. Shindake, on August 3, 2014, the JMA issued a Near-crater Warning and raised the volcanic alert level from 1 (Normal *The keyword for volcanic alert level 1 was changed to "Potential for increased activity" on May 18, 2015) to 3 (Do not approach the volcano). Although a volcanic cloud of white smoke containing a large amount of steam rose up from the crater, no eruption was observed thereafter. However, an increase in volcanic activity was seen the following year: volcanic glow began to be observed at night from March 24, 2015, while numerous earthquakes centered on the island began to be recorded on May 23 from around 07:00, including an earthquake with a seismic intensity of 3, which occurred at 08:00. The explosive eruption on May 29 occurred six days after this earthquake.

(2) Response from Government Ministries and Agencies

At 10:15 on May 29, the Prime Minister instructed the relevant ministries and agencies to (1) immediately assess the damage, (2) take all available steps to ensure safety by means of evacuation, etc., working closely with local governments, and (3) provide timely and accurate information.

At 10:37, the Emergency Response Team (consisting of officials from relevant ministries and agencies) met and confirmed (1) that they would work closely with local governments and relevant organizations to gain an accurate understanding of the volcanic activity and extent of the damage on Kuchinoerabu-jima, and that the government would spare no effort in undertaking integrated relief and rescue operations and providing support for evacuation, making the safety of residents the top priority; (2) that the government would take all possible emergency disaster control measures, mobilizing broader regional support to help the disaster-stricken area as appropriate to the extent of the damage, including calling upon Emergency Fire Response Teams, police regional response teams, Disaster Relief Units of the Self-Defense Forces (SDF), Japan Coast Guard relief and rescue units; and disaster medical assistance teams (DMAT); and (3) that the central government and relevant organizations would continue to conduct rigorous observation, monitoring, and analysis of volcanic activity, and provide accurate information to residents, local governments, and relevant organizations.

At 11:00, an Inter-Agency Disaster Management Meeting was held, attended by the Minister of State for Disaster Management and Parliamentary Vice-Minister for Disaster Management. During this meeting, participants held a videoconference with the Vice Governor of Kagoshima Prefecture and shared information about the prospects for further volcanic activity, as well as the extent of the damage and the steps being taken by ministries and agencies in response. (Thereafter, combined meetings were held five times and videoconferencing was used as needed to share information with the Governor of Kagoshima Prefecture, the Mayor of Yakushima-cho, and volcanologists (including the Chairman of the Coordinating Committee for the Prediction of Volcanic Eruptions))

Furthermore, to ascertain the extent of the damage due to the eruption of Kuchinoerabu-jima and the status of the local response, a government investigation team led by the State Minister of the Cabinet Office for Disaster Management was deployed to Kagoshima Prefectural Office and conducted aerial surveys from an SDF helicopter, as well as exchanging views with the leaders of local governments affected by the disaster,

among others. In addition, the Cabinet Office deployed an advance information-gathering team to Yakushima municipal office in Kagoshima Prefecture.
At 16:30, a Government Local Liaison and Coordination Office (headed by a director of Disaster Management Bureau of the Cabinet Office) was established at Yakushima municipal office in Kagoshima Prefecture, to enable the central government and disaster-stricken local governments to work together to coordinate emergency disaster control measures on the ground.
On June 13, the Prime Minister visited the area to see the extent of the disaster caused by the eruption of Mt. Shindake on Kuchinoerabu-jima and exchanged opinions with the Governor of Kagoshima Prefecture and the Mayor of Yakushima-cho in the town of Yakushima, as well as visiting residents of the island in the evacuation shelters where they were living temporarily.
In response to a request from the Governor of Kagoshima Prefecture for the deployment of SDF disaster relief teams, a total of around 430 SDF personnel conducted evacuation by air and gathered information, using SDF aircraft.
In addition, in response to the volcanic eruption, the Disaster Relief Act was invoked (on May 29) in respect of Yakushima-cho, Kumage-gun, Kagoshima Prefecture.

15-2 Eruption of Mt. Hakone [Volcanic Alert Level 3]

(1) Damage
On April 26, 2015, volcanic activity in the Owakudani area of Mt. Hakone began increasing and three volcanic earthquakes with a seismic intensity of 1 were observed on May 5, so the JMA issued a Near-crater Warning. At 06:00 on May 6, it raised the volcanic alert level from 1 (Normal *The keyword for volcanic alert level 1 was changed to “Potential for increased activity” on May 18, 2015) to 2 (Do not approach the crater).
Subsequently, a field survey conducted by the Hot Springs Research Institute of Kanagawa Prefecture and the JMA suggested that a very small eruption had occurred between June 29 and 30, so at 12:30 on June 30, the JMA issued a Near-crater Warning and raised the volcanic alert level from 2 (Do not approach the crater) to 3 (Do not approach the volcano).
In response, at 12:30, Kanagawa Prefecture and Hakone-machi imposed a ban on entering the area within around 1km of Owakudani, as well as issuing an evacuation order and closing Prefectural Routes 734 and 735 (between Ubako and Sounzan Station). In addition, on July 3, Hakone-machi established a restricted area pursuant to Article 63 of the Disaster Countermeasures Basic Act, covering an area within around 1km of Owakudani.
Once the evacuation order was issued, residents, etc. of the area covered by the order began to evacuate; at 21:05 the same day, the local police and fire services confirmed that evacuation had been completed, with nobody left within the area in question.
There were no reports of any human casualties or physical damage as a result of this volcanic eruption.

(2) Response from Government Ministries and Agencies
Immediately after the eruption, the government held an Inter-Agency Disaster Alert Meeting, attended by the Minister of State for Disaster Management and Parliamentary Vice-Minister for Disaster Management. During this meeting, participants shared information about the prospects for volcanic activity and the steps being taken by ministries and agencies in response, and confirmed the response going forward.
In addition, the Cabinet Office deployed an advance information-gathering team to Hakone municipal office in Kanagawa Prefecture, where team members undertook liaison and coordination with relevant organizations.
On June 30, Cabinet Office staff participated in a meeting of the Core Group of the Volcanic Disaster Management Councils, during which representatives of central government and the prefectural and municipal governments discussed the response going forward.
On July 1, the 2nd Inter-Agency Disaster Alert Meeting was held, with the Minister of State for Disaster Management, the State Minister of the Cabinet Office for Disaster Management, and the Parliamentary Vice-Minister for Disaster Management in attendance. During this meeting, participants exchanged views with representatives of Hakone-machi in a videoconference, as well as sharing information about and verifying the status of local initiatives, issues, and response guidelines.

15-3 2015 Typhoon 11

(1) Damage

2015 Typhoon 11, which originated in the Marshall Islands at 03:00 on July 4, 2015, made landfall near Muroto City, Kochi Prefecture at around 16:23. The typhoon continued north and made landfall once more at around 17:06, near Kurashiki City, Okayama Prefecture. Subsequently, it changed path in a northeasterly direction and turned into a tropical cyclone over the Sea of Japan at 21:00 the same day. This typhoon and moist air flowing towards it caused increased rainfall, primarily over West and East Japan. The Kinki region in particular saw the highest rainfall in 24 hours since records began, with heavy rain in excess of the usual rainfall for the entire month of July in an ordinary year. Moreover, West Japan experienced severe gales and there were rough seas on the Pacific Ocean off both West and East Japan.

Due to the landfall of Typhoon 11, evacuation orders were issued for a total of 43,384 people in 17,537 households in 7 prefectures, while evacuation advisories were issued for 1,087,284 people in 476,197 households in 16 prefectures.

The human casualties of Typhoon 11 amounted to 2 fatalities and 59 injured, while the damage to homes encompassed 2 homes that were completely destroyed, 5 half-destroyed, 79 with above-floor flooding and 319 with below-floor flooding. A total of 69 slope failures and other sediment disasters occurred, while approximately 175,682 households suffered power outages, including around 86,882 households in the area served by Shikoku Electric Power Company, Inc.

(2) Response from Government Ministries and Agencies

On July 15, before the typhoon made landfall, the government held an Inter-Agency Disaster Alert Meeting, attended by the Minister of State for Disaster Management, the State Minister of the Cabinet Office for Disaster Management, and the Parliamentary Vice-Minister for Disaster Management. During this meeting, participants shared information about the weather outlook and the steps being taken by ministries and agencies in response, confirming that they would take appropriate response measures.

The same day, the Minister of State for Disaster Management made the following appeal to the public via the website and social media, concerning the response to Typhoon 11.

1. Typhoon 11 seems likely to approach West Japan and make landfall sometime between tomorrow night and the 17th, so West and East Japan are expected to see very heavy rain, severe gales, and rough seas from tomorrow. Typhoons move slowly and have the potential to generate a large volume of rainfall. Caution is required because its path is similar to that of the typhoon that caused the Great Kii Peninsula Flood Disaster in 2011, which left 98 people dead or missing. Given last year's Hiroshima Sediment Disaster as well, we must be particularly vigilant about the risk of sediment disasters with the potential to threaten human lives.
2. We ask all members of the public to pay attention to weather information, even if your municipality has not issued an advisory, etc., in order to protect your life. Please do not hesitate to take the initiative in evacuating if you feel at all at risk. If you feel that it is too dangerous to get to an evacuation site, please evacuate to a nearby place of safety; if you feel that it is already too dangerous to venture outside, please evacuate to the valley side (the side furthest from any nearby slopes) of the second or third floor of the building where you are. Do not, under any circumstances, go near any waterways or the coast.
3. We also ask all members of the public to take the initiative in taking any actions necessary to keep themselves safe, without fearing that it might be a wasted effort.

In light of the landfall of the typhoon and its progress thereafter, at 10:00 on the 17th, the government held a second Inter-Agency Disaster Alert Meeting, attended by the Minister of State for Disaster Management, the State Minister of the Cabinet Office for Disaster Management, and the Parliamentary Vice-Minister for Disaster Management. During this meeting, participants shared information about the weather outlook, the extent of the damage, and the steps being taken by ministries and agencies in response, confirming that they would continue to take appropriate response measures.

15-4 Volcanic Activity at Sakurajima [Volcanic Alert Level 4]

(1) Damage
A large number of volcanic earthquakes centered on Sakurajima occurred on August 15, 2015, starting at around 07:00. Sudden crustal movement indicative of inflation of the volcanic edifice was observed on tiltmeters and extensometers installed on Sakurajima.
Accordingly, at 10:15, the JMA issued a Warning (Residential Areas) and raised the volcanic alert level from 3 (Do not approach the volcano) to 4 (Prepare to evacuate), calling on the public to be alert to the risk of pyroclastic flows and large cinders being dispersed through the air in parts of Arimura-cho and Furusato-cho within 3km of the Showa crater and the Minamidake summit crater.
In response, Kagoshima City in Kagoshima Prefecture issued evacuation preparation information at 11:50 and evacuation advisories at 16:50. Subsequently, local firefighters went door-to-door, visiting each household in the area subject to evacuation (the Arimura district of Arimura-cho, the Furusato-higashi district of Furusato-cho (areas within 3km of the crater), and the Shioyagamoto district of Kurokami-cho) and confirmed at 18:10 that evacuation of all residents (77 people in 51 households) had been completed.
Evacuees evacuated to four evacuation shelters set up on the island or to the homes of their relatives, etc. (all evacuation shelters were closed at 13:25 on August 25).
On August 22, some evacuation advisories were switched to evacuation preparation information; after the JMA issued a Near-crater Warning and lowered the volcanic alert level from 4 (Prepare to evacuate) to 3 (Do not approach the volcano) at 16:00 on September 1, all evacuation preparation information was withdrawn at 16:10 that day.
There were no reports of any human casualties or physical damage as a result of this volcanic activity.

(2) Response from Government Ministries and Agencies
Immediately after the volcanic alert level was raised to 4 (Prepare to evacuate), the government held an Inter-Agency Disaster Alert Meeting, attended by the Parliamentary Vice-Minister for Disaster Management. During this meeting, participants held a videoconference with the Governor of Kagoshima Prefecture and shared information about the prospects for further volcanic activity, as well as confirming the steps being taken by ministries and agencies in response.
The same day, staff from Disaster Management Bureau of the Cabinet Office were deployed to Kagoshima City Office as Information Liaison Officers, undertaking liaison and coordination with relevant organizations.
At 11:00 on September 16, a second Inter-Agency Disaster Alert Meeting was held, attended by the Minister of State for Disaster Management and the Parliamentary Vice-Minister for Disaster Management. During this meeting, participants held a videoconference with the Governor of Kagoshima Prefecture and volcanologists (members of the Coordinating Committee for the Prediction of Volcanic Eruptions) and shared information about the prospects for further volcanic activity, as well as confirming matters of immediate concern (videoconferences with Kagoshima City Office were held as needed).
On August 20, the Parliamentary Vice-Minister visited Kagoshima Prefecture and Kagoshima City and exchanged views with Kagoshima Prefecture Vice Governor Hotai, Kagoshima City Mayor Mori, and other local municipal mayors.

15-5 2015 Typhoon 15

(1) Damage
After approaching and passing over the Sakishima Islands with considerable momentum between the night of August 23 and daybreak on August 24, 2015, Typhoon 15 headed northeast over the sea to the west of Okinawa Island and Amami Oshima, reaching the sea to the west of the Satsuma Peninsula at dawn on the 25th. Subsequently, the typhoon made landfall near Arao City in Kumamoto Prefecture just after 06:00 on the 25th retained its powerful momentum as it moved northward to northern Kyushu, reaching the Sea of Japan before noon on the 25th.
In addition to stormy seas, severe gales buffeted the Ryukyu Islands and Kyushu, with a maximum instantaneous wind speed of 71.0m observed at 21:16 on the 23rd on Ishigaki Island, Okinawa Prefecture. Moreover, strong winds and high waves with swells were experienced over an extensive area in West and East Japan.
The typhoon and warm, moist air flowing in from the south resulted in heavy rain over the Ryukyu Islands,

West Japan, and the Tokai region, with more than 80mm of rain falling on parts of Kyushu, Yamaguchi Prefecture, and Mie Prefecture in just one hour.
Due to the landfall of Typhoon 15, evacuation orders were issued for a total of 245,459 people in 105,516 households in 3 prefectures, while evacuation advisories were issued for 527,920 people in 242,548 households in 7 prefectures.
The human casualties of Typhoon 15 amounted to 1 fatality and 134 injured, while the damage to homes encompassed 10 homes that were completely destroyed, 90 half-destroyed, 2,075 partially destroyed, 28 with above-floor flooding and 192 with below-floor flooding. In terms of impacts on lifeline utilities, around 1,508,700 homes suffered power outages, including 1,136,600 homes in the area served by Kyushu Electric Power Company, while up to 13,955 homes (mainly in Kyushu) suffered interruptions to their water supply.

(2) Response from Government Ministries and Agencies
On August 24, before the typhoon made landfall, the government held an Inter-Agency Disaster Alert Meeting, during which participants shared information about the weather outlook and the steps being taken by ministries and agencies in response, confirming that they would take appropriate response measures.
On August 26, in response to a request from the Governor of Okinawa Prefecture for the deployment of SDF disaster relief teams, SDF aircraft were used to transport Okinawa Electric Power Company staff and equipment.

15-6 Torrential Rain of September 2015 in the Kanto and Tohoku Regions (Including Typhoon 18)

(1) Damage
Having originated over the sea to the east of Okinotorishima at 21:00 on September 7, 2015, Typhoon 18 moved north over the sea to the south of Japan and made landfall near Nishio City, Aichi Prefecture at around 09:30 on the 9th, before moving on to the Sea of Japan and turning into an extratropical cyclone at 15:00 that day.
As a result of Typhoon 18 and weather fronts, heavy rain fell over a wide area from western to northern Japan. In particular, between September 9 and September 11, a southerly wind flowing into the low-pressure system into which Typhoon 18 developed and, subsequently, a southeasterly wind from the vicinity of Typhoon 17 supplied flows of moist air that triggered a succession of line-shaped rainbands, causing record-breaking rainfall in the Kanto and Tohoku regions.
The total rainfall observed between September 7 and 11 exceeded 600mm in the Kanto region and 500mm in the Tohoku region, with a figure of 647.5mm recorded in the Imaichi area of Nikko City, Tochigi Prefecture and 536.0mm in the Hippo area of Marumori-machi, Miyagi Prefecture. This was more than double the normal average for the whole of September.
In particular, record-breaking heavy rainfall occurred in Tochigi, Ibaraki, and Miyagi prefectures between September 10 and 11, with the highest rainfall within a 24-hour period in recorded history observed at 16 of the observation points in the Kanto and Tohoku regions with statistics for at least the last ten years, including Imaichi in Nikko City, Tochigi Prefecture, Koga in Koga City, Ibaraki Prefecture, and Izumigatake in Izumi-ku in Sendai City, Miyagi Prefecture.
The JMA issued an Emergency Warning (heavy rain) for three prefectures: Tochigi Prefecture (at 00:20 on September 10), Ibaraki Prefecture (at 07:45 the same day), and Miyagi Prefecture (at 03:20 on September 11). In addition, the JMA named this weather event between September 9 and 11 “the Torrential Rain of September 2015 in the Kanto and Tohoku Regions.”
The following describes the extent of the immense damage caused by the Torrential Rain of September 2015 in the Kanto and Tohoku Regions, which was mainly concentrated on Ibaraki, Tochigi, and Miyagi prefectures.
Due to the Torrential Rain of September 2015 in the Kanto and Tohoku Regions, evacuation orders were issued for a total of 115,681 people in 50,516 households in 3 prefectures, while evacuation advisories were issued for 1,315,600 people in 576,950 households.
In addition, the figures for the peak number of evacuees in evacuation shelters set up in each region were as follows.

Ibaraki Prefecture: 35 municipalities, 299 locations, 10,390 people (as of 19:20 on September 11)
*Of which, Joso City: 26 locations, 4,501 people (as of 02:00 on September 11)
Miyagi Prefecture: 20 municipalities, 288 locations, 3,846 people (as of 08:00 on September 12)
Tochigi Prefecture: 12 municipalities, 76 locations, 2,677 people (as of 0815:00 on September 10)

The Torrential Rain of September 2015 in the Kanto and Tohoku Regions resulted in considerable damage, as 86 rivers – mainly in the aforementioned three prefectures – burst their banks and caused flooding, including the Kinugawa River in Joso City, Ibaraki Prefecture, which suffered an embankment failure on September 10.
The human casualties amounted to 8 fatalities and 79 injured, while the damage to homes encompassed 80 homes that were completely destroyed, 7,022 half-destroyed, 343 partially destroyed, 1,925 with above-floor flooding and 10,353 with below-floor flooding.
In terms of impacts on lifeline utilities, up to around 13,523 homes in the areas served by Tokyo Electric Power Company and Tohoku Electric Power Company suffered power outages, while up to approximately 26,675 homes (mainly in Ibaraki Prefecture) suffered interruptions to their water supply.

(2) Response from Government Ministries and Agencies
In response to the Emergency Warning (heavy rain) issued for Tochigi Prefecture at 00:20 on September 10, 2015, the Minister of State for Disaster Management issued the following request to relevant ministries and agencies at 00:30.

- At 00:20 today, a Heavy Rain Emergency Warning was issued for Tochigi Prefecture, so I request that relevant ministries and agencies exercise maximum vigilance regarding the risk of a sediment disaster or river flooding.
- To ensure that evacuation advisories and orders can be issued without hesitation or concern that they might be a wasted effort, I request that you take the initiative in giving advice to local governments concerning evacuation, tailoring this advice to their specific circumstances.
- I request that ministries and agencies conducting front-line work make advance preparations to ensure that you can provide disaster-stricken local governments with swift, appropriate assistance in response to their requests.
- I request that you continue to work closely with local governments and take all possible measures to protect the lives and property of the populace, maintaining a sense of vigilance.

At 04:15, a meeting of the directors-general of relevant ministries and agencies was held, at which participants confirmed the weather situation and the steps being taken in response.
At 07:10, the Prime Minister issued the following instructions to relevant ministries and agencies.

1. Swiftly ascertain the extent of the damage and spare no effort in taking emergency disaster control measures, working as an integrated team and making the safety of human life the top priority
2. Ensure timely and accurate provision of information to the public regarding evacuation and the status of the rain and rivers, etc.
3. Work closely with local governments and take all possible measures to support evacuation, to ensure that residents of districts expected to suffer flooding can evacuate without fail

In response to the Prime Minister's instructions, the Emergency Response Team met and confirmed that they would spare no effort in implementing emergency disaster control measures, and the Cabinet Office deployed advance information-gathering teams to Ibaraki and Tochigi prefectures (another team was deployed to Miyagi Prefecture on the 11th).
At 09:30, an Inter-Agency Disaster Management Meeting (director general level) was held, attended by the Minister of State for Disaster Management and the State Minister of the Cabinet Office for Disaster Management. During this meeting, participants held a videoconference with the Tochigi and Ibaraki prefectural offices and confirmed that they would continue to spare no effort in ascertaining the extent of the damage and implementing emergency disaster control measures, including rescuing and assisting disaster victims and undertaking flood prevention activities (a total of four Inter-Agency Disaster Management Meetings were held thereafter).
At 15:47, a Cabinet meeting was held concerning the heavy rain in Tochigi and Ibaraki prefectures, etc.,

attended by the Prime Minister, who issued the following instructions.

1. The situation is becoming critical. Spare no effort to rescue and save the lives of disaster victims, mobilizing every resource at the government's disposal, including the SDF, police, and firefighters
2. Furthermore, ascertain the situation without delay, to ensure that nobody has been left behind or requires assistance
3. There are fears that further emergencies could arise, so work closely with local governments and take all possible measures to ensure that residents evacuate without fail

On September 11, to ascertain the extent of the damage and the status of the local response, a government investigation team led by the State Minister of the Cabinet Office for Disaster Management was deployed to Tochigi and Ibaraki prefectures and conducted surveys of the disaster-stricken areas, as well as exchanging views with the leaders of local governments affected by the disaster, among others.
At 11:28, a Cabinet meeting was held concerning the heavy rain in Tochigi, Ibaraki, and Miyagi prefectures, etc., attended by the Prime Minister, who issued the following instructions.

1. To protect the lives of the public, continue to work as a coherent team and spare no effort in the rescue and relief of disaster victims
2. There are fears that further emergencies could arise going forward, so work closely with local governments and take all possible measures to ensure that residents evacuate without fail
3. Furthermore, ensure that relevant organizations work in partnership with disaster-stricken local governments to implement support measures for disaster victims, including securing the necessary supplies and providing medical attention

On September 12, to ascertain the extent of the disaster, the Prime Minister visited Ibaraki and Tochigi prefectures, which had suffered damage due to river flooding, and exchanged views with the governors of both prefectures, among others, as well as inspecting areas where embankments had been breached and visiting evacuation shelters.
On September 15, to ascertain the extent of the disaster, the Minister of State for Disaster Management visited Joso City in Ibaraki Prefecture, which had suffered damage due to river flooding, and exchanged views with the Mayor of Joso City, among others, as well as inspecting evacuation shelters (the Minister of State for Disaster Management visited the area again on October 16).
The SDF carried out the following disaster relief operations in the areas concerned, in response to requests from the governors of the relevant prefectures.

[Disaster relief operation to rescue people stranded by heavy rain in Ibaraki Prefecture]
A. Overview
- Time & date of request: 09:05, Thursday, September 10, 2015
- Request issued by: Governor of Ibaraki Prefecture
- Recipient of request: Commandant of the Japan Ground Self-Defense Force (GSDF) Engineer School (Katsuta)
- Outline of request: Rescue of stranded people, assistance with evacuation by boat, flood prevention activities using sandbags, support for the supply of water, bathing support, and epidemic prevention activities
- Location: Joso City and Yuki City, Ibaraki Prefecture
- Time & date of withdrawal: 22:00, Saturday, September 19, 2015

B. Scale of Deployment (Total)

	Sep. 10	Sep. 11	Sep. 12	Sep. 13	Sep. 14	Sep. 15	Sep. 16	Sep. 17	Sep. 18	Sep. 19	Total
Personnel	Approx. 440	Approx. 550	Approx. 700	Approx. 840	Approx. 850	Approx. 820	Approx. 1,140	Approx. 1,150	Approx. 570	Approx. 475	Approx. 7,535
Vehicles	Approx. 160	Approx. 190	Approx. 200	Approx. 225	Approx. 220	Approx. 220	Approx. 290	Approx. 290	Approx. 190	Approx. 165	Approx. 2,150
Aircraft	25	32	17	11	10	6	1	0	2	1	105
(Of which, rotorcraft)	(23)	(31)	(17)	(10)	(10)	(6)	(1)	(0)	(2)	(1)	(101)
Boats	Approx. 45	Approx. 25	Approx. 30	Approx. 30	Approx. 25	Approx. 25	0	0	0	0	Approx. 180
Other Liaison Officers	Approx. 50	Approx. 40	Approx. 40	Approx. 15	Approx. 15	Approx. 15	Approx. 15	Approx. 15	Approx. 15	Approx. 15	Approx. 235
Other Vehicles for Liaison Officers	Approx. 20	Approx. 15	Approx. 15	Approx. 5	Approx. 5	Approx. 5	Approx. 5	Approx. 5	Approx. 5	Approx. 5	Approx. 85

[Disaster relief operation to rescue stranded people in Miyagi Prefecture]

A. Overview

- Time & date of request: 02:30, Friday, September 11, 2015
- Request issued by: Governor of Miyagi Prefecture
- Recipient of request: Commander of the 6th Division of the GSDF (Jinmachi)
- Outline of request: Rescue of stranded people
- Location: Taiwa-cho, Miyagi Prefecture; Shibui River, Miyagi Prefecture
- Time & date of withdrawal: 19:30, Friday, September 11, 2015

B. Scale of Deployment

- Personnel: approx. 190
- Vehicles: approx. 40
- Boats: 37
- Aircraft: 7
- Other Liaison Officers: 25 Vehicles for Liaison Officers: 14

[Disaster relief operation to rescue stranded people in Tochigi Prefecture]

A. Overview

- Time & date of request: 09:00, Friday, September 11, 2015
- Request issued by: Governor of Tochigi Prefecture
- Recipient of request: Commander of the GSDF 12th Artillery Unit (Utsunomiya)
- Outline of request: Rescue of stranded people
- Location: Nikko City, Tochigi Prefecture
- Time & date of withdrawal: 18:20, Friday, September 11, 2015

B. Scale of Deployment

- Personnel: approx. 70
- Vehicles: 15
- Aircraft: 5
- Motorbikes: 6
- Other Liaison Officers: 2 Vehicles for Liaison Officers: 1

In addition, police organizations deployed around 3,000 personnel to the area and firefighting organizations around 2,300 to conduct rescue operations, while the number of machines and vehicles deployed in the disaster response amounted to a total of 1,670 units/day. The Ministry of Land, Infrastructure, Transport and Tourism (MLIT) TEC-FORCE deployed approximately 2,590 people/day in the areas affected, where they conducted emergency drainage work, surveyed the extent of the damage, cleared roads to facilitate drainage work, removed sediment from drainage channels, supported emergency repairs, and took aerial photographs, among other activities.

The Geospatial Information Authority of Japan (GSI) used unmanned aerial vehicles (UAV) to capture video footage and prepared charts showing the estimated inundation range, which they provided to relevant organizations as needed and also published on the GSI website.

Due to the Torrential Rain of September 2015 in the Kanto and Tohoku Regions, the Disaster Relief Act was invoked in respect of 26 municipalities in 3 prefectures, while the Act on Support for Reconstructing Livelihoods of Disaster Victims was invoked in respect of 8 municipalities in 4 prefectures.

[Invocation of the Disaster Relief Act]
Ibaraki Prefecture: 8 cities (Koga City, Yuki City, Shimotsuma City, Joso City, Chikusei City, Moriya City, Bando City, and Tsukubamirai City) and 2 towns (Yachiyo Town, Yuki-gun, and Sakai Town, Sashima-gun) (Date of invocation: September 9)
Tochigi Prefecture: 6 cities (Tochigi City, Sano City, Kanuma City, Nikko City, Oyama City, and Shimotsuke City) and 2 towns (Nogi Town, Shimotsuga-gun, and Mibu Town, Shimotsuga-gun) (Date of invocation: September 9)
Miyagi Prefecture: 4 cities (Sendai City, Kurihara City, Higashimatsuyama City, and Osaki ctiy) and 4 towns (Matsushima Town, Miyagi-gun, Taiwa Town, Kurokawwa-gun, Kami Town, Kami-gun, and Wakuya Town, Toda-gun) (Date of invocation: September 10)

[Invocation of the Act on Support for Reconstructing Livelihoods of Disaster Victims]
Ibaraki Prefecture: Joso City and Sakai Town, Sashima-gun (Date of invocation: September 9)
Tochigi Prefecture: Tochigi City, Nikko City, Oyama City, and Kanuma City (Date of invocation: September 9)
Miyagi Prefecture: Osaki City (Date of invocation: September 11)
Fukushima Prefecture: Tamura City (Date of invocation: September 9)

In addition, the government designated the Disaster Due to Rainstorms and Torrential Rains between September 7 and September 11, 2015 as a Disaster of Extreme Severity affecting the entire nation and specified the measures to be applied in respect of the disaster (including special provisions on financial assistance for disaster recovery projects for agricultural land; special provisions on financial assistance for disaster recovery projects for facilities for the joint use of the agriculture, forestry, and fisheries industries; and the inclusion of funds for the redemption of principal and interest on small disaster bonds in the standard budget request). The government also specified the measures to be applied in respect of the disaster in the Minamiaizu-machi (in Minamiaizu-gun) and Showa-mura (in Onuma-gun) areas of Fukushima Prefecture (special financial support for projects to recover public civil engineering works damaged by disaster and the inclusion of funds for the redemption of principal and interest on small disaster bonds in the standard budget request; promulgated and entered into force on October 7).
Subsequently, the Ordinance Designating the Disaster Due to Rainstorms and Torrential Rains between September 7 and September 11, 2015 as a Disaster of Extreme Severity and Specifying the Measures to be Applied was partially revised, with the addition of special provisions concerning disaster-related guarantees under the Small and Medium-sized Enterprise Credit Insurance Act in respect of Joso City, Ibaraki Prefecture (promulgated and entered into force on October 30).

15-7 2015 Typhoon 21

(1) Damage
Having originated over the sea to the south-southeast of Okinotorishima at 21:00 on September 22, 2015, Typhoon 21 moved northwest over the sea to the south of Okinawa between the 26th and the 27th, approaching the Sakishima Islands with ferocious intensity on the 28th. The typhoon subsequently made landfall on Taiwan and continued west.
Due to this typhoon, a maximum instantaneous wind speed of 81.1m was observed at 15:41 on the 28th on Yonaguni Island in Yonaguni-cho, Okinawa Prefecture, the highest since records began, and a severe gale buffeted the Yaeyama area. In addition, the Sakishima Islands saw stormy seas with high swells and the Okinawa Island area was also battered by rough seas.
The damage caused by Typhoon 21 to homes in Yonaguni-cho, Okinawa Prefecture amounted to 10 homes completely destroyed, 27 half-destroyed, and 285 partially destroyed. In addition, roofs and other parts of schools, wind power generation infrastructure, and other facilities were partially destroyed by severe gales, while around 7,500 homes in Yonaguni-cho, Okinawa Prefecture and other areas served by Okinawa Electric

Power Company suffered power outages.

(2) Response from Government Ministries and Agencies

On September 25, before the typhoon neared Japan, Disaster Management Bureau of the Cabinet Office issued a warning to relevant ministries and agencies, alerting them to Typhoon 21, and then used the Cabinet Office's disaster management Twitter account and other channels to warn the public.

On September 29 and October 3, in response to requests from the Governor of Okinawa Prefecture for the deployment of SDF disaster relief teams, SDF aircraft were used to transport Okinawa Electric Power Company staff and equipment, among others.

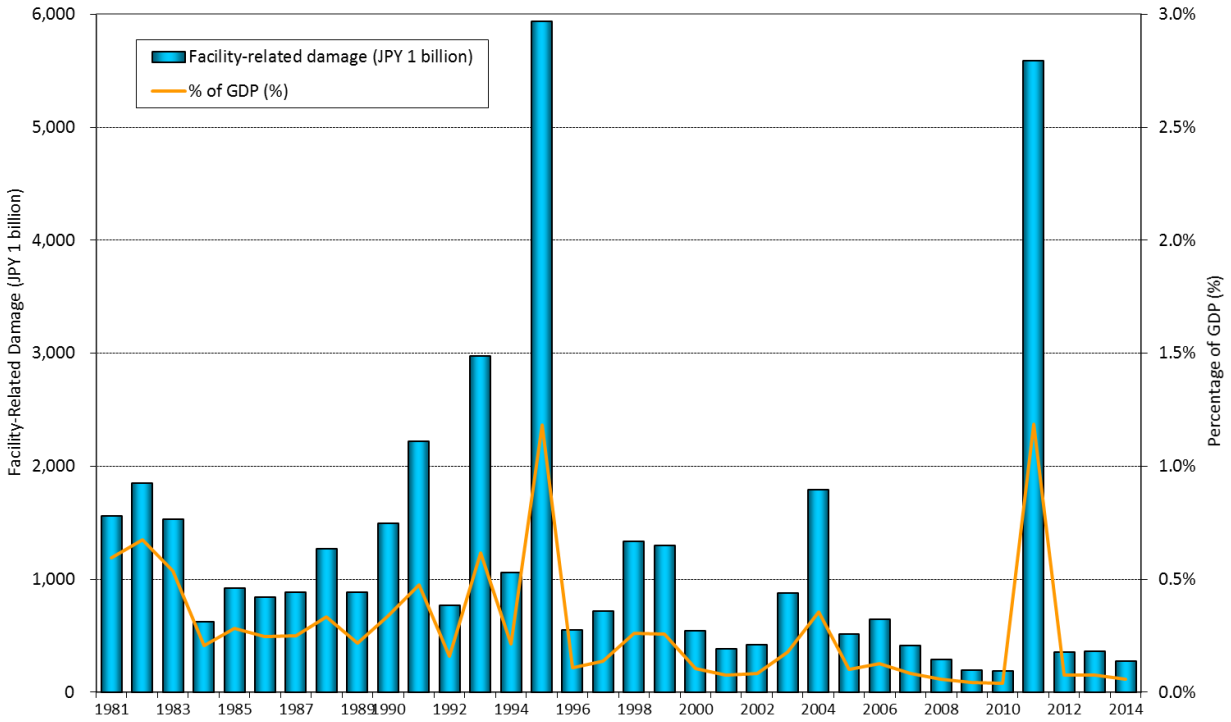
At 13:50 on September 30, an Inter-Agency Disaster Management Meeting was held, attended by the State Minister of the Cabinet Office for Disaster Management, during which participants held a videoconference with the Okinawa Prefectural Office and confirmed that the government would continue to work as an integrated team, sparing no effort in implementing emergency disaster control measures and supporting disaster victims.

The same day, to ascertain the extent of the damage caused by Typhoon 21 and the status of the local response, a government investigation team led by the Parliamentary Vice-Minister for Disaster Management was deployed to Okinawa Prefecture, where it conducted a survey of the disaster-stricken area, as well as exchanging views with the leaders of local governments affected by the disaster.

Subsequently, on October 2, an Inter-Agency Disaster Management Meeting was held, attended by the State Minister of the Cabinet Office for Disaster Management and the Parliamentary Vice-Minister for Disaster Management, during which the latter reported on the findings of the government investigation team deployed to Okinawa Prefecture and participants shared information about issues to be addressed going forward.

Due to Typhoon 21, the Disaster Relief Act was invoked (on September 28) in respect of Yonaguni-cho in Yaeyama-gun, Okinawa Prefecture.

Fig. A-16 Trends in Facility-Related Damage, Actual and as a Percentage of Gross Domestic Product (GDP)



Source: Created by the Cabinet Office using materials from various ministries and agencies.

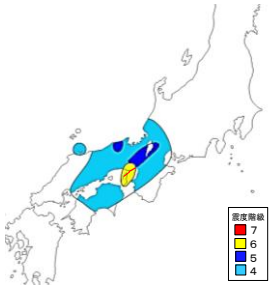
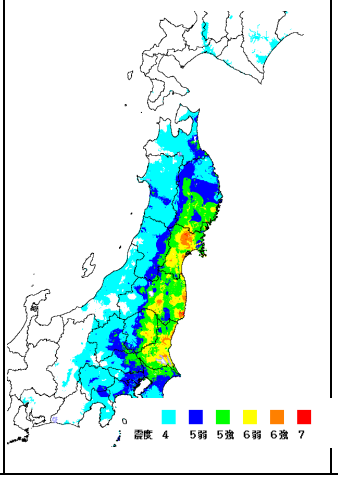
Fig. A-17 Facility-Related Damage by Disaster Type for Disasters Occurring in 2014

(Unit: JPY 1 million)

Facility type	Typhoon	Heavy rain	Earthquake	Heavy snow	Other	Total	Notes
Public works	76,782	38,382	6,243	1,458	15,197	138,061	Rivers, forestry conservation facilities, ports, etc.
Agriculture, forest, and fisheries industry	48,887	46,338	5,306	2,147	7,397	110,074	Farmland, agricultural facilities, forestry roads, fishing facilities, etc.
Educational facilities	576	913	266	728	117	2,600	School facilities, cultural heritages, etc.
Public welfare facilities	63	12,134	1,137	1,176	11	15,194	Social welfare facilities, waterworks facilities, etc.
Other facilities	2,322	2,983	513	500	259	6,576	Nature parks, telegraph/telephone, urban facilities, etc.
Total	128,629	100,750	13,464	6,008	22,981	272,506	

Note: Totals may not agree due to rounding.
Source: Created by the Cabinet Office using materials from various ministries and agencies.

Fig. A-18 Comparison of the Great East Japan Earthquake, the Sumatra Eartthquake, and the Great Hanshin-Awaji Earthquake

	Great Hanshin-Awaji Earthquake (Japan)	Great East Japan Earthquake (Japan)	Sumatra Earthquake (Indonesia)
Date & time	5:46 a.m., Jan. 17, 1995	2:46 p.m., March 11, 2011	9:58 a.m., Dec. 26, 2004
Magnitude	7.3	9.0	9.1
Earthquake type	Inland	Oceanic trench	Oceanic trench
Disaster-affected region	City center	Mainly agricultural, forestry, and fishery regions	
No. of prefectures with seismic intensity of Lower 6 or higher	1 (Hyogo)	8 (Miyagi, Fukushima, Ibaraki, Tochigi, Iwate, Gunma, Saitama, Chiba)	
Tsunami	Reports of tsunami measuring tens of centimeters, no damage	Large tsunami observed in various regions (max. wave height of more than 9.3 m in Soma, more than 8.5 m in Miyako, more than 8.0 m in Ofunato) (*1)	Large tsunami observed in Indonesia as well as other countries with coastline along the Indian Ocean
Damage characteristics	Structures destroyed, large fires erupted mainly in Nagata-ku	Large tsunami caused massive damage in coastal areas, destruction across many districts	Large tsunami caused damage to countries with coastline along the Indian Ocean, with Indonesia suffering particularly massive damage
Fatalities Missing persons	Fatalities: 6,437 Missing persons: 3 (May 19, 2006)	Fatalities: 19,418 Missing persons: 2,592 (as of March 1, 2016)	Fatalities: 126,732 Missing persons: 93,662 (as of March 30, 2005)
Homes damaged (totally destroyed)	104,906	121,809 (as of March 1, 2016)	Unknown*
Invocation of the Disaster Relief Act	25 municipalities (2 prefectures)	241 municipalities (10 prefectures) *Including 4 municipalities (2 prefectures) that invoked the Act for an earthquake centered in northern Nagano prefecture	
Seismic intensity distribution map (showing seismic intensity of 4 and above)			

Note: The seismic intensity levels were revised in 1996 to newly add Lower 5, Upper 5, Lower 6, and Upper 6.
Source: Created by the Cabinet Office from Cabinet Office materials, Fire and Disaster Management Agency materials, and UNOCHA materials.

Fig. A-19 Damage Estimate for the Great East Japan Earthquake

June 24, 2011

Category	Damage (Approx. Value)
Structures (Homes/housing sites, stores/offices, factories, machines, etc.)	JPY 10.4 trillion
Lifeline facilities (Water, gas, electricity, communications/broadcasting facilities)	JPY 1.3 trillion
Infrastructure facilities (Rivers, roads, ports, sewers, airports, etc.)	JPY 2.2 trillion
Agriculture, forest, and fisheries-related facilities (Farmland/agricultural facilities, forests and fields, fisheries-related facilities, etc.)	JPY 1.9 trillion
Other (Educational facilities, healthcare/social welfare facilities, waste treatment facilities, other public facilities)	JPY 1.1 trillion
Total	JPY 16.9 trillion

Note: This information has been compiled by Disaster Management Bureau of the Cabinet Office based on information provided by individual prefectures and relevant ministries and agencies regarding damage to property (including buildings, lifeline facilities, and infrastructure facilities). Information is subject to change as the details become clear. In addition, the total and breakdown may not agree due to rounding.

Source: Cabinet Office

Fig. A-20 Main Volcanic Eruptions and Eruption Disasters in Japan

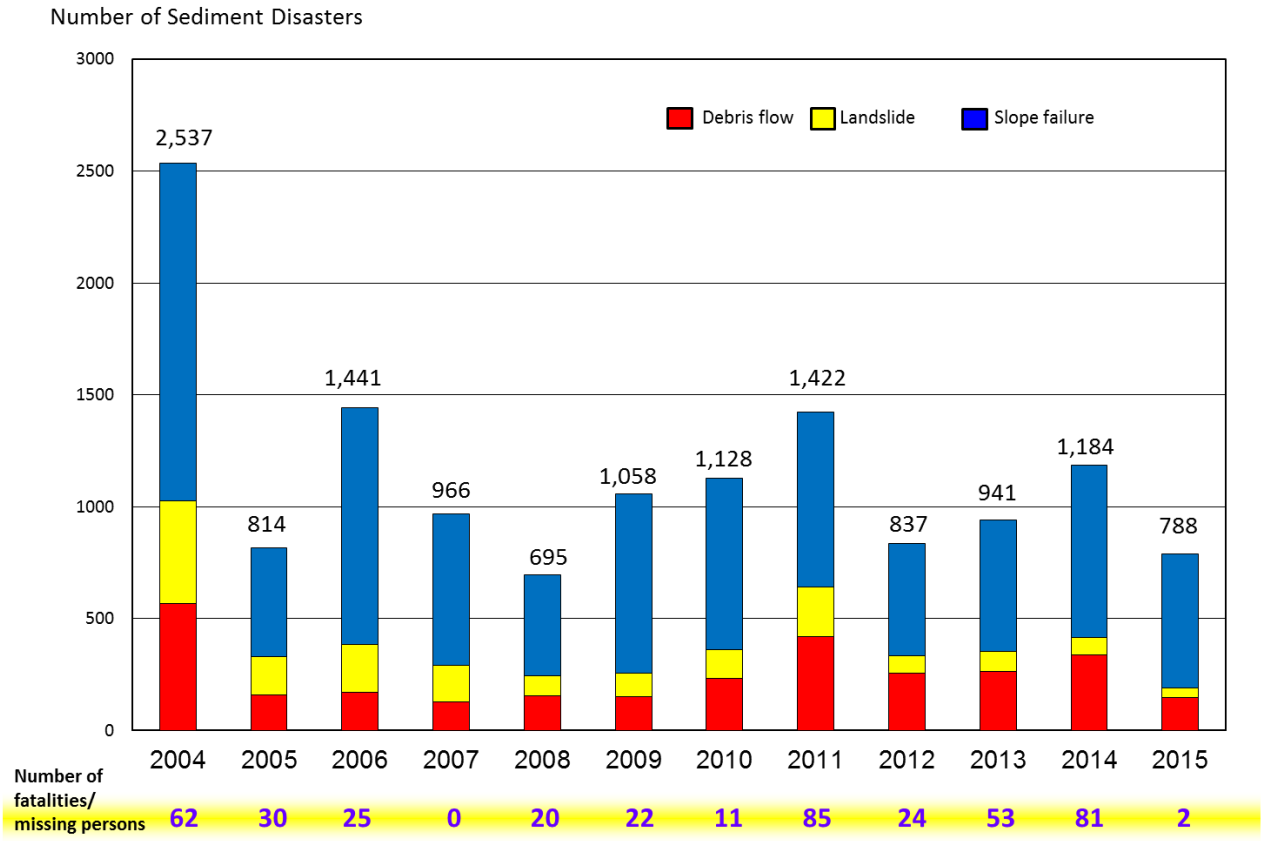
Year of Eruption	Name of Volcano	No. of Victims	Eruption and Damage Characteristics
1640	Hokkaido-Komagatake*	At least 700	Sector collapse, debris flow, tsunami, large amount of falling ash, pyroclastic flow
1663	Mt. Usu*	5	Nearby homes disappeared or were buried
1664	Mt. Unzen	At least 30	Lava flow, flood of water from crater
1667	Mt. Tarumae*		Pyroclastic flow, large amount of falling ash/pumice
1694	Hokkaido-Komagatake		Eruption with earthquake/volcanic thunder, falling pumice stone, pyroclastic flow
1707	Mt. Fuji*		“Great Hoei eruption," large amount of falling ash, landslide disaster after eruption
1721	Mt. Asama	15	Cinders
1739	Mt. Tarumae*		Pyroclastic flow, large amount of falling ash/pumice
1741	Oshima-Oshima	1,467	Sector collapse, large tsunami occurred due to debris avalanche
1769	Mt. Usu		Large amount of falling ash/pumice, pyroclastic flow
1777	Izu Oshima		”Great Anei eruption," lava flow, scoria fall
1779	Sakurajima*	At least 150	“Great Anei eruption," cinders, lava flow
1781	Sakurajima	15	Eruption on an island off of Komen, tsunami
1783	Mt. Asama	1,151	“Great Tenmei eruption," pyroclastic flow, lava flow, , flooding of Agatsuma River and Tone River
1785	Aogashima	130–140	Cinders, mud, more than one-third of islanders became victims. Uninhabited island for more than 50 years thereafter
1792	Mt. Unzen	15,000	“Shimabara taihen, Higo meiwaku," tsunami on opposing shore due to collapse of Mt. Mayuyama
1822	Mt. Usu	50–103	Pyroclastic flow, former Abuta village totally destroyed
1853	Mt. Usu		Large amount of volcanic ash/pumice, formation of lava dome, pyroclastic flow
1856	Hokkaido-Komagatake	21–29	Falling pumice, pyroclastic flow
1888	Mt. Bandai*	461–477	5 towns and 11 villages buried in debris avalanche, debris flow (volcanic mud flow)
1900	Mt. Adatara	72	Cinders, sulfur mine at crater totally destroyed
1902	Torishima	125	All islanders became victims
1914	Sakurajima*	58	“Great Taisho eruption," volcanic thunder, lava flow, earthquake, air wave, villages buried, large amount of falling ash
1926	Mt. Tokachi	144	Larger mudflow, towns of Kamifurano and Biei buried
1929	Hokkaido-Komagatake	2	Large amount of falling ash/pumice, pyroclastic flow, volcanic gas damage
1940	Miyakejima	11	Large amount of volcanic ash/volcanic bombs, lava flow
1952	Bayonnaise Rocks (Myojin-sho)	31	Pyroclastic surge
1943–45	Mt. Usu	1	Large amount of volcanic ash, cinders, formation of Showa-shinzan (new mountain)
1958	Mt. Aso	12	Cinders
1991	Mt. Unzen	43	Pyroclastic flow, debris flow
2014	Mt. Ontake	58	Cinders

Note: Lists "Eruption disasters with 10 or more fatalities and/or missing persons" and "Large eruptions with an apparent volume of ejecta of 0.1 km^3 or more"

*Indicates eruptions with apparent volume of ejecta of more than 1 km^3

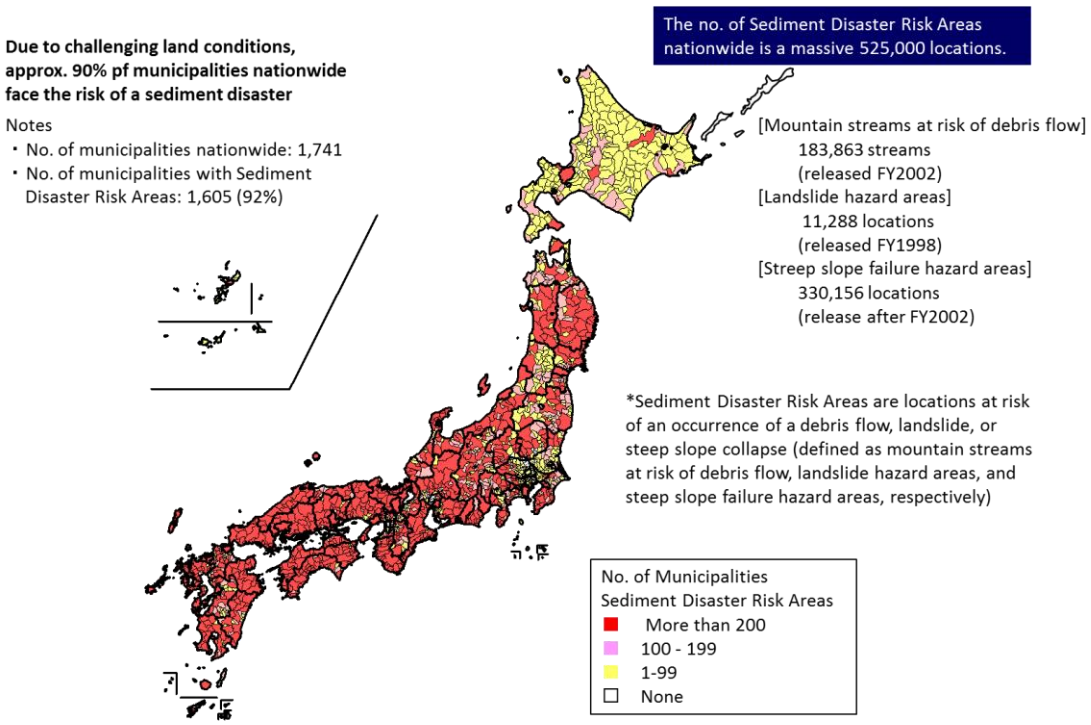
Source: Created by the Cabinet Office based on the National Catalogue of the Active Volcanoes in Japan (4th Edition) (edited by the Japan Meteorological Agency, 2013).

Fig. A-21 Number of Sediment Disasters



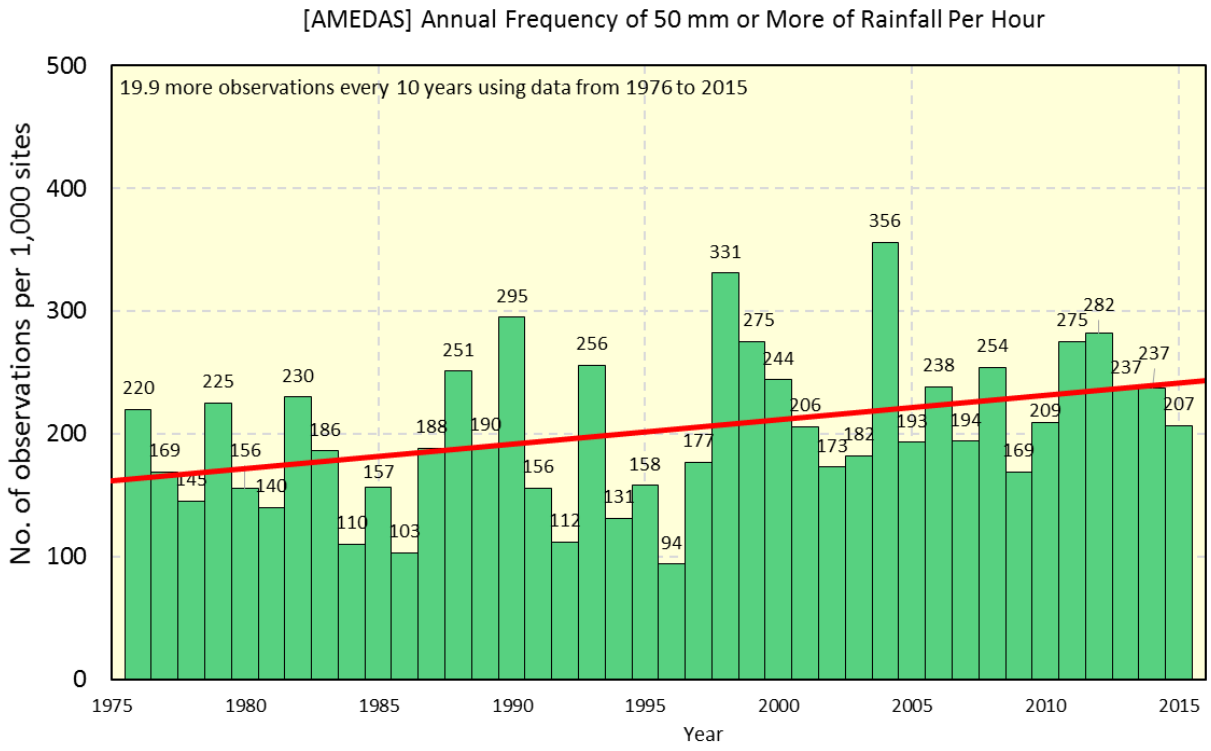
Source: Ministry of Land, Infrastructure, Transport and Tourism

Fig. A-22 Sediment Disaster Risk Areas by Municipalities



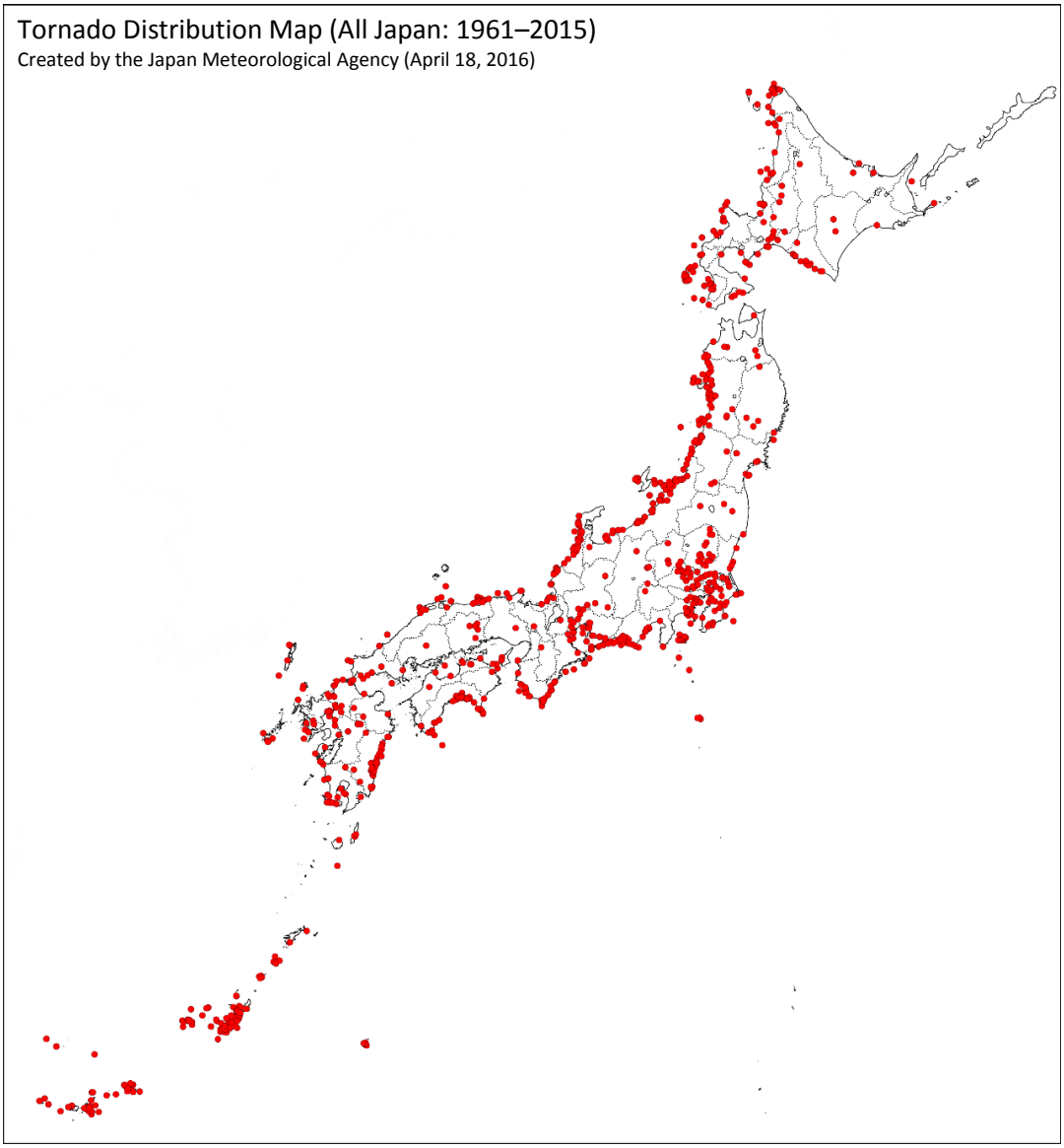
Source: Ministry of Land, Infrastructure, Transport and Tourism, as of March 31, 2015

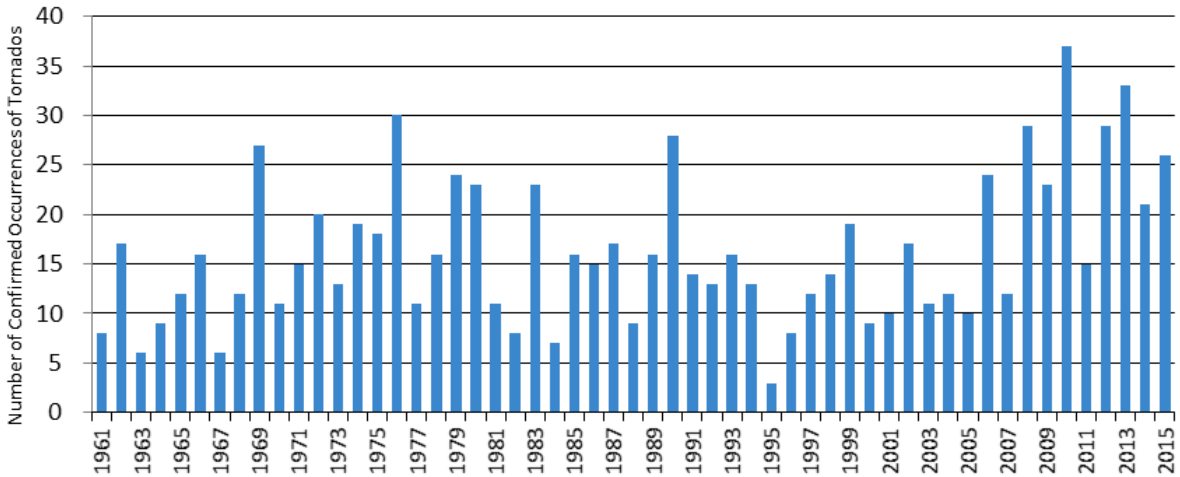
Fig. A-23 Increase in Torrential Rain During Short Periods



Source: Japan Meteorological Agency (website)

Fig. A-24 Number of Confirmed Occurrences of Tornados





Source: (Upper) Japan Meteorological Agency.
(Lower) Created by the Cabinet Office based on the document, "Number of Confirmed Occurrences by Year (1961–2015)" on the Japan Meteorological Agency website.

Fig. A-25 Major Natural Disasters in the World Since 1900

Year	Disaster Type	Country (Areas)	Fatalities/Missing Persons (approx.)
1900	Hurricane Galveston	Texas, USA	6,000
1902	Volcanic Eruption	Martinique (West Indies, Mt. Pelée)	29,000
1902	Volcanic Eruption	Santa Maria Volcano, Guatemala	6,000
1905	Earthquake	Northern India	20,000
1906	Earthquake (Chiayi earthquake)	Taiwan	6,000
1906	Earthquake/Fire	San Francisco, USA	1,500
1906	Earthquake	Chile	20,000
1906	Typhoon	Hong Kong	10,000
1907	Earthquake	Tianshan, China	12,000
1907	Earthquake	Uzbekistan (former Soviet Union)	12,000
1908	Earthquake (Messina earthquake)	Sicily, Italy	75,000
1911	Flood	China	100,000
1911	Volcanic Eruption	Taal Volcano, Philippines	1,300
1912	Typhoon	Wenzhou, China	50,000
1915	Earthquake	Central Italy	30,000
1916	Landslide	Italy, Austria	10,000
1917	Earthquake	Bali, Indonesia	15,000
1918	Earthquake	Guangdong, China	10,000
1919	Volcanic Eruption	Kelut Volcano, Indonesia	5,200
1920	Earthquake/Landslide (Haiyuan earthquake)	Gansu, China	180,000
1922	Typhoon	Shantou, China	100,000
1923	Earthquake/Fire (Great Kanto earthquake)	Southeast Kanto region, Japan	143,000
1927	Earthquake (Kitatango earthquake)	Northern Kyoto, Japan	2,930
1927	Earthquake	Nanchang, China	200,000
1928	Hurricane/Flood	Florida, USA	2,000
1930	Volcanic Eruption	Merapi volcano, Indonesia	1,400
1931	Flood	Coastal areas of the Yangtze River and other rivers in China	3,700,000
1932	Earthquake (Gansu earthquake)	Gansu, China	70,000
1933	Flood	Henan, China	18,000
1933	Tsunami (Showa Sanriku Tsunami)	Sanriku, Japan	3,000
1933	Earthquake	China	10,000
1935	Flood	China	142,000
1935	Earthquake (Quetta Earthquake)	Baltistan, Pakistan	60,000
1939	Earthquake/Tsunami	Chile	30,000
1939	Flood	Hunan, China	500,000
1939	Earthquake	Eastern Turkey	32,962
1942	Cyclone	Bangladesh	61,000
1942	Cyclone	Orissa, India	40,000
1943	Earthquake	Tottori, Japan	1,083
1944	Earthquake (Showa Tonankai Earthquake)	Tonankai, Japan	1,200
1944	Earthquake Midwestern	Argentina	10,000
1945	Earthquake (Mikawa Earthquake)	Aichi, Japan	2,300
1945	Typhoon (Typhoon Makurazaki)	Western Japan	3,700
1946	Earthquake/Tsunami (Showa Nankai Earthquake)	Nankai, Japan	1,400
1947	Typhoon (Typhoon Catherine)	Northern Tohoku, Japan	1,900
1948	Earthquake (Fukui Earthquake)	Fukui, Japan	3,900
1948	Earthquake (Ashgabat Earthquake)	Turkmenistan (former Soviet Union)	110,000
1949	Earthquake/Landslide	Tajikistan (former Soviet Union)	12,000
1949	Flood	China	57,000
1949	Flood	Guatemala	40,000
1951	Volcanic Eruption Mt. Lamington,	Papua New Guinea	2,900
1953	Flood	Coastal areas of the North Sea	1,800
1953	Flood	Kyushu, Japan	1,000
1953	Flood	Honshu, Japan	1,100
1954	Flood	China	40,000
1954	Typhoon (Typhoon Toyamaru)	Japan	1,700
1959	Flood	China	2,000,000
1959	Typhoon (Typhoon Ise-wan)	Japan	5,100
1960	Flood	Bangladesh	10,000
1960	Earthquake	Southwestern Morocco	12,000
1960	Earthquake/Tsunami	Chile	6,000
1961	Cyclone	Bangladesh	11,000

Year	Disaster Type	Country (Areas)	Fatalities/Missing Persons (approx.)
1962	Earthquake	Northwestern Iran	12,000
1963	Cyclone	Bangladesh	22,000
1965	Cyclone	Bangladesh	36,000
1965	Cyclone	Southern Pakistan	10,000
1968	Earthquake	Northwestern Iran	12,000
1970	Earthquake	Yunnan, China	10,000
1970	Earthquake/Landslide	Northern Peru	70,000
1970	Cyclone Bhola	Bangladesh	300,000
1971	Cyclone	Orissa, India	10,000
1972	Earthquake (Managua earthquake)	Nicaragua	10,000
1974	Earthquake	Yunnan and Sichuan, China	20,000
1974	Flood	Bangladesh	28,700
1975	Earthquake	Liaoning, China	10,000
1976	Earthquake (Guatemala earthquake)	Guatemala	24,000
1976	Earthquake (Tangshan earthquake)	Tianjin, China	242,000
1977	Cyclone	Andhra Pradesh, India	20,000
1978	Earthquake	Northeastern Iran	25,000
1982	Volcanic Eruption	El Chichon Volcano, Mexico	17,000
1985	Cyclone	Bangladesh	10,000
1985	Earthquake	Mexico City, Mexico	10,000
1985	Volcanic Eruption	Nevado del Ruiz Volcano, Colombia	22,000
1986	Toxic gas	Lake Nyos, Western Cameroon	1,700
1986	Earthquake	San Salvador, El Salvador	1,000
1987	Earthquake	Northwestern Ecuador	5,000
1987	Flood	Bangladesh	1,000
1988	Earthquake	India, Nepal	1,000
1988	Flood	Bangladesh	2,000
1988	Earthquake (Spitak Earthquake)	Armenia (former Soviet Union)	25,000
1988	Earthquake	Yunnan, China	1,000
1989	Flood	India	1,000
1989	Flood/Landslide	Sichuan, China	2,000
1990	Earthquake (Manjil Earthquake)	Northern Iran	41,000
1990	Earthquake	Philippines	2,000
1991	Cyclone/Storm Surge	Chittagong, Bangladesh	137,000
1991	Flood	Jiangsu, China	1,900
1991	Typhoon	Philippines	6,000
1992	Flood	Pakistan	1,300
1992	Earthquake/Tsunami	Indonesia	2,100
1993	Flood	Nepal	1,800
1993	Earthquake (Maharashtra Earthquake)	India	9,800
1993	Flood	India	1,200
1994	Heavy Rain, Flood	India	2,000
1994	Typhoon, Flood	6 Southern Provinces of China	1,000
1994	Tropical Storm	Haiti	1,100
1995	Earthquake (Great Hanshin-Awaji Earthquake)	Japan	6,300
1995	Earthquake	Russia	1,800
1995	Flood	China	1,200
1996	Flood/Typhoon	Seven southern and five northern and northwestern provinces of China	2,800
1996	Typhoon/Flood	Viet Nam	1,000
1997	Earthquake	Eastern Iran	1,600
1997	Flood	India	1,400
1997	Flood	Southern Somalia	2,000
1997	Typhoon Linda	Southern Viet Nam	3,700
1998	Earthquake	Northern Afghanistan	2,300
1998	Earthquake	Northern Afghanistan	4,700
1998	Flood/Landslide	Assam state, India	3,000
1998	Cyclone	India	2,900
1998	Flood	Bangladesh	1,000
1998	Flood	Coastal areas of the Yangtze River and other rivers in China	3,700
1998	Tsunami (Aitape Tsunami)	Papua New Guinea	2,600
1998	Hurricane	Mitch Honduras, Nicaragua	17,000
1999	Earthquake (Quindio Earthquake)	Mid-western Colombia	1,200
1999	Earthquake (Izmit Earthquake)	Western Turkey	15,500
1999	Earthquake (Chi-Chi earthquake)	Taiwan	2,300
1999	Cyclone	India	9,500

Year	Disaster Type	Country (Areas)	Fatalities/Missing Persons (approx.)
2000	Flood	Venezuela	30,000
2001	Earthquake (Gujarat earthquake)	India	20,000
2001	Earthquake	El Salvador	1,200
2003	Earthquake	Northern Algeria	2,300
2003	Earthquake (Bam earthquake)	Iran	26,800
2004	Flood	Haiti	2,700
2004	Hurricane	USA, Jamaica, Puerto Rico, Haiti	3,000
2004	Earthquake, Tsunami (2004 Indian Ocean Earthquake and Tsunami)	Sri Lanka, Indonesia, Maldives, India, Thailand, Malaysia, Myanmar, Seychelles, Somalia, Tanzania, Bangladesh, Kenya	Over 226,000
2005	Flood/Landslide	India	1,200
2005	Hurricane Katrina	USA	1,800
2005	Rainstorm	India, Bangladesh	1,300
2005	Hurricane Stan/Flood	Guatemala, El Salvador, Mexico	1,500
2005	Earthquake (Pakistan earthquake)	Northern Pakistan and India	75,000
2006	Landslide	Philippines	1,100
2006	Earthquake/Volcanic Eruption	Merapi volcano, Indonesia	5,800
2006	Typhoon Xangsane	Luzon, Philippines	1,400
2007	Heavy Rain, Flood	India	1,100
2007	Cyclone Sidr	Bangladesh	4,200
2008	Earthquake (Great Sichuan Earthquake)	China	87,500
2008	Cyclone Nargis	Myanmar	138,400
2008	Flood	North-eastern India	1,100
2009	Earthquake (2009 Sumatra Earthquake)	Indonesia	1,200
2009	Flood	South of India	1,200
2010	Earthquake (Haiti Earthquake)	Haiti	222,600
2010	Earthquake (Yushu)	Qinghai, China	3,000
2010	Flood	North-western Pakistan	2,000
2010	Heavy Rain, Debris Flow	Yangtze River Basin, China	1,800
2011	Earthquake, Tsunami (Great East Japan Earthquake)	Tohoku and Kanto regions, Japan	19,000
2011	Typhoon Washi	Mindanao, Philippines	1,400
2012	Typhoon Bopha	Mindanao, Philippines	1,900
2013	Flood	Northern India	1,500
2013	Typhoon Haiyan	Leyte, Philippines	6,200

Source: Prepared by the Cabinet Office based on materials including the Chronological Scientific Tables and EM-DAT: The OFDA/CRED International Disaster Database (www.emdat.be, Université Catholique de Louvain, Brussels, Belgium).

Fig. A-26 Top 10 Largest Earthquakes Since 1900

(As of March 31, 2016)

Ranking	Date (Japan Time)	Location	Magnitude (Mw)
1	May 23, 1960	Chile	9.5
2	March 28, 1964	Gulf of Alaska	9.2
3	December 26, 2004	Off the West Coast of Northern Sumatra, Indonesia	9.1
4	March 11, 2011	Off the Sanriku Coast, Japan (Great East Japan Earthquake)	9.0
	November 5, 1952	Kamchatka Peninsula	9.0
6	February 27, 2010	Offshore Maule, Chile	8.8
	February 1, 1906	Offshore Ecuador	8.8
8	February 4, 1965	Aleutian Islands, Alaska	8.7
9	April 11, 2012	Off the West Coast of Northern Sumatra, Indonesia	8.6
	March 29, 2005	Northern Sumatra, Indonesia	8.6
	March 10, 1957	Aleutian Islands, Alaska	8.6
	August 16, 1950	Tibet, Assam	8.6

Mw: Moment magnitude

Source: US Geological Survey

Fig. A-27 Major Natural Disasters Since 2015

Date	Country	Disaster Type	Fatalities	People Affected	Direct Damages (USD 1,000)
Apr.-May 2015	Niger	Drought		2,588,128	
Apr. 4-10, 2015	USA	Storm	3	12	1,400,000
Apr. 25, 2015	Nepal	Earthquake	8,831	5,639,722	3,860,000
May-Oct. 2015	Papua New Guinea	Drought	24	2,400,000	50,000
May 6-13, 2015	USA	Flood	6		1,000,000
May 12, 2015	Nepal	Earthquake	138	543	
May 20-31, 2015	India	Heat Wave	2,248		
May 23-30, 2015	USA	Flash Flood	32	12,000	1,300,000
Jun.-Jul. 2015	North Korea	Drought		18,000,000	
Jun. 7-11, 2015	China	Flood	16	60,000	2,000,000
Jun. 18-24, 2015	Pakistan	Heat Wave	1,229	80,000	
Jun. 23-30, 2015	Bangladesh	Flood	20	1,381,250	
Jun. 29-Aug. 9, 2015	France	Heat Wave	3,275		
Jun. 30-Jul. 5, 2015	Belgium	Heat Wave	410		
Jul.-Aug. 2015	Guatemala	Drought		1,300,000	
Jul. 12, 2015	Philippines	Typhoon	5	14,100	1,500,000
Jul. 15-19, 2015	India	Flood	293	13,709,887	
Jul. 15-19, 2015	Pakistan	Flood	219	1,529,372	
Jul. 15-19, 2015	Myanmar	Flood	103	1,100,000	109,000
Jul. 20-29, 2015	China	Flood	28	128,610	1,200,000
Jul. 29-30, 2015	Bangladesh	Cyclone	45	2,600,000	
Aug. 9, 2015	Egypt	Heat Wave	109	66	
Aug. 9, 2015	China	Typhoon	18	1,580,000	1,282,690
Sep. 2015-Jan. 2016	Ethiopia	Drought		10,000,000	
Sep. 13-20, 2015	USA	Forest Fires	6	7,302	2,000,000
Sep. 16, 2015	Chile	Earthquake	19	681,499	1,000,000
Oct. 2015-Jan. 2016	Malawi	Drought		2,800,000	
Oct. 2015-Jan. 2016	Zimbabwe	Drought		1,490,024	
Oct. 1, 2015	Guatemala	Landslide	627	1,269	
Oct. 1-13, 2015	USA	Flood	15	800	5,000,000
Oct. 3-4, 2015	France	Flash Flood	20		1,000,000
Oct. 4, 2015	China	Typhoon	20	78,300	4,200,000
Oct. 14-20, 2015	Philippines	Typhoon	51	2,898,590	210,385
Oct. 25, 2015	Pakistan	Earthquake	280	502,590	
Oct. 26, 2015	Afghanistan	Earthquake	117	92,725	
Nov. 8-Dec. 4, 2015	India	Flood	325	1,801,000	3,000,000
Nov. 21, 2015	Myanmar	Landslide	113		
Dec. 1, 2015-Jan. 6, 2016	Kenya	Flood	112	240,799	
Dec. 4-6, 2015	UK	Storm	3	15,600	1,100,000
Dec. 15, 2015-Jan. 6, 2016	USA	Flood	18	4,060	1,000,000
Dec. 26, 2015	UK	Flood		48,000	2,500,000
Dec. 26-30, 2015	USA	Storm	46	60	3,000,000
Jan. 2016-	Viet Nam	Drought		1,800,000	
Feb. 6, 2016	China (Taiwan)	Earthquake	116		

Source: Prepared by the Cabinet Office based on materials including relevant information from countries, UN Office for the Coordination of Humanitarian Affairs (UNOCHA) and Centre for Research on the Epidemiology of Disasters (CRED).

(1) Nepal Earthquake

On April 25, 2015, at 11:56 local time (15:11 in Japan), Nepal was struck by a magnitude 7.8 earthquake centered on the Gandaki zone, about 80km northwest of the capital, Kathmandu, followed on May 12 by a magnitude 7.4 earthquake near the eastern edge of the focal region of April's earthquake. These earthquakes caused immense damage, resulting in the total destruction of around 500,000 homes, with approximately 9,000 people killed and at least 22,300 injured. Many historical buildings and temples at World Heritage Sites collapsed and the earthquake triggered a major avalanche on Mount Everest. Human casualties were also reported in the neighboring countries of India, Bangladesh, and Tibet.

Shortly after the disaster occurred, the Government of Japan dispatched disaster relief supplies and provided emergency grant aid, as well as deploying the Japan Disaster Relief Team to conduct disaster relief activities and provide medical care. Japan has been providing seamless support in areas ranging from disaster relief to assistance with the preparation of plans for recovery and reconstruction and efforts to promote widespread adoption of earthquake-resistant construction.

(2) Afghanistan-Pakistan Earthquake

On October 26, at 13:39 local time (18:09 in Japan), Afghanistan was struck by a magnitude 7.5 earthquake centered on Badakhshan Province, 250km northeast of the capital city, Kabul. In Afghanistan, around 7,300 homes were destroyed, with 117 people killed and 544 injured. The neighboring country of Pakistan also suffered immense damage, with around 2,900 homes destroyed, 280 people killed, and 1,773 people injured. Roads were cut off and communications severed in the rugged mountainous area affected by the disaster, so it took time to ascertain the extent of the damage, making it difficult to carry out rescue operations promptly.

The Government of Japan distributed emergency relief supplies through the NGO Japan Platform for about three months after the earthquake. Due to security concerns in the disaster-stricken area, Japan worked with local NGOs, etc. to ensure swift distribution of food and other supplies in order to help disaster victims to get through the winter.

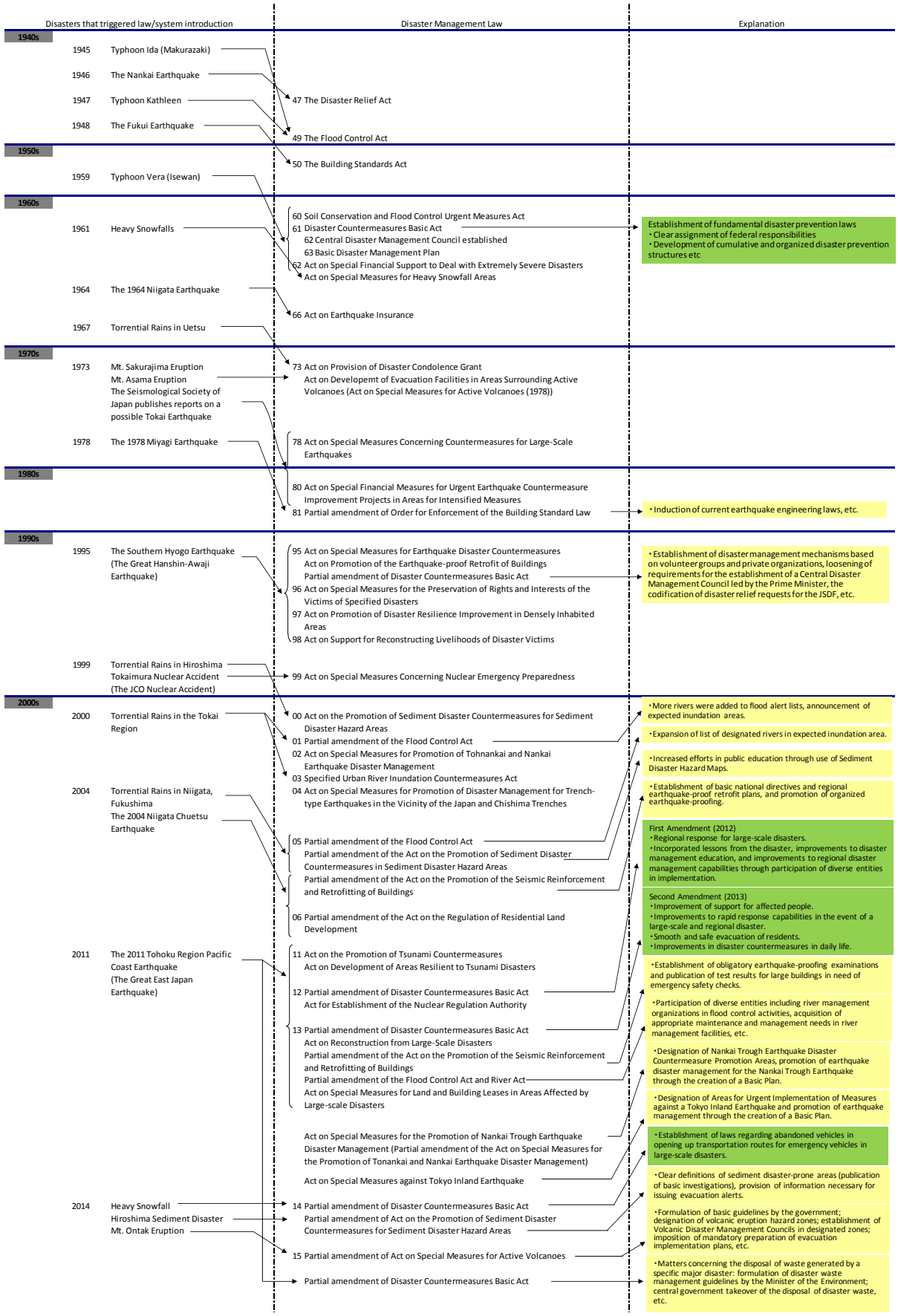
(3) Torrential Rain in Southeast India

Intermittent heavy rain in and around Chennai, in the southeast Indian state of Tamil Nadu from early November reached record-breaking levels that caused flooding, resulting in 325 fatalities and affecting around 3 million other people, with approximately 110,000 homes being destroyed by the floods. The torrential rain had a serious impact on daily life and business activities: roads in many parts of central Chennai were submerged and the city also suffered power outages and interruptions to the water supply. In addition, Chennai International Airport was closed due to its runways being submerged, while factories and offices also had to shut down.

Floods also hit other parts of India in August, impacting vast swathes of eastern and western India and resulting in 293 deaths. More than 13 million people were affected by the disaster and the number of homes destroyed was in excess of 110,000. Flooding and other water-related disasters also caused a huge amount of damage in other parts of the Asia-Pacific region, including 238 fatalities due to flooding in neighboring Pakistan in July.

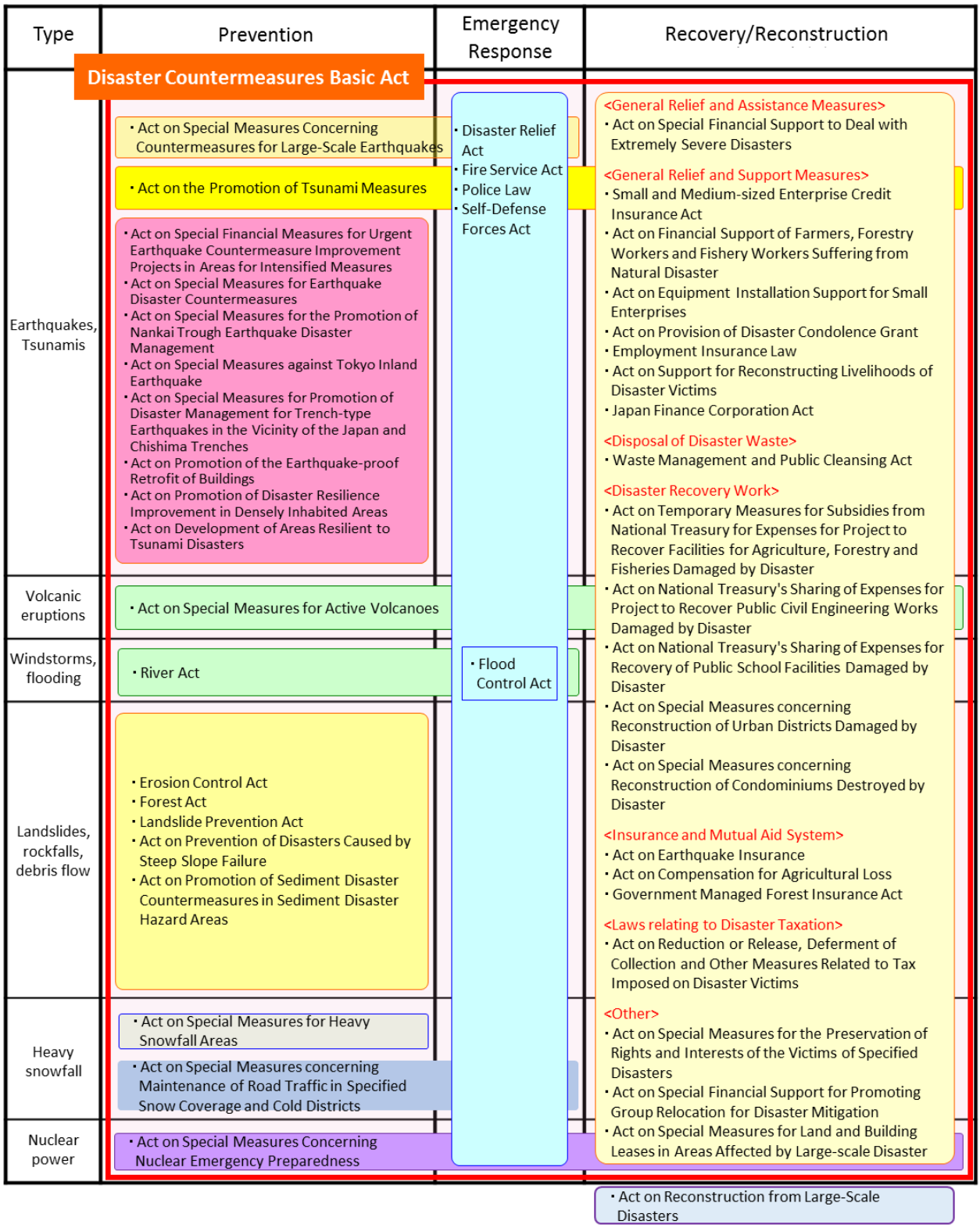
3. Laws and Systems

Fig. A-28 Progress on Disaster Management Laws and Systems Since 1945



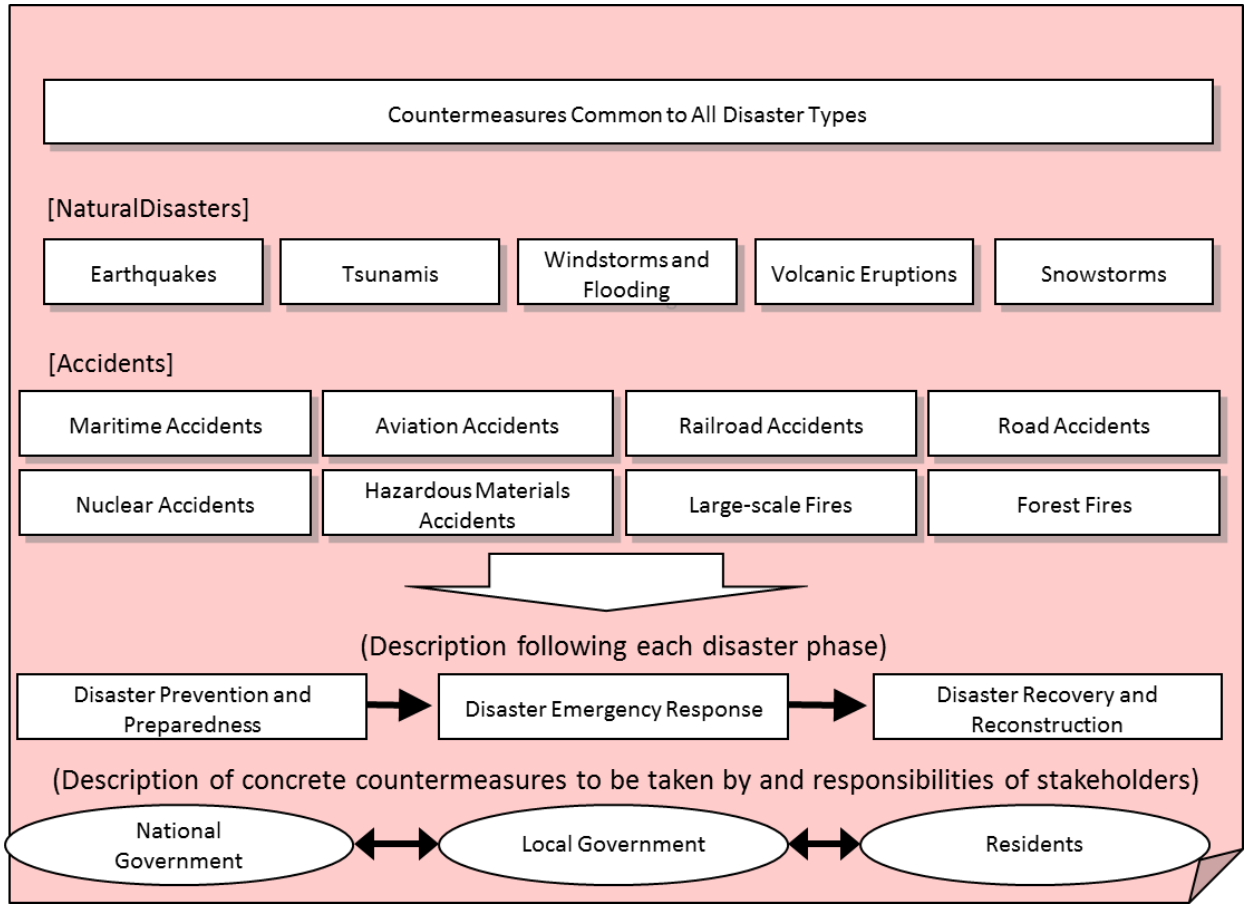
Source: Cabinet Office

Fig. A-29 Major Disaster Management Laws by Type of Disaster



Source: Cabinet Office

Fig. A-30 Structure and System of the Basic Disaster Management Plan



Source: Cabinet Office

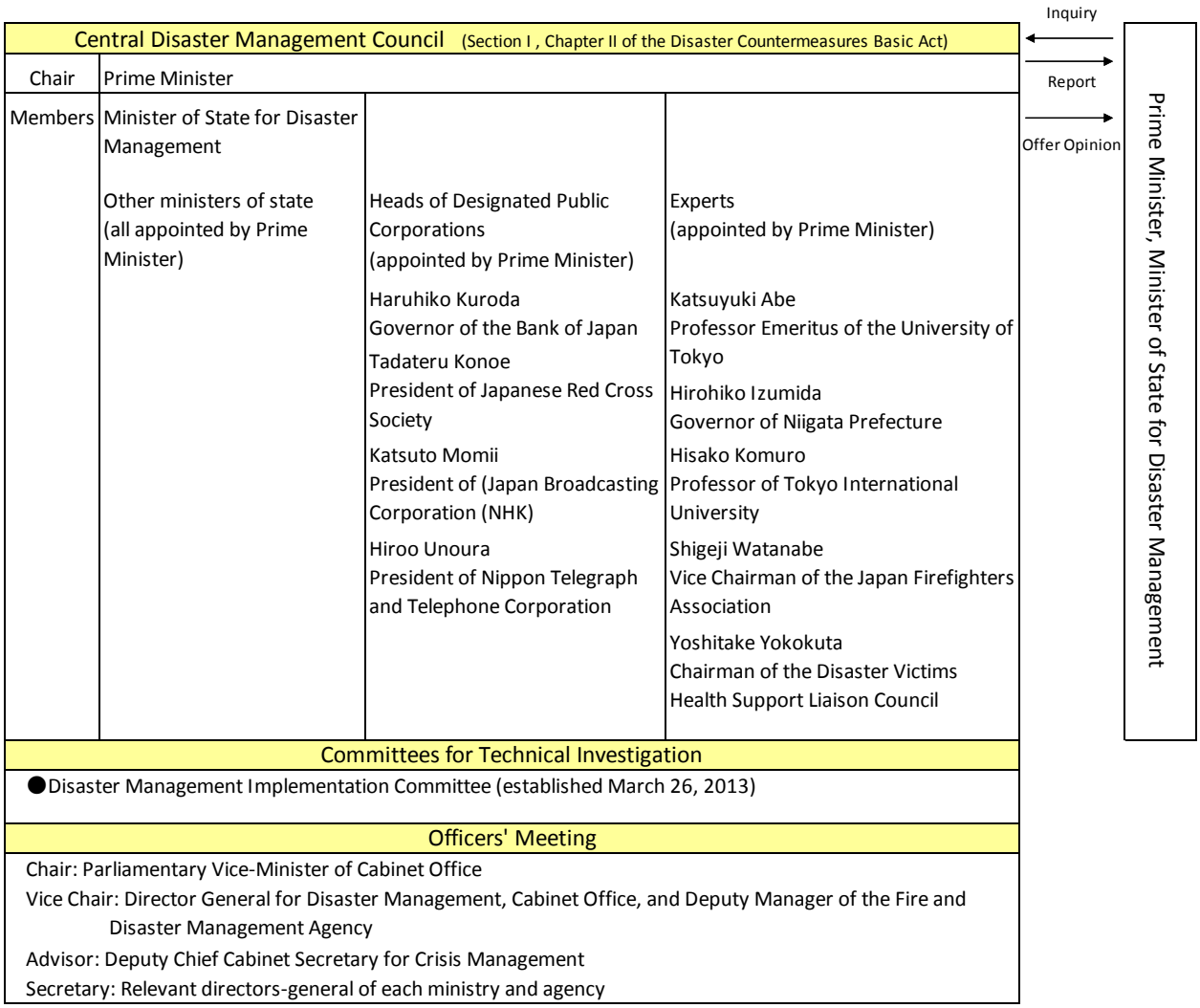
Fig. A-31 History of Revisions to the Basic Disaster Management Plan

Revision Date	Outline of Revision	Background
June 1963	- The Basic Disaster Management Plan formulated based on the Disaster Countermeasures Basic Act - Stipulations regarding various measures to prevent natural disasters, mitigate damage, and promote disaster reconstruction	Sep. 26, 1959: Typhoon Isewan Nov. 15, 1961: Enactment of the Disaster Countermeasures Basic Act
May 1971	Partial revision - Enhancement of earthquake countermeasures (facilities for earthquake prediction, preparation of fire fighting helicopters) - Renewed positioning of countermeasures to tackle hazardous materials, petrochemical complexes, and wildfires	Sep. 6, 1967 Recommendation concerning Disaster Prevention Measures (recommending revisions in response to a modern socioeconomy)
July 1995	Complete revision - Structured this version by disaster type, and included stipulations in the following order: prevention, emergency response, recovery/reconstruction - Clearly defined the stakeholders, such as national governments, public agencies, local governments, and businesses, and specified countermeasures - Stipulated that changes in social structure such as the aging of society should be taken into account	Jan. 17, 1995: Great Hanshin-Awaji Earthquake
June 1997	Partial revision - Addition of section on countermeasures to address disasters caused by accidents (structural improvements such as the establishment of an emergency countermeasures headquarters) - Addition of a section on snowstorm countermeasures	Jan. 2, 1997: Nakhodka Oil Spill Accident
May 2000	Partial revision - Revision of the section on countermeasures to tackle nuclear power disasters, following the enactment of the Act on Special Measures Concerning Nuclear Emergency Preparedness	Sep. 30, 1999: Criticality accident at uranium fabrication plant in Tokai-mura, Ibaraki prefecture
December 2000	Partial revision - Revisions resulting from the national government reformation	National government reformation
April 2002	Partial revision - Enhancement of descriptions relating to information transmission to residents and evacuation measures regarding countermeasures against flooding, sediment disasters, and storm surges - New positioning of nuclear power disasters related to nuclear vessels	Jun. 29, 1999: Heavy rain disaster in Hiroshima Prefecture Sep. 24, 1999: Storm surge disaster in Kumamoto Prefecture
March 2004	Partial revision - Revisions based on the creation of the Basic Plan for the Promotion of Tonankai and Nankai Earthquake Countermeasures (seismic retrofitting of public buildings, etc.) - Revisions based on the development of policies such as the development of an earthquake early warning system	Mar. 31, 2004: Creation of a Basic Plan for the Promotion of Tohnankai and Nankai Earthquake Countermeasures
July 2005	Partial revision - Revisions based on developments in policy, such as the promotion of a nationwide movement to practice disaster preparedness, the promotion of corporate disaster risk reduction efforts, the formulation and implementation of an earthquake DRR strategy, tsunami DRR measures such as the development of tsunami evacuation buildings, information transmission during torrential rains, evacuation support for the elderly, etc.	July 28, 2004: Creation of an Earthquake Disaster Risk Reduction Strategy Dec. 26, 2004: Indian Ocean Tsunami (Sumatra/Andaman Earthquake)
March 2007	Partial revision - Revisions resulting from the transition from Defense Agency to Ministry of Defense	Transition from Defense Agency to Ministry of Defense
February 2008	Partial revision - Implementation of follow-up actions on key issues regarding the Basic Disaster Management Plan, development of strategic national movements, establishment of conditions for the promotion of corporate disaster risk reduction, full-scale introduction of earthquake early warning system, strengthening of nuclear power disaster countermeasures in light of lessons learned from the Niigataken Chuetsu-oki Earthquake	July 16, 2007:The Niigataken Chuetsuoki Earthquake
December 2011	Partial revision - Radical strengthening of earthquake/tsunami countermeasures in light of the Great East Japan Earthquake (addition of tsunami disaster countermeasure section)	Mar. 11, 2011 The Great East Japan Earthquake
September 2012	Partial revision - Strengthening of countermeasures against large-scale regional disasters in light of revisions to the Disaster Countermeasures Basic Act (First Revision), and the final report of the Central Disaster Management Council's Committee for Policy Planning on Disaster Management (each section) - Strengthening of nuclear power disaster countermeasures in light of the enactment of the Act for Establishment of the Nuclear Regulation Authority (nuclear power disaster countermeasures section)	Mar. 11, 2011 The Great East Japan Earthquake Jun. 27, 2012 Partial revisions to the Disaster Countermeasures Basic Act Sep. 19, 2012 Inauguration of the Nuclear Regulatory Authority
January 2014	Partial revision - Strengthening of countermeasures against large-scale disasters in light of revisions to the Disaster Countermeasures Basic Act (Second Revision) and the enactment of the Act on Reconstruction from Large-Scale Disasters (each section) - Strengthening of nuclear disaster countermeasures in light of investigations by the Nuclear Regulation Authority	Mar. 11, 2011 The Great East Japan Earthquake Jun. 21, 2013 Partial revisions to the Disaster Countermeasures Basic Act, enactment of the Act on Reconstruction from Large-Scale Disasters
November 2014	Partial revision - Strengthening of countermeasures against abandoned and stranded vehicles following revision of the Disaster Countermeasures Basic Act - Addition of descriptions in light of lessons learned from heavy snowfall of February 2014, such as the diversification of information transmission methods such as warnings of heavy snow	Feb. 2014: Heavy snowfall Nov. 21, 2014: Partial revisions to the Disaster Countermeasures Basic Act
March 2015	Partial revision - Improvement and strengthening of nuclear disaster risk reduction systems e.g., through the establishment of local nuclear disaster management committees and national support for the enhancement of local disaster management plans/evacuation plans (nuclear disaster countermeasures section)	Mar. 5, 2015: Cabinet Secretariat Three-Year Revision and Investigation Team "Improvement and Strengthening of the Nuclear Disaster Management System (Second Report)"
July 2015	Partial revision -Revisions resulting from the strengthening of measures in light of lessons learned from the Hiroshima Sediment Disaster and the Mt. Ontake Eruption (each section)	Jan. 18, 2015: Partial revisions to the Act on the Promotion of Sediment Disaster Countermeasures in Sediment Disaster Hazard Areas Mar. 26, 2015: Working Group for the Promotion of Volcano Disaster Prevention report Jun. 4, 2015: Working Group for Studying Comprehensive Countermeasures against Sediment Disasters report
February 2016	Partial revision -Revisions resulting from the strengthening of measures in light of the revision of laws, including the Act on Special Measures for Active Volcanoes, the Flood Control Act, the Sewerage Act, the Waste Management and Public Cleansing Act, and the Disaster Countermeasures Basic Act (each section)	Dec. 10, 2015: Partial revisions to the Act on Special Measures for Active Volcanoes

Source: Cabinet Office

4. Organizations

Fig. A-32 Organization of the Central Disaster Management Council



Central Disaster Management Council (Section I , Chapter II of the Disaster Countermeasures Basic Act)			
Chair	Prime Minister		
Members	Minister of State for Disaster Management Other ministers of state (all appointed by Prime Minister)	Heads of Designated Public Corporations (appointed by Prime Minister) Haruhiko Kuroda Governor of the Bank of Japan Tadateru Konoe President of Japanese Red Cross Society Katsuto Momii President of (Japan Broadcasting Corporation (NHK) Hiroo Unoura President of Nippon Telegraph and Telephone Corporation	Experts (appointed by Prime Minister) Katsuyuki Abe Professor Emeritus of the University of Tokyo Hirohiko Izumida Governor of Niigata Prefecture Hisako Komuro Professor of Tokyo International University Shigeji Watanabe Vice Chairman of the Japan Firefighters Association Yoshitake Yokokuta Chairman of the Disaster Victims Health Support Liaison Council

Committees for Technical Investigation

● Disaster Management Implementation Committee (established March 26, 2013)

Officers' Meeting

Chair: Parliamentary Vice-Minister of Cabinet Office
Vice Chair: Director General for Disaster Management, Cabinet Office, and Deputy Manager of the Fire and Disaster Management Agency
Advisor: Deputy Chief Cabinet Secretary for Crisis Management
Secretary: Relevant directors-general of each ministry and agency

[Role]

- ○ Formulate a Basic Disaster Management Plan and Earthquake Disaster Management Plan and promote their implementation
- ○ Discuss important issues related to disaster management in response to inquiries from the Prime Minister or the Minister of State for Disaster Management (e.g., basic approaches to disaster management, comprehensive coordination of disaster management policies, and the declaration of states of emergency)
- ○ Offer opinions on important issues related to disaster management to the Prime Minister or the Minister of State for Disaster Management

Source: Cabinet Office

Fig. A-33 Recent Meetings of the Central Disaster Management Council (Since 2008)

FY2009	
Apr. 21, 2009	• FY 2009 Comprehensive Disaster Management Drill Framework • Framework for Chubu and Kinki Region Inland Earthquake Countermeasures • New Promotion of Earthquake Research • Volcanic eruption possibilities and DRR measures
Jan. 15, 2010	• Establishment of the Committee for the Technical Investigation of Best Practices for Earthquake Disaster Management in Regional Cities • Revisions to the General Framework for Tokyo Inland Earthquake Countermeasures • Report of the Committee for the Technical Investigation of the Dissemination of Lessons Learned from Disasters • Earthquake DRR measures in Japan
FY2010	
Apr. 21, 2010	• FY 2010 Comprehensive Disaster Management Drill Framework • Establishment of the Committee for the Technical Investigation of Disaster Evacuation • Report of the Committee for the Technical Investigation of Large-Scale Flood Measures • Tsunamis caused by earthquakes centered along the coast of Chile • Tokyo Metropolitan Area Flooding: Measures Needed for Damage Mitigation
FY2011	
Apr. 27, 2011	• Great East Japan Earthquake: Characteristics and Challenges • Conventional earthquake and tsunami policies
Oct. 11, 2011	• Report of the Committee for the Technical Investigation of Earthquake and Tsunami Measures Based on Lessons Learned from the Great East Japan Earthquake • Government ministry and agency efforts related to future DRR efforts • Establishment of the Committee for Policy Planning on Disaster Management
Dec. 27, 2011	• Revisions to the Basic Disaster Management Plan • Revisions to the Central Disaster Management Council Operation Guidelines • Report of the Committee for the Technical Investigation of the Dissemination of Lessons Learned from Disasters • Status of the investigations by the Committee for Policy Planning on Disaster Management
Mar. 29, 2012	• Interim Report of the Committee for Policy Planning on Disaster Management • Current efforts aimed at bolstering and reinforcing DRR measures • FY 2012 Comprehensive Disaster Management Drill Framework
FY2012	
Sep. 6, 2012	• Revisions to the Basic Disaster Management Plan • Framework for Large-Scale Flood Measures in the Capital Region • New Promotion of Earthquake Research • Final Report of the Committee for Policy Planning on Disaster Management • Report of the Committee for the Technical Investigation of Best Practices for Earthquake Disaster Management in Regional Cities • Report of the Committee for the Technical Investigation of Disaster Evacuation • Report on Tsunami Heights and Inundation Areas Resulting from a Nankai Trough Megaquake (Secondary Report) and Damage Estimates (Primary Report)
Mar. 26, 2013	• Review of the legal systems for disaster management; status of investigations into Nankai Trough Megaquake Measures and Tokyo Inland Earthquake Measures • Establishment of the Disaster Management Implementation Committee • FY 2013 Comprehensive Disaster Management Drill Framework
FY2013	
Jan. 17, 2014	• Designation of Areas for the Promotion of Nankai Trough Earthquake DRR Measures and Areas for the Special Reinforcement of Nankai Trough Earthquake Tsunami Evacuation Measures • Designation of Tokyo Inland Earthquake Emergency Management Zones • Revisions to the Basic Disaster Management Plan • Final Report of the Working Group to Investigate Tokyo Inland Earthquake Measures and a Central Government Business Continuity Plan Proposal
Mar. 28, 2014	• Act on Special Measures for the Promotion of Nankai Trough Earthquake Disaster Management • Act on Special Measures against Tokyo Inland Earthquake • Framework for Large-Scale Earthquake Disaster Management and Reduction • FY 2014 Comprehensive Disaster Management Drill Framework
FY2014	
Nov. 28, 2014	• Revisions to the Basic Disaster Management Plan
Mar. 31, 2015	• Revisions to the Basic Disaster Management Plan • FY 2015 Comprehensive Disaster Management Drill Framework • Earthquake Disaster Risk Reduction Strategy for a Tokyo Inland Earthquake
FY2015	
Jul. 7, 2015	• Revisions to the Basic Disaster Management Plan
Feb. 16, 2016	• Basic Guidelines on the Comprehensive Promotion of Measures for Active Volcanoes • Designation of volcanic eruption hazard areas • Revisions to the Basic Disaster Management Plan

Source: Cabinet Office

Fig. A-34 Status of the Establishment of Central Disaster Management Council Committees for Technical Investigation

Source: Cabinet Office

Fig. A-35 Future Approaches to Flood Evacuation and Emergency Response Measures (Report) [Outline]

○ Issues in Areas Affected by the Torrential Rain of September 2015 in the Kanto and Tohoku Regions

- Preparations for self-help and mutual help were inadequate
- 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
- There is room for improvement in the provision of information, such as providing more detailed information about the situation to facilitate evacuation
- Preparations and systems for preventing confusion in the event of disaster and expediting procedures for rebuilding lives in the aftermath were inadequate
- An adequate living environment was not provided at evacuation shelters and elsewhere after the disaster
- There is scope for further developing mechanisms for cooperation between volunteers and government bodies

○ 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

- Disclosing the risk of floods in an easily understood way, so that people are aware of the risk of living in areas where floods could occur
- Facilitating routine communication between government bodies and residents to ensure that people are aware of evacuation and other preparations that they need to make in case of flooding, as well as being aware of the limits of public rescue and assistance capabilities; promoting self help and mutual help initiatives based on the creation of an evacuation timeline for each area
- Building flood response frameworks that involve local residents, companies, and those with experience of volunteering in the event of disaster (including voluntary disaster management organizations and organizations cooperating in flood prevention)
  Gathering and highlighting useful examples (water level / rainfall checks, calls to evacuate, evacuation support for vulnerable people, safety checks, establishment and operation of evacuation shelters, liaison and coordination between disaster victims and municipalities, implementation of evacuation drills, stockpiling of food and water, and preparation of Community Disaster Management Plans and Disaster Evacuation Info Cards)
- Preparing booklets for residents to assist them in making preparations for self help and mutual help, promoting disaster preparedness education, and cultivating local disaster management leaders

○ Promoting widespread take-up of flood insurance / mutual aid plans to expedite efforts to rebuild lives

- Providing more understandable information about the scope of cover offered by insurance/mutual aid schemes and the amount of compensation available
  Preparing the Guidelines for the Provision of Information Concerning Insurance/Mutual Aid Schemes (tentative name)
- Government activities to promote widespread take-up (preparing pamphlets)

○ Developing flood-resistant communities throughout the area in advance and rebuilding lives in the aftermath of a disaster

Ensuring that residents and business operators work together to rebuild lives

2. Formulating effective evacuation plans

○ Improving hazard maps (evacuation maps) and evacuation plans

- Improving hazard maps (evacuation maps) to ensure that they show the areas that need to be cleared and evacuated promptly (such as areas near rivers and areas where flooding has reached the second floor)
- Establishing the timing of the issuance of evacuation advisories and orders, and the zones for which they should be issued, based on scenarios that take into account flooding from multiple rivers and rainfall inundation
- Considering a regional approach to evacuation, such as securing designated emergency evacuation sites in neighboring municipalities , if necessary, rather than focusing solely on evacuating to locations within the municipality affected
- Building mechanisms such as consultative committees consisting of municipal representatives and river managers, among others, so that river managers can actively advise municipalities on such matters as how to lay out hazard maps (evacuation maps), the timing of evacuation advisories and orders and the zones for which they should be issued, and evacuation sites and routes

○ Promoting the formulation of evacuation implementation plans and BCPs by hospitals and other facilities used by vulnerable people

- Promoting the formulation of evacuation implementation plans and BCPs by facilities used by vulnerable people and ensuring that river managers and prefectures/municipalities provide advice on their formulation
- Ensuring that the staff of such facilities are also safe

○ Promoting the specification of designated emergency evacuation sites and the compilation of lists of people who require assistance in evacuating

- Expediting 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

- Issuing evacuation advisories and orders in urgent situations, even if evacuation sites have not yet been set up
- Informing residents that they might have the option of sheltering indoors when an evacuation order, etc. is issued, if flooding has already begun to occur
- Considering efficient methods that the central government and prefectures can use to communicate river level and weather information required for issuing evacuation advisories and orders

○ Transmitting evacuation advisories and orders without fail

- Using appropriate combinations of diverse communication methods, taking into account the attributes of the area concerned and the burden involved in transmitting the information
  (Proactive use of L-Alerts and other new means of communication)
- Measures aimed at foreign nationals
  Highlighting useful examples (pictograms, information in foreign languages, disaster prevention apps, multilingual volunteers, etc.)

○ Providing detailed information and building face-to-face relationships

- In the case of typhoons and other situations where forecasting is possible, ensuring that detailed, easily comprehensible information about the situation is provided from the time that heavy rain is forecast until the risk of disaster has passed, including information about the status of the disaster response, the likelihood of evacuation advisories being issued in due course, and the actions that people could conceivably take in order to evacuate
- Ensuring that river managers make water level information and live video footage of rivers, etc. available to the public, so that residents can obtain flood-related information for themselves
- Building face-to-face relationships between relevant organizations as a matter of routine, to ensure that there is no breakdown in communication in an emergency
  Gathering and highlighting useful examples

Source: Cabinet Office (March 2016, 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)

4. Improving the disaster management ability of administrative bodies

○ Enhancing disaster management systems through training and drills for municipal mayors and staff

- **Enhancing the content of training courses** for municipal mayors and staff tasked with disaster management, **including courses aimed at cultivating disaster management specialists**
- Proactively encouraging newly elected **municipal mayors to take training courses**
- **Gathering and highlighting useful examples** in order to **enhance training courses and drills for volunteer fire corps and flood fighting corps**

○ Administrative preparations against flooding

- Promoting **hard infrastructure measures to alleviate flood damage**, as well as **hard infrastructure measures to ensure the safe drainage of floodwater**
- **Promoting the formulation of BCPs that also take flooding into account**

  Promoting widespread awareness of the **Business Continuity Manual for Local Governments During Major Disasters**

5. Disaster response support for disaster-stricken municipalities

○ Preparing and ensuring full awareness of guides to dealing with flood disasters

- **Preparing the Guide to Flood Response for Municipalities**, which sets out the key points of the approach to disaster response that municipalities should adopt in the event of flooding and **highlights useful examples**, so that **even municipalities with no experience of disaster can respond swiftly and appropriately to disasters**; and **introducing notices and guidelines**
  - Establishing a **dedicated Disaster Response Headquarters** and rules for the appropriate division of roles and assembly of each department from the office in question (**establishing of an information team, appointing a dedicated spokesperson to deal with the mass media, etc.**)
  - Mechanisms for **providing and accepting assistance**, such as extra staff (encouraging the preparation of aid acceptance plans, recommending that **local governments conclude mutual disaster assistance agreements**), utilizing volunteers
  - **Overview of systems that help people to rebuild their lives as quickly as possible, etc.** (real-life examples of the National Treasury's sharing of expenses under the Disaster Relief Act, the Disaster of Extreme Severity system, livelihood recovery support payments for disaster victims)
  - **Deciding on temporary storage yards and sorting locations for disaster waste in advance** (recommending the conclusion of agreements with other local governments as well)

○ Securing systems to support disaster response by disaster-stricken municipalities

- Providing advice about the **management of Disaster Response Headquarters, other emergency measures, and the rebuilding of lives**, and **further promoting initiatives focused on providing assistance** (examples given below) when a disaster exceeds a certain scale, in order to alleviate the burden on the staff of disaster-stricken municipalities (two-way sharing of know-how between those providing assistance and those receiving it)

  Highlighting useful examples
  - Advance preparation of **aid acceptance plans**, requesting the deployment of assistance under **mutual disaster assistance agreements**, using **assistance coordination teams** to coordinate the acceptance of aid from other areas
  - Ensuring that **prefectures actively provide support in requesting the deployment of assistance and coordinating its acceptance** in the event of a major disaster (**deploying advance teams to disaster-stricken municipalities and facilitating communication**)
  - Mechanisms for **deploying assistance, such as municipal staff with ability and experience in responding to disasters**, in order to provide advice on the running of Disaster Response Headquarters, etc.
- **Ensuring that the central government establishes and supports on-site organizations (Government Local Liaison and Coordination Office, National On-site Disaster Management Office)** in the event of a major disaster
- **Deploying central government staff, etc.** to expedite the initiation and handling of **procedures required for rebuilding lives** (invocation of the Disaster Relief Act, designation as an extremely severe disaster , livelihood recovery support payments) (**expediting the handling of procedures aimed at the prompt announcement of designation as an extremely severe disaster**)
- Continuing to promote **organizational support in each field** (liaison staff from each ministry, rescue and relief (police disaster response units, Emergency Fire Response Teams, SDF), medical care (DMAT, DPAT, JMAT, etc.), emergency repair of infrastructure and lifeline utilities (TEC-FORCE, water supply, power, etc.), waste disposal (D.Waste-Net, etc.))

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

○ Promoting support for evacuees based in evacuation shelters

- Promoting the advance preparation of an **evacuation shelter management manual** **Drafting the Evacuation Shelter Management Guidelines**
- **Aggregating information about local disaster victims to provide the supplies and services, etc.** required at evacuation shelters
- **Promoting the management of evacuation shelters by local residents / external support personnel** and **cultivating people with expertise** in evacuation shelter management
- Improving toilets at evacuation shelters, taking into account the possibility of interruptions to the water supply and power outages **Drafting the Guidelines for Securing and Managing Toilets at Evacuation Shelters**
- **Securing welfare evacuation shelters and welfare areas**, and **maintaining an ongoing grasp of the situation faced by vulnerable people** **Drafting the Guidelines for Securing and Managing Welfare Evacuation Shelters**

○ Ensuring the availability of medical services in the event of disaster

- Ensuring that prefectures **utilize Disaster Medical Care Coordinators**, to facilitate efforts to comprehensively coordinate the activities of bodies such as DMAT, DPAT, JMAT, and the Japanese Red Cross, and ensure the appropriate allocation of medical services offered by a range of medical professionals to evacuation shelters, etc.
- **Ensuring that information is shared with medical professionals, Disaster Response Headquarters, and those on the ground**, so that there are no gaps in the provision of medical services
- **Promoting the use of a post-disaster medical record system (J-SPEED)** for patient information and **encouraging the use of evacuation shelter assessment sheets to assess medical needs and the sanitation environment, etc. at evacuation shelters**, in order to ensure the seamless provision of medical services, even in the event of personnel changes among those supporting the provision of such services
- **Providing information about facilities offering medical services** following the withdrawal of JMAT, etc. and **considering the option of making regular house calls to evacuation shelters**
- **Addressing the need to manage the mental and physical health of staff, etc.** involved in round-the-clock disaster response from the immediate aftermath of the disaster

○ Thorough crime prevention measures in the event of disaster

Striving to ensure thorough implementation of crime prevention measures in the event of disaster and **cultivating an awareness of crime prevention among residents**

○ Dealing swiftly with disaster waste

Promoting the formulation of disaster waste disposal plans that provide estimates of the amount of waste generated, details of disposal methods, and information about the selection of candidate sites for temporary storage

7. Partnership and collaboration with volunteers

○ Proactive collaboration with volunteers

- **Promoting greater collaboration with volunteers (especially the use of volunteers with relevant expertise) in respect of the increasingly diverse needs of disaster victims**, by establishing **Disaster Support Liaison Committees** to facilitate cooperation between Volunteer Centers, volunteer groups, administrative bodies, and Disaster Response Headquarters

  Gathering and highlighting useful examples
- Using volunteers to communicate information useful to disaster victims

○ Facilitating acceptance and providing ongoing support

- **Promoting routine cooperation and information sharing** with Councils of Social Welfare and volunteer groups, etc., to address the likelihood of disruption when initially accepting volunteers

  Gathering and highlighting useful examples
- Using the Internet and other channels to call for support

5. Budget

Fig. A-36 Disaster Management Budgets by Year

Fiscal Year	Science and Technology Research		Disaster Prevention		Land Conservation		Disaster Reconstruction		Total
	(JPY million)	Share (%)	(JPY million)	Share (%)	(JPY million)	Share (%)	(JPY million)	Share (%)	(JPY million)
1962	751	0.4	8,864	4.3	97,929	47.1	100,642	48.3	208,006
1963	1,021	0.4	8,906	3.7	116,131	47.7	117,473	48.2	243,522
1964	1,776	0.7	13,724	5.4	122,409	48.3	115,393	45.6	253,302
1965	1,605	0.5	17,143	5.6	147,858	48.3	139,424	45.6	306,030
1966	1,773	0.5	20,436	5.9	170,650	49.0	155,715	44.7	348,574
1967	2,115	0.6	23,152	6.1	197,833	52.3	154,855	41.0	377,955
1968	2,730	0.7	25,514	6.8	207,600	55.4	138,815	37.1	374,659
1969	2,747	0.7	30,177	7.5	236,209	59.0	131,270	32.8	400,403
1970	2,756	0.6	36,027	8.2	269,159	60.9	133,998	30.3	441,940
1971	3,078	0.5	50,464	8.6	352,686	60.3	178,209	30.5	584,437
1972	3,700	0.4	93,425	10.3	488,818	54.1	316,895	35.1	902,838
1973	6,287	0.7	111,321	12.4	493,580	54.9	287,082	32.0	898,270
1974	14,569	1.5	118,596	12.1	505,208	51.5	342,556	34.9	980,929
1975	17,795	1.5	159,595	13.3	615,457	51.3	405,771	33.9	1,198,618
1976	21,143	1.3	186,297	11.5	711,159	43.9	700,688	43.3	1,619,287
1977	22,836	1.4	234,409	13.9	904,302	53.6	525,886	31.2	1,687,433
1978	29,642	1.7	307,170	17.3	1,093,847	61.6	345,603	19.5	1,776,262
1979	35,145	1.6	435,963	20.4	1,229,401	57.6	432,759	20.3	2,133,268
1980	29,929	1.2	456,575	18.9	1,229,615	50.8	705,168	29.1	2,421,287
1981	29,621	1.2	474,926	18.9	1,240,788	49.5	761,950	30.4	2,507,285
1982	28,945	1.1	469,443	17.2	1,261,326	46.3	963,984	35.4	2,723,698
1983	29,825	1.1	489,918	18.4	1,268,712	47.6	875,851	32.9	2,664,306
1984	28,215	1.2	485,219	20.7	1,350,592	57.7	475,878	20.3	2,339,904
1985	27,680	1.1	512,837	20.2	1,355,917	53.5	640,225	25.2	2,536,659
1986	28,646	1.2	482,889	19.7	1,354,397	55.3	581,462	23.8	2,447,394
1987	38,296	1.4	612,505	21.9	1,603,599	57.2	548,337	19.6	2,802,737
1988	31,051	1.1	587,073	20.8	1,550,132	54.9	657,681	23.3	2,825,937
1989	34,542	1.2	588,354	20.7	1,638,104	57.5	587,819	20.6	2,848,819
1990	35,382	1.1	625,239	20.0	1,669,336	53.4	796,231	25.5	3,126,188
1991	35,791	1.1	628,596	19.8	1,729,332	54.3	788,603	24.8	3,182,322
1992	36,302	1.1	745,405	22.8	2,017,898	61.6	475,411	14.5	3,275,015
1993	43,152	0.9	866,170	18.6	2,462,800	52.9	1,280,569	27.5	4,652,691
1994	40,460	1.0	747,223	18.9	1,945,295	49.1	1,230,072	31.0	3,963,050
1995	105,845	1.4	1,208,134	16.0	2,529,386	33.5	3,696,010	49.0	7,539,375
1996	52,385	1.2	1,029,658	24.5	2,156,714	51.3	968,182	23.0	4,206,938
1997	49,128	1.2	1,147,102	28.2	2,014,695	49.4	864,370	21.2	4,075,295
1998	62,435	1.1	1,228,539	22.3	2,905,921	52.8	1,310,515	23.8	5,507,411
1999	78,134	1.7	1,142,199	25.0	2,400,534	52.6	941,886	20.6	4,562,752
2000	73,502	1.8	1,011,535	24.4	2,376,083	57.3	689,225	16.6	4,150,346
2001	49,310	1.2	1,060,445	26.7	2,238,816	56.4	618,427	15.6	3,966,998
2002	48,164	1.3	1,202,984	31.9	1,981,686	52.5	543,949	14.4	3,776,783
2003	35,133	1.1	814,101	25.7	1,625,670	51.4	689,255	21.8	3,164,159
2004	30,478	0.7	815,059	19.3	1,753,418	41.5	1,622,112	38.4	4,221,067
2005	11,097	0.4	866,290	28.6	1,426,745	47.0	728,606	24.0	3,032,738

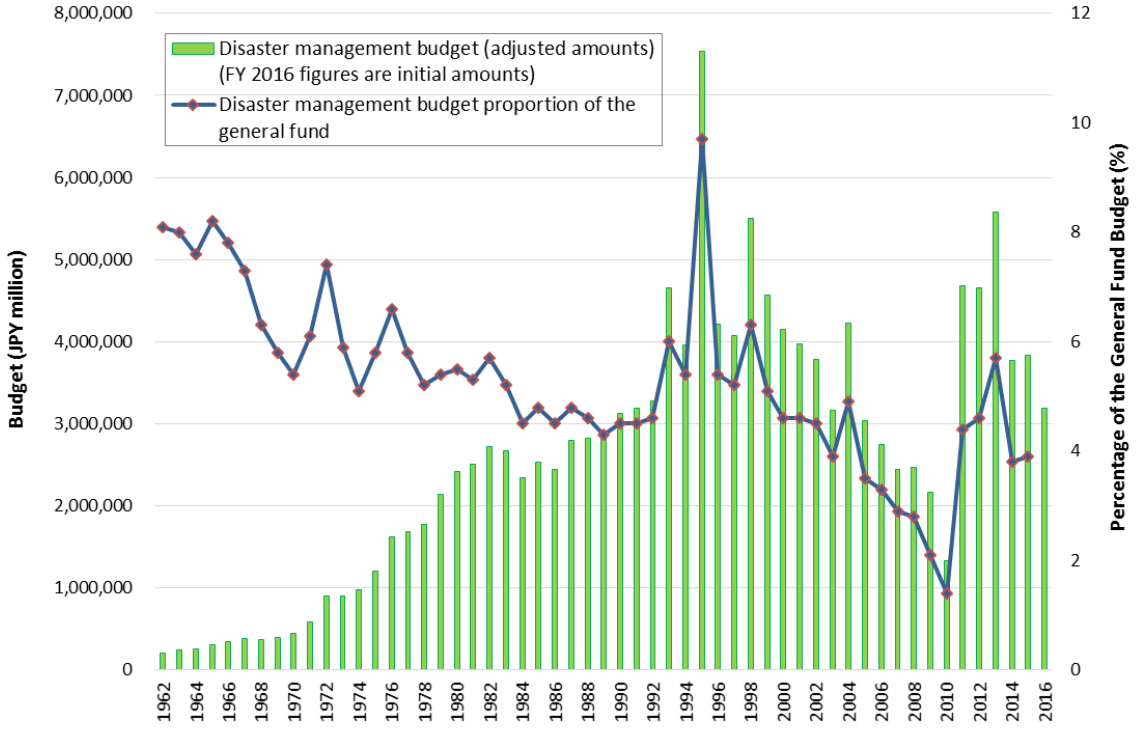
Fiscal Year	Science and Technology Research		Disaster Prevention		Land Conservation		Disaster Reconstruction		Total
	(JPY million)	Share (%)	(JPY million)	Share (%)	(JPY million)	Share (%)	(JPY million)	Share (%)	(JPY million)
2006	11,627	0.4	689,505	25.1	1,439,129	52.3	610,302	22.2	2,750,563
2007	9,687	0.4	706,853	29.0	1,332,222	54.6	391,637	16.0	2,440,399
2008	8,921	0.4	819,359	33.2	1,275,135	51.7	363,471	14.7	2,466,886
2009	8,761	0.4	498,397	23.0	1,383,254	63.7	279,789	12.9	2,170,201
2010	7,695	0.6	224,841	16.9	813,359	61.1	285,038	21.4	1,330,933
2011	28,072	0.6	376,169	8.0	743,936	15.9	3,536,475	75.5	4,684,652
2012	29,422	0.6	561,021	12.0	790,422	17.0	3,129,561	67.2	4,656,656
2013	15,339	0.3	788,576	14.1	879,932	15.8	3,883,911	69.6	5,578,036
2014	16,688	0.4	639,966	13.9	836,580	18.2	3,101,555	67.5	4,594,789
2015	14,961	0.4	713,477	18.6	155,475	4.1	2,954,355	77.0	3,838,268
2016	9,119	0.3	367,964	11.5	101,773	3.2	2,707,251	85.0	3,186,107

Notes:

1. These are adjusted budget (national expenditures) amounts. However, the FY 2016 figures are preliminary figures reflecting the initial budget.
2. The reduced amount allocated to science and technology research in FY 2007 is largely due to the structural conversion of national lab and research institutions into independent administrative agencies (the budgets of independent administrative agencies are not included in this table).
3. The amount allocated to disaster prevention in FY 2009 is reduced because a portion of the revenue sources set aside for road construction were converted to general fund sources making it impossible to allocate certain portions to the disaster management budget.
4. The reduced amount allocated to disaster prevention and land conservation in FY 2010 is due to the fact that, following the creation of the General Grant for Social Capital Development, some disaster prevention policies and many subsidy programs in land conservation were established using those grants.
5. The reduced amount allocated to land conservation in FY 2011 is a result of the fact that relevant personnel expenses were accounted for separately.

Source: Created by the Cabinet Office using materials from various ministries and agencies.

Fig. A-37 Trends in Disaster Management Budget



Source: Created by the Cabinet Office using materials from various ministries and agencies.

Fig. A-38 Earthquake Emergency Development Project Plans

(As of the end of FY 2014; Unit: JPY million)

Category	FY 1980 - FY 2014		
	Planned Amount (a)	Actual Amount (b)	Rate of Progress (b)/(a)
1 Evacuation sites	157,275	151,718	96.5%
2 Evacuation roads	81,618	79,119	96.9%
3 Firefighting facilities	129,304	122,716	94.9%
4 Emergency transport routes	784,881	764,306	97.4%
4-1 Emergency transport routes	682,248	671,966	98.5%
4-2 Emergency transport ports	63,501	52,749	83.1%
4-3 Emergency transport fishing ports	39,132	39,591	101.2%
5 Telecommunications facilities	19,867	16,545	83.3%
6 Public medical institutions	50,735	54,012	106.5%
7 Social welfare facilities	57,640	55,586	96.4%
8 Public elementary and junior high schools	431,768	419,242	97.1%
9 Tsunami countermeasures	158,868	158,441	99.7%
9-1 River management facilities	56,860	51,426	90.4%
9-2 Coastal preservation facilities	102,008	107,015	104.9%
10 Landslide prevention	464,709	463,030	99.6%
10-1 Erosion control facilities	80,243	79,069	98.5%
10-2 Security facilities	143,988	146,893	102.0%
10-3 Landslide facilities	76,804	76,041	99.0%
10-4 Steep slope facilities	146,680	146,202	99.7%
10-5 Ponds	16,994	14,825	87.2%
Total	2,336,665	2,284,714	97.8%

Notes:

1. The content of Earthquake Emergency Development Project Plans (FY 1980-2014) is as of the end of FY 2014.
2. Project expenses include expenses for projects that may not be solely designed for earthquake disaster management, but that, while having other policy objectives, also are intended to have an overall effect on earthquake disaster management. Project expenses are not comprised solely of expenses used entirely for disaster management.

Source: Cabinet Office

Based on lessons learned from the Great Hanshin-Awaji Earthquake, the Act on Special Measures for Earthquake Disaster Countermeasures was enacted in July 1995 to protect citizens' lives, heath, and assets from earthquake-related damage. This law allows prefectural governors to create a Five-Year Plan for Emergency Earthquake Disaster Management Projects for communities where there are concerns about the occurrence of a severe earthquake disaster and a portion of the projects to be implemented based on this plan are eligible for an increased rate of financial support from the national government.
Thus far, these plans have been created by the prefectural governors over four terms, and earthquake disaster projects have begun to be implemented.
These plans are five-year plans created for 29 facilities that need to be urgently developed from the perspective of achieving earthquake disaster reduction. When a prefecture wants to create a plan, hearings are held to listen to the opinions of the municipalities involved, and the consent of the Prime Minister must be obtained.
Project budgets for these plans over four terms are shown in the table below.

(All prefectures, as of FY 2014. Unit: JPY 1,000,000)

Category	First Five-Year Plan (FY 1996-2000)			Second Five-Year Plan (FY 2001-2005)				Third Five-Year Plan (FY 2006-2010)				Fourth Five-Year Plan (FY 2011-2015)			
	Planned Amt. (a)	Actual Amt. (b)	% Complete (b)/(a)	Project Scope (Unit) (c)	Planned Amt. (d)	Actual Amt. (e)	% Complete (e)/(d)	Project Scope (Unit) (f)	Planned Amt. (g)	Actual Amt. (h)	% Complete (h)/(g)	Project Scope (Unit) (i)	Planned Amt. (j)	Actual Amt. (k)	% Complete (k)/(j)
1. Evacuation sites	1,462,542	959,276	65.6%	3,168 ha	931,413	543,233	58.3%	2,515 ha	488,257	400,283	82.0%	1,452 ha	304,230	215,649	70.9%
2. Evacuation routes	1,481,509	1,105,639	74.6%	2,601 km	1,188,051	900,446	75.8%	1,405 km	952,865	625,957	65.7%	895 km	1,336,591	653,707	48.9%
3. Firefighting facilities	917,213	697,067	76.0%	28,153 sites	540,784	297,301	55.0%	21,039 sites	448,460	246,745	55.0%	20,112 sites	677,561	380,318	56.1%
4. Roads for firefighting activities	168,387	128,163	76.1%	161 km	119,329	92,958	77.9%	102 km	46,719	49,136	105.2%	55 km	23,994	17,496	72.9%
5. Emergency transport roads, etc.	6,067,258	5,719,897	94.3%		5,267,908	4,242,139	80.5%		3,813,169	3,291,461	86.3%		2,771,496	2,031,078	73.3%
5-1. Emergency transport roads	5,555,626	5,355,365	96.4%	3,920 km	4,998,577	4,067,023	81.4%	2,552 km	3,557,657	3,106,165	87.3%	2,191 km	2,581,996	1,871,409	72.5%
5-2. Emergency transport/traffic control facilities	23,900	21,017	87.9%	3,448 facilities	16,855	8,473	50.3%	2,439 facilities	9,242	6,844	74.0%	4,837 sites	15,464	10,158	65.7%
5-3. Emergency transport heliports	6,327	2,094	33.1%	1 sites	550	387	70.4%	0 sites	0	0	—	2 sites	117	78	66.7%
5-4. Emergency transport port facilities	359,671	237,940	66.2%	113 sites	181,503	119,869	66.0%	100 sites	198,676	136,895	68.9%	77 sites	153,101	133,990	87.5%
5-5. Emergency transport fishing port facilities	121,734	103,481	85.0%	73 sites	70,423	46,387	65.9%	43 sites	47,594	41,558	87.3%	26 sites	20,818	15,443	74.2%
6. Multipurpose underground utility conduits	261,385	275,928	105.6%	844 km	394,948	257,890	65.3%	591 km	259,420	175,571	67.7%	471 km	255,018	169,083	66.3%
7. Medical institutions	784,899	526,548	67.1%	115 facilities	391,016	277,721	71.0%	93 facilities	239,424	150,877	63.0%	220 facilities	690,319	357,261	51.8%
8. Social welfare facilities	482,317	219,490	45.5%	857 facilities	280,028	176,408	63.0%	521 facilities	114,756	56,400	49.1%	677 facilities	125,889	80,574	64.0%
8-2. Public kindergartens	-	-	-	-	-	-	-	995 schools	35,198	7,074	20.1%	1,171 schools	55,095	21,993	39.9%
9. Public elementary and jr. high schools	1,359,672	765,344	56.3%	5,840 schools	1,078,849	594,777	55.1%	16,256 schools	3,077,544	1,399,624	45.5%	13,859 schools	2,319,384	1,385,289	59.7%
10. Public special education schools	84,577	29,685	35.1%	114 schools	32,094	12,070	37.6%	264 schools	56,834	23,262	40.9%	198 schools	40,383	25,438	63.0%
11. Public buildings	24,169	5,267	21.8%	29 facilities	2,662	1,199	45.0%	670 facilities	62,975	24,429	38.8%	1,732 facilities	357,189	141,168	39.5%
12. Coast and river facilities	235,686	187,310	79.5%	334 sites	272,744	225,598	82.7%	491 sites	237,787	182,911	76.9%	684 sites	339,711	221,729	65.3%
12-1. Coastal preservation facilities	140,865	109,501	77.7%	215 sites	196,496	146,699	74.7%	423 sites	187,407	146,044	77.9%	524 sites	228,825	137,579	60.1%
12-2. River management facilities	94,821	77,809	82.1%	119 sites	76,248	78,899	103.5%	68 sites	50,380	36,867	73.2%	160 sites	110,886	84,150	75.9%
13. Erosion control facilities, etc.	1,729,574	1,702,042	98.4%	14,332 sites	1,622,048	1,339,438	82.6%	10,504 sites	1,069,686	976,742	91.3%	9,327 sites	844,978	658,442	77.9%
13-1. Erosion control facilities	268,151	247,050	92.1%	2,278 sites	436,635	409,636	93.8%	2,033 sites	354,972	325,910	91.8%	2,063 sites	303,286	208,730	68.8%
13-2. Security facilities	409,216	469,126	114.6%	5,583 sites	330,719	263,907	79.8%	3,673 sites	210,861	202,299	95.9%	2,683 sites	146,012	150,940	103.4%
13-3. Landslide prevention facilities	359,433	356,531	99.2%	1,651 sites	275,558	219,200	79.5%	1,151 sites	158,479	160,883	101.5%	849 sites	119,025	94,367	79.3%
13-4. Steep slope failure prevention facilities	522,261	497,690	95.3%	3,568 sites	446,098	356,530	79.9%	2,500 sites	244,461	220,779	90.3%	2,629 sites	193,936	151,946	78.3%
13-5. Reservoirs	170,513	131,645	77.2%	1,252 sites	133,038	90,165	67.8%	1,147 sites	100,913	66,870	66.3%	1,103 sites	82,719	52,458	63.4%
14. Community DRR base facilities	162,319	102,857	63.4%	121 sites	81,642	40,342	49.4%	78 sites	60,905	34,277	56.3%	168 sites	88,136	55,984	63.5%
15. Disaster management radio communications system	224,276	126,236	56.3%	1,702 sites	126,944	38,693	30.5%	5,844 sites	239,525	78,112	32.6%	8,115 sites	190,397	85,116	44.7%
16. Potable water facilities/power generation systems	221,622	126,320	57.0%	444 sites	89,822	55,599	61.9%	405 sites	142,958	72,142	50.5%	516 sites	121,529	67,608	55.6%
17. Storage warehouses	17,763	8,028	45.2%	437 sites	10,338	5,292	51.2%	296 sites	4,081	838	20.5%	646 sites	7,167	3,031	42.3%
18. Response and relief systems	3,595	659	18.3%	610 groups	1,133	687	60.6%	515 groups	314	262	83.4%	304 groups	891	130	14.6%
19. Downtown areas with high density dilapidated housing	2,814,605	1,431,714	50.9%	6,960 ha	1,725,532	916,981	53.1%	7,839 ha	846,197	563,811	66.6%	12,142 ha	505,197	280,199	55.5%
	18,503,368	14,117,470	76.3%		14,157,285	10,018,773	70.8%		12,197,074	8,359,916	68.5%		11,055,155	6,851,291	62.0%

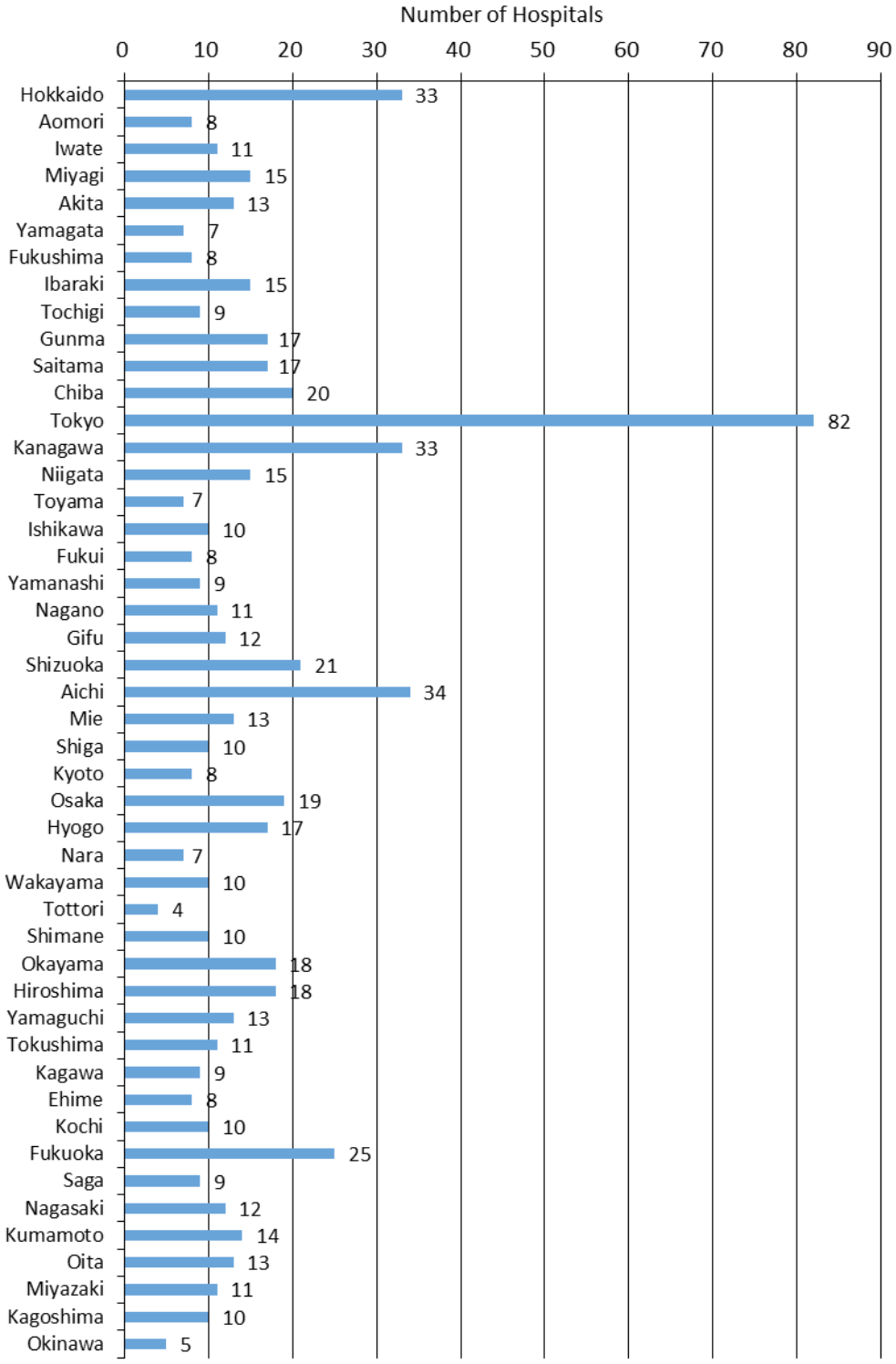
Notes:

1. The content of the Fourth Five-Year Plan (FY 2011-2015) is current as of the end of FY 2014.
2. The expenses for each project are not limited to projects aimed at achieving earthquake DRR; they include expenses for projects that have other policy purposes, such as those related to urban infrastructure development, but that also are effective in terms of earthquake DRR.
3. Public special education schools include schools known as schools for the blind, schools for the deaf, and schools for the physically or mentally/physically handicapped prior to FY 2006.

Source: Cabinet Office materials.

6. Status of Disaster Management Facilities and Equipment

Fig. A-40 Number of Medical Facilities for Disasters by Prefecture



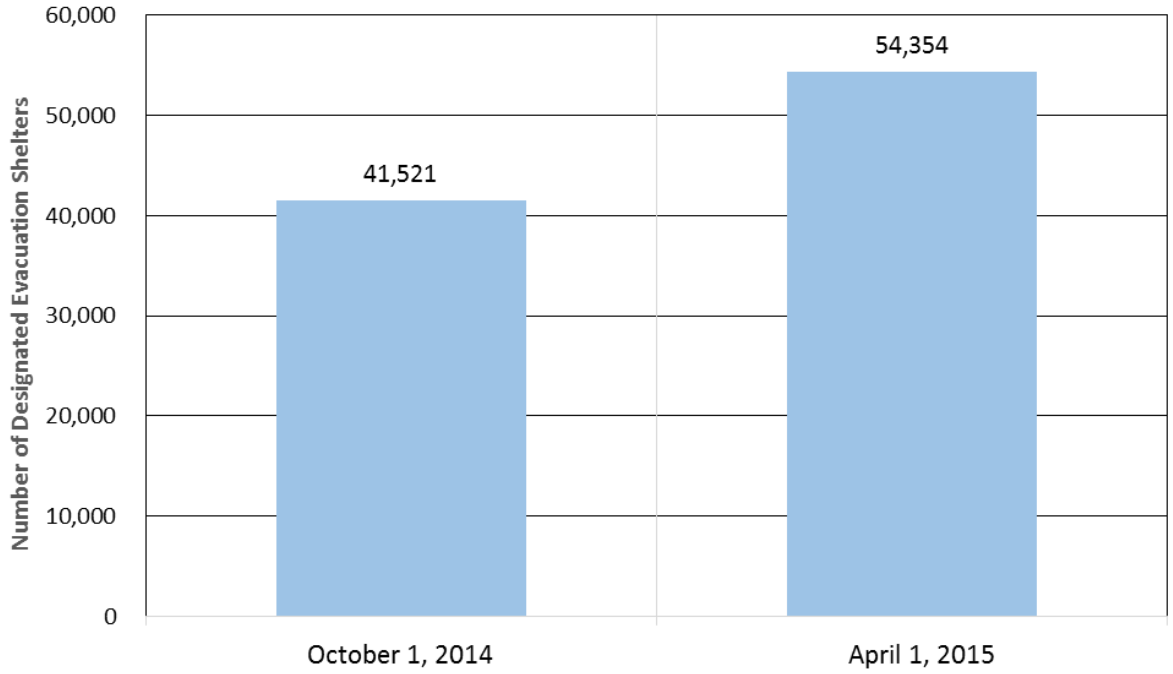
Source: Prepared by the Cabinet Office based on the website of the Emergency Medical Information System

Fig. A-41 Number of Red Cross Hospitals, Emergency Medical Centers, and DMAT-Designated Medical Facilities

	Red Cross Hospital	Emergency Medical Center	DMAT-Designated Facility		Red Cross Hospital	Emergency Medical Center	DMAT-Designated Facility
Hokkaido	10	11	34	Shiga	3	4	10
Aomori	1	2	10	Kyoto	3	6	11
Iwate	1	3	11	Osaka	2	13	18
Miyagi	2	6	15	Hyogo	4	7	19
Akita	1	1	14	Nara	0	3	7
Yamagata	0	2	8	Wakayama	1	3	11
Fukushima	1	4	8	Tottori	1	2	4
Ibaraki	2	6	18	Shimane	2	3	10
Tochigi	3	5	11	Okayama	1	5	10
Gunma	2	3	17	Hiroshima	3	5	18
Saitama	3	8	17	Yamaguchi	2	5	16
Chiba	1	11	21	Tokushima	1	3	13
Tokyo	4	23	71	Kagawa	1	2	10
Kanagawa	3	16	33	Ehime	1	3	8
Niigata	1	5	15	Kochi	1	3	16
Toyama	1	2	8	Fukuoka	3	8	24
Ishikawa	1	2	12	Saga	1	5	9
Fukui	1	2	9	Nagasaki	2	3	15
Yamanashi	1	1	12	Kumamoto	2	3	15
Nagano	6	8	12	Oita	1	3	21
Gifu	2	6	12	Miyazaki	0	3	12
Shizuoka	5	9	21	Kagoshima	1	2	13
Aichi	2	18	34	Okinawa	1	3	15
Mie	1	3	13	Total	92	254	741

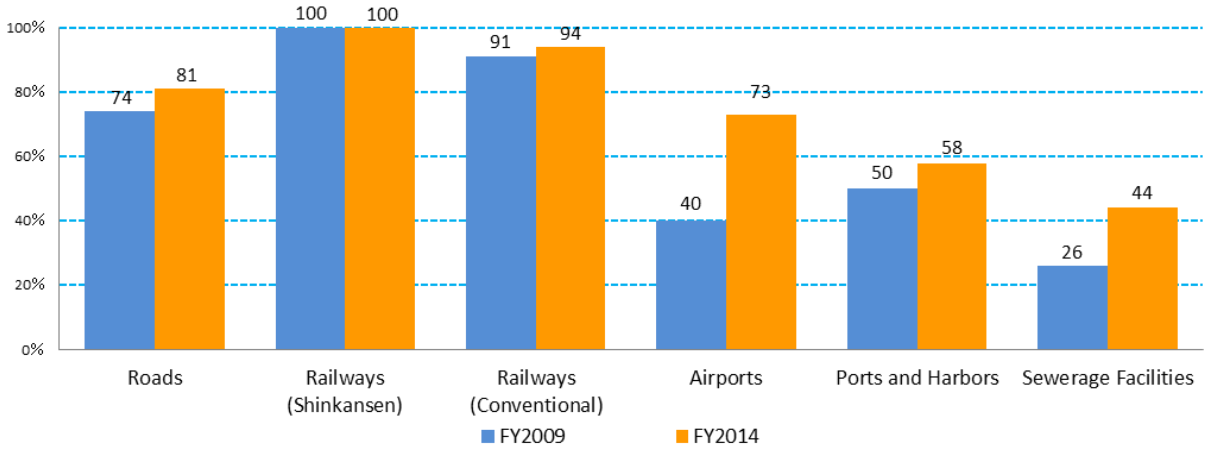
Source: Red Cross Hospital information was prepared by the Cabinet Office based on the website of the Japanese Red Cross Society.
Information on Emergency Medical Centers and DMAT-Designated Facilities was prepared by the Cabinet Office based on the website of the Emergency Medical Information System.

Fig. A-42 Designation of Designated Evacuation Shelters



Source: Created by the Cabinet Office based on the Fire and Disaster Management Agency report "Status of Regional Disaster Management Administration"

Fig. A-43 Seismic Reinforcement of Public Infrastructure



Notes

Roads: Rate of seismic reinforcement of bridges of emergency transport roads (important roads that have to be secured for the passage of emergency vehicles to facilitate evacuation and rescue as well as relief supply delivery activities starting immediately after the earthquake; national expressways, national highways, and the arterial roads that connect them.) (As of end of FY2013)

Railway (Shinkansen): Elevated bridges.

Railway (Conventional): Elevated bridges of major railway lines in regions where a seismic intensity of 6 Upper or greater would be expected to occur in the case of a Tokyo Inland Earthquake or Nankai Trough Earthquake. (Left: As of end of FY2012. Right: As of end of FY2013.)

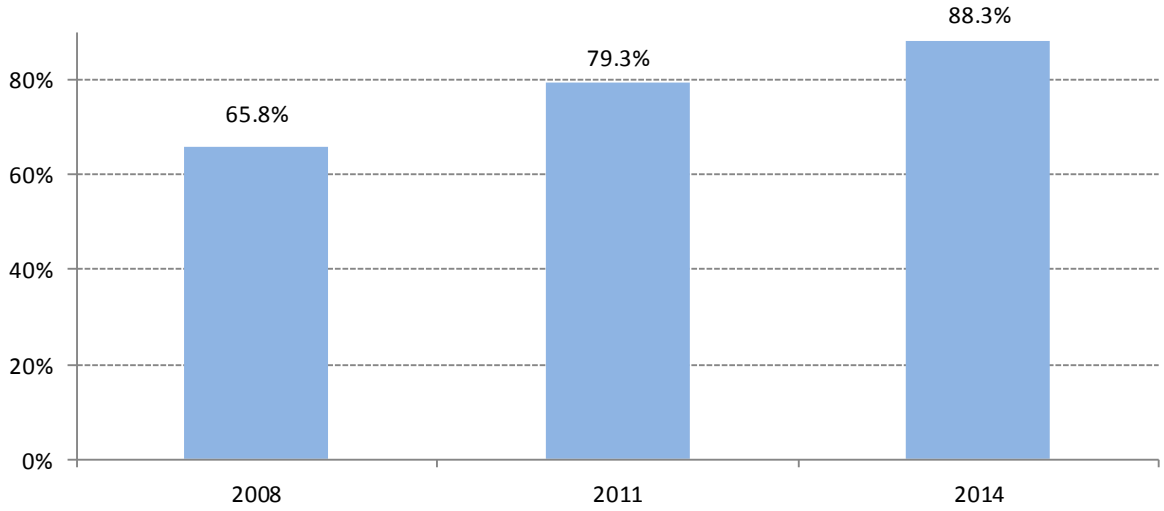
Airports: Percentage of population in a 100 km area around an airport that could be used for emergency transport.

Ports and Harbors: Seismically reinforced piers (number completed as a proportion of those detailed in plans for seismic retrofit of piers to facilitate the transportation of emergency supplies (those classed as major ports or higher)).

Sewerage Facilities: Important main lines (pipes that can accommodate drainage from river basin lines, DRR bases, and evacuation sites, main pipes connected to pump stations and disposal stations, pipes buried beneath emergency transport roads and railroad tracks. (Left: As of end of FY2010. Right: As of end of FY2012.)

Source: Prepared by the Cabinet Office using materials from the Ministry of Land, Infrastructure, Transport and Tourism (MLIT)

Fig. A-44 Trends in the Seismic Reinforcement Rate of Public Facilities That Serve as Disaster Management Bases

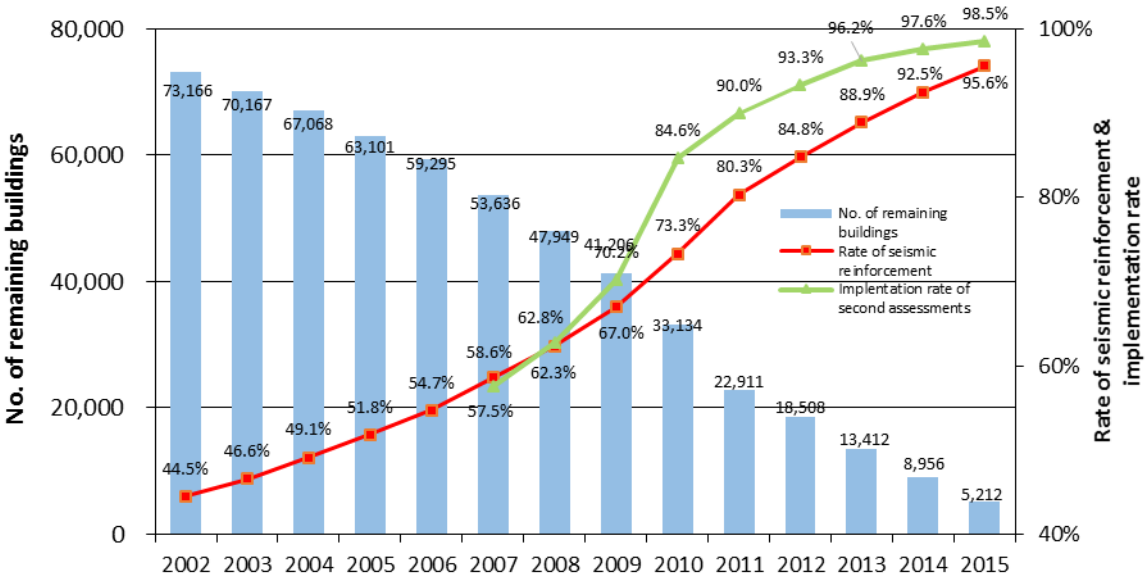


*Of all the public facilities owned or managed by local governments (buildings for public or public-private use: non-wooden structures built two stories or taller or buildings with a floor area of 200m² or more), those that could serve as disaster management bases for implementing disaster response measures were extracted, tabulated, and analyzed based on the criteria shown below.

<Classification criteria of public facilities that serve as disaster management bases>	
(1) Social welfare facilities	All facilities
(2) Education facilities (classrooms, gymnasiums)	Facilities designated as designated emergency evacuation site or designated evacuation site
(3) Government buildings	Facilities that will be used for the implementation of disaster response measures
(4) Prefectural civic halls, civic centers	Facilities designated as designated emergency evacuation site or designated evacuation site
(5) Gymnasiums	Facilities designated as designated emergency evacuation site or designated evacuation site
(6) Health care facilities	Facilities positioned in local disaster management plans as medical care facilities
(7) Police headquarters and police stations	All facilities
(8) Fire headquarters and fire stations	All facilities
(9) Public housing	None
(10) Employee dorms	None
(11) Other	Facilities designated as designated emergency evacuation site or designated evacuation site

Source: Prepared by the Cabinet Office based on the "Fire and Earthquake Disaster Prevention Status Survey" compiled by the Fire and Disaster Management Agency

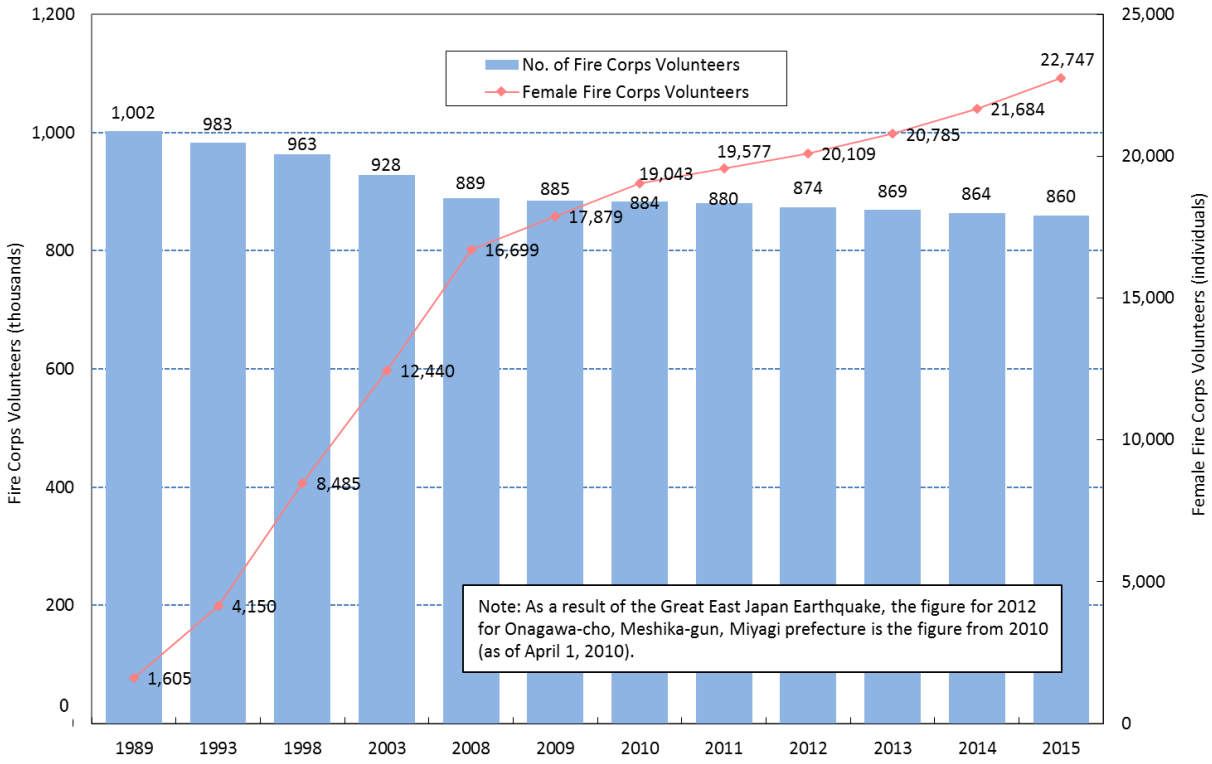
Fig. A-45 Seismic Reinforcement Status of Public Elementary and Junior High Schools



Source: "Results of the Survey on the Seismic Reinforcement Status of Public School Facilities," Ministry of Education, Culture, Sports, Science and Technology (MEXT) (April 2015)

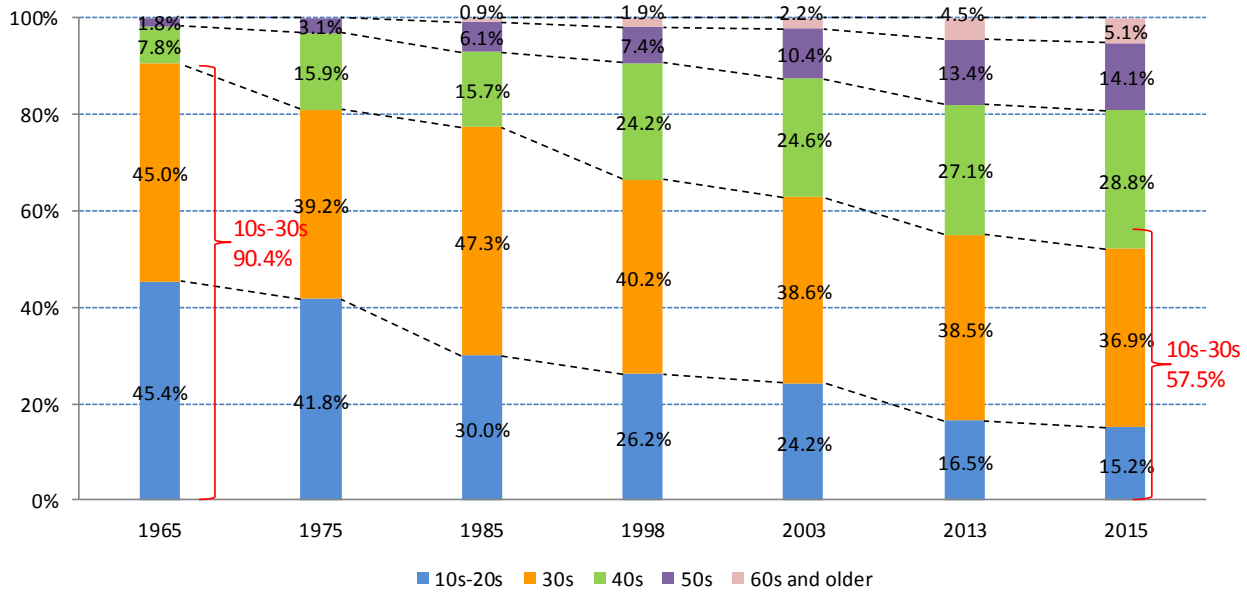
7. Trends in Numbers of Workers in Disaster Management

Fig. A-46 Trends in Numbers of Fire Corps Volunteers



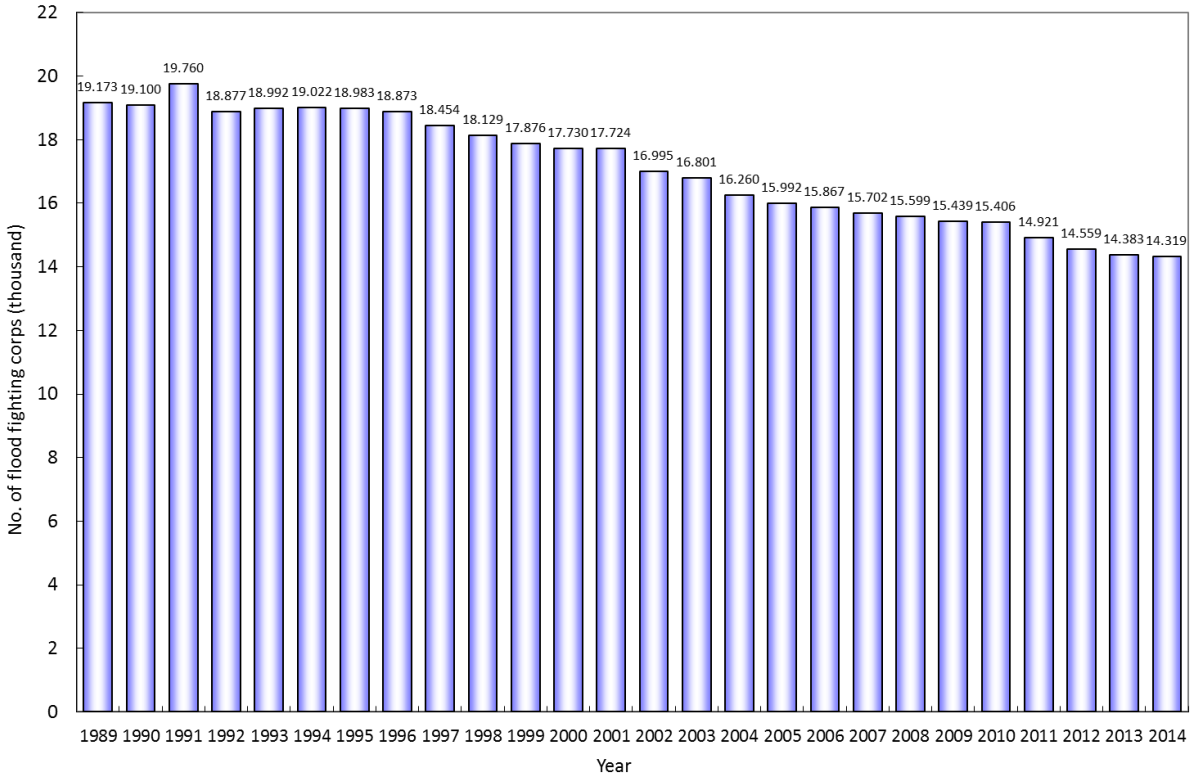
Source: Produced by the Cabinet Office based on the Survey on the Current Status of Fire and Earthquake Disaster Management Measures of the Fire and Disaster Management Agency

Fig. A-47 Trends in Age Composition Ratios among Fire Corps Volunteers



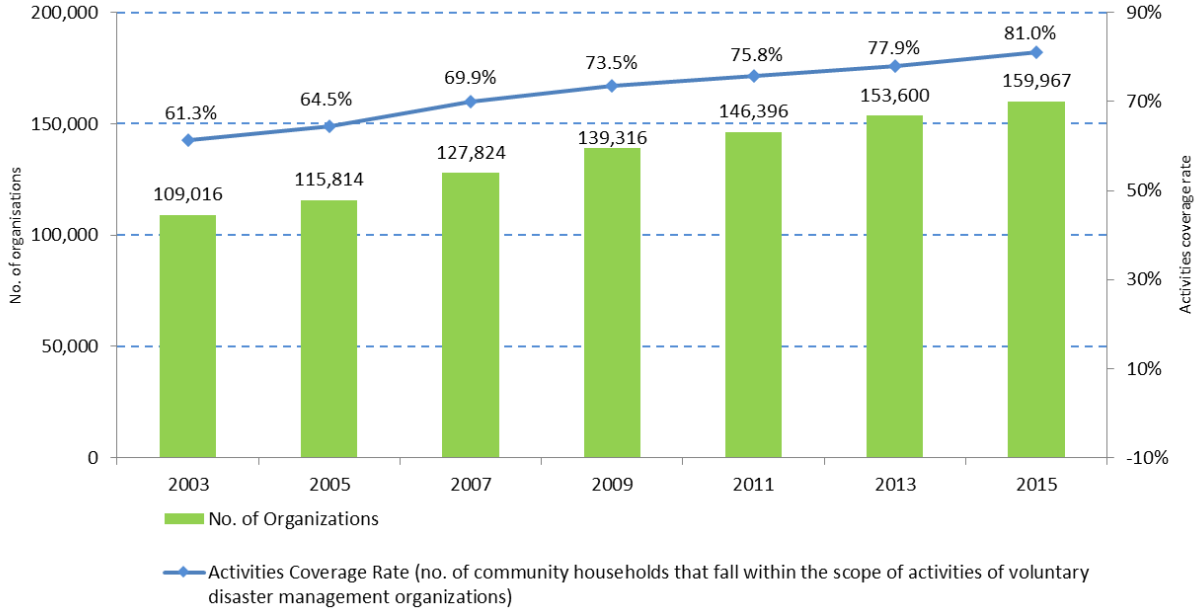
Source: Produced by the Cabinet Office based on the Survey on the Current Status of Fire and Earthquake Disaster Management Measures of the Fire and Disaster Management Agency

Fig. A-48 Trends in Numbers of Flood Fighting Corps Personnel



Source: Ministry of Land, Infrastructure, Transport and Tourism (MLIT)

Fig. A-49 Trends in Voluntary Disaster Management Organizations



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.

Fig. A-50 Female Representation on Local Disaster Management Councils (by Prefecture, 2015)

	Prefectural Disaster Management Council			Municipal Disaster Management Council		
	Total Members	Of which, Female Members	Proportion of Women (%)	Total Members	Of which, Female Members	Proportion of Women (%)
Hokkaido	65	5	7.7	3807	122	3.2
Aomori	57	9	15.8	680	29	4.3
Iwate	73	11	15.1	1006	58	5.8
Miyagi	53	5	9.4	1015	65	6.4
Akita	60	5	8.3	717	65	9.1
Yamagata	59	9	15.3	1017	57	5.6
Fukushima	51	6	11.8	1162	51	4.4
Ibaraki	51	6	11.8	1315	81	6.2
Tochigi	53	4	7.5	656	50	7.6
Gunma	47	5	10.6	772	54	7.0
Saitama	69	6	8.7	2153	190	8.8
Chiba	61	9	14.8	1475	148	10.0
Tokyo	66	2	3.0	2263	270	11.9
Kanagawa	55	7	12.7	1002	85	8.5
Niigata	72	18	25.0	874	47	5.4
Toyama	65	9	13.8	521	24	4.6
Ishikawa	66	6	9.1	427	24	5.6
Fukui	56	2	3.6	488	41	8.4
Yamanashi	61	3	4.9	559	45	8.1
Nagano	64	6	9.4	2008	140	7.0
Gifu	61	11	18.0	981	65	6.6
Shizuoka	55	4	7.3	1032	72	7.0
Aichi	74	2	2.7	1473	136	9.2
Mie	54	5	9.3	885	69	7.8
Shiga	60	7	11.7	535	57	10.7
Kyoto	65	9	13.8	731	60	8.2
Osaka	59	4	6.8	1443	153	10.6
Hyogo	55	6	10.9	1297	120	9.3
Nara	60	8	13.3	904	82	9.1
Wakayama	51	2	3.9	591	52	8.8
Tottori	67	29	43.3	347	44	12.7
Shimane	71	25	35.2	618	39	6.3
Okayama	56	8	14.3	603	92	15.3
Hiroshima	58	2	3.4	789	57	7.2
Yamaguchi	56	7	12.5	581	63	10.8
Tokushima	67	27	40.3	549	31	5.6
Kagawa	55	7	12.7	389	32	8.2
Ehime	59	5	8.5	500	26	5.2
Kochi	57	8	14.0	734	66	9.0
Fukuoka	59	6	10.2	1316	177	13.4
Saga	68	23	33.8	421	41	9.7
Nagasaki	66	7	10.6	638	37	5.8
Kumamoto	56	6	10.7	1697	124	7.3
Oita	50	4	8.0	543	39	7.2
Miyazaki	53	5	9.4	732	42	5.7
Kagoshima	60	5	8.3	988	43	4.4
Okinawa	54	7	13.0	685	55	8.0
Total	2,810	372	13.2	45,919	3,520	7.7

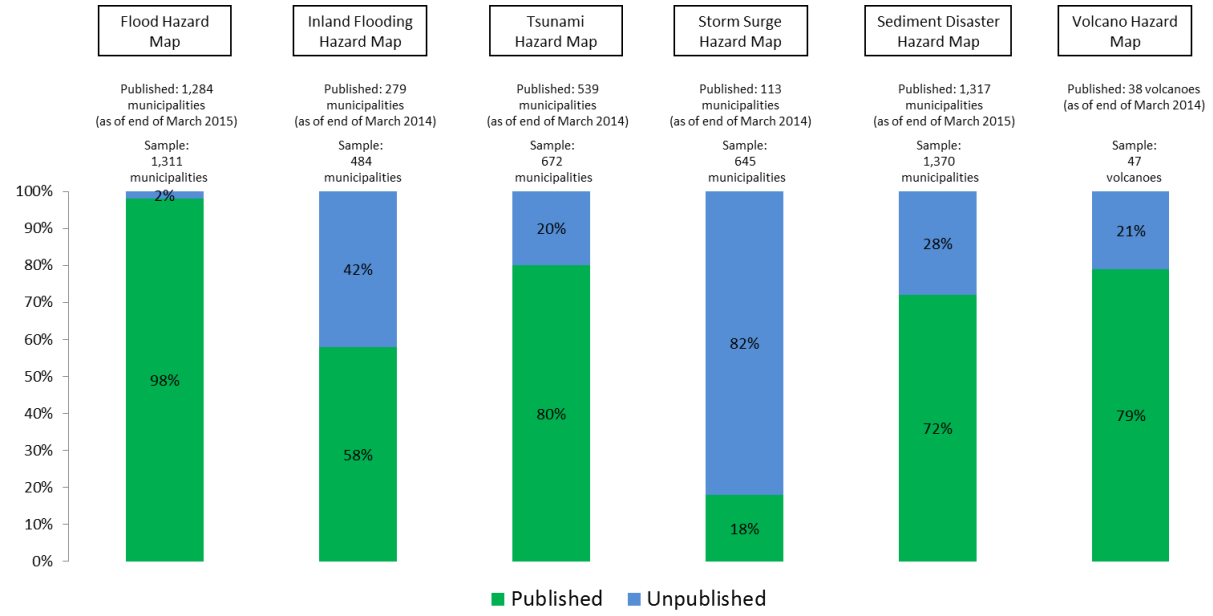
Notes

1. Compiled from Cabinet Office, Progress of Local Government Measures Focused on Women or the Promotion of a Gender-Equal Society
2. Figures for April 1 each year, in principle.

Source: Cabinet Office

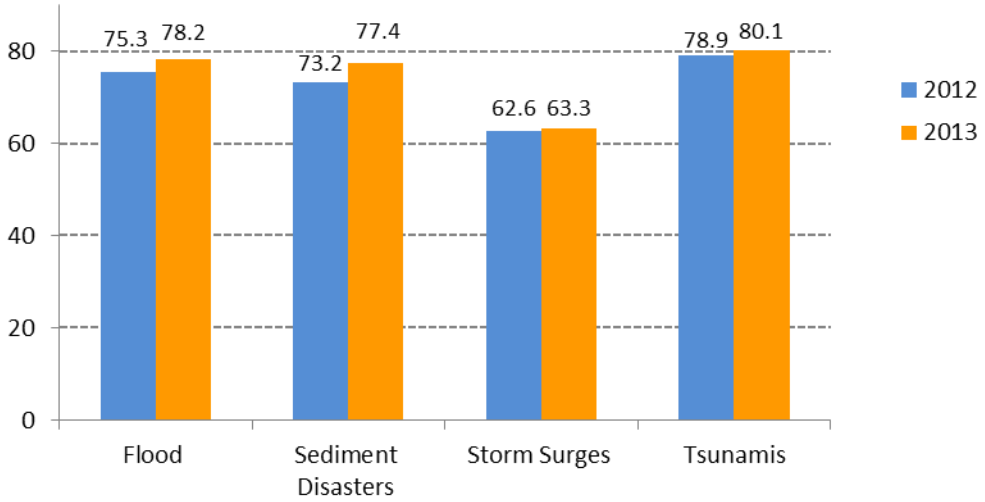
8. Various Policies and Measures

Fig. A-51 Hazard Map Development



Source: Produced by the Cabinet Office based on materials of the Ministry of Land, Infrastructure, Transport and Tourism (excluding Volcano Hazard Map)

Fig. A-52 Formulation Status of Official Announcement Criteria for Evacuation Advisories in Municipalities where Natural Disasters are Anticipated



Note: Figures are percentages of municipalities with criteria already formulated or under review. The 2013 survey assumes disasters will occur as follows: flooding in all municipalities (1,742 municipalities), sediment disasters in 1,603 municipalities, storm surges in 641 municipalities, and tsunamis in 667 municipalities.

Source: Produced by the Cabinet Office based on the "Results of a Survey into the Formulation Status of Specific Official Announcement Criteria for Evacuation Advisories" from the Fire and Disaster Management Agency.

Fig. A-53 **Methods of Communicating Evacuation Orders to Residents in Municipalities**

Year	Disaster management radio communications system		Using the communication facilities of agricultural/ fishery cooperatives (including wired systems)	Patrols by loudspeaker vans	Siren	Bell ringing	News media	Through voluntary disaster management organizations	Other
	Individual Home Receivers System	Simultaneous Broadcasting System							
2003	1,748 54%	2,126 66%	591 18%	2,942 92%	2,537 79%	698 22%	675 21%	1,065 33%	1,106 34%
2004	1,731 55%	2,095 67%	559 18%	2,864 92%	2,463 79%	659 21%	663 21%	1,064 34%	1,106 35%
2005	1,365 56%	1,670 69%	449 19%	2,254 93%	1,927 80%	525 22%	642 27%	942 39%	925 38%
2006	1,118 61%	1,349 73%	362 20%	1,739 94%	1,487 81%	414 22%	666 36%	887 48%	781 42%
2007	1,125 62%	1,350 74%	343 19%	1,722 94%	1,462 80%	383 21%	718 39%	939 51%	800 44%
2008	1,117 62%	1,348 74%	323 18%	1,713 95%	1,455 80%	358 20%	750 41%	987 55%	829 46%
2009	1,118 62%	1,361 76%	311 17%	1,702 95%	1,440 80%	345 19%	782 43%	1,015 56%	830 46%
2010	1,096 63%	1,333 76%	289 17%	1,647 94%	1,383 79%	324 19%	811 46%	1,033 59%	830 47%
2011	1,006 62%	1,240 77%	248 15%	1,530 95%	1,271 79%	270 17%	787 49%	1,002 62%	806 50%
2012	1,086 62%	1,340 77%	245 14%	1,644 94%	1,357 78%	285 16%	848 49%	1,129 65%	955 55%
2013	1,097 63%	1,377 79%	219 13%	1,648 95%	1,347 77%	276 16%	878 50%	1,154 66%	998 57%
2014	1,112 64%	1,398 80%	206 12%	1,651 95%	1,334 77%	256 15%	925 50%	1,169 67%	1,049 60%
2015	1,128 65%	1,412 81%	192 11%	1,659 95%	1,317 76%	238 14%	975 56%	1,193 69%	1,093 63%

Source: Produced by the Cabinet Office based on the "Current State of Local Disaster Risk Management (2004-2015)" compiled by the Fire and Disaster Management Agency

Fig. A-54 Instances of Assistance based on Mutual Support Agreements between Prefectures and Support Agreements with Private-Sector Institutions in Recent Years

Year	Instances of Support Based on Mutual Support Agreements Between Prefectures		Status of Support Agreements with Private-Sector Institutions													
			Broadcasting Agreements (agmts.)		Reporting Agreements		Emergency Relief Agreements		Transportation Agreements		Disaster Recovery Agreements		Resources Agreements		Other	
	Total no.	No. of orgs.	Total no. of concluded agmts.	No. of orgs.	Total no. of concluded agmts.	No. of orgs.	Total no. of concluded agmts.	No. of orgs.	Total no. of concluded agmts.	No. of orgs.	Total no. of concluded agmts.	No. of orgs.	Total no. of concluded agmts.	No. of orgs.	Total no. of concluded agmts.	No. of orgs.
2003	23	6	288	47	347	31	191	37	148	39	400	37	711	34	124	19
2004	4	2	288	47	359	33	218	39	165	41	474	39	828	36	134	23
2005	13	8	304	47	362	32	221	43	178	42	504	40	873	40	182	31
2006	5	2	301	46	370	33	241	44	201	40	587	43	992	42	212	37
2007	0	0	304	46	337	34	272	43	211	41	778	43	1,196	44	317	36
2008	12	1	306	46	400	36	316	45	239	43	818	45	1,294	46	461	39
2009	5	1	314	46	399	36	339	44	247	43	857	45	1,364	46	546	41
2010	24	5	329	47	393	36	420	45	254	43	1,590	46	1,431	45	676	42
2011	18	4	318	44	373	33	472	43	235	41	1,568	43	1,357	44	676	39
2012	25	6	334	47	395	36	495	46	291	44	1,825	46	1,461	47	931	46
2013	29	8	360	47	419	38	575	47	317	46	1,913	47	1,558	47	1,178	46
2014	28	6	351	47	445	40	703	47	374	46	2,360	47	1,672	47	1,299	46
2015	24	6	343	47	454	39	893	47	382	46	2,397	47	1,694	47	1,515	46

Source: Produced by the Cabinet Office based on the "Current State of Local Disaster Risk Management" compiled by the Fire and Disaster Management Agency

Fig. A-55 Status of Mutual Support Agreements in Municipalities

Year	No. of Municipalities	No. of mutual support agreements to which municipalities belong within the prefecture	No. of municipalities that have concluded mutual support agreements with other municipalities
2003	3,213	1,459	2,363 74%
2004	3,123	1,527	2,306 74%
2005	2,418	1,502	1,771 73%
2006	1,843	1,408	1,457 79%
2007	1,827	1,512	1,471 81%
2008	1,811	1,625	1,656 91%
2009	1,800	1,725	1,646 91%
2010	1,750	1,778	1,571 90%
2011	1,619	1,738	1,476 91%
2012	1,742	2,254	1,645 94%
2013	1,742	2,920	1,650 95%
2014	1,742	3,419	1,697 97%
2015	1,741	3,642	1,705 98%

Source: Produced by the Cabinet Office based on the "Current State of Regional Disaster Risk Reduction" compiled by the Fire and Disaster Management Agency

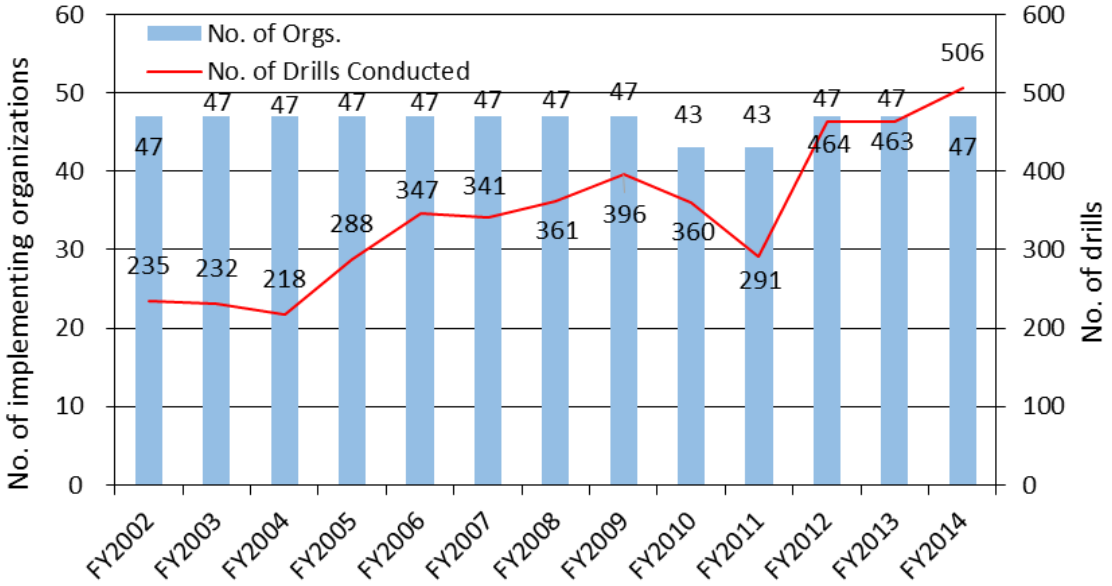
Fig. A-56 Status of Municipalities' Support Agreements with Private-Sector Institutions

Year	Broadcast Agreements		Reporting Agreements		Emergency Relief Agreements		Transportation Agreement		Disaster Recovery Agreements		Resources Agreements		Other	
	No. of orgs.	No. of support instances	No. of orgs.	No. of support instances	No. of orgs.	No. of support instances	No. of orgs.	No. of support instances	No. of orgs.	No. of support instances	No. of orgs.	No. of support instances	No. of orgs.	No. of support instances
2003	150	10	22	2	726	4	253	2	392	21	562	7	334	6
2004	171	20	20	2	713	4	260	2	445	18	589	5	361	5
2005	191	50	27	2	647	6	271	15	445	39	583	17	376	9
2006	225	38	18	2	574	10	267	3	451	24	619	8	401	2
2007	275	35	24		596	7	292	2	662	23	794	6	484	9
2008	315	62	33		619	2	319	5	813	35	936	17	510	5
2009	362	48	33		658	3	355	2	979	35	1,060	33	559	11
2010	378	35	35		683	6	376	3	1,052	42	1,125	22	580	8
2011	376	107	36	2	645	17	386	109	1,066	548	1,118	226	579	57
2012	437	59	41	3	719	19	462	48	1,242	167	1,309	123	684	54
2013	495	81	58		778	3	519	9	1,318	42	1,412	20	743	6
2014	554	59	66		827	2	602	3	1,360	131	1,466	40	800	17
2015	609	50	83	1	869	34	719	3	1,408	62	1,500	31	809	15

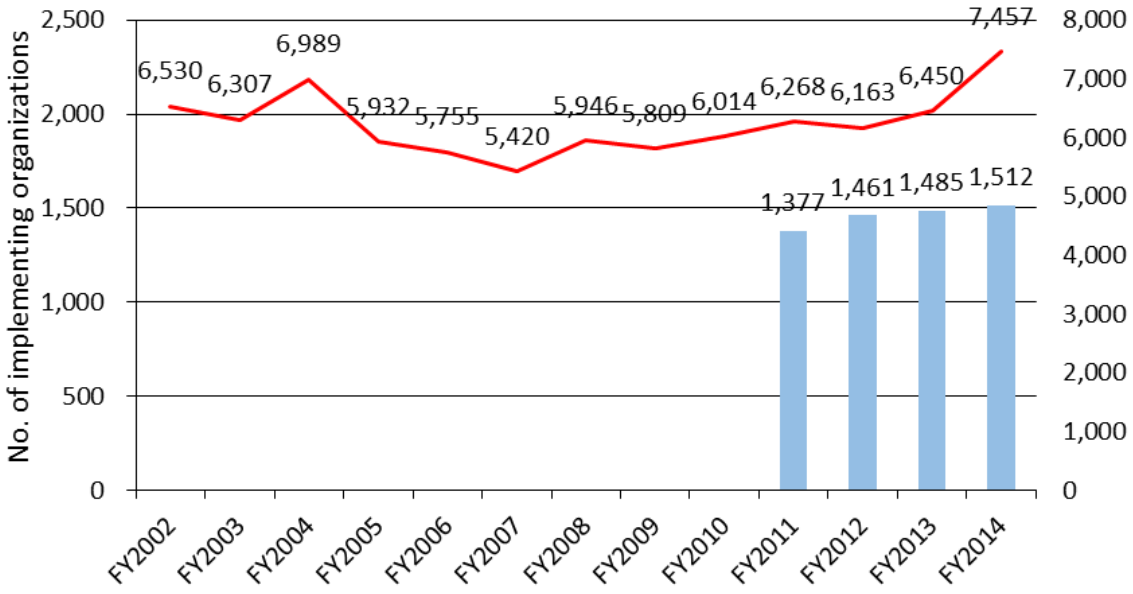
Source: Produced by the Cabinet Office based on the "Current State of Regional Disaster Risk Reduction" compiled by the Fire and Disaster Management Agency

Fig. A-57 **Status of Disaster Management Drill Implementation**

Trends in the No. of Prefectural Organizations Conducting Disaster Management Drills and the No. of Drills Conducted



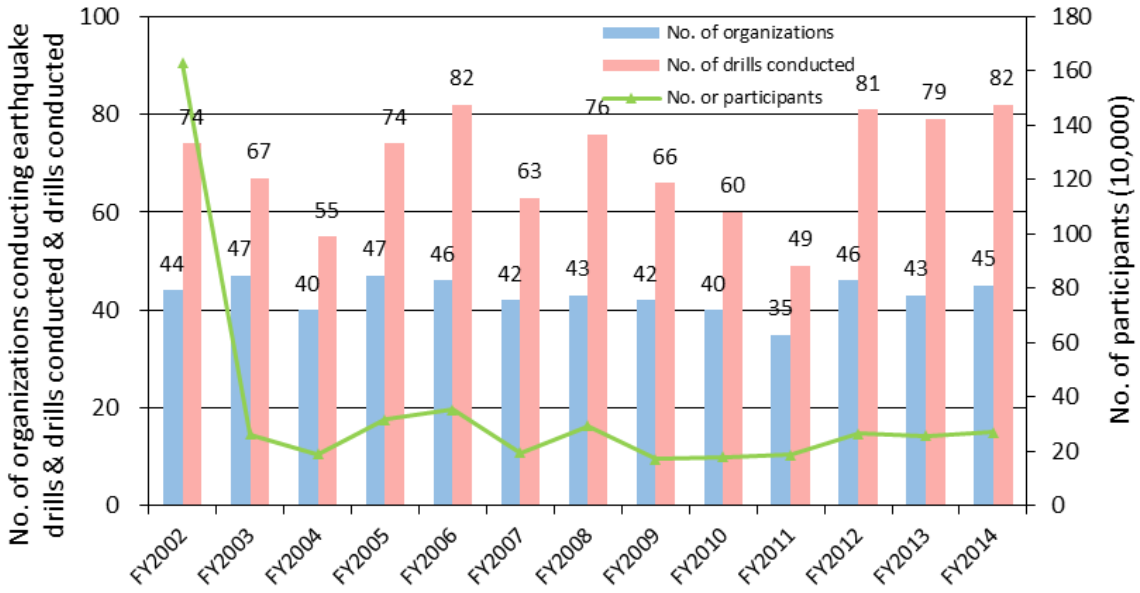
Trends in the No. of Municipal Organizations Conducting Disaster Management Drills and the No. of Drills Conducted



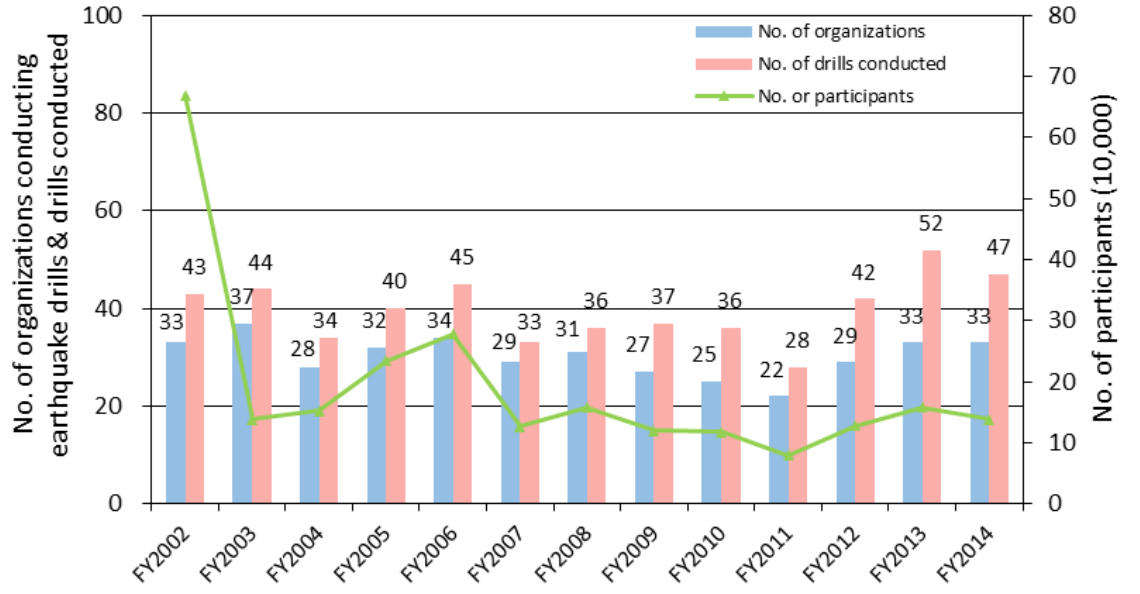
Source: Produced by the Cabinet Office based on the "Current State of Regional Disaster Risk Reduction" compiled by the Fire and Disaster Management Agency

Fig. A-58 Status of Earthquake Disaster Management Drill Implementation

Trends in the No. of Prefectural Organizations Conducting Earthquake Disaster Management Drills, No. of Drills Conducted, and the No. of Participants (Comprehensive Drills)



Trends in the No. of Prefectural Organizations Conducting Earthquake Disaster Management Drills, No. of Drills Conducted, and the No. of Participants (Including Region-Wide Drills)



Source: Produced by the Cabinet Office based on the "Current State of Regional Disaster Risk Reduction" compiled by the Fire and Disaster Management Agency

Fig. A-59 Implementation Status of Tsunami Countermeasures

Year	No. of govts.	Along the Coast?		Designated as likely tsunami inundation areas	Recorded in local DM plan	Evacuation Routes		Evacuation Sites		Tsunami Breakwaters	
		Yes	No			No. of routes	No. of govts.	No. of facilities	No. of govts.	Extended distance (km)	No. of govts.
2003	3,213	1,014	2,199	401	812	1,700	108	5,355	311	1,631	204
2004	3,123	984	2,139	420	799	1,817	104	5,609	306	1,535	204
2005	2,418	806	1,612	374	465	2,099	111	6,442	316	1,472	180
2006	1,843	666	1,177	367	299	3,066	107	6,830	286	1,233	149
2007	1,827	667	1,160	374	384	2,297	108	7,307	292	1,231	143
2008	1,811	659	1,152	417	393	2,593	118	7,647	297	1,105	133
2009	1,800	655	1,145	424	353	2,674	118	7,919	307	1,042	125
2010	1,750	648	1,102	439	385	2,757	118	8,396	304	1,025	123
2011	1,619	609	1,010	425	357	2,448	106	7,448	276	787	93
2012	1,742	646	1,096	492	379	4,058	130	12,110	323	886	107
2013	1,742	646	1,096	539	383	5,054	139	16,238	361	905	104
2014	1,742	646	1,096	576	403	5,591	155	19,405	380	848	96
2015	1,741	646	1,095	603	431	6,176	166	22,589	410	841	97

Source: Produced by the Cabinet Office based on the "Current State of Regional Disaster Risk Reduction" compiled by the Fire and Disaster Management Agency

9. Japan's International Cooperation

Fig. A-60 List of Cooperation Projects Conducted by Ministries and Agencies

Ministry/ Agency	Project	Partner/ Target Country (Target Institution)	Description	Budget for FY2015 (in JPY million; if applicable)	Department Responsible
Cabinet Office (CAO)	Japan-China-Republic of Korea Ministerial Meeting on Disaster Management	China, Republic of Korea	The Fourth Trilateral Ministerial Meeting on Disaster Management, at which participants exchanged views concerning approaches to trilateral disaster management cooperation, was held in Japan (Tokyo) in October 2015, in accordance with the Trilateral Joint Announcement on Disaster Management Cooperation issued at the First Japan-China-ROK Trilateral Summit Meeting in 2008. After the meeting, the three countries issued the Fourth Trilateral Ministerial Meeting among Japan, the People's Republic of China, and the Republic of Korea—Trilateral Joint Statement on Disaster Management Cooperation.		Disaster Preparedness, Public Relations and International Cooperation Division, Disaster Management Bureau, CAO
	Japan-China-Republic of Korea Trilateral Tabletop Exercise on Disaster Management	China, Republic of Korea	Based on the matters agreed upon in the Leaders' Declaration at the 4th Japan-China-Republic of Korea Summit Meeting held in Tokyo in March 2011, the 5th Japan-China-Republic of Korea Trilateral Tabletop Exercise on Disaster Management took place in China in May 2015, with related institutions from Japan, China, and Republic of Korea participating.		Disaster Preparedness, Public Relations and International Cooperation Division, Disaster Management Bureau, CAO
	Japan-U.S. Emergency Management Working Group	US	Regular exchanges of opinions and information took place and reciprocal invitations to exercises were issued within the framework of the Emergency Management Working Group (EMWG) under the U.S.-Japan Bilateral Commission on Civil Nuclear Cooperation.	—	Director General for Nuclear Disaster Management, CAO
	Cooperation between the Cabinet Office of Japan and the Ministry of the Interior of France on emergency management related to nuclear accidents	France	In May 2015, Japan and France signed a Memorandum of Cooperation on bilateral emergency management related to nuclear accidents, inspired by a common desire to engage in bilateral cooperation and dialogue concerning nuclear emergency preparedness.	—	Director General for Nuclear Disaster Management, CAO
	International Nuclear Emergency Exercise (INEX)	OECD/NEA	With the aim of improving working-level efforts to address nuclear accidents and disaster countermeasures, Japan participates in the International Nuclear Emergency Exercise (INEX) held by the OECD/NEA. At present, Japan plans to take part in the sixth of these exercises, INEX-5, which the participating countries are due to conduct between September 2015 and June 2016.	—	Director General for Nuclear Disaster Management, CAO/ International Affairs Office, Policy Planning and Coordination Division, Secretary-General's Secretariat, the Secretariat of the Nuclear Regulation Authority
	Invitation to a nuclear emergency response exercise	US, UK, China, Republic of Korea	With the objective of sharing information and exchanging views concerning nuclear emergency preparedness in each country, Japan invited relevant parties from the US, the UK, China, and the Republic of Korea to observe the Comprehensive Nuclear Emergency Response Exercise held at Ikata Power Station in November 2015 and held an exchange of opinions with them.	—	Director General for Nuclear Disaster Management, CAO/ International Affairs Office, Policy Planning and Coordination Division, Secretary-General's Secretariat, the Secretariat of the Nuclear Regulation Authority
Cabinet Secretariat	Events to publicize World Tsunami Awareness Day		As well as marking World Tsunami Awareness Day (November 5), which was instituted by resolution of the UN General Assembly in December 2015, Japan plans to hold events in Tokyo in FY2016 to publicize disaster management and mitigation and national resilience initiatives	—	National Resilience Promotion Office, Cabinet Secretariat

Ministry/ Agency	Project	Partner/ Target Country (Target Institution)	Description	Budget for FY2015 (in JPY million; if applicable)	Department Responsible
Ministry of Internal Affairs and Communications (MIC)	Promotion of International Development of ICT System for Disaster Management	ASEAN and others	Through this project, MIC will test disaster management ICT systems, which have been cultivated based on Japan's many years of experience and expertise, in countries in the ASEAN region that are prone to natural disasters, taking the needs of each country into account. It will also approach other governments in cooperation with private enterprises and will promote the overseas development of Japan's ICT systems for disaster management.	Included as a part of packaged assistance projects for overseas expansion of ICT, 2015 (JPY 1,145m)	International Cooperation Division, Global ICT Strategy Bureau (GISB), MIC
	ICT Phase 3 for the support to AHA Center (ASEAN Coordinating Centre for Humanitarian Assistance on disaster management)	AHA Center (ASEAN)	Since FY2011, MIC and MOFA have been utilizing the Japan-ASEAN Integration Fund (JAIF) to support the development of the ICT system of the AHA Center, which is the disaster management information hub for the ASEAN region. From FY2015, they conduct to support ICT development and human resource development to help improve the AHA Center's emergency response capacity as ICT Phase 3.	—	International Cooperation Division, Global ICT Strategy Bureau (GISB), MIC/ Regional Policy Division, Asian and Oceanian Affairs Bureau, MOFA
	Collaborative Project with ITU Using Movable and Deployable ICT Resource Unit (MDRU)	ITU (International Telecommunication Union), Philippines Department of Science and Technology	Starting in FY 2014, MIC has cooperated with the ITU and the Philippines Department of Science and Technology to implement a project to conduct demonstration experiments using mobile ICT units (MDRU*) as measures against natural disasters on the island of Cebu in the Philippines, which was affected by a typhoon. In March 2016, it published a report summarizing its findings concerning the verification of technical functions, effectiveness checks in which residents participated, technical training for local governments in the area concerned, and the development of disaster management frameworks. *MDRU: Movable and Deployable ICT Resource Units were developed through research and development by MIC based on lessons learned from the Great East Japan Earthquake. They consist of transmission equipment that can be sent to disaster sites following natural disasters to enable prompt emergency response and restoration transmissions, and come in small in-vehicle and attaché-case models.	—	Telecommunication Systems Division, Telecommunications Business Department, Telecommunications Bureau/ International Policy Division, Global ICT Strategy Bureau (GISB), MIC
Fire and Disaster Management Agency (FDMA)	Asian International Forum on Fire and Disaster Management	Asian countries	The International Forum on Fire and Disaster Management has been held since 2007 to enable the countries of Asia to enhance their firefighting and disaster management capacity, and to introduce Japan's firefighting technologies, systems, and structures in those countries.	3.1	(Counselor of) Civil Protection and Disaster Management Department, FDMA
	Japan-Republic of Korea Firefighting Administration Seminar	Republic of Korea	On the occasion of the 2002 FIFA World Cup, jointly held by Japan and Republic of Korea, the "Year of Japan-Republic of Korea National Exchange," a Japan-Republic of Korea Firefighting Administration Seminar was held in both countries to promote Japanese-Republic of Korean exchange, collaboration, and cooperation, through the sharing of information and the exchange of ideas on the issues of firefighting and disaster management in both countries.	2	(Counselor of) Civil Protection and Disaster Management Department, FDMA

Ministry/ Agency	Project	Partner/ Target Country (Target Institution)	Description	Budget for FY2015 (in JPY million; if applicable)	Department Responsible
Ministry of Foreign Affairs (MOFA)	Disaster Risk Reduction Collaboration/ Disaster Restoration Support in Cooperation with Japan's International Cooperation NGOs	Countries affected by natural disasters	This project promotes DRR cooperation in developing countries through the Grant Aid for Japanese NGO's Projects, emergency humanitarian relief and disaster recovery support through the Japan Platform,[1] and by establishing an international DRR network in the Asia Pacific region and carrying out emergency humanitarian relief through the Asia Pacific Alliance (PAD).[2] 1: A framework by which Japanese NGOs, the business community, and the government work together to provide emergency humanitarian support following the occurrence of a natural disaster or conflict either in Japan or overseas. 2: A framework that aims to develop an international DRR network for NGOs, the business community, and the governments of the APAD member states to tackle large-scale natural disasters in the Asia Pacific region, under the leadership of Japanese NGOs. The Japanese government contributed approx. JPY 100 million in FY2013 and plans to contribute JPY 200 million in FY2015 and JPY 100 million un FY2016.	Grant Aid for Japanese NGO's Projects: approx. 681 (including JPF) (*FY2015 settlement amount)	Non-Governmental Organizations Cooperation Division, International Cooperation Bureau, MOFA
	Provision of International Emergency Relief Goods		In April 2015, following the earthquake in Nepal, and in February 2016, following the flooding in Fiji, MOFA contributed international emergency relief goods to support the immediate needs of the disaster victims through the Japan International Cooperation Agency (JICA) (10th occasion).	161	Humanitarian Assistance and Emergency Relief Division, International Cooperation Bureau, MOFA
	Emergency Grant Aid		As well as providing emergency grant aid in respect of damage resulting from the April 2015 earthquake in Nepal, MOFA provided emergency humanitarian assistance and grant aid to facilitate recovery and mitigate the damage arising from disasters such as cyclones and floods.	6,961 (*FY2015 settlement amount)	Humanitarian Assistance and Emergency Relief Division, International Cooperation Bureau, MOFA
	Operation of IAEA RANET Capacity Building Centre (CBC)	IAEA member countries (IAEA)	In December 2012, the "Practical Arrangements Between the Ministry of Foreign Affairs of Japan and the International Atomic Energy Agency on Cooperation in the Area of Emergency Preparedness and Response" was signed by MOFA and the IAEA. Given this, in May 2013, the IAEA RANET Capacity Building Centre (CBC) was designated in Fukushima Prefecture. IAEA staff are permanently stationed there. As well as being used to store materials and equipment required for dealing with emergencies involving radiation and to undertake various tasks in an emergency, the CBC serves as the venue for training courses for officials from foreign and Japanese local governments several times a year.		International Nuclear Energy Cooperation Division, Disarmament, Non-proliferation and Science Department, MOFA
Ministry of Education, Culture, Sports, Science and Technology (MEXT)	Promotion of "Sentinel Asia" Project to Share Information on Natural Disasters Between Asia -Pacific Countries	25 countries of the Asia Pacific Region/ 15 international organizations	This project is led and implemented by Japan to contribute to disaster management efforts in the Asia-Pacific Region. It uses satellites to share information relating to natural disasters. Participants consist of 25 countries and regions, 85 institutions, and 15 international institutions (as of March 2016).	—	Office for Space Utilization Promotion, Space Development and Utilization Division, Research and Development Bureau, MEXT
	Science and Technology Research Partnership for Sustainable Development (SATREPS) Program	136 countries that are the object of ODA	MEXT and the Japan Science and Technology Agency (JST) together with MOFA and the Japan International Cooperation Agency (JICA), through leading science and technology and Official Development Assistance (ODA), have set up SATREPS in order to promote joint international research on solutions to global issues that occur in developing countries, including DRR.	(MOFA) Included in JICA Management Expenses Grant (MEXT) Included in JST Management Expenses Grant	International Science and Technology Affairs Division, Science and Technology Policy Bureau, MEXT
Ministry of Agriculture, Forestry and Fisheries (MAFF)	Investigative Project into Global Environment Issues for Overseas Agricultural and Rural Development (Survey to consider agricultural disaster management plans)	Targeted widely, particularly in Asian countries	Between 2013 and 2016 this project will work in the rural areas of developing countries to disseminate education to raise residents' awareness of DRR, to develop system to prevent and reduce damage from natural disasters through resident participation under the leadership and support of local governments, and to investigate methods for creating rural disaster management plans.	32	Overseas Technical Team, Overseas Land Improvement Cooperation Office, Design Division, Rural Infrastructure Department, Rural Development Bureau, MAFF

Ministry/ Agency	Project	Partner/ Target Country (Target Institution)	Description	Budget for FY2015 (in JPY million; if applicable)	Department Responsible
Ministry of Land, Infrastructure Transport and Tourism (MLIT)	Japan-ASEAN Project to Promote Disaster Risk Reduction Cooperation in the Field of Transportation	All ASEAN nations	This project seeks to support the implementation of effective safety and disaster management measures tailored to the development stage of each country's transport system, thereby enhancing capacity in the area of safety measures and disaster countermeasures in ASEAN's transport sector. Project activities aimed at this goal include meetings of experts to discuss knowledge concerning safety measures and disaster countermeasures in the transport sector, as well as the preparation and sharing of an anthology of examples of best practice in safety and disaster management measures in the transport sectors of Japan and ASEAN member states.	6	International Policy Division, Policy Bureau, MLIT
	Disaster Risk Reduction Cooperation between Japan and Chile on Ports	Chile	The Research Project on the Enhancement of Technology to Develop Tsunami-Resilient Communities, a SATREPS project, has been in progress since 2012. In May 2005, at the time of the visit to Chile by Mr. Nishimura, Senior Vice Minister for Diplomatic Relations, a memorandum of understanding was executed on coastal disaster risk reduction measures, which included an introduction from Japan to Chile of technology standards relating to ports.	—	International Policy Planning Office, Industrial Port Policy Division, Ports and Harbors Bureau/ Risk Management Office, Coastal Administration and Disaster Management Division, Ports and Harbors Bureau, MLIT
	ASEAN-Japan Port Technology Group (Formulation of Port DRR Guidelines)	ASEAN nations	This meeting is part of a three-year plan, starting in 2015, to share the lessons learned from the Great East Japan Earthquake with all of the ASEAN nations and to compile Port DRR Guidelines (provisional title) that all of the ASEAN nations can refer to when implementing initiatives relating to port DRR.	23	International Policy Planning Office, Industrial Port Policy Division, Ports and Harbors Bureau/ Risk Management Office, Coastal Administration and Disaster Management Division, Ports and Harbors Bureau, MLIT
	Disaster Management Collaboration Dialogues	Vietnam, Thailand, Myanmar, Indonesia, Turkey, South Africa	Held since 2013, these dialogues aim to enhance the DRR functions of developing nations principally in Asia, while also expanding Japan's DRR technology overseas. They also aim to develop a lasting structure for cooperation in each individual country through collaborations between industry, government, and academia.	35	River Planning Division, Water and Disaster Management Bureau/ Overseas Projects Division, Policy Bureau, MLIT
	Collaboration between MLIT and the European Commission's Humanitarian Aid and Civil Protection Department (ECHO)	ECHO	Following the exchange of correspondence between Japan's MLIT and EU's ECHO in March 2013, an information exchange has been conducted every year to share DRR knowledge and experience through the reciprocal exchange of experts and practitioners, with the objective of enhancing disaster management systems on both sides.	—	River Planning Division, Water and Disaster Management Bureau, MLIT
	Discussion with India on DRR Technology Through a Bilateral Conference	India	In accordance with the cooperation framework concluded in September 2014, the 2nd meeting of the Japan–India Joint Working Group on Roads and Road Transport was held in Tokyo, with participants exchanging opinions on disaster management measures for roads and technology for road construction in mountainous areas, with a view to cooperation in road development in northeastern India. The 3rd meeting is due to be held in Delhi, India in FY2016.	—	International Affairs Office, Planning Division, Road Bureau, MLIT
	International Centre for Water Hazard and Risk Management (ICHARM)	UNESCO, etc.	As an organization under the auspices of UNESCO, the International Centre for Water Hazard and Risk Management (ICHARM) strove to disseminate Japanese experiences and technologies, as well as building international solidarity, with the aim of mitigating damage due to water hazards worldwide. Specifically, it conducted research and development in such areas as the Integrated Flood Analysis System (IFAS), the Rainfall-Runoff-Inundation (RRI) model, and risk management, as well as engaging in human resource development that leveraged the results of this work. In addition, it offered technical cooperation and international support via UNESCO and Asian Development Bank projects.	Included in PWRI Management Expenses Grant (9,054 million yen)	Public Works Research Institute

Ministry/ Agency	Project	Partner/ Target Country (Target Institution)	Description	Budget for FY2015 (in JPY million; if applicable)	Department Responsible
Japan Metrological Agency (JMA)	International Cooperation through WMO	WMO member countries	The JMA, as a constituent member of the WMO (one of the specialized institutions of the UN which functions to collect and promote the distribution of observations and data on weather around the world, and to improve information relating to the weather and the climate), sends experts to international conferences, and is responsible for international centers.	—	Office of Disaster Management and Planning, Planning Division, Administration Department, JMA
	International Cooperation through UNESCO	UNESCO member countries, etc.	The JMA provides technological contributions relating to the field of oceans and tsunami, within the framework of the UNESCO Intergovernmental Oceanographic Commission (IOC). - It collects, analyzes, and provides data on oceans and maritime meteorology for the northeast Asian region, in cooperation with other related countries (China, Republic of Korea, and Russia). - It provides each country with information on tsunamis caused by earthquakes that occur in the northwest Pacific region.	—	Office of Disaster Management and Planning, Planning Division, Administration Department, JMA
	International Cooperation through International Civil Aviation Organization (ICAO)	ICAO member countries	The JMA participates in meetings relating to aeronautical meteorology organized by the ICAO, as well as investigations into adopting and improving standard international criteria for aviation weather services. It has also been appointed by the ICAO to operate international centers such as the Tokyo Volcanic Ash Information Center, and the Tropical Cyclone Information Center, thus contributing to the safe operation of global aircraft.	—	Office of Disaster Mitigation, Planning Division, Administration Department, JMA
	Collaboration on International Research Plans	All relevant countries	The JMA promotes various international research projects in cooperation with other countries. On climate change, it has been involved in writing evaluation reports on the activities of the Intergovernmental Panel on Climate Change (IPCC) since the panel was established in 1988.	—	Office of Disaster Management and Planning, Planning Division, Administration Department, JMA
	Human Resource Development Aid and Technological Cooperation to Developing Countries	All relevant countries	Together with the Japan International Cooperation Agency (JICA), the JMA has spent more than 40 years conducting trainings designed for the staff of the national meteorological institutions of developing countries, in order to improve their meteorological services. Also, in response to demands from the WMO and individual countries, the JMA dispatches staff who are experts in observations using meteorological radar, weather analysis, and weather forecasting, and receives trainees from the national meteorological institutions.	—	Office of Disaster Management and Planning, Planning Division, Administration Department, JMA
Japan Coast Guard (JCG)	Participation in the projects of the Northwest Pacific Action Plan (NOWPAP) Marine Environmental Emergency Preparedness and Response Regional Activity Centre (MERRAC)	Republic of Korea, China, Russia	The JCG participates in the projects of the NOWPAP MERRAC, which is a center responsible for preparing for and responding to marine environmental emergencies. As well as undertaking a marine environmental conservation initiative focused on the Sea of Japan and the Yellow Sea in partnership with neighboring countries, the JCG takes part in joint oil spill clean-up drills organized by relevant organizations and attends meetings held each year. Through these activities, it promotes international cooperation by striving to build systems that will enable relevant countries to work together in the event of an accident.		Protection of Marine Environment Division, Guard & Rescue Department, JCG
The Secretariat of the Nuclear Regulation Authority (NRA)	Participation in ConvEx: Convention Exercise	IAEA	Japan participates in communication training performed by the International Atomic Energy Agency (IAEA) to ensure that the provisions of the Convention on Early Notification of a Nuclear Accident and the Convention on Assistance in the Case of a Nuclear Accident or Radiological Emergency (two conventions relating to nuclear accidents) are implemented in an orderly manner.	—	International Affairs Office, Policy Planning and Coordination Division, Secretary-General's Secretariat, the Secretariat of the Nuclear Regulation Authority
	IAEA Safety Measure Contributions for Nuclear Power Plants (Emergency Measures Project)	IAEA	Japan also participates in IAEA projects to promote the publication and sharing of information relating to accidents and issues that are reported to the IAEA by member countries regarding their nuclear facilities.	41	International Affairs Office, Policy Planning and Coordination Division, Secretary-General's Secretariat, the Secretariat of the Nuclear Regulation Authority

Ministry/ Agency	Project	Partner/ Target Country (Target Institution)	Description	Budget for FY2015 (in JPY million; if applicable)	Department Responsible
Ministry of Defense (MOD)	ASEAN Disaster Relief Exercise	ASEAN nations, Canada, China, EU, France, and the US	This exercise, which was co-organized by the Thai and Malaysian militaries, was held in Eastern Thailand in April 2014. It involves the implementation of all kinds of training related to humanitarian support and disaster relief. MOD joined drills related to medical activities.		Training Division, Bureau of Defense Policy, MOD
	Multi-National Joint Training Exercise, RIMPAC	Australia, Canada, US, and others	This is a joint training exercise planned by the US Navy and conducted with the involvement of foreign vessels. Japan participates in humanitarian support and disaster relief training.		Training Division, Bureau of Defense Policy, MOD
	ARF Disaster Relief Exercise	ARF countries and international institutions	This exercise aims to enhance the capacity to provide regional disaster relief, and is a field training exercise conducted within the framework of the ASEAN Regional Forum (ARF). Japan participates in exercise relating to medical activities.	51	Training Division, Bureau of Defense Policy, MOD
	Multinational Joint Training on Humanitarian Aid and Disaster Relief "Southern Cross" organized by French military based in New Caledonia	France, Australia, Tonga, Vanuatu, UK, US, and others	Following the press release issued in May 2014, at the time of the Prime Minister's visit to France, personnel were dispatched to this training between August and September 2014, and field training was conducted in connection with relief activities for disasters on islands.		Training Division, Bureau of Defense Policy, MOD
	Multinational Joint Training "Cobra Gold"	Indonesia, Republic of Korea, Malaysia, Singapore, Thailand, US, and others	In addition to the existing bilateral training drills conducted between the US and Thailand, this training has been implemented in recent years as a multinational training program focusing on peace operations in areas of conflict, UN peace-keeping activities, and humanitarian and public welfare support activities. Japan participated in medical activity drills.		Training Division, Bureau of Defense Policy, MOD
	Japan, US, and Australia Joint Exercises in Humanitarian Aid and Disaster Relief	Australia and US	This is a training program that aims to improve interoperability with the US and Australian air forces with respect to humanitarian aid and disaster relief activities. The participating countries conducted air transport training, supply-drop training, soft-field take-off and landing training, and search training.		Training Division, Bureau of Defense Policy, MOD
	Joint humanitarian aid/disaster relief training in the Federated States of Micronesia, etc. by Japan, the US, and Australia	Australia and US	Aimed at improving the interoperability of the US Air Force and Royal Australian Air Force in humanitarian aid and disaster relief activities, this training included exercises in which the participating countries undertook air transport, packed supplies, and delivered them by air drop.		Training Division, Bureau of Defense Policy, MOD
	ADMM-Plus Exercise in Humanitarian Aid, Disaster Relief and Defense Medicine	Every ADMM-Plus country	This training exercise aims to enhance the capacity for providing regional disaster relief, and consists of field training conducted within the framework of the extended ASEAN Defense Ministers' Meeting (ADMM-Plus). Japan participated in medical activity drills.		Training Division, Bureau of Defense Policy, MOD

Source: Created by the Cabinet Office using materials from various ministries and agencies.

Fig. A-61 Examples of Technical Cooperation Projects in Disaster Risk Reduction (FY2015)

Country	Cooperation Period	Project Name	Description
Asia	2013-2015	Use of Disaster Management Satellite Information Assistance for Capacity-building Project in the ASEAN Region	To improve the practical use of satellite information in DRR in the ASEAN countries, this project conducts research using satellite information acquisition, image analysis, flood run-off analysis, and flooding analysis.
Indonesia	2011-2015	Project for Enhancement of Disaster Management Capacity of BNPB and BPBD	Indonesia's National Agency for Disaster Management plays a central role in this project, which supports efforts to enhance disaster response capabilities through the preparation of regional disaster management plans and standard operating procedures (SOP) by regional disaster management authorities, based on risk assessments at the provincial, regency, and municipal level in the pilot provinces, as well as through disaster management drills.
Indonesia	2013-2017	Project for Assessing and Integrating Climate Change Impacts into the Water Resources Management Plans for Brantas and Musi River Basins	Supports the implementation by Indonesia of water resources management that takes into account the effects of climate change, by providing advice on the formulation of water resource management plans in Indonesia's Brantas and Musi River Basins that take such effects into consideration, and by drafting guidelines that can also be applied to other river basins.
Indonesia	2013-2018	Project for Integrated Study on the Mitigation of Multimodal Disasters Caused by the Ejection of Volcanic Products (SATREPS)	Aims to comprehensively reduce disaster risks caused by the ejection of volcanic products through the development of a "Multimodal Sediment Disaster Countermeasures Decision-Making Support System" composed of a "Volcanic Eruption Early Warning System", an "Integrated GIS Multimodal Sediment Disaster Simulator", and a "Floating Volcanic Ash Warning System", all addressing the five volcanoes within Indonesia (Merapi, Semeru, Kelud, Galunggung and Guntur), and through the practical use of such system by the institutions related to DRR.
Indonesia	2014-2018	Project on Capacity Development for River Basin Organizations (RBOs) in Integrated Water Resources Management in the Republic of Indonesia (Phase II)	In the field of integrated water resources management in Indonesia (operation and maintenance of river facilities, coordination of water use and allocation, preservation of aquatic environments, flood management, etc.), supports the improvement of the structure and capacity of the RBOs and the continuous strengthening of efforts relating to integrated water resources management, by means of (1) site confirmations using field practice, (2) development and management of organizational structures and systems for strengthening the capacity of the RBOs, and (3) improving access to reliable guidelines and manuals.
Malaysia	2011-2016	Research and Development for Reducing Geo-Hazard Damage in Malaysia caused by Landslides and Floods (SATREPS)	Observes the environment around the surface of the earth using remote sensing and conducts research into the production of the trial version of a high level disaster risk management system including an integrated database relating to sediment and flood disasters, in order to implement and promote a disaster management program in Malaysia.
Philippines	2014-2017	Project for Enhancing Capacity on Weather Observations, Forecasting and Warnings	Enhances weather observation, forecasting, and warning capacity in the Philippines through capacity development for weather observations, weather data analysis and forecasting, establishment of warning criteria for Southern Luzon, and improvements in communication methods for and details of weather information, as well as awareness-raising activities relating to weather information in Southern Luzon.
Vietnam	2011-2016	Development of Landslide Risk Assessment Technology along Transport Arterials in Vietnam (SATREPS)	In the mountainous area of Vietnam, landslides are a frequent occurrence due to soft ground and increasingly strong tropical winds and tropical monsoons. This project therefore aims to develop landslide disaster risk assessment technologies for the protection of trunk roads that connect the north and the south of the country and to ensure the safety of the residents of mountainous areas, as well as to develop landslide disaster risk reduction technologies that include early warning systems and human resources development.
Vietnam	2013-2016	Project for Building Disaster Resilient Societies in the Central Region of Vietnam (Phase II)	Project aims to strengthen the implementation capacity and integrated flood control plans of the central government and the four ministries of Central region, by strengthening collaboration systems with respect to integrating the central government's flood risk management efforts and strengthening its capacity to develop integrated flood risk management plans, enhancing capacity for flood risk analysis, and implementing structural and non-structural flood countermeasures in the target ministries.
Myanmar	2013-2017	Project on Establishment of an End-to-End Early Warning System for Natural Disasters	In order to assist in the eventual development of a natural disaster early warning system in Myanmar, this project aims to establish an improved model of a system for transmitting early warnings swiftly and appropriately to residents at the pilot project site, and also to implement human resources development for central and local government institutions and awareness-raising activities for residents such as evacuation activities. It also develops a plan for expansion into other regions.
Myanmar	2015-2020	Project for Development of a Comprehensive Disaster Resilience System and Collaboration Platform in Myanmar (SATREPS)	Yangon Technological University, which falls under the jurisdiction of Myanmar's Ministry of Science and Technology, is planning to develop and build a scenario analysis system that forecasts changes in disaster vulnerability as needed, and an integrated disaster response system based on this to enhance disaster resilience. In addition, it is planning to establish a consortium to promote collaboration between industry, academia and government, to promote widespread adoption of these systems by governmental organizations and industry. Japan will provide support for R&D of these systems, human resource development required for this R&D, and the establishment of the consortium, thereby helping to enhance disaster resilience in Myanmar.

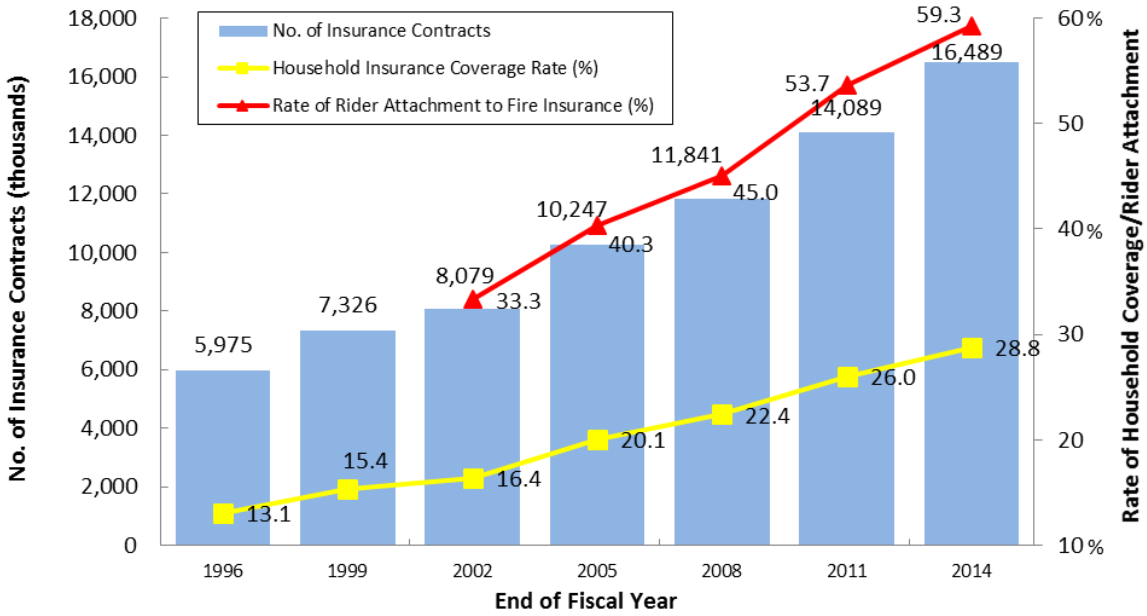
Country	Cooperation Period	Project Name	Description
China	2015-2018	The Project for Promotion and Capacity Development of Disaster Mitigation Education in Sichuan Province	As part of this project, which encompasses 100 or so model schools for disaster mitigation education, model schools in the city of Ya'an will carry out model lessons, to facilitate research into drills and activities that involve teaching materials, curricula, and communities, as well as research into the development of government policy. The objective of this initiative is to build models for ongoing disaster mitigation education and to improve awareness of disaster preparedness and disaster response capabilities at every level, including boards of education, school managers, teachers, and the students themselves.
Bhutan	2013-2016	Study on GLOFs (Glacial Lake Outburst Floods) in the Bhutan Himalayas	Supports the strengthening of emergency response capacity at the central and regional levels through the development and pilot implementation of an early warning system to respond to flooding including GLOFs (Glacial Lake Outburst Floods), as well as the development of a system for incorporating disaster risk assessment into development plans.
Bangladesh	2013-2017	Project for Capacity Development of Management for Sustainable Water-Related Infrastructure	To reduce flood damage in Bangladesh, this project provides support for investigations and inspections into the causes of damage at existing levees, and support for levee design, construction, and maintenance manuals through demonstrations to verify levee construction.
Bangladesh	2014-2018	Research Project on Disaster Prevention/Mitigation Measures against Floods and Storm Surges (SATREPS)	Proposes prevention and mitigation measures for storm surge and flood damage including the creation of flood risk maps and storm surge risk maps, measures to address river bank erosion and river levee collapse, and measures to prevent toxic substance diffusion at times of flooding, and experimentally conducts such measures.
Sri Lanka	2014-2017	Technical Cooperation for Landslide Mitigation Project	Supports the enhancement of sediment disaster management capacity in Sri Lanka through conducting surveys and assessments of sediment disaster countermeasures, development of designs to prevent landslide, slope failures and rocks fall, construction supervision and monitoring, and accumulation of knowledge and know-how on sediment disasters mitigation measures.
Sri Lanka	2014-2017	Project for Improving of Meteorological Observations, Weather Forecasting and Dissemination	Conducts maintenance and inspection as well as calibration capacity improvements on meteorological observation equipment, enhances the capacity to send and receive meteorological data, improves weather forecasting capacity, refines warning criteria, improves transmission methods for and contents of weather information, and works towards improving capacity for meteorological observations, forecasting, warnings, and dissemination in Sri Lanka.
Fiji	2014-2018	Project for Reinforcing Meteorological Training Function of FMS	Improves the capacity to assess the human resources development needs of Oceania for the Fiji Meteorological Service (FMS), performs maintenance on human resources development tools (including curriculum and textbooks), and by enhancing the leadership capacity of the FMS through the improvement of its observation and prediction services, works towards the improvement of the human resources development function of the FMS with respect to Oceania, and contributes to the independent future continuation of human resources development work in Oceania by the FMS.
Fiji	2014-2016	Project for the Planning of the Nadi River Flood Control Structures	Nadi, Fiji's third largest city, is important to Fiji as a tourist center, but since no basic flood control plan has been formulated, and no flood countermeasures program has been implemented, it is vulnerable to flooding. There has been immense damage even in recent years and the area continues to be exposed to flood risk. For this reason, this project is working towards the formulation of a comprehensive flood countermeasures master plan for the river basin of the Nadi River, which flows through Nadi, the performance of feasibility studies with respect to priority projects based thereon, and the implementation of technology transfers to project counterparts.
Tuvalu	2011-2017	Project on Pilot Gravel Beach Replenishment against Coastal Disasters on Fongafale Island, Tuvalu	In Tuvalu, measures to address coastal erosion are urgently required since marine pollution has worsened due to storm surges and domestic wastewater. In this project, gravel beach replenishment is proposed as a measure to preserve the coast, following the natural beach formation mechanism of reef islands. Through this pilot study, the project will verify suitability and collate points to note when the pilot is disseminated to other areas.
Central America and the Caribbean	2015-2020	Project on Capacity Development for Disaster Risk Management in Central America, Phase 2	The Project on Capacity Development for Disaster Risk Management in Central America was conducted to build disaster-resilient societies by improving the disaster risk reduction capabilities of communities in Central America (El Salvador, Honduras, Guatemala, Nicaragua, Costa Rica, and Panama), which face similar risks in terms of natural disasters, including earthquakes, floods, and volcanic disasters. Based on the results of that project, Phase 2 supports the strengthening of frameworks for sustained efforts to popularize more systematic community disaster preparedness, as well as supporting the construction of frameworks for sharing each country's experiences with others in Central America, with the aim of developing disaster risk management capacity throughout the region.
Brazil	2013-2017	Project for Strengthening the National Strategy of Integrated Natural Disaster Risk Management	Damage from sediment disasters has been escalating in Brazil, with increased habitation of risk areas due to development cited as a contributory factor. With the objective of reducing the risk of sediment disasters, this project aims to identify disaster risks and, based on this, strengthen comprehensive disaster response capabilities, including urban expansion plans, prevention and recovery, monitoring, and the transmission of information.

Country	Cooperation Period	Project Name	Description
Chile	2011-2015	Research Project on Enhancement of Technology to Develop Tsunami-Resilient Community (SATREPS)	In Chile, the Project works towards the introduction/improvement of a tsunami damage prediction model, proposals for measures to predict and mitigate tsunami damage, the development of a high-precision tsunami warning method, and development of tsunami-resilient programs for residents and communities.
Colombia	2015-2020	Project for Application of State of the Art Technologies to Strengthen Research and Response to Seismic, Volcanic and Tsunami Events, and Enhance Risk Management	Colombia experiences frequent disasters due to earthquakes, tsunami, and volcanic eruptions. This project involves research and practical activities aimed at strengthening measures to mitigate the damage due to disaster through capacity building in such areas as earthquake, tsunami, and volcanic activity monitoring, modeling, damage forecasting, and the transmission of information. In addition, it will contribute to advances in disaster research in South America through collaboration with neighboring countries.
Colombia	2015-2018	Project for Strengthening Flood Risk Management Capacity	This project will seek to strengthen flood risk management capabilities among relevant organizations in Colombia by strengthening capacity in the areas of flood risk assessment, flood forecast and warning, and the communication of forecasts and warnings, as well as by clarifying the roles and responsibilities of central and local governments, and enhancing flood risk management planning capabilities.
Ecuador	2013-2016	Project for the Enhancement of Tsunami-induced Earthquake Monitoring Capability	Conducts facility maintenance and core personnel development to ensure swift judgement regarding the parameters of earthquakes that accompany tsunamis in Ecuador, the issuing of tsunami warnings, the improvement of tsunami observation, warning, and cancellation technologies, the adoption of criteria, and the improvement of tsunami warning procedures. As a result, it is strengthening earthquake and tsunami monitoring capacity and working towards the development of a tsunami warning system.
Afghanistan	2012-2017	Project for Capacity Enhancement on Hydro-Meteorological Information Management in the Ministry of Energy and Water	This project supports a cooperative relationship between the Ministry of Energy and Water (MEW) and other hydro/meteorological information management institutions (Ministry of Agriculture, Irrigation and Livestock (MAIL), National Meteorological Service (NMS), etc.), and then to enable the mutual exchange of Afghanistan's hydro/meteorological data and information and its application in the appropriate development of irrigation and agriculture, so that it will be used by the general public.
Iran	2012-2015	Capacity Building for Earthquake Risk Reduction and Disaster Management in Tehran	In Iran, where there is a high risk of earthquakes, this project, which focuses on the area surrounding the capital Tehran, provides technological support across the three areas of road DRR, public awareness, and early warnings, working to enhance the capacity for earthquake DRR response.
Turkey	2013-2018	Project on Earthquake and Tsunami Disaster Mitigation in the Marmara Region and Disaster Education in Turkey (SATREPS)	In the Marmara Region, with its high earthquake risk, this project conducts research on earthquake observations and on earthquake and tsunami disaster simulations. By maintaining the results of this research in the form of visual resources (such as images and pamphlets), this project works to improve the general public's awareness and knowledge of DRR.
Turkey	2012-2016	Capacity Development for Effective Disaster Risk Management	This project is for staff members of relevant organizations, such as ministries and agencies responsible for DRR, sector government offices, and local governments, and works towards supporting and strengthening the capacity to adopt disaster management plans based on risk assessments, and to contribute to the improvement of DRR capacity in Turkey.
Mozambique	2014-2017	Project for the Capacity Enhancement of Meteorological Observations, Weather Forecasting and Warnings	This project, which targets the staff of the Mozambique Meteorological Office and regional observation stations, aims to improve the capacity for responding to water-related disasters in Mozambique, a country which is vulnerable to natural disasters and is exposed to cyclones and flooding every year. The project works towards the improvement of forecasts and warnings that use quality controlled weather data by aiming to improve meteorological observation capacity and weather forecasting and warning capacity.
South Africa	2010-2015	Observational Studies in South African Mines to Mitigate Seismic Risks (SATREPS)	By observing mine earthquakes, which frequently occur deep underground, this project aims to analyze trigger mechanisms and link these to damage prediction. As a result, it hopes to achieve a deeper understanding of the outbreak of earthquakes and the process immediately prior to their outbreak and to improve disaster risk management systems for mine earthquakes.
Cameroon	2011-2015	Project on Magmatic Fluid Supply into Lakes Nyos and Monoun and the Mitigation of Natural Disasters through Capacity Building	The objective of this project is to clarify the mechanism of the limnic eruptions at Lake Nyos and Lake Monoun, to enhance understanding of the risks, and to develop a monitoring system that will be used for disaster management at the areas around the both lakes.
Armenia	2014-2017	Landslide Disaster Management Project	In Armenia, this project works towards enhancing the capacity to manage and respond to landslide disasters of the Landslide Disaster Management Working Group, by improving the technology and capacity relating to sediment disaster management, developing plans, guidelines, and legislation, and strengthening implementation systems.

Note: SATREPS: Science and Technology Research Partnership for Sustainable Development
Source: Japan International Cooperation Agency (JICA)

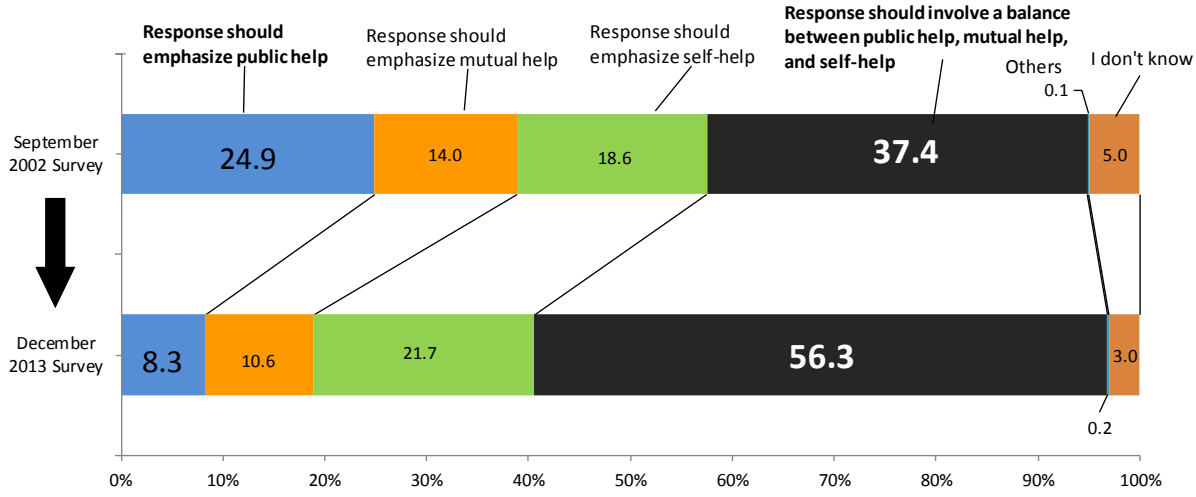
10. Others

Fig. A-62 Trends in the Number of Earthquake Insurance Contracts



Source: Produced by the Cabinet Office based on materials from the General Insurance Rating Organization of Japan

Fig. A-63 Awareness of Self-Help, Mutual Help, and Public Help Measures



Source: Produced by Cabinet Office on basis of "Public Opinion Poll regarding Disaster Risk Reduction" conducted by the Cabinet

Fig. A-64 Explanations Regarding the Japan Meteorological Agency's Seismic Intensity Ratings

Notes:

(1) The seismic intensity values published by the Japan Meteorological Agency (JMA) are generally observed values from seismometers situated on the surface of the earth or on the first floor of low-rise buildings. When a particular seismic intensity is observed, these materials indicate what type of phenomenon or damage has occurred. It is impossible to determine the seismic intensity based on the phenomena described for each seismic intensity level.

(2) Seismic motion is strongly influenced by type of ground and topography. A seismic intensity value is the observed value for the place where the seismometer is situated, and seismic intensity can vary even within a municipality depending on where it is measured. Furthermore, even within the same building, the strength of a tremor will depend on the floor or place where it is felt. For example, a tremor is generally stronger on the upper floor of a middle- or high-rise building than at ground level.

(3) Even with tremors of the same seismic intensity, the damage will differ according to the amplitude of the earthquake vibration (the size of the tremor), the cycle (the length of time taken for one repetition of the tremor), and the duration of the tremor, as well as the condition of the building or structure that is affected and the ground conditions.

(4) In this data, of all the damage that occurs when a particular seismic intensity is observed, that which is seen relatively often has been recorded. However, there are also instances where greater or lesser amounts of damage have been caused. Note also that not all of the phenomena indicated for any particular level of seismic intensity will necessarily occur.

(5) This data is primarily collated from earthquakes that have occurred in recent years. Going forward, the details of these tables will be regularly inspected every five years, new examples will be added, and amendments will be made where the data no longer reflects true conditions due to, for example, improvements in the earthquake-proofing of houses and structures.

(6) In these materials, where the extent of damage is not shown in round numbers, the following adverbs and adjectives have been used as a tentative guide.

Term	Definition
Rarely A few/little Majority Almost all	Extremely limited. Hardly ever. Number/extent is extremely small. Just a little bit. Half or more. Less than "almost all." Not all but close to all.
There are (also), there may be	Used to express something that typically starts to appear at this seismic intensity level, where the quantity is not great, but it is hard to quantify the number/extent.
Increases	It is difficult to specify the quantity, but it is more than would be the case for a lower level of intensity.
Increases further	Same meaning as "increases" above. Used in relation to lower levels of intensity, just like "increases" above.

* The JMA sometimes publishes earthquake intensities obtained from questionnaire surveys, but these are expressed as "corresponding to seismic intensity xx" and are distinguished from seismic intensity levels observed by seismometers.

●Human Sensation/Reaction, Indoor Conditions, Outdoor Conditions

Seismic intensity level	Human sensation/reaction	Indoor conditions	Outdoor conditions
0	A person will not feel the tremor but it will be recorded by seismometers	—	—
1	If people are indoors keeping quiet, some will feel a slight tremor.	—	—
2	If people are indoors keeping quiet, the majority will feel the tremor. If people are asleep, some will be awakened.	Things hanging from the ceiling such as lamps will sway slightly.	—
3	Most people who are indoors will feel the tremor. Of those who are walking, some will feel the tremor. The majority of people who are sleeping will be awakened.	Dishes in cupboards may rattle.	Electric wires will tremble slightly.
4	Most people will be startled. Most of those walking will feel the tremor. Most who are sleeping will be awakened.	Things hanging from the ceiling such as lamps will sway significantly, dishes in cupboards will rattle. Unstable ornaments may fall over.	Electric wires will tremble significantly. Some people who are driving vehicles will notice the tremor.
5 Lower	The majority of people will be frightened and feel as if they want to hold onto something.	Things hanging from the ceiling such as lamps will sway violently. Dishes in cupboards and books on bookshelves may fall down. The majority of unstable ornaments will fall over. Furniture that is not secured may move and unstable items may fall over.	Rarely, windows may break and glass may fall out. People will notice electric poles swaying. Roads may be damaged.
5 Upper	The majority of people will find the tremors an obstacle to movement, and find it hard to walk unless they hold onto something.	More dishes in cupboards and books on bookshelves will fall. TV sets may fall from their stands. Furniture that is not secured may fall over.	Windows may break and glass may fall out. Unreinforced concrete block walls may collapse. Vending machines that are not properly installed may fall over. Driving a vehicle will become difficult and some cars may come to a stop.
6 Lower	It will become difficult to remain standing.	The majority of unsecured furniture will move, and some will fall over. Some doors will become impossible to open.	Tiles on walls and glass in windows may break and fall.
6 Upper	It will become impossible to remain standing or to move without crawling. People may be tossed around, being unable to move, and may even be thrown through the air.	Almost all unsecured furniture will move and more of it will fall over.	More buildings will have broken tiles and glass. Almost all of the unreinforced concrete block walls will collapse.
7		Almost all unsecured furniture will move and fall over, some even being thrown through the air.	Even more buildings will have broken tiles and glass. Even reinforced concrete block walls may be damaged.

●Conditions of Wooden Buildings (Residential)

Seismic intensity level	Wooden Buildings (Residential)	
	High earthquake resistance	Low earthquake resistance
5 Lower	—	Slight crazing or cracks may be seen in walls.
5 Upper	—	Crazing or cracks may be seen in walls.
6 Lower	Slight crazing or cracks may be seen in walls.	Crazing or cracks in walls become more common. Large cracks may form in walls. Tiles may fall and buildings may lean. Some may topple.
6 Upper	Crazing or cracks may be seen in walls.	Large cracks in walls become more common. Buildings that lean or collapse become more common.
7	Crazing or cracks in walls become more common. Rarely, buildings may lean.	Buildings that lean or collapse become even more common.

Notes:

(1) Wooden building (residential) are classified into two types according to their earthquake resistance. Earthquake resistance tends to be better in newer buildings, tending to be lower in structures built prior to 1981 and higher in structures built since 1982. However, there is wide variation in earthquake resistance due to differences in construction methods and the placement of walls. Just because a building is old does not necessarily mean that you can determine its level of earthquake resistance. The earthquake resistance of existing buildings can be ascertained through seismic diagnosis.

(2) The crazing, cracks and damage to the walls in the wooden buildings referred to in this table are deemed to appear in walls made of soil (split bamboo substrate) or mortar (including lath and wire mesh substrate). Where walls have weak foundations, even when the deformation to the building is slight, the mortar readily becomes detached and falls off.

(3) Damage to wooden buildings will differ depending on the cycle and duration of the seismic motion. There are examples of damage to buildings being low in relation to seismic intensity, such as the Iwate-Miyagi Nairiku Earthquake in 2008.

●Conditions of Reinforced Concrete Buildings

Seismic intensity level	Reinforced Concrete Buildings	
	High earthquake resistance	Low earthquake resistance
5 Upper	—	Cracks may form in walls, crossbeams, and pillars.
6 Lower	Cracks may form in walls, crossbeams, and pillars.	Cracks become more common in walls, crossbeams, and pillars.
6 Upper	Cracks become more common in walls, crossbeams, and pillars.	Diagonal and X-shaped cracks may be seen in walls, crossbeams, and pillars. Pillars on the ground floor or middle floors may crumble and some buildings may collapse.
7	Cracks become even more common in walls, crossbeams, and pillars. Ground floor and middle floors may be deformed, and rarely, buildings may lean.	Diagonal and X-shaped cracks become more common in walls, crossbeams, and pillars. Pillars on the ground floor or middle floors crumble and more buildings will collapse.

Notes:

(1) Earthquake resistance tends to be better in newer buildings, tending to be lower in structures built prior to 1981 and higher in structures built since 1982. However, there is wide variation in earthquake resistance, due to differences in structural types, the placement of quake-resistant walls, and whether the walls are planar or vertical. Just because a building is old does not necessarily mean that you can determine its level of earthquake resistance. The earthquake resistance of existing buildings can be ascertained through seismic diagnosis.

(2) In reinforced concrete buildings, slight cracks may be observed even where the core structure of the building is not affected.

●Ground and Slope Conditions

Seismic intensity level	Ground Conditions	Slope Conditions
5 Lower	Cracks*1 and liquefaction*2 may occur.	Rock falls and slope failures may occur.
5 Upper		
6 Lower	Fissures may form.	Slope failures and landslides may occur.
6 Upper	Large fissures may form.	Landslips become more frequent, large-scale landslides and sector collapses may occur.*3
7		

Notes:

*1 A crack is the same phenomenon as a fissure, but the expression is used here to refer to a small fissure or opening in the ground.

*2 Where the groundwater level is high, and the ground is loose and sandy, liquefaction may occur. As liquefaction progresses, muddy water may spout out of the ground, subsidence may occur, embankments and quays may be broken, sewage pipes and manhole covers may float to the surface, and damage may include the leaning or destruction of building foundations.

*3 If a large-scale landslide or a sector collapse occurs, depending on the topography of the area, this may also cause natural dams to be formed. Large volumes of sediment may also cause debris flows.

●Effect on Utilities and Infrastructure

Suspension of gas supply	When the seismic intensity level reaches 5 Lower or greater, gas meters with safety devices (“intelligent gas meters”) will trip, and the gas supply will be shut off. If tremors become even stronger, the gas supply for entire communities may be shut off in the interest of safety.*
Suspension of water supply, power outages	In communities where tremors are recorded at seismic level 5 Lower or greater, the water supply may be suspended and there may be power outages.
Suspension of rail services, expressway regulation	If the seismic intensity level is 4 or greater, in the interest of safety, the implementation of suspensions, speed restrictions, and traffic regulations on railways and expressways will be enacted at the discretion of the relevant operating company (criteria applied to confirm safety will differ by operating company and geographical area).
Disruption to telephone lines and other means of communication	When an earthquake disaster occurs, there is an increase in communications using the telephone and the internet in the areas where the tremors are strong and in the surrounding areas, as people try to confirm the safety of loved ones, offer condolences, and ask about friends and relatives. This can lead to telephone line congestion. To address this, when a natural disaster such as an earthquake with a seismic level of 6 Lower or greater occurs, communication companies provide services such as the Disaster Emergency Message Dial 171 (which allows people in disaster-stricken areas to record a message about their safety, and allows people outside the area to listen to that message) and the Disaster Emergency Message Board (web171, which allows people in disaster-stricken areas to record information using text, voice, or images, and allows people anywhere in the world to access that information).
Elevators taken out of service	Elevators equipped with earthquake control devices will automatically stop, in the interest of safety, in the event of a tremor of seismic intensity level 5 Lower or greater. It can take time for operations to resume while safety inspections are conducted.

*When there are tremors with a seismic intensity of 6 Upper or greater, gas, water, and electricity supply services may be widely suspended across large regions of the country.

●Effect on Large-scale Structures

Shaking of skyscrapers due to long-period earthquake ground motion*	Since skyscrapers have a long natural period, they react less violently to earthquakes than ordinary reinforced concrete buildings, which have a short natural period. However, in response to long-period earthquake ground motion, they shake more slowly over a long period of time. If the tremors are strong, then poorly secured office fixtures may move significantly, and people inside may need to hold onto fixed objects in order to remain in one place.
Sloshing inside oil tanks	Sloshing of liquid inside oil tanks may occur as a result of long-period earthquake motion, oil may overflow the tanks, and fires may occur.
Damage to or collapse of ceilings at facilities that occupy large spaces	At facilities such as gymnasiums and indoor swimming pools, which occupy large spaces, even earthquake movements that do not cause significant damage to the structure itself, such as the pillars and walls of the building, may cause ceilings to shake significantly, become damaged, and collapse.

*Large-scale earthquakes can generate long-period seismic waves, which can travel long distances from the epicenter of the quake. Depending on the natural period of the ground, such long-period seismic waves may become amplified as they travel over plains, and the duration of the tremors may be lengthened.

Source: Japan Meteorological Agency

Fig. A-65 Emergency Warning Issuance Criteria

■Criteria for Meteorological Emergency Warnings

<table>
<tr><th>Type of Event</th><th colspan="2">Criteria</th></tr>
<tr><td>Heavy rain</td><td colspan="2">Heavy rainfall with a level of intensity observed only once every few decades is predicted in association with a typhoon or intense heavy rains or
Heavy rainfall is predicted in association with a strong typhoon whose expected level of intensity is observed only once every few decades or an extra-tropical cyclone of comparable intensity.</td></tr>
<tr><td>Storm</td><td>A storm is predicted…</td><td rowspan="3">…in association with a strong typhoon whose expected level of intensity is observed only once every few decades or an extra-tropical cyclone of comparable intensity.</td></tr>
<tr><td>Storm surge</td><td>A storm surge is predicted…</td></tr>
<tr><td>High waves</td><td>High waves are predicted…</td></tr>
<tr><td>Snowstorm</td><td colspan="2">A snowstorm is predicted in association with an extra-tropical cyclone of comparable intensity with a strong typhoon whose expected level of intensity is observed only once every few decades.</td></tr>
<tr><td>Heavy snowfall</td><td colspan="2">Heavy snowfall with accumulations observed only once every few decades is predicted.</td></tr>
</table>

■ Criteria for Tsunami, Volcano, and Earthquake (Seismic Motion) Emergency Warnings

Type of Event	Criteria
Tsunami	A tsunami greater than 3m at its highest is predicted (a major tsunami warning is classed as an Emergency Warning)
Volcanic eruption	A volcanic eruption that will cause serious damage to residential areas is predicted (a Warning (Residential Areas)* is classed as an Emergency Warning)
Earthquake (seismic motion)	Seismic motion with a seismic intensity of 6-lower or more is predicted (an earthquake early warning (seismic intensity of 6-lower or more) is classed as an Emergency Warning)

*In the case of volcanoes to which volcanic alert levels are applied, a Warning (Residential Areas) (volcanic alert level 4 or 5) is classed as an Emergency Warning, while for volcanoes to which volcanic alert levels are not applied, a Warning (Residential Areas) (Keyword: Extreme caution advised in residential areas and non-residential areas nearer the crater) is classed as an Emergency Warning.

Source: Japan Meteorological Agency

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