Extract of the 2018 White Paper on Fire Service

Materials created by the Fire and Disaster Management Agency were extracted and translated by the International Fire Service Information Center

The Fire and Disaster Management Agency (FDMA)

Extract of the 2018 White Paper on Fire Service
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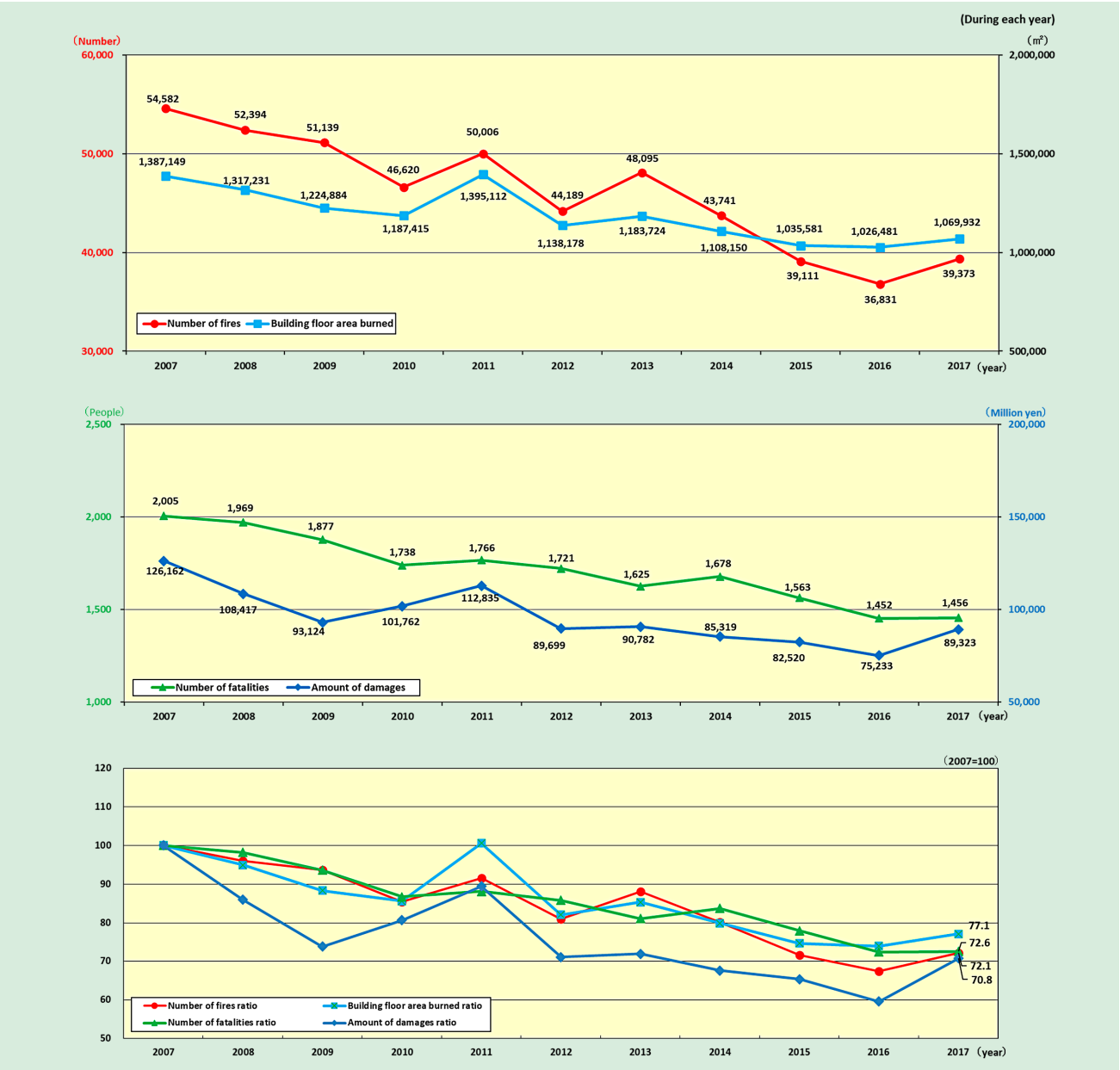
Section 1 Fire Prevention

☞ *Japanese Original P.69*

Current Status and Recent Trends with Fires

Looking at the number of fires over the past ten years reveals that this number has largely been trending downwards since 2007. The number of fires that occurred in 2017 came to 39,373, raising to 2,542 (6.9%) compared to the previous year, which is 72.1% of the number from ten years prior (the number of fires in 2007). Furthermore, the number of fatalities from fires has also largely been trending downward since 2007. The number of fatalities from fires in 2017 came to 1,456, an increase of 4 (0.3%) compared with the previous year, or 72.6% that from ten years ago (based on the number of fatalities from fires in 2007). (**Fig. 1-1-1, Table 1-1-1**)

Fig. 1-1-1 Changes in the number of fires and their trends



(Notes) 1 Prepared based on "Fire Reports".
2 The figures for each year are calculation of the fire that occurred between January to December. The same hold true in this section hereafter unless otherwise noted.
3 See the left axis for the number of fires, number of fatalities, number of fires ratio, building floor area burned ratio, number of fatalities ratio, and amount of damages ratio, and the right axis for the building floor area burned and the amount of damages.
4 The number of fires ratio, building floor area burned ratio, number of fatalities ratio, and amount of damages ratio are ratios found by taking the values from 2007 to be 100.

Table1-1-1 Status of fires

(During each year)

Classification	Unit	2007	2016 (A)	2017 (B)	Change (B) - (A) (C)	Rate of change (C) / (A) X 100 (%)
No. of fires	Fires	54,582	36,831	39,373	2,542	6.9
Building fires		31,248	20,991	21,365	374	1.8
Forest fires		2,157	1,027	1,284	257	25.0
Vehicle fires		5,798	4,053	3,863	△ 190	△ 4.7
Ship fires		123	72	72	0	0.0
Aircraft fires		6	3	6	3	100.0
Other fires		15,250	10,685	12,783	2,098	19.6
No. of buildings burned	Buildings	43,168	30,032	30,824	792	2.6
Totally destroyed		9,483	6,722	6,967	245	3.6
Half destroyed		2,867	1,728	1,677	△ 51	△ 3.0
Partially destroyed		12,443	7,968	8,063	95	1.2
Minor fire		18,375	13,614	14,117	503	3.7
Building floor area burned	㎡	1,387,149	1,026,481	1,069,932	43,451	4.2
Building surface area burned	㎡	152,984	112,652	111,304	△ 1,348	△ 1.2
Forest area burned	a	71,714	38,411	93,808	55,397	144.2
Fatalities	People	2,005	1,452	1,456	4	0.3
Injured	People	8,490	5,899	6,052	153	2.6
No. of households affected	Households	28,686	18,335	18,853	518	2.8
Totally destroyed		6,256	4,064	4,163	99	2.4
Half destroyed		2,233	1,253	1,305	52	4.2
Partially destroyed		20,197	13,018	13,385	367	2.8
No. of people affected	People	71,704	40,970	41,518	548	1.3
Amount of damages	Millions	126,162	75,233	89,323	14,090	18.7
Building fires		109,323	68,914	81,599	12,685	18.4
Forest fires		237	157	900	743	473.2
Vehicle fires		2,613	2,293	2,283	△ 10	△ 0.4
Ship fires		302	488	619	131	26.8
Aircraft fires		9,976	920	43	△ 877	△ 95.3
Other fires		2,654	2,048	3,105	1,057	51.6
Explosions		1,057	412	772	360	87.4
Fire outbreak rate	Fires/10,000	4.3	2.9	3.1	0.2	—

(Notes)
1 Prepared based on “Fire Reports”.
2 “Building fires” refer to fires that burn buildings or the contents contained therein. The same holds true in this section hereafter unless otherwise noted.
3 “Forest fires” refer to fires that burn forests, wilderness, or grassland. The same holds true in this section hereafter unless otherwise noted.
4 "Vehicle fires” refer to fires that burn automotive vehicles, railway vehicles, trailer vehicles, or their cargo. The same holds true in this section hereafter unless otherwise noted.
5 “Ship fires” refer to fires that burn ships or their cargo. The same holds true in this section hereafter unless otherwise noted.
6 “Aircraft fires” refer to fires that burn aircraft or their cargo. The same holds true in this section hereafter unless otherwise noted.
7 “Other fires” refer to fires other than building fires, forest fires, vehicle fires, ship fires and aircraft fires (fires involving vacant land, fields, roads, flood plains, waste collection sites, outdoor item collection sites, train tracks, utility poles, etc.). The same holds true in this section hereafter unless otherwise noted.
8 Fatalities includes those people who were injured by fires and passed away within 48 hours. The same holds true in this section hereafter unless otherwise noted.
9 The fire outbreak rate refers to the number of fires per 10,000 people. The same holds true in this section hereafter unless otherwise noted.
10 Amount of damages and so forth include cases that are still under investigation, and so this may change. The same holds true in this section hereafter unless otherwise noted.
11 The symbol '△' indicates negative numbers. The same holds true in this section hereafter unless otherwise noted.
12 Rate of change was found by rounding up less than whole numbers with the displayed units. The same holds true in this section hereafter unless otherwise noted.
13 The population for 2006 was found from the Basic Resident Register as of March 31, the population for 2015 was found from a Survey on the Current Status of Fire and Disaster Prevention and Earthquake Countermeasures as of March 31 for each year, and the population for 2016 was found from the Basic Resident Register as of January 1.
14 If a fire is spread across more than two types of fires, it is aggregated into the number of fires based on which type had the larger amount of damages. For the amount of damages, this is aggregated for each type of fire by the objects damaged in the fire (building, vehicle, forest, ship, aircraft, or other). The same holds true in this section hereafter unless otherwise noted.
15 The amount of damages from “Explosions” is posted to “Explosions” within “Amount of damages” without regard to the type of fire.
16 The figures in the total column may not align with the totals for each figure due to rounding. The same holds true in this section hereafter unless otherwise noted.

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☞ Japanese Original P.84

Current Status of Fire Prevention Administration

1. Current Status of Residential Fire Prevention Measures

The number of residential fires in 2017 (10,489, excluding those from arson) accounted for roughly 50% of the number of building fires (19,730, excluding those from arson). What is more, the number of fatalities from residential fires (889, excluding suicides by arson), accounts for roughly 90% of the number of fatalities from building fires (889, excluding suicides by arson). In addition, elderly people age 65 or older account for approximately 70% of the fatalities from residential fires.

The revision of the Fire Service Act in 2004 mandated that residential fire alarms be installed in newly-built residences starting from June 2006. As for existing residences, it mandated that said alarms be installed in them within all municipalities nationwide based on the ordinances in each municipality by June 2011. The Fire and Disaster Management Agency (FDMA) held the Committee on Measures to Install Residential Fire Alarms. Based on the Basic Policy on Measures to Install Residential Fire Alarms established at this committee, various initiatives have been deployed to ensure that residential fire alarms are thoroughly installed and maintained. This is done by the fire departments throughout Japan in cooperation with volunteer fire corps, women's (female) firefighting clubs, voluntary disaster prevention organizations, and others. As of June 1, 2018, the nationwide installation rate*1 was 81.6% and the ordinance compliance rate*2 was 66.5%. When viewed by prefecture, Fukui Prefecture had the highest installation rate, and the highest ordinance compliance rate. (**Table 1-1-15**)

2. Fire Prevention Properties

The Fire Service Act defines the primary properties that are eligible for fire prevention administration, such as architectural structures, as "fire prevention properties." It also mandates that personnel structures for fire prevention be established, fire protection equipment etc.*3 be installed, and flame retardant goods be used at those fire prevention properties listed in Appended Table I of the Ordinance of Enforcement for the Fire Service Act according to their

Table 1-1-15 Installation rate of residential fire alarms and rate of compliance with the ordinance by prefecture (June 1, 2018)

Prefecture	Installation rate	Ordinance compliance rate	Prefecture	Installation rate	Ordinance compliance rate
All of Japan	81.6%	66.5%	Mie	77.2% (36)	68.1% (16)
Hokkaido	82.5% (16)	64.8% (24)	Shiga	84.3% (12)	62.7% (33)
Aomori	77.3% (35)	61.1% (36)	Kyoto	87.1% (7)	69.0% (13)
Iwate	86.2% (8)	66.2% (22)	Osaka	84.3% (12)	75.6% (5)
Miyagi	90.5% (2)	62.7% (33)	Hyogo	85.3% (11)	66.8% (21)
Akita	81.5% (20)	68.9% (14)	Nara	80.0% (24)	74.8% (6)
Yamagata	80.0% (24)	57.6% (40)	Wakayama	79.8% (27)	60.6% (37)
Fukushima	74.6% (43)	55.7% (43)	Tottori	82.2% (18)	64.8% (24)
Ibaraki	71.8% (44)	59.4% (39)	Shimane	82.9% (14)	65.6% (23)
Tochigi	74.8% (42)	63.8% (30)	Okayama	75.7% (40)	60.2% (38)
Gunma	70.6% (45)	57.4% (41)	Hiroshima	87.4% (6)	80.4% (3)
Saitama	76.6% (38)	64.0% (28)	Yamaguchi	78.6% (31)	69.1% (12)
Chiba	78.6% (31)	62.7% (33)	Tokushima	79.3% (29)	67.8% (17)
Tokyo	88.2% (4)	71.0% (7)	Kagawa	76.3% (39)	63.9% (29)
Kanagawa	82.4% (17)	69.8% (9)	Ehime	80.0% (24)	68.2% (15)
Niigata	85.6% (10)	67.5% (19)	Kochi	67.8% (46)	51.2% (45)
Toyama	85.7% (9)	69.5% (11)	Fukuoka	80.8% (21)	69.6% (10)
Ishikawa	87.9% (5)	84.3% (2)	Saga	75.0% (41)	53.8% (44)
Fukui	95.1% (1)	85.7% (1)	Nagasaki	78.3% (33)	48.0% (46)
Yamanashi	77.0% (37)	67.3% (20)	Kumamoto	80.5% (23)	63.3% (32)
Nagano	82.6% (15)	64.1% (26)	Oita	80.7% (22)	67.6% (18)
Gifu	79.5% (28)	63.4% (31)	Miyazaki	82.2% (18)	70.7% (8)
Shizuoka	77.9% (34)	64.1% (26)	Kagoshima	88.8% (3)	80.2% (4)
Aichi	79.1% (30)	57.2% (42)	Okinawa	58.1% (47)	44.4% (47)

(Notes) 1 ( ) : The numbers in parenthesis show the rank in order starting with the prefectures with the highest installation rates and so forth.
2 Each number contains a certain error due to sample survey.

*1 The "installation rate" refers to the share of households that have installed residential fire alarms in at least one location of the sections of their home in which they are obligated to do so due to municipal fire prevention ordinances (including households that are exempt from installing residential fire alarms on account of having installed fire alarm systems, etc.) out of the total number of households.

*2 The "ordinance compliance rate" refers to the share of households that have installed residential fire alarms in every section of their home in which they are obligated to do so due to municipal fire prevention ordinances (including households that are exempt from installing residential fire alarms on account of having installed fire alarm systems, etc.) out of the total number of households.

*3 Fire protection equipment etc.: Equipment for extinguishing fires, evacuation, and other fire protection activities (fire extinguishers, sprinkler systems, automatic fire alarms, fire escape equipment, guide lamps, etc.)

purpose, size, and so forth.

As of March 31, 2018, the number of fire prevention properties throughout Japan came to 4,119,835 (this is the number obtained from the Survey on the Actual Conditions of Fire Prevention Properties (targeting those fire prevention properties listed in Appended Table I of the Ordinance of Enforcement for the Fire Service Act that are listed in (1) through (16-3) and have a total area of 150m² or larger, and those listed in (17) through (19)); the same hereafter).

Moreover, the number of fire prevention properties in the 21 major cities (special wards of Tokyo and ordinance-designated cities) came to 1,137,981, accounting for 27.6% of the total fire prevention properties throughout Japan. Those properties that are particularly concentrated in urban areas include underground malls (86.9% of the national total), semi-underground malls*4 (85.7% of the national total), stores engaged in sex-related businesses, etc. (49.5% of the national total). (**Table 1-1-16**)

3. Fire Prevention Management System

(1) Fire Protection Managers

The Fire Service Act mandates that people with authority when it comes to managing fire prevention properties that contain large numbers of people (hereafter referred to as "management officials") undertake the operations necessary for fire protection management.

Table 1-1-16 Number of fire prevention properties

(As of March 31, 2018)

Classification of fire prevention properties	Nationwide	21 major cities	Percentage (%)
(1) a Theaters, etc.	4,447	654	14.7
(1) b Public halls, etc.	65,954	6,265	9.5
(2) a Cabarets, etc.	876	126	14.4
(2) b Game centers, etc.	10,201	1,912	18.7
(2) c Stores engaged in sex-related businesses, etc.	216	107	49.5
(2) d Karaoke box and stores, etc.	2,642	637	24.1
(3) a Restaurants, etc.	2,903	516	17.8
(3) b Eating and drinking houses	83,291	16,887	20.3
(4) Department stores, etc.	160,456	28,186	17.6
(5) a Hotels, etc.	59,524	6,631	11.1
(5) b Apartment houses, etc.	1,324,052	492,898	37.2
(6) a (1) Hospitals that they need patient assistance for evacuation	7,335	1,240	16.9
(6) a (2) Clinics with 19 beds or less that they need patient assistance for evacuation	3,896	819	21.0
(6) a (3) Hospitals(not including those listed in (1)), Clinics with 19 beds or less(not including those listed in (2)) and Birth center with bed	9,495	2,422	25.5
(6) a (4) Clinics with no in-patient capacity, Birth center without bed	42,883	7,627	17.8
(6) a Subtotal	63,609	12,108	19.0
(6) b (1) Short-term welfare facilities for the elderly	41,393	7,635	18.4
(6) b (2) Shelters	239	33	13.8
(6) b (3) Nurseries	137	33	24.1
(6) b (4) Welfare facilities for disabled children	503	76	15.1
(6) b (5) Support facilities for the disabled	6,079	937	15.4
(6) b Subtotal	48,351	8,714	18.0
(6) c (1) Elderly daycare centers, etc.	23,518	4,198	17.9
(6) c (2) Rehabilitation facilities	234	46	19.7
(6) c (3) Nursery schools, etc.	34,252	7,033	20.5
(6) c (4) Child development support centers, etc.	2,831	501	17.7
(6) c (5) Welfare centers for disabled persons, etc.	19,504	3,307	17.0
(6) c Subtotal	80,339	15,085	18.8
(6) d Kindergartens, etc.	17,058	4,058	23.8
(7) Schools	127,470	28,404	22.3
(8) Libraries, etc.	7,621	860	11.3
(9) a Special bathhouses	1,494	660	44.2
(9) b General bathhouses	4,462	1,085	24.3
(10) Railroad depots	3,879	1,394	35.9
(11) Temples and shrines, etc.	57,858	11,966	20.7
(12) a Factories, etc.	490,891	68,116	13.9
(12) b Studios	340	130	38.2
(13) a Parking lots, etc.	52,188	14,863	28.5
(13) b Aircraft hangars	795	102	12.8
(14) Warehouses	330,781	51,710	15.6
(15) Offices, etc.	477,090	106,351	22.3
(16) a Specified multipurpose fire prevention properties	368,134	136,533	37.1
(16) b Unspecified multipurpose fire prevention properties	262,751	118,846	45.2
(16-2) Underground malls	61	53	86.9
(16-3) Semi-underground malls	7	6	85.7
(17) Cultural properties	8,809	1,642	18.6
(18) Arcades	1,285	476	37.0
(19) Mountain forests	0	0	–
Total	4,119,835	1,137,981	27.6

(Notes) 1 Prepared based on "The Survey on the Actual Conditions of Fire Prevention Properties" (targeting those fire prevention properties listed in Appended Table I of the Ordinance of Enforcement for the Fire Service Act that are listed in (1) through (16-3) and have a total area of 150m² or larger, and those listed in (17) through (19); the same hereafter).

2 The 21 major cities refer to the 23 wards of Tokyo and 20 ordinance-designated cities (Sapporo City, Sendai City, Saitama City, Chiba City, Yokohama City, Kawasaki City, Sagamihara City, Niigata City, Shizuoka City, Hamamatsu City, Nagoya City, Kyoto City, Osaka City, Sakai City, Kobe City, Okayama City, Hiroshima City, Kitakyushu City, Fukuoka City, and Kumamoto City).

*4 Semi-underground mall: A combination of an underground passage and shops established in the basement of a building that stand in a row facing this underground passage.

These include appointing the fire protection managers*5 that form the core of voluntary fire protection management structures, as well as preparing firefighting plans for fire protection management*6 that include stipulations on firefighting, reporting, and holding disaster drills.

As of March 31, 2018, the number of fire prevention properties that were legally required to establish fire protection management structures and appoint fire protection managers came to 1,072,406 nationwide. Of these, 873,837 properties, which corresponds to 81.5%, have appointed fire protection managers and have notified firefighting agencies to this effect. Additionally, the number of fire prevention properties where the fire protection manager has prepared firefighting plans for fire protection management in order to carry out the proper fire protection management operations for their own offices and so forth and notified firefighting agencies to this effect came to 817,447, for 76.2% of the total.

(2) Supervisors of Fire Protection Management

For properties like high-rise buildings (buildings that are taller than 31m high), underground malls, semi-underground malls, and other specified properties under fire prevention at or above a certain size*7 where management authority has been divided up, the Fire Service Act stipulates that fire protection managers are to be appointed and carry out fire protection management for each of the various areas which they have management authority over. Conversely, it also states that supervisors of fire protection management are to be appointed in consultation with them in order to carry out fire protection management for the building as a whole in an integrated manner. It mandates that the management officials strive to prevent fires and maintain the safety of the fire prevention properties as a whole by preparing firefighting plans for fire protection management for said properties on the whole, as well as extinguishing fires, issuing reports, and holding evacuation drills (Supervisory Fire protection management System: enacted April 1, 2014).

As of March 31, 2018, the number of fire prevention properties that were required to appoint supervisors of fire protection management came to 88,516 nationwide. Of these, 51,555, which corresponds to 58.2%, have appointed supervisors of fire protection management and notified firefighting agencies to this effect. What is more, the number of fire prevention properties that have prepared overall fire prevention plans for the sake of carrying out fire protection management for the building as a whole in an integrated manner and that have notified firefighting agencies to this effect came to 48,078, which is 54.3% of the total.

(3) Periodic Inspection and Reporting System for Fire Prevention Properties

To prevent fires from occurring and mitigate the damage they do, it is important for not only firefighting agencies but also personnel from the fire prevention properties, to perform maintenance for fire prevention with said properties and strive to comply with fire prevention laws and ordinances.

Therefore, the Fire Service Act mandates that management officials at fire prevention properties with certain purposes or structures or the like have people with expert knowledge when it comes to fire prevention (hereafter referred to as "qualified inspectors of fire prevention properties") perform inspections and report the results of these to firefighting agencies once a year.

These qualified inspectors of fire prevention properties consist of people with a certain level of knowledge of fire prevention, such as fire protection equipment engineers*8 with three or more years of practical experience with construction work for fire protection equipment etc., or people with three or more years of practical experience as fire protection managers. They must also complete a training course offered by a corporation that has been registered by the Minister of Internal Affairs and Communications, and have been issued a certificate attesting that they have acquired the necessary knowledge and skills when it comes to inspections for fire prevention properties.

As of March 31, 2018, the number of such inspectors came to 30,931.

Those fire prevention properties for which periodic inspection reports have been mandated and which have been carrying out management for three or more years continuously are exempt from the duty to perform three-year inspections and reports if they meet a certain criterion. This criterion is that they have been acknowledged as having excellent compliance with the standards from fire prevention laws and ordinances as a result of inspections carried out by a firefighting agency on the basis of an application from the management officials from said property under fire prevention measures.

Fire prevention properties that have been acknowledged as being in compliance with the inspection standards by the inspectors for these properties may display a "Fire Prevention Standard Inspection Certificate of Completion." Those that have been acknowledged as having excellent compliance with the standards in fire prevention laws and ordinances by firefighting agencies may display a "Fire Prevention Certificate of Excellence."

4. Disaster Prevention Management System

(1) Disaster Protection Managers

In order to handle imminent threats such as major earthquakes, the Fire Service Act mandates that those people with authority for the management of large-scale and high-rise buildings and the like (hereafter referred to

*5 Fire protection managers: People who have been appointed from among those management officials who have certain qualifications, such as having completed a training course on fire protection management for fire prevention properties, and who are in a managerial or supervisory position where they can appropriately carry out the operations necessary for fire protection management at said properties.

*6 Firefighting plans for fire protection management: These are plans that establish matters which are necessary for fire protection management. Said plans are prepared by fire protection managers, with fire protection management operations carried out on the basis of said plans.

*7 Specified properties under fire prevention measures: Certain properties under fire prevention measures that include department stores, restaurants, and other properties that can accommodate large numbers of people, as well as hospitals, nursing homes for the elderly, kindergartens, and other properties used by people who would require assistance during a disaster.

*8 Fire protection equipment engineer: A person with expert knowledge of fire protection equipment etc. who has been issued a fire protection equipment engineer certification.

as "management officials") are to establish fire defense organizations for self-protection.*9 Such organizations prepare firefighting plans for disaster protection management*10 suited to earthquake and other disasters, and appoint disaster protection managers*11 responsible for emergency response structures concerning significant damage when earthquakes strike and for holding evacuation drills. In addition, they carry out the necessary operations in order to mitigate the damage from fires and other disasters (Disaster Prevention Management System: enacted June 1, 2009).

As of March 31, 2018, the number of properties under disaster prevention measures that were legally required to establish disaster protection management systems and appoint disaster protection managers came to 9,909 throughout Japan. Of these, 8,461, which corresponds to 85.4%, have appointed disaster protection managers and notified firefighting agencies to this effect.

What is more, the number of properties under disaster prevention measures at which the disaster protection manager has prepared firefighting plans for disaster protection management, in order to carry out the appropriate disaster protection management operations at their own offices and other establishments, and notified firefighting agencies to this effect came to 7,836, or 79.1% of the total. The number of said properties that have established fire defense organizations for self-protection came to 8,714, or 87.9% of the total.

(2) Supervisors of Disaster Protection Management

For those buildings that require disaster protection management where management authority has been divided up, the Fire Service Act stipulates that disaster protection managers are to be appointed and carry out disaster protection management for each of the various areas which they have management authority over. Conversely, it also stipulates that supervisors of disaster protection management are to be appointed in consultation with them in order to carry out disaster protection management for the building as a whole in an integrated manner. It mandates that the management officials establish fire and disaster safety for the disaster prevention properties as a whole (supervisory disaster protection management system: enacted April 1, 2014).

As of March 31, 2018, the number of fire prevention properties that were required to appoint supervisors of disaster protection management came to 2,871 nationwide. Of these, 2,694, which corresponds to 93.8%, have appointed supervisors of disaster protection management and notified firefighting agencies to this effect. What is more, the number of disaster prevention properties that have prepared firefighting plans for the sake of carrying out disaster protection management for the building as a whole in an integrated manner and that have notified firefighting agencies to this effect, came to 2,613, which is 91.0% of the total.

5. Onsite Inspections and Corrections of Violations

(1) Current Status for Onsite Inspections and Corrections of Violations

Firefighting agencies enter fire prevention properties to perform onsite inspections pursuant to the regulations of Article 4 of the Fire Service Act when it is necessary to do so for the sake of fire prevention.

The number of times onsite inspections were carried out by firefighting agencies throughout Japan in FY2017 came to 880,444.

Fire chiefs or fire station chiefs may order measures that must be taken with respect to deficiencies in fire protection management at the fire prevention properties, fire protection equipment etc. that has not been installed at such properties, or other problems brought to light through the onsite inspections. Such measures include appointing fire protection managers and installing fire protection equipment etc. or special fire protection equipment etc., pursuant to the regulations in Article 8, Article 8-2, or Article 17-4 of the Fire Service Act. In cases where this is recognized as posing a hazard for fire prevention, they can order that the necessary measures be taken, such as repairing or relocating the fire prevention properties in question or removing the hazards from them, or else question or removing the hazards from them, or else prohibiting or restricting their use, pursuant to the regulations in Article 5, Article 5-2, or Article 5-3 of the Fire Service Act. The act states that they must publicly announce when they issue orders such as these.

In cases where violations of fire prevention laws or ordinances are discovered as a result of these onsite inspections, the fire chief or fire station chief works to redress these violations to bring them back into legal compliance, such as by issuing warnings or other remedial instructions, orders, and so on.

Particularly for specified violating properties (this refers to specified fire prevention properties with a floor area of 1,500m^2 or more or unspecified fire prevention properties with 11 or more floors, excluding the basement, where sprinkler systems, indoor fire hydrants, or fire alarm systems have not been installed in a majority of the sections where such equipment must be installed), strict guidance is imposed based on the severity of the violation, such as those that pose a significant hazard to human life in the event that a fire should break out.

As of March 31, 2018, there were 240 specified violating properties, and so therefore it is necessary to continue working to thoroughly correct these violations in a focused manner. (**Table 1-1-17**)

(2) Fire Safety Certification Mark

This new labeling system, which fire departments throughout Japan were notified of in October 2013, provides users with information on a building's compliance with laws and ordinances related to fire

*9 Fire defense organizations for self-protection: These are personal organizations comprised of people like employees at properties under fire prevention measures. They carry out the operations necessary in order to mitigate the damage from fires and other disasters when they occur based on the roles established in the firefighting plan.

*10 Firefighting plans for disaster protection management: These are plans that establish matters which are necessary for disaster protection management.

*11 Disaster protection managers: People who have been appointed from among those management officials who have certain qualifications, such as having completed a training course on disaster protection management, and who are in a managerial or supervisory position where they can appropriately carry out the operations necessary for disaster protection management at disaster prevention properties.

Table 1-1-17 Trends in the improvement status of specified violating properties

Category / By FY	No. of violating properties at the start of the FY (a)	No. of properties that corrected their violations during the FY (b)	Correction rate (%) (c=b/ax100)
FY2009	301	63	20.9%
FY2010	299	69	23.1%
FY2011	389	37	9.5%
FY2012	179	46	25.7%
FY2013	230	54	23.5%
FY2014	249	56	22.5%
FY2015	331	100	30.2%
FY2016	359	125	34.8%
FY2017	392	151	38.5%
FY2018	240	–	–

(Notes) 1 Prepared based on "The Survey on the Actual Conditions of Fire Prevention Properties".
2 "No. of violating properties at the start of the FY" is the sum of properties that remained in violation from two fiscal years before and violating properties that newly became aware they were in violation during the previous fiscal year at the end of the previous fiscal year for each fiscal year (as of March 31).
3 "No. of properties that corrected their violations during the FY" is the number of properties that corrected their violation during the fiscal year (it does not include those that newly became aware of their violation or that were abandoned).

Table 1-1-18 Process status for fire prevention consent

(Cases)

Gist of application / Breakdown	Consent		Dissent		Total	
	FY2016	FY2017	FY2016	FY2017	FY2016	FY2017
New construction	214,001	219,947	16	15	214,017	219,962
Enlargement	19,426	19,254	4	6	19,430	19,260
Reconstruction	757	653	1	0	758	653
Relocation	123	138	0	0	123	138
Repair	124	130	0	0	124	130
Remodeling	112	126	0	0	112	126
Change of purpose	4,021	4,094	0	4	4,021	4,098
Other	3,238	3,074	1	2	3,239	3,076
Total	241,802	247,416	22	27	241,824	247,443

(Note) Prepared based on "The Survey on the Actual Conditions of Fire Prevention Properties"

prevention and construction. Applications began being tendered and received on April 1, 2014, and hotels, Japanese-style hotels, and other facilities began sequentially putting the silver display marks out on display starting from August 1, 2014.

In addition, those hotels and other facilities that have been issued silver display marks for three years in a row and which meet the standards related to laws and ordinances on fire protection and construction are allowed to display a gold display mark.

Visitors to the FDMA's website can check to confirm hotels that have been issued the Fire Safety Certification Mark throughout Japan (reference URL: http://www.fdma.go.jp/kasai_yobo/hyoujiseido/index.html).

(3) Initiation of a System for Publicly Announcing Violating Properties

The System for Publicly Announcing Violating Properties, which came about through a notification from December 2013, is a system for announcing the details of legal violations on the websites of municipal governments based on the ordinances of said municipalities. This is aimed at specified properties under fire prevention measures that have not yet installed sprinkler systems, indoor fire hydrants, or fire alarm system, despite being obligated to do so. This announcement system was initiated in all ordinance-designated cities starting from April 2015.

What is more, fire departments overseeing populations of 200,000 people or more are started utilizing this public announcement system starting from April 2018. Information on things like the implementation status of the public announcement system and its scheduled implementation period for municipalities throughout Japan can be confirmed via the FDMA's website (reference URL: http://www.fdma.go.jp/publication/index.html).

6. Fire Protection Equipment etc.

(1) Current Status of Fire Prevention Consent

Fire prevention consent is a system that was established with the goal of boosting the safety of buildings by having personnel from firefighting agencies get involved in fire prevention for buildings starting from the design stage in their capacity as experts on fire prevention.

When it comes to the operation of this system, the firefighting agencies offer finely-detailed examinations and instructions based on legal regulations related to building fire prevention from the perspective of fire prevention safety and firefighting activities. They also work to enhance structures and strengthen cooperation for ensuring that this work is handled promptly.

The number of cases processed regarding fire prevention consent work throughout Japan in FY2017

came to 247,443, with only 27 of these failing to receive consent. (**Table 1-1-18**)

(2) Current Status for the Installation of Fire Protection Equipment etc.

The Fire Service Act states that the relevant personnel from fire prevention properties must install and properly maintain the necessary fire protection equipment etc. according to the purpose, size, structure, and capacity of the property in question.

A look at the installation status for primary fire protection equipment etc. in specified fire prevention properties throughout Japan reveals that, as of March 31, 2018, the installation rate for sprinkler systems (number installed/number that needs to be installed) was 99.7%, while that for automatic fire alarms was 99.0%. (**Table 1-1-19**)

With respect to the technical standards pertaining to fire protection equipment etc., regulations are being successively set in place in accordance with technological progress and societal demands. In recent years, a fire occurred at a medical clinic in Fukuoka City, Fukuoka Prefecture in October 2013 (which left ten people dead and five injured). In light of this, it was mandated that Clinics with 19 beds or less/Hospitals that they need patient assistance for evacuation must install sprinkler

Table 1-1-19 Installation status for sprinkler systems and fire alarm systems at specified properties under fire prevention measures throughout Japan

(As of March 31, 2018)

Classification of properties under fire prevention measures / Equipment type / Equipment condition				Number of Sprinkler systems				Number of Automatic fire alarm systems			
				Needs to be installed	Installed	Violations	Installation rate (%)	Needs to be installed	Installed	Violations	Installation rate (%)
(1)	a		Theaters, etc.	784	783	1	99.9	3,754	3,744	10	99.7
	b		Public halls, etc.	538	537	1	99.8	31,286	31,225	61	99.8
(2)	a		Cabarets, etc.	5	5	0	100.0	490	448	42	91.4
	b		Game centers, etc.	708	701	7	99.0	9,305	9,279	26	99.7
	c		Stores engaged in sex-related businesses, etc.	1	1	0	100.0	164	160	4	97.6
	d		Karaoke box and stores, etc.	10	10	0	100.0	2,657	2,624	33	98.8
(3)	a		Restaurants, etc.	2	2	0	100.0	2,106	2,057	49	97.7
	b		Eating and drinking houses	118	118	0	100.0	35,220	34,723	497	98.6
(4)	Department stores, etc.			7,520	7,498	22	99.7	87,016	86,357	659	99.2
(5)	a		Hotels, etc.	2,116	2,110	6	99.7	57,056	56,233	823	98.6
(6)	a	(1)	Hospitals that they need patient assistance for evacuation	3,659	3,653	6	99.8	6,612	6,598	14	99.8
		(2)	Clinics with 19 beds or less that they need patient assistance for evacuation	1,158	1,151	7	99.4	3,269	3,261	8	99.8
		(3)	Hospitals(not including those listed in (1)), Clinics with 19 beds or less(not including those listed in (2)) and Birth center with bed	3,403	3,401	2	99.9	8,970	8,959	11	99.9
		(4)	Clinics with no in-patient capacity, Birth center without bed	199	198	1	99.5	20,541	20,473	68	99.7
		Subtotal		8,419	8,403	16	99.8	39,392	39,291	101	99.7
	b	(1)	Short-term welfare facilities for the elderly	38,821	38,738	83	99.8	41,399	41,345	54	99.9
		(2)	Shelters	192	192	0	100.0	247	246	1	99.6
		(3)	Nurseries	116	116	0	100.0	136	134	2	98.5
		(4)	Welfare facilities for disabled children	419	418	1	99.8	527	526	1	99.8
		(5)	Support facilities for the disabled	5,386	5,346	40	99.3	6,442	6,424	18	99.7
		Subtotal		44,934	44,810	124	99.7	48,751	48,675	76	99.8
	c	(1)	Elderly daycare centers, etc.	1,375	1,374	1	99.9	15,038	14,990	48	99.7
		(2)	Rehabilitation facilities	17	17	0	100.0	206	204	2	99.0
		(3)	Nursery schools, etc.	109	102	7	93.6	28,534	28,521	13	100.0*
		(4)	Child development support centers, etc	45	45	0	100.0	1,369	1,355	14	99.0
		(5)	Welfare centers for disabled persons, etc.	563	558	5	99.1	14,306	14,239	67	99.5
		Subtotal		2,109	2,096	13	99.4	59,453	59,309	144	99.8
	d		Kindergartens, etc.	214	214	0	100.0	14,861	14,854	7	100.0*
(9)	a		Special bathhouses	17	17	0	100.0	1,387	1,384	3	99.8
(16)	a		Specified multipurpose fire prevention properties	19,300	19,235	65	99.7	201,252	197,678	3,574	98.2
(16-2)	Underground malls			59	59	0	100.0	61	61	0	100.0
(16-3)	Semi-Underground malls			4	4	0	100.0	7	7	0	100.0
Total				86,858	86,603	255	99.7	594,218	588,109	6,109	99.0

(Notes) 1 Prepared based on "The Survey on the Actual Conditions of Fire Prevention Properties".
2 For the installation rate, the digits in the second decimal place were rounded off (The* symbol indicate that the results of the rounding came to 100%).

systems as a general rule, regardless of their floor area. The installation of these sprinkler systems has been in force since April 1, 2016 as a result of the Partial Revision of the Order for Enforcement of the Fire Service Act and other legislation (promulgated on October 16, 2014). At the time of enforcement, transitional measures that equipment should be installed by June 30, 2025 were set for existing facilities.

Moreover, large urban area fire occurred in Itoigawa City, Niigata Prefecture in December 2016 (which left 30,213.45㎡ burned floor area). In light of this, it was mandated that restaurants with equipment or appliances that use fire must install fire extinguishing equipment as a general rule, regardless of their floor area. The installation of these has been carried out since October 1, 2019 as a result of the Partial Revision of the Order for Enforcement of the Fire Service Act and other legislation (promulgated on March 28, 2018).

Regarding properties that violate the Fire Service Act, such as violation of the obligation to install fire protection equipment, etc., the government will proactively issue Administrative Order and other measures based on the Fire Service Act and proceed prompt and effective violations correction operation.

(3) Fire Protection Equipment Engineers and Fire Protection Equipment Inspectors

Efforts are made to ensure the performance of fire protection equipment etc. via inspection system for fire protection machinery and tools. However, if there are deficiencies or defects at the installation stage, then such equipment will be rendered incapable of performing properly when a fire does occur. To prevent such circumstances, the installation and maintenance of certain fire protection equipment etc. can only be performed by fire protection equipment engineers.

What is more, fire protection equipment etc. must be properly maintained on a daily basis to ensure that it is capable of performing at any and all times. As a result, it has been mandated that periodic inspections be performed and the results of these be reported. These inspections premised on maintaining the equipment require knowledge and skills with regards to the fire protection equipment etc.. Therefore, the relevant personnel from the fire prevention properties must have fire protection equipment engineers or fire protection equipment inspectors (people who have completed certain training courses offered by corporations that have been registered by the Commissioner of the FDMA and been issued a fire protection equipment inspector certificate) perform the inspections on the fire protection equipment etc..

Efforts are made to improve the quality of these fire protection equipment engineers and fire protection equipment inspectors by mandating that they undergo re-training at certain fixed intervals after they have received their license in order for them to acquire new knowledge and skills concerning the fire protection equipment etc.. Moreover, these people will be ordered to return their license or face a similar punishment in the event that they violate any of the fire prevention laws or ordinances.

As of March 31, 2018, the total number of fire protection equipment engineers came to 1,174,632. In addition, the number of fire protection equipment inspectors came to 700 special inspectors (for special fire protection equipment etc.), 155,221 Class 1 inspectors (for mechanical systems) and 146,517 Class 2 inspectors (for electrical systems).

Programs for displaying that inspections have been performed, in which inspection certificates of completion verifying that inspections of fire protection equipment etc. have been properly carried out are posted, have been independently instituted at the prefectural level. This is done in an effort to clarify the responsibilities for performing inspections and have the relevant personnel from fire prevention properties perform the proper inspections.

(4) Flame Retardancy Regulations

A. Usage Status for Flame Retardant Goods

Using goods that resist catching fire for various objects that tend to be easily flammable within buildings prevents fires from breaking out and simultaneously checks the spread of fires during their initial stages when they do occur. As such, this is extremely effective when it comes to preventing fires. Therefore, fire prevention properties that must give forethought to fire prevention due to their structural features or configuration, such as high-rise buildings and underground malls, as well as fire prevention properties like theaters, hotels, and hospitals that are used by large unspecified numbers of people and people requiring special consideration have been designated as “flame retardancy and fire prevention properties.” The Fire Service Act mandates that these properties use goods with the prescribed flame retardant performance (hereafter referred to as “flame retardant goods”) for the curtains, stage curtains, plywood display boards, carpets, and other goods used (hereafter referred to as “goods under the flame retardancy requirement”).

As of March 31, 2018, the number of flame retardancy and fire prevention properties came to 967,993. The conformance rate (share of the flame retardancy and fire prevention properties where flame retardant goods are used for all of the goods under the flame retardancy requirements at said properties) at flame retardancy and fire prevention properties using curtains and stage curtains came to 86.4%, while it was 86.2% at those using carpets, and 82.7% at those using plywood display boards. (**Table 1-1-20**)

B. Public Awareness of Flame Retardant Goods for Bedding and Other Goods

Aside from those goods under the flame retardancy requirement stipulated in the Fire Service Act such as curtains and carpets, using fireproof goods for futons, pajamas, the body covers for automobiles and motorcycles, and more is also extremely effective for preventing fires. Therefore, the FDMA spreads public awareness of these by uploading videos detailing the effects from these flame retardant goods to its website (reference URL: http://www.fdma.go.jp/html/life/yobou_contents/materials/).

(5) Regulations for Equipment and Tools that Use Fire

From the perspective of fire prevention, the location, construction, management, and handling of equipment and tools that use fire, including home gas burners, stoves, hot-water heaters, fireplaces, kitchen equipment, and sauna equipment, are regulated via the fire prevention ordinances established by each municipality. These are established pursuant to the Ministerial Ordinance Establishing Standards for Enacting Ordinances on the Location,

Table 1-1-20 Number of flame retardancy and fire prevention properties and usage status of flame retardant goods

(As of March 31, 2018)

Categories of flame retardancy and fire prevention properties		No. of flame retardancy and fire prevention properties	Use of curtains, stage curtains, etc.	Properties on the left using all of the goods under the flame retardancy requirement		Use of carpets	Properties on the left using all of the goods under the flame retardancy requirement		Use of plywood display boards	Properties on the left using all of the goods under the flame retardancy requirement	
					Compliance rate (%)			Compliance rate (%)			Compliance rate (%)
(1)	a Theaters, etc.	4,232	2,497	2,376	95.2%	1,878	1,770	94.2%	448	427	95.3%
	b Public halls, etc.	63,478	38,483	34,617	90.0%	22,701	19,967	88.0%	3,924	3,368	85.8%
(2)	a Cabarets, etc.	837	311	223	71.7%	349	276	79.1%	44	41	93.2%
	b Game centers, etc.	9,793	4,299	3,824	89.0%	4,109	3,753	91.3%	615	551	89.6%
	c Stores engaged in sex-related businesses, etc.	179	99	79	79.8%	80	65	81.3%	8	6	75.0%
	d Karaoke box and stores, etc.	2,569	1,246	1,111	89.2%	1,057	969	91.7%	166	151	91.0%
(3)	a Restaurants, etc.	2,811	1,473	1,220	82.8%	1,378	1,157	84.0%	155	123	79.4%
	b Eating and drinking houses	80,186	32,706	26,057	79.7%	20,180	16,344	81.0%	3,678	3,102	84.3%
(4)	Department stores, etc.	152,898	57,159	51,621	90.3%	29,868	26,407	88.4%	7,024	5,941	84.6%
(5)	a Hotels, etc.	56,689	41,988	38,192	91.0%	34,895	31,963	91.6%	2,627	2,312	88.0%
(6)	a Hospitals, etc.	60,439	42,004	39,408	93.8%	23,828	22,175	93.1%	3,744	3,374	90.1%
	b Special elderly nursing homes, etc.	46,773	36,660	34,762	94.8%	21,214	20,072	94.6%	3,528	3,263	92.5%
	c Elderly daycare centers, etc.	77,267	53,161	49,301	92.7%	30,186	27,414	90.8%	5,034	4,524	89.9%
	d Kindergartens, etc.	16,423	11,854	10,973	92.6%	6,212	5,679	91.4%	990	883	89.2%
(9)	a Special bathhouses	1,444	965	840	87.0%	953	862	90.5%	65	54	83.1%
(12)	b Studios	823	506	494	97.6%	477	469	98.3%	68	51	75.0%
(16)	a Specified multipurpose fire prevention properties	316,826	112,858	84,936	75.3%	76,711	58,892	76.8%	13,443	9,543	71.0%
	b Unspecified multipurpose fire prevention properties	20,203	2,539	1,881	74.1%	1,803	1,323	73.4%	704	520	73.9%
(16-2)	Underground malls	61	43	31	72.1%	39	30	76.9%	14	12	85.7%
(16-3)	Semi-underground malls	7	4	2	50.0%	4	3	75.0%	1	1	100.0%
	High-rise buildings	54,055	20,009	16,434	82.1%	18,505	15,804	85.4%	3,462	2,868	82.8%
Total		967,993	460,864	398,382	86.40%	296,427	255,394	86.20%	49,742	41,115	82.7%

(Notes) 1 Prepared based on "The Survey on the Actual Conditions of Fire Prevention Properties".
2 High-rise buildings (buildings that are taller than 31m) are not classified within Appended Table I of the Ordinance of Enforcement for the Fire Service Act. Moreover, fire prevention properties that correspond to high-rise buildings were counted in the "High-rise buildings" field within the "Classification of fire prevention properties" column.

Construction, and Management of Eligible Equipment that Uses Fire and the Handling of Eligible Tools that Use Fire (2002 Ministry of Internal Affairs and Communications Ministerial Ordinance No. 24; hereafter referred to as the "Ministerial Ordinance on Eligible Equipment and Tools that Use Fire").

7. Inspection System for Fire Protection Machinery and Tools etc.

(1) Inspections

Fire protection machinery or tools that are subject to inspection (hereafter referred to as "machinery and tools subject to inspection") are prohibited from being sold, displayed for commercial purposes, and so forth unless they pass inspections and include a label indicating this pursuant to the regulations of Article 21-2 of the Fire Service Act.

The machinery and tools subject to inspection include the 12 items stipulated in Article 37 of the Order for Enforcement of the Fire Service Act, including fire extinguishers and enclosed sprinkler heads.

These inspections consist of "model approval" (approval indicating that the shape and other factors of the machinery and tools conform with the technical specifications established in ministerial ordinances) and "model compliance inspections" (inspections conducted to confirm that the shape and other factors of the individual machinery and tools subject to inspection are identical to the shape and so forth for models of said equipment that have received model approval). Moreover, for machinery and tools subject to inspection with regard to the development of new technologies, inspections can be carried out via the technical specifications established by the Minister of Internal Affairs and Communications for those items that conform to the technical standards established by said ministerial ordinance in terms of their shape or the like, or those acknowledged as having performance that meets or exceeds this level. Through this, the aim is to enhance the inspection system so as to promote technological innovation with these machinery and tools subject to inspection.

Regarding the inspection system, it came to light that cases of misconduct occurred in October 2008, including test samples being secretly switched out during model compliance inspections for fire hoses. Moreover, in March 2010 it was discovered that fire-extinguishing foam used in the compressed air foam apparatuses on fire trucks that had not been inspected was being sold. As part of the public service corporation program review carried

out in May 2010, evaluation results were issued to the effect that reassessments were to be made with a view towards expanding both voluntary screenings and the increased involvement of the private sector when it comes to inspections. Based on this, the Act for Partial Revision of the Fire Service Act was promulgated on June 27, 2012. This established collection orders via the Minister of Internal Affairs and Communications and strengthened penal provisions in cases where machinery and tools subject to inspection not in compliance with the standards or which lacked labels indicating their compliance were circulating on the market.

It also relaxed requirements in order to promote the entry of private companies into the registered inspection body market, among its other stipulations. Moreover, the Partial Revision of the Order for the Enforcement of the Fire Service Act (promulgated on March 27, 2013) made machinery and tools subject to inspections, mainly the fire hoses and couplers used by firefighting agencies and the electric leak alarms, for which there has been declining need due to changes in the configurations of buildings, items that are subject to self-labeling. At the same time, it also newly added residential fire alarms, which are required to be installed in all homes, to the machinery and tools subject to inspection (entered into force on April 1, 2014).

(2) Self-labeling

With the self-labeling system, it is the responsibility of the manufacturers to confirm their compliance with specifications on their own according to the regulations in Article 21-16 (3) of the Fire Service Act. The system also gives approval for labeling models that have been reported to the Minister of Internal Affairs and Communications in advance.

Machinery and tools that are subject to self-labeling (hereafter referred to as "machinery and tools subject to self-labeling") are prohibited from being sold, displayed for commercial purposes, and so forth unless they include a label pursuant to the regulations of Article 21-16 (2) of the Fire Service Act.

Similar to machinery and tools subject to inspection, the Act for Partial Revision of the Fire Service Act (promulgated on June 27, 2012) established collection orders via the Minister of Internal Affairs and Communications and strengthened penal provisions for machinery and tools subject to self-labeling not in compliance with the standards or which lacked labels indicating their compliance.

Items that fall under the category of machinery and tools subject to self-labeling include power fire pumps and fire suction hoses. Furthermore, as a result of the Partial Revision of the Order for Enforcement of the Fire Service Act (promulgated on March 27, 2013) and other legislation, the fire hoses, couplers, and electric leak alarms that had previously been counted as machinery and tools subject to inspection, as well as the disposable aerosol fire extinguishers that are generally in widespread circulation but which frequently suffer from rupture accidents and the like, were newly added to this category (entered into force on April 1, 2014).

The number of reports from manufacturers in FY2017 came to 36 for power fire pumps, 37 for fire hoses, 0 for fire suction hose, 14 for couplers, 0 for disposable aerosol fire extinguishers, and 4 for electric leak alarms.

8. Performance Inspections of Technical Standard for Fire Protection Equipment etc.

When it comes to the technical standards for fire protection equipment etc., oftentimes details like materials or dimensions are prescribed in specification documents or the like. This makes it difficult for new technologies to gain acceptance, even when they offer satisfactory performance. Therefore, technical development for the fields of fire and other disaster prevention is promoted and performance regulations are adopted to ensure that even more effective fire prevention and safety measures can be established.

The basic philosophy behind this is to judge whether equipment offers performance that is at or above the level of performance of the installed fire protection equipment etc. based on the conventional technical standards. Equipment that has been confirmed to be at or above the conventional performance level is approved for installation in place of the existing fire protection equipment etc..

The performance demanded of fire protection equipment etc. is divided up into three categories. These are "initial spread inhibition performance," which is performance for inhibiting the spread of fires during the initial stages, "evacuation safety support performance," which is performance that supports safely evacuating during fires, and "firefighting activity support performance," which is performance that supports the activities of firefighting teams.

A certain body of knowledge has been gained regarding these, on which their equivalence is evaluated via objective verification methods (methods of objectively and impartially verifying newly developed technologies and technical innovations) and so forth.

At the same time, a certification system via the Minister of Internal Affairs and Communications has been established aimed at equipment for which evaluations of its equivalence cannot be performed solely through the existing objective verification methods (such as special fire protection equipment etc.). Under this system, applications are made for each property under fire prevention measures regarding special fire protection equipment etc. for which general inspection standards have not have established. The Minister of Internal Affairs and Communications will then perform an examination based on the evaluation results from a performance evaluation agency (the Japan Fire Equipment Inspection Institute or a registered inspection body), and equipment that has been acknowledged as having the necessary level of performance can be installed. As of March 31, 2018, 67 cases have received certification thus far as special fire protection equipment etc..

The expectation is that, by applying these regulations, new equipment that uses new technologies will be proactively developed and disseminated.

9. Current Status of Investigations into the Causes of Fires

Advances in science and technology have brought about increasing sophistication for industry and changes in social conditions. This has resulted in a tendency for fires that are large in scale and which assume aspects of complexity to occur with great frequency, and so investigating the

Table 1-1-21 Investigations into the causes of fires by the Commissioner of the FDMA that were recently conducted and responses based on the results of these

No.	Date of fire	Location	Building purpose, etc.	Responses by FDMA
1	May 13, 2012	Fukuyama City, Hiroshima Prefecture	Hotel (10 casualties)	Revised the Order for Enforcement of the Fire Service Act and other legislation, and strengthened installation standards for automatic fire alarms. Also restructured and began applying a labeling system that provides users with information on that conform to the fire prevention standards in fire prevention laws and ordinances.
2	February 8, 2013	Nagasaki City, Nagasaki Prefecture	Group home (12 casualties)	Revised the Order for Enforcement of the Fire Service Act and other legislation. Strengthened installation standards for sprinkler systems and mandated that automatic fire alarms and fire notification alarms be interlinked.
3	August 15, 2013	Fukuchiyama City, Kyoto Prefecture	Fireworks festival (59 casualties)	Revised the Order for Enforcement of the Fire Service Act and the Fire Prevention Ordinance (Example). Mandated the submission of plans related to operations necessary for fire prevention at outdoor event venue at or above a certain size, and mandated that fire extinguishers be prepared.
4	October 11, 2013	Fukuoka City, Fukuoka Prefecture	Medical clinic (15 casualties)	Revised the Order for Enforcement of the Fire Service Act and other legislation. Reassessed the installation standards for fire extinguishing equipment, indoor fire hydrants, sprinkler systems, power fire pump equipment, and fire alarms that notify firefighting agencies.

causes behind these requires sophisticated expertise. What is more, investigating the causes of fires and illuminating the extent of the damage caused by both fires and firefighting are crucial when it comes to examining modalities for subsequent fire prevention administration.

Investigating the causes of fires is unequivocally the role of local governments, but it is the duty of the national government to complement them in this. In cases where there has been a request from a firefighting agency, or the Commissioner of the FDMA has deemed that there is a particular necessity in doing so, an investigation into the causes of a fire can be carried out by the Commissioner of the FDMA. Investigation teams formed from personnel from the FDMA according to the type of fire carry out the investigations into the causes of the fire through this system in coordination with firefighting agencies. Reviews are conducted based on the knowledge and data obtained from the investigations, and this is reflected in policies for fire defense administration. Cases where responses such as revising fire prevention laws and ordinances were carried out based on the results of investigations into the causes of fires by the Commissioner of the FDMA that were carried out recently are shown in **Table 1-1-21**.

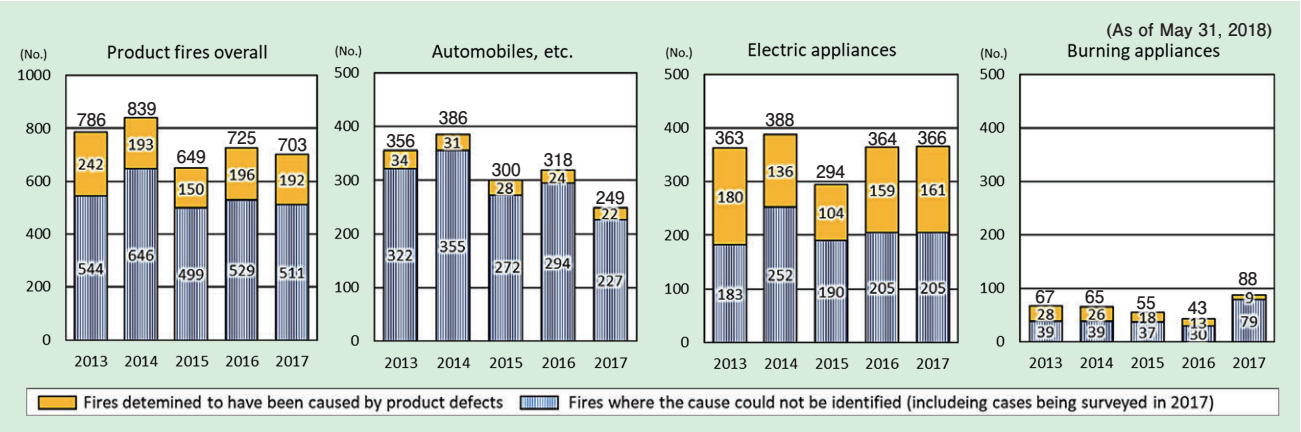
In an effort to improve the effectiveness of investigations into the causes of fires regarding product fires, the Act for Partial Revision of the Fire Service Act (Law No. 38 from 2012) granted firefighting agencies the right to issue an order to submit materials to manufacturers and importers and the right to collect information from them (entered into force on April 1, 2013).

10. Promoting Countermeasures to Product Fires

In recent years, as the causes of fires has grown extremely diverse, the products close to the general public in their daily lives have begun causing fires as well, including automobiles and other vehicles, electronic appliances, and burning appliances. Given the strong demands to ensure consumer safety and peace of mind, the FDMA has been strengthening its initiatives to combat these product fires.

For such fires, the FDMA has established a structure whereby it collects fire information from firefighting agencies in a comprehensive manner and aggregates the number of fires for each type of product which serve as the ignition source. It then provides the public with warnings and alerts quickly and effectively by announcing information like the names of faulty products and their manufacturers every quarter.

Fig. 1-1-19 Trends in the survey results on product fires over the past five years



(Note) See the FDMA website for details (URL : http://www.fdma.go.jp/neuter/topics/fieldList4_7.html).

Fires that firefighting agencies deemed to have been caused by defects in automobiles and other vehicles, as well as electronic appliances and burning appliances, that occurred in 2017 (January - December 2017) were aggregated. From this, it was discovered that of the total of 703 product fires, 192 were fires deemed to have been caused by product defects, 423 were fires that could not be determined to have occurred from a defect in a specified product as the direct cause although the cause was identified, and fires where the cause could not be identified, and 188 were fires that are still currently under investigation. (**Fig. 1-1-19**)

The results of these investigations are reported to firefighting agencies throughout Japan. Furthermore, the collected fire information is shared between the Consumer Affairs Agency, the Ministry of Economy, Trade and Industry, the Ministry of Land, Infrastructure, Transport and Tourism, and the National Institute of Technology and Evaluation (NITE), which work together to promote countermeasures to product fires.

What is more, with respect to investigations into the causes of fires carried out by firefighting agencies throughout Japan, efforts are also being made to improve the investigation skills of the firefighting agencies. Examples of this include providing them with technical support such as scientific investigation based on the expert knowledge and equipment and materials of the National Research Institute of Fire and Disaster and so forth. In addition to working to enhance investigations into the causes of fires and the structures for this, the FDMA also strives to proactively collect information on product fires and strengthen collaborations with the relevant agencies. Through this, it is moving forward with ensuring consumer safety and peace of mind, while also preventing fire accidents caused by products.

11. Promoting Fire Prevention Measures at Outdoor Event Venues

In August 15, 2013, a fire broke out at the venue for a fireworks show in Fukuchiyama City, Kyoto, that involved enormous human suffering in the sense that 3 people died and 56 were injured. Following this, the Order for Enforcement of the Fire Service Act was revised in December 2013 and the Fire Prevention Ordinance (Example) was revised in January 2014 in order to promote fire prevention measures at outdoor event venues. These mandated initiatives like preparing fire extinguishers when handling equipment that use fire at outdoor event venues and the like, and appointing managers for fire prevention at those large-scale outdoor and similar events that have been specially designated by fire chiefs. It also mandated that plans for the operations necessary for fire prevention be prepared and submitted.

–omitted–

Section 2 Countermeasures to Disasters at Facilities for Hazardous Materials

☞ *Japanese Original P.97*

Current Status and Recent Trends in Disasters at Facilities for Hazardous Materials

Accidents at facilities for hazardous materials (see P.18 *2) are broadly classified into fires (including explosions) and spills of hazardous materials (see P.18 *1). The number of fire and spillage accidents at facilities for hazardous materials have been trending upward since 1994. In 2017 (January 1 - December 31, 2017), there were 195 fires and 369 spills for a total of 564 accidents. This represents a decrease of 7 accidents compared with the previous year, and accidents are still holding steady at a high level. (**Fig. 1-2-1**)

1. Fire Accidents

The number of fire accidents that occurred at facilities for hazardous materials in 2017 rose by roughly 1.8-times compared with the 107 such accidents in 1993, which had the lowest number of fire accidents since 1989, despite the fact that the number of facilities for hazardous materials has decreased. Accidents attributable to human factors such as inadequate maintenance and inadequate operating checks account for the majority of the primary causes for these. However, accidents caused by physical factors such as deterioration such as corrosion fatigue are also on an upswing.

(1) Number of Fire Accidents at Facilities for Hazardous Materials and the Damage

The number of fire accidents that occurred at facilities for hazardous materials in 2017 came to 195 (20 less than the previous year), the amount of damages came to 2,668 million yen (an increase of 1,391 million yen year-on-year), and they resulted in 2 deaths (the same as the previous year) and 51 people injured (a decrease of 2 people year-on-year). (**Fig. 1-2-2**)

Moreover, looking at the number of fire accidents that occurred by type of facility for hazardous materials reveals that the majority occurred at general outlets, followed by manufacturing facilities and fuel supply depots in that order. The total for these 3 facility classifications account for 98.1% of the total accidents. (**Fig. 1-2-3**)

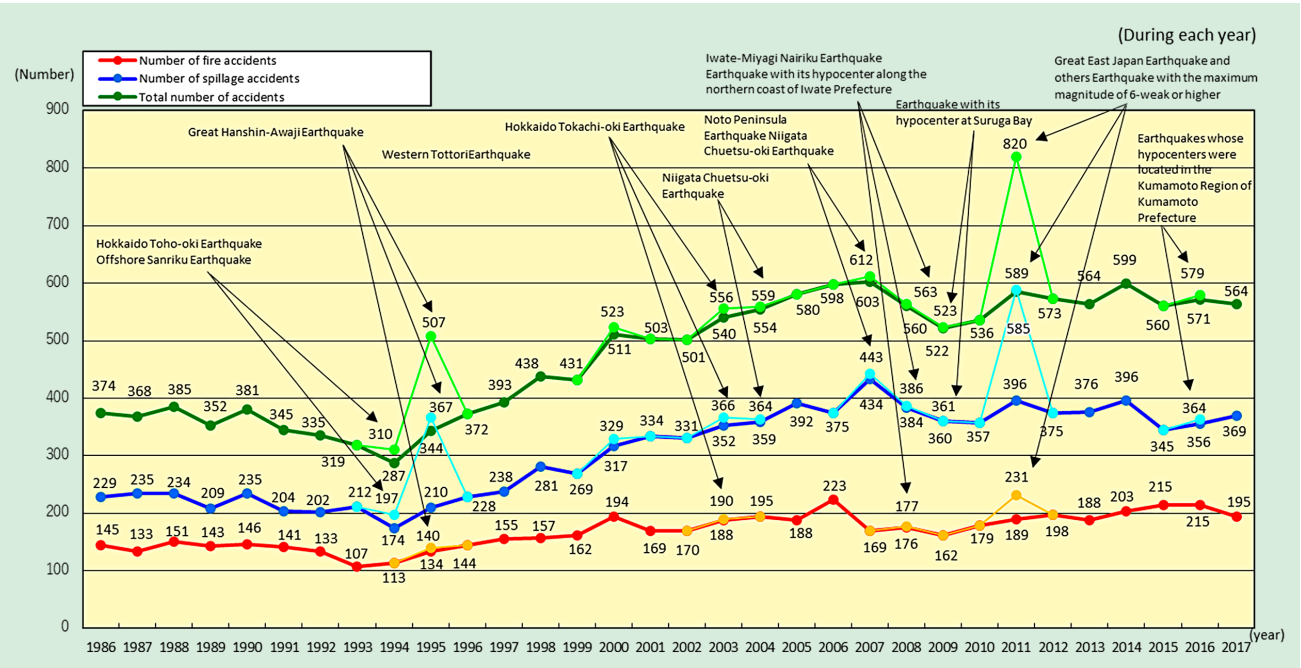
Conversely, 89 of the 195 fire accidents (or 45.6% of the total) were cases where a hazardous material served as the causative agent for the fire. (**Fig. 1-2-4**)

(2) Causative Factors behind the Fire Accidents at Facilities for Hazardous Materials

A look at the causative factors behind the fire accidents at facilities for hazardous materials that occurred in 2017 reveals that human factors accounted for 48.2%; physical factors accounted for 35.4%; and the total for other causes, unknown, and under investigation came to 16.4%. (**Fig. 1-2-5**)

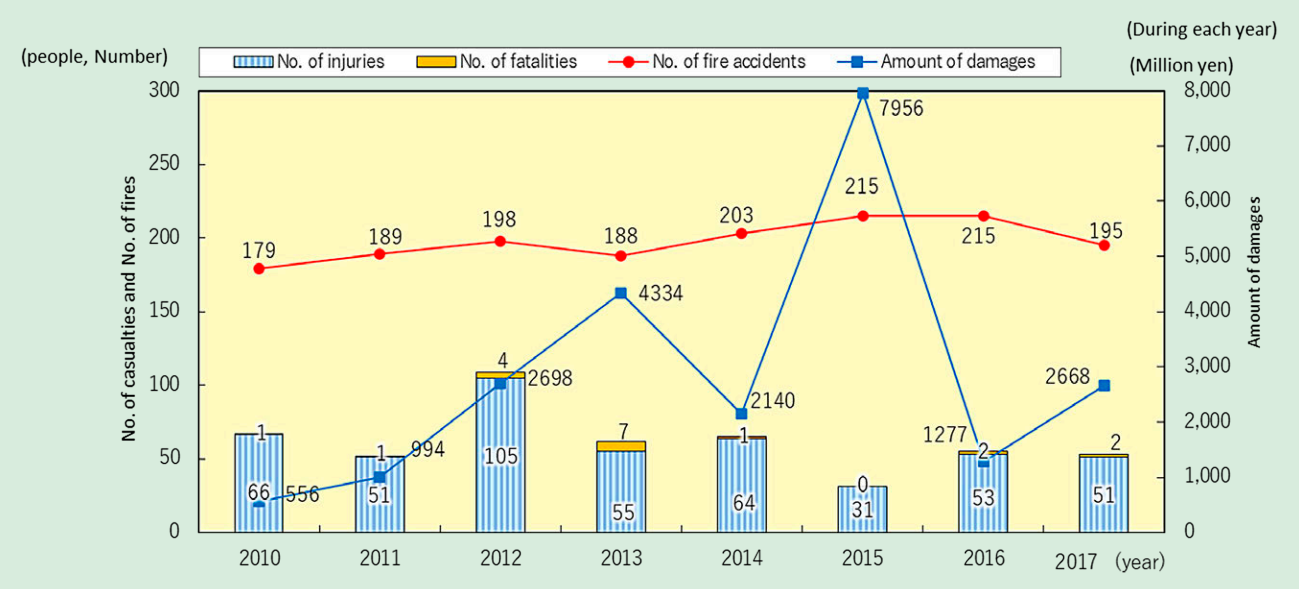
When viewed by ignition source, those ignited by high-temperature surface heat were most common at 35 (an

Fig. 1-2-1 Trends in the number of fire and spillage accidents at facilities for hazardous materials



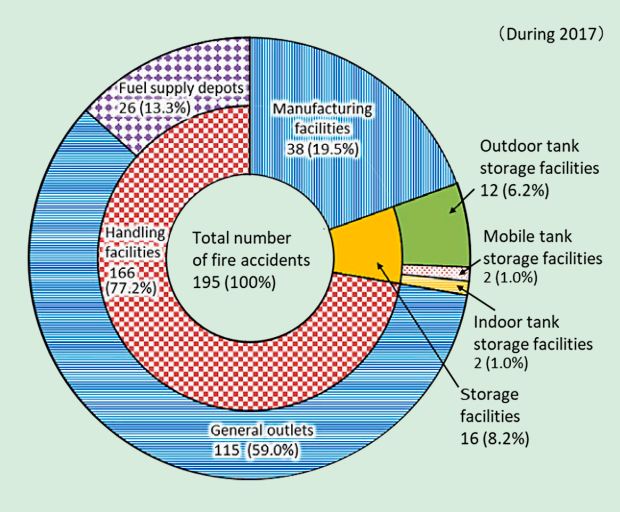
(Notes) 1 Prepared based on "The Accident Reports on Hazardous Materials".
2 In order to get a grasp of trends regarding the number of accidents that occur in each year, accidents are listed by splitting them up into the number of accidents caused by earthquakes with a seismic intensity of six-lower or greater (since September 1996 this was changed to a seismic intensity of six or greater) and the number attributable to other causes.

Fig. 1-2-2 Number of fire accidents at facilities for hazardous materials and the damage



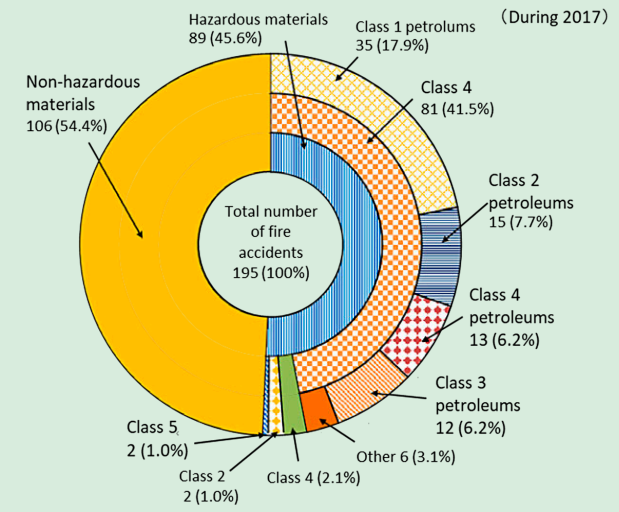
(Notes) Prepared based on "The Accident Reports on Hazardous Materials".

Fig. 1-2-3 Number of fire accidents by type of facility for hazardous materials



(Notes) 1 Prepared based on "The Accident Reports on Hazardous Materials".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

Fig. 1-2-4 Number of fire accidents by causative agent for the fire



(Notes) 1 Prepared based on "The Accident Reports on Hazardous Materials".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

increase of 5 year-on-year), followed by 24 from ignition due to overheating (a decrease of 3 year-on-year) and 22 from static electricity sparks (a decrease of 6 year-on-year). (**Fig. 1-2-6**)

(3) Fire Accidents at Unauthorized Facilities

The number of fire accidents that occurred at facilities which were supposed to receive authorization as facilities for hazardous materials yet which failed to do so (hereafter referred to as "unauthorized facilities") in 2017 came to 1 (a decrease of 7 year-on-year), and they left 0 people dead (the same as the previous year) and 0 injured (a decrease of 4 year-on-year).

(4) Fire Accidents during the Transportation of Hazardous Materials

In 2017, 1 fire accidents during the transportation of hazardous materials occurred (a decrease of 1 year on year).

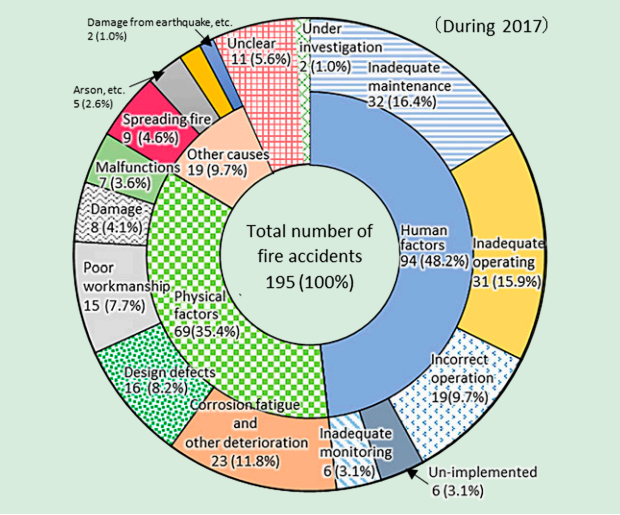
(5) Fire Accidents during the Temporary Storage or Handling

Continuing on from 2016, no fire accidents during the temporary storage or handling of hazardous materials occurred in 2017.

2. Spillage Accidents

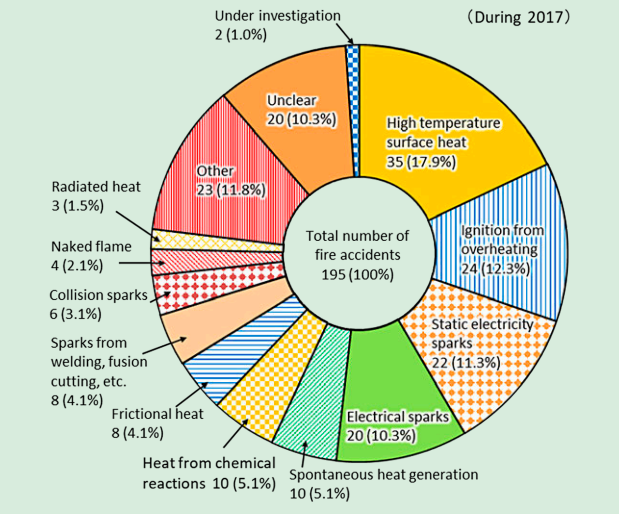
The number of spillage accidents involving hazardous

Fig. 1-2-5 Number of fire accidents by causative factor



(Notes) 1 Prepared based on "The Accident Reports on Hazardous Materials".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

Fig. 1-2-6 Number of fire accidents by ignition source



(Notes) 1 Prepared based on "The Accident Reports on Hazardous Materials".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

materials that occurred at facilities for hazardous materials in 2017 rose by roughly 2.1-times compared with the 174 such accidents in 1994, which had the lowest number of spillage accidents since 1989, despite the fact that the number of facilities for hazardous materials has decreased. As for the primary causative factors, accidents attributable to human factors and those caused by physical factors both occur in large numbers. However, of those accidents caused by physical factors, the number caused by age-related deterioration, such as corrosion fatigue, are on the rise.

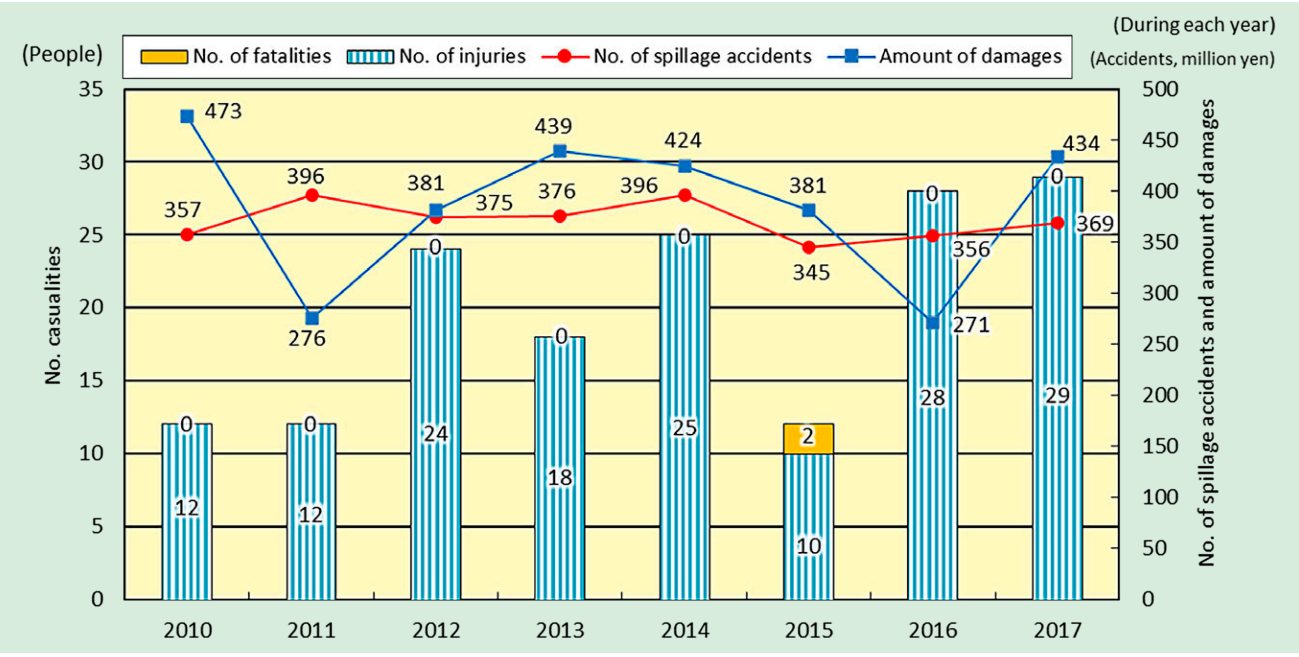
(1) Number of Spillage Accidents at Facilities for Hazardous Materials and the Damage

The number of spillage accidents involving hazardous materials that occurred at facilities for hazardous materials (which did not turn into fires) in 2017 came to 369 (an increase of 13 year-on-year), the amount of damages came to 434 million yen (an increase of 163 million yen year-on-year), and they 0 people dead (the same as the previous year) but left 29 people injured (an increase of 1 people year-on-year). (**Fig. 1-2-7**)

Moreover, looking at the number of spillage accidents that occurred by type of facility for hazardous materials reveals that the majority occurred at general outlets, followed by outdoor storage tank facilities and mobile tank storage facilities in that order. (**Fig. 1-2-8**)

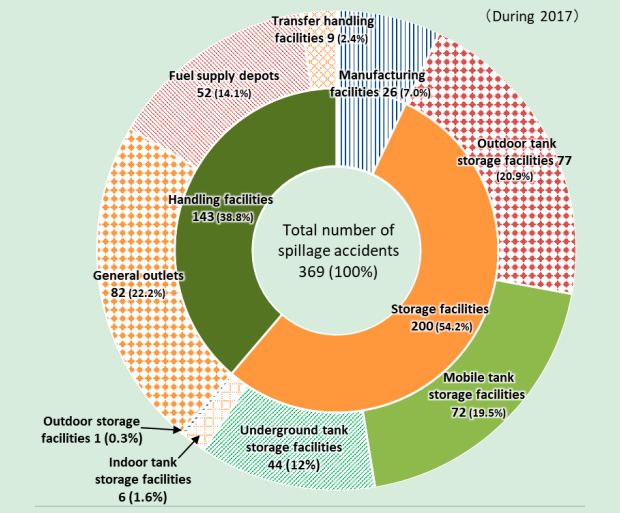
Conversely, 98.6% of the number of spillage accidents at facilities for hazardous materials involved spills of

Fig. 1-2-7 Number of spillage accidents at facilities for hazardous materials and the damage



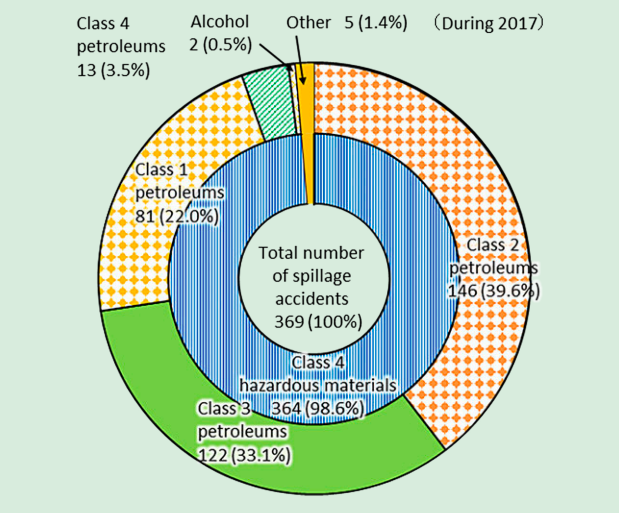
(Nots) Prepared based on "The Accident Reports on Hazardous Materials".

Fig. 1-2-8 Number of spillage accidents by type of facility for hazardous materials



(Notes) 1 Prepared based on "The Accident Reports on Hazardous Materials".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

Fig. 1-2-9 Number of spillage accidents by material spilled



(Notes) 1 Prepared based on "The Accident Reports on Hazardous Materials".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

Class 4 hazardous materials, which consist primarily of petroleum products. Viewing this item type reveals that Class 1 petroleums (gasoline, etc.) accounts for most of these, followed by Class 2 petroleums (light oil, etc.), Class 3 petroleums (heavy oil, etc.), and Class 4 petroleums (gear oil, etc.) in that order. (**Fig. 1-2-9**)

(2) Causative Factors behind the Spillage Accidents at Facilities for Hazardous Materials

A look at the causative factors behind the spillage accidents at facilities for hazardous materials that occurred in 2017 reveals that human factors accounted for 33.9%, physical factors accounted for 55.0% and the total for other causes, unknown, and under investigation came to 11.1%. When viewed by causative factor, those caused by deterioration such as corrosion fatigue were most common at 121 (a decrease of 14 year-on-year), followed by 42 from inadequate operating checks (an increase of 1 year-on-year) and 42 damage (an increase of 19 year-on-year). (**Fig. 1-2-10**)

(3) Spillage Accidents at Unauthorized Facilities

The number of spillage accidents that occurred at unauthorized facilities in 2017 came to 3 (a decrease of 3 year-on-year), with no casualties occurring as a continuation from 2016.

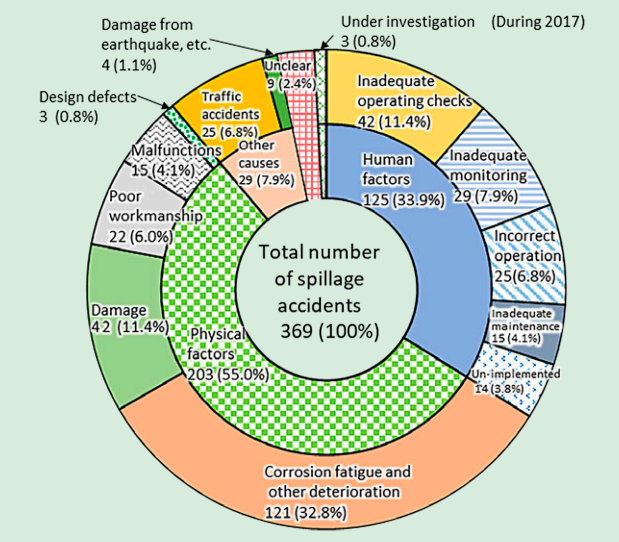
(4) Spillage Accidents during the Transportation of Hazardous Materials

The number of spillage accidents that occurred during the transportation of hazardous materials in 2017 came to 13 (an increase of 2 year-on-year), and while there were no deaths as a continuation from 2016, 5 people were injured (an increase of 3 year-on-year).

(5) Spillage Accidents during the Temporary Storage or Handling

Continuing from 2016, no spillage accidents during the temporary storage or handling of hazardous materials occurred in 2017.

Fig. 1-2-10 Number of spillage accidents by causative factor



(Notes) 1 Prepared based on "The Accident Reports on Hazardous Materials".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

Current Status of Hazardous Materials Administration

1. Regulations on Hazardous Materials

(1) Regulatory Structure for Hazardous Materials

The Fire Service Act designates substances with properties such as: (1) Carrying a significant risk of causing a fire, (2) Carrying a significant risk of spreading a fire once one starts, and (3) Being difficult to extinguish when a fire does break out, as "hazardous materials."[*1] Enacting safety regulations for the storage, handling

and transportation of these hazardous materials has been posited as a move that will prevent fires; protect the lives, health, and property of the public from fires; and mitigate the damage from fires.

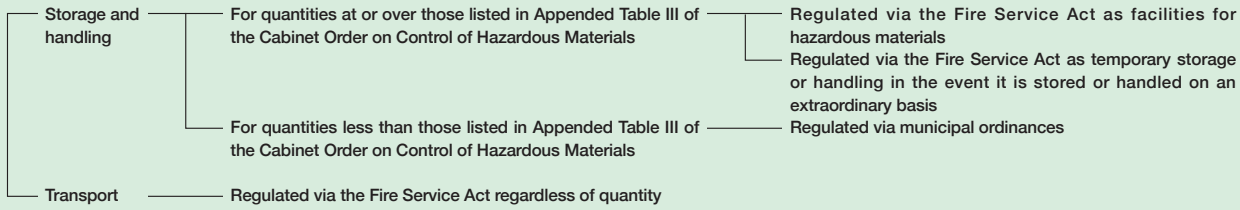
Regulations concerning hazardous materials have been instituted in a uniform manner throughout Japan through the partial revisions to the Fire Service Act of 1959 and by enacting cabinet orders on regulations for hazardous materials. Since then, efforts like revising the relevant legislation to ensure that it contains content like establishing necessary and sufficient technical standards that are safer for facilities for hazardous materials*2 have sequentially been carried out in striving to thoroughly ensure safety at such facilities. An overview of the regulations on hazardous materials is shown below. (**Fig. 1-2-11**)

Hazardous materials of volumes at or above the designated quantities (the quantity at which authorization is necessary to store or handle a material as designated by the Fire Service Act) cannot be stored or handled at locations other than facilities for hazardous materials. Persons attempting to establish a facility for hazardous materials must ensure it is in compliance with the standards regarding its location, structure, and equipment specified by law, and receive authorization from the municipal mayor for this.

The transportation of hazardous materials must be carried out in accordance with the standards for ensuring safety specified in law, regardless of how large or small the quantity is.

Standards for the storage and handling of hazardous materials in volumes less than the designated quantities are to be established via municipal ordinances.

Fig. 1-2-11 Regulatory structure



*1 **Hazardous materials**: The Fire Service Act (Article 2-7) defines them as such: "The term 'hazardous materials' means the materials listed in the Names of Items column of Appended Table 1, which have the properties listed in the Nature column of said table according to the Categories specified in said table." Moreover, the properties of each hazardous material are defined for each type in the "Remarks" to Appended Table I of the Fire Service Act.

[Hazardous materials listed in Appended Table I and their characteristics]

Category	Nature	Properties	Representative substances
Category 1	Oxidizing solids	These are solids that do not burn themselves, but which have the property of causing other substances to oxidize powerfully. When mixed with inflammable materials, they degrade as a result of heat, impacts, or friction, and give rise to extremely intense combustion.	Sodium chlorate, potassium nitrate, ammonium nitrate
Category 2	Combustible solids	These are solids that easily ignite from fire or solids that easily catch fire at relatively low temperatures (less than 40℃). They easily catch fire, are quick to combust, and are difficult to extinguish.	Red phosphorous, sulfur, iron powder, solid alcohol, lacquer putty
Category 3	Spontaneously combustible substances and water-reactive substances	These substances spontaneously combust when exposed to air, or either combust or generate combustible gasses when they come into contact with water.	Sodium, alkyl aluminum, yellow phosphorous
Category 4	Inflammable liquids	These are liquids that are inflammable.	Gasoline, kerosene, light oil, heavy oil, acetone, methanol
Category 5	Self-reactive substances	These are solids or liquids that generate large quantities of heat at relatively low temperatures or promote explosive reactions as a result of thermolysis and other reactions.	Nitroglycerin, trinitrotoluene, hydroxylamine
Category 6	Oxidizing liquids	These are liquids that do not burn themselves, but which have the property of promoting the combustion of other flammable substances they are mixed with.	Perchloric acid, hydrogen peroxide, nitric acid

*2 **Facilities for hazardous materials**: These are facilities that have received authorization from municipal mayors and similar officials as facilities that store or handle hazardous materials at or above the quantities specified in the Fire Service Act. As described below, they are classified into three types: manufacturing facilities, storage facilities, and handling facilities

Classification		Details
Manufacturing facilities		Facilities that manufacture hazardous materials (Ex.: Chemical plants, oil refineries)
Storage facilities	Indoor storage facilities	Store hazardous materials inside buildings
	Outdoor storage tanks	Store hazardous materials in tanks located outdoors (Ex.: oil tanks)
	Indoor storage tanks	Store hazardous materials in tanks located indoors
	Underground storage tanks	Store hazardous materials in tanks located below the ground's surface
	Simple storage tanks	Stores hazardous materials in small tanks less than 600 L
	Transfer storage tanks	Store hazardous materials in tanks that have been affixed to vehicles (Ex.: Tanker trucks)
	Outdoor storage facilities	Store certain hazardous materials in containers in outdoor locations
Handling facilities	Fuel supply depots	Handling facilities that fuel vehicles and the like (Ex.: Gas stations)
	Sales handling facilities	Stores that sell containers full of hazardous materials
	Transfer handling facilities	Handling facilities that transfer hazardous materials through pipes (Ex.: Pipelines)
	General outlets	Handling facilities other than the three types of handling facilities above (Ex.: Boilers, private power generators)

Table 1-2-1 Trends in the number of facilities for hazardous material

(As of March of each year)

Facility \ Year		2014 (A)	2015	2016	2017 (B)	2018 (C)	Rate of change (%) (C/A-1)×100	Rate of change (%) (C/B-1)×100
Manufacturing facilities		5,154	5,106	5,088	5,096	5,093	△1.2	△0.1
Storage facilities	Indoor storage facilities	50,888	50,553	50,201	50,023	49,811	△2.1	△0.4
	Outdoor storage tanks	64,206	63,093	62,120	61,124	60,360	△6.0	△1.2
	Indoor storage tanks	11,296	11,021	10,802	10,586	10,386	△8.1	△1.9
	Underground storage tanks	87,831	85,499	83,341	81,417	79,723	△9.2	△2.1
	Simple storage tanks	1,060	1,019	1,002	986	961	△9.3	△2.5
	Transfer storage tanks	67,665	67,498	67,170	66,733	65,806	△2.7	△1.4
	Outdoor storage facilities	10,598	10,351	10,213	9,994	9,832	△7.2	△1.6
	Subtotal	293,544	289,034	284,849	280,863	276,879	△5.7	△1.4
Handling facilities	Fuel supply depots	63,222	62,269	61,401	60,585	59,715	△5.5	△1.4
	Class 1 sales handling facilities	1,245	1,209	1,178	1,138	1,107	△11.1	△2.7
	Class 2 sales handling facilities	529	518	510	499	493	△6.8	△1.2
	Transfer handling facilities	1,142	1,127	1,111	1,098	1,084	△5.1	△1.3
	General outlets	63,705	62,766	62,097	61,372	60,867	△4.5	△0.8
	Subtotal	129,843	127,889	126,297	124,692	123,266	△5.1	△1.1
Total		428,541	422,029	416,234	410,651	405,238	△5.4	△1.3

(Notes) 1 Prepared based on "The Accident Reports on Hazardous Materials".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

(2) Current Status of Facilities for Hazardous Materials

A. Number of Facilities for Hazardous Materials

The total number of facilities for hazardous materials (number of facilities for construction permits) as of March 31, 2018 came to 405,238. (**Table 1-2-1**)

A look at the share of facilities by their classification reveals that storage facilities account for the majority at 68.3%, followed by handling facilities at 30.4% and then manufacturing facilities at 1.3%. (**Fig. 1-2-12**)

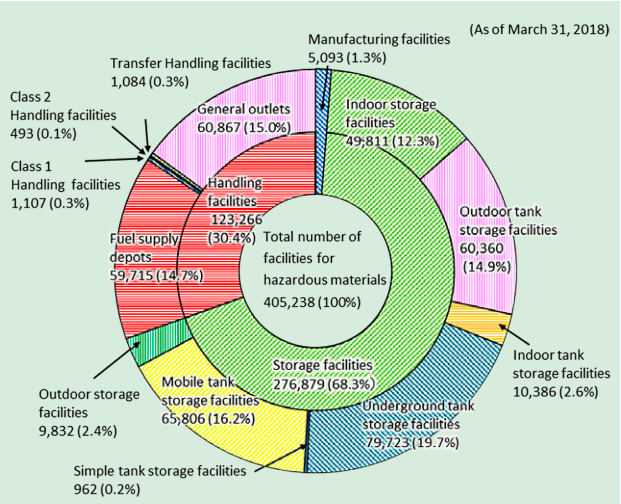
B. Composition of Facilities for Hazardous Materials by Size

As for the number of facilities by size (according to the maximum storage quantity or the maximum handling quantity) of the total number of facilities for hazardous materials as of March 31, 2018, those facilities for hazardous materials that hold 50-times the designated quantities or less account for 75.7% of the total. (**Fig. 1-2-13**)

(3) Hazardous Material Engineers

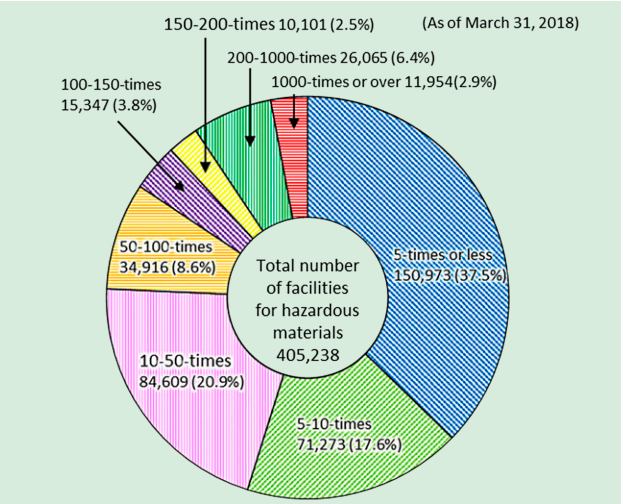
Hazardous material engineers are classified into three types. Class A engineers can handle all hazardous materials, Class B engineers can handle types of hazardous materials for which they have obtained approval, and Class C engineers can handle designated hazardous materials from among the type 4. When hazardous

Fig. 1-2-12 Number of facilities for hazardous materials by classification



(Notes) 1 Prepared based on "The Accident Reports on Hazardous Materials".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

Fig. 1-2-13 Composition rate of facilities for hazardous materials by size



(Notes) 1 Prepared based on "The Survey on Regulation Work of Hazardous Materials".
2 The factors are multiples obtained dividing the largest quantities stored or the largest quantities handled by the specified quantities stipulated in Appended Table III of the Cabinet Order on Control of Hazardous Materials.
3 The second decimal places were rounded up, so in some cases the totals may not align.

material engineers or someone else handles hazardous materials at facilities for hazardous materials, a Class A or Class B hazardous material engineer must be present to ensure safety.

As of March 31 2018, the (cumulative) total number of people who have passed the hazardous material engineer test since the hazardous material engineer system was launched came to 9,442,416 people. They play a significant role in ensuring safety at facilities for hazardous materials.

A. Hazardous Material Engineer Tests

Hazardous material engineer tests were held 3,404 times throughout Japan in FY2017 (a decrease of 4 year-on-year). They were taken by 381,403 people (a decrease of 7,462 people year-on-year), with 160,378 people passing (an increase of 15,362 people year-on-year) for an average pass rate of roughly 42.1% (an increase of 4.8 points year-on-year). (**Fig. 1-2-14**)

Viewing the situation by test type and category reveals that 67.3% of the people took the test for Class B, Type 4, followed by Class C at 8.7% of the total. These two test types accounted for 76.0% of the total. The number of people who passed these two test types accounted for 65.5% of the total.

B. Safety Training Courses

As a general rule, the hazardous material engineers engaged in handling hazardous materials at facilities for hazardous materials must take a training course on safety for handling hazardous materials offered by prefectural governors (safety training courses) within each three year period (starting from April 1, 2012, within three years from the first April 1 since the date on which the hazardous material engineer license was issued or the date they took the safety training course).

In FY2017, safety training courses were held a total of 1,460 times throughout Japan (a decrease of 7 times year-on-year), and were attended by 170,287 people (a decrease of 7,715 people year-on-year). (**Table 1-2-2**)

(4) Safety Systems at Offices

As of March 31, 2018, the total number of business establishments that owned facilities for hazardous materials came to 185,419 throughout Japan. In an effort to establish safety systems at business establishments, it has been mandated that the owners of facilities for hazardous materials that store or handle hazardous materials at or above certain quantities must carry out certain obligations. These include appointing hazardous materials security superintendents, appointing safety officers for facilities for hazardous materials (1,653 business establishments), and preparing fire and disaster prevention rules (44,304 business establishments). Moreover, it has been mandated that said business establishments that own certain facilities for hazardous materials and that store or handle hazardous materials at or above certain quantities must establish fire defense organizations for self-protection (74 business establishments) and appoint hazardous material safety supervising managers (198 business establishments).

(5) Safety Inspections

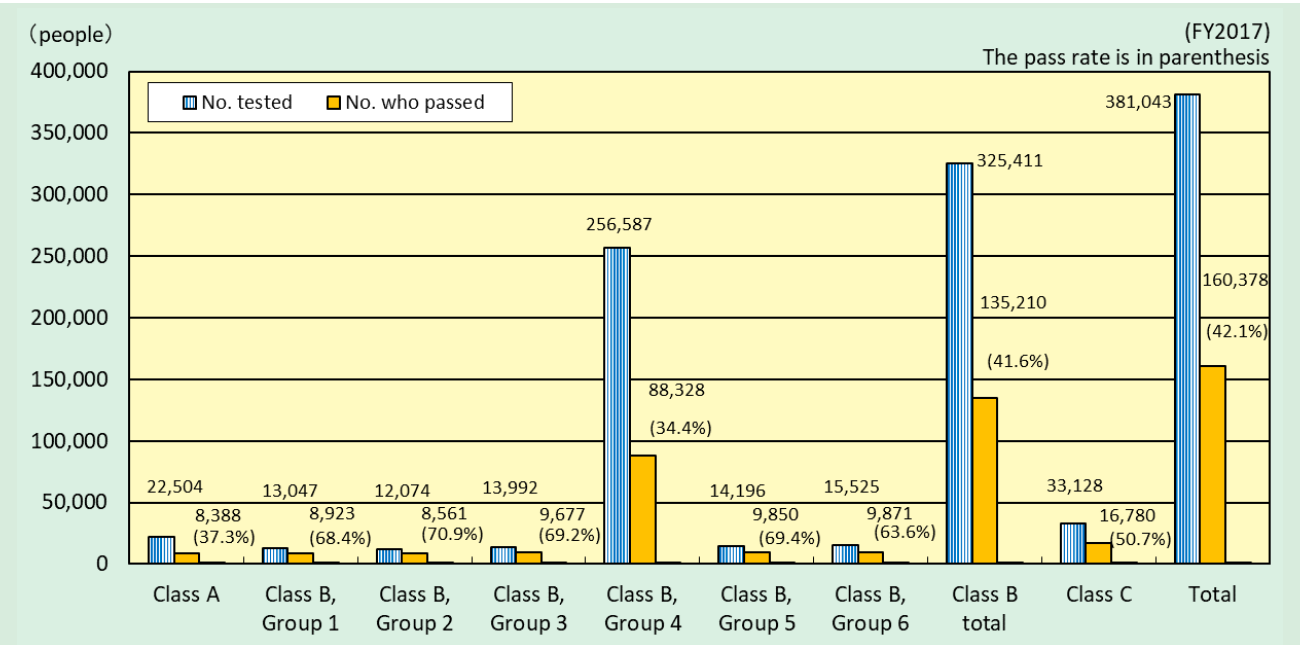
It has been mandated that the owners of outdoor storage tanks and transfer handling facilities at or over a certain size must undergo inspections on the safety of facilities for hazardous materials performed by municipal mayors and similar officials (safety inspections) at regular fixed intervals according to factors like the facilities' size.

In FY2017, 225 safety inspections were performed, of which 220 involved outdoor storage tanks and 5 involved transfer handling facilities.

(6) Onsite Inspections and Orders

Municipal mayors and similar officials can perform onsite inspections on facilities for hazardous materials and other such facilities to ensure that their installation, construction, and establishment of equipment, as well as storage or handling of hazardous materials, are in compliance with the standards established in the Fire

Fig. 1-2-14 Holding of tests for hazardous material engineers



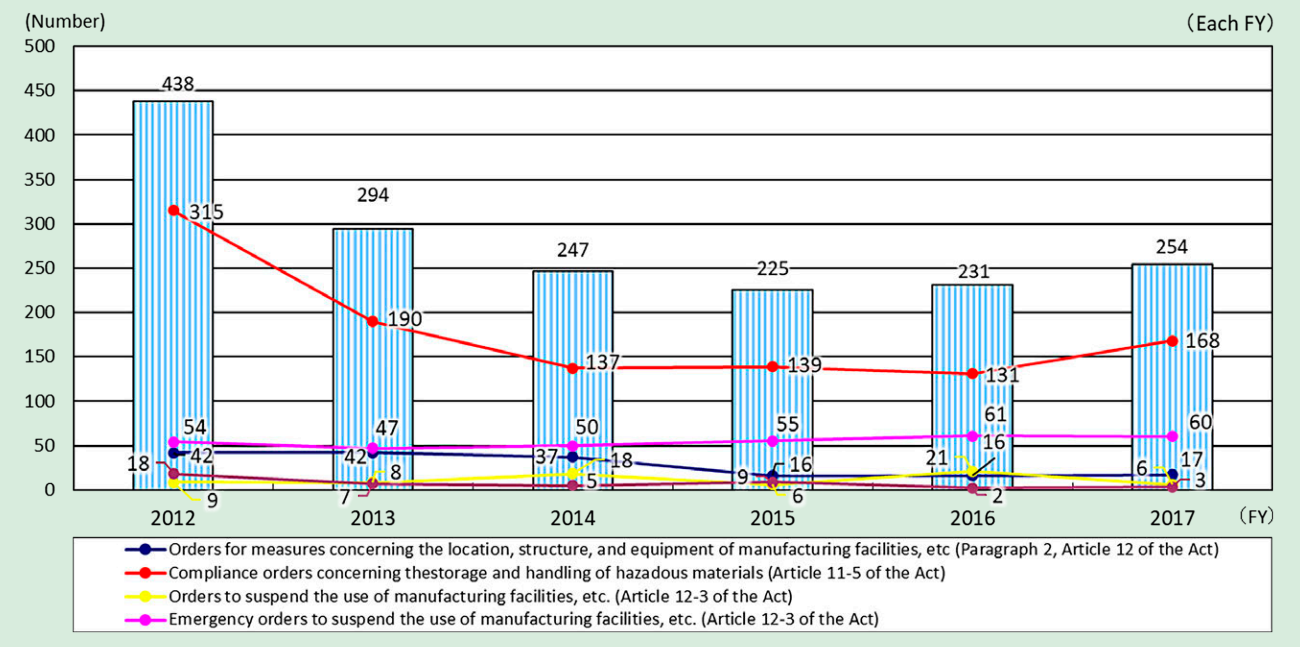
(Note) Prepared based on "The Statistical Table for the Testing and Certification of Hazardous Material Engineer" and "The Fire Protection Engineers by the Japan Fire Engineering Qualification Center".

Table 1-2-2 Number of attendees at safety training courses for hazardous material engineers and a breakdown of this by type of hazardous material engineer certifications

(As of March 31 of each FY)

Category / FY	No. of attendees	Class A	Class B							Class C	Total by type	No. of training courses
			Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Subtotal			
2013	164,296	13,703	8,969	9,655	7,948	148,714	9,367	10,278	194,931	24,910	233,544	1,374
2014	162,977	14,002	9,032	10,046	8,294	146,800	9,476	10,388	194,036	27,502	235,540	1,363
2015	178,843	14,280	9,507	10,554	9,008	152,324	10,362	11,248	203,003	25,473	242,756	1,407
2016	178,002	14,182	10,702	11,581	10,129	153,091	11,452	11,991	208,946	24,660	247,788	1,467
2017	170,287	14,219	10,536	11,511	9,739	142,322	11,125	11,664	196,897	23,815	234,931	1,460

Fig. 1-2-15 Trends in orders for measures related to facilities for hazardous materials



(Note) Prepared based on "The Survey on Regulation work of Hazardous Materials".

Service Act. These can be carried out when said official deems it necessary to prevent fires that arise consequent upon the storage or handling of hazardous materials.

In FY2017, onsite inspections were carried out a total of 204,347 times at 183,832 facilities for hazardous materials. In cases where violations of the Fire Service Act were discovered as a result of the onsite inspections, these municipal mayors and other officials can issue a variety of different orders to the owners of said facilities for hazardous materials. These include orders to comply with regulations on storage and handling, orders to take measures related to standards for installing, constructing, or establishing equipment, and more.

In FY2017 municipal mayors or similar officials issued such orders to take measures in 254 cases. (**Fig. 1-2-15**)

2. Securing Petroleum Pipelines

(1) Safety Regulations for the Petroleum Pipeline Business

Regarding those petroleum pipelines which are used to transport petroleum in response to general demand, the competent minister (The Minister of Economy, Trade and Industry and the Minister of Land, Infrastructure, Transport and Tourism)must formulate basic plans and listen to the opinions of the Minister of Internal Affairs and Communications regarding business licenses in order to ensure safety pursuant to the Petroleum Pipeline Business Act enacted in 1972. What is more, the Minister of Internal Affairs and Communications provides licenses for construction plans, performs completion inspections, provides licenses for safety regulations, performs safety inspections, and more.

The facilities to which the Petroleum Pipeline Business Act apply currently only include the pipelines transporting airplane fuel to Narita International Airport, with other pipelines regulated as transfer handling facilities under the Fire Service Act.

(2) Ensuring the Safety of Petroleum Pipelines

Safety inspections are carried out periodically on the pipelines transporting airplane fuel to Narita International Airport pursuant to the Petroleum Pipeline Business Act. In addition, the business operators must do everything they possibly can to ensure safety, such as having maintenance and inspections carried out in accordance with the technical standards established by law.

–omitted–

Section 3 Countermeasures to Disasters at Petroleum Industrial Complexes

☞ Japanese Original P.107

Current Status and Recent Trends in Disasters at Petroleum Industrial Complexes

1. Number of Accidents and Damage

The total number of accidents that occurred at specified business establishments*1 in petroleum industrial complexes and other special disaster prevention areas (hereafter referred to as "special disaster prevention areas") in 2017 came to 252 as same as the previous year. In addition, four earthquakes with a maximum seismic intensity of just over 5 occurred during 2017, but there were no accidents from earthquakes and tsunamis (hereafter referred to as "earthquake-induced accidents"), all of 252 accidents were not earthquake-induced (hereafter referred to as "general accidents"). (**Fig. 1-3-1**)

Looking at this by type of accident reveals there were 130 fires (an increase of 10 year-on-year), 1 explosion (a decrease of 5 year-on-year), 115 leaks (a decrease of 6 year-on-year), and 6 other accidents (an increase of 1 year-on-year). (**Table 1-3-1**)

Looking at trends in the number of general accidents that have occurred reveals that these had been on a downswing since the enactment of the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities. However, in recent years they have been trending at a high level of around 250 accidents a year.

The number of casualties from general accidents that occurred in 2017 came to 0 death and 15 injuries.

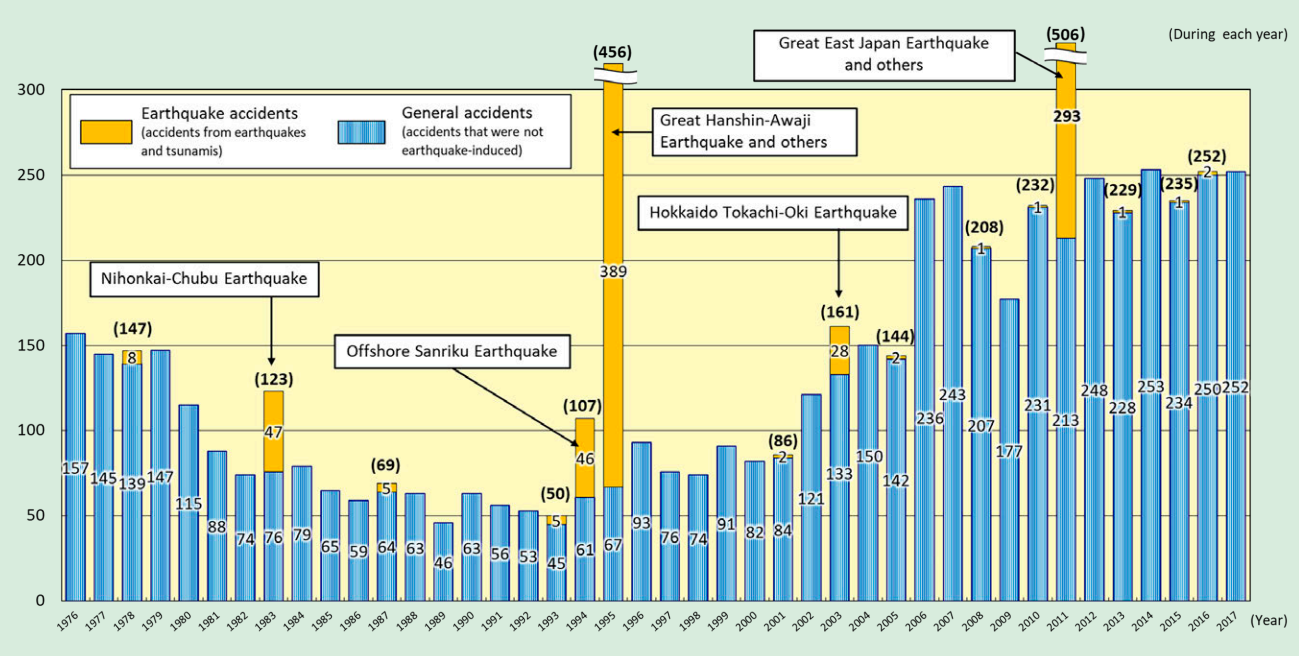
What is more, looking at the causes behind general accidents reveals that corrosion and other types of deterioration accounted for 62 (24.5%), while inadequate maintenance accounted for 40 (15.8%) and inadequate operation for 33 (13.1%).

2. Characteristics of Accidents

(1) Number of General Accidents by Type of Specified Business Establishment

Looking at the number of general accidents by type of specified business establishments reveals that Class 1 business establishments accounted for 203 (185 of which were at layout business establishments*2), which account for 80.6% of the total. (**Table 1-3-2**)

Fig. 1-3-1 Trends in the number of accidents that occurred at petrochemical complexes



(Note) Prepared based on "The Overview of Accidents at Specified Business Establishments in Petroleum Industrial Complexes and Other Special Disaster Prevention Areas(2017)".

*1 Specified business establishments: These refer to Class 1 business establishments (business establishments where 10,000 kiloliters of petroleum or more are stored or handled, or where 2 million cubic meters of high-pressure gas or more are processed) and Class 2 business establishments (business establishments where 1,000 kiloliters of petroleum or more are stored or handled, or where 200,000 cubic meters of high-pressure gas or more are processed).

*2 Layout business establishments: Business establishments from among Class 1 business establishments that handle both petroleum and high-pressure gases. Said business establishments are subject to layout regulations stipulating that their sites must be segmented off into six types of sections according to their purpose, with these including manufacturing facility sections and storage facility sections (see P.105).

Table 1-3-1 Occurrence of Accidents at Petrochemical Complexes

(During each year)

Type		Accidents in 2017			Accidents in 2018		
			General accidents	Earthquake-induced accidents		General accidents	Earthquake-induced accidents
Fires		130	130	—	120	120	—
		(51.6%)	(51.6%)	(—%)	(47.6%)	(48.0%)	(—%)
Explosions		1	1	—	6	6	—
		(0.4%)	(0.4%)	(—%)	(2.4%)	(2.4%)	(—%)
Leaks		115	115	—	121	119	2
		(45.6%)	(45.6%)	(—%)	(48.0%)	(48.0%)	(100.0%)
Other	Damage	6	6	—	5	5	—
		(2.4%)	(2.4%)	(—%)	(2.0%)	(2.0%)	(—%)
	Accident not corresponding to above	—	—	—	—	—	—
		(—%)	(—%)	(—%)	(—%)	(—%)	(—%)
Total		252	252	0	252	250	2

(Notes) 1 Prepared based on "The Overview of Accidents at Specified Business Establishments in Petroleum Industrial Complexes and Other Special Disaster Prevention Areas in 2017".
2 Of the accidents that occurred in 2016, two were earthquake-induced accidents.

Table 1-3-2 Number of General Accidents by Type of Specified Business Establishment

(During 2017)

Type of business establishment		No. of business establishments (A)	No. of accidents (B)	Share of the total No. of accidents(%)	No. of accidents per business establishments (B/A)
Class 1 business establishments		353	203	80.6	0.58
	Layout business establishments	168	185	73.5	1.10
	Other business establishment	185	18	7.1	0.10
Class 2 business establishments		326	49	19.4	0.15
Total		679	252	100.0	0.37

(Notes) 1 Prepared based on "The Overview of Accidents at Specified Business Establishments in Petroleum Industrial Complexes and Other Special Disaster Prevention Areas in 2017".
2 The number of business establishments is current as of April 1, 2017.

(2) Number of General Accidents at Specified Business Establishments by Business Category

As for the number of general accidents at specified business establishments by business category, there were 71 chemical industry-related accidents (28.2%), 71 petroleum and coal products manufacturing industry-related accidents (28.2%), 64 steel industry-related accidents (25.3%), and 16 electrical industry-related accidents (6.3%).

Current Status of Damage Countermeasures at Petroleum Industrial Complexes

In order to prevent disasters from occurring and spreading at special disaster prevention areas, where large quantities of petroleum and high pressure gasses are concentrated, efforts are made to establish comprehensive disaster prevention structures for these. This includes by applying the various regulations from the Fire Service Act, the High Pressure Gas Safety Act, the Industrial Safety and Health Act, the Act on Prevention of Marine Pollution and Maritime Disasters, and others, as well as by applying the regulations from the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities regarding issues like the arrangements of the various facility sections and disaster prevention equipment.

1. Current Status of Special Disaster Prevention Areas

As of April 1, 2018, 83 areas in which large quantities of petroleum or high pressure gas at or above certain quantities have been designated as special disaster prevention areas in 102 municipalities in 32 prefectures based on the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities. (**Fig. 1-3-2**) These special disaster prevention areas are under the jurisdiction of 90 fire departments. The "Tokyo International Airport Area" was designated as a special disaster prevention area on August 31, 2018, by A Cabinet Order that partially revises a Cabinet Order designating a special disaster prevention area such as an oil complex.

What is more, 672 business establishments serve as specified business establishments subject to the regulations of the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities. Of these, 344 are Class 1 business establishments (including 160 layout business establishments) and 328 are Class 2 business establishments.

2. Disaster Prevention Structure at Prefectures and Firefighting Agencies

(1) Establishing Disaster Prevention Schemes

The prefectures that contain special disaster prevention

areas are establishing disaster prevention structures in a comprehensive and systematic manner based on the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities. This is being done through concerted efforts together with relevant agencies centering primarily on disaster prevention headquarters at petroleum industrial complexes and other locations (hereafter referred to as "disaster prevention headquarters").

The disaster prevention headquarters carry out operations such as preparing disaster prevention plans for petroleum industrial complexes and other locations (hereafter referred to as "disaster prevention plans"), liaising and coordinating with relevant agencies when disasters strike, and promoting research studies on disaster prevention.

(2) Emergency Responses when Disasters Occur

When disasters occur in special disaster prevention areas, emergency responses consist of initiatives carried out in a concerted manner by the prefecture, municipality, related agencies, specified business operators and others under the leadership of the disaster prevention headquarters, as stipulated by the disaster prevention plan.

When disasters occur, firefighting agencies carry out defense activities, give instructions regarding the activities of disaster prevention organizations for self-defense, and carry out other important roles.

(3) Maintaining the Firefighting Capabilities of Municipalities Containing Special Disaster Prevention Areas

There is the concern that disasters that occur within special disaster prevention areas will be large in scale and of a specialized type. Therefore, it is important to maintain firefighting capabilities in order to respond to said disasters.

As of April 1, 2018, 69 large chemical firetrucks, 56 large elevated water trucks, 89 foam solution transport vehicles, 28 large elevated chemical water trucks, 3,030kL of 3% fire-extinguishing foam, 746kL of 6% fire-extinguishing foam, 23 fireboats, and other such equipment had been allocated to firefighting agencies in municipalities containing special disaster prevention areas. Likewise, 27 foam solution storage facilities, 5 portable foam cannons, and other such equipment has been allocated to prefectures containing special disaster prevention areas in order to supplement their municipal firefighting capabilities, as well as enhance and strengthen the disaster prevention structures of said special disaster prevention areas.

In addition, the FDMA has instituted the Emergency Response Unit for Energy/Industrial Disaster ("Dragon Hyper Command Unit") structure under National Fire-Service Teams, and carries out research and development on sophisticated firefighting robots.

3. Disaster Prevention Structure at Specified Business Establishments

(1) Establishing Disaster Prevention Organizations for Self-defense

The Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities mandates that those operators that establish specified business establishments that contain special disaster prevention areas (specified business operators) must set up disaster prevention organizations for self-defense, prepare fire protection equipment, appoint disaster protection managers, formulate disaster prevention regulations, and so forth. It also stipulates that they are to establish joint disaster prevention associations,*3 wide-area joint disaster prevention associations,*4 and special disaster prevention area councils for petroleum industrial complexes and the like (hereafter referred to as "area councils")*5.

As of April 1, 2018, disaster prevention organizations for self-defense had been established at every specified business establishment (672 business establishments), and 73 joint disaster prevention associations, 11 wide-area joint disaster prevention associations, and 55 area councils had also been established. These disaster prevention organizations for self-defense, joint disaster prevention associations, and wide-area joint disaster prevention associations are equipped with 5,420 disaster prevention personnel, 84 large chemical fire trucks, 45 large, elevated water trucks, 129 foam solution transport vehicles, 116 large, elevated chemical water trucks, 24 high capacity foam cannons, 24 oil recovery vessels, and more.

What is more, the law states that these specified business establishments must establish embankments to prevent oil spills, outdoor water supply equipment for firefighting, and emergency notification systems according to their size. As of April 1, 2018, 140 business establishments had installed embankments to prevent oil spills, 497 had installed outdoor water supply equipment for firefighting, and 463 had installed emergency notification systems, respectively.

(2) Equipping High Capacity Foam System

During the Tokachi-Oki Earthquake that occurred in September 2003, damage that included damage to and oil leaks from numerous outdoor storage tanks occurred at an oil refining business establishment in Tomakomai City. In addition, approximately 54 hours after the earthquake struck all of the floating roof outdoor storage tanks caught fire when the floating roof sank.

Before this disaster struck, it had been assumed that the fires that would occur at floating roof outdoor storage

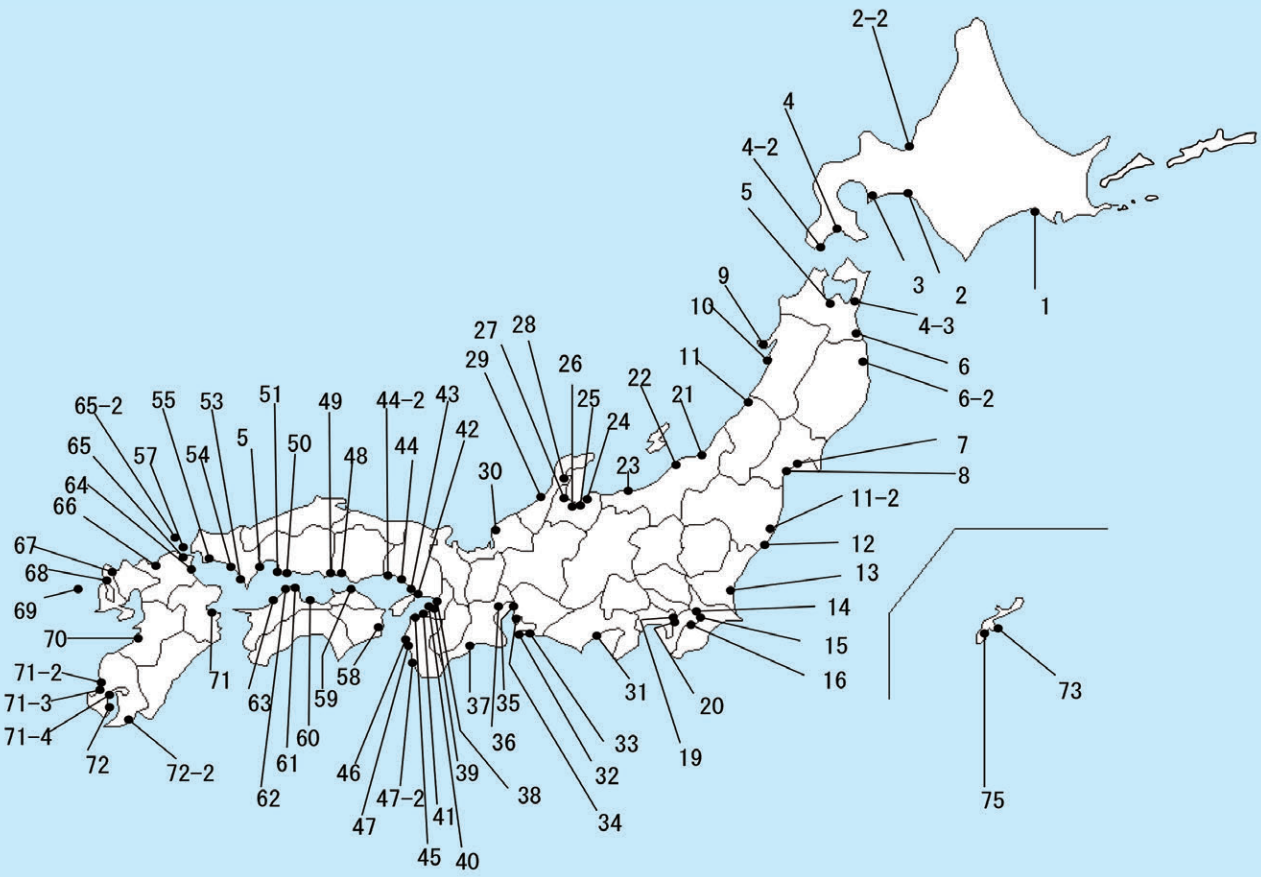
*3 Joint disaster prevention associations: Disaster prevention associations jointly established by the specified business operators involved with specified business establishments containing a single special disaster prevention area in order to carry out some of the tasks of the disaster prevention organization for self-defense.

*4 Wide-area joint disaster prevention associations: Joint disaster prevention associations covering a wide area jointly established by specified business operators involved with specified business establishments containing areas in which there are two or more special disaster prevention areas to carry out tasks related to disaster prevention activities by using large volume foam cannons and other equipment.

*5 Special disaster prevention area councils for petroleum industrial complexes and the like: These are councils established with the objective of having specified business operators related to specified business establishments located in a single special disaster prevention area come together to jointly draft independent standards related to preventing disasters from occurring and carrying out joint disaster prevention drills.

Fig. 1-3-2 Designation Status for Special Disaster Prevention Areas

(As of April 1, 2018)



No.	Special disaster prevention areas	No.	Special disaster prevention areas	No.	Special disaster prevention areas	No.	Special disaster prevention areas	No.	Special disaster prevention areas
1	Kushiro	14	North Keiyo coast	34	Kinuura	50	Etajima	68	Ainoura
2	Tomakomai	15	Central Keiyo coast	35	Port of Nagoya coast	51	Nomi	69	Kamigoto
2-2	Ishikari	16	South Keiyo coast	36	Yokkaichi coast	52	Iwakuni/Otake	70	Yatsushiro
3	Muroran	19	Keihin coast	37	Owase	53	Kudamatsu	71	Oita
4	Hokuto	20	Negishi coast	38	Osaka North Port	54	Shunan	71-2	Sendai
4-2	Shiriuchi	21	Port of Niigata (East)	39	Sakai Senboku coast	55	Ube/Onoda	71-3	Kushikino
4-3	Mutsuogawara	22	Port of Niigata (West)	40	Kansai International	57	Mutsurejima	71-4	Kagoshima
5	Aomori	23	Naoetsu	41	Misaki	58	Anan	72	Kiire
6	Hachinohe	24	Toyama	42	Kobe	59	Bannosu	72-2	Shibushi
6-2	Kuji	25	Fuchu	43	Higashiharima	60	Niihama	73	Henza
7	Shiogama	26	Shinminato	44	Himeji coast	61	Namikata	75	Onaha
8	Sendai	27	Fushiki	44-2	Ako	62	Kikuma		
9	Oga	28	Port of Nanao,Mimuro	45	Northern coast in north Wakayama	63	Matsuyama		
10	Akita	29	Kanazawa Port north	46	Central coast in north Wakayama	64	Buzen		
11	Sakata	30	Fukui coast	47	Southern coast in north Wakayama	65	Kitakyushu		
11-2	Hirono	31	Shimizu	47-2	Gobo	65-2	Shirashima		
12	Iwaki	32	Atsumi	48	Mizushima coast	66	Fukuoka		
13	Kashima coast	33	Tahara	49	Fukuyama/Sasaoka	67	Fukushima		

*83areas

Spraying drills through the use of the high capacity foam system

tanks would be ring fires.*6 But out of consideration for the risk of earthquakes occurring in Japan, the assumption for a disaster had to be that a fire would spread to all of the tanks.

In light of this, the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities was revised in June 2004 and the order for the enforcement of this law was revised in November 2005 to strengthen and enhance disaster prevention structures. Furthermore, it was mandated that specified business establishments must equip themselves with high capacity foam systems, which were a new type of firefighting equipment then, by November 2008 in order to respond to fires that fully envelop floating roof outdoor storage tanks. High capacity foam systems are a type of firefighting equipment that consist of high capacity foam cannons, feed pumps, foam mixers, and hoses. They have the capacity to spray more than 10,000 liters of foam per minute. A single high capacity foam cannon is capable of spraying anywhere from three to ten times as much foam as a conventional three-part set (consisting of a large chemical firetruck, large, elevated water truck, and a foam solution transport vehicle).

At present, high capacity foam systems with the capacity to spray anywhere from 10,000 to 40,000 liters per minute are stationed at 12 wide-area joint disaster prevention associations throughout Japan.

(3) Enhancing Disaster Prevention Structure for Self-defense

The fact that petroleum industrial complexes handle large quantities of hazardous materials and the like and have equipment that is complexly interconnected makes disaster prevention activities difficult, and as such carries the risk that this will result in enormous damage. Therefore, when such disasters occur, disaster prevention organizations for self-defense and joint disaster prevention associations must carry out precise disaster prevention activities. In addition, the disaster prevention personnel responsible for said activities require extensive knowledge and skills.

The FDMA details the disaster prevention activities of disaster prevention organizations for self-defense and others in reports like “the Introduction to Disaster Prevention Activities for Disaster Prevention Organizations for Self-defense”, “Guidelines for Education and Drills for Disaster Prevention Personnel”, “Disaster Prevention Activities Using High Capacity Foam Systems”, and more. In FY2017 the FDMA issued standardized educational texts and enhancing both human resource development for disaster prevention personnel and disaster prevention structures.

4. Layout Regulations for Business Establishments

(1) Layout Regulations

Just regulating each individual facility at the business establishments is not enough and other measures must be taken by business establishments on the whole from the perspective of mitigating damage. Because disasters are particularly likely to spread at layout business establishments that handle large amount of petroleum and high-pressure gases.

Therefore, the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities mandates that layout business establishments must establish certain standards related to establishing facility areas on their sites and ensuring passageways. It also mandates that in cases like where business establishments are newly established or change their facility area layouts, they must provide notification of the plans for this. It also stipulates that they must undergo confirmation after these have been completed to determine whether or not they are consistent with the relevant plans.

(2) Status for New Establishment and Other Notifications

The number of notifications for new establishments of or changes to layout business establishments in FY2017 came to 8, while the number of confirmations in the same year came to 8. (**Fig. 1-3-3**)

5. Other Disaster Countermeasures

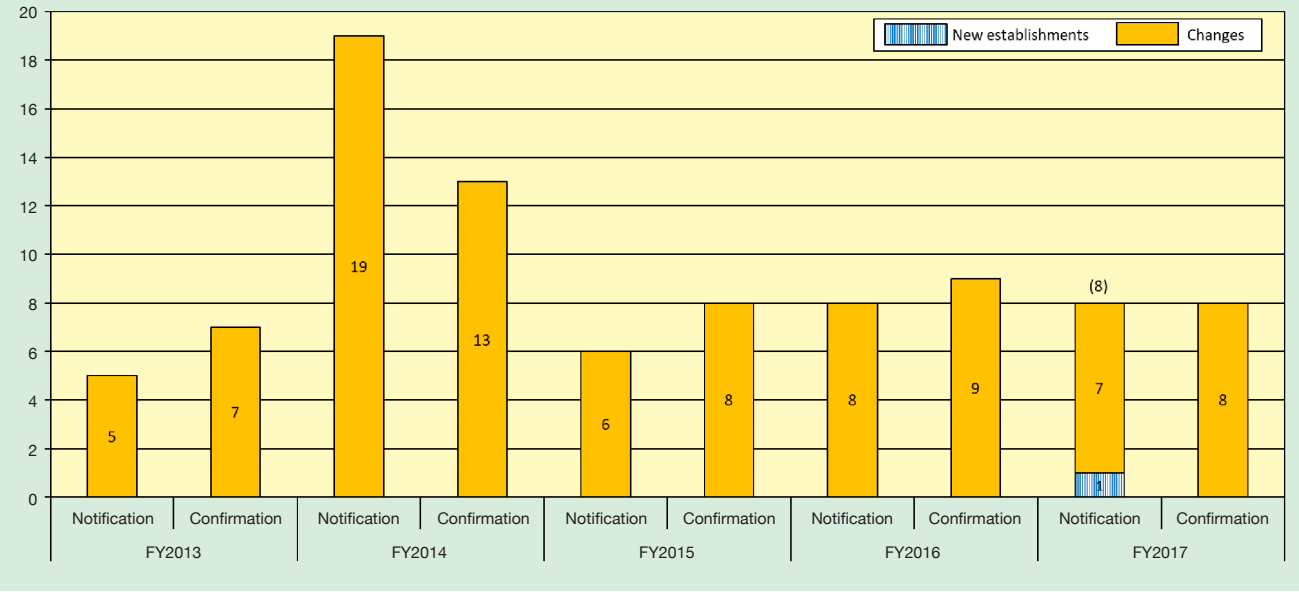
(1) Establishing Disaster Response Structure

The Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities states that specified business operators must report to firefighting agencies or locations specified by municipal mayors immediately when any abnormal phenomena occurs.*7 It also mandates that disaster prevention organizations for self-defense, joint disaster prevention associations, and wide-area joint disaster prevention associations must take the necessary measures in order to prevent disasters from occurring and spreading.

*6 Ring fires: Fires that occur at floating roof outdoor storage tanks all the way around the tank in the gap between the floating roof and the tank’s side panel before spreading out in a ring pattern.

*7 Abnormal phenomena: Fires, explosions, spills of oil and other substances, and other such abnormal phenomena at specified business establishments.

Fig. 1-3-3 Status for the notification and confirmation of new business establishments subject to layout regulations



(Notes) 1 Prepared based on the number of notifications issued pursuant to the regulations of Article 5 and Article 7 of the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities.
2 Prepared based on the number of confirmations performed pursuant to the regulations of Article 11 of the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities.
3 Since a certain length of time for construction work is needed from the time notification is issued for the new establishment or the like until confirmation can be performed, the number of notifications and the number of confirmations in each fiscal year do not align.

(2) Establishing Green Buffer Zones for Disaster Prevention

Regulations were established in the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities in relation to matters like drafting installation plans, the share of costs to be borne by business operators, and special financial measures for green buffer zones for disaster prevention established by local governments in the vicinities around special disaster prevention areas in order to prevent damage in said areas from spreading to the surrounding regions.

–omitted–

Section 1 Fire Service Structure

☞ *Japanese Original P.159*

1. Fire Defense Organizations

(1)Standing Firefighting Agencies

Standing firefighting agencies refer to the fire departments and fire stations established in municipalities that are staffed by full-time personnel. As of April 1, 2018, there were 728 fire departments and 1,719 fire stations established throughout Japan. (**Table 2-1-1**) There are 164,873 firefighters, of which 5,069 are women. (**Table 2-1-1**, **Fig. 2-1-1**)

The current fire service structures found in municipalities can largely be categorized into: [1] Municipalities with both fire departments and fire stations (so-called standing fire defense) as well as volunteer fire corps (so-called non-standing fire defense), and [2] Towns and villages with only volunteer fire corps.

As of April 1, 2018, 1,690 municipalities had switched over to a standing fire defense structure, whereas 29 towns and villages had failed to do so. This brings the percentage of municipalities that have switched over to a standing fire defense structure (standing ratio) to 98.3% (100% for cities and 96.9% for towns/villages). This conversion has taken place virtually nationwide, barring some towns and villages in mountainous regions or on remote islands, with 99.9% of the population now covered by standing fire defense structures.

Of these, there have been 289 fire departments established by special district authorities or extended associations (22 of which were established by extended associations). The 1,108 municipalities that have organized these (368 cities, 600 towns, and 140 villages) correspond to 65.6% of the total number of municipalities that have switched to a standing fire defense structure.

What is more, the number of municipalities outsourcing this work comes to 143 (37 cities, 86 towns, and 20 villages), which corresponds to 8.5% of the total number of municipalities that have switched to a standing fire defense structure. (**Fig. 2-1-2**)

(2)Volunteer Fire Corps

Volunteer fire corps are municipal, non-standing firefighting agencies. The volunteer firefighters that comprise their members have other main occupations, and engage in fire and disaster defense activities based on their love for their hometown and a desire to protect it under the thinking that they should be the ones to protect their own communities themselves. They do this as local government employees in special part-time positions vested with authority and responsibility.

As of April 1, 2018, the number of volunteer fire corps throughout Japan came to 2,209, while their volunteer members numbered 843,667. They have been established in every municipality. (**Table 2-1-1**, **Fig. 2-1-1**)

Volunteer fire corps have the unique qualities of being:

- Rooted in local communities (volunteers live or work within the jurisdiction)
- Able to dispatch personnel (there are roughly 5.1-times the number of volunteers as there are regular firefighters)
- Able to respond immediately (volunteers acquire the skills and knowledge to respond to disasters through routine education and training)

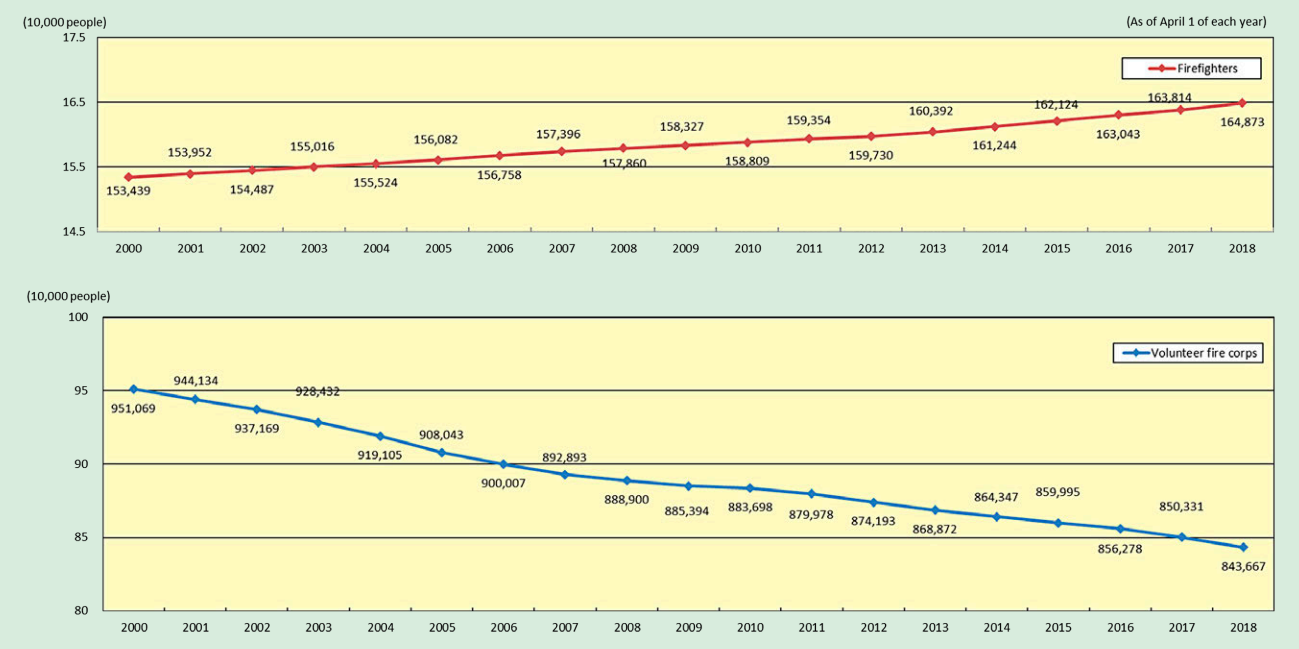
By harnessing these qualities, they are able to engage in the initial firefighting when fires break out and deal with any residual fires, as well as sound warnings and carry out

Table 2-1-1 Current status of municipal fire defense organizations

Classification				As of April 1, 2017	As of April 1, 2018	Comparison	
						Change	Rate of change (%)
Fire departments	Fire departments			732	728	△ 4	△ 0.5
	Breakdown	Individual	Cities	390	387	△ 3	△ 0.8
			Towns/villages	52	52	0	0.0
		Special district authorities, etc.		290	289	△ 1	△ 0.3
	Fire station			1,718	1,719	1	0.1
	Branch offices			3,111	3,117	6	0.2
	No. of firefighters			163,814	164,873	1,059	0.6
		Of which, No. of female firefighters		4,802	5,069	267	5.6
Volunteer fire corps	Volunteer fire corps			2,209	2,209	0	0.0
	Divisions			22,458	22,422	△ 36	△ 0.2
	No. of volunteers			850,331	843,667	△ 6,664	△ 0.8
		Of which, No. of female volunteers		24,947	25,981	1,034	4.1

(Note) Prepared based on the Survey of "The Current Status of Fire Prevention" and "Earthquake Countermeasures" and "The Report on Personnel Changes concerning Fire Departments and Volunteer Fire Corps".

Fig. 2-1-1 Trends in the number of Firefighters and Volunteer Fire Corps



(Notes) 1 Prepared based on "The Survey of the Current Status of Fire Prevention and Earthquake Countermeasures".
2 Due to the effects of the Great East Japan Earthquake, the number of firefighters and volunteer firefighters in Iwate Prefecture, Miyagi Prefecture, and Fukushima Prefecture in 2011 were tabulated using the numbers from the previous year (as of April 1, 2010).
3 Due to the effects of the Great East Japan Earthquake, the numbers for Onagawa Town, Oshika District, Miyagi Prefecture from 2012 were tabulated using the numbers from the previous year (as of April 1, 2010).

Fig. 2-1-2 Breakdown of the establishment method for fire departments

(As of April 1, 2018)

No. of fire departments			Municipalities				Standing/non-standing	
				Cities	Towns	Villages		
728		1,690 municipalities	1,690	792	737	161	Municipalities with standing structures	
individual	439	439 municipalities	439	387	51	1	Individual	Establishment method
Special district authorities, etc.	289	1,108 municipalities	1,108	368	600	140	Comprised of special district authorities, etc.	
		143 municipalities	143	37	86	20	Outsourced	
			29	—	7	22	Municipalities with non-standing structures	
			1,719	792	744	183	Total	

(Notes) 1 Prepared based on "The Report on Personnel Changes concerning Fire Departments and Volunteer Fire Corps".
2 The 23 wards of Tokyo were tabulated as a single city for individual fire defense departments.
3 Extended associations are included under "Special district authorities."

rescue activities when storm and flood disasters occur. In addition, when large-scale disasters occur, they engage in activities like assisting with resident evacuations and safeguarding against disasters, as well as giving instructions to evacuated residents in cases where they safeguard civilians. Volunteer fire corps play a major role in ensuring the safety and security of their communities, such as by overseeing fire defense activities in an across-the-board manner.

This is particularly true in towns and villages without a standing fire defense structure, where fire departments and fire stations have not been established. What is more, the volunteer fire corps engage in activities that are rooted in local communities during times of normalcy, such as raising awareness of fire prevention and disseminating first-aid treatment. They also play a major role in improving local fire prevention capabilities and revitalizing local communities.

2. Fire and Disaster Defense Facilities

(1)Maintenance of Fire Trucks and Other Equipment

Fire departments and fire stations are equipped with the fire pump vehicles, ladder-equipped vehicles (including vehicles with folding ladders), chemical fire trucks, ambulances, rescue vehicles, fire protection helicopters, and other equipment that they need for their firefighting activities.

In addition, volunteer fire corps are equipped with vehicles such as fire pump vehicles, small power pump transport vehicles, and transport vehicles for rescue supplies. (**Table 2-1-2**)

(2)Fire Defense Communication Equipment

In order to minimize the damage from fires and other disasters, it is important to quickly become aware of

Table 2-1-2 Number of firefighting vehicles owned

(As of April 1, 2018) (Units: vehicles, ships, machines)

Category		Fire departments	Volunteer fire corps	Total
Fire pump vehicles		7,774	14,054	21,828
Ladder-equipped vehicles		1,159	0	1,159
Chemical fire trucks		959	6	965
Ambulances		6,329	0	6,329
Command vehicles		1,809	898	2,707
Rescue vehicles		1,237	0	1,237
Other firefighting vehicles		8,768	1,956	10,724
Small power pumps		3,615	50,529	54,144
Breakdown	Equipped on vehicles	460	35,647	36,107
	Equipped on wheeled platforms	1,863	2,754	4,617
	Other than those above	1,292	12,128	13,420
Firefighting boats		42	18	60
Fire protection helicopters		33	0	33

(Note) Prepared based on "The Survey of the Current Status of Fire Prevention and Earthquake Countermeasures", "The Survey on the Implementation Status of Emergency Services", and "The Survey on the Implementation Status of Rescue Work".

said fires and disasters and have firefighting agencies rapidly arrive at the scene. In addition, it is also important to collect information and quickly and clearly issue instructions and orders at the scene of the incident. Fire defense communication equipment plays an enormous role in such contexts. Such equipment includes dedicated phone lines for reporting fires, fire defense communication networks, and more.

A. Calls to 119

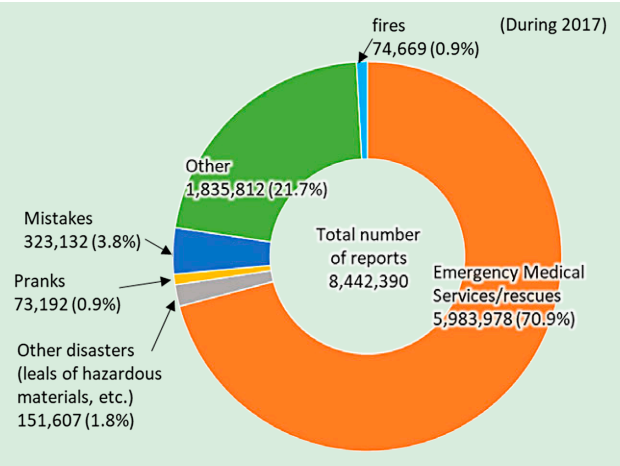
Dedicated phone lines for reporting fires refer to dedicated phone lines whereby firefighting agencies can receive emergency reports related to fires and medical emergencies from people providing notification.

The telecommunication number related to emergency reports to firefighting agencies has been set as "119" as per regulations on telecommunication numbers.

The number of incidents reported to 119 throughout 2017 came to 8,442,390. A breakdown of the reported details shows that the number of reported cases related to medical emergencies and rescues accounted for 70.9% of the total. (**Fig. 2-1-3**)

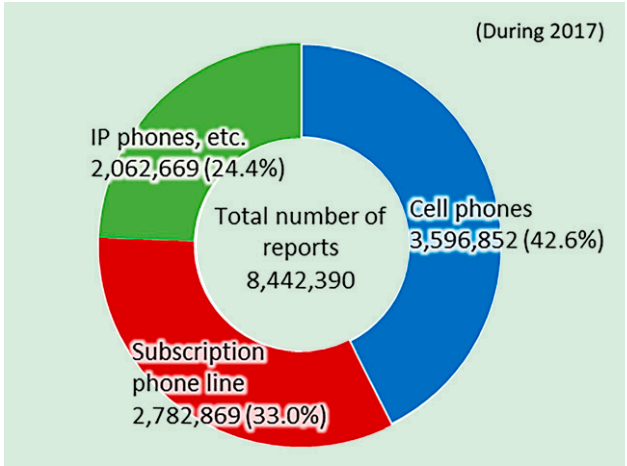
Following the recent popularization of cell phones and IP phones*1 (hereafter referred to as "cell and other types of phones"), the number of reports to 119 from cell and other types of phones have risen, with their share versus the total number of reports coming to 42.6% and 24.4%, respectively. (**Fig. 2-1-4**)

Fig. 2-1-3 Number of reports to 119 (by the reported details)



(Note) Prepared based on "The Survey of the Current Status of Fire Prevention and Earthquake Countermeasures".

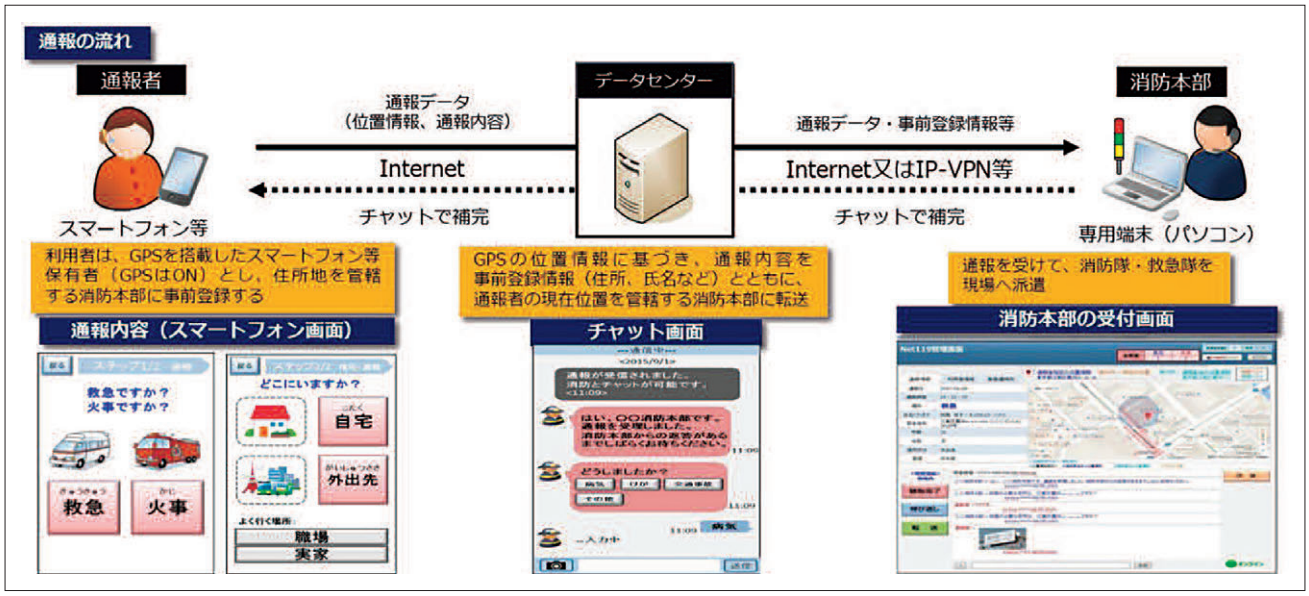
Fig. 2-1-4 Number of reports to 119 (by type of connection)



(Note) Prepared based on "The Survey of the Current Status of Fire Prevention and Earthquake Countermeasures".

*1 IP (Internet Protocol) phones: A voice call service offered through the use of IP technology at the contact point between the telephone network and the phone terminals.

Fig. 2-1-5 Net119 report flow



(A) Location Information Notifications for Emergency Reports to 119

The firefighting agencies that receive reports from 119 hear out the status at the scene of the disaster and information on the disaster through their back-and-forth with the person providing notification. Firefighting agencies that have adopted advanced fire defense command centers can display location information such as the reported location on a map over a monitor when they receive reports to 119.

The Location Information Notification System, which notifies firefighting agencies of the location information from the scenes where calls to 119 originate from cell phones and other sources, began operating in April 2007. The Integrated Location Information Notification System, which integrates this Location Information Notification System with the New Origin Location Display System*2 that had been operating since before to provide notifications from landline phones, began operating in October 2009.

As of April 1, 2018, the number of fire departments that are now able to determine the location information when they receive 119 reports from cell and other types of phones is now 711 (of which 595 headquarters use the Integrated Location Information Notification System) as a result of the Location Information Notification System and Integrated Location Information Notification System.

(B) Nonverbal Reports

Reports to 119 are predicated on being communicated verbally. As such, when persons with hearing or speech impairments report emergencies, they are accommodated via alternative, nonverbal means through the use of FAX or email.

However, there are a number of problems with these sorts of alternative means, such as the fact that in some cases reports can only be provided from locations equipped with FAX machines, and that it takes time to convey the address and status of the person providing the report. Therefore, the FDMA held meetings of the Committee on the Diversification of 119 Reports between FY2015 and FY2016. This committee considered modalities for a new system (Net 119 Emergency Report System) whereby persons with hearing or speech impairments can easily provide reports nonverbally at anytime and from anywhere through the use of smartphones or similar devices. In March 2017, the committee compiled together standard specifications for a system that should be adopted by fire departments throughout Japan in the future.

The Net119 Emergency Report System allows you to connect to the fire department immediately by accessing the reporting website from your smartphone, etc. with entering your location and a request, "AMBULANCE" or "FIRE" that needs fire department to determine where Ambulance crew or Firefighting squad be dispatched.

Then detailed information will be confirmed in a chat between the fire department and the caller. (**Fig. 2-1-5**)

"In the case of report from registered home, ① Report → ② Ambulance → ③ Home. As described above, the 119 call can be made with three button operations." By registering your home address etc. in advance, it is possible to convey the exact place even indoors where GPS signals do not reach. (**Fig. 2-1-6**)

On the other hand, in the case of a report from an unregistered place, such as when going out, the fire department is notified of location information measured by the GPS function.

If the chat is interrupted on the way, the fire department can send a return e-mail to a pre-registered e-mail address and resume chatting with the fire department from the URL described there. In addition, in order to quickly communicate with the fire department, fixed questions are prepared in advance, and you can answer by selecting the answer button without entering characters. (**Fig. 2-1-7**)

*2 New Origin Location Display System: This is a system that notifies fire departments of the location information (address information) of the person making a report with regards to 119 reports from Nippon Telegraph and Telephone East Corporation and Nippon Telegraph and Telephone West Corporation landline phones.

Fig. 2-1-6 Operation screen image

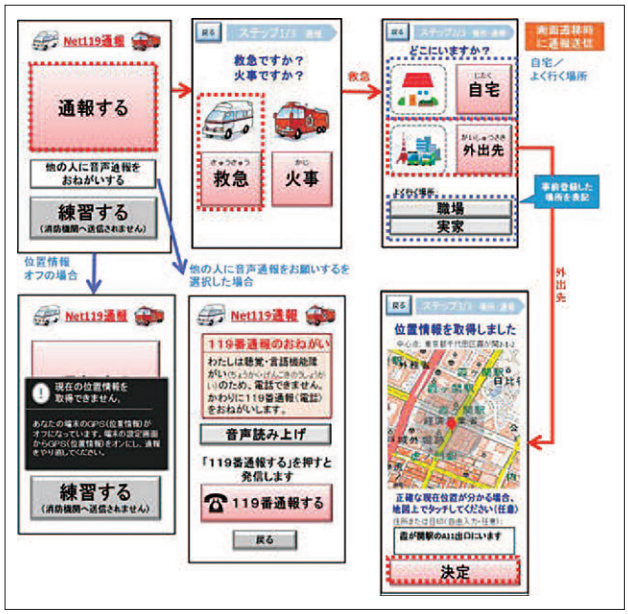
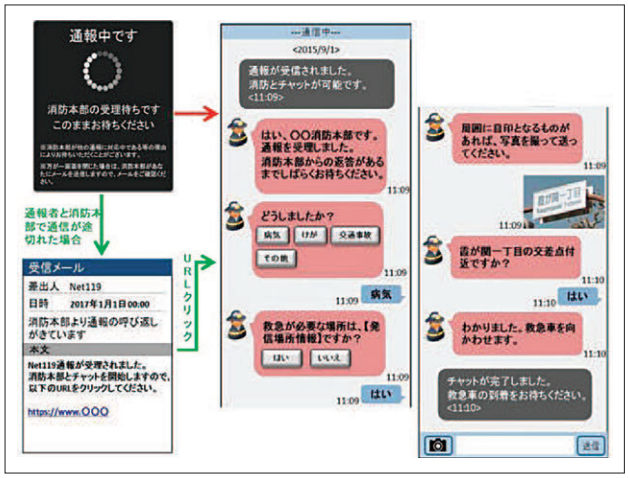


Fig. 2-1-7 Chat screen image



If it is difficult to make a report on your own, you can ask someone around you to make a 119 call instead.

In addition, you can experience the same operation as the actual report by the practice report (This practice report is not sent to the fire department).

The goal of the Net119 emergency report system is to be introduced by all fire departments by FY2020 in the Basic Plan for Persons with Disabilities, which was approved by the Cabinet in March 2018. FDMA is promoting the introduction of the Net119 emergency report system at each fire department and working with the Ministry of Health, Labour and Welfare to disseminate and educate persons with disabilities. As of the end of June 2018, 142 out of 728 fire departments have been introduced (about 19.5%).

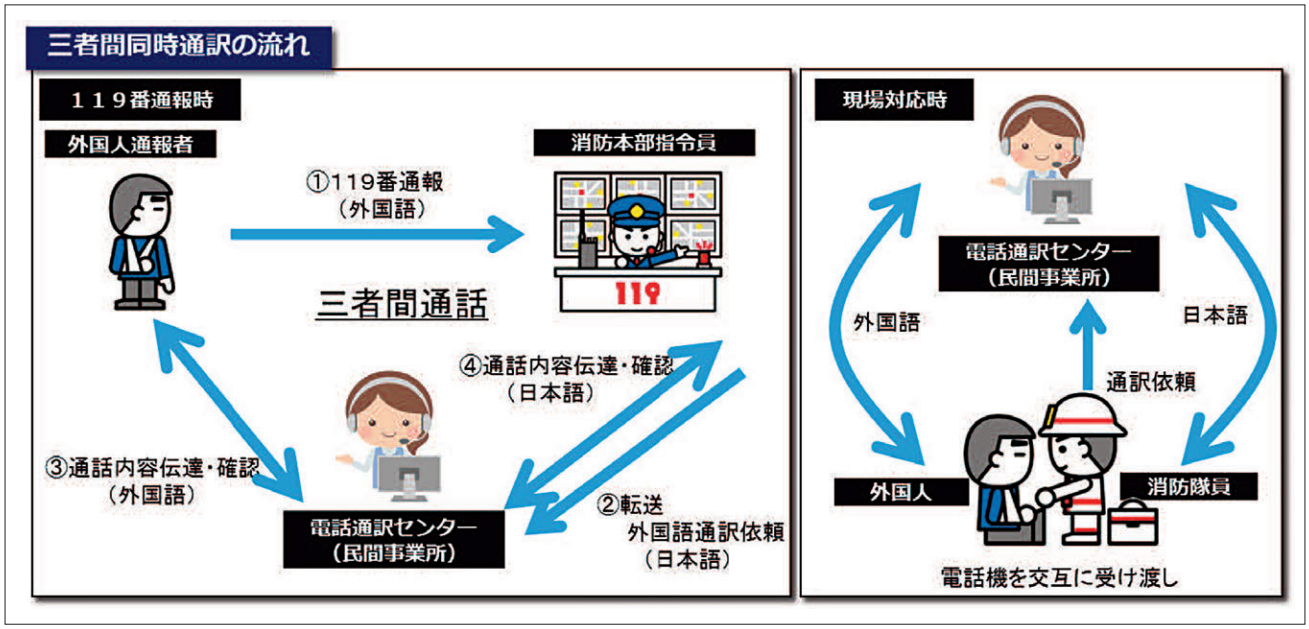
(C) Report form foreigner

The 119 multi-language service using 3 Way Telephone Interpretation provided by the Telephone Interpretation Center will be available 24/7 in major languages to respond promptly and accurately when calling 119 from a foreigner or at an emergency site where a foreigner is present.

The FDMA has notified each fire departments of "Promotion of multi-language service using 3 Way Telephone Interpretation provided by the Telephone Interpretation Center (notification)" (Notice of Fire and Ambulance Service Division's Manager, the FDMA Issue No. 8 on January 25, 2017), and is promoting multi-language service at the time of call 119, etc. using joint contracts with prefectural fire departments or telephone interpreting centers already contracted by prefectures.

As of the end of June 2018, 279 out of 728 fire departments (about 38.3%) have introduced. By the 2020 Tokyo Olympic and Paralympic Games, the FDMA aims to be introduced at all fire departments that foreigners, including foreign tourists visiting Japan, can receive firefighting and ambulance services without language interference, regardless of the dialing number 119 from anywhere in Japan. (**Fig. 2-1-8**)

Fig. 2-1-8 3 Way Telephone Interpretation flow



B. Fire Defense Communications Networks

Fire and emergency radios are an important piece of equipment. They are considered necessary for situations where a fire department needs to provide instructions to fire brigades, rescue crews, and others who are active at the scenes of disasters, or for situations where orders are to be given and information collected at the scenes of fires. What is more, fire defense phone lines are dedicated phone lines that are used for communications such as simultaneously relaying information and orders when reports are received between fire departments, fire stations, and branch offices.

On the other hand, the image information recorded by the cameras equipped on fire protection helicopters are used nationwide and in local regions through the use of satellite communication networks.

(3)Water Sources for Firefighting

Water sources for firefighting are an absolutely crucial component, together with fire trucks and other equipment, when it comes to carrying out firefighting activities. Generally speaking, these are categorized into artificial sources like fire hydrants and fire cisterns, as well as natural sources like rivers, ponds, oceans, and lakes.

With artificial sources, a certain amount of water can be drawn up at any time from near the location where the fire breaks out, and so they are frequently used as water sources for firefighting during such activities. Ever since the Great Hanshin-Awaji Earthquake in particular, the installation of fire cisterns and other equipment that has been seismically-reinforced against earthquakes has been actively promoted as a countermeasure for water sources for firefighting to combat large-scale earthquakes. In 2014 the Standards for Water Sources for Firefighting (the FDMA Bulletin No. 7 from 1964) were revised to allow for their installation in a systematic manner. (Table 2-1-3)

In recent years, in addition to the aforementioned concerns about seismic performance, due to concerns about the aging of firefighting water source system, the demand for new fire protection systems in densely populated wooden buildings, etc., by the Notice “Reinforcement of firefighting water source Maintenance Promotion” (Issue No. 272, Fire and Ambulance Division's Manager, the FDMA on November 24, 2017) Municipalities are trying to promote the improvement by setting numerical targets for short-term, medium-term, and long-term for the maintenance of firefighting water source)."

What is more, with natural water sources it is often the case that water can be taken in over a long period of time without any restrictions on the amount that can be taken. As such, these sources play an important role as a water source for firefighting together with artificial water sources. The other side of the coin is that there are sometimes cases where these water sources cannot be used due to the season, or where restrictions are placed on where the water can be drawn from or the like. Therefore, an appropriate combination of both artificial and natural water sources must be established when it comes to setting in place water sources for firefighting.

Table 2-1-3 Number of water sources for firefighting installed (mainly artificial water sources)

(As of April 1 of each year)

Category	2017	2018	Comparison	
			Difference	Percent change(%)
No. installed nationwide	2,453,451 (100.0)	2,470,022 (100.0)	16,571	0.7
Fire hydrants	1,903,782 (77.6)	1,919,018 (77.7)	15,236	0.8
Fire cistern	529,109 (21.6)	531,057 (21.5)	1,948	0.4
20㎥-less than 40 ㎥	103,873	103,487	△ 386	△ 0.4
40㎥-less than 60 ㎥	379,961	381,669	1,708	0.4
60 ㎥ or more	45,275	45,901	626	1.4
Wells	20,560 (0.8)	19,947 (0.8)	△ 613	△ 3.0

(Notes) 1 Prepared based on “The Survey of the Current Status of Fire Prevention and Earthquake Countermeasures”.
2 The numbers in parentheses show the proportion, and their unit is %.

–omitted–

Section 3 Education and Training Structure

☞ Japanese Original P.184

1. Education and Training for Firefighters

It is essential to improve the knowledge and skills of firefighters to enable them to appropriately handle the increasingly diverse disaster and emergency services and increasing sophistication of fire prevention services. As such, education and training for firefighters is incredibly important.

Education and training for firefighters is offered by each fire departments, fire stations, and volunteer fire corps, as well as by the national government through the Fire and Disaster Management College and the fire academies in the various prefectures. In addition to these, there are also emergency medical technician (EMT) training institutes that offer education designed to have rescue workers from around the country acquire national qualifications as EMTs.

As this indicates, the national government, prefectures, municipalities, and others each undertake their own respective functions as they work together in a cooperative manner to provide education and training for firefighters.

2. On-the-job Training

Every firefighting agency carries out systematic education and training (on-the-job training) based on their respective regional characteristics on a routine basis. In particular, those firefighters who are required to perform rigorous team activities based on instructions and orders at the scenes of dangerous disasters require a sense of duty and abundance of energy and vigor in order to carry out their professional duties. Therefore, fire departments work to improve their knowledge and skills and lift their morale through various types of education and training.

The firefighting agencies work to promote training activities that are safe and effective. This is done through efforts like the establishment of standards for on-the-job training at the FDMA in the form of the Standards for Fire Development Training Etiquette, Standards for Firefighting Techniques, and Standards for Fire and Rescue Techniques, as well as safety management manuals both for during drills and during security activities.

3. Education and Training at Fire Academies

(1) Establishment of Fire Academies

The provisions of Article 51 of the Fire Organization Act mandate that prefectures must establish fire academies independently or jointly, except in cases where financial circumstances or other special circumstances prevent them from doing so. In addition, the provisions stipulate that ordinance-designated cities can also establish fire academies independently or jointly together with the prefectures.

As of April 1, 2018, fire academies had been established in all 47 prefectures, seven ordinance-designated cities (Sapporo, Chiba, Yokohama, Nagoya, Kyoto, Kobe, and Fukuoka), and in the Tokyo Fire Department for a total of 55 such academies throughout Japan (in the Tokyo Metropolitan Region, there are two schools that have been jointly established: The Tokyo Metropolitan Fire Defense Training Center and the Tokyo Fire Department's Fire Academy).

The FDMA has established the Standards for the Establishment, Personnel, and Operation of Fire Academies with the objective being to work to establish and run fire academies. It also makes progress in ensuring and improving the level of education and training at the fire academies.

(2) Types of Education and Training

The Education and Training Standards for Fire Academies have been established to serve as standards for the education and training offered at fire academies. The fire academies formulate specific curricula out of respect for the "Attainment objectives" stipulated in the standards and by using the "Standard subjects and class hours" found therein as reference guidelines. The types of education and training offered include initial education, specialized education, management education, and special education for firefighters, as well as basic education, specialized education, management education, and special education for volunteer firefighters.

- Initial education refers to foundational education and training offered to all newly-hired firefighters. The standards designate that 800 hours of class time is required for this.
- Basic education refers to basic education and training offered to those people who must acquire knowledge and skills as volunteer firefighters after joining a volunteer fire corps due to their limited experience. The standards designate that 24 hours of class time is required for this.
- Specialized education refers to expert education and training related to specific fields offered to active duty firefighters and mainly those volunteer firefighters who have completed their basic education.
- Management education refers to the education and training that is generally required for fire defense management, and is offered to management personnel and prospective candidates expected to advance onto management.
- Special education refers to education offered for special objectives that fall outside the bounds of the education and training mentioned above.

(3) Enhancing and Strengthening the Education and Training at Fire Academies

Sophisticated firefighting activities are required due to the increasing size and complexity of disasters. In addition, prevention work also continues to grow increasingly sophisticated and specialized as a result of

revisions to fire defense laws and ordinances.

Against this background, the knowledge and skills that firefighters need in order to properly carry out their professional duties must be further improved upon. Therefore, partial revisions were made to both the Standards for the Establishment, Personnel, and Operation of Fire Academies and the Education and Training Standards for Fire Academies in March 2015 with the goal of working to enhance and strengthen the education and training offered at fire academies.

As part of the revisions, facilities capable of holding practical training by simulating actual disasters (simulated firefighting training equipment, earthquake training facilities, etc.) were added as facilities that should be set in place as standard practice. In addition, the method for calculating the number of teaching personnel at fire academies was revised out of consideration for safety management aspects, and revisions were also carried out regarding the proper allocation of class subjects and class hours based on the challenges of and need for fire defense.

(4) Holding of Education and Training

In FY2017 a total of 30,991 firefighters attended education and training at fire academies. (**Table 2-3-1**) As for volunteer firefighters, in FY2017 a total of 42,275 attended education and training either at fire academies or through the dispatch of teachers from said academies. (**Table 2-3-2**)

Since volunteer firefighters each have their own main occupations, in cases where it is determined that it will be difficult to adequately provide them with education and training at a fire academy, it has been stipulated that teachers from said academies can be dispatched locally to provide education and training. Many of the fire academies have adopted this approach.

What is more, education and training is also provided by fire academies to people other than volunteer fire corps members to the extent that doing so does not interfere with the education and training of said members. In FY2017, education and training were provided to a total of 18,386 people, from local voluntary disaster prevention organizations and others.

Table 2-3-1 Holding of education and training aimed at firefighters

(people)

		FY2016	FY2017
Initial education		6,094	5,386
Specialized education		10,269	10,244
	Fire Suppresion Class	969	940
	Special Disaster Class	608	699
	Preventive Inspection Class	954	1,003
	Hazardous Material Class	388	496
	Fire Inspection Class	1,054	1,326
	Ambulance Class	4,454	4,096
	Associate Ambulance Class	—	8
	Rescue Class	1,842	1,676
Management education		3,736	3,182
	Introductory Management Class	2,415	1,950
	Intermediate Management Class	905	893
	Advanced Management Class	416	339
Special education		13,125	12,179
Total		33,224	30,991

(Note) Prepared based on "The Survey on Education and Training at Fire Academies".

4. Education and Training and Technical Assistance at the Fire and Disaster Management College

The Fire and Disaster Management College provides the advanced education and training needed for management to the personnel engaged in firefighting operations at the national and prefectural level, as well as to municipal volunteer fire corps members. In addition, it also provides the necessary technical assistance related to education and training for fire academies at the prefectural level.

(1) Facilities and Equipment

The Fire and Disaster Management College's education and training facilities consist of a main building, a secondary building, training facilities, and a dormitory.

The main building contains a large classroom that can accommodate 250 people, three regular classrooms, an audiovisual classroom, a scientific combustion laboratory,

Table 2-3-2 Holding of education and training aimed at volunteer firefighters

(people)

Category			FY2016			FY2017		
			School education	Teacher dispatch	Total	School education	Teacher dispatch	Total
Basic education			4,672	4,753	9,425	4,243	3,351	7,594
Specialized education			2,150	13	2,163	2,344	0	2,344
	Fire Suppression Class		769	13	782	1,093	0	1,093
	Machinery Operation Class		1,381	0	1,381	1,251	0	1,251
Management education			6,973	567	7,540	7,367	122	7,489
	Introductory Management Class		1,821	322	2,143	2,263	69	2,332
	Supervisory Management Class	Branch Supervisor Course	2,486	13	2,499	2,413	53	2,466
		Local command Course	2,666	232	2,898	2,691	0	2,691
		(Graduate)	(601)	(2)	(603)	(722)	(0)	(722)
Special education			8,527	14,043	22,570	7,522	16,321	24,848
Total			22,322	19,376	41,698	21,476	19,794	42,275

(Note) Prepared based on "The Survey on Education and Training at Fire Academies".

* Graduates of both the Local Command Course and the Branch Supervisor Course were counted as having completed the Supervisory Management Class.
* The Intermediate Management Class was replaced with the Supervisory Management Class through the partial revisions to the education and training standards for fire academies from March 2014.

and a library. In addition, it also contains disaster response training rooms and other facilities for fostering trainees with the ability to it has been equipped with dedicated facilities for women, assess situations and give commands as leaders by experiencing a variety of simulated disaster scenarios.

The secondary building contains an auditorium that can accommodate 300 people, as well as rescue training rooms, special classrooms, an indoor training ground, and more.

The training facilities consist of an indoor fire defense training building and an 11-story aboveground, multi-story training tower where trainees can run drills in an environment where there is thick smoke and hot air through the combined use of steam and smoke machines. In addition, these also include a training facility where trainees can experience a real fire in which they experience the same changes in the environment that occur at the scene of an actual fire in which wood is burning inside a container.

The dormitory has a south wing that can accommodate 172 people and a north wing that can accommodate 52. In addition, it has been equipped with dedicated facilities for women, including the bathrooms, restrooms, changing rooms, and lounges women need for dormitory life.

As for education and training vehicles, the college is equipped with command vehicles, ordinary pump vehicles, pump vehicles equipped with water tanks, rescue work vehicles, special disaster response chemical vehicles, disaster support vehicles, and high-grade emergency vehicles.

(2) Holding of Education and Training

The Fire and Disaster Management College turned out 1,122 graduates from its comprehensive classes and specialized classes, and 673 graduates from its practical courses in FY2017. This brings the total number of its graduates from the time it was founded up through FY2017 to 60,978.

What is more, its capacity numbered 2,012 people in FY2018. (**Table 2-3-3**)

The college's classes were substantially reorganized in FY2006, following which reviews have been carried out where appropriate based on the needs of the attendees. As a result, in FY2017, 22 classes and 12 practical courses were held throughout the year.

Regarding the contents of the education and training for each course (lesson subjects), harassment prevention, mental health, coping with critical incident stress, crisis management, public relations, and handling litigation have been incorporated as subjects designed to cope with the new challenges that have arisen as a result of changes in social conditions according to the objectives of each class.

What is more, efforts are being made to round-out the contents of the curriculum, such as by adding in training that simulates commanding during a fire, simulation training for receiving assistance during a large-scale earthquake, and other such drills that make using of information systems. Other examples of this include drills on firefighting activities in environments that are similar to those of an actual fire through the use of training facilities that simulate the experience of being in an actual fire (hot

Drill on responding to mass casualties

Training that simulates the experience of being in an actual fire (hazardous material fire)

NBC disaster response drill

Training that simulates the experience of being in an actual fire (hot fire training)

Table 2-3-3 Education and training implementation status

Category			FY2017 (actual performance)		FY2018 (planned)			
			No. of times held (times)	Graduates (people)	No. of times held (times)	Capacity (people)	Time	Educational goals
Classes	Comprehensive education	Management Class	4	292	4	294	2 months	To foster human resources suitable for becoming senior firefighting management by having them learn advanced knowledge and skills related to firefighting in a comprehensive manner.
		Advanced Management Class	1	54	1	54	2 weeks	To improve the qualifications of people currently serving as senior firefighting management by having them learn advanced knowledge and skills related to firefighting in a comprehensive manner.
		New Fire Chief/Principal Orientation Class	2	54	2	120	2 weeks	To have newly-appointed fire chiefs and fire academy principles learn the knowledge and skills they will need for their positions in a comprehensive manner.
		Volunteer Fire Corps Management Class	2	64	2	72	1 week	To have senior management at volunteer fire corps learn the knowledge and skills they will need for their positions in a comprehensive manner.
	Specialized education	Guard Class	2	120	2	120	2 months	To improve the qualifications of educational instructors on guard duty by having them learn advanced knowledge and skills related to guard duty in a specialized manner.
		Rescue Class	2	120	2	120	2 months	To improve the qualifications of educational instructors on rescue duty by having them learn advanced knowledge and skills related to rescue duty in a specialized manner.
		Emergency Medical Service Class	1	48	1	48	1 month	To Improve the qualifications of rescue work instructors by having emergency rescue team leaders and others acquire advanced knowledge and skills in a comprehensive manner (including education for fostering EMTs to offer instruction).
		Prevention Class	2	96	2	96	2 months	To improve the qualifications of educational instructors on prevention by having them learn advanced knowledge and skills related to prevention in a specialized manner.
		Hazardous Substances Class	1	39	1	42	1 month	To improve the qualifications of educational instructors on hazardous material safety by having them learn advanced knowledge and skills related to hazardous material safety in a specialized manner.
		Fire Survey Class	2	96	2	96	2 months	To improve the qualifications of educational instructors on fire survey work by having them learn advanced knowledge and skills related to fire survey work in a specialized manner.
		New Teacher Orientation Class	1	79	1	60	2 weeks	To have newly-appointed personnel in charge of education and training at fire academies learn the knowledge and skills they will need for their positions in a comprehensive manner.
		In-service teachers	2	60	2	72	1 week	This improves the skills of the in-service teaching personnel in charge of providing education and training at fire academies and the like to enable them to provide comprehensive instruction on operational management planning, preventative operations, and security operations.
	Subtotal		22	1,122	22	1,194		
Practical courses	Emergency Fire Response	Commanding Officer Course	2	76	2	96	2 weeks	To have the command support leaders of Emergency Fire Response Teams learn the knowledge and skills they will need for their work.
		Advanced Rescue/Special Advanced Rescue Course	1	67	1	66	2 weeks	To have the leaders of advanced rescue teams and special advanced rescue teams learn the knowledge and skills they will need for their work.
		NBC Course	1	66	1	66	3 weeks	To have NBC disaster personnel on Emergency Fire Response Teams learn the knowledge and skills they will need for NBC disaster response duties.
		Air Corps Officer Course	1	56	1	84	2 weeks	To have firefighting and fire defense air patrol commanders learn the knowledge and skills they will need for their work.
	Crisis management/firefighting education	Crisis Management/Public Protection Course	1	69	1	96	1 week	To have crisis managers, fire defense managers, and those in charge of protecting the public at local public bodies learn the knowledge and skills they will need for their work.
		Voluntary Disaster Prevention Organization Training Course	1	64	1	72	1 week	To have those in charge of training at voluntary disaster prevention organizations learn the knowledge and skills they will need for their work.
		Short-term Voluntary Disaster Prevention Organization Training Course	2	90	2	128	2 days	To have the personnel in charge of the task of training voluntary disaster prevention organizations learn the basic knowledge and skills they will need for their work.
		Volunteer Fire Corps Revitalization Course	1	47	1	96	1 week	To have those involved in volunteer fire corps duties and education/training learn the knowledge and skills they will need for their work.
	Courses encouraging the active involvement of women		1	60	1	60	2 weeks	To support the career development of female firefighting officials who are candidates for management positions and have them learn knowledge and skills with the goal of expanding their career opportunities.
	Inspection operations management course		—	—	1	48	1 week	This instills persons at or above the section head-level who supervise preventive operations at fire departments with the knowledge and skills needed in order to perform management for inspection operations as a whole, such as handling violations.
	Subtotal		12	673	12	818		
Total			34	1,795	34	2,012		

training).

Moreover, some of the classes incorporate advance learning over the internet (e-learning) in an effort to provide efficient education and training within a limited period of time.

And to support the career development of female firefighting officials, the framework for giving priority to female firefighting officials by reserving 5% of the enrollment slots for each class has been established for women to encourage their matriculation. The practical course promoting the active involvement of women was held with the main objective of supporting the career development of female firefighting officials in an effort to expand training opportunities for women and the Fire and Disaster Management College Forum with the theme of promoting the active involvement of women was also held.

Furthermore, for the holding of large-scale international events (such as the 2020 Tokyo Olympic and Paralympic Games), the FDMA has increased the number of days of education for its NBC Course from 10 to 15 up through FY2020, when the Olympics was held, to contribute to enhancing NBC disaster response capabilities.

FY2017 classes were newly established with the objective of improving their capabilities to enable them to provide comprehensive instruction on operational management planning, and preventative operations or security operations for in-service fire academy teachers and the inspection operation management course was established for those people who are involved in preventative operations at fire departments with the objective being to instill in them the knowledge and skills needed in order to perform management for inspection operations as a whole.

(3) Technical Assistance for Fire Academies

The education and training provided at prefectural fire academies must be enhanced and strengthened owing to the increasing diversity and growing scale of the situations resulting from natural disasters, fires, and accidents. The Fire and Disaster Management College provides the following sorts of technical assistance in order to achieve this.

A. Education and Training for Fire Academy Principals and Teachers

Education and training for newly-appointed fire academy principals and teachers is provided via classes for newly-appointed fire chiefs and school principals, as well as classes for newly-appointed teachers, respectively.

What is more, the classes for newly-appointed teachers and in-service teachers provide education centered mainly around learning teaching techniques. In addition, they also incorporate practices in which the teachers actually give lectures, and provide training for educational leaders at the fire academies.

The classes for people other than newly-appointed teachers and in-service teachers also strive to foster educational leaders as one of their objectives, and offer learning on teaching techniques and practice with giving lectures as part of this.

B. Dispatch of Lecturers

Lecturers on fire suppression duty, prevention, ambulance service, rescue, and other forms of fire service administration and firefighting techniques are dispatched in response to requests from fire academies in order to enhance the educational content at said academies. Lecturers were dispatched a total of 123 times in FY2017.

C. Editing Firefighting Textbooks

The FDMA edits the textbooks for beginners that are used at the fire academies. As of April 2018, it had issued 21 types of textbooks.

D. Providing Information on Lecturers, etc.

The FDMA provides a roster of the names of graduates from the Fire and Disaster Management College, information on lecturers, and more. This is designed to secure lecturers who have acquired a certain level of knowledge and skills in specialized areas, as well as to contribute to further improving the quality of the education and training offered by the fire academies.

(4) Special Lectures

The FDMA is planning special lectures in anticipation for the Rugby World Cup 2019 and the 2020 Tokyo Olympic and Paralympic Games to be held for four years in the prefectures where the venues for these events are located at 16 sites. In FY2018, special lectures on topics like safety management, responding to mass casualties, and NBC responses were held at four locations in Tokyo, Aichi, Osaka and Oita Prefecture.

Section 4 Ambulance Service System

1. Implementation of Ambulance Services

(1) Ambulance Service Dispatch

The number of times ambulance service dispatch were sent out via ambulances nationwide in 2017 came to 6,342,147 (an increase of 132,183, or 2.1%, from the previous year). This has consistently continued to trend upward since the year 2004, when the number of cases exceeded 5 million for the first time. The number of times ambulance service dispatches were sent out taken as a daily average is approximately 17,376 (this was 16,967 in the previous year), meaning that ambulance service teams were dispatched at a rate of once every 5.0 seconds or so (this was 5.1 seconds the previous year). What is more, the number of people transported by ambulance has also consistently continued its upward swing, coming to 5,736,086 people (an increase of 114,868 people, or 2.0%, from the previous year). This means that one out of every 22 people of the public has been transported by an ambulance service team (this was one out of every 23 people in the previous year). Looking at this by the type of accident that led people to be transported by an ambulance reveals that 3,686,438 people (64.3%) suddenly took ill, 883,375 people (15.4%) suffered an ordinary injury, 466,043 people (8.1%) suffered a car accident, and so on. (**Table 2-4-1**, and **Table 2-4-2**)

The number of times fire and disaster protection helicopters were dispatched came to 3,370 (this was 3,664 the previous year), and 2,578 people were transported by them (2,816 the previous year).

(2) People Transported by the Severity of Their Injury or Illness

Of the 5,736,086 people transported by ambulances in 2017, the majority were people with minor injuries or illnesses that did not require hospitalization (outpatient care) or other cases (cases where a doctor did not provide a diagnosis, etc.). (**Table 2-4-3**)

(3) People Transported by Ambulance by Age Group and Type of Accident

Viewing a breakdown of the 5,736,086 people transported by ambulance in 2017 by age group reveals that 13,417 of them were newborn infants (0.2%), 265,257 were young children (4.6%), 202,386 were youths (3.5%), 1,883,865 were adults (32.8%), and 3,371,161 were elderly people (58.8%). As the aging of society advances, the share accounted for by elderly people will continue to trend upwards year by year (this was 57.2% the previous year). (**Figure 2-4-1**)

What is more, elderly people accounted for the largest percentage of the people transported by ambulance for sudden illnesses (2,277,924 people, or 61.8%), while the largest percentage transported for traffic accidents consisted of adults (288,320 people, or 61.9%) and the largest percentage for ordinary injuries consisted of elderly people (595,512 people, or 67.4%).

Table 2-4-1 Trends in the number of ambulance services and number of people transported

(During each year)

Category / Year	No. of ambulance service dispatch					People transported					Of(A), No. of dispatch due to sudden illness (B)	Ratio of (B) to (A) (%)
	Total No. of ambulance service dispatch	Of which No. via ambulance (A)	Of which No. via fire protection helicopter	Difference/rate of change(%) from previous year		Total No. of people transported	Of which No. via ambulance	Of which No. via fire and disaster protection helicopter	Difference/rate of change (%) from previous year			
2003	4,832,900	4,830,813	2,087	274,951	(6.0)	4,577,403	4,575,325	2,078	245,486	(5.7)	2,819,620	58.4
2004	5,031,464	5,029,108	2,356	198,564	(4.1)	4,745,872	4,743,469	2,403	168,469	(3.7)	2,953,471	58.7
2005	5,280,428	5,277,936	2,492	248,964	(4.9)	4,958,363	4,955,976	2,387	212,491	(4.5)	3,167,046	60.0
2006	5,240,478	5,237,716	2,762	▲39,950	(▲0.8)	4,895,328	4,892,593	2,735	▲63,035	(▲1.3)	3,163,822	60.4
2007	5,293,403	5,290,236	3,167	52,925	(1.0)	4,905,585	4,902,753	2,832	10,257	(0.2)	3,223,990	60.9
2008	5,100,370	5,097,094	3,276	▲193,033	(▲3.6)	4,681,447	4,678,636	2,811	▲224,138	(▲4.6)	3,102,423	60.9
2009	5,125,936	5,122,226	3,710	25,566	(0.5)	4,686,045	4,682,991	3,054	4,598	(0.1)	3,141,882	61.3
2010	5,467,620	5,463,682	3,938	341,684	(6.7)	4,982,512	4,979,537	2,975	296,467	(6.3)	3,389,044	62.0
2011	5,711,102	5,707,655	3,447	243,482	(4.5)	5,185,313	5,182,729	2,584	202,801	(4.1)	3,562,208	62.4
2012	5,805,701	5,802,455	3,246	94,599	(1.7)	5,252,827	5,250,302	2,525	67,514	(1.3)	3,648,074	62.9
2013	5,918,939	5,915,683	3,256	113,238	(2.0)	5,348,623	5,346,087	2,536	95,796	(1.8)	3,732,953	63.1
2014	5,988,377	5,984,921	3,456	69,438	(1.2)	5,408,635	5,405,917	2,718	60,012	(1.1)	3,781,249	63.2
2015	6,058,190	6,054,815	3,375	69,813	(1.2)	5,481,252	5,478,370	2,882	72,617	(1.3)	3,851,978	63.6
2016	6,213,628	6,209,964	3,664	155,438	(2.6)	5,624,034	5,621,218	2,816	142,782	(2.6)	3,975,380	64.0
2017	6,345,517	6,342,147	3,370	131,889	(2.1)	5,738,664	5,736,086	2,578	114,630	(2.0)	4,061,989	64.0

(Note) Prepared based on "The Annual Report on Ambulance Service" and "The Survey on the Current Status of Fire and Disaster Prevention and Earthquake Countermeasures".

Table 2-4-2 Trends in the number of ambulance dispatch by type of accident and the number of people transported

(During each year)

By type of accident	During 2016		During 2017		YoY	
	No. of dispatch (People transported)	Composition rate (%)	No. of dispatch (People transported)	Composition rate (%)	Difference	Rate of change (%)
Sudden illness	3,975,380 (3,607,942)	64.0 (64.2)	4,061,989 (3,686,438)	64.0 (64.3)	86,609 (78,496)	2.2 (2.2)
Traffic accident	488,861 (476,689)	7.9 (8.5)	481,473 (466,043)	7.6 (8.1)	-7,388 (-10,646)	-1.5 (-2.2)
Ordinary injury	926,356 (847,871)	14.9 (15.1)	965,376 (883,375)	15.2 (15.4)	39,020 (35,504)	4.2 (4.2)
Self-inflicted injury	54,302 (37,054)	0.9 (-0.7)	52,347 (35,377)	0.8 (0.6)	-1,955 (-1,677)	-3.6 (-4.5)
Work-related injury	52,168 (50,791)	0.8 (0.9)	53,579 (52,189)	0.8 (0.9)	1,411 (1,398)	2.7 (2.8)
Assault	35,217 (27,445)	0.6 (0.5)	33,754 (25,957)	0.5 (0.5)	-1,463 (-1,488)	-4.2 (-5.4)
Sports/athletics	41,031 (40,692)	0.7 (0.7)	42,356 (41,950)	0.7 (0.7)	1,325 (1,258)	3.2 (3.1)
Fire	22,132 (5,337)	0.4 (0.1)	23,169 (5,331)	0.4 (0.1)	1,037 (-6)	4.7 (-0.1)
Flood	5,184 (2,341)	0.1 (0.0)	5,060 (2,327)	0.1 (0.0)	-124 (-14)	-2.4 (0.6)
Natural disaster	827 (655)	0.0 (0.0)	755 (524)	0.0 (0.0)	-72 (-131)	-8.7 (-20.0)
Other	608,506 (524,401)	9.8 (9.3)	622,289 (536,575)	9.8 (9.4)	13,783 (12,174)	2.3 (2.3)
Total	6,209,964 (5,621,218)	100 (100)	6,342,147 (5,736,086)	100 (100)	132,183 (142,848)	2.1 (2.0)

(Notes) 1 Prepared based on “The Annual Report on Ambulance Service”.
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

Table 2-4-3 Number of people transported by ambulance by type of accident and severity of their injury / illness

(During 2017)

Category / Type of incident	Death	Serious (Lengthy hospitalization)	Moderate (Hospitalization)	Minor (Outpatient care)	Other	Total
Sudden illness	62,504 (1.7)	287,201 (7.8)	1,563,264 (42.4)	1,772,174 (48.1)	1,295 (0.0)	3,686,438 (100)
Traffic accident	2,001 (0.4)	18,226 (3.9)	91,272 (19.6)	354,233 (76.0)	311 (0.1)	466,043 (100)
Ordinary injury	5,711 (0.6)	57,283 (6.5)	300,849 (34.1)	519,070 (58.8)	462 (0.1)	883,375 (100)
Other	7,468 (1.1)	119,975 (17.1)	432,022 (61.7)	139,681 (19.9)	1,084 (0.2)	700,230 (100)
Total	77,684 (1.4)	482,685 (8.4)	2,387,407 (41.6)	2,785,158 (48.6)	3,152 (0.1)	5,736,086 (100)

(Notes) 1 Prepared based on “The Annual Report on Ambulance Service”.
2 The severity of injuries or illnesses at the time of the initial medical examination are classified as follows.
(1) Dead: Persons confirmed to be dead at the time of the initial medical examination
(2) Severe condition (lengthy hospitalization): Persons whose injury or illness is so severe that they require hospitalization lasting three weeks or longer
(3) Moderate condition (hospitalization): Persons whose injury or illness are neither severe nor mild
(4) Mild condition (outpatient care): Persons whose injury or illness does not require hospitalization
(5) Other: Persons who have not been diagnosed by a physician, persons for whom the extent of their injury or illness is not clear, or persons who were transported to another location
* Since the extent of injuries or illnesses are categorized by using the amount of hospitalization required as the criteria, mild condition includes persons who required treatment at a hospital in the early stages and persons who required treatment at a hospital on a regular basis.
3 The numbers in parentheses show the proportion, and their unit is %.
4 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

(4) Time Required to Arrive at the Scene

Looking at a breakdown of the 6,342,147 cases in which ambulances were dispatched in 2017 by the time required to arrive at the scene (time it took to arrive at the scene after the 119 report was received) reveals that in the majority of cases it took between five and ten minutes (3,921,653 cases, or 61.8% of the total). (**Fig. 2-4-2**)

Moreover, the average time required to arrive at the scene came to 8.6 minutes (8.5 minutes, the previous year), which is 1.9 minutes longer than it was ten years ago (2006). (**Fig. 2-4-4**)

(5) Time Required to Check the Patient into a Hospital

Looking at a breakdown of the 5,736,086 people transported by ambulance in 2017 by the time required to check the patient into a hospital (time required to check the patient into a hospital after the 119 report was received) reveals that the majority of people were checked in between 30 and 60 minutes at 3,586,376 people (62.5%). (**Fig. 2-4-3**)

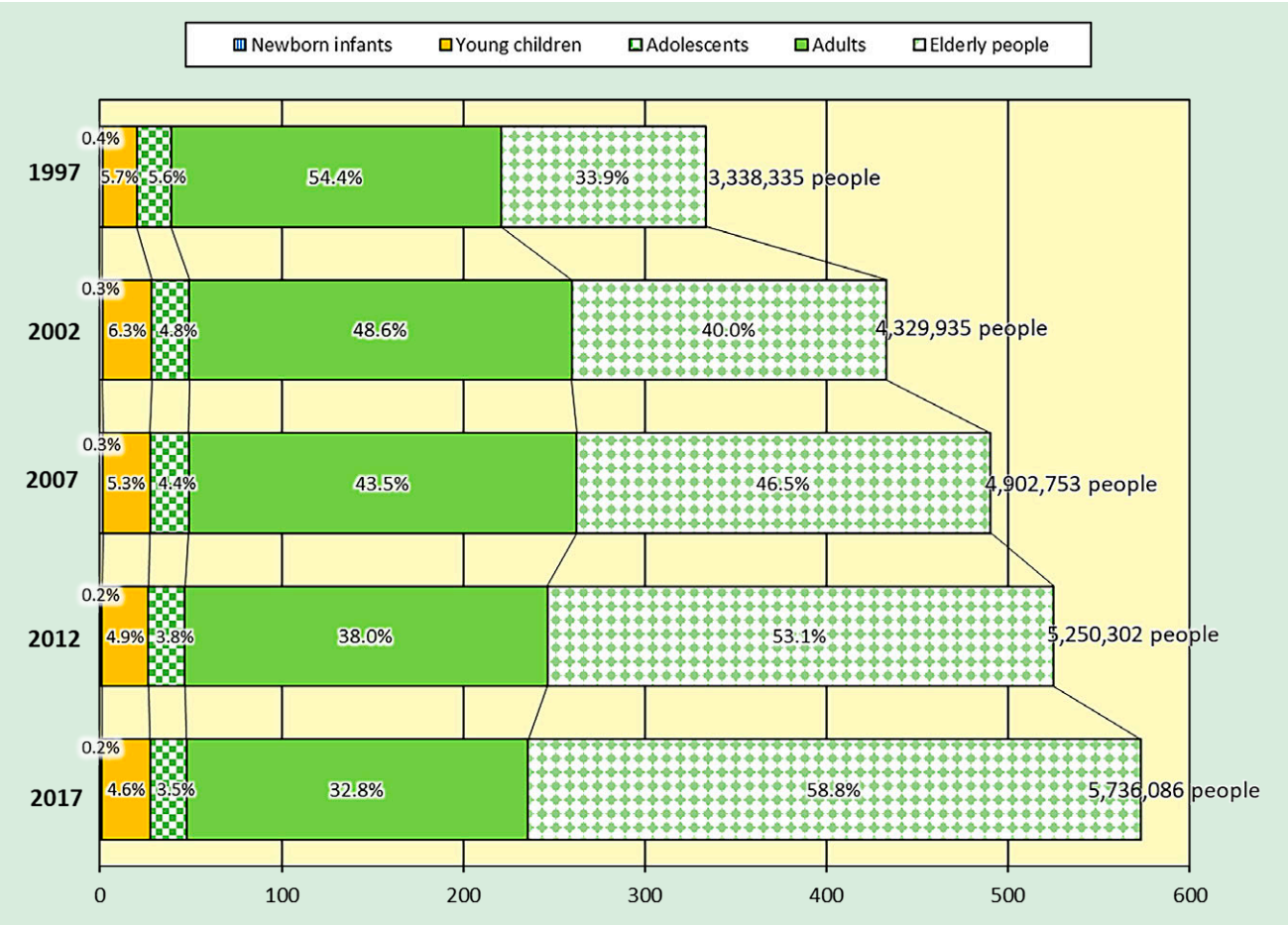
In addition, the average time required to check the patient into a hospital came to 39.3 minutes (39.3 minutes, the previous year), which is 5.9 minutes longer than it was ten years ago (2007). (**Fig. 2-4-4**)

(6) First-aid Treatment Administered by Ambulance Team Members

Of the 5,736,086 people transported by ambulances in 2017, ambulance team members administered first-aid treatment to 5,600,512 patients (97.6%). This brings the total number of cases in which ambulance crew members administered first-aid treatment to 21,667,385.

What is more, the total number of cases in which first-aid treatment was administered by ambulance crew members since their expansion in 1991 (items with * symbol in **Table 2-4-4**) came to 15,232,969 (a 3.5% increase year-on-year (YoY)). Of these, the number of cases in which EMTs administered first-aid treatment in order to resuscitate a patient (defibrillation*1 (including cases administered by

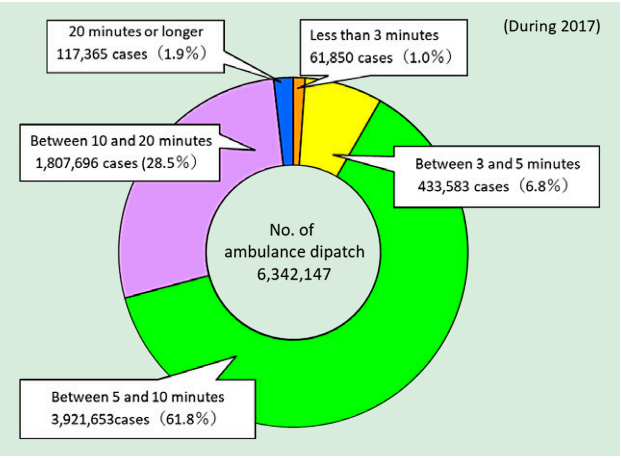
Fig. 2-4-1 Trends in the composition rate for people transported by age group



(Notes) 1 Prepared based on "The Annual Report on Ambulance Service".
2 The age groups are divided up as follows:
(1) Newborn infants: People who are less than 28 days old
(2) Young children: People between the ages of 28 days and 7 years
(3) Adolescents: People between the ages of 7 and 18 years
(4) Adults: People between the ages of 18 and 65 years
(5) Elderly people: People age 65 or older
3 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

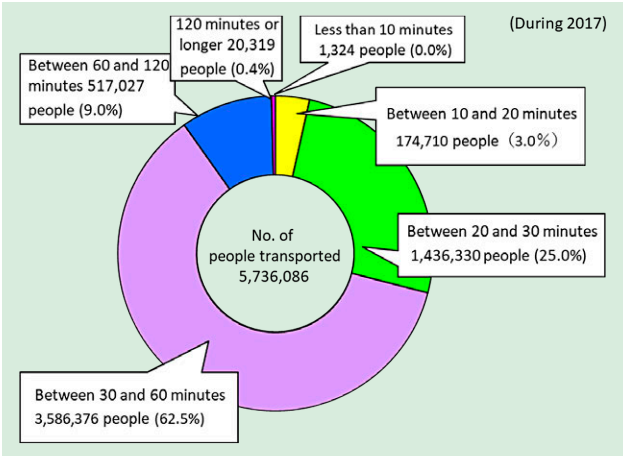
non-EMT ambulance crews), ensuring respiratory tracts using laryngeal masks, etc.,[*2] tracheal intubation, ensuring intravenous channels,[*3] drug administration,[*4] Use of self-injectable adrenaline preparations,[*5] measuring blood sugar,[*6] and administration of grape sugar[*7]) came to 215,821 (188,533 the previous year), which is a roughly 14.5% increase year on year.

Fig. 2-4-2 No. of dispatch by time required for the ambulance to arrive at the scene



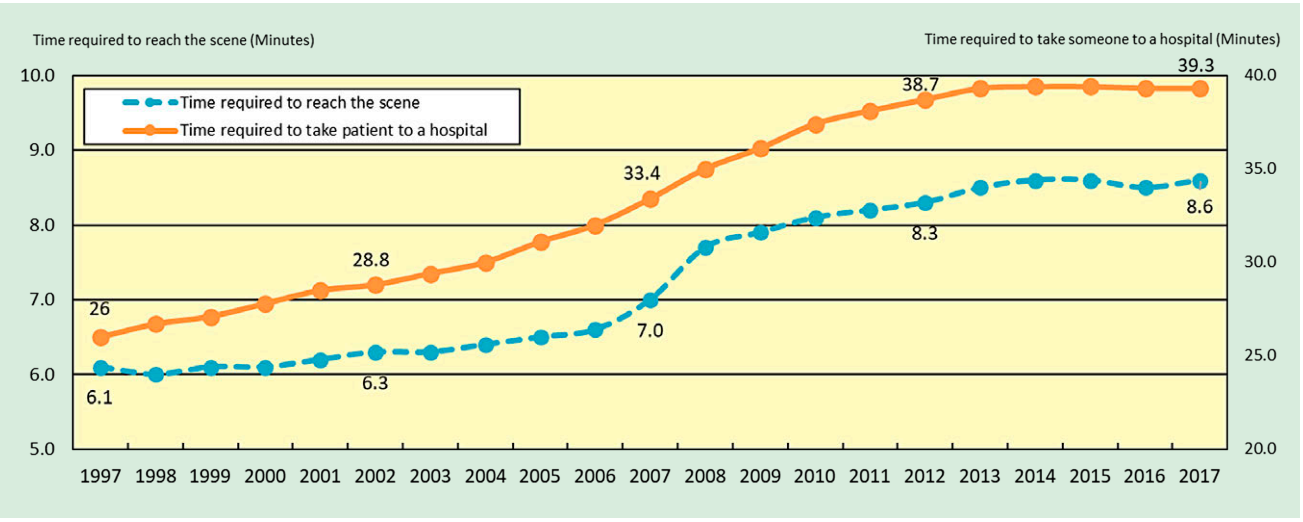
(Notes) 1 Prepared based on "The Accident Reports on Hazardous Materials".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

Fig. 2-4-3 No. of people transported by ambulance by time it took to check them into a hospital



(Notes) 1 Prepared based on "The Accident Reports on Hazardous Materials".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

Fig. 2-4-4 Trends in the amount of time it takes ambulances to arrive at the scene and the time it takes to check the patient into a hospital



(Notes) 1 Prepared based on "The Survey on Emergency Service Implementation Status".
2 Due to the effects of the Great East Japan Earthquake, the figures were totaled by excluding data from the Kamaishi Ootsuchi District Administrative Office Fire Department and the Rikuzentakata City Fire Department from 2010 and 2011.

*1 Defibrillation: This refers to the application of electrical shock to lethal arrhythmia (ventricular fibrillation) whereby minor tremors in the heart, such as heart spasms, make it impossible for blood to flow, as a means of dispelling said tremors.
*2 Laryngeal mask: This is a type of ventilation tube used to ensure the openness of the respiratory tract. It is fastened in place so as to cover the larynx to ensure open breathing channels.
*3 Ensuring intravenous channels: A process of securing transfusion channels by inserting needles or tubes intravenously. Ensuring intravenous channels makes it possible to administer medications intravenously right away when they are needed.
*4 Drug administration: This refers to administering epinephrine (also called adrenaline; simply called "epinephrine" hereafter) under the specific instructions of a doctor.
*5 Measuring blood sugar: The measurement of blood sugar levels in sick or injured patients with impaired consciousness.
*6 Administration of grape sugar: This refers to the act of administering grape sugar under the specific instructions of a doctor.
*7 Use of self-injectable adrenaline preparations: In cases where sick or injured patients whose lives are at risk from anaphylactic shock have been prescribed self-injectable adrenaline formulations in advance, EMTs will administer said adrenaline via self-injectable adrenaline preparations.

Table 2-4-4 First-aid Treatment Administered by Ambulance Team Members

(During 2017)

Type of incident		Sudden illness	Traffic accident	Ordinary injury	Other	Total
No. of people transported who were given first-aid treatment		3,608,080	451,768	858,130	682,534	5,600,512
Items for which first-aid treatment were administered	Stanching bleeding	22,712 (0.2)	22,101 (1.3)	78,646 (2.5)	16,860 (0.7)	140,319 (0.6)
	Covering	25,771 (0.2)	82,629 (4.7)	191,206 (6.0)	37,038 (1.4)	336,644 (1.6)
	Immobilization	40,983 (0.3)	204,520 (11.6)	162,927 (5.1)	47,838 (1.9)	456,268 (2.1)
	Keeping warm	1,058,974 (7.5)	88,932 (5.0)	223,911 (7.1)	180,074 (7.0)	1,551,891 (7.2)
	Oxygen inhalation	795,985 (5.6)	36,566 (2.1)	58,028 (1.8)	194,669 (7.6)	1,085,248 (5.0)
	Artificial respiration	30,287 (0.2)	804 (0.0)	3,187 (0.1)	4,653 (0.2)	38,931 (0.2)
	Pressure on sternum	9,036 (0.1)	292 (0.0)	999 (0.0)	1,124 (0.0)	11,451 (0.1)
	Of which, cases involving automatic heart massagers	2,421	58	292	225	2,996
	Cardiopulmonary resuscitation	99,980 (0.7)	2,954 (0.2)	11,632 (0.4)	11,276 (0.4)	125,842 (0.6)
	Of which, cases involving automatic heart massagers	11,821	288	1,430	1,262	14,801
	*Continuation of home medical treatment	32,659 (0.2)	285 (0.0)	2,950 (0.1)	3,177 (0.1)	39,071 (0.2)
	*Medical Anti-shock trousers	83 (0.0)	12 (0.0)	28 (0.0)	20 (0.0)	143 (0.0)
	*Measuring blood pressure	3,317,751 (23.4)	432,481 (24.5)	791,839 (24.9)	625,511 (24.3)	5,167,582 (23.8)
	*Listening for heartbeat/sounds of breathing	1,127,514 (8.0)	135,890 (7.7)	164,233 (5.2)	145,405 (5.6)	1,573,042 (7.3)
	*Measuring blood oxygenation levels	3,420,045 (24.2)	439,135 (24.9)	822,487 (25.9)	652,996 (25.4)	5,334,663 (24.6)
	*ECG measurements	2,158,648 (15.3)	120,032 (6.8)	260,660 (8.2)	325,852 (12.7)	2,865,192 (13.2)
	Ensuring respiratory tracts	160,654 (1.1)	4,702 (0.3)	16,818 (0.5)	19,135 (0.7)	201,309 (0.9)
	*Of which, nasal airways	8,486	142	867	1,088	10,583
	*Of which, laryngoscope, forceps, etc.	5,272	112	3,249	442	9,075
	*Of which, laryngeal mask, etc.	34,878	739	3,063	2,664	41,344
	*Of which, tracheal intubation	7,125	160	2,466	873	10,624
	*Defibrillation	11,776 (0.1)	180 (0.0)	516 (0.0)	756 (0.0)	13,228 (0.1)
	*Ensuring intravenous lines	53,733 (0.4)	1,898 (0.1)	5,543 (0.2)	4,322 (0.2)	65,496 (0.3)
	*Of which, cases before CPA	17,069	1,067	963	936	20,035
	*Of which, cases after CPA	37,303	855	4,567	3,386	46,111
	*Drug administration	21,570 (0.2)	564 (0.0)	2,778 (0.1)	1,872 (0.1)	26,784 (0.1)
	*Measuring blood sugar	47,722 (0.3)	440 (0.0)	1,266 (0.0)	900 (0.0)	50,328 (0.2)
	*Administration of grape sugar	7,642 (0.1)	24 (0.0)	44 (0.0)	50 (0.0)	7,760 (0.0)
	*Self-injectable adrenaline preparation	187 (0.0)	10 (0.0)	37 (0.0)	23 (0.0)	257 (0.0)
	Other treatments	1,707,725 (12.1)	191,647 (10.9)	374,250 (11.8)	302,314 (11.7)	2,575,936 (11.9)
Total		14,151,437 (100)	1,766,098 (100)	3,173,985 (100)	2,575,865 (100)	21,667,385 (100)
Expanded first-aid treatments, etc.		10,269,333	1,132,450	2,063,748	1,767,438	15,232,969

(Notes) 1 Prepared based on "The Annual Report on Ambulance Service".
2 Since there are cases in which several types of first-aid treatment were administered to one person, the totals for the number of people transported who received first-aid treatment and the items on first-aid treatment by type of incident do not align.
3 The numbers in parentheses show the proportion, and their unit is %.
4 The * symbol indicates first-aid treatment items that were expanded in 1991.
5 Shows the first-aid treatments administered to sick and injured patients transported by ambulance.

Table 2-4-5 Trends in the number of municipalities offering ambulance services

(As of April 1 of each year)

Group \ Category	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
No. of municipalities	3,136	3,048	2,352	1,784	1,769	1,753	1,742	1,692	1,689	1,685	1,685	1,686	1,689	1,690	1,690	1,690
Municipal implementation rate (%)	98.3	98.3	98.2	98.0	98.0	98.0	98.0	97.9	97.9	98.0	98.0	98.0	98.3	98.3	98.3	98.3
Population coverage rate (%)	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9	99.9

(Note) Prepared based on "The Annual Report on Ambulance Service".

2. Implementation Structure for Ambulance Services

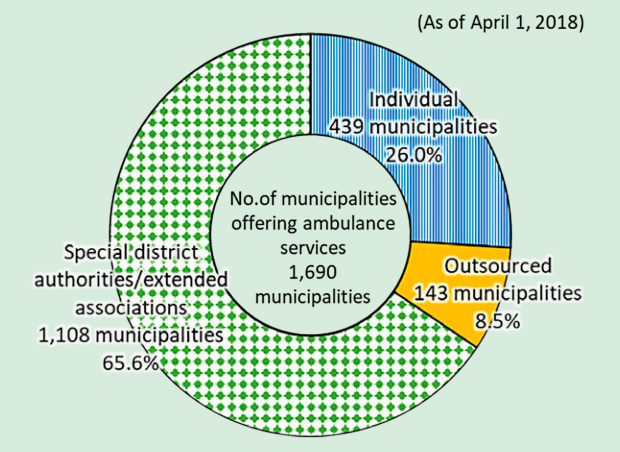
(1) Number of Municipalities Offering Ambulance Services

The number of municipalities offering ambulance services as of April 1, 2018 came to 1,690 municipalities (792 cities, 737 towns, and 161 villages) (the special wards of Tokyo were counted as one city; the same hereafter).

Ambulance services are offered in 98.3% of municipalities (same as last year), and cover 99.9% of the total population (same as last year; the population used is from the 2015 national census; the same hereafter), which means that ambulance services can be received in virtually every region. (**Table 2-4-5**)

When viewed by the configuration through which said ambulance services were offered, 439 municipalities offered them independently, 143 did so by outsourcing them, and 1,108 did so through special district authorities and extended associations. (**Fig. 2-4-5**)

Fig. 2-4-5 Breakdown of the configurations by which ambulance services are offered



(Note) 1 Prepared based on "The Accident Reports on Hazardous Materials.
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

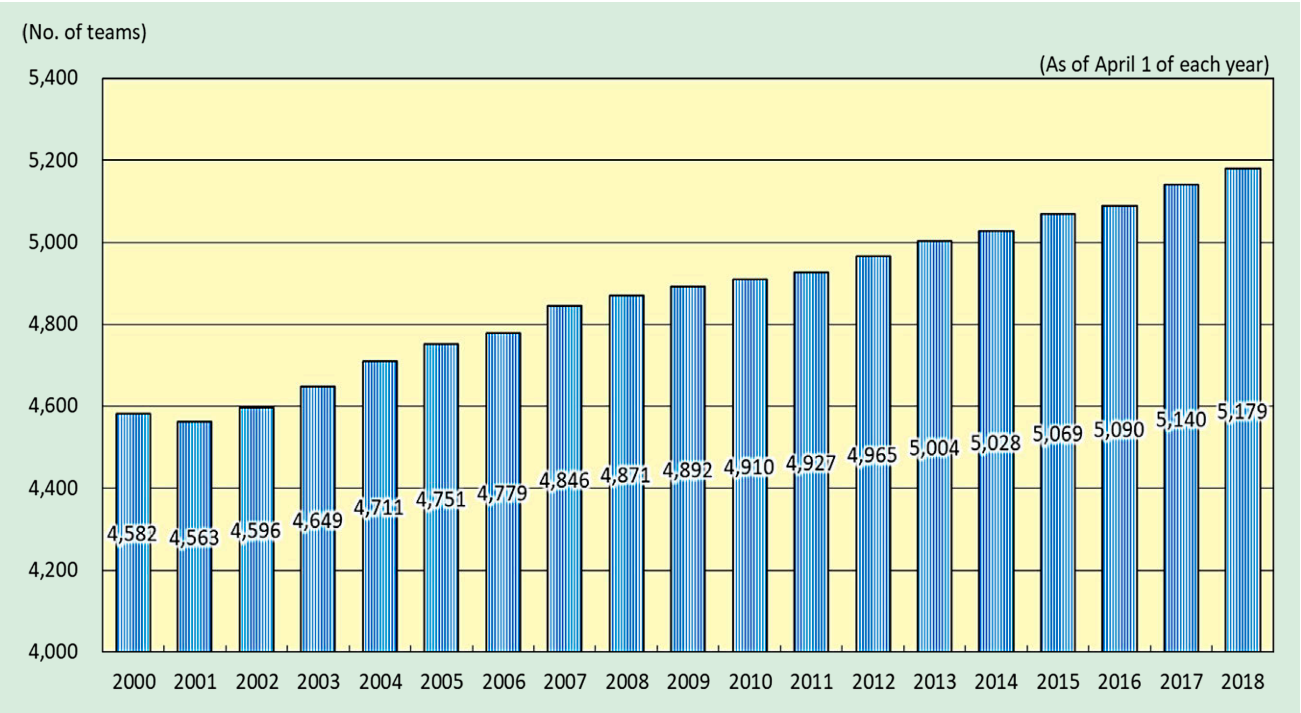
(2) Number of Ambulance Teams, Ambulance Team Members and Associate Ambulance Team Members

As of April 1, 2018, 5,179 ambulance teams (an increase of 39 YoY) had been established. (**Fig. 2-4-6**)

Since ambulance team members are engaged in the important duty of saving people's lives, they must complete at least 135 hours' worth of training courses on ambulance services (the former Ambulance I Course). As of April 1, 2018, the number of firefighters who fulfilled this eligibility requirement came to 124,429 (an increase of 2,575 YoY). Of these, 62,771 were engaged in ambulance services as ambulance team members (including not only full-time ambulance team members, but also ambulance team members who have been appointed as such and who concurrently serve on firefighting vehicles such as pump vehicles by riding along with them). (**Fig. 2-4-7**)

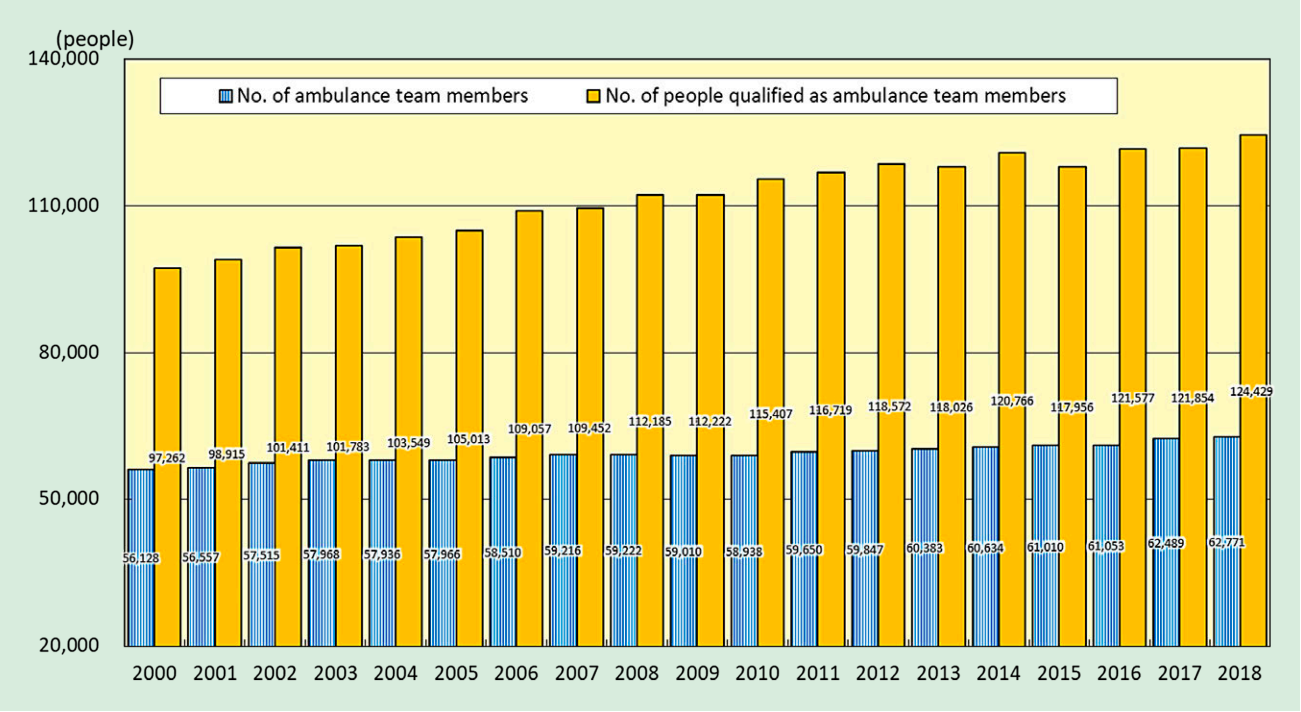
What is more, of the firefighters who fulfilled the eligibility requirements to be ambulance team members, the number who had completed 250 hours' worth of ambulance courses to enable them to provide even more advanced first-aid treatment (including the former Ambulance Standard Course and former Ambulance II Course) came to 83,497 people (an increase of 1,537 YoY) nationwide as of April 1, 2018. Of these, 34,122

Fig. 2-4-6 Trends in the number of ambulance teams



(Note) Prepared based on "The Survey on Emergency Service Implementation Status".

Fig. 2-4-7 Trends in the number of ambulance team members



(Note) Prepared based on the Survey on Emergency Service Implementation Status.

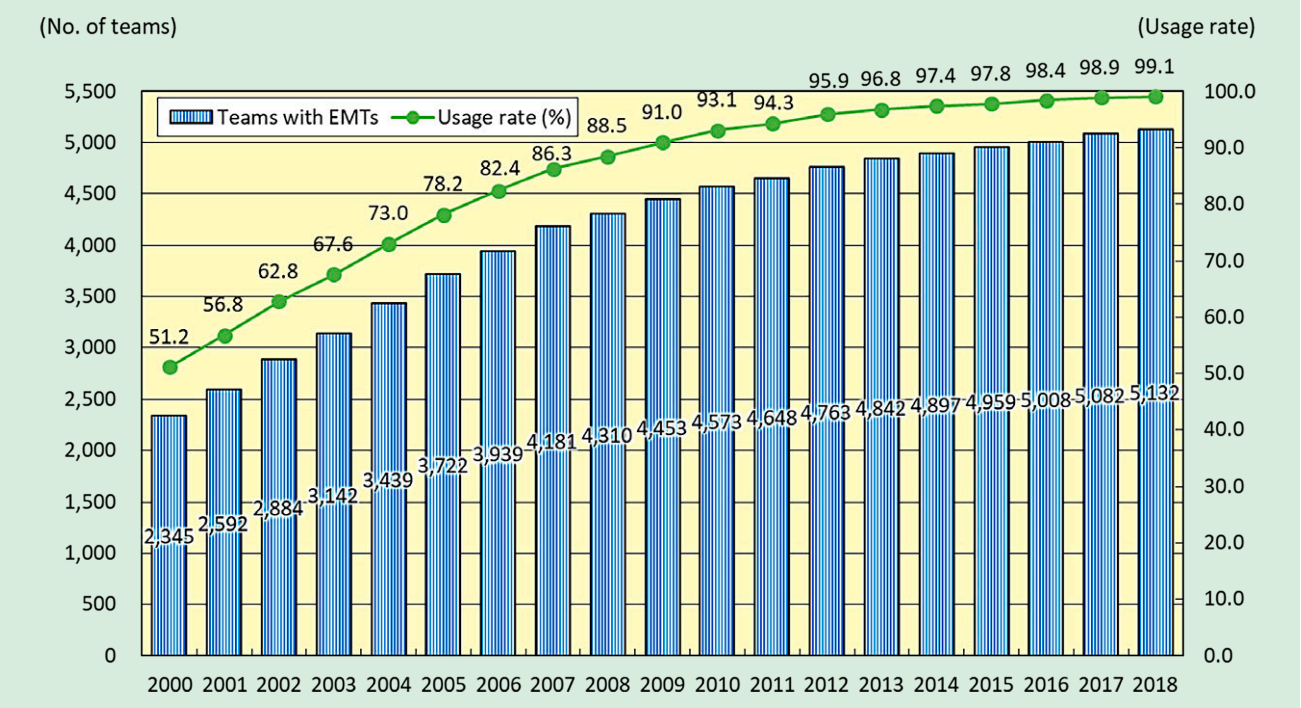
are engaged in ambulance services as ambulance team members.

As of April 1, 2018, 19 associate ambulance team member (full-time fire department personnel excluding firefighters who have completed the basic training course (92 hours) on ambulance services) are engaged in ambulance services in nationwide.

(3) Trends in the Number of EMTs and Ambulance Teams with EMTs

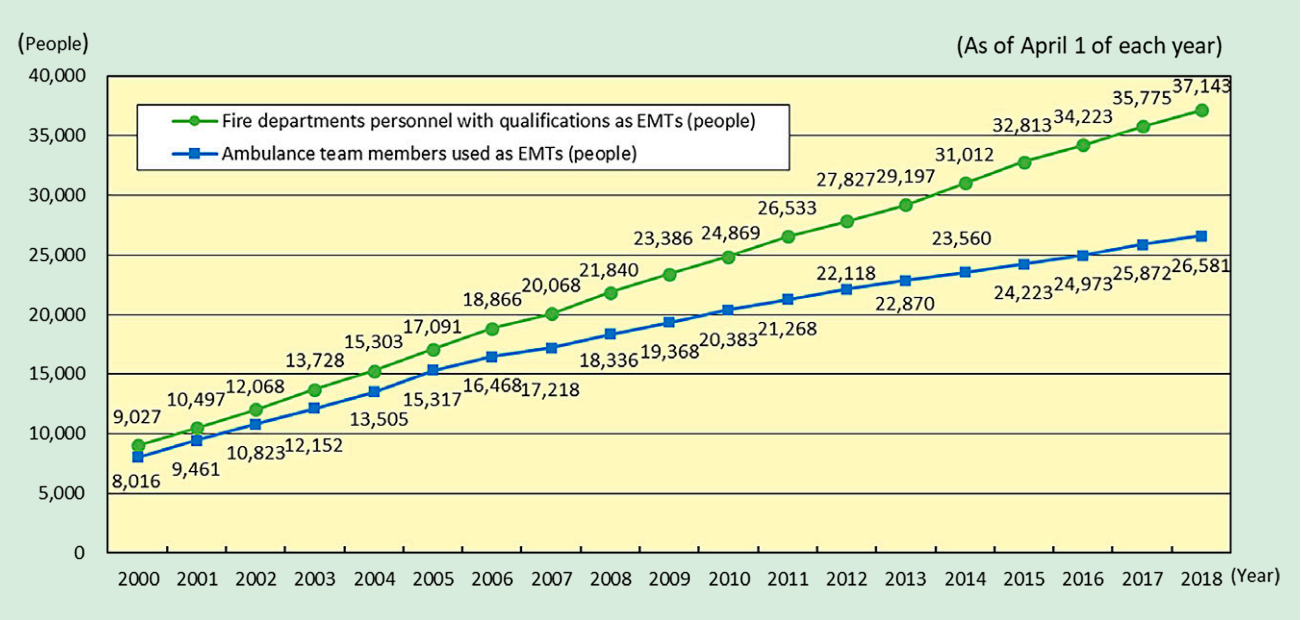
As a result of the increasing sophistication of ambulance services, the FDMA promotes the fostering of EMTs and the setting in place of structures for making use of them. The objective is a structure where at least one EMT is stationed with every ambulance team.

Fig. 2-4-8 Trends in the number of ambulance teams with EMTs



(Note) Prepared based on “The Survey on Emergency Service Implementation Status”.

Fig. 2-4-9 Trends in the number of EMTs



(Note) Prepared based on "The Survey on Emergency Service Implementation Status".

The number of fire departments making use of EMTs as of April 1, 2018 came to 727 of the total of 728 fire departments throughout Japan, for a usage rate of 99.9% (same as the previous year). The number of ambulance teams with EMTs came to 5,132 (an increase of 50 YoY), which corresponds to 99.1% of the 5,179 ambulance teams throughout Japan (98.9% the previous year), with this rising year by year. What is more, there were 37,413 fire departments personnel with EMT qualifications (an increase of 1,368 people YoY). Of these, 26,581 had been put to use as EMTs (an increase of 709 people YoY), with this number steadily increasing year by year. (**Fig. 2-4-8**, **Fig. 2-4-9**)

(4) Number of Ambulances

The number of ambulances owned by fire departments throughout Japan as of April 1, 2018 came to 6,329 (an increase of 58 YoY), including those for emergency use. Of these, the number of high-standard ambulances came to 6,105 (an increase of 128 YoY), which corresponds to 96.5% of the total.

(5) Ambulance Services along National and Other Expressways

When it comes to ambulance services along national expressways, the Seto-Chuo Expressway, and the Kobe-Awaji-Naruto Expressway (hereafter referred to as "national and other expressways"), the East Nippon Expressway Company, Central Nippon Expressway Company, West Nippon Expressway Company, and Honshu-Shikoku Bridge Expressway Company (hereafter referred to as "expressway companies") are responsible for road management operations and offering centralized, independent ambulance services. Moreover, the municipalities along said expressways are responsible for handling ambulance services as per the provisions of the Fire Service Act. So it has been stipulated that both parties are to work together to properly and efficiently safeguard human life. As of March 31, 2018, ambulance services along national and other expressway were provided by municipal firefighting agencies over every section of the 8,893 km of the length of expressway currently in use. The expressway companies bear a certain extent of the financial burden that is placed on the municipalities providing ambulance services.

3. Promoting Coordination between Firefighting and Medical Care

(1) Acceptance of People Using Ambulance Transport at Medical Institutions

Reports were received on cases in which problems arose in choosing medical institutions to receive patients during ambulance transport in regions all over Japan. Based on these, in October 2007 the FDMA performed the first survey on the actual state of acceptance for pregnant or perinatal patients transported from 2004 to 2006. Moreover, for the survey on the actual acceptance status regarding ambulance transport in 2007, the survey was carried out not only on pregnant and perinatal patients, but also focused on patients with severe conditions or worse, young patients, and patients transported to critical care centers.

The Survey on the Actual Acceptance Status at Medical Institutions for Ambulance Transport in 2017 were compared with the same survey in 2016. "In the number of cases in which four or more acceptance inquiries, the number rose for cases in which patients were transported to critical care centers and fell for cases in which patients with severe condition or worse were transported, cases in which pregnant or perinatal patients were transported and cases in which young patients(under 15) were transported. The percentage fell for every category. (**Table 2-4-6**)

In the number of cases where the time spent at the scene was 30 minutes or longer, the number rose for cases in which patients with severe condition or worse were transported and cases in which patients were transported to critical care centers but fell for cases in which pregnant

Table 2-4-6 Trends in the number of cases in which four or more acceptance inquiries were made to medical institutions

	2013		2014		2015		2016		2017	
	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage
cases in which patients with severe conditions or worse were transported	15,132	3.4%	14,114	3.2%	11,754	2.7%	10,039	2.3%	9,834	2.2%
cases in which pregnant or perinatal patients were transported	678	4.3%	617	3.8%	549	3.7%	540	3.5%	475	3.3%
cases in which young patients(under 15) were transported	9,528	2.7%	8,708	2.4%	8,570	2.4%	7,527	2.0%	6,442	1.7%
cases in which patients were transported to critical care centers	27,528	3.9%	26,740	3.6%	25,411	3.3%	20,248	2.6%	20,262	2.5%

(Notes) 1 Prepared based on "The Survey on the Actual Acceptance Status at Medical Institutions for Emergency Transport in 2017".
2 There is some overlap.
3 The percentage is the percentage versus the total number of people transported from each respective category.

Table 2-4-7 Trends in the number of cases where the time spent at the scene was 30 minutes or longer

	2013		2014		2015		2016		2017	
	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage
cases in which patients with severe conditions or worse were transported	23,950	5.4%	23,500	5.3%	22,379	5.2%	22,104	5.0%	22,620	5.0%
cases in which pregnant or perinatal patients were transported	1,333	8.4%	1,267	7.8%	1,194	7.9%	1,161	7.5%	1,112	7.8%
cases in which young patients(under 15) were transported	11,986	3.5%	11,423	3.2%	12,039	3.4%	12,237	3.2%	11,515	3.1%
cases in which patients were transported to critical care centers	41,777	5.9%	45,208	6.1%	47,030	6.1%	40,213	5.1%	42,491	5.2%

(Notes) 1 Prepared based on "The Survey on the Actual Acceptance Status at Medical Institutions for Emergency Transport in 2017".
2 There is some overlap.
3 The percentage is the percentage versus the total number of people transported from each respective category.

or perinatal patients were transported and cases in which young patients(under 15) were transported. The percentage rose for cases in which pregnant or perinatal patients were transported and cases in which patients were transported to critical care centers, leveled off for cases in which patients with severe condition or worse were transported and fell for cases in which young patients (under 15) were transported. (Table 2-4-7)

(2) Standards on Patient Transport and Their Acceptance

In light of the occurrence of cases in which it is difficult to select an accepting medical institution during ambulance transport, in 2009 the FDMA worked together with the Ministry of Health, Labour and Welfare to enact the Standards on Patient Transport and Their Acceptance (hereafter referred to as the "acceptance standards") for the prefectures. It also revised the Fire Service Act to include content mandating the establishment of committees concerning the acceptance standards (hereafter referred to as "legally-mandated committees"). The revised Fire Service Act was enacted on October 30, 2009. At present, committees have been established in every prefecture, and acceptance standards have been formulated as well.

The hope is that through the legally-mandated committees, the prefectures will survey and verify the transport of patients and their acceptance status based on the acceptance standards. Then, based on this, it is hoped that they will tie the results of this in with making improvements to the acceptance standards and so forth.

For its part, the FDMA works to get a grasp of the status of initiatives by and challenges for each of the prefectures. It also makes efforts to follow-up, such as by broadly getting a grasp of and introducing case examples of initiatives by local regions that are striving to operate this effectively.

Each prefecture and local region brings together firefighting agencies and medical organizations (including hospital departments other than those offering ambulance service) and sometimes just medical organizations, as well as healthcare centers, welfare, police, and other related organizations according to the local circumstances in order to thoroughly discuss and share their awareness of problems through ex-post inspections of transport and acceptance conditions. In addition, through the creation of "relationships with a visible face" on an everyday basis, it is important that they continue to draft more specific and effective rules (revisions to acceptance standards, etc.) geared towards smooth transport and acceptance. Each group is being called upon to make greater efforts regarding such initiatives. For its part, the FDMA has resolved to continue carrying out the necessary surveys and providing information to contribute to improving the application of the acceptance standards at the prefectural

committees and to discussions over revisions to them.

In light of the revisions to the Fire Service Act and the fact that emergency transport is carried out based upon the acceptance standards, local governmental financial measures are being taken through special tax grants with respect to the costs entailed by the assistance rendered to private secondary ambulance institutions*8 by local public bodies in an effort to enhance ambulance medical care structures in local regions.

(3) Ambulance Medical Care Structure

With regards to the notification status of ambulance hospitals and ambulance clinics, which constitute the primary destinations to which patients are taken, as of April 1, 2018 there were 4,191 such locations throughout Japan.

There are 563 weekend and nighttime ambulance care centers (as of March 31, 2017) that ensure that initial medical care can be received on weekends and at nights, which serve as the initial ambulance medical care structure. By way of the secondary medical care structure, 2,896 hospitals on a hospital-group rotating system and joint-use hospitals have been established (as of March 31, 2017), and so have 289 critical care centers (as of September 24, 2018) by way of the tertiary medical care structure. Moreover, among the critical care centers are advanced critical care centers capable of handling patients with specific illnesses or injuries, such as extensive burns, severed digits and limbs, and acute poisoning, of which 41 locations have been set in place (as of September 24, 2018).

Approval for ambulance hospitals and ambulance clinics is provided through ambulance reporting structures, while the installation of initial, secondary, and tertiary ambulance care structures is performed in an integrated manner under the medical care plans established by prefectural governors.

Under these ambulance care structures and through the acceptance standards enacted by the prefectures through the provisions of the Fire Service Act, a list of medical institutions that can provide medical care according to patients' conditions has been compiled. Firefighting agencies use this list when carrying out ambulance transport operations.

*8 Among secondary medical institutions, ambulance service notice institutions (excluding national and public medical institutions and public institutions).

–omitted–

Section 5 Rescue Activity System

☞ *Japanese Original P.209*

1. Implementation Status for Rescue Activities

(1) Number of Rescue Activities and Number of People Rescued

The life-saving rescues performed by firefighting agencies refer to activities whereby human or machine-power is used to extricate people from dangerous situations and transport the victims to safe locations. Examples of such dangerous situations include fires, traffic accidents, water accidents, natural disasters, and accidents due to machines.

As for the implementation status for rescue activities throughout Japan in 2017, 56,315 rescue activities were carried out (a decrease of 833, or 1.5% decrease, YoY) and 57,664 people were rescued (this refers to the number of people rescued through rescue activities; a decrease of 291, or 0.5% decrease, YoY). (**Table 2-5-1**)

As part of this, the primary reason for the decrease is due to the decrease in the number of rescue activities for accidents caused by buildings (a decrease of 780, or 3.3%, YoY) and the number of people rescued is due to the decrease in accidents caused by buildings (a decrease of 608 people, or 2.8%, YoY).

(2) Implementation Status of Rescue Activities by Type of Incident

Looking at the status of rescue activities by type of incident reveals that the numbers for accidents caused by buildings and traffic accidents remain high in terms of both the number of rescue activities and the number of people rescued.

Accidents caused by buildings has been the type of incident with the greatest number of rescue activities since 2008. In terms of the number of people rescued, accident caused by buildings became the type with the most people rescued since 2013.

The number of rescue workers dispatched (which refers to the total number of people dispatched in order to carry out rescue activities) came to 1,402,360 in total.

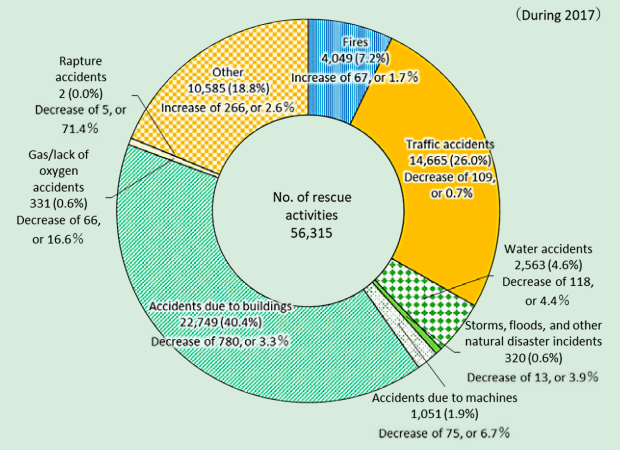
Of these, the number of firefighters dispatched came to 1,326,912 in total, of which 29.1% were dispatched

Table 2-5-1 Trends in the number of rescue activities and number of people rescued

Category / Year	No. of rescue activities		No. of people rescued	
	No.	Change YoY (%)	No.	Change YoY (%)
During 2013	56,915	1.4	57,659	△ 2.8
During 2014	56,695	△ 0.4	57,809	0.3
During 2015	55,966	△ 1.3	59,190	2.4
During 2016	57,148	2.1	57,955	△ 2.1
During 2017	56,315	△ 1.5	57,664	△ 0.5

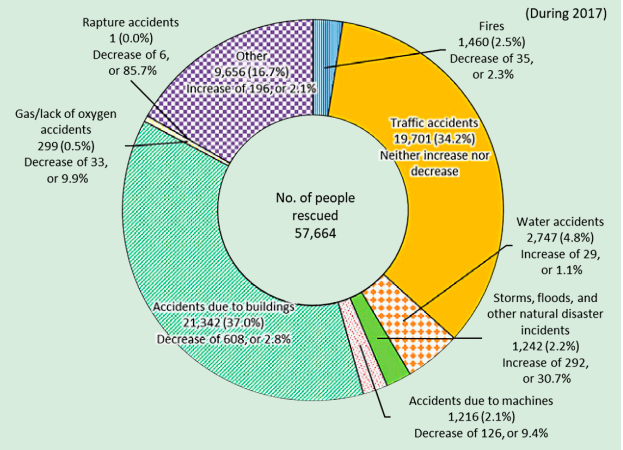
(Notes) 1 Prepared based on "The Survey on the Implementation Status of Rescue Activities".
2 This includes the number of activities by volunteer fire corps in municipalities where fire departments/fire stations have not been established. The same holds true for the following data in this section.

Fig.2-5-1 Number of rescue activities by type of incident



(Note) Prepared based on "The Survey on the Implementation Status of Rescue Activities".

Fig.2-5-2 Number of people rescued by type of incident



(Note) Prepared based on "The Survey on the Implementation Status of Rescue Activities".

Table 2-5-2 Number of dispatches and status of activities by type of incident

(During 2017)

Category / Year		Fires	Traffic accidents	Water accidents	Storms, floods, and other	Accidents due to machines	Accidents due to buildings	Gas/lack of oxygen accidents	Rapture accidents	Other	Total
No. of rescue activities		4,049 (7.2)	14,665 (26.0)	2,563 (4.6)	320 (0.6)	1,051 (1.9)	22,749 (40.4)	331 (0.6)	2 (0.0)	10,585 (18.8)	56,315 (100.0)
No. of people rescued		1,460 (2.5)	19,701 (34.2)	2,747 (4.8)	1,242 (2.2)	1,216 (2.1)	21,342 (37.0)	299 (0.5)	1 (0.0)	9,656 (16.7)	57,664 (100.0)
Firefighters	No. of rescue workers dispatched	140,354 (10.6)	351,263 (26.5)	73,899 (5.6)	17,231 (1.3)	24,224 (1.8)	386,722 (29.1)	10,503 (0.8)	82 (0.0)	322,634 (24.3)	1,326,912 (100.0)
	No. of people who engaged in rescue activities	56,309 (10.1)	147,999 (26.6)	36,322 (6.5)	15,087 (2.7)	10,581 (1.9)	191,889 (34.4)	3,584 (0.6)	17 (0.0)	95,475 (17.1)	557,263 (100.0)
Volunteer firefighters	No. of rescue workers dispatched	53,894 (71.4)	1,430 (1.9)	3,040 (4.0)	144 (0.2)	125 (0.2)	2,239 (3.0)	100 (0.1)	20 (0.0)	14,456 (19.2)	75,448 (100.0)
	No. of people who engaged in rescue activities	10,356 (71.8)	138 (1.0)	1,676 (11.6)	113 (0.8)	7 (0.0)	60 (0.4)	0 (0.0)	0 (0.0)	2,078 (14.4)	14,428 (100.0)
No. of people who engaged in rescue activities per incident		16.5	10.1	14.8	47.5	10.1	8.4	10.8	8.5	9.2	10.2

(Notes) 1 Prepared based on "The Survey on the Implementation Status of Rescue Activities".
2 The numbers in parenthesis show the proportion (%). Less than whole units were rounded up, so in some cases the totals may not be consistent.
3 "No. of rescue workers dispatched" refers to the total number of people dispatched in order to carry out rescue activities.
4 "No. of people who engaged in rescue activities" refers to the number of people who actually engaged in rescue activities out of the number dispatched.
5 "Accidents due to buildings" refer to accidents caused by the collapse of buildings, gates, fences, walls, and other facilities ancillary to buildings or equivalent structures; accidents in which people were trapped within buildings; and accidents from people being caught between buildings.
6 "Other" refers to accidents other than the types listed above that necessitated rescue by firefighting agencies.

for "Accidents due to buildings", while 26.5% were dispatched due to "Traffic accidents". At the same time, the number of volunteer fire corps members dispatched came to 75,448 in total, of which 71.4% were dispatched on account of fires.

Next, the number of people who engaged in rescue activities (this refers to the number of people who actually engaged in rescue activities out of the number dispatched) came to 571,691 in total. This means that 10.2 people on average took part in each individual rescue activity. What is more, in terms of the number of people engaged in each individual rescue activity by type of incident except storms, floods and other natural incidents which will increase or decrease year by year depending on the dispatch of National Fire-Service Team, fires had the greatest number at 16.5 people on average, followed by water-related accidents at 14.8 people. (**Fig. 2-5-1**, **Fig. 2-5-2**, **Table 2-5-2**)

2. Implementation Structure for Rescue Activities

(1) Number of Rescue Crews and Number of Rescue Crew Members

Rescue crews are established in municipalities that have fire departments and fire stations pursuant to the Ministerial Ordinance Establishing Standards for the Organization, Outfitting, and Establishment of Rescue Crews (Ministerial Ordinance No. 22 of the Ministry of Home Affairs from 1986; hereafter referred to as the "Rescue Ordinance"). They consist of members who have received specialized education related to lifesaving (140 hours' worth), as well as rescue and relief supplies and the rescue vehicles equipped with these needed for rescue activities. They are categorized into four classifications: rescue crews, special rescue crews, advanced rescue crews, and special advanced rescue crews. *1

As of April 2018, 1,432 crews had been established within 711 fire departments, and the number of rescue crew members came to 24,473 people.

This means that on average, roughly 2.0 rescue crews have been established at each fire departments, with an average of 17.1 rescue crew members stationed on each crew. The number of fire departments have been dropping as they spread out to cover broader areas, but the number of rescue crews have been trending upward.

(2) Ownership Status of Rescue Equipment for Rescue Activities

Rescue equipment for rescue activities includes equipment for removing heavy objects such as hydraulic spreaders, cutting equipment like hydraulic cutters, detection and measurement equipment such as inflammable gas measuring instruments, and more. Advanced, specialized equipment has been deemed necessary for them to guard against the large-scale earthquake disasters and terrorist disasters that could potentially occur. As such, the FDMA makes efforts to promote the establishment and maintenance of rescue work vehicles and rescue equipment by taking advantage of grants for equipping National Fire-Service Teams, as well as tax measures allocated to local governments and more. (**Table 2-5-3**)

*1 The Rescue Ordinance stipulates that municipalities with a population of 100,000 people or more and a standing fire defense structure must establish a special rescue crew. Core cities and the like must have one or more special rescue crews that serve as advanced rescue crews, and the Tokyo Fire Department and ordinance-designated cities must have one or more advanced fire crews that serve as special advanced rescue crews.

Table 2-5-3 Ownership status of rescue equipment for rescue activities and board vehicles for carrying rescue crews

(As of April 1, 2018)

Major rescue equipment	Ministerial ordinance annex 1	ThreePart ladders	Lifeline throwing guns	Hydraulic spreader	Hydraulic cutters	Portable winches	Engine cutters	Chainsaws	Gas cutters	Inflammable gas measuring instruments	Breathing apparatus	Simple image search machines
		7,631	1,848	2,162	2,000	4,396	6,388	6,796	1,311	5,748	50,298	932
	Ministerial ordinance annex 2	Mat air jacks	Large hydraulic spreaders	Large hydraulic cutters	Rock drills	Air saws	Rope climbing machines	Hammers/ drills	Ventilators	Oxygen masks		
		2,740	2,243	2,247	1,672	1,910	3,022	1,651	2,245	3,424		
	Ministerial ordinance annex 3	Image search equipment	Underground noise detectors	Thermal imaging devices	Night vision equipment	Earthquake alarms	Electromagnetic wave detectors	Carbon dioxide detectors	Underwater probes			
		617	326	1,402	350	212	120	63	84			
Boarding vehicles		Rescue work vehicles	Ladder-equipped vehicles	Folding ladder-equipped vehicles	Fire pump vehicles	Fire cistern-equipped vehicles	Chemical vehicles	Special disaster vehicles	Other	Total		
		1,237	406	99	255	395	121	23	466	3,002		

(Note) Prepared based on "The Survey on the Implementation Status of Rescue Activities".

3. Holding National Firefighting and Rescue Skills Meets

The National Firefighting and Rescue Skills Meet has been held every year except for the year that was canceled due to disasters since 1972 (sponsored by the Japan Firefighters Association, with the backing of the FDMA and others). Its goal is to foster the physical strength, mental toughness, and technical capabilities needed for rescue activities, as well as to gather rescue crew members from throughout Japan together to cultivate crew members who can serve as examples to others through competition and learning.

The National Firefighting and Rescue Skills Meet is divided up into a land division and a water division. For each division, a number of types of training are carried out. There is basic training where individual crew members practice basic skills, coordinated training where crew members practice their individual skills together with cooperation with other crew members, as well as skills training where participating crew members demonstrate everything from training assumptions to rescue methods using creativity and ingenuity without stipulations as to the equipment or training skills that will be used.

The 47th meet which was planned on August 24, 2018 in Kyoto city, Kyoto Prefecture was canceled due to the typhoon approach. The 48th meet will be held Okayama city, Okayama Prefecture.

–omitted–

Section 7 Integrated Fire Service Support and National Fire-Service Team for Disaster Response

☞ Japanese Original P.219

1. Integrated Support System for Fire Service

–omitted–

2. National Fire-Service Teams for Disaster Response

(1) Creation of National Fire-Service Teams for Disaster Response and Their Enshrinement in Law via Revisions to the Fire Organization Act

A. Creation of National Fire-Service Teams

National Fire-Service Teams were created in June 1995 through the cooperation of fire departments from throughout Japan in order to create an assistance structure through the mutual cooperation of firefighting agencies from around the country. This was based on the lessons from the Great Hanshin-Awaji Earthquake from January 17, 1995, and designed to make it possible to carry out lifesaving rescue activities when large-scale disasters such as earthquakes occur within Japan in a faster, more effective manner.

The system is structured so that during times of normalcy, National Fire-Service Teams focus all of their energies on carrying out firefighting duties in their respective local regions. But once a large-scale disaster occurs somewhere in Japan, firefighting teams dispatch in a concentrated manner to the afflicted region from throughout the country to respond to said disaster at the request or instructions of the Commissioner of the FDMA. There they engage in firefighting activities, including lifesaving and rescue activities.

When they were first launched, National Fire-Service Teams consisted of 376 teams registered with the FDMA to provide domestic assistance for firefighting. They were comprised of rescue crews, ambulance crews, and more. There were also 891 out-of-prefecture assistance teams that engaged in activities between neighboring prefectures, which consisted of firefighting teams and others. This brought the total to 1,267 teams. In January 2011, a registration system for fire teams was introduced in order to enhance the dispatch structure for National Fire-Service Teams and response capabilities for various disasters.

What is more, a number of new types of teams were established in order to handle increasingly complicated and diverse disasters. These included special disaster

Table 2-7-1 Actual track record regarding dispatches of wide-area aerial medical support teams based on the Implementation Guidelines for Wide-area Aerial Firefighting Support Teams during Large-scale and Special Disasters (past 20 years)

(As of November 1, 2018; Unit: Case)

Year	Dispatch track record	By type of dispatch							
		Fires in forests and fields	Fires in locations other than forests and fields	Storms and floods	Explosion disaster	Earthquake disaster	Volcano disaster	Accidents involving aircraft	Other disasters
1999	18	15	1	2					
2000	23	21				1	1		
2001	32	31						1	
2002	38	38							
2003	24	18	2	1		2			1
2004	27	21		5		1			
2005	20	18				1			1
2006	8	6	2						
2007	13	12		1					
2008	10	10							
2009	21	18		2					1
2010	16	12		2				1	1
2011	28	23		5					
2012	7	5		2					
2013	20	17		2		1			
2014	36	19							17
2015	10	10							
2016	5	3		1		1			
2017	7	5		1				1	
2018	13	12						1	
Total	376	314	5	24	0	7	1	4	21

teams with the capacity to respond to special disasters such as oil and chemical disasters, as well as those involving toxic or hazardous substances, or radioactive materials, as well as air teams that use fire protection helicopters and water teams that use firefighting boats. This brought the types of teams to eight, and the number of teams to 1,785.

B. Enshrinement in Law through the 2003 Revisions to the Fire Organization Act

It has been pointed out that potential earthquakes like a Tokai Earthquake, Tonankai/Nankai Earthquake, or an earthquake directly below the Tokyo Metropolitan Region are imminent, and the dangers of NBC terrorism disasters. As such, scenarios can be envisioned where it would be difficult to respond to such disasters promptly and precisely solely through the firefighting capabilities of the municipalities in the afflicted region or those found in the afflicted prefecture. Therefore, the Commissioner of the FDMA has been vested with the necessary authority to work to enhance and strengthen emergency response structures from a national perspective. In conjunction with this, the Act for the Partial Revision of the Fire Organization Act was drafted in 2003 and entered into force in 2004. This act includes provisions for national financial measures. etc..

(a) Main content of the revised law

The main content of the revised law consists of staking out a clear legal position for National Fire-Service Teams, establishing the authority of the Commissioner of the FDMA to order dispatches, formulating basic plans relating to National Fire-Service Teams, and the financial measures of the national government.

(b) Legal position and dispatch orders by the Commissioner of the FDMA

National Fire-Service Teams, which have been put to use based on certain guiding principles since they were established, were given a clear legal position within the Fire Organization Act through the revisions to this law. In addition, in the event that a Tokai Earthquake or other large-scale disaster extends over two or more prefectures or an NBC disaster were to occur, the Commissioner of the FDMA shall be able to issue the orders to take the necessary measures to dispatch National Fire-Service Teams. This authority to order dispatches was established based on the thinking that the national government bears responsibility for deploying firefighting capabilities to afflicted regions in the form of ordering the dispatch of National Fire-Service Teams for large-scale disasters that should be handled from a truly nationwide perspective. The unprecedented, enormous disaster of the Great East Japan Earthquake was the first time this authority was exercised since it was established.

(c) Enactment of the Basic Plan pertaining to National Fire-Service Teams

It has been legally mandated that the Minister for Internal Affairs and Communications is to enact the Plan on Basic Items concerning the Organization and Outfitting of Facilities for National Fire-Service Teams (hereafter referred to as the "Basic Plan").

This Basic Plan was enacted in February 2004, and established matters such as standards for equipping and organizing the crews that comprise National Fire-Service Teams, dispatch plans, and targets for setting in place the necessary facilities. When it was initially enacted, it set the target of registering 3,000 National Fire-Service Teams by FY2008.

(d) Financial measures by the national government for National Fire-Service Teams

The dispatch of National Fire-Service Teams has been legally mandated in cases where they have been ordered to dispatch by the Commissioner of the FDMA. Therefore, the expenses that are newly required as a result of said dispatches are to be borne by the national government as treasury expenses as per Article 10 of the Local Government Finance Act.

What is more, the establishment of facilities pursuant to the Basic Plan were clarified in a legal sense as constituting "expenses to be subsidized by the national government." In addition, the eligible facilities and the subsidy rate (one-half) have been established through government ordinance. (**Table 2-7-2**)

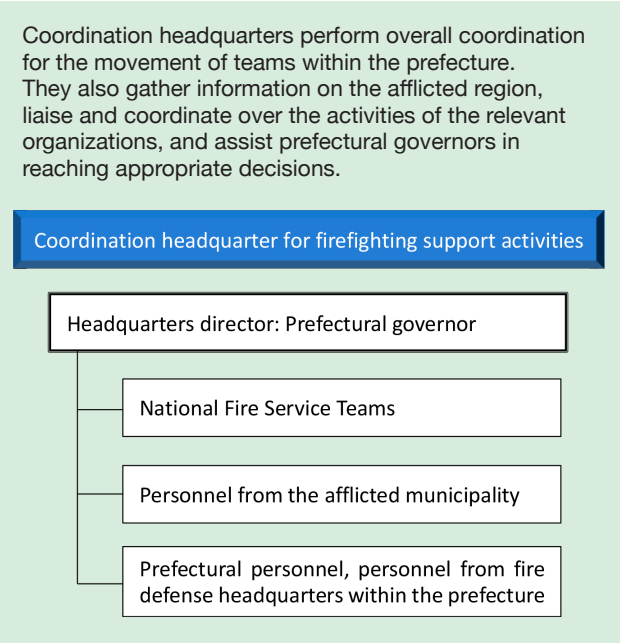
(e) Use of equipment for National Fire-Service Teams free of charge

With regard to those pieces of equipment from among the equipment needed for the organization of National Fire-Service Teams that it would be inefficient for local public bodies to outfit and own from a cost-effectiveness perspective, it is hard to imagine that progress will be

Table 2-7-2 Enshrining National Fire-Service Teams into law through the 2003 revisions to the Fire Organization Act

		Prior to the revisions	After the revisions
Position of the National Fire-Service Teams		Guidelines for National Fire-Service Teams	Fire Organization Act
Standards for organization and equipment, basic dispatch plans		Guidelines for National Fire-Service Teams	Basic Plan established by the Minister for Internal Affairs and Communications
Involvement of the Commissioner of the FDMA		Requests for measures	(1)Requests for measures (2)Orders (Tokai Earthquake and other large-scale earthquakes, NBC disasters)
Financial measures, etc.	Activity expenses	Special tax grants, etc.	Treasury expenses (The national government will bear any increased expenses and new expenses as a result of activities when said activities were ordered)
	Facilities and equipment	Encouragement subsidies(general subsidy rate of 1/3)	Mandatory subsidies (subsidy rate of 1/2)
	Use of government-owned assets and goods	Paid loans, etc.	Permission to use free of charge

Fig 2-7-1 Organization of coordination headquarter for firefighting support activities



made in outfitting this even if government subsidies are provided for it. There is some equipment that needs to be provided quickly in order to fulfill the national government's responsibilities when it comes to large-scale and specialized disasters. As such, it was stipulated that this equipment is to be set in place by the national government, but provided for use free of charge to the prefectures or municipalities to which the personnel who are active as National Fire-Service Team members belong.

C. Enhancing mobility through the 2008 revisions to the Fire Organization Act

In 2008 the Act for the Partial Revision of the Fire Organization Act was drafted and entered into force. This included content such as enhancing the mobility of National Fire-Service Teams in an effort to further strengthen fire and disaster defense structures for large-scale earthquakes such as a Tokai Earthquake, Tonankai/Nankai Earthquake, or an earthquake directly below the Tokyo Metropolitan Region.

(a) Main content of the revised law

The main content of the revised law consists of establishing the authority for prefectural governors to order the dispatch of National Fire-Service Teams that are already active in municipalities where disasters have occurred, the establishment of coordination headquarters for firefighting support activities, and revisions to the requirements for the orders to dispatch National Fire-Service Teams by the Commissioner of the FDMA.

(b) Establishment of the authority for prefectural governors to order dispatches

This stipulated that prefectural governors can order the dispatch of National Fire-Service Teams active in municipalities where they normally operate. This can be done in cases where a disaster has occurred in two or more municipalities within a prefecture, and where it is deemed necessary for the sake of urgently providing firefighting support for municipalities where a disaster has occurred that lie outside of the municipalities in which said National Fire-Service Teams normally operate. This structure was set in place based on the fact that teams spanning across municipal borders within the same prefecture were mobilized for the 2004 heavy rainfall disasters in Niigata and Fukushima, as well as the Mid Niigata Prefecture Earthquake in 2004. In cases spanning across prefectural borders, it has been stipulated that the Commissioner of the FDMA shall coordinate this, since said coordination will span across two or more prefectures.

(c) Establishment of coordination headquarters for firefighting support activities

To ensure that the prefectural governor's orders from (b) are carried out smoothly, the prefectural governors are to establish coordination headquarters for firefighting support activities (hereafter referred to as "coordination headquarters") in order to carry out the general coordination for measures like lending support for firefighting when National Fire-Service Teams are dispatched for this purpose. The coordination headquarters are tasked with handling tasks related to coordinating with the Japan Self-Defense Forces, police, and other relevant organizations. This is done in an effort to ensure that tasks related to general coordination over measures designed to support the firefighting activities carried out by the prefecture and municipalities within the prefecture in question are carried out smoothly. (**Fig. 2-7-1**)

(d) Revisions to the requirements for the Commissioner of the FDMA to order the dispatch of National Fire-Service Teams

The dangers of earthquakes causing enormous damage in a localized manner as a result of active faults have been pointed out. It was stipulated that the Commissioner of the FDMA can order the governors of prefectures aside from the prefecture where the municipality in which the disaster occurred is located or the mayors of municipalities within the prefecture in question to take the necessary measures to dispatch their National Fire-Service Teams. Where this was previously limited to cases where the disaster was regarded as a large-scale disaster spanning two or more prefectures, now it can be done when it has been acknowledged that there is a special need to respond to the disaster in question, even when it is a large-scale disaster that has occurred solely within a single prefecture.

(2) Organization of and Dispatch Plans for National Fire-Service Teams

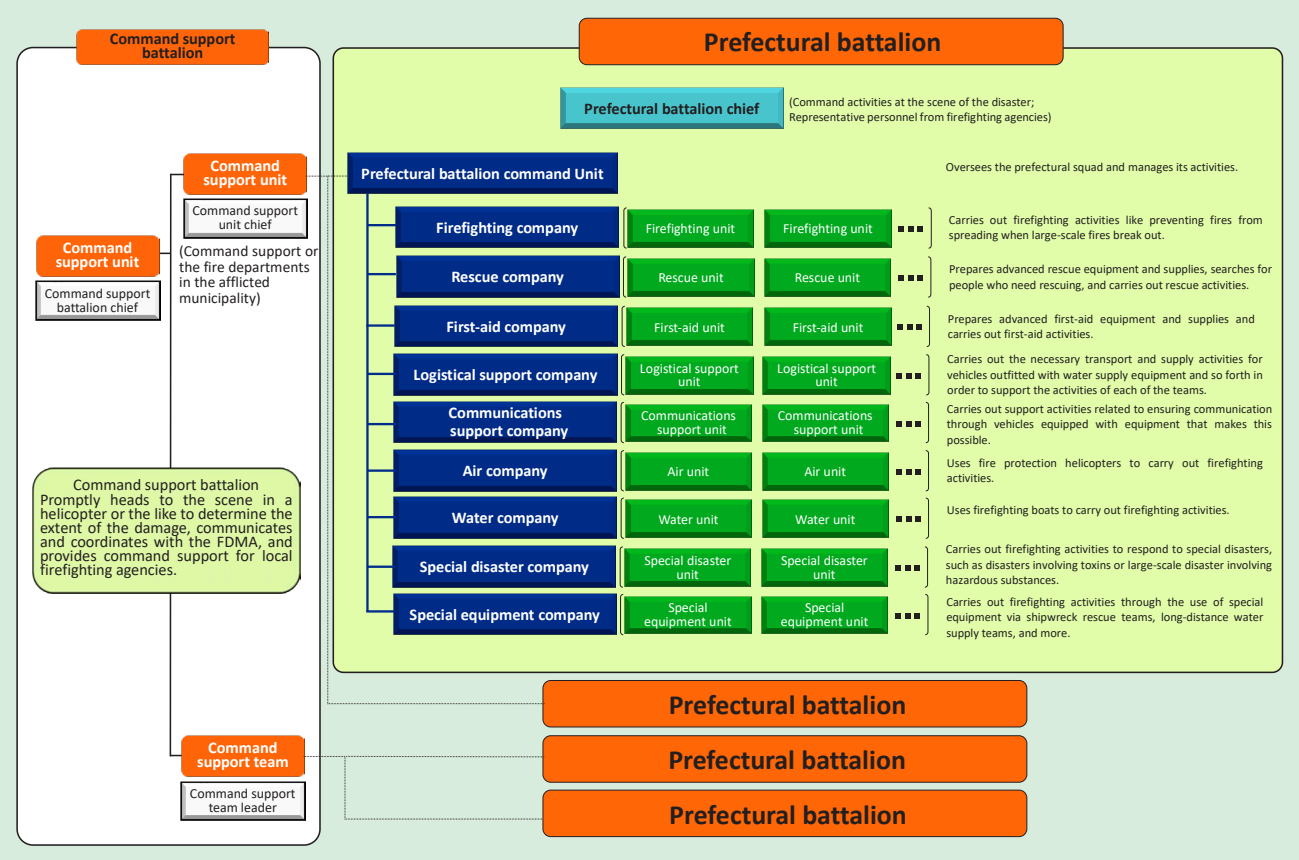
Issues like the organization of and dispatch plans for National Fire-Service Teams are established within the Basic Plan set by the Minister of Internal Affairs and Communications. An overview of these issues is provided below.

A. Organization of National Fire-Service Teams

(A) Command Support Battalion

The Command Support Battalion is tasked with the duty of urgently heading to afflicted regions via helicopter or the like when large-scale disasters or special disasters occur to gather information related to the disaster and convey this to the Commissioner of the FDMA, the

Fig 2-7-2 Organization of teams comprising National Fire-Service Teams



governors of the relevant prefectures, and others. In addition, it has also been tasked with the duty of carrying out support activities to ensure that commands pertaining to National Fire-Service Teams are carried out smoothly within the afflicted region.

(B) Prefectural Battalions

Prefectural Battalions are comprised of the teams required to aid with firefighting undertaken in afflicted regions from among a number of different companies. These include the Prefectural Battalion Command Unit, Firefighting company, Rescue company, Ambulance company, Logistic company, Communication company, Air company, Water company, Special Disaster company, and Special Equipment company established within the prefecture in question or municipalities within said prefecture. (**Fig. 2-7-2**)

(C) Comprehensive Mobile Unit

The Comprehensive Mobile Unit is tasked with the duty of promptly dispatching advance dispatches upon the orders of the Prefectural Battalion Chief after a large-scale disaster or special disaster occurs. It is also tasked with collecting and providing information conducive to ensuring smooth activities on the part of the Prefectural Battalion that follow, as well as carrying out urgent firefighting activities in the afflicted regions.

(D) National Fire-Service Team for Energy/Industrial Disaster ("Dragon Hyper Command Unit")

National Fire-Service Team for Energy/Industrial Disaster is tasked with the duty of undertaking sophisticated and specialized firefighting activities promptly and in the correct manner in response to special disasters in regions containing petrochemical complexes, chemical plants, and other energy and industrial infrastructure.

B. Dispatch Plans

(A) Basic Dispatch Plans

When large-scale disasters occur, the Commissioner of the FDMA makes efforts to gather information and closely coordinate with the prefectural governor of the afflicted prefecture and other officials. They also decide on whether or not it is necessary to dispatch National Fire-Service Teams, and take the measures to request or order their dispatch based on Article 44 of the Fire Organization Act. Dispatch plans are to be established ahead of time to enable their prompt and precise dispatch in such cases.

Specifically, for each prefecture in which a disaster occurs, they designate prefectural battalions that dispatched to provide support with a primary focus on neighboring prefectures as “first response prefectural battalions” and prefectural battalions that provide additional support according to the scale of the disaster as “reserve response prefectural battalions.”

(B) Rapid Dispatch Standards for when Large-scale Earthquakes Occur

When large-scale earthquakes occur, communications infrastructure is disrupted and a considerable length of time is needed in order to determine the overall extent of the damage. In light of this, National Fire-Service Teams must be ready to be quickly dispatched to the afflicted

region so that they can effectively save lives through firefighting, rescue, first-aid, and other such activities.

For this reason, the Commissioner of the FDMA has prefectural governors and municipal mayors from around the country prepare Requests for the Dispatch of National Fire-Service Teams pursuant to Article 44 of the Fire Organization Act in advance. The Implementation Guidelines on Rapid Dispatch of National Fire-Service Teams for Large-scale Earthquakes were enacted in July 2008, which contained content on matters like dispatching them the instant a large-scale earthquake occurs.

Then, in March 2015, these implementation guidelines were prescribed in the Guidelines on Requests for Assistance from National Fire-Service Teams.

(C) Dispatch Plans for a Tokai Earthquake and Other Potential Earthquakes

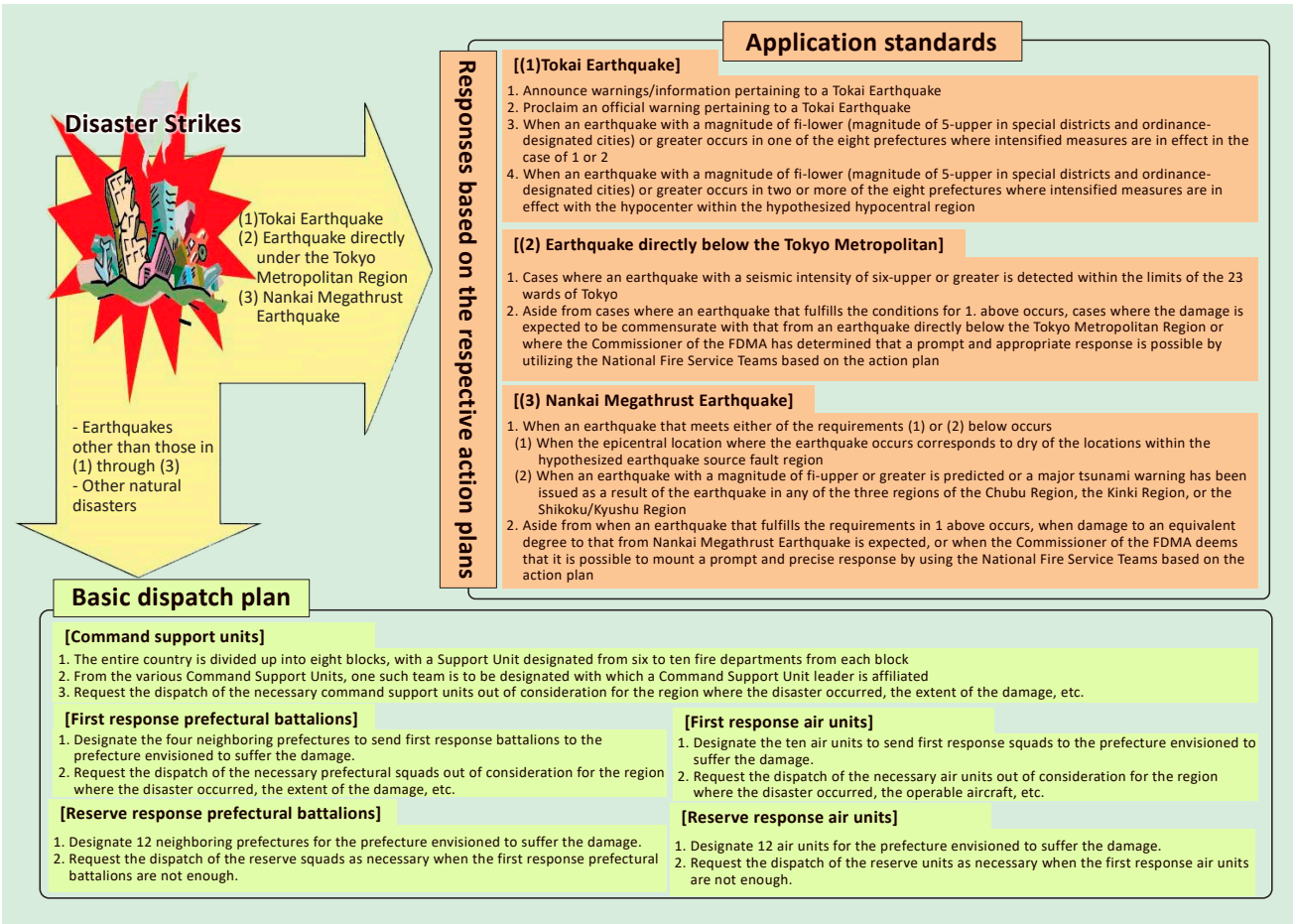
It is envisioned that a Tokai Earthquake, Nankai Megathrust Earthquake, or earthquake directly below the Tokyo Metropolitan Region would produce considerable damage that would extend over multiple prefectures. The thinking is that the firefighting capabilities of just the first response prefectural battalions and reserve response prefectural battalions alone would be insufficient for this. Therefore, it has been decided that National Fire-Service Teams would be dispatched at a national scale for these.

Therefore, the FDMA has formulated guidelines and action plans for using National Fire-Service Teams for each of these disasters should they occur. This was done by envisioning a Tokai Earthquake, Nankai Megathrust Earthquake, and earthquake directly below the Tokyo Metropolitan Region, and is based on the response guidelines, estimates of the damage from such disasters, and other data from the Central Disaster Prevention Council. (**Fig. 2-7-6**)

For example, there is an National Fire-Service Team action plan for a Nankai Megathrust Earthquake that was formulated in March 2016. This plan determines sites to receive assistance in 37 other prefectures aside from the ten prefectures designated to receive priority assistance, to which every National Fire-Service Team capable of providing assistance would be simultaneously and promptly deployed. What is more, the action plan for an earthquake directly below the Tokyo Metropolitan Region that was enacted in March 2017 decides on assistance providers from the 43 prefectures (excluding four prefectures designated as the prefectures receiving support), and states that every National Fire-Service Teams that can provide support is to promptly devote personnel to this all at once.

For an earthquake along the Nankai Trough, the report by the Working Group to Review Disaster Responses based on Seismic Observations and Evaluations for a Nankai Trough Earthquake from September 2017 indicated the course for a disaster response in the event that abnormal phenomena were observed along the Nankai Trough. Therefore, the entire policy for deploying National Fire-Service Teams for the Tokai Earthquake was revised and changed to the action plan until a new disaster response for the Nankai Trough is determined.

Fig 2-7-6 Basic dispatch and action plans for National Fire-Service Teams



(D) Assistance Plans by the Prefectures

Each prefecture formulates its own Implementation Plans for Assistance from National Fire-Service Teams based on the registration status of National Fire-Service Teams within the prefecture in question. These plans are based on consultations with the firefighting agencies of each prefecture in question with regard to the organization of prefectural battalions and other teams, meeting locations, information communication structures, and other necessary items concerning the prompt dispatch of National Fire-Service Teams to afflicted regions.

C. Plans for Receiving Assistance

Each prefecture formulates Plans for Receiving Assistance from National Fire-Service Teams by hypothesizing situations in which said prefecture itself falls victim to a disaster. This is done through consultations with the firefighting agencies within the prefecture over necessary matters regarding the acceptance of National Fire-Service Teams. And the fire departments must likewise formulate plans for receiving assistance while striving for consistency with the contents of the plans for receiving assistance formulated by the prefectures and the prefecture's regional firefighting plans for the sake of receiving National Fire-Service Teams in their region.

(3) Number of National Fire-Service Teams Registered and Their Equipment

A. Number of teams registered

The stipulations of Paragraph 4, Article 45 of the Fire Organization Act states that the Commissioner of the FDMA must register National Fire-Service Teams based on applications to do so from the prefectural governors or municipal mayors.

Since the launch of the 1,267 National Fire-Service Teams in September 1995, there has been a growing recognition of the importance of their activities during disasters. As a result, the number of teams registered has been on the rise, and as of April 1, 2018, 5,978 teams have been registered from 725 fire departments nationwide (roughly 99% of the fire departments nationwide). This is an increase of 320 teams over and above the number registered in April 1, 2017 (of 5,658 teams).

In March 2014, the basic plan was revised and a target for the number of teams registered was set for the end of FY2018 that would substantially increase the number of teams from its current level of roughly about 4,500 to roughly 6,000 teams. This is to be done because it is crucial to set in place a structure for deploying teams quickly and at a large scale in preparation for large-scale disasters such as a Nankai Trough Earthquake or an earthquake directly below the Tokyo Metropolitan Region, for which damage that is worse than that from the Great East Japan Earthquake is envisioned.

B. Equipment

Since they were first launched, the FDMA has formulated standards for the equipment for National Fire-Service Teams. Moreover, since their enshrinement into law in 2003, it has included provisions for this in its basic plan as it has worked to round-out their line-up of equipment. Starting from 2006, government subsidy measures have been taken through a subsidy for outfitting National Fire-Service Teams with facilities and equipment. Through this, progress has been made in equipping them with special disaster-response fire pump vehicles, rescue work vehicles, special disaster-response ambulances, as well as the support vehicles active teams need to act in a self-contained manner in afflicted regions, and also fiberscopes and other sophisticated rescue equipment and supplies.

What is more, the stipulations in Article 50 of the Fire Organization Act provide for a system for using equipment free of charge. Under this system, some of the equipment needed by National Fire-Service Teams for their team activities and logistical activities is allocated to fire departments and other sites throughout Japan. Such equipment includes systems for water sources for firefighting capable of handling disasters at energy and industrial infrastructure, response vehicles for handling tsunamis and large-scale storm and flood damage, vehicles that can function as mobile bases, and more. (**Table 2-7-3**)

Moreover, the emergency and disaster prevention and reduction business debentures (100% allocations, 70% tax grant rate) that were established in FY2011 were expanded in FY2013 to newly encompass "Equipment for vehicles for the functional enhancement of National Fire-Service Teams" and "Facilities to serve as bases for wide-area activities for National Fire-Service Teams."

In FY2014, base facilities for rescue activities and the like were added to the list of facilities eligible for aid via subsidies for the costs of outfitting fire and disaster prevention equipment. Such facilities consist of helicopter landing pads, facilities for storing equipment and supplies, and private refueling facilities. Through this, progress has been made with setting in place base facilities that will allow National Fire-Service Teams to carry out rescue and other activities in a self-reliant manner.

The FDMA will continue working to round-out and enhance the equipment of National Fire-Service Teams in a systematic manner to ensure that they can effectively carry out their activities.

Table 2-7-3 Main allocation of vehicles and other equipment via the system for using equipment free of charge stipulated in Article 50 of the Fire Organization Act

FY of allocation	Allocated vehicle, etc.	No. allocated
2005	Helicopter	1 helicopter
2006	Vehicle equipped with large blower	5 vehicles
	Vehicle equipped with water cutter	5 vehicles
2007	Vehicle equipped with large decontamination system	5 vehicles
2008	Special elevated work vehicle	5 vehicles
	Fuel supply vehicle	6 vehicles
2009	Helicopter movement management system	8 systems
	Special disaster response vehicle	10 vehicles
	Special elevated work vehicle	9 vehicles
	Vehicle equipped with large decontamination system	8 vehicles
	Fuel supply vehicle	2 vehicles
	Firefighting system that use ocean water	2 systems
2010	Helicopter movement management system	2 systems
	Infrared camera	1 system
	Type 1 support vehicle	47 vehicles
	Firefighting system that use ocean water	3 systems
2011	Helicopter	2 helicopters
2012	Personnel transport vehicle	47 vehicles
	Equipment transport vehicle	46 vehicles
	All-terrain response vehicle	1 pair
	Radio relay vehicle	21 vehicles
	Elevated rescue vehicle for large-scale earthquake disasters	3 pairs
	Heavy machinery and heavy machinery transport vehicle	19 pairs
	Prefectural command team vehicle	45 vehicles
	Fuel supply vehicle	30 vehicles
	Type 1 support vehicle	17 vehicles
	Firefighting system that uses ocean water	1 system
	Special disaster response vehicle	1 vehicle
	Special disaster work vehicle	2 vehicles
	Vehicle equipped with large decontamination system	4 vehicles
	Helicopter movement management system	11 systems
	Heli-Sat system	1 system
2013	Operation Base Vehicle	6 vehicles
	Tsunami/Large-Scale Water Disaster Countermeasure Vehicle	15 vehicles
	Mobile communication vehicle	33 vehicles
	Helicopter	2 helicopters
	Helicopter movement management system	4 systems
	Heli-Sat system	4 systems
	Heli-Sat camera	3 systems
2014	Operation Base Vehicle	4 vehicles
	Tsunami/Large-Scale Water Disaster Countermeasure Vehicle	2 vehicles
	Water system for firefighting capable of handling disasters at energy and industrial infrastructure	2 systems
	Helicopter movement management system	4 systems
2015	Operation Base Vehicle	2 vehicles
	Tsunami/Large-Scale Water Disaster Countermeasure Vehicle	2 vehicles
	System for firefighting capable of handling disasters at energy and industrial infrastructure	2 systems
	Drone for firefighting activities	2 systems
	Heavy machinery and heavy machinery transport vehicle	3 pairs
	Vehicle equipped with large decontamination system	1 vehicle
	Helicopter movement management system	6 systems
2016	Operation Base Vehicle	2 vehicles
	Tsunami/Large-Scale Water Disaster Countermeasure Vehicle	3 vehicles
	Water system for firefighting capable of handling disasters at energy and industrial infrastructure	2 systems
	Vehicle equipped with large decontamination systems	1 vehicle
	Helicopter movement management system	5 systems
2017	Operation Base Vehicle	2 vehicles
	Water system for firefighting capable of handling disasters at energy and industrial infrastructure	2 systems
	Radio relay vehicle	3 vehicles
	Vehicle equipped with large decontamination systems	1 vehicle
	Fuel supply vehicle	9 vehicles
	Helicopter video transmission receiver	23 systems
2018*	Operation Base Vehicle	6 vehicles
	Tsunami/Large-Scale Water Disaster Countermeasure Vehicle	6 vehicles
	Water system for firefighting capable of handling disasters at energy and industrial infrastructure	4 systems
	All-terrain response vehicle type II and transport vehicle	2 pairs
	Information gathering drone	18 sets
	Chemical agent remote sensing equipment	3 vehicles

(Note) * indicates equipment scheduled to be allocated in FY2018

Tsunami/Large-Scale Water Disaster Countermeasure Vehicle

Operation Base Vehicle

–omitted–

☞ Japanese Original P.312

Attachment 1-1-2 Extent of fire damage by prefecture

(During 2017)

Classification / Prefecture	No. of fires							No. of buildings burned				
	Total	Buildings	Forests	Vehicles	Ships	Aircraft	Other	Total	Totally destroyed	Half destroyed	Partially destroyed	Minor fire
Hokkaido	1,692	1,046	20	307	5	0	314	1,315	295	95	391	534
Aomori	443	277	23	43	2	0	98	438	132	25	146	135
Iwate	421	249	45	29	0	0	98	444	185	17	152	90
Miyagi	724	362	28	95	0	0	239	614	195	25	152	242
Akita	266	166	19	30	0	0	51	305	109	24	95	77
Yamagata	336	187	23	30	1	1	94	296	98	20	95	83
Fukushima	597	333	42	87	0	0	135	495	175	23	145	152
Ibaraki	1,154	582	35	123	1	2	411	1,005	353	57	262	333
Tochigi	752	367	33	85	0	0	267	625	211	32	219	163
Gunma	794	375	18	95	0	1	305	665	217	47	177	224
Saitama	2,016	1,043	14	174	0	0	785	1,670	358	107	442	763
Chiba	1,998	925	95	167	4	0	807	1,353	344	78	327	604
Tokyo	4,261	2,857	4	218	0	0	1,182	3,304	122	94	625	2,463
Kanagawa	2,141	1,197	8	185	2	0	749	1,493	159	81	335	918
Niigata	477	341	12	52	1	0	71	612	179	45	189	199
Toyama	184	134	1	28	0	0	21	201	54	21	46	80
Ishikawa	245	135	7	43	0	0	60	208	51	7	50	100
Fukui	165	103	2	27	1	0	32	181	50	19	58	54
Yamanashi	360	156	18	24	0	0	162	241	80	16	59	86
Nagano	843	352	37	75	0	0	379	558	221	36	162	139
Gifu	667	337	27	81	0	0	222	453	108	30	112	203
Shizuoka	1,160	566	28	118	1	0	447	808	209	42	220	337
Aichi	2,126	1,075	36	226	3	0	786	1,432	252	73	444	663
Mie	634	268	25	81	2	0	258	417	103	23	125	166
Shiga	407	209	14	60	0	0	124	281	52	22	62	145
Kyoto	556	361	12	79	1	0	103	550	115	38	155	242
Osaka	2,319	1,608	14	200	3	0	494	1,977	135	90	500	1,252
Hyogo	1,764	876	74	182	3	0	629	1,145	203	54	276	612
Nara	449	203	13	43	0	1	189	304	85	20	97	102
Wakayama	350	149	13	28	2	0	158	226	77	10	52	87
Tottori	182	87	6	19	1	0	69	129	39	11	35	44
Shimane	294	122	28	21	3	0	120	230	103	9	50	68
Okayama	758	391	57	83	1	0	226	618	184	61	173	200
Hiroshima	817	459	41	63	2	0	252	999	173	37	184	605
Yamaguchi	500	259	19	48	4	0	170	443	134	39	124	146
Tokushima	265	145	14	30	0	0	76	212	63	14	73	62
Kagawa	340	157	17	31	2	0	133	247	76	17	73	81
Ehime	418	249	26	43	2	0	98	390	122	19	115	134
Kochi	349	168	25	25	3	0	128	254	98	15	76	65
Fukuoka	1,443	793	47	141	4	0	458	1,089	210	52	300	527
Saga	385	157	21	41	0	0	166	237	70	13	84	70
Nagasaki	479	224	26	24	9	0	196	346	115	14	92	125
Kumamoto	631	290	48	72	1	0	220	454	146	24	111	173
Oita	499	252	44	49	2	0	152	365	118	18	81	148
Miyazaki	512	235	44	43	0	0	190	375	123	18	123	111
Kagoshima	683	322	28	58	4	0	271	548	224	21	126	177
Okinawa	517	216	53	57	2	1	188	272	42	24	73	133
Prefectural total	39,373	21,365	1,284	3,863	72	6	12,783	30,824	6,967	1,677	8,063	14,117
Sapporo city	474	323	0	90	0	0	61	368	28	20	127	193
Sendai City	280	149	5	34	0	0	92	179	15	7	30	127
Saitama City	303	173	0	36	0	0	94	234	23	16	63	132
Chiba City	263	128	6	26	0	0	103	166	30	2	41	93
Special wards	3,099	2,193	0	144	0	0	762	2,499	59	67	463	1,910
Yokohama City	854	482	0	67	1	0	304	572	38	27	134	373
Kawasaki City	330	210	0	21	0	0	99	243	15	4	48	176
Sagamihara City	144	77	2	14	0	0	51	106	17	12	29	48
Niigata City	99	80	0	12	0	0	7	129	32	10	38	49
Shizuoka City	194	106	2	26	0	0	60	177	35	12	31	99
Hamamatsu City	214	111	7	13	0	0	83	163	44	4	49	66
Nagoya City	551	338	2	60	1	0	150	402	24	15	132	231
Kyoto City	249	176	3	32	0	0	38	242	23	18	74	127
Osaka City	918	674	0	57	2	0	185	784	19	30	225	510
Sakai City	226	165	0	22	0	0	39	211	18	9	47	137
Kobe City	472	269	10	53	0	0	140	314	30	16	66	202
Okayama City	228	116	4	23	0	0	85	166	28	24	46	68
Hiroshima City	297	196	3	20	0	0	78	263	36	9	58	160
Kitakyushu City	263	156	4	19	2	0	82	237	39	11	70	117
Fukuoka City	321	224	5	25	1	0	66	268	19	10	75	164
Kumamoto City	171	98	3	17	0	0	53	144	32	4	32	76
21 city total	9,950	6,444	56	811	7	0	2,632	7,867	604	327	1,878	5,058

(Note) The “21 city total” is found within the prefectural total.

Attachment 1-1-2 Extent of fire damage by prefecture (continued)

(During 2017)

Classification / Prefecture	Area burned			No. of casualties		No. of households affected				No. of people affected
	Building floor area (㎡)	Building surface area(㎡)	Forests (a)	Fatalities	Injured	Total	Totally destroyed	Half destroyed	Minor destruction	
Hokkaido	57,634	7,113	2,907	72	263	706	138	73	495	1,379
Aomori	19,595	2,451	1,000	14	84	254	62	20	172	627
Iwate	26,808	2,913	42,459	38	75	251	124	11	116	615
Miyagi	24,266	1,779	924	30	116	346	90	16	240	861
Akita	20,222	1,838	721	24	78	189	80	14	95	420
Yamagata	12,763	1,397	3,165	18	51	151	43	12	96	437
Fukushima	23,627	1,624	10,250	38	108	265	89	14	162	614
Ibaraki	37,805	3,212	1,715	44	138	490	158	27	305	1,115
Tochigi	26,526	2,474	249	36	80	329	106	20	203	697
Gunma	26,180	2,128	156	24	112	302	86	27	189	655
Saitama	84,158	5,444	704	65	291	1,091	240	75	776	2,560
Chiba	44,623	3,014	626	79	266	779	186	54	539	1,708
Tokyo	22,096	8,624	51	83	762	2,507	214	219	2,074	4,915
Kanagawa	22,027	4,631	192	69	322	1,090	158	90	842	2,374
Niigata	38,008	2,675	516	34	94	339	99	26	214	896
Toyama	11,737	588	15	17	50	119	42	16	61	331
Ishikawa	8,070	435	219	6	32	101	28	4	69	232
Fukui	8,535	774	43	6	39	114	33	13	68	359
Yamanashi	7,853	1,955	1,505	10	38	138	44	7	87	398
Nagano	26,510	1,549	1,281	27	140	258	76	19	163	598
Gifu	15,397	2,764	308	20	95	236	55	15	166	595
Shizuoka	34,783	2,199	2,522	52	151	474	121	31	322	1,103
Aichi	43,804	6,000	502	80	310	898	162	53	683	1,967
Mie	14,211	1,733	186	18	65	201	41	14	146	456
Shiga	8,569	586	186	16	54	152	32	12	108	376
Kyoto	17,438	1,244	245	26	131	354	63	26	265	730
Osaka	33,969	7,404	1,248	79	493	1,748	248	98	1,402	3,478
Hyogo	35,077	4,305	671	57	234	710	144	28	538	1,635
Nara	11,696	1,589	197	12	70	185	50	12	123	450
Wakayama	14,128	303	80	12	49	125	42	6	77	268
Tottori	5,441	524	201	10	28	72	18	10	44	182
Shimane	12,258	618	488	6	39	99	41	4	54	211
Okayama	21,400	2,318	715	42	125	320	87	31	202	776
Hiroshima	22,655	3,010	269	29	128	495	115	30	350	1,027
Yamaguchi	18,435	2,239	206	28	69	226	67	20	139	500
Tokushima	7,069	853	136	14	20	112	30	8	74	264
Kagawa	10,005	934	188	18	59	108	20	12	76	261
Ehime	22,589	2,013	262	22	79	211	64	14	133	463
Kochi	9,577	1,454	1,968	8	39	123	48	8	67	229
Fukuoka	37,330	2,958	6,765	52	207	764	186	37	541	1,579
Saga	13,726	841	160	9	68	128	39	10	79	315
Nagasaki	16,043	602	58	24	68	195	58	5	132	459
Kumamoto	20,422	1,517	773	21	83	267	73	10	184	663
Oita	21,283	1,781	1,606	12	64	223	69	14	140	437
Miyazaki	13,072	1,559	3,067	16	63	225	73	14	138	494
Kagoshima	35,207	1,697	170	28	88	262	98	10	154	549
Okinawa	5,305	1,641	1,933	11	34	121	23	16	82	260
Prefectural total	1,069,932	111,304	93,808	1,456	6,052	18,853	4,163	1,305	13,385	41,518
Sapporo city	5,677	1,487	21	19	82	233	33	19	181	396
Sendai City	2,050	139	55	10	38	118	13	4	101	259
Saitama City	3,712	580	0	12	59	155	24	9	122	415
Chiba City	3,036	254	22	11	33	91	26	1	64	180
Special wards	13,628	5,856	0	58	582	1,905	144	175	1,586	3,703
Yokohama City	5,137	1,856	0	26	118	465	59	34	372	1,040
Kawasaki City	3,283	220	0	11	57	179	21	12	146	345
Sagamihara City	2,274	215	26	10	24	77	14	7	56	170
Niigata City	10,500	327	0	10	20	78	24	5	49	210
Shizuoka City	4,955	358	3	12	23	117	30	13	74	243
Hamamatsu City	5,869	627	2,079	7	24	80	15	1	64	208
Nagoya City	4,627	2,042	7	24	115	301	41	18	242	573
Kyoto City	4,203	413	18	15	77	199	24	18	157	363
Osaka City	7,099	3,868	0	25	184	745	62	41	642	1,263
Sakai City	2,714	365	0	10	35	177	28	8	141	411
Kobe City	3,890	997	115	12	71	206	18	13	175	445
Okayama City	3,817	361	65	11	34	116	22	15	79	274
Hiroshima City	3,796	987	11	7	56	215	32	8	175	452
Kitakyushu City	5,939	878	3,354	15	52	181	51	8	122	367
Fukuoka City	2,192	985	24	11	54	220	31	14	175	396
Kumamoto City	3,468	130	9	6	34	111	26	2	83	244
21 city total	101,866	22,945	5,809	322	1,772	5,969	738	425	4,806	11,957

(Note) The “21 city total” is found within the prefectural total.

Attachment 1-1-2 Extent of fire damage by prefecture (continued)

(During 2017) (Unit: 1,000 yen)

Classification / Prefecture	Amount of damages									
	Total	Building			Forests	Vehicles	Ships	Aircraft	Other	Explosions
		Subtotal	Buildings	Contents						
Hokkaido	2,761,071	2,534,303	1,579,085	955,218	539	131,019	71,073	0	23,971	166
Aomori	765,348	694,183	476,100	218,083	2,772	25,456	23,994	0	11,854	7,089
Iwate	1,751,493	933,174	751,095	182,079	756,980	22,311	0	0	18,127	20,901
Miyagi	1,966,232	1,895,695	1,143,274	752,421	14,739	42,274	0	0	13,523	1
Akita	839,592	719,582	463,396	256,186	4,842	5,762	0	0	109,294	112
Yamagata	510,276	471,334	356,599	114,735	11,712	10,903	326	8,000	7,995	6
Fukushima	1,403,749	1,171,409	959,328	212,081	14,397	98,282	30	0	97,868	21,763
Ibaraki	3,099,246	2,850,887	1,829,844	1,021,043	1,041	74,836	0	60	172,422	0
Tochigi	1,624,378	1,493,514	1,085,773	407,741	707	42,600	0	0	10,766	76,791
Gunma	1,995,860	1,875,330	1,248,531	626,799	200	37,864	0	35,032	29,531	17,903
Saitama	14,538,215	14,366,241	10,399,941	3,966,300	5,395	100,250	110	0	62,236	3,983
Chiba	3,730,210	3,454,338	2,080,277	1,374,061	2,026	116,731	683	0	155,582	850
Tokyo	5,078,191	4,890,621	3,201,292	1,689,329	0	101,037	0	0	58,141	28,392
Kanagawa	2,663,186	2,405,466	1,668,728	736,738	0	126,115	892	0	118,759	11,954
Niigata	2,675,524	2,621,088	2,069,483	551,605	0	26,584	40	0	27,034	778
Toyama	794,650	764,164	535,785	228,379	45	15,585	0	0	6,885	7,971
Ishikawa	535,871	510,371	323,942	186,429	515	22,481	0	0	2,504	0
Fukui	588,509	536,985	413,228	123,757	47	44,187	168	0	3,034	4,088
Yamanashi	639,682	602,644	463,721	138,923	1,671	20,793	0	0	12,501	2,073
Nagano	1,489,541	1,436,544	1,092,095	344,449	1,455	27,463	0	0	7,715	16,364
Gifu	1,049,805	1,009,575	627,836	381,739	73	29,981	0	0	9,474	702
Shizuoka	3,543,972	3,087,049	2,186,348	900,701	34,739	73,015	727	0	341,442	7,000
Aichi	4,129,270	3,779,978	2,203,023	1,576,955	2,750	151,724	262	0	167,084	27,472
Mie	877,640	800,036	653,710	146,326	480	51,818	2,300	0	23,002	4
Shiga	1,538,713	1,099,484	501,258	598,226	210	41,050	0	0	17,711	380,258
Kyoto	1,290,335	1,261,983	884,452	377,531	0	15,673	1,588	0	10,956	135
Osaka	3,618,574	3,481,728	2,261,862	1,219,866	0	100,779	435	0	34,548	1,084
Hyogo	3,456,967	3,230,961	2,130,148	1,100,813	381	127,430	1,449	0	83,055	13,691
Nara	1,546,149	1,492,992	1,310,292	182,700	23,048	19,199	0	0	9,063	1,847
Wakayama	493,068	450,757	349,184	101,573	477	8,356	162	0	33,316	0
Tottori	316,448	311,905	272,018	39,887	0	4,059	0	0	484	0
Shimane	409,821	395,988	308,342	87,646	469	9,182	1,240	0	2,942	0
Okayama	1,539,812	952,887	712,838	240,049	1,189	89,454	396,732	0	21,246	78,304
Hiroshima	1,307,528	1,204,537	775,306	429,231	467	52,680	56	0	43,509	6,279
Yamaguchi	914,931	838,262	631,449	206,813	15	65,418	5,807	0	4,340	1,089
Tokushima	488,062	457,889	323,234	134,655	173	14,029	0	0	15,970	1
Kagawa	462,103	411,372	291,903	119,469	10	20,059	0	0	6,960	23,702
Ehime	826,180	792,137	537,448	254,689	858	22,173	6,400	0	4,542	70
Kochi	530,165	463,466	319,290	144,176	38	27,893	1,763	0	33,029	3,976
Fukuoka	3,238,014	2,390,884	1,420,696	970,188	3,764	73,373	40,569	0	728,927	497
Saga	1,054,051	725,464	459,502	265,962	828	56,031	0	0	271,728	0
Nagasaki	817,358	736,834	606,911	129,923	53	16,400	54,573	0	9,498	0
Kumamoto	991,146	875,885	663,736	212,149	2,762	39,312	502	0	72,685	0
Oita	3,071,796	2,890,297	705,864	2,184,433	2,128	15,781	2,150	0	161,434	6
Miyazaki	661,867	614,069	449,999	164,070	4,882	11,232	0	0	26,600	5,084
Kagoshima	1,066,779	1,004,771	538,601	466,170	1,184	43,465	5,195	0	12,164	0
Okinawa	631,289	609,928	331,104	278,824	300	11,025	0	0	10,036	0
Prefectural total	89,322,667	81,598,991	54,597,871	27,001,120	900,361	2,283,124	619,226	43,092	3,105,487	772,386
Sapporo city	402,483	379,389	299,070	80,319	0	21,390	0	0	1,538	166
Sendai City	197,855	187,223	137,669	49,554	4	7,356	0	0	3,272	0
Saitama City	271,045	256,853	208,327	48,526	0	10,755	0	0	3,182	255
Chiba City	339,945	205,578	153,061	52,517	0	26,986	0	0	107,381	0
Special wards	3,725,726	3,585,395	2,286,450	1,298,945	0	67,007	0	0	45,061	28,263
Yokohama City	662,767	611,515	486,672	124,843	0	28,516	60	0	22,649	27
Kawasaki City	307,863	295,906	141,995	153,911	0	5,805	0	0	6,152	0
Sagamihara City	400,673	393,529	245,846	147,683	0	5,919	0	0	1,225	0
Niigata City	1,387,895	1,376,719	1,172,499	204,220	0	6,431	0	0	4,745	0
Shizuoka City	379,982	249,639	202,324	47,315	0	13,959	0	0	116,384	0
Hamamatsu City	471,604	426,065	332,339	93,726	33,854	4,433	0	0	7,252	0
Nagoya City	330,979	308,189	235,619	72,570	0	19,241	53	0	2,952	544
Kyoto City	400,180	389,478	307,911	81,567	0	9,015	0	0	1,589	98
Osaka City	594,186	579,566	281,283	298,283	0	12,140	183	0	2,288	9
Sakai City	266,260	226,246	140,897	85,349	0	26,541	10	0	13,463	0
Kobe City	560,421	529,143	392,291	136,852	0	25,705	0	0	5,573	0
Okayama City	278,623	268,272	179,693	88,579	9	8,968	0	0	1,374	0
Hiroshima City	441,928	431,907	262,423	169,484	0	8,345	0	0	1,676	0
Kitakyushu City	329,916	322,339	148,345	173,994	284	4,738	1,550	0	799	206
Fukuoka City	192,488	137,463	99,385	38,078	1	11,563	32,000	0	11,252	209
Kumamoto City	210,998	203,091	161,838	41,253	0	6,532	0	0	1,375	0
21 city total	12,153,817	11,363,505	7,875,937	3,487,568	34,152	331,345	33,856	0	361,182	29,777

(Note) The “21 city total” is found within the prefectural total.

–omitted–

☞ *Japanese Original P.348*

Attachment 1-2-1 Trends in the number of facilities for hazardous material

(As of March 31 of each year)

Year \ Types of manufacturing facilities, etc.	Net total	Manufacturing facilities	Storage facilities								Handling facilities					
			Subtotal	Indoor storage facilities	Outdoor tank storage facilities	Indoor tank storage facilities	Underground storage facilities	Simple tank storage facilities	Mobile tank storage facilities	Outdoor storage facilities	Subtotal	Fuel supply depots	Class 1 sales handling facilities	Class 2 sales handling facilities	Transfer handling facilities	General outlets
1959	95,207	2,523	63,303	23,566	19,090	2,048	5,484	7,237	3,527	2,351	29,381	19,937	1,702			7,742
1967	213,526	3,008	140,842	34,163	48,975	8,863	23,891	4,648	15,190	5,112	69,676	42,347	2,059			25,270
1968	246,767	3,164	157,456	36,523	53,938	9,993	28,243	4,731	17,856	6,172	86,147	49,041	2,478			34,628
1969	279,012	3,309	175,150	38,880	59,504	11,172	33,142	4,793	20,556	7,103	100,553	54,060	2,907			43,586
1970	308,784	3,459	192,155	40,709	64,693	12,334	38,852	4,767	22,645	8,155	113,170	58,096	3,274			51,800
1971	346,113	3,684	213,883	43,254	71,320	13,611	45,880	4,849	25,396	9,573	128,546	62,749	3,553			62,244
1972	377,123	3,789	231,972	44,872	76,090	14,667	52,132	4,805	28,484	10,922	141,362	66,638	3,722	91		70,911
1973	410,158	3,929	251,372	46,769	81,388	15,575	58,913	4,748	32,139	11,840	154,857	71,049	3,697	163		79,948
1974	461,500	4,037	288,771	50,253	91,596	16,840	68,423	4,774	36,049	20,836	168,692	74,697	3,763	258		89,974
1975	495,161	3,961	312,009	53,239	97,846	17,534	75,642	4,578	39,364	23,806	179,191	76,879	3,727	319	1,148	97,118
1976	512,675	4,035	323,827	55,140	99,401	17,936	80,906	4,540	41,909	23,995	184,813	78,508	3,717	374	1,225	100,989
1977	527,118	4,104	333,440	56,772	99,626	18,236	85,874	4,496	44,266	24,170	189,574	79,998	3,675	464	1,229	104,208
1978	539,532	4,124	341,341	57,819	99,456	18,632	90,734	4,286	46,333	24,081	194,067	81,288	3,626	513	1,251	107,389
1979	552,597	4,184	349,777	58,528	98,984	18,929	95,823	4,194	49,427	23,892	198,636	82,900	3,538	541	1,316	110,341
1980	575,376	4,272	366,356	60,165	100,373	19,451	104,193	4,187	52,350	25,637	204,748	84,588	3,462	604	1,357	114,737
1981	587,052	4,346	373,465	61,554	97,509	19,923	109,755	4,076	54,986	25,662	209,241	86,056	3,416	647	1,366	117,756
1982	596,575	4,393	379,752	62,789	97,007	20,013	113,398	3,953	57,126	25,466	212,430	86,962	3,351	667	1,382	120,068
1983	601,905	4,435	382,914	63,440	96,341	19,955	115,724	3,871	58,662	24,921	214,556	87,678	3,284	705	1,380	121,509
1984	607,040	4,477	386,406	63,598	96,057	19,878	117,715	3,742	61,019	24,397	216,157	88,143	3,221	729	1,391	122,673
1985	613,364	4,560	390,825	63,878	95,685	19,831	119,749	3,638	64,393	23,651	217,979	88,582	3,124	744	1,400	124,129
1986	617,540	4,598	393,419	64,081	94,998	19,621	121,254	3,531	66,998	22,936	219,523	88,882	3,040	739	1,402	125,460
1987	620,783	4,657	395,877	63,980	94,334	19,465	122,509	3,435	69,976	22,178	220,249	88,890	2,939	758	1,397	126,265
1988	574,720	4,677	397,687	63,693	93,497	19,354	123,402	3,361	72,957	21,423	172,356	89,088	2,845	766	1,381	78,276
1989	578,881	4,722	400,597	63,562	93,105	19,150	124,374	3,288	76,451	20,667	173,562	89,506	2,768	765	1,372	79,151
1990	582,911	4,775	403,577	63,426	92,778	18,955	125,630	3,199	79,308	20,281	174,559	89,814	2,696	776	1,360	79,913
1991	561,184	4,774	385,975	61,350	87,950	17,999	125,874	2,354	71,596	18,852	170,435	89,388	2,630	657	1,373	76,387
1992	562,980	4,917	387,019	61,522	87,550	17,710	126,599	2,266	73,111	18,261	171,044	89,616	2,554	640	1,369	76,865
1993	562,250	4,975	386,022	61,285	87,038	17,459	126,706	2,212	73,699	17,623	171,253	89,996	2,464	652	1,377	76,764
1994	560,790	5,013	383,979	60,862	86,272	17,168	126,543	2,169	73,704	17,261	171,798	90,647	2,395	647	1,380	76,729
1995	561,295	5,046	383,683	60,304	85,764	16,880	126,533	2,089	75,307	16,806	172,566	91,418	2,321	647	1,382	76,798
1996	561,094	5,071	382,941	59,824	85,114	16,598	126,552	2,040	76,575	16,238	173,082	92,037	2,256	660	1,378	76,751
1997	560,108	5,126	382,409	59,221	84,553	16,315	126,617	1,965	77,881	15,857	172,573	91,583	2,196	652	1,365	76,777
1998	556,647	5,159	380,337	58,697	83,902	16,133	126,218	1,906	78,184	15,297	171,151	90,226	2,146	641	1,359	76,779
1999	551,371	5,156	377,229	58,073	82,877	15,848	125,481	1,828	78,404	14,718	168,986	88,382	2,075	645	1,350	76,534
2000	546,043	5,145	374,034	57,246	81,646	15,497	124,558	1,768	79,027	14,292	166,864	86,616	2,017	638	1,343	76,250
2001	542,068	5,160	371,351	56,722	80,260	15,311	123,964	1,703	79,802	13,589	165,557	85,182	1,963	631	1,331	76,450
2002	537,825	5,183	368,561	56,010	79,264	15,022	123,096	1,646	80,356	13,167	164,081	83,869	1,876	625	1,322	76,389
2003	530,484	5,085	363,829	55,178	77,631	14,709	121,795	1,586	80,194	12,736	161,570	82,371	1,807	618	1,288	75,486
2004	523,341	5,076	358,786	54,577	76,147	14,368	119,988	1,514	79,804	12,388	159,479	80,814	1,737	611	1,262	75,055
2005	514,990	5,050	352,872	54,337	74,724	14,086	117,491	1,446	78,683	12,105	157,068	79,104	1,681	600	1,250	74,433
2006	506,245	5,058	346,532	53,770	73,428	13,803	114,564	1,384	77,630	11,953	154,655	77,642	1,632	591	1,241	73,549
2007	496,789	5,107	339,728	53,720	72,213	13,363	111,204	1,307	76,262	11,659	151,954	76,310	1,584	583	1,226	72,251
2008	486,812	5,121	332,859	53,473	70,898	12,965	108,292	1,247	74,513	11,471	148,832	74,388	1,523	567	1,215	71,139
2009	475,989	5,154	325,590	53,182	69,756	12,574	105,206	1,204	72,387	11,281	145,245	72,121	1,480	554	1,208	69,882
2010	465,685	5,164	318,562	52,637	68,606	12,287	102,417	1,170	70,232	11,213	141,959	70,005	1,428	551	1,190	68,785
2011	455,829	5,152	311,996	52,219	67,470	11,923	99,383	1,141	68,746	11,114	138,681	67,990	1,381	542	1,179	67,589
2012	447,277	5,150	305,975	51,516	66,294	11,679	96,120	1,114	68,299	10,953	136,152	66,470	1,333	537	1,153	66,659
2013	436,918	5,160	299,142	51,245	65,330	11,502	91,255	1,101	67,916	10,793	132,616	64,593	1,293	538	1,151	65,041
2014	428,541	5,154	293,544	50,888	64,206	11,296	87,831	1,060	67,665	10,598	129,843	63,222	1,245	529	1,142	63,705
2015	422,029	5,106	289,034	50,553	63,093	11,021	85,499	1,019	67,498	10,351	127,889	62,269	1,209	518	1,127	62,766
2016	416,234	5,088	284,849	50,201	62,120	10,802	83,341	1,002	67,170	10,213	126,297	61,401	1,178	510	1,111	62,097
2017	410,651	5,096	280,863	50,023	61,124	10,586	81,417	986	66,733	9,994	124,692	60,585	1,138	499	1,098	61,372
2018	405,238	5,093	276,879	49,811	60,360	10,386	79,723	961	65,806	9,832	123,266	59,715	1,107	493	1,084	60,867

(Notes) 1 Prepared based on “The Survey on Regulation Work of Hazardous Materials”.
2 1959 is as of September 30.
3 With regard to the numbers in 2011 and 2012, because of the influence of the Great East Japan Earthquake, the numbers for the Rikuzentakata City Fire Department in Iwate Prefecture and the Futaba Fire Department in Fukushima Prefecture were calculated based on the numbers at the time of last fiscal year’s survey (as of March 31, 2010).

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☞ *Japanese Original P.361*

Attachment 2-1-2 Trends in the number of firefighting agencies and volunteer firefighter

(As of April 1 of each year)

Category / FY	Fire departments					Volunteer fire corps			
	Fire departments	Unions among these	Fire stations	Branch offices	Firefighters	Volunteer fire corps	Divisions	Standing volunteer fire corps	Volunteer firefighters
1956	383	6	465	713	31,864	5,332	-	101	1,830,222
1957	406	6	488	735	32,745	4,484	-	107	1,737,319
1958	429	6	507	778	33,729	4,304	-	104	1,677,555
1959	438	6	533	831	35,168	4,153	-	93	1,633,792
1960	445	3	562	833	36,627	4,016	-	102	1,591,053
1961	461	3	578	889	38,489	3,957	35,463	96	1,542,406
1962	484	3	597	919	40,948	3,909	35,377	100	1,488,495
1963	511	3	617	961	43,169	3,852	34,323	116	1,445,508
1964	544	4	641	996	45,357	3,835	33,825	117	1,413,285
1965	620	4	735	1,024	48,075	3,826	31,653	123	1,330,995
1966	640	4	755	1,072	50,806	3,818	30,940	125	1,301,702
1967	671	5	817	1,110	53,957	3,764	29,926	107	1,283,003
1968	700	9	851	1,155	56,681	3,748	29,451	94	1,258,277
1969	734	26	892	1,242	60,486	3,743	28,998	89	1,234,696
1970	756	58	937	1,308	64,230	3,699	28,482	71	1,210,839
1971	782	129	986	1,470	70,077	3,682	27,732	61	1,189,675
1972	805	221	1,094	1,769	79,092	3,659	27,638	23	1,166,625
1973	829	304	1,155	2,120	88,754	3,696	27,392	25	1,148,567
1974	848	359	1,230	2,407	98,329	3,682	27,081	22	1,131,723
1975	859	378	1,258	2,590	105,005	3,668	26,805	22	1,118,036
1976	869	387	1,286	2,665	107,632	3,673	26,650	22	1,105,299
1977	878	398	1,321	2,742	110,618	3,669	26,463	17	1,094,367
1978	887	408	1,336	2,771	114,249	3,669	26,324	18	1,087,269
1979	895	419	1,366	2,840	117,657	3,666	26,281	12	1,078,536
1980	906	427	1,425	2,883	120,460	3,641	26,084	11	1,069,140
1981	914	435	1,462	2,930	123,204	3,645	25,995	11	1,063,761
1982	923	441	1,470	3,001	125,335	3,656	26,115	9	1,057,404
1983	927	445	1,476	3,063	126,959	3,653	26,002	8	1,050,271
1984	932	451	1,483	3,111	128,087	3,658	25,858	8	1,042,463
1985	933	454	1,496	3,132	128,914	3,641	25,798	7	1,033,376
1986	933	454	1,501	3,151	129,610	3,650	25,701	7	1,026,224
1987	931	455	1,514	3,152	130,463	3,648	25,667	7	1,017,807
1988	930	456	1,526	3,170	131,407	3,649	25,606	6	1,008,998
1989	931	458	1,535	3,160	132,437	3,649	25,620	6	1,002,371
1990	933	464	1,554	3,166	133,610	3,654	25,639	6	996,743
1991	935	468	1,589	3,175	135,157	3,648	25,559	2	991,566
1992	935	467	1,602	3,181	137,388	3,642	25,574	1	986,996
1993	932	466	1,618	3,200	141,403	3,642	25,575	1	983,014
1994	931	465	1,615	3,207	144,885	3,641	25,561	1	979,737
1995	931	467	1,631	3,207	147,016	3,637	25,506	-	975,512
1996	925	470	1,636	3,219	148,989	3,636	25,480	-	972,078
1997	923	471	1,654	3,224	150,626	3,641	25,455	-	968,081
1998	920	473	1,662	3,232	151,703	3,643	25,393	-	962,625
1999	911	473	1,670	3,239	152,464	3,641	25,351	-	957,047
2000	907	472	1,682	3,230	153,439	3,639	25,322	-	951,069
2001	904	475	1,687	3,225	153,952	3,636	25,268	-	944,134
2002	900	475	1,690	3,226	154,487	3,627	25,238	-	937,169
2003	894	472	1,696	3,207	155,016	3,598	25,064	-	928,432
2004	886	459	1,699	3,207	155,524	3,524	24,852	-	919,105
2005	848	385	1,704	3,225	156,082	2,963	24,384	-	908,043
2006	811	329	1,706	3,221	156,758	2,584	23,946	-	900,007
2007	807	320	1,705	3,230	157,396	2,474	23,605	-	892,893
2008	807	316	1,706	3,218	157,860	2,380	23,180	-	888,900
2009	803	312	1,710	3,197	158,327	2,336	22,997	-	885,394
2010	802	305	1,716	3,180	158,809	2,275	22,926	-	883,698
2011	798	303	1,711	3,186	159,354	2,263	22,839	-	879,978
2012	791	305	1,706	3,184	159,730	2,234	22,753	-	874,193
2013	770	304	1,700	3,162	160,392	2,224	22,578	-	868,872
2014	752	296	1,703	3,153	161,244	2,221	22,560	-	864,347
2015	750	295	1,709	3,145	162,124	2,208	22,549	-	859,995
2016	733	291	1,714	3,130	163,043	2,211	22,484	-	856,278
2017	732	290	1,718	3,111	163,814	2,209	22,458	-	850,331
2018	728	289	1,719	3,117	164,873	2,209	22,422	-	843,667

(Note) Prepared based on “The Survey of the Current Status of Fire Prevention and Earthquake Countermeasures” and “The Report on Personnel Changes concerning Fire Defense Headquarters and Volunteer Fire Corps”.

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