Extract of the 2020 White Paper on Fire Service

Materials created by the Fire and Disaster Management Agency were
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The Fire and Disaster Management Agency
(FDMA)

Extract of the 2020 White Paper on Fire Service
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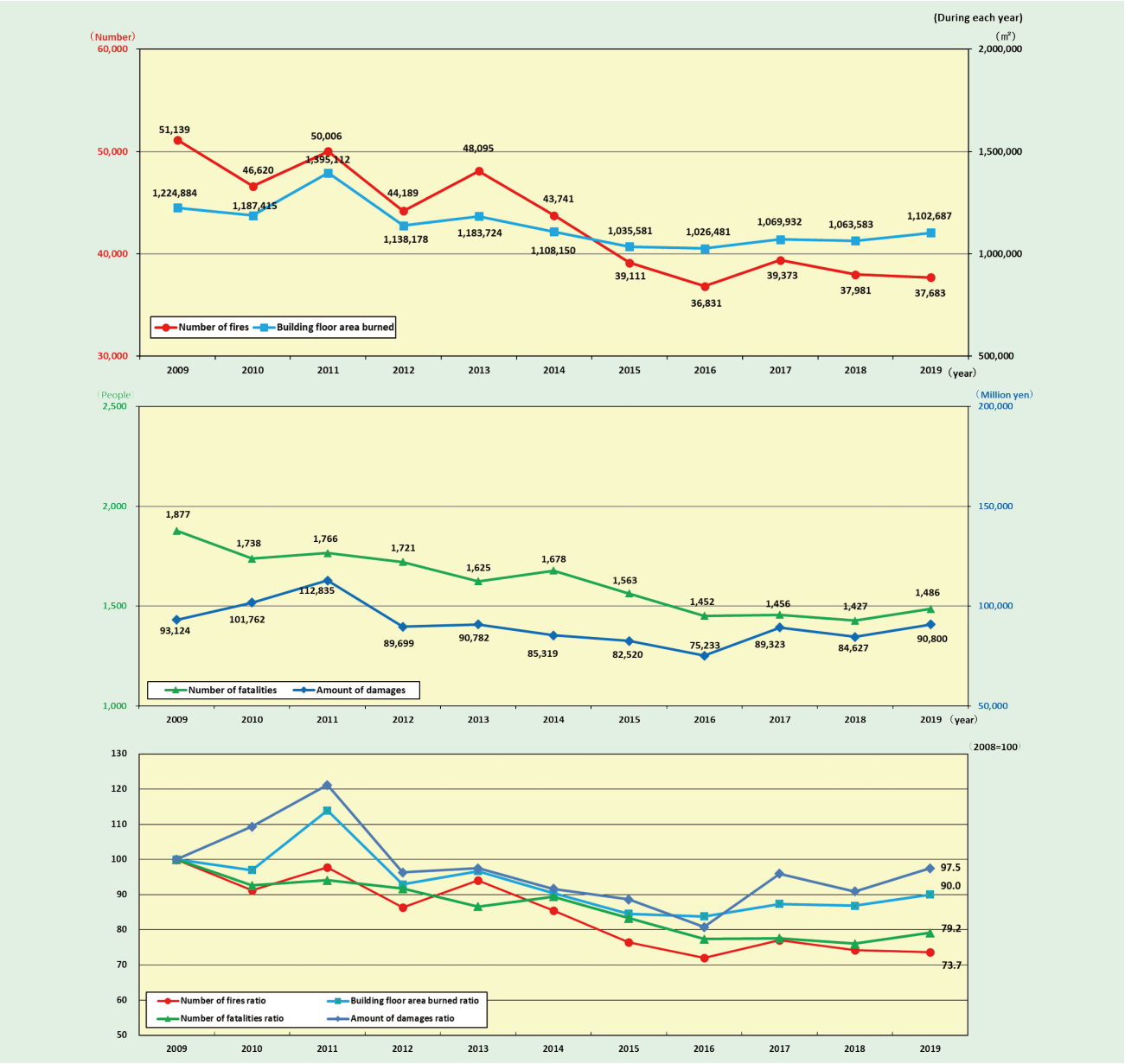
Section 1 Fire Prevention

☞ Japanese Original P.57

Current Status and Recent Trends with Fires

Looking at the number of fires since 2009, there has been a downward trend. The number of fires that occurred in 2019 totaled 37,683, a decrease of 298 (0.8%) compared to the previous year, or 73.7% compared to the number from ten years prior (i.e., the number of fires in 2009). Furthermore, the number of fatalities from fires has also largely been trending downward since 2009. The number of fatalities from fires in 2019 was 1,486, a decrease of 59 (4.1%) compared to the previous year, or 79.2% of that from ten years ago (based on the number of fatalities from fires in 2009). (**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 calculated from fires that occurred between January and December. The same holds true in this section hereinafter 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 2009 to be 100.

Table1-1-1 Status of fires

(During each year)

Classification	Unit	2009	2018 (A)	2019 (B)	Change (B) - (A) (C)	Rate of change (C) / (A) X 100 (%)
No. of fires	Fires	51,139	37,981	37,683	△ 298	△ 0.8
Building fires		28,372	20,764	21,003	239	1.2
Forest fires		2,084	1,363	1,391	28	2.1
Vehicle fires		5,326	3,660	3,585	△ 75	△ 2.0
Ship fires		109	69	69	0	0.0
Aircraft fires		4	1	1	0	0.0
Other fires		15,244	12,124	11,634	△ 490	△ 4.0
No. of buildings burned	Buildings	38,800	29,962	30,653	691	2.3
Totally destroyed		8,433	7,138	7,404	266	3.7
Half destroyed		2,537	1,658	1,631	△ 27	△ 1.6
Partially destroyed		11,034	7,833	7,853	20	0.3
Minor fire		16,796	13,333	13,765	432	3.2
Building floor area burned	㎡	1,224,884	1,063,583	1,102,687	39,104	3.7
Building surface area burned	㎡	123,176	117,981	111,123	△ 6,858	△ 5.8
Forest area burned	a	106,400	60,624	83,651	23,027	38.0
Fatalities	People	1,877	1,427	1,486	59	4.1
Injured	People	7,654	6,114	5,865	△ 249	△ 4.1
No. of households affected	Households	25,487	18,180	18,364	184	1.0
Totally destroyed		5,554	3,978	4,173	195	4.9
Half destroyed		2,085	1,233	1,206	△ 27	△ 2.2
Partially destroyed		17,848	12,969	12,985	16	0.1
No. of people affected	People	61,517	39,758	39,983	225	0.6
Amount of damages	Millions	93,124	84,627	90,800	6,173	7.3
Building fires		87,365	76,353	84,186	7,833	10.3
Forest fires		521	202	269	67	33.0
Vehicle fires		2,332	2,227	2,259	32	1.4
Ship fires		721	859	254	△ 605	△ 70.4
Aircraft fires		74	730	3	△ 727	△ 99.6
Other fires		1,432	3,172	3,286	114	3.6
Explosions		680	1,084	543	△ 541	△ 49.9
Fire outbreak rate	Fires/10,000	4.0	3.0	3.0	△ 0.0	–

(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 hereinafter unless otherwise noted.
3 “Forest fires” refer to fires that burn forests, wilderness, or grassland. The same holds true in this section hereinafter 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 hereinafter unless otherwise noted.
5 “Ship fires” refer to fires that burn ships or their cargo. The same holds true in this section hereinafter unless otherwise noted.
6 “Aircraft fires” refer to fires that burn aircraft or their cargo. The same holds true in this section hereinafter 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 hereinafter 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 hereinafter 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 hereinafter unless otherwise noted.
10 The amount of damages and so forth includes cases that are still under investigation, and is subject to change. The same holds true in this section hereinafter unless otherwise noted.
11 The symbol '△' indicates negative numbers. The same holds true in this section hereinafter unless otherwise noted.
12 The rate of change was found by rounding up less than whole numbers with the displayed units. The same holds true in this section hereinafter 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 hereinafter 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 hereinafter unless otherwise noted.

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☞ Japanese Original P.71

Current Status of Fire Prevention Administration

1. Current Status of Residential Fire Prevention Measures

The number of residential fires in 2019 (10,058, excluding those from arson) accounted for roughly 50% of the total number of building fires (19,716, excluding those from arson). Furthermore, the number of fatalities from residential fires (899, excluding suicides by arson), accounted for roughly 80% of the total number of fatalities from building fires (1,080, excluding suicides by arson). (**Attachment 1-1-25**, untranslated) In addition, elderly people age 65 or older accounted for approximately 70% of fatalities from residential fires.

As a result of the revision of the Fire Service Act in 2004, the installation of residential fire alarms became mandatory for newly-built residences from June 2006, and for existing residences by June 2011 in all cities, towns, and villages nationwide in accordance with the ordinances of each municipality. The Fire and Disaster Management Agency (FDMA) held the Committee on Measures to Install and Maintenance Residential Fire Alarms, and based on the Basic Policy on Measures to Install and Maintenance 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 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, 2019, the nationwide installation rate*1 was 82.6% and the ordinance compliance rate*2 was 68.3%. 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 subject to fire prevention administration, such as architectural structures, as "fire prevention properties." It also mandates the establishment of personnel structures for fire prevention, the installation of fire protection equipment, etc.*3 and the use of flame retardant materials at those fire prevention properties listed in Appended

Table 1-1-15 Residential fire alarm installation and ordinance compliance rates by prefecture (July 1, 2020)

Prefecture	Installation rate	Ordinance compliance rate	Prefecture	Installation rate	Ordinance compliance rate
All of Japan	82.6%	68.3%	Mie	76.3% (39)	61.8% (38)
Hokkaido	84.1% (16)	70.8% (11)	Shiga	82.4% (21)	63.6% (31)
Aomori	81.0% (26)	67.5% (18)	Kyoto	87.9% (5)	75.1% (7)
Iwate	85.1% (13)	64.8% (26)	Osaka	84.1% (16)	76.4% (6)
Miyagi	92.1% (2)	69.1% (13)	Hyogo	85.5% (11)	65.7% (23)
Akita	82.5% (20)	63.6% (31)	Nara	74.9% (42)	62.3% (35)
Yamagata	82.4% (21)	63.3% (33)	Wakayama	78.9% (33)	62.3% (35)
Fukushima	79.3% (32)	58.2% (41)	Tottori	85.4% (12)	63.8% (30)
Ibaraki	73.1% (43)	60.2% (39)	Shimane	87.4% (7)	65.8% (22)
Tochigi	78.4% (35)	67.3% (19)	Okayama	77.5% (38)	63.1% (34)
Gunma	71.4% (44)	57.0% (43)	Hiroshima	87.2% (8)	79.4% (4)
Saitama	78.1% (37)	67.3% (19)	Yamaguchi	79.8% (30)	65.3% (25)
Chiba	75.9% (40)	52.5% (45)	Tokushima	79.7% (31)	65.7% (23)
Tokyo	89.9% (4)	77.7% (5)	Kagawa	75.6% (41)	59.2% (40)
Kanagawa	84.3% (15)	68.7% (14)	Ehime	78.8% (34)	68.5% (15)
Niigata	87.0% (9)	72.2% (9)	Kochi	70.8% (45)	52.1% (46)
Toyama	84.9% (14)	66.2% (21)	Fukuoka	82.8% (19)	71.8% (10)
Ishikawa	87.5% (6)	84.1% (2)	Saga	68.1% (46)	56.8% (44)
Fukui	94.8% (1)	87.0% (1)	Nagasaki	78.2% (36)	57.9% (42)
Yamanashi	81.1% (25)	68.2% (16)	Kumamoto	80.0% (29)	64.0% (29)
Nagano	80.7% (28)	64.8% (26)	Oita	86.3% (10)	70.6% (12)
Gifu	81.3% (23)	64.4% (28)	Miyazaki	83.8% (18)	74.3% (8)
Shizuoka	80.9% (27)	68.1% (17)	Kagoshima	91.1% (3)	81.8% (3)
Aichi	81.2% (24)	62.3% (35)	Okinawa	57.5% (47)	43.6% (47)

(Note) ( ) : The numbers in parenthesis show the rank in order starting with the prefecture with the highest installation rate and so forth.

*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 by 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 by 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 prevention activities (fire extinguishers, sprinkler systems, automatic fire alarms, fire escape equipment, guide lamps, etc.)

Table I of the Ordinance of Enforcement for the Fire Service Act according to their purpose, size, and so forth.

As of March 31, 2020, the number of fire prevention properties throughout Japan totaled 4,215,231 (this number is 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 hereinafter).

Moreover, the number of fire prevention properties in the 21 major cities (special wards of Tokyo and ordinance-designated cities) was 1,205,031, accounting for 28.6% of the total number of 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. (57.1% of the national total). (**Table 1-1-16**)

3. Fire Prevention Management System

(1) Fire Prevention Managers

The Fire Service Act requires that people with management authority for fire prevention properties that contain large numbers of people (hereinafter referred to as "management officials") appoint fire prevention

Table 1-1-16 Number of fire prevention properties

(As of March 31, 2020)

Classification of fire prevention properties	Nationwide	21 major cities	Percentage (%)
(1) a Theaters, etc.	4,551	663	14.6
(1) b Public halls, etc.	65,049	6,274	9.6
(2) a Cabarets, etc.	788	134	17.0
(2) b Game centers, etc.	9,370	1,790	19.1
(2) c Stores engaged in sex-related businesses, etc.	175	100	57.1
(2) d Karaoke box and stores, etc.	2,487	611	24.6
(3) a Restaurants, etc.	2,695	488	18.1
(3) b Eating and drinking houses	88,006	18,605	21.1
(4) Department stores, etc.	158,618	28,857	18.2
(5) a Hotels, etc.	60,770	8,153	13.4
(5) b Apartment houses, etc.	1,370,573	528,616	38.6
(6) a (1) Hospitals that require patient assistance for evacuation	6,249	1,024	16.4
(6) a (2) Clinics with 19 beds or less that need patient assistance for evacuation	3,204	643	20.1
(6) a (3) Hospitals(not including those listed in (1)), Clinics with 19 beds or less(not including those listed in (2)) and maternity homes with beds	9,478	2,339	24.7
(6) a (4) Clinics with no in-patient capacity, maternity homes without beds	44,792	8,484	18.9
(6) a Subtotal	63,723	12,490	19.6
(6) b (1) Short-term welfare facilities for the elderly	43,641	8,215	18.8
(6) b (2) Shelters	239	48	20.1
(6) b (3) Nurseries	147	35	23.8
(6) b (4) Welfare facilities for disabled children	492	74	15.0
(6) b (5) Support facilities for the disabled	6,986	1,153	16.5
(6) b Subtotal	51,505	9,525	18.5
(6) c (1) Elderly daycare centers, etc.	22,991	3,962	17.2
(6) c (2) Rehabilitation facilities	224	46	20.5
(6) c (3) Nursery schools, etc.	36,781	8,014	21.8
(6) c (4) Child development support centers, etc.	3,440	546	15.9
(6) c (5) Welfare centers for disabled persons, etc.	21,295	3,523	16.5
(6) c Subtotal	84,731	16,091	19.0
(6) d Kindergartens, etc.	16,127	3,908	24.2
(7) Schools	125,598	28,204	22.5
(8) Libraries, etc.	7,632	860	11.3
(9) a Special bathhouses	1,416	648	45.8
(9) b General bathhouses	4,141	977	23.6
(10) Railroad depots	3,915	1,415	36.1
(11) Temples and shrines, etc.	58,937	12,353	21.0
(12) a Factories, etc.	490,158	72,311	14.8
(12) b Studios	378	156	41.3
(13) a Parking lots, etc.	52,165	14,742	28.3
(13) b Aircraft hangars	860	101	11.7
(14) Warehouses	335,640	55,312	16.5
(15) Offices, etc.	489,348	110,681	22.6
(16) a Specified multipurpose fire prevention properties	381,134	143,680	37.7
(16) b Unspecified multipurpose fire prevention properties	274,245	125,279	45.7
(16-2) Underground malls	61	53	86.9
(16-3) Semi-underground malls	7	6	85.7
(17) Cultural properties	9,180	1,485	16.2
(18) Arcades	1,248	463	37.1
(19) Mountain forests	0	0	–
Total	4,215,231	1,205,031	28.6

(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 hereinafter).

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.

managers*5 who form the core of voluntary fire prevention management structures, and to have them perform operations necessary for fire prevention management that stipulate the implementation of firefighting, reporting, and evacuation drills.

As of March 31, 2020, the number of fire prevention properties that were legally required to establish fire prevention management structures and appoint fire prevention managers totaled 1,077,127 nationwide. Of these, 887,968 properties, which corresponds to 82.4%, have appointed fire prevention managers and notified firefighting agencies to this effect.

Additionally, the number of fire prevention properties where the fire prevention manager has prepared a fire prevention plan for fire prevention management*6 in order to carry out proper fire prevention management operations at their own office and notified firefighting agencies to this effect was 834,777, or 77.5% of the total number of properties. (**Attachment 1-1-40**, untranslated)

(2) Supervisors of Fire Prevention Management

For properties like high-rise buildings (buildings that are taller than 31m high), underground malls, semi-underground malls, and other specified properties subject to fire prevention measures*7 at or above a certain size where management authority has been divided up, the Fire Service Act stipulates that fire prevention managers are to be appointed to carry out fire prevention management for each area where management authority exists. At the same time, it also states that supervisors of fire prevention management are to be appointed in consultation with fire prevention managers in order to carry out fire prevention management for the building as a whole in an integrated manner. It also mandates that each management official is obligated to ensure the safety of the entire fire prevention property by preparing firefighting plans for fire prevention management for said property as a whole, and by conducting firefighting, reporting, and evacuation drills.

As of March 31, 2020, the number of fire prevention properties that were required to appoint supervisors of fire prevention management totaled 88,224 nationwide. Of these, 54,976, or 62.3%, have appointed supervisors of fire prevention management and notified firefighting agencies to this effect. Furthermore, the number of fire prevention properties that have prepared overall fire prevention plans in order to carry out fire prevention management for the building as a whole in an integrated manner, and that have notified firefighting agencies to this effect was 52,521, or 59.5% of the total number of properties. (**Attachment 1-1-41**, untranslated)

(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 fire prevention maintenance on said properties and to 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 have people with expertise in fire prevention (hereinafter referred to as "qualified inspectors of fire prevention properties") perform inspections and report the inspection results to firefighting agencies once a year.

These qualified inspectors of fire prevention properties consist of people with a certain level of fire prevention knowledge, such as fire protection equipment engineers*8 with three or more years of practical experience in construction work for fire protection equipment, etc., or people with three or more years of practical experience as fire prevention 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 regarding inspections for fire prevention properties.

As of March 31, 2020, the number of such inspectors totaled 32,712.

In addition, fire prevention properties for which periodic inspection reports have been mandated and for which three years have passed since the start of management are exempted from the obligation of inspections and reports for three years if they are certified as being in good compliance with the standards of the Fire Service Act through an inspection conducted by a firefighting agency on the basis of an application from the management officials from said fire prevention property.

Fire prevention properties that have been acknowledged as being in compliance with the inspection standards by a qualified inspector of fire prevention 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 Prevention 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 (hereinafter referred to as "management officials") are to prepare

*5 Fire prevention managers: People who have been appointed from among those management officials who have certain qualifications, such as having completed a training course on fire prevention 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 prevention management at said properties.

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

*7 Specified properties subject to 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.

*9 Firefighting plans for disaster prevention management: These are plans that establish matters which are necessary for disaster prevention management.

firefighting plans for disaster prevention management[*9] suited to earthquakes and other disasters, appoint disaster prevention managers[*10] responsible for emergency preparedness and evacuation drills related to damage specific to earthquakes, and establish fire defense organizations for self-protection[*11] to carry out the necessary operations in order to mitigate damage from fires and other disasters.

As of March 31, 2020, the number of properties under disaster prevention measures that were legally required to establish disaster prevention management systems and appoint disaster prevention managers totaled 10,053 throughout Japan. Of these, 9,510, or 94.6%, have appointed disaster prevention managers and notified firefighting agencies to this effect.

Furthermore, the number of properties under disaster prevention measures at which the disaster prevention manager has prepared firefighting plans for disaster prevention management, in order to carry out the appropriate disaster prevention management operations at their own offices and other establishments, and notified firefighting agencies to this effect was 9,160, or 91.1% of the total. The number of said properties that have established fire defense organizations for self-protection came to 9,043, or 90.0% of the total. (**Attachment 1-1-42**, untranslated)

(2) Supervisors of Disaster Prevention Management

For those buildings that require disaster prevention management where management authority has been divided up, the Fire Service Act stipulates that disaster prevention managers are to be appointed to carry out disaster prevention for each area where management authority exists. At the same time, it also stipulates that supervisors of disaster prevention management are to be appointed in consultation with disaster prevention managers in order to carry out disaster prevention management for the building as a whole in an integrated manner. Each management official is obligated to ensure fire and disaster safety for the disaster prevention property as a whole.

As of March 31, 2020, the number of fire prevention properties that were required to appoint supervisors of disaster prevention management totaled 2,854 nationwide. Of these, 2,649, or 92.8%, have appointed supervisors of disaster prevention management and notified firefighting agencies to this effect. Furthermore, the number of disaster prevention properties that have prepared firefighting plans in order to carry out disaster prevention management for the building as a whole in an integrated manner, and that have notified firefighting agencies to this effect, was 2,583, or 90.5% of the total. (**Attachment 1-1-43**, untranslated)

5. Onsite Inspections and Corrections of Violations

(1) Current Status of 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 FY2019 totaled 827,783. (**Attachment 1-1-44**, untranslated)

Fire chiefs or fire station chiefs may order measures that must be taken with respect to deficiencies in fire prevention management at fire prevention properties, such as failure to install fire protection equipment, or other problems brought to light through onsite inspections. Such measures include appointing fire prevention managers and installing fire protection equipment 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 addition, in cases where this is recognized as posing a hazard for fire prevention, necessary measures such as repairs, relocation, elimination of hazards, as well as prohibition or restriction of use of the relevant fire prevention property may be ordered pursuant to the regulations in Article 5, Article 5-2, or Article 5-3 of the Fire Service Act. The act also states that in the event that such an order is issued, public notice shall be given.

In cases where violations of fire prevention laws or ordinances are discovered as a result of such 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, etc. (**Attachment 1-1-45**, **46**, **47**, **48**, untranslated)

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 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, 2020, there were 148 specified violating properties, and 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 Firefighting plans for disaster prevention management: These are plans that establish matters which are necessary for disaster prevention management.

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

*11 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.

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	96	39.6%
FY2019	189	85	45.0%
FY2020	148	–	–

(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	
	FY2018	FY2019	FY2018	FY2019	FY2018	FY2019
New construction	213,645	206,776	10	8	213,655	206,784
Extension	18,533	17,220	5	0	18,538	17,220
Reconstruction	665	543	0	0	665	543
Relocation	101	93	0	0	101	93
Repair	132	155	0	0	132	155
Remodeling	110	109	0	0	110	109
Change of classification	3,975	2,193	3	2	3,978	2,195
Other	2,690	3,042	1	0	2,691	3,042
Total	239,851	230,131	19	10	239,870	230,141

(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 prevention 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: https://www.fdma.go.jp/relocation/kasai_yobo/hyoujiseido/).

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

The System for Publicly Announcing Violating Properties, in accordance with the December 2013 notice, 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 systems, despite being obligated to do so. This announcement system was initiated in all ordinance-designated cities starting from April 2015.

Furthermore, fire departments overseeing populations of 200,000 people or more started utilizing this public announcement system beginning April 2018, and those of less than 200,000 people have also started utilizing it sequentially.

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: https://www.fdma.go.jp/relocation/publication/).

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, ensuring that this work is handled promptly.

The number of cases processed regarding fire prevention consent work throughout Japan in FY2019 totaled 230,141, with only 10 of these failing to receive consent. (**Table 1-1-18**)

(2) Current Status of 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 of primary fire protection equipment, etc. in specified fire prevention properties throughout Japan reveals that, as of March 31, 2020, the installation rate for sprinkler systems (number installed vs. number that need to be installed) was 99.8%, while the rate for automatic fire alarms was 99.4%. (**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

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

(As of March 31, 2020)

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.	809	809	0	100.0	3,798	3,791	7	99.8
	b		Public halls, etc.	551	549	2	99.6	31,129	31,099	30	99.9
(2)	a		Cabarets, etc.	7	7	0	100.0	439	429	10	97.7
	b		Game centers, etc.	710	701	9	98.7	8,592	8,582	10	99.9
	c		Stores engaged in sex-related businesses, etc.	2	2	0	100.0	159	158	1	99.4
	d		Karaoke box and stores, etc.	9	9	0	100.0	2,555	2,548	7	99.7
(3)	a		Restaurants, etc.	2	2	0	100.0	1,880	1,865	15	99.2
	b		Eating and drinking houses	107	106	1	99.1	34,711	34,364	347	99.0
(4)	Department stores, etc.			7,541	7,514	27	99.6	85,598	85,315	283	99.7
(5)	a		Hotels, etc.	2,321	2,310	11	99.5	74,157	73,391	766	99.0
(6)	a	(1)	Hospitals that they need patient assistance for evacuation	3,875	3,863	12	99.7	5,942	5,937	5	99.9
		(2)	Clinics with 19 beds or less that they need patient assistance for evacuation	1,358	1,354	4	99.7	2,845	2,840	5	99.8
		(3)	Hospitals(not including those listed in (1)), Clinics with 19 beds or less(not including those listed in (2)) and maternity homes with beds	3,608	3,605	3	99.9	9,116	9,111	5	99.9
		(4)	Clinics with no in-patient capacity, maternity homes without beds	205	205	0	100.0	21,452	21,420	32	99.9
		Subtotal		9,046	9,027	19	99.8	39,355	39,308	47	99.9
	b	(1)	Short-term welfare facilities for the elderly	41,825	41,785	40	99.9	43,826	43,810	16	100.0
		(2)	Shelters	196	196	0	100.0	239	239	0	100.0
		(3)	Nurseries	126	126	0	100.0	223	221	2	99.1
		(4)	Welfare facilities for disabled children	445	444	1	99.8	514	514	0	100.0
		(5)	Support facilities for the disabled	6,588	6,572	16	99.8	7,556	7,549	7	99.9
		Subtotal		49,180	49,123	57	99.9	52,358	52,333	25	100.0
	c	(1)	Elderly daycare centers, etc.	1,359	1,353	6	99.6	15,163	15,136	27	99.8
		(2)	Rehabilitation facilities	43	12	31	27.9	171	171	0	100.0
		(3)	Nursery schools, etc.	108	108	0	100.0	30,787	30,772	15	100.0
		(4)	Child development support centers, etc.	33	33	0	100.0	1,476	1,475	1	99.9
		(5)	Welfare centers for disabled persons, etc.	652	648	4	99.4	17,677	17,630	47	99.7
		Subtotal		2,195	2,154	41	98.1	65,274	65,184	90	99.9
	d		Kindergartens, etc.	217	217	0	100.0	14,138	14,133	5	100.0
(9)	a		Special bathhouses	20	20	0	100.0	1,325	1,323	2	99.8
(16)	a		Specified multipurpose fire prevention properties	20,256	20,212	44	99.8	208,030	205,739	2,291	98.9
(16-2)	Underground malls			59	59	0	100.0	61	61	0	100.0
(16-3)	Semi-Underground malls			5	5	0	100.0	6	6	0	100.0
Total				93,037	92,826	211	99.8	623,565	619,629	3,936	99.4

(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.

and five injured). In light of this, it was mandated that Clinics with 19 beds or less or Hospitals that need patient assistance for evacuation must install sprinkler 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, a large-scale urban fire occurred in Itoigawa City, Niigata Prefecture in December 2016 (which left 30,213.45m^2 of 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 a violation of the obligation to install fire protection equipment, etc., the government will proactively issue administrative orders and other measures based on the Fire Service Act to further promote prompt and effective handling of violations.

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

Efforts are made to ensure the performance of fire protection equipment, etc. via the inspector 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.

Furthermore, fire protection equipment, etc. must be properly maintained on a daily basis to ensure that it is capable of performing at any time. As a result, it has been mandated that periodic inspections be performed and the inspection results be reported. These inspections, which are a prerequisite for maintenance, require knowledge and skills with regard to fire protection equipment, etc. Therefore, the relevant personnel from 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, 2020, the total number of fire protection equipment engineers came to 1,228,901 (**Attachment 1-1-49**, untranslated). In addition, the number of fire protection equipment inspectors totaled 727 special inspectors (for special fire protection equipment, etc.), 161,049 Class 1 inspectors (for mechanical systems) and 151,683 Class 2 inspectors (for electrical systems).

Programs for displaying that inspections have been performed, in which 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 responsibilities and have the relevant personnel from fire prevention properties perform the proper inspections.

(4) Flame Retardancy Regulations

A. Usage Status of Flame Retardant Materials

The use of flame-resistant materials for various objects that are likely to ignite within buildings simultaneously prevents fires from starting and suppresses 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 materials with the prescribed flame retardant performance (hereinafter referred to as “flame retardant materials”) for curtains, stage curtains, plywood display boards, carpets, and other goods used (hereinafter referred to as “goods under the flame retardancy requirement”).

As of March 31, 2020, the number of flame retardancy and fire prevention properties totaled 996,258. The conformance rate (share of the flame retardancy and fire prevention properties where flame retardant materials 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 was 87.9%, while it was 87.6% at those using carpets, and 84.7% at those using plywood display boards. (**Table 1-1-20**)

B. Public Awareness of Flame Retardant Materials 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, the use of fireproof materials for futons, pajamas, automobile and motorcycle body covers, etc. is also extremely effective at preventing fires. Therefore, the FDMA spreads public awareness of these by uploading videos detailing their effects to its website (reference URL: https://www.fdma.go.jp/relocation/html/life/yobou_contents/fire_retardant/).

(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

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

(As of March 31, 2020)

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.	4,282	2,622	2,501	95.4	1,952	1,859	95.2	479	453	94.6
	b Public halls, etc.	63,202	42,657	38,976	91.4	25,403	22,713	89.4	4,296	3,786	88.1
(2)	a Cabarets, etc.	746	369	276	74.8	396	320	80.8	46	41	89.1
	b Game centers, etc.	9,149	4,661	4,204	90.2	4,290	3,967	92.5	639	573	89.7
	c Stores engaged in sex-related businesses, etc.	190	131	112	85.5	106	92	86.8	7	4	57.1
	d Karaoke box and stores, etc.	2,450	1,333	1,205	90.4	1,069	992	92.8	169	160	94.7
(3)	a Restaurants, etc.	2,584	1,602	1,384	86.4	1,483	1,306	88.1	154	131	85.1
	b Eating and drinking houses	83,985	40,906	33,574	82.1	23,634	19,679	83.3	4,333	3,643	84.1
(4)	Department stores, etc.	152,672	64,871	59,246	91.3	33,312	29,721	89.2	8,341	7,256	87.0
(5)	a Hotels, etc.	58,734	46,102	42,423	92.0	36,936	34,293	92.8	2,817	2,420	85.9
(6)	a Hospitals, etc.	61,715	45,413	42,838	94.3	25,124	23,416	93.2	4,063	3,690	90.8
	b Special elderly nursing homes, etc.	50,118	41,461	39,454	95.2	23,423	22,214	94.8	3,846	3,574	92.9
	c Elderly daycare centers, etc.	82,363	61,016	57,056	93.5	34,409	31,518	91.6	5,622	5,135	91.3
	d Kindergartens, etc.	15,661	12,224	11,413	93.4	6,356	5,876	92.4	1,043	937	89.8
(9)	a Special bathhouses	1,524	1,105	970	87.8	1,032	946	91.7	69	55	79.7
(12)	b Studios	497	187	170	90.9	159	149	93.7	71	63	88.7
(16)	a Specified multipurpose fire prevention properties	328,786	148,594	118,093	79.5	95,536	77,133	80.7	17,774	13,630	76.7
	b Unspecified multipurpose fire prevention properties	21,379	3,668	2,951	80.5	2,791	2,291	82.1	929	752	80.9
(16-2)	Underground malls	61	46	39	84.8	39	35	89.7	12	12	100.0
(16-3)	Semi-underground malls	7	5	3	60.0	4	3	75.0	1	1	100.0
	High-rise buildings	56,153	24,798	21,100	85.1	22,353	19,148	85.7	4,279	3,638	85.0
Total		996,258	543,771	477,988	87.9	339,807	297,671	87.6	58,990	49,954	84.7

(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.

ordinances established by each municipality. These are established pursuant to the Ministerial Ordinance Establishing Standards for Enacting Ordinances on the Location, Construction, and Management of Eligible Equipment that Uses Fire and the Handling of Eligible Tools that Use Fire.

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

(1) Inspections

According to the Fire Service Act, fire protection machinery or tools that are subject to inspection (hereinafter 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.

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 approvals" (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, etc. for models of said equipment that have received model approval). (**Attachment 1-1-50,** untranslated)

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, etc. 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 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. Furthermore, in March 2010 it was discovered that fire-extinguishing foam used in compressed air foam apparatuses on fire trucks, which 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 increasing involvement of the private sector when it comes to inspections. Based on this, the Act for Partial Revision of the Fire Service Act, enacted on April 1, 2013, established collection orders via the Minister of Internal Affairs and Communications and strengthened penal provisions in cases where machinery and tools subject to inspection were not in compliance with the standards, or in cases where machinery and tools 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 other stipulations.

Moreover, the Partial Revision of the Order for the Enforcement of the Fire Service Act, enacted on April 1, 2013, made machinery and tools subject to inspections (mainly fire hoses and couplers used by firefighting agencies and electric leak alarms), for which there has been a decline in need due to changes in building configurations, into items that are subject to self-labeling. At the same time, the ordinance for Partial Revision of the ordinance of Enforcement for the Fire Service Act, enacted on April 1, 2014, newly added residential fire alarms, which are required to be installed in all homes, to the machinery and tools subject to inspection.

With regard to the fire-extinguishing foam that received type approval in 2013, it was revealed that a fraudulent act was committed during the type approval test involving the submission of a sample with a composition that differed from the values in the application, and administrative action was taken in September 2020 to revoke the type approval based on the provisions of Article 21-6 of the Fire Service Act.

(2) Self-labeling

According to the Fire Service Act, manufacturers of machinery and tools that are subject to self-labeling (hereinafter referred to as "machinery and tools subject to self-labeling") are the responsibility of manufacturers to confirm their compliance with the specifications on their own, and are prohibited from being sold, displayed for commercial purposes, and so forth unless they include a label.

Similar to machinery and tools subject to inspection, the Act for Partial Revision of the Fire Service Act, enacted on April 1, 2013, established collection orders via the Minister of Internal Affairs and Communications and strengthened penal provisions for machinery and tools subject to self-labeling which are 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 and other legislation enacted on April 1, 2014, fire hoses, couplers, and electric leak alarms that had previously been counted as machinery and tools subject to inspection, as well as disposable aerosol fire extinguishers in general widespread circulation but which frequently suffer from rupture accidents, etc. were newly added to this category.

The number of reports from manufacturers in FY2019 totaled 35 for power fire pumps, 32 for fire hoses, 0 for fire suction hose, 22 for couplers, 3 for disposable aerosol fire extinguishers, and 2 for electric leak alarms.

8. Performance Inspections of Technical Standards 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, etc. This makes it difficult for new technologies to gain acceptance, even when they offer satisfactory performance. Therefore, technical development in 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 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 their initial stages, "evacuation safety support performance," which is performance that supports safe evacuating during fires, and "firefighting activity support performance," which is performance that supports the activities of firefighting teams. For those for which a certain level of knowledge has been obtained, equivalence will be assessed by objective verification methods (methods of objectively and impartially verifying newly developed technologies and technical innovations).

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, 2020, 73 cases of special fire protection equipment, etc. have been approved. (**Attachment 1-1-51,** untranslated)

The expectation is that, by applying these regulations, new equipment using 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 increasing sophistication for industry and changes in social conditions. This has resulted in a tendency towards the frequent occurrence of fires which are large in scale or

Table 1-1-21 Recent investigations into the causes of fires conducted by the Commissioner of the FDMA and responses based on their results

No.	Date of fire	Location	Building purpose, etc.	Responses by the 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 buildings that conform to fire prevention standards.
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 venues 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.

which assume aspects of complexity, and investigating the causes behind these fires requires sophisticated expertise.

In addition, investigating the causes of fires and clarifying the extent of damage caused by both fires and firefighting is crucial in order to examine the future of the 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 prevention administration. Cases where responses such as the revision of fire prevention laws and ordinances were carried out based on the results of recent investigations into the causes of fires conducted by the Commissioner of the FDMA are shown in **Table 1-1-21**.

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

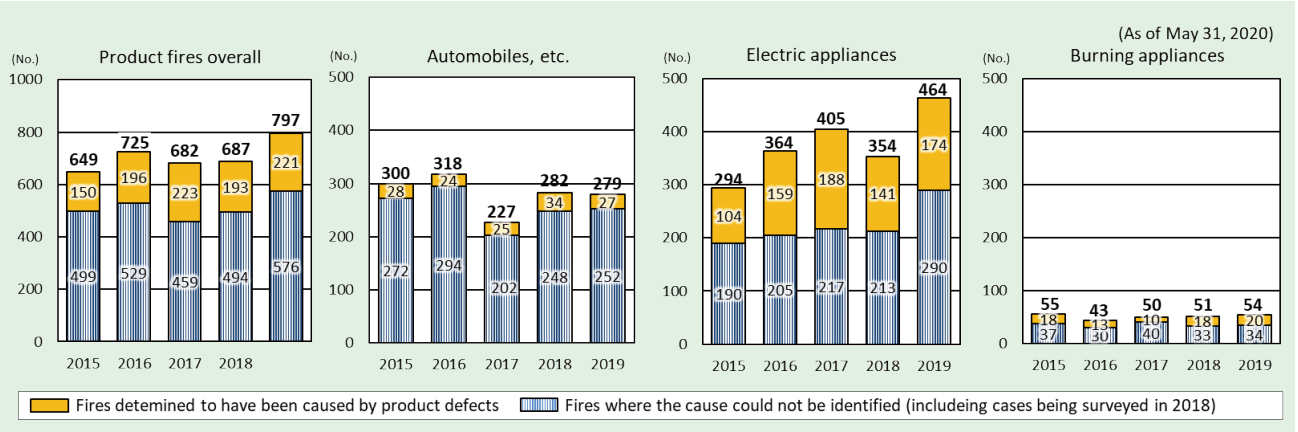
10. Promoting Countermeasures to Product Fires

In recent years, as the causes of fires have grown extremely diverse, 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 strong demand 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 serves as an 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.

Fires that occurred in FY2019 which firefighting

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 : https://www.fdma.go.jp/mission/prevention/cause/34530.html).

agencies deemed to have been caused by defects in automobiles and other vehicles, as well as electronic appliances and burning appliances were aggregated. From this, it was discovered that of the total of 797 product fires, 221 were fires deemed to have been caused by product defects, 512 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, as well as fires where the cause could not be identified, and 64 were fires that are still currently under investigation. (**Fig. 1-1-19**)

In recent years, there have been many cases of product fires involving electronic appliances that were caused by batteries. As of February 1, 2018, mobile batteries must be labeled with the PSE mark in accordance with the Act on Product Safety of Electrical Appliances and Materials, and sales of batteries without this mark are restricted to prevent hazardous products from reaching consumers.

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.

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 firefighting agencies. Examples of this include providing them with technical support such as scientific investigation based on the expert knowledge, equipment, and materials of the National Research Institute of Fire and Disaster, etc. 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 relevant agencies. Through this, it is moving forward with ensuring consumer safety and peace of mind, while preventing fire accidents caused by products.

–omitted–

Section 2 Countermeasures to Disasters at Facilities for Hazardous Materials

☞ Japanese Original P.85

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

Accidents at facilities for hazardous materials*1 are broadly classified into fires (including explosions) and spills of hazardous materials*2. The number of fire and spillage accidents at facilities for hazardous materials has been trending upward since 1994. In FY2019, there were 218 fires and 380 spills for a total of 598 accidents. This represents a decrease of 11 accidents compared with the previous year, and is the highest number ever. (**Fig. 1-2-1**)

1. Fire Accidents

The number of fire accidents that occurred at facilities for hazardous materials in 2019 was 218. This is an increase of roughly 2.0-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 fires.

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

The number of fire accidents that occurred at facilities for hazardous materials in 2019 was 218 (12 more than the previous year). The amount of damages totaled 5,588 million yen (an increase of 3,169 million yen year-on-year), and they resulted in 1 death (a decrease of 1 year-on-year) and 37 people injured (a decrease of 83 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 fuel supply depots, and manufacturing facilities, in that order. The sum of these 3 facility classifications accounts for 90.8% of the total accidents. (**Fig. 1-2-3**)

*1 **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

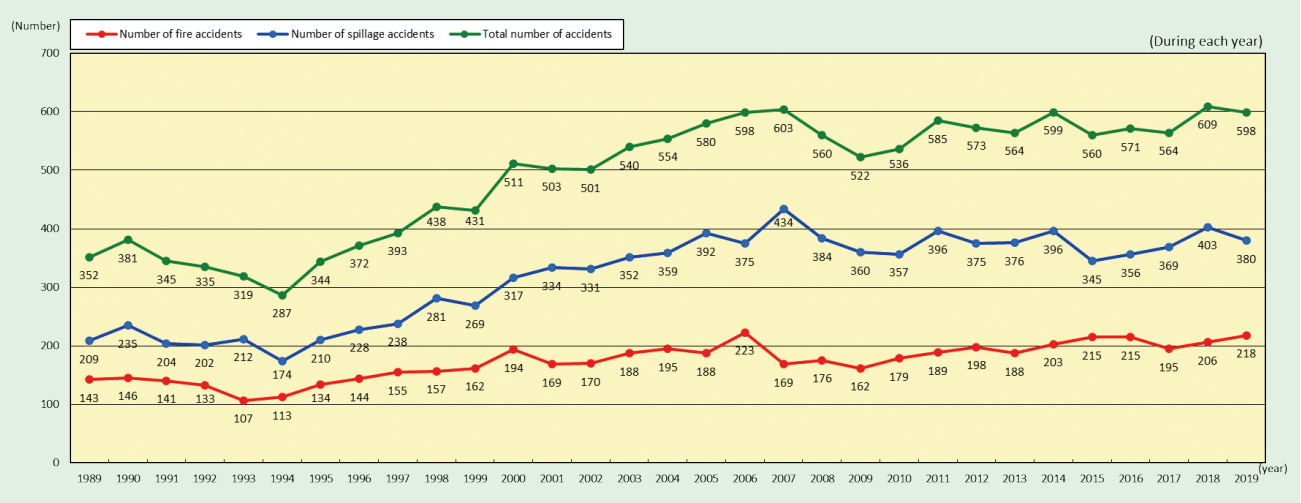
Classification		Details
Manufacturing facilities		Facilities that manufacture hazardous materials
Storage facilities	Indoor storage facilities	Store hazardous materials inside buildings
	Outdoor storage tanks	Store hazardous materials in tanks located outdoors
	Indoor storage tanks	Store hazardous materials 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
	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
	Sales handling facilities	Stores that sell containers full of hazardous materials
	Transfer handling facilities	Handling facilities that transfer hazardous materials through pipes
	General outlets	Handling facilities other than the above three types of handling facilities

*2 **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]

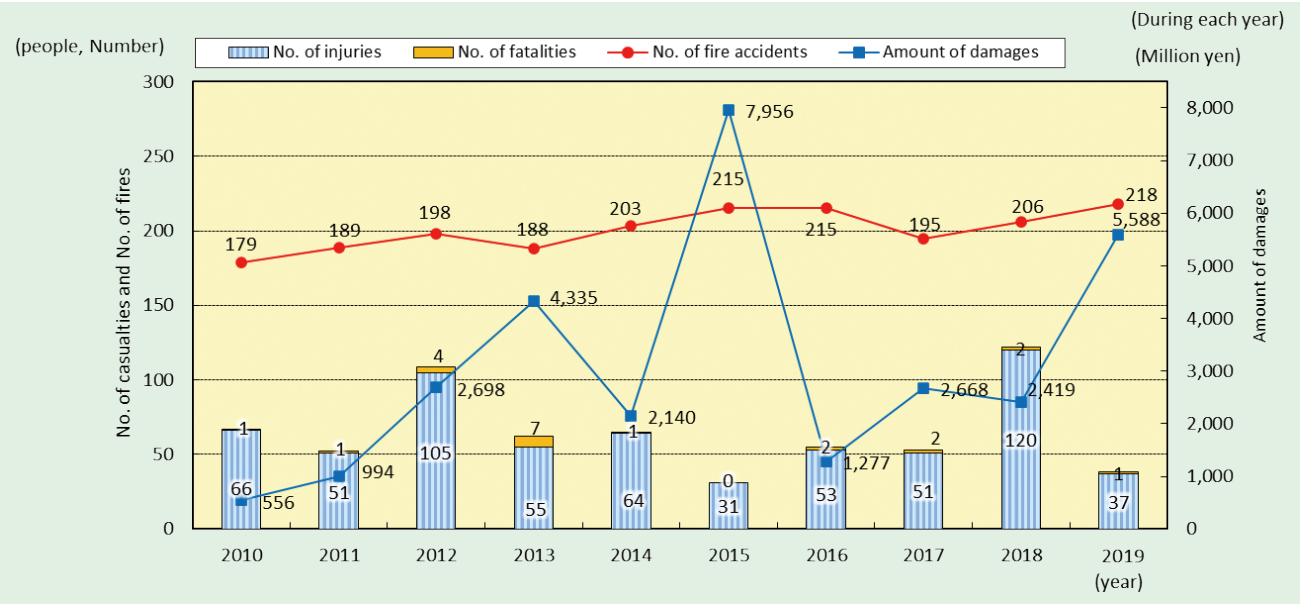
Category	Nature	Properties	Representative substances
Category 1	Oxidizing solids	These are solids that do not burn themselves, but which have the property of causing other substances to oxidize powerfully. When mixed with inflammable materials, they degrade as a result of heat, impacts, or friction, 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, ethanol
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

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 their damage



(Notes) 1 Prepared based on "The Accident Reports on Hazardous Materials".
2 The figures are rounded to the nearest unit, so in some cases the totals may not be consistent.

At the same time, 97 of the 218 fire accidents (or 44.5% 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 2019 reveals that human factors accounted for 56.9%, physical factors accounted for 29.4%, and the total for other causes, unknown, and under investigation came to 13.8%. (**Fig. 1-2-5**)

When viewed by ignition source, those ignited by static electricity sparks were the most common at 40 (an increase of 8 year-on-year), followed by 26 from high temperature surface heat (a decrease of 11 year-on-year) , 25 from electrical sparks (an increase of 10 year-on-year) and 25 from ignition due to overheating (an increase of 4 year-on-year). (**Fig. 1-2-6**)

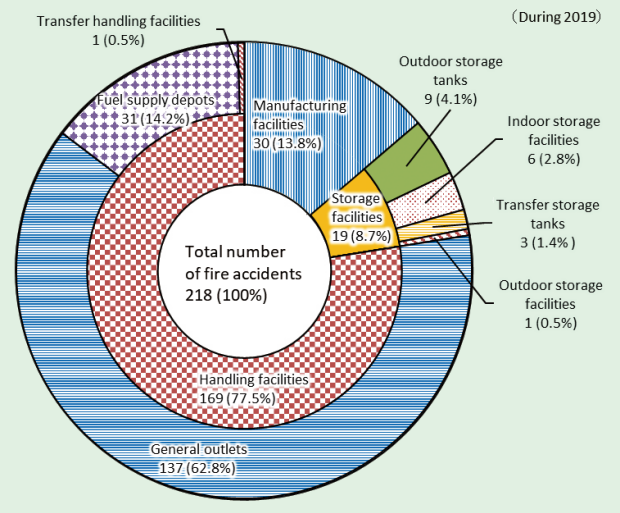
(3) Fire Accidents at Unauthorized Facilities

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 (hereinafter referred to as "unauthorized facilities") in 2019 was 4 (an increase of 2 year-on-year), leaving 3 people dead (an increase of 3 year-on-year) and 3 injured (an increase of 2 year-on-year).

(4) Fire Accidents during the Transportation of Hazardous Materials

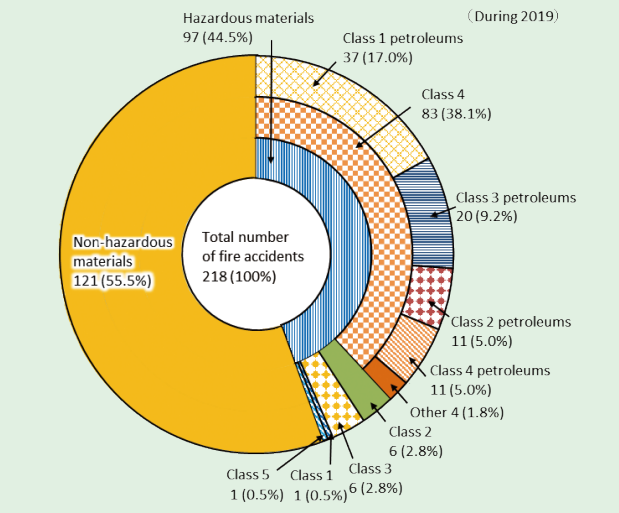
In 2019, 0 fire accidents occurred during the

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



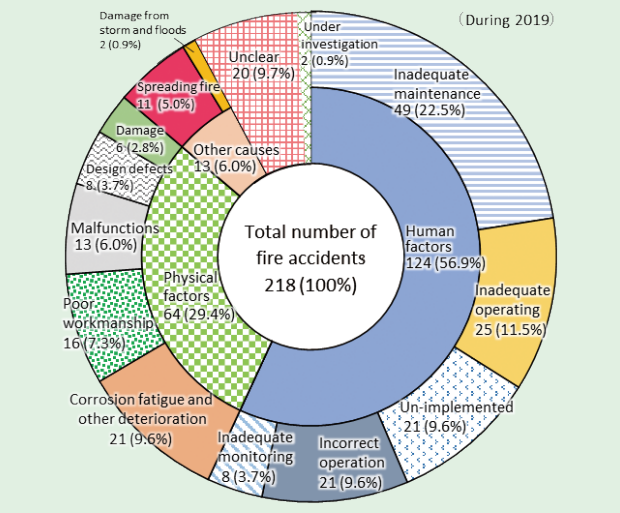
(Notes) 1 Prepared based on "The Accident Reports on Hazardous Materials".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

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



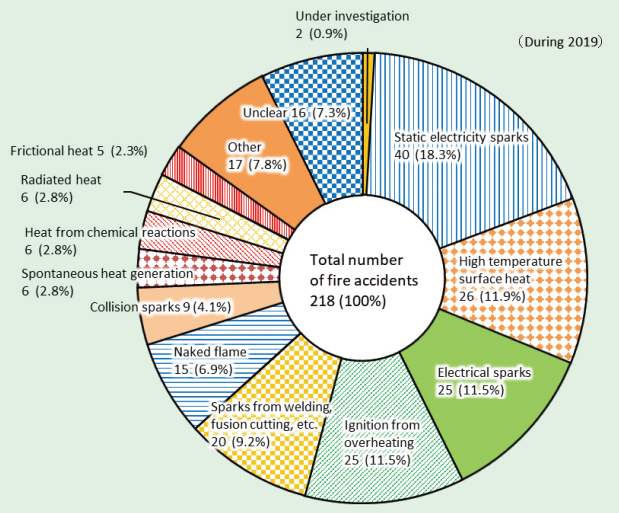
(Notes) 1 Prepared based on "The Accident Reports on Hazardous Materials".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

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.

transportation of hazardous materials (a decrease of 2 year-on-year).

(5) Fire Accidents during the Temporary Storage or Handling

In 2019, 0 fire accident occurred during the temporary storage or handling of hazardous materials (a decrease of 1 year-on-year).

2. Spillage Accidents

The number of spillage accidents involving hazardous materials that occurred at facilities for hazardous materials in 2019 was 380. This is an increase of roughly 2.2-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 their Damage

The number of spillage accidents involving hazardous materials that occurred at facilities for hazardous materials (and which did not turn into fires) in 2019 was 380 (a decrease of 23 year-on-year). The amount of damages

totaled 960 million yen (an increase of 466 million yen year-on-year), and they resulted in 0 deaths (the same as the previous year), with 27 people injured (the same as the previous 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 fuel supply depots, and outdoor storage tank facilities, in that order. (**Fig. 1-2-8**)

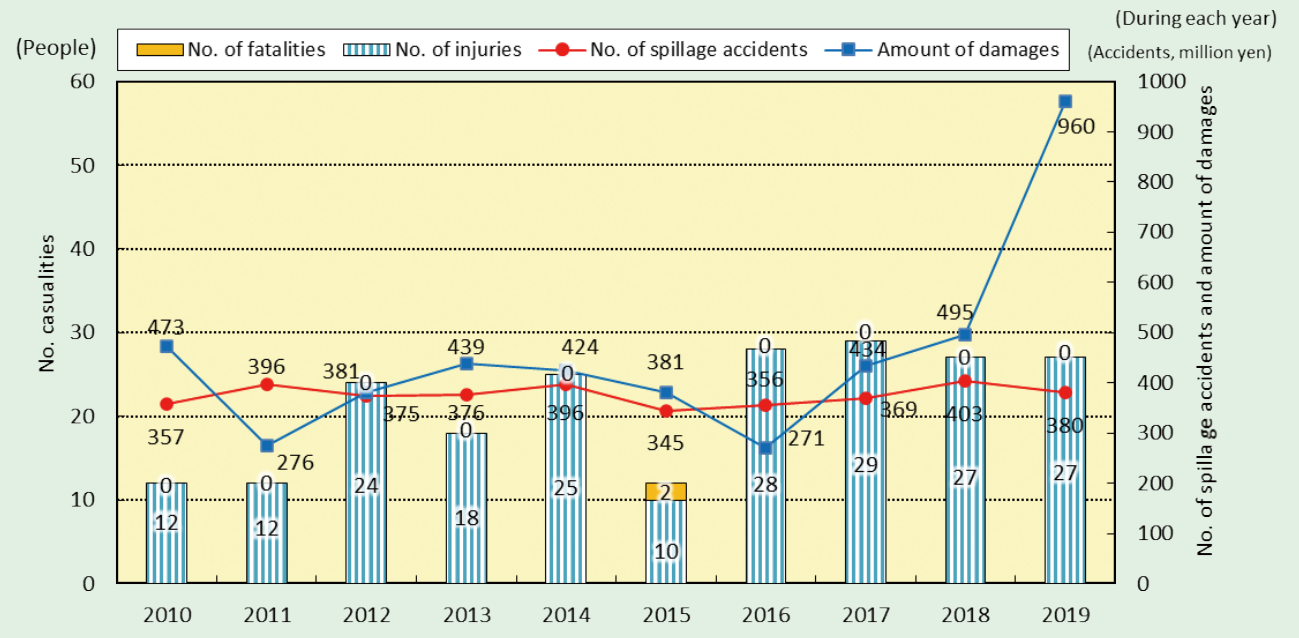
At the same time, 98.2% of the number of spillage accidents at facilities for hazardous materials involved spills of Class 4 hazardous materials, which consist primarily of petroleum products. Viewing this item type reveals that Class 2 petroleums (light oil, etc.) account for most of these, followed by Class 3 petroleums (heavy oil, etc.), Class 1 petroleums (gasoline, 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 2019 reveals that human factors accounted for 40.0%, physical factors accounted for 52.4% and the total for other causes, unknown, and under investigation came to 7.7%.

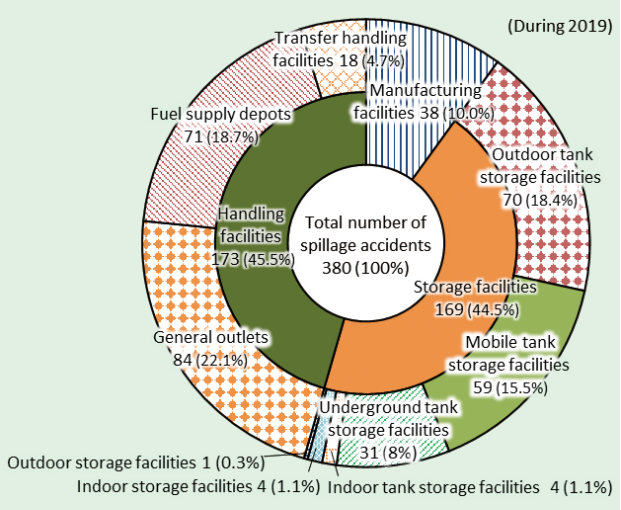
When viewed by causative factor, those caused by deterioration such as corrosion fatigue were most common

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



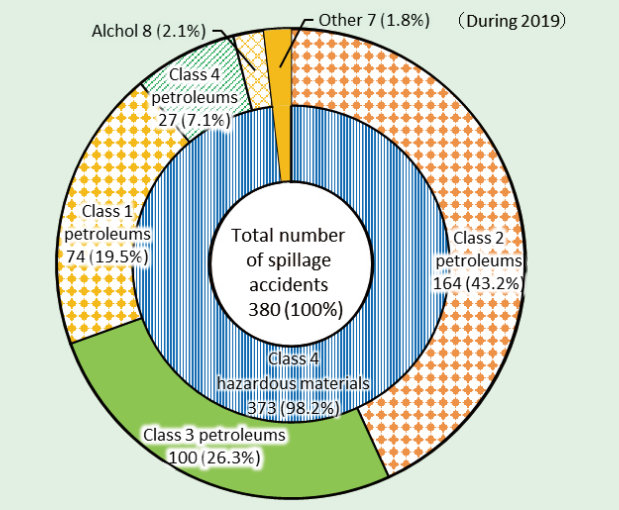
(Note) Prepared based on "The Accident Reports on Hazardous Materials".

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



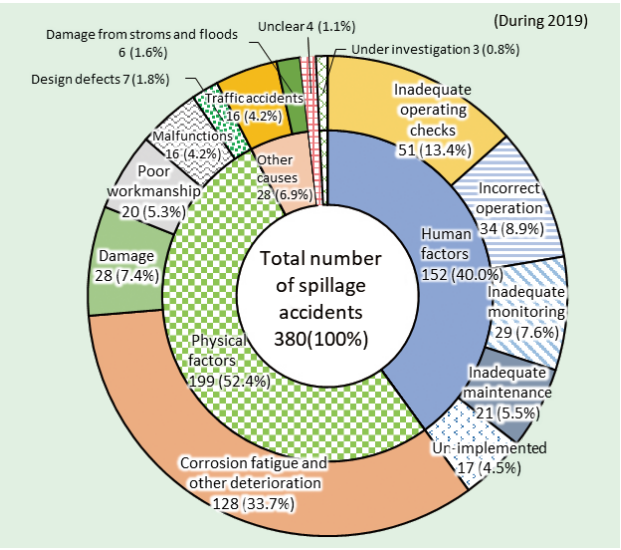
(Notes) 1 Prepared based on "The Accident Reports on Hazardous Materials".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

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.

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.

at 128 (a decrease of 2 year-on-year), followed by 51 from inadequate operating checks (a decrease of 7 year-on-year) and 34 from incorrect operation (an increase of 8 year-on-year). (**Fig. 1-2-10**)

(3) Spillage Accidents at Unauthorized Facilities

The number of spillage accidents that occurred at unauthorized facilities in 2019 was 5 (a decrease of 2 year-on-year), with no casualties (the same as the previous year).

(4) Spillage Accidents during the Transportation of Hazardous Materials

The number of spillage accidents that occurred during the transportation of hazardous materials in 2019 was 11 (a decrease of 1 year-on-year), leaving 0 people dead (the same as the previous year), and 0 people injured (a decrease of 1 year-on-year).

(5) Spillage Accidents during the Temporary Storage or Handling

The number of spillage accidents that occurred during the temporary storage or handling of hazardous materials in 2019 was 1 (an increase of 1 year-on-year), with no casualties (the same as the previous year).

☞ *Japanese Original P.89*

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." (see P.14 *2). 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 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 such as the establishment of necessary and sufficient technical standards that are safer for facilities for hazardous materials (see P.14 *1) 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 by 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.

(2) Current Status of Facilities for Hazardous Materials

A. Number of Facilities for Hazardous Materials

The total number of facilities for hazardous materials

Fig. 1-2-11 Regulatory structure

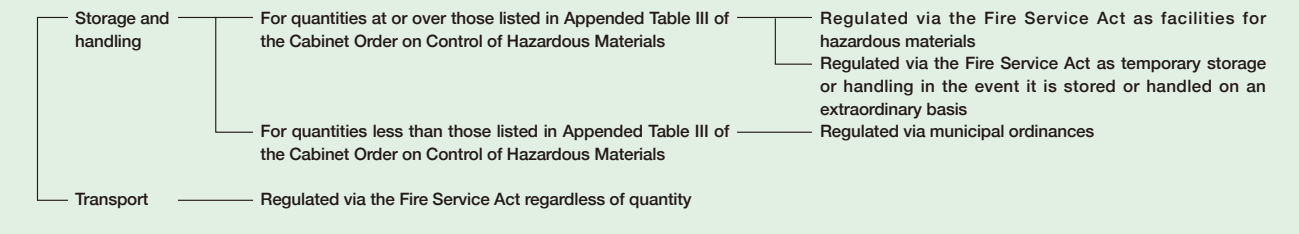


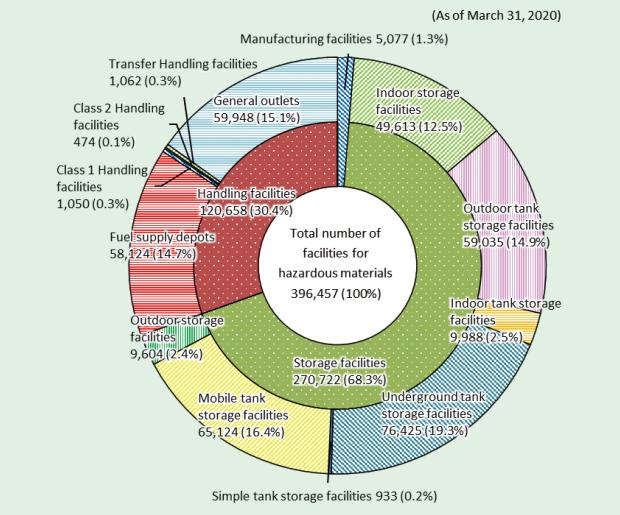
Table 1-2-1 Trends in the number of facilities for hazardous material

(As of March 31 of each year)

Facility \ Year		2016 (A)	2017	2018	2019 (B)	2020 (C)	Rate of change (%) (C/A-1)×100	Rate of change (%) (C/B-1)×100
Manufacturing facilities		5,088	5,096	5,093	5,098	5,077	△ 0.2	△ 0.4
Storage facilities	Indoor storage facilities	50,201	50,023	49,811	49,717	49,613	△ 1.2	△ 0.2
	Outdoor storage tanks	62,120	61,124	60,360	59,699	59,035	△ 5.0	△ 1.1
	Indoor storage tanks	10,802	10,586	10,386	10,170	9,988	△ 7.5	△ 1.8
	Underground storage tanks	83,341	81,417	79,723	77,988	76,425	△ 8.3	△ 2.0
	Simple storage tanks	1,002	986	961	940	933	△ 6.9	△ 0.7
	Transfer storage tanks	67,170	66,733	65,806	65,425	65,124	△ 3.0	△ 0.5
	Outdoor storage facilities	10,213	9,994	9,832	9,702	9,604	△ 6.0	△ 1.0
	Subtotal	284,849	280,863	276,879	273,641	270,722	△ 5.0	△ 1.1
Handling facilities	Fuel supply depots	61,401	60,585	59,715	58,865	58,124	△ 5.3	△ 1.3
	Class 1 sales handling facilities	1,178	1,138	1,107	1,078	1,050	△ 10.9	△ 2.6
	Class 2 sales handling facilities	510	499	493	482	474	△ 7.1	△ 1.7
	Transfer handling facilities	1,111	1,098	1,084	1,077	1,062	△ 4.4	△ 1.4
	General outlets	62,097	61,372	60,867	60,398	59,948	△ 3.5	△ 0.7
	Subtotal	126,297	124,692	123,266	121,900	120,658	△ 4.5	△ 1.0
Total		416,234	410,651	405,238	400,639	396,457	△ 4.8	△ 1.0

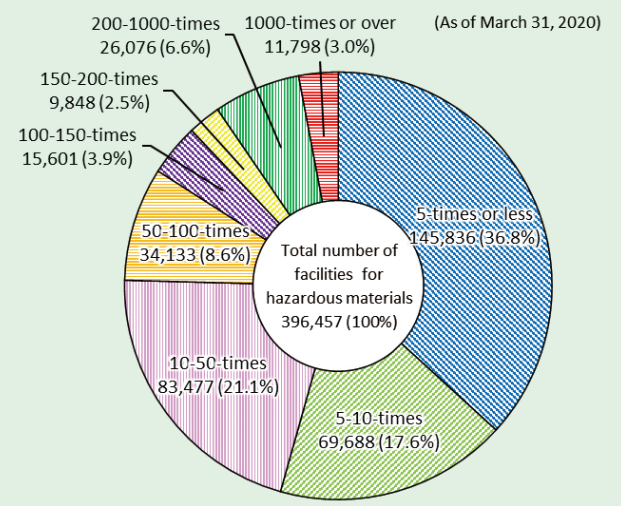
(Notes) 1 Prepared based on "The Accident Reports on Hazardous Materials".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

Fig. 1-2-12 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 from 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 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

(number of facilities for construction permits) as of March 31, 2020 came to 396,457. (**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, 2020, those facilities for hazardous materials that hold 50 times the designated quantities or less accounted for 75.4% 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) category 4. When hazardous 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 2020, the (cumulative) total number of people who have passed the hazardous material engineer test since the hazardous material engineer system was launched came to 9,751,086 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 3,657 times throughout Japan in FY2019 (an increase of 113 year-on-year). They were taken by 329,479 people (a decrease of 25,882 people year-on-year), with 148,475 people passing (a decrease of 11,720 people year-on-year) for an average pass rate of roughly 45.1% (the same as the previous year). (**Fig. 1-2-14**)

Viewing the situation by test type and category reveals that 67.3% of people took the test for Class B (category 4), followed by Class C at 8.4%. These two test types accounted for 75.7% of the total number of test takers.

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 safety training course on handling hazardous materials offered by prefectural governors (safety training courses) every three years (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).

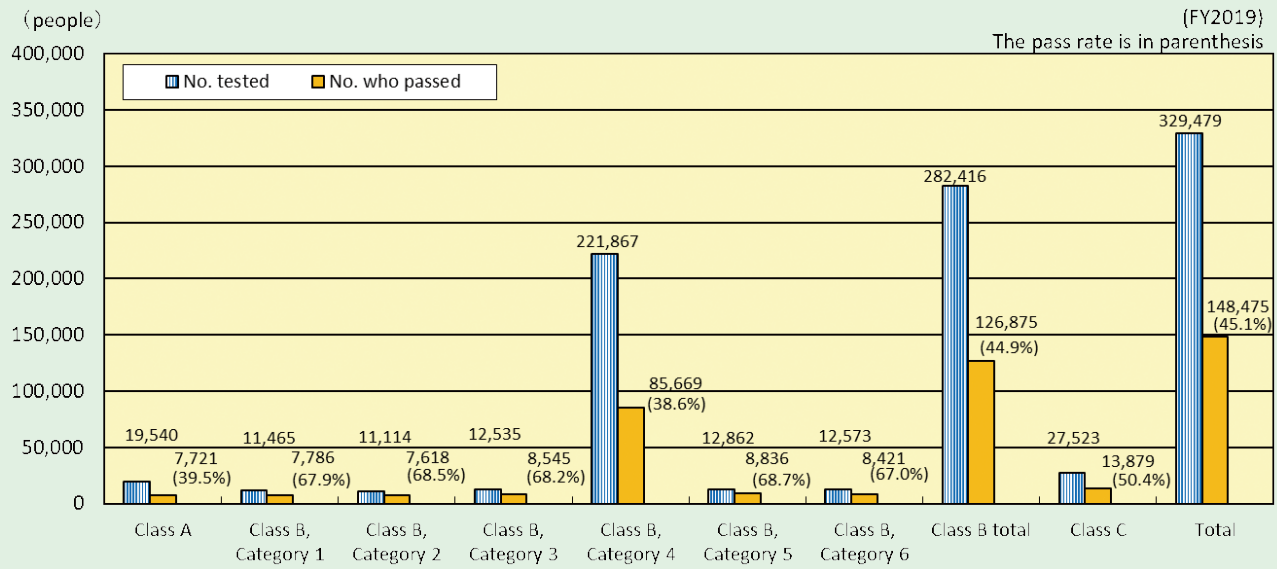
In FY2019, safety training courses were held a total of 1,463 times throughout Japan (an increase of 11 times year-on-year), and were attended by 182,537 people (a decrease of 263 people year-on-year). (**Table 1-2-2**)

(4) Safety Systems at Offices

As of March 31, 2020, the total number of business establishments that owned facilities for hazardous materials came to 180,611 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 the appointment of hazardous materials security superintendents, and the selection of safety officers for facilities for hazardous materials (1,594 business establishments), and the preparation of fire and disaster prevention rules (42,522 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

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



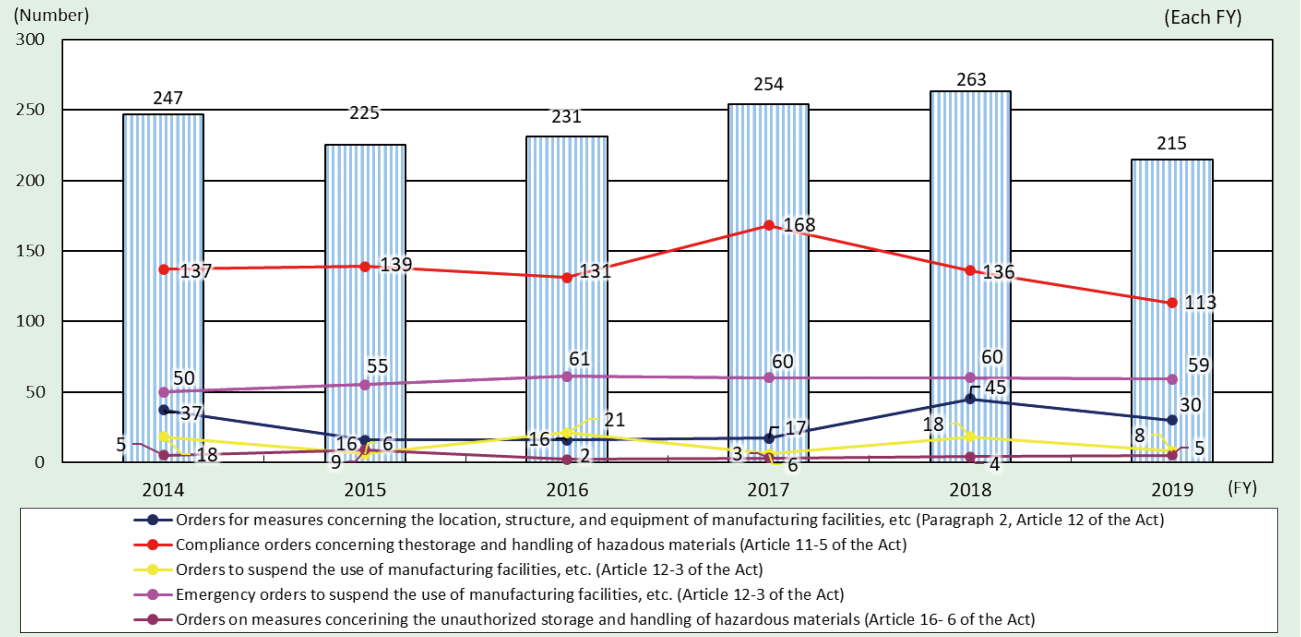
(Note) Prepared based on "The Statistical Table for the Testing and Certification of Hazardous Material Engineer" and "The Fire Protection Engineers by the Japan Fire Engineering Qualification Center".

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 certification

(As of March 31 of each FY)

Division / FY	No. of attendees	Class A	Class B							Class C	Total by type	No. of training courses
			Category 1	Category 2	Category 3	Category 4	Category 5	Category 6	Subtotal			
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
2018	182,800	14,813	11,215	11,721	10,106	153,670	11,526	12,444	210,682	24,402	249,897	1,452
2019	182,537	14,809	11,539	12,558	10,358	155,943	12,078	12,197	214,673	25,452	254,934	1,463

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".

at or above certain quantities must establish fire defense organizations for self-protection (98 business establishments) and appoint hazardous material safety supervising managers (232 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 regarding 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 facility's size.

In FY2019, 215 safety inspections were performed, of which 211 involved outdoor storage tanks and 4 involved transfer handling facilities.

(6) Onsite Inspections and Orders

Municipal mayors and similar officials can perform onsite inspections of facilities for hazardous materials and other such facilities to ensure that their installation, construction, and establishment of equipment, as well as their storage or handling of hazardous materials, are in compliance with the standards established in the Fire Service Act. These can be carried out when said official deems it necessary to prevent fires caused by the storage or handling of hazardous materials.

In FY2019, onsite inspections were carried out a total of 189,458 times at 173,702 facilities for hazardous materials.

In cases where violations of the Fire Service Act are discovered as a result of onsite inspections, 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 relating to standards for installing, constructing, or establishing equipment, and more.

In FY2019 municipal mayors or similar officials issued such orders in 215 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 minister in charge must formulate basic plans and listen to the opinion 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. Furthermore, the Minister of Internal Affairs and Communications provides licenses for construction plans and safety regulations, performs completion and 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.95

Current Status and Recent Trends in Disasters at Petroleum Industrial Complexes

1. Number of Accidents and Damage

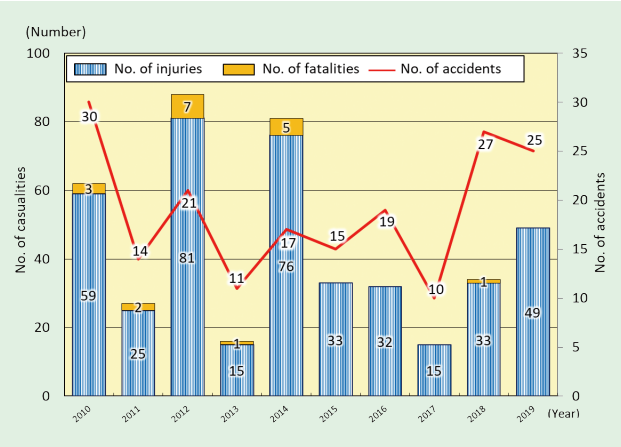
The total number of accidents that occurred at specified business establishments*1 in petroleum industrial complexes and other special disaster prevention areas (hereinafter referred to as "special disaster prevention areas") in 2019 came to 284, of which 0 were accidents caused by earthquakes and tsunamis (hereinafter referred to as "earthquake-induced accidents"), and 284 were accidents other than caused by earthquakes and tsunamis (hereinafter referred to as "general accidents").

All of earthquake-induced accidents were caused by the "Eastern Iburi Earthquake" in Hokkaido, which occurred on September 6, 2018, with a maximum recorded seismic intensity of 7.

Looking at trends in the number of general accidents that have occurred reveals that the number of accidents has been on the rise since 1989, and although the number of accidents during 2019 decreased compared to last year, which recorded the highest number of accidents ever, the number of accidents recorded during the year was 284 (a decrease of 30 year-on-year), the second highest number ever. (**Fig.1-3-1**)

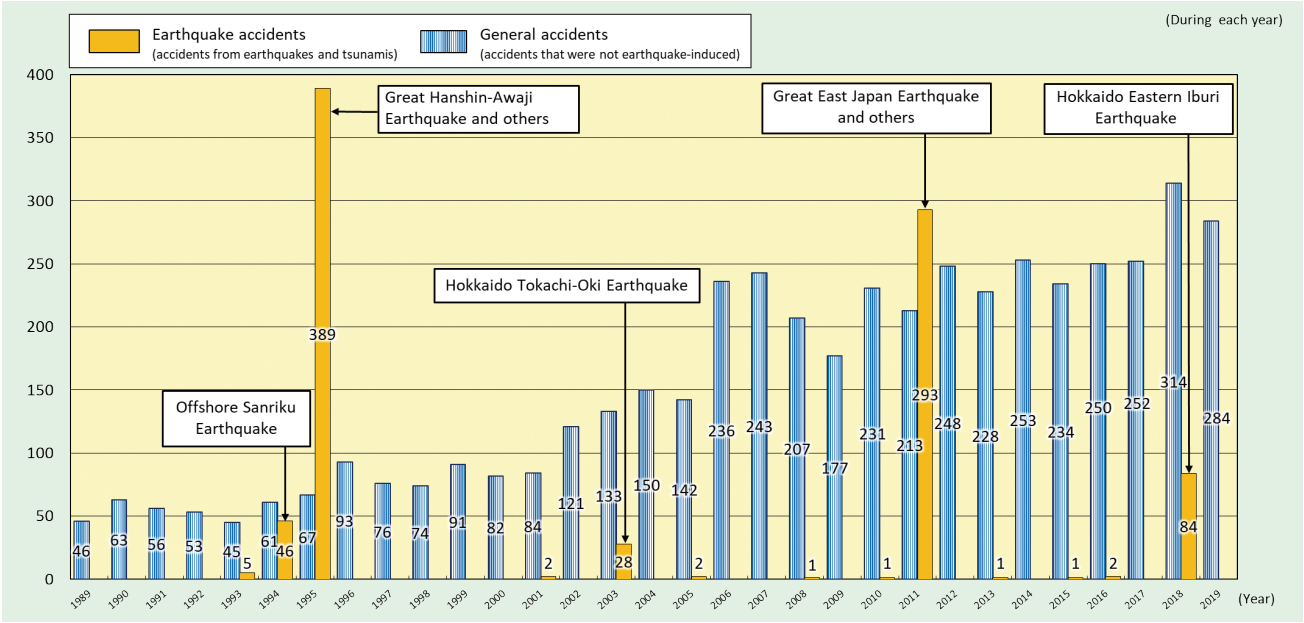
In 2019 there were 25 general accidents (a decrease of 2 year-on-year) that resulted in casualties, with 0 deaths (an increase of 1 year-on-year), and 49 injuries (a decrease of 16 year-on-year). (**Fig.1-3-2**)

Fig. 1-3-2 Trends in the Number of Fatal Accidents and Fatalities



(Note) Prepared based on "The Overview of Accidents at Specified Business Establishments in Petroleum Industrial Complexes and Other Special Disaster Prevention Areas (2019)".

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 (2019)".

*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. Characteristics of Accidents

(1) Number of General Accidents by Type of Accident

Looking at the number of general accidents by type of accident, it reveals that 112 fires (a decrease of 34 year-on-year), 7 explosions (an increase of 1 year-on-year), 154 leaks (a decrease of 1 year-on-year), and 11 other accidents (an increase of 4 year-on-year). (**Fig. 1-3-3**)

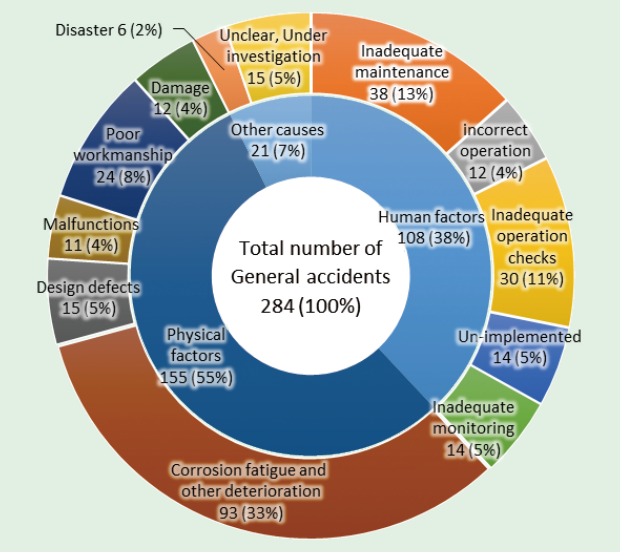
(2) Number of General Accidents by Cause of Accident

Looking at the number of general accidents by cause, it reveals that 108 accidents were caused by human factors (a decrease of 25 year-on-year), 155 (a decrease of 1 year-on-year) by physical factors, and 21 (a decrease of 4 year-on-year) by other factors. The main causes were 93 cases of deterioration due to corrosion and fatigue (an increase of 4 year-on-year), 38 cases of insufficient maintenance and management (an increase of 1 year-on-year), and 30 cases of insufficient operation confirmation (a decrease of 23 year-on-year). (**Fig. 1-3-4**)

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

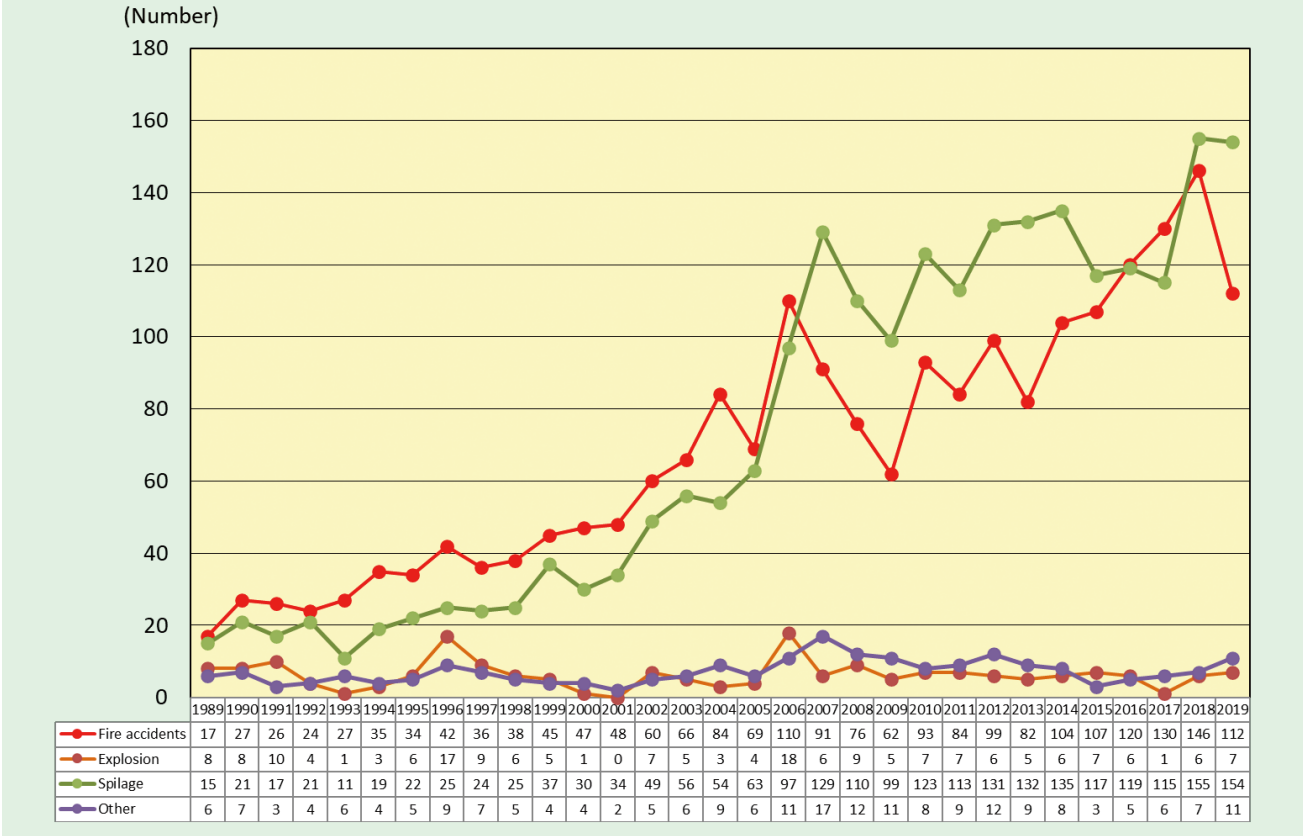
Looking at the number of general accidents by cause, it reveals that 229 accidents, or 80.6%, were occurred at Class 1 business establishments (189 of which layout establishments*2).(**Table 1-3-1**)

Fig. 1-3-4 Number of General Accidents by Cause of Accident



(Note) Prepared based on "The Overview of Accidents at Specified Business Establishments in Petroleum Industrial Complexes and Other Special Disaster Prevention Areas (2019)".

Fig. 1-3-3 Trends in the Number of General Accidents by Type of Accident



	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019
Fire accidents	17	27	26	24	27	35	34	42	36	38	45	47	48	60	66	84	69	110	91	76	62	93	84	99	82	104	107	120	130	146	112
Explosion	8	8	10	4	1	3	6	17	9	6	5	1	0	7	5	3	4	18	6	9	5	7	7	6	5	6	7	6	1	6	7
Spilage	15	21	17	21	11	19	22	25	24	25	37	30	34	49	56	54	63	97	129	110	99	123	113	131	132	135	117	119	115	155	154
Other	6	7	3	4	6	4	5	9	7	5	4	4	2	5	6	9	6	11	17	12	11	8	9	12	9	8	3	5	6	7	11

(Note) Prepared based on "The Overview of Accidents at Specified Business Establishments in Petroleum Industrial Complexes and Other Special Disaster Prevention Areas (2019)".

*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.

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

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 establishment (B/A)
Class 1 business establishments		340	229	80.6	0.67
	Layout business establishments	158	189	66.6	1.20
	Other business establishments	182	40	14.0	0.22
Class 2 business establishments		327	55	19.4	0.17
Total		667	284	100.0	0.43

(Notes) 1 Prepared based on "The Overview of Accidents at Specified Business Establishments in Petroleum Industrial Complexes and Other Special Disaster Prevention Areas (2019)".
2 The number of business establishments is current as of April 1, 2019.
3 The figures in the total column may not align with the totals for each figure due to rounding.

Table 1-3-2 Number of General Accidents at Specified Business Establishments by Business Category

Business Category	Type of accidents				Number of accidents		Number of accidents by business category	
	Fire	Explosion	leak	Other	Subtotal	Share of the total No. of accidents(%)	No. of business establishments	No. of accidents per business establishment
Food manufacturing-related	3		1		4	1.4	12	0.33
Pulp, paper, processed paper manufacturing-related							3	0.00
Chemical industry-related	31	3	47	4	85	30.0	225	0.38
Petroleum and coal products manufacturing industry-related	19	2	70	4	95	33.5	47	2.02
Ceramic industry-related	2		2		4	1.4	10	0.40
Steel industry-related	32	1	1	1	35	12.3	31	1.13
Non-ferrous metal industry-related	1		2		3	1.1	6	0.50
Industrial Machinery manufacturing-related	8				8	2.8	9	0.89
Electrical industry-related	7		12		19	6.7	60	0.32
Gas industry-related	1	1	6	2	10	3.5	28	0.36
Warehouse industry-related	2		9		11	3.9	220	0.05
Waste disposal industry-related	3				3	1.1	8	0.38
Other	3		4		7	2.5	8	0.88
Total	112	7	154	11	284	100.0	667	0.43

(Notes) 1 Prepared based on "The Overview of Accidents at Specified Business Establishments in Petroleum Industrial Complexes and Other Special Disaster Prevention Areas (2019)".
2 The number of business establishments is current as of April 1, 2019.

(4) Number of General Accidents at Specified Business Establishment by Type of Business Category

As for the number of general accidents by cause, there were 95 petroleum and coal product manufacturing industry-related accidents (a decrease of 4 year-on-year), 85 chemical industry-related accidents (a decrease of 6 year-on-year), 35 steel industry-related accidents (a decrease of 26 year-on-year), and 19 electrical industry-related accidents (a decrease of 4 year-on-year). (**Table 1-3-2**)

☞ *Japanese Original P.98*

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, a comprehensive disaster prevention system has been established 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, etc., as well as by applying the regulations from the Act on the Prevention of Disasters in Petroleum Industrial Complexes and Other Petroleum Facilities, which stipulates the layout of each facility section, disaster prevention equipment, etc.

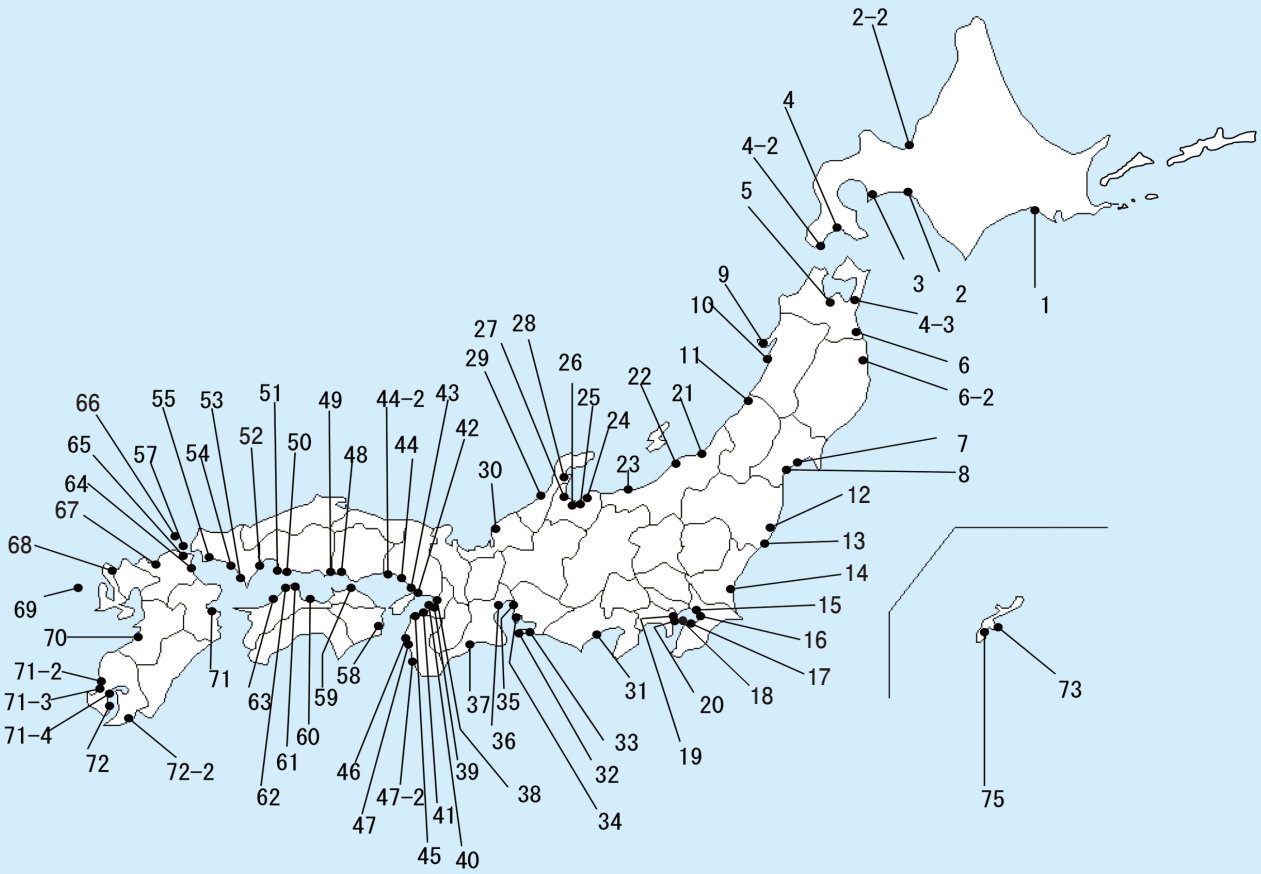
1. Current Status of Special Disaster Prevention Areas

As of April 1, 2020, 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 33 prefectures based on the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities. (**Fig. 1-3-5**) These special disaster prevention areas are under the jurisdiction of 90 fire departments.

Furthermore, 659 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, 333 are Class 1 business establishments (including 154 layout business establishments) and 333 are Class 2 business establishments.

Fig. 1-3-5 Designation Status for Special Disaster Prevention Areas

(As of April 1, 2020)



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	15	North Keiyo coast	33	Tahara	49	Fukuyama/Sasaoka	68	Fukushima
2	Tomakomai	16	Central Keiyo coast	34	Kinuura	50	Etajima	69	Kamigoto
2-2	Ishikari	17	South Keiyo coast	35	Port of Nagoya coast	51	Nomi	70	Yatsushiro
3	Muroran	18	Tokyo International Airport	36	Yokkaichi coast	52	Iwakuni/Otake	71	Oita
4	Hokuto	19	Keihin coast	37	Owase	53	Kudamatsu	71-2	Sendai
4-2	Shiriuchi	20	Negishi coast	38	Osaka North Port	54	Shunan	71-3	Kushikino
4-3	Mutsuogawara	21	Port of Niigata (East)	39	Sakai Senboku coast	55	Ube/Onoda	71-4	Kagoshima
5	Aomori	22	Port of Niigata (West)	40	Kansai International Airport	57	Mutsurejima	72	Kiire
6	Hachinohe	23	Naoetsu	41	Misaki	58	Anan	72-2	Shibushi
6-2	Kuji	24	Toyama	42	Kobe	59	Bannosu	73	Henza
7	Shiogama	25	Fuchu	43	Higashiharima	60	Niihama	75	Onaha
8	Sendai	26	Shinminato	44	Himeji coast	61	Namikata		
9	Oga	27	Fushiki	44-2	Ako	62	Kikuma		
10	Akita	28	Port of Nanao,Mimuro	45	Northern coast in north Wakayama	63	Matsuyama		
11	Sakata	29	Kanazawa Port north	46	Central coast in north Wakayama	64	Buzen		
12	Hirono	30	Fukui coast	47	Southern coast in north Wakayama	65	Kitakyushu		
13	Iwaki	31	Shimizu	47-2	Gobo	66	Shirashima		
14	Kashima coast	32	Atsumi	48	Mizushima coast	67	Fukuoka		

*83areas

2. Disaster Prevention Systems in Prefectures and at Firefighting Agencies

(1) Establishing Disaster Prevention Schemes

The prefectures that contain special disaster prevention areas are establishing disaster prevention systems 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 (hereinafter referred to as "disaster prevention headquarters").

The disaster prevention headquarters carry out operations such as the preparation of disaster prevention plans for petroleum industrial complexes and other locations (hereinafter referred to as "disaster prevention plans" in this section), coordination with relevant agencies when disasters strike, and the promotion of research studies on disaster prevention.

(2) Emergency Responses when Disasters Occur

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

The fire department plays an important role in this process by conducting defensive activities and giving instructions to disaster prevention organizations for self-defense.

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

As of April 1, 2020, 70 large chemical firetrucks, 54 large elevated water trucks, 86 foam solution transport vehicles, 34 large elevated chemical water trucks, 2,961kL of 3% fire-extinguishing foam, 848kL of 6% fire-extinguishing foam, 33 fireboats, and other such equipment had been allocated to firefighting agencies in municipalities containing special disaster prevention areas.

Likewise, 23 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 systems of said special disaster prevention areas.

In addition, the FDMA has deployed the Emergency Response Unit for Energy/Industrial Disasters ("Dragon Hyper Command Unit"), which specializes in special disasters, to 12 areas under National Fire-Service Teams, as well as firefighting robots (Scrum Force), in order to support the development of firefighting capabilities for municipalities located in special disaster prevention areas.

3. Disaster Prevention Systems 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 operators who establish specified business establishments located in special disaster prevention areas (specified business operators) must set up disaster prevention organizations for self-defense, prepare fire protection equipment, appoint disaster prevention 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 (hereinafter referred to as "area councils")*5.

As of April 1, 2020, disaster prevention organizations for self-defense had been established at every specified business establishment (659 business establishments). 71 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 5,270 disaster prevention personnel, 84 large chemical fire trucks, 41 large elevated water trucks, 126 foam solution transport vehicles, 116 large elevated chemical water trucks, 24 high capacity foam cannons, 22 oil recovery vessels, and more.

In addition, the law states that these specified business establishments are required to install embankments to prevent oil spills, outdoor water supply equipment for firefighting, and emergency notification systems according to their size. As of April 1, 2020, 133 business establishments had installed embankments to prevent oil spills, 483 had installed outdoor water supply equipment for firefighting, and 462 had installed emergency notification systems, respectively.

(2) Installation of High Capacity Foam Systems

During the Tokachi-Oki Earthquake in September 2003, damage that included damage to numerous outdoor storage tanks and oil leaks 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

*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 high capacity foam cannons and other equipment.

*5 Special disaster prevention area councils for petroleum industrial complexes: 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 disaster prevention and to carry out joint disaster prevention drills.

The high capacity foam system

the fires that would occur at floating roof outdoor storage tanks would be ring fires.*6 But after considering the risk of earthquakes in Japan, it became necessary to expand the assumption to include fires in 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 systems. Furthermore, it was mandated that specified business establishments must equip themselves with new high capacity foam systems 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 up to ten times as much foam as a conventional three-piece set (consisting of a large chemical firetruck, a 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 Systems for Self-defense

Disaster prevention activities in petroleum industrial complexes are often difficult due to the large amount of hazardous materials, complicated facilities, and the risk of large-scale disasters. 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 has issued standardized and visually easy to understand educational textbooks for disaster management personnel education and training, and has proposed a training model that can be used by both new and experienced personnel to acquire the knowledge and skills necessary for disaster management, such as initial response in the event of a disaster and cooperation with public firefighters, in order to strengthen disaster management structures.

4. Layout Regulations for Business Establishments

(1) Layout Regulations

Because disasters are particularly likely to spread at layout business establishments that handle large amounts of petroleum and high-pressure gases, regulating each individual facility at business establishments on a standalone basis is not sufficient, and from the perspective of mitigating damage it is necessary to take measures at the establishment level.

Therefore, the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities mandates certain standards for layout establishments regarding the layout of facility areas and the securing of passageways within the premises. It also mandates that in cases where business establishments are newly established or change their facility area layouts, they must provide notification of their plans, and after completion, they must undergo confirmation to determine whether or not the work is consistent with the relevant plans.

(2) Status of New Establishment Notifications, etc.

The total number of notifications for new establishments of or changes to layout business establishments in FY2019 came to 9, while the number of confirmations in the same year was 9. (**Fig. 1-3-6**)

5. Other Disaster Countermeasures

(1) Establishing Disaster Response Systems

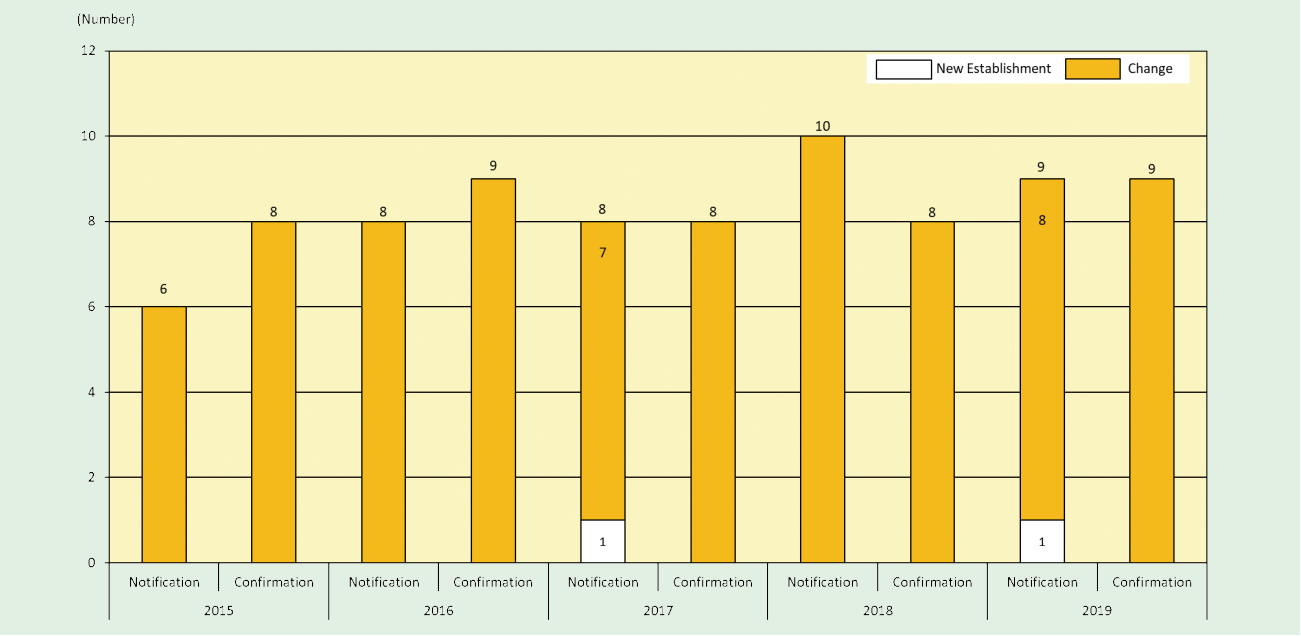
The Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities states that specified business operators must report to firefighting agencies or locations specified by municipal mayors immediately when any abnormal phenomena occur.*7 It also mandates that disaster 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.

(2) Establishing Green Buffer Zones for Disaster Prevention

In order to prevent damage in special disaster prevention areas from spreading to surrounding regions, the Act on the Prevention of Disaster in Petroleum

*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. 1-3-6 Status of Notifications and Confirmations for New Layout Business Establishments, etc.



(Notes) 1 Prepared based on the number of notifications received in accordance with the provisions of Articles 5 and 7 of the Act on the Prevention of Disasters in Petroleum Industrial Complexes and Other Petroleum Facilities.
2 Prepared based on the number of confirmed cases as stipulated in Article 11 of the provisions of Articles 5 and 7 of the Act on the Prevention of Disasters in Petroleum Industrial Complexes and Other Petroleum Facilities
3 The number of notifications and the number of confirmations for each fiscal year do not match because a certain amount of time is required for construction after the notification of new establishment, etc., before confirmation is made.

Industrial Complexes and Other Petroleum Facilities has provisions relating to the drafting of installation plans, the share of costs to borne by business operators, and special financial measures for the establishment of green buffer zones for disaster prevention by local governments in the vicinities around said areas.

6. Recent Disaster Countermeasures at Petroleum Industrial Complexes

(1) Liaison Conferences of the FDMA and Related Ministries to Examine Disaster Prevention Measures at Petroleum Industrial Complexes, etc.

In the wake of the fatal explosion and fire at the Yokkaichi Plant of Mitsubishi Materials Co., Ltd. that occurred in January 2014, the FDMA, the Ministry of Health, Labour and Welfare, and the Ministry of Economy, Trade and Industry, which are the ministries and agency responsible for safety at petroleum industrial complexes, have held regular liaison conferences since FY2014.

The purpose of these liaison conferences is to exchange information on incidents, share policy trends, promote efforts by business operators to prevent disasters, and work together to take action in the event of a disaster. The ministries and agency work together to prevent disasters at petroleum industrial complexes by promoting accident prevention efforts and publishing and sharing incident-related information on the Internet.

In FY2019, “Guidelines for Safe Operation of Drones at Plants” were revised to organize the safety requirements for the use of drones indoors and incorporating the necessary risk assessment and risk countermeasures, and these guidelines were made known to prefectural governments, fire departments, and business establishments.

In addition, in November 2020, in order to contribute to solving issues in the introduction of AI in the field of plant security, the "Guidelines for AI Reliability Assessment in the Field of Plant Security" and the "Collection of Advanced AI Case Studies in Plants" were compiled and disseminated to prefectures, fire departments, and offices.

It is expected that the further use of drones and AI will lead to improved plant safety and the elimination of occupational accidents.

(Fire and Disaster Management for Petroleum Industrial Complexes, etc.; Liaison Conference of FDMA, MHLW, and METI; Website run jointly by the three organizations: https://www.fdma.go.jp/relocation/neuter/topics/fieldList4_16.html)

(2) Earthquake and Tsunami Measures for Petroleum Industrial Complexes, etc.

As there is concern about damage occurring due to the Nankai Trough Earthquake or Tokyo in Land Earthquake, based on the state of the damage done by the Great East Japan Earthquake, work is being done to enhance and strengthen disaster prevention systems at petroleum industrial complexes, etc., such as revising disaster prevention assessment guidelines and handbooks for disaster prevention efforts of self-defense disaster prevention organizations.

(3) Skill Contest for Self-defense Disaster Prevention Organizations at Petroleum Industrial Complexes, etc.

The FDMA holds a “Skill Contest for Self-Defense Disaster Prevention Organizations at Petroleum Industrial Complexes, etc.” with the aim of improving the skills and morale of disaster prevention personnel such as those of self-defense disaster prevention organizations at specified business establishments.

Skill contest

During the contest, which will be around the time of "World Tsunami Awareness Day" on November 5, the Minister of Internal Affairs and Communications and the Commissioner of the FDMA will commend self-defense disaster prevention organizations, etc. that achieve excellent results in safety, reliability, and promptness in a training exercise to extinguish a large-scale tank fire utilizing fire-extinguishing foam agents using a large-size chemical ladders fire pumper a foam solution transport vehicle, an elevation platform truck, and a chemical fire truck in specified business establishments.


Commendation Ceremony for the Skill Contest

(4) Holding Investigative Committee Meetings to Strengthen the Disaster Prevention Systems of Petroleum Industrial Complexes, etc.

The FDMA holds investigative committee meetings for the purpose of enhancing the disaster prevention systems of petroleum industrial complexes.

In FY2019, an investigative committee meeting with members from academia, government agencies, and other concerned personnel, etc. was held to promote the use of advanced technologies, such as AI and IoT technologies, for safer and more effective disaster response by business establishments and fire departments in the event of a disaster at a petroleum complex. The committee conducted a survey and analysis on how advanced technologies can be used in disaster response, and after examining the current issues, proposed an image of future disaster response, which was compiled and published in a report.

–omitted–

Section 1 Fire Service Structure

☞ Japanese Original P.151

1. Fire Defense Organizations

(1)Standing Firefighting Agencies

Standing firefighting agencies refers to the fire departments and fire stations established in municipalities that are staffed by full-time personnel. As of April 1, 2020, there were 726 fire departments and 1,719 fire stations throughout Japan. (**Table 2-1-1**)

There were 16,628 firefighters, of which 5,587 were 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, 2020, 1,690 municipalities had switched over to a standing fire defense structure, whereas 29 towns and villages had not done 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 99.96% of the population now covered by standing fire defense structures.

Of these, 289 fire departments were established by special district authorities or extended associations (22 of which were established by extended associations). The 1,110 municipalities that have organized these (371 cities, 599 towns, and 140 villages) correspond to 65.7% of the total number of municipalities that have switched to a standing fire defense structure. Furthermore, 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 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, 2020, the number of volunteer fire corps throughout Japan came to 2,199, while their volunteer members numbered 818,478. 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 4.9-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)

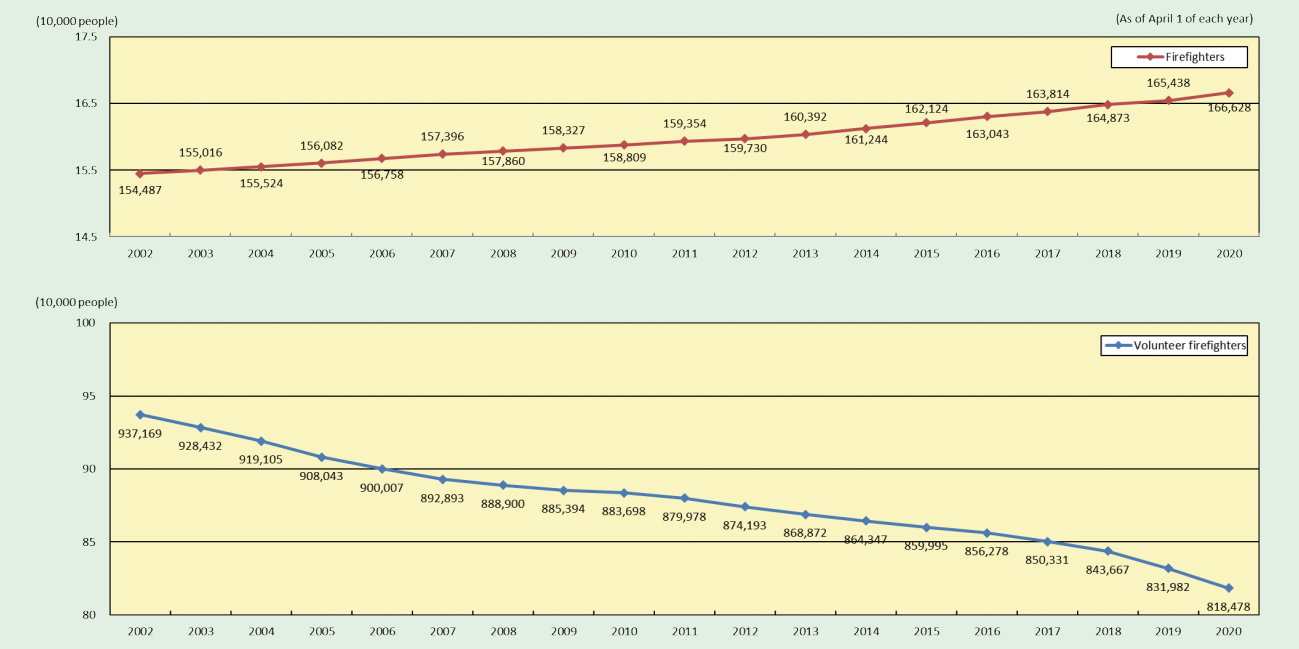
By harnessing these qualities, they are able to engage in the initial firefighting when fires break out and deal with any residual fires, as well as sound warnings and carry out rescue activities when storm and flood disasters occur. In addition, when large-scale disasters occur, they engage in activities like assisting with resident evacuations and disaster prevention, as well as providing guidance to evacuated citizens 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

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

Classification				As of April 1, 2018	As of April 1, 2019	Comparison	
						Change	Rate of change (%)
Fire departments	Fire departments			726	726	0	0.0
	Breakdown	Individual	Cities	385	385	0	0.0
			Towns/villages	52	52	0	0.0
		Special district authorities, etc.		289	289	0	0.0
	Fire station			1,719	1,719	0	0.0
	Branch offices			3,113	3,106	△ 7	△ 0.2
	No. of firefighters			165,438	166,628	1,190	0.7
		Of which, No. of female firefighters		5,307	5,587	280	5.3
Volunteer fire corps	Volunteer fire corps			2,198	2,199	1	0.0
	Divisions			22,388	22,309	△ 79	△ 0.4
	No. of volunteer fire corps members			831,982	818,478	△ 13,504	△ 1.6
		Of which, No. of female members		26,625	27,200	575	2.2

(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 in 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, 2020)

No. of fire departments			Municipalities				Standing/non-standing	
				Cities	Towns	Villages		
726		1,690 municipalities	1,690	793	736	161	Municipalities with standing structures	
Individual	437	437 municipalities	437	385	51	1	Individual	Establishment method
Special district authorities, etc.	289	1,110 municipalities	1,110	371	599	140	Comprised of special district authorities, etc.	
		143 municipalities	143	37	86	20	Outsourced	
			29	—	7	22	Municipalities with non-standing structures	
			1,719	793	743	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."

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.

In addition, 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, etc.

(1)Maintenance of Fire Trucks and Other Vehicles

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

In addition, volunteer fire corps maintain vehicles such as fire pumpers, 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 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.

Table 2-1-2 Number of firefighting vehicles owned

(As of April 1, 2020) (Units: vehicles, ships, machines)

Category		Fire departments	Volunteer fire corps	Total
Fire pumpers		7,769	13,989	21,758
Ladder-equipped vehicles		1,132	0	1,132
Chemical fire trucks		946	4	950
Ambulances		6,443	0	6,443
Command vehicles		1,759	892	2,651
Rescue vehicles		1,243	0	1,243
Other firefighting vehicles		9,489	2,118	11,607
Small power pumps		3,544	49,892	53,436
Breakdown	Equipped on vehicles	434	35,638	36,072
	Equipped on wheeled platforms	1,821	2,594	4,415
	Other than those above	1,289	11,660	12,949
Firefighting boats		39	9	48
Fire and disaster prevention 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".

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 to "119" as per regulations on telecommunication numbers.

The number of incidents reported to 119 throughout 2019 came to 8,786,855. 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**)

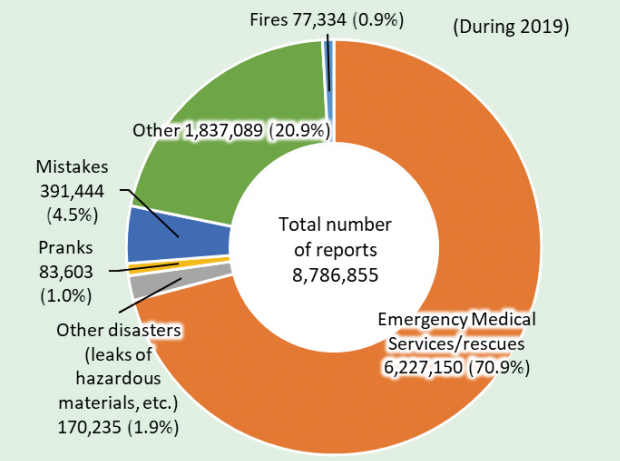
Following the recent popularization of cell phones and IP phones*1 (hereinafter referred to as "cell phones and other types of phones"), the number of reports to 119 from cell phones and other types of phones has risen, with cell phones comprising 47.7% and IP phone comprising 24.2% of the overall number of reports. (**Fig. 2-1-4**)

(A) Location Information Notifications for Emergency Reports to 119

While the firefighting agencies that receive 119 reports ascertain the locations of the disaster and information pertaining to it through their interaction with the caller, firefighting agencies that have installed advanced fire defense command centers can display location information, such as the reported location, on a map on a monitor when they receive a 119 call.

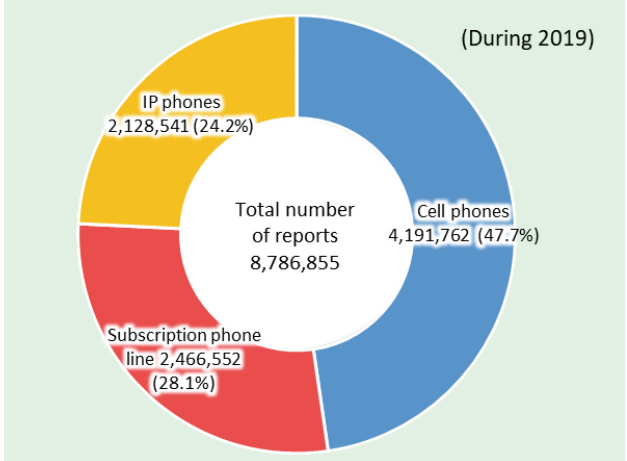
The Location Information Notification System, which

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



(Notes) 1 Prepared based on "The Survey of the Current Status of Fire Prevention and Earthquake Countermeasures".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

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.

provides firefighting agencies of the location information of 119 calls originating from cell phones and other types of phones, began operating in April 2007. The Integrated Location Information Notification System, which integrates this Location Information Notification System with the already operating New Origin Location Display System*2 which displayed information from landline phones, began operating in October 2009.

As of April 1, 2020, the number of fire departments that are able to determine the location information when they receive a 119 call from a cell phone or another type of phone as a result of the Location Information Notification System and Integrated Location Information Notification System is now 712 (of which 598 headquarters use the Integrated Location Information Notification System).

(B) Nonverbal Reports

Since the system for calling 119 is based on verbal communication, non-verbal alternatives such as fax and e-mail have been introduced as a means for people with hearing and speech disabilities to make emergency calls. 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.

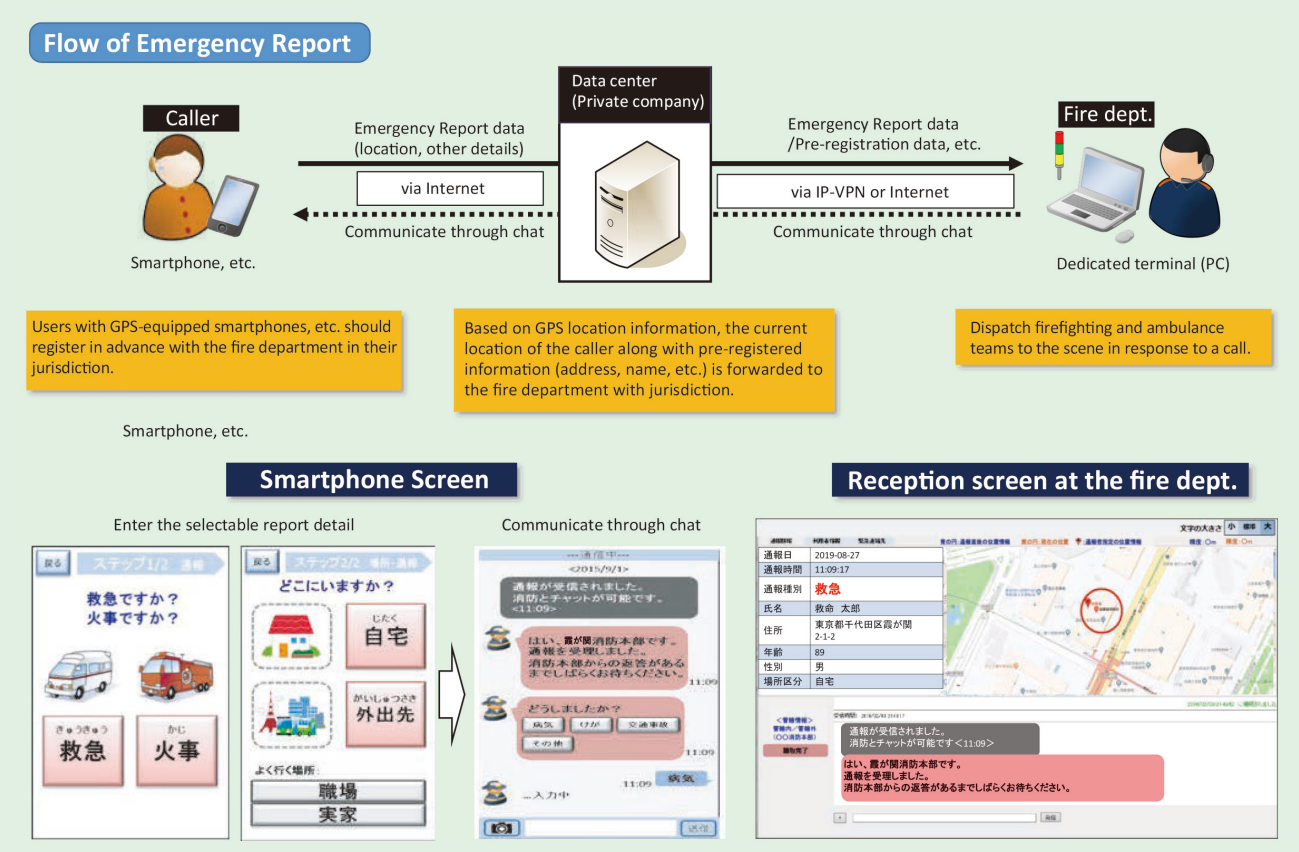
As a means for persons with hearing or speech impairments to make an emergency call to 119 without using voice, the FDMA has been investigating the use of the "Net 119 Emergency Report System" (**Fig. 2-1-5**) since FY2015, and in March 2017, compiled standards to adopt the system in fire departments throughout Japan. The FDMA is working toward the goal of adopting this system at all fire departments, and as of June 1, 2020, 307 out of 726 fire departments (approx. 42%) have already introduced the system.

In addition, as a means for the hearing or speech impaired to use the phone, The Nippon Foundation has been implementing a model project since 2013 for a "telephone relay service" in which an operator interprets from "sign language" or "text" to "voice" to provide an immediate two-way connection between hearing or speech impaired person and non-hearing or speech impaired people. Until now, no emergency calls had been made using the telephone relay service. However, the Act on Facilitation of the Use of Telephones for the Persons with Hearing Impairments, etc., which was enacted in June 2020 and came into effect in December of the same year, has positioned the telephone relay service as public infrastructure. Fire departments are making the necessary preparations to respond to emergency calls made via the telephone relay service, which will be available nationwide starting in 2021.

(C) Report from Foreign Nationals

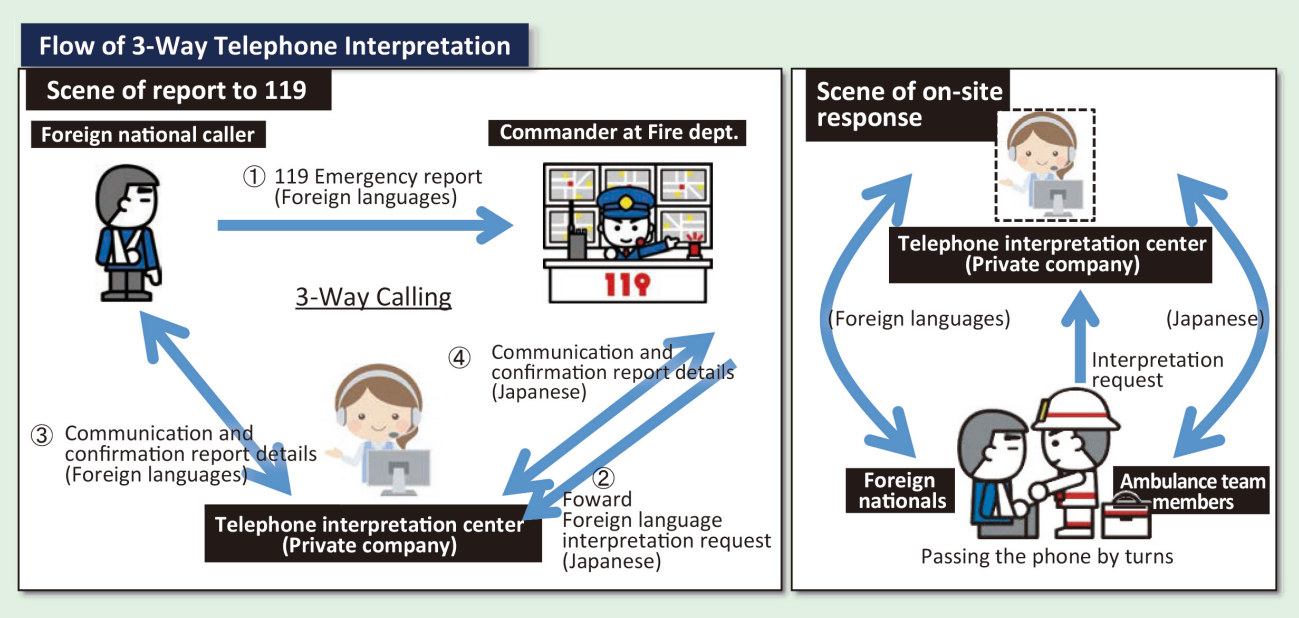
The 119 multi-language service using 3 Way Telephone Interpretation provided by the Telephone Interpretation Center will be available 24/7 in major languages to

Fig. 2-1-5 Flow of Emergency Report



*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 regard to 119 reports from Nippon Telegraph and Telephone East Corporation and Nippon Telegraph and Telephone West Corporation landline phones.

Fig. 2-1-6 Flow of 3-Way Telephone Interpretation



respond promptly and accurately to 119 calls by foreign nationals, or from an emergency site where a foreign national is present.

The FDMA notified each fire department of the "Promotion of Multi-language Service using 3 Way Telephone Interpretation provided by the Telephone Interpretation Center" (Firefighting Notice No. 8 from the Manager of the Fire and Ambulance Service Division at the FDMA, dated January 25, 2017), and is working to promote multi-language response for 119 calls through joint contracts with local fire departments and the use of telephone interpretation centers that have already been contracted by prefectural governments, etc., with the goal of having this system installed in all fire departments. (**Fig. 2-1-6**)

B. Fire Defense Communications Networks, etc.

Fire and emergency wireless 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. In addition, 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.

In addition, the image information recorded by the cameras equipped on fire prevention 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

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

(As of April 1 of each year)

Category	2019	2020	Comparison	
				Percent change(%)
No. installed nationwide	2,483,960 (100.0)	2,491,074 (100.0)	7,114	0.3
Fire hydrants	1,930,125 (77.7)	1,936,132 (77.7)	6,007	0.3
Fire cistern	534,345 (21.5)	535,651 (21.5)	1,306	0.2
20㎥-less than 40 ㎥	103,166	102,913	△ 253	△ 0.2
40㎥-less than 60 ㎥	384,700	386,180	1,480	0.4
60㎥ or more	46,479	46,558	79	0.2
Wells	19,490 (0.8)	19,291 (0.8)	△ 199	△ 1.0

(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 %.

where the fire breaks out, and so they are frequently used as water sources while fighting a fire. 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 (FDMA Bulletin No. 7 from 1964) were revised to allow for their installation in a systematic manner. (**Table 2-1-3**)

Additionally, in recent years, on top of the aforementioned concerns about earthquake-proofing, due to concerns about aging water resources for firefighting, and because demand for new resources is densely populated areas full of wooden buildings is being anticipated, according to the report "Regarding the Promotion of the Reinforcement and Maintenance of Water Resources for Firefighting" (Issue No. 272, Fire and Ambulance Division's Manager, FDMA, November 24, 2017) Municipalities are setting numerical targets for short, medium, and long term incremental maintenance goals for water resources for firefighting.

In addition, 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. On the other hand, because there are sometimes cases where these water sources cannot be used due to the season, or because there are restrictions on where water can be drawn from, an appropriate combination of both artificial and natural water sources must be established when it comes to arranging water resources for firefighting.

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Section 4 Education and Training Structure

☞ Japanese Original P.185

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 the increasing sophistication of fire prevention services. As such, education and training for firefighters is incredibly important.

Education and training for firefighters is offered by all 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 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 Defense 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, 2020, 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).

With the objective of establishing and operating fire academies, the FDMA established the "Standards for the Establishment, Staffing, and Operation of Fire Academies," and works to maintain and advance the level of education and training available at 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 "achievement goals" 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.

Within this context, the knowledge and skills that firefighters need in order to properly carry out their professional duties must be further improved. 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 to the standards. In addition, the method for calculating the number of teaching personnel at fire academies was revised out of consideration for safety management, and revisions to the required subjects and class hours were also made based on the needs and challenges of firefighting.

(4) Enrollment in Education and Training

In FY2019 a total of 32,044 firefighters attended education and training at fire academies. (**Table 2-4-1**)

As for volunteer firefighters, in FY2019 a total of 36,429 attended education and training either at fire academies or through the dispatch of teachers from said academies. (**Table 2-4-2**)

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 fire academies have adopted this approach.

Furthermore, education and training is also provided by fire academies to people other than volunteer firefighters to the extent that doing so does not interfere with the education and training of said members. In FY2019, education and training was provided to a total of 16,759 people, from local voluntary disaster prevention organizations and others.

Table 2-4-1 Holding of education and training aimed at firefighters

(people)

		FY2018	FY2019
Initial education		5,364	5,315
Specialized education		10,017	10,113
	Fire Suppression Class	1,201	1,200
	Special Disaster Class	704	642
	Preventive Inspection Class	1,112	1,065
	Hazardous Material Class	447	389
	Fire Inspection Class	1,130	1,226
	Ambulance Class	3,748	3,906
	Associate Ambulance Class	-	4
	Rescue Class	1,675	1,681
Management education		3,835	3,554
	Introductory Management Class	2,301	2,294
	Intermediate Management Class	1,131	882
	Advanced Management Class	403	378
Special education		12,828	11,596
Total		32,044	30,578

(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 firefighters. 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.

Table 2-4-2 Enrollment in education and training aimed at volunteer firefighters

(people)

Category			FY2019		
			School education	Teacher dispatch	Total
Basic education			4,277	3,451	7,728
Specialized education			1,963	0	1,963
	Fire Suppression Class		751	0	751
	Machinery Operation Class		1,212	0	1,212
Management education			7,347	84	7,431
	Introductory Management Class		2,336	48	2,384
	Supervisory Management Class (Whole)		561	0	561
		Branch Supervisor Course	1,784	22	1,806
		Local command Course	2,666	14	2,680
Special education			6,473	12,834	19,307
Total			20,060	16,369	36,429

(Note) Prepared based on "The Survey on Education and Training at Fire Academies".
* 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.
* The Supervisory Management Class was counted as having completed the Branch Supervisor Course and the Local Command Course.

The main building contains four classrooms, an audiovisual classroom, a scientific combustion laboratory, and a library, as well as disaster training rooms for training situational judgment and command skills by experiencing a variety of simulated disasters.

The secondary building contains an auditorium, as well as rescue training rooms, special classrooms, an indoor training ground, and more.

In addition to a 4-story low-rise training building and an 11-story high-rise training tower, these training facilities include a training facility where trainees can experience the same changes in the environment as an actual fire scene by burning wood in a container, as well as a town-formed housing unit that can conduct training assuming difficult-to-operate areas such as dense wooden houses.

The dormitory consists of two dormitories, the South Dormitory and the North Dormitory, and has a women-only space (bathrooms, restrooms, changing rooms, and lounges, etc.).

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 chemical response vehicles, disaster support vehicles, high-grade emergency vehicles, and vehicles for transporting materials and equipment.

(2) Enrollment in Education and Training

A. Enhancement of education and training content in response to changes in social conditions

The Fire and Disaster Management College turned out 968 graduates from its comprehensive classes and specialized classes, and 567 graduates from its practical courses in FY2019. This brings the total number of its graduates from the time it was founded up through FY2019 to 64,230.

However, its capacity was planned to be 1,916 people in FY2020, due to the spread of COVID-19 and the declaration of a state of emergency, some courses were cancelled, postponed, or the schedule was changed, and the capacity was set at 1,532 people. (**Table 2-4-3**)

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.

In FY2019, 22 classes and 13 practical courses were scheduled to be held during the year. However, in light of the spread of COVID-19, 2 classes and 1 practical course scheduled for March 2020 were cancelled.

Regarding the education and training contents of each course, the following subjects have been incorporated in response to new issues arising from changes in social conditions and in accordance with the objectives of each department: harassment prevention, mental health, traumatic stress management, crisis management, public relations, and litigation response.

Furthermore, 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, as well as the implementation of

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

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

Drill on responding to mass casualties

Table 2-4-3 Education and training implementation status

Category			FY2018 (actual result)		FY2019 (planned)					
					Original plan		Revised plan (as of July 2020)		Time	Educational goals
			No. of times held (times)	Graduates (people)	No. of times held (times)	Capacity (people)	No. of times held (times)	Capacity (people)		
Classes	Comprehensive education	Management Class	4	239	4	240	4	240	2 months	To provide comprehensive training in advanced knowledge and techniques related to firefighting as well as train personnel to become senior firefighters.
		Advanced Management Class	1	46	1	54	1	54	2 weeks	To improve the qualifications of personnel currently serving as senior firefighters through training in advanced knowledge and skills related to firefighting.
		New Fire Chief/Principal Orientation Class	2	46	2	102	1 (*2)	102	2 weeks	To provide comprehensive training in the knowledge and skills needed by newly appointed fire chiefs and fire academy principles for their positions.
		Volunteer Fire Corps Management Class	2	63	2	72	2	72	1 week	To provide comprehensive training to senior management at volunteer fire corps in the knowledge and skills they will need for their positions.
	Specialized education	Fire Suppression Class	2	120	2	120	1 (*2)	60	2 months	To provide specialized training in the skills and knowledge related to fire suppression in order to improve the quality of rescue workers and educators.
		Rescue Class	2	120	2	120	1 (*2)	60	2 months	To provide specialized training in the skills and knowledge related to rescue work in order to improve the quality of rescue workers and educators.
		Emergency Medical Service Class	1	48	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	96	2 months	To provide specialized training in the skills and knowledge related to fire prevention in order to improve the quality of rescue workers and educators.
		Hazardous Substances Class	1	33	1	42	1	42	1 month	To provide specialized training in the skills and knowledge related to hazardous material safety in order to improve the quality of hazardous material safety workers and educators.
		Fire Survey Class	2	96	2	96	1 (*2)	48	2 months	To provide specialized training in the skills and knowledge related to fire investigation in order to improve the quality of fire investigators and educators.
		New Teachers Orientation Class	1 (*1)	61	1	72	1	72	2 weeks	To provide specialized training to new fire academy education and training instructors in the knowledge and skills they will need for the position.
		In-service Teachers Class	suspended (*1)		1	36	1	36	2 weeks	To improve the ability of existing fire academy education and training instructors to comprehensively lead instruction on operational management, fire prevention operations, and fire suppression operations.
	Subtotal		20	968	21	1,098	17	930		
Practical courses	Emergency Fire Response	Commanding Officer Course	2	75	2	96	1 (*2)	96	2 weeks	To provide the command support battalion cheif of Emergency Fire Response Teams with the knowledge and skills they will need for their work.
		Advanced Rescue/Special Advanced Rescue Course	suspended (*1)		1	66	1	66	2 weeks	To provide the leaders of advanced rescue teams and special advanced rescue teams with the knowledge and skills they will need for their work.
		NBC Course	1	71	1	72	1	72	3 weeks	To provide NBC disaster personnel on Emergency Fire Response Teams with the knowledge and skills they will need for NBC disaster response duties.
		Air Corps Officer Course	1	69	1	84	1	84	2 weeks	To provide firefighting and fire defense air patrol commanders with the knowledge and skills they will need for their work.
	Crisis management/firefighting education	Crisis Management/Public Protection Course	1	56	1	96	suspended (*2)		1 week	To provide crisis managers, fire defense managers, and those in charge of protecting the public at local public bodies with the knowledge and skills they will need for their work.
		Voluntary Disaster Prevention Organization Training Course	1	57	1	72	suspended (*2)		1 week	To provide those in charge of training at voluntary disaster prevention organizations with the knowledge and skills they will need for their work.
		Short-term Voluntary Disaster Prevention Organization Training Course	2	77	2	128	2	128	2 days	To provide the personnel in charge of the task of training voluntary disaster prevention organizations with the basic knowledge and skills they will need for their work.
		Volunteer Fire Corps Revitalization Course	2	63	2	96	1 (*2)	48	1 week	To provide those involved in volunteer fire corps duties and education/training with the knowledge and skills they will need for their work.
	etc.	Courses encouraging the active involvement of women	1	51	1	60	1	60	2 weeks	To support the career development of female firefighting officials who are candidates for management positions and provide them with the knowledge and skills they need to expand their career opportunities.
		Inspection operations management course	1	48	1	48	1	48	1 week	To provide personnel at or above the section head-level who supervise preventive operations at fire departments with the knowledge and skills needed to perform management for inspection operations as a whole, such as handling violations.
	Subtotal		12	567	13	818	9	602		
Total			32	1,535	34	1,916	26	1,532		

*1 Due to countermeasures against COVID-19, “New Teachers Orientation Class” will be conducted through e-learning and 2-day short-term schooling, and “In-service Teacher Class” and “Advanced Rescue/Special Advanced Rescue Course” will be cancelled.

*2 Due to countermeasures against COVID-19, the “New Fire Chief/Principal Orientation Class” and “Commanding Officer Course” were consolidated from two to one. One out of two sessions of the “Fire Suppression Class,” “Rescue Class,” and “Fire Survey Class” were postponed to FY2021. One of the two “Volunteer Fire Corpse Revitalization Course” was cancelled, and the “Crisis Management and Public Protection Course” and “Voluntary Disaster Prevention Organizations Training Course” were cancelled.

firefighting drills (hot training) in environments similar to real fires utilizing the real fire training facilities.

Moreover, some of the classes incorporate learning in advance over the internet (e-learning) in an effort to provide efficient education and training within a limited period of time. And, in order to expand training opportunities for women, 5% of the capacity of each department has been set as a priority quota for female firefighters to promote women's entry into the school, and a Women's Activity Promotion Course, which is a practical training course designed to support the career development of female firefighters, is available, as is a "Fire Academy Forum" with the theme of promoting women's activity.

Furthermore, in preparation for holding large international events (such as the 2020 Tokyo Olympic and Paralympic Games to be held in 2021 (hereinafter referred to as the "Tokyo 2020 Games")) the NBC course has been increased from 10 days to 15 days from 2018 until the year of the Olympic, in order to strengthen Japan's NBC response capabilities.

In FY2019, positive pressure protective suits, large scale decontamination systems, transport vehicles, and other NBC equipment was installed at the Fire and Disaster Management College in order to improve the response capabilities of fire departments in the event of an NBC disaster involving a significant number of victims at a large-scale event.

B. Impact of the Spread of COVID-19

In light of the government's request for the temporary closure of all elementary, junior high, and senior high schools nationwide due to COVID-19, the Fire and Disaster Management College decided to conduct the New Teacher Orientation Class (11 days), which was scheduled to be held in March 2020, through e-learning and short-term schooling (two days and one night), and canceled the In-service Teacher Class and the Advanced Rescue/ Special Advanced Rescue Course. Furthermore, although 21 classes and 13 practical courses had been planned for FY2020, those scheduled to be held between April and early June and in August were combined, postponed to the following year, or cancelled in response to the situation surrounding COVID-19 and the declaration of a state of emergency. As a result, only 17 classes and 9 practical courses were offered, and overall capacity decreased from 1,916 to 1,532 students.

When conducting training, thorough measures are taken to prevent infection, such as checking the temperature and physical condition of faculty members and students, wearing masks to prevent droplets, disinfection, and ventilation.

(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 specifically for newly appointed fire chiefs, fire academy school principals, and teachers, including existing teachers.

Furthermore, 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 teachers actually give lectures, and provide training for educational leaders at the fire academies.

The classes for people other than newly-appointed teachers and existing teachers also strive to foster educational leaders as one of their objectives, and offer training 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 131 times in FY2019.

C. Editing Firefighting Textbooks

The FDMA edits the textbooks for beginners that are used at the fire academies. As of April 2019, 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

In order to strengthen the ability to respond to large-scale events such as the Tokyo 2020 Games, the FDMA has been holding special lectures on safety management, responding to mass casualties, and NBC responses in 16 locations nationwide from FY2016 to FY2019 in prefectures where large-scale events are held.

Section 5 Ambulance Service System

☞ Japanese Original P.191

1. Implementation of Ambulance Services

(1) Ambulance Service Dispatch

Ambulance services were dispatched a total of 6,639,767 times in 2019 (an increase of 34,554, or 0.5%, 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. Looking at the daily average, ambulance services were dispatched an average of approximately 18,191 times per day (an increase of approximately 95 compared to the previous year), meaning that ambulance service teams were dispatched at a rate of once every 4.7 seconds or so (4.8 seconds in the previous year).

Furthermore, the number of people transported by ambulance has also consistently continued its upward swing, totaling 5,978,008 people (an increase of 17,713 people, or 0.3%, from the previous year). This means that one out of every 21 members of the public has been transported by an ambulance service team (same as the previous year). Looking at this by the type of incident that led people to be transported by an ambulance reveals that 3,926,553 people (65.6%) were transported due to sudden illness, 926,553 people (15.5%) suffered a general injury, 411,528 people (6.9%) suffered a traffic accident, and so on. (**Table 2-5-1**, **Table 2-5-2**, **Attachment 2-5-1**, **2**, untranslated)

The number of times fire and disaster prevention helicopters were dispatched came to 3,005 (a decrease of 123 from the previous year), and 2,250 people were transported by them (a decrease of 68 from the previous year).

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

Of the 5,978,008 people transported by ambulances in 2019, approximately half 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 2-5-3**)

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

Viewing a breakdown of the 5,978,008 people transported by ambulance in 2019 by age group reveals that 12,938 of them were newborn infants (0.2%), 280,728 were young children (4.7%), 202,830 were youths (3.4%), 1,892,457 were adults (31.7%), and 3,589,055 were elderly people (60.0%). As the aging of society advances, the share accounted for by elderly people will continue to trend upwards year by year (an increase of 0.6% from

Table 2-5-1 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 and disaster prevention 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 prevention helicopter	Difference/rate of change (%) from previous year			
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
2018	6,608,341	6,605,213	3,128	262,824	(4.1)	5,962,613	5,960,295	2,318	223,949	(3.9)	4,294,924	65.0
2019	6,642,772	6,639,767	3,005	34,431	(0.5)	5,980,258	5,978,008	2,250	17,645	(0.3)	4,335,687	65.3

(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 2-5-2 Trends in the number of ambulance dispatch by type of incident and the number of people transported

(During each year)

Type of incident	During 2018		During 2019			
	No. of dispatch (People transported)	Composition rate (%)	No. of dispatch (People transported)	Composition rate (%)	Difference	Rate of change (%)
Sudden illness	4,294,924 (3,891,040)	65.0 (65.3)	4,335,687 (3,922,274)	65.3 (65.6)	40,763 31,234	0.9 0.8
Traffic accident	459,977 (441,582)	7.0 (7.4)	432,492 (411,528)	6.5 (6.9)	△27,485 △30,054	△6.0 △6.8
General injury	997,804 (912,346)	15.1 (15.3)	1,013,435 (926,553)	15.3 (15.5)	15,631 14,207	1.6 1.6
Self-inflicted injury	51,994 (35,156)	0.8 (0.6)	52,286 (35,545)	0.8 (0.6)	292 389	0.6 1.1
Work-related injury	58,891 (57,500)	0.9 (1.0)	57,308 (55,924)	0.9 (0.9)	△1,583 △1,576	△2.7 △2.7
Assault	32,709 (25,038)	0.5 (0.4)	30,074 (22,750)	0.5 (0.4)	△2,635 △2,288	△8.1 △9.1
Sports/athletics	43,785 (43,349)	0.7 (0.7)	42,102 (41,573)	0.6 (0.7)	△1,683 △1,776	△3.8 △4.1
Fire	22,925 (5,393)	0.3 (0.1)	23,485 (5,234)	0.4 (0.1)	560 △159	2.4 △2.9
Drowning	5,249 (2,318)	0.1 (0.0)	5,071 (2,160)	0.1 (0.0)	△178 △158	△3.4 △6.8
Natural disaster	2,540 (1,957)	0.0 (0.0)	1,105 (640)	0.0 (0.0)	△1,435 △1,317	△56.5 △67.3
Other	634,415 (544,616)	9.6 (9.1)	646,722 (553,827)	9.7 (9.3)	12,307 9,211	1.9 1.7
Total	6,605,213 (5,960,295)	100 (100)	6,639,767 (5,978,008)	100 (100)	34,554 17,713	0.5 0.3

(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 2-5-3 Number of people transported by ambulance by type of incident and severity of their injury /illness

(During 2019)

Category / Type of incident	Death	Serious (Lengthy hospitalization)	Moderate (Hospitalization)	Minor (Outpatient care)	Other	Total
Sudden illness	62,227 (1.6)	294,196 (7.5)	1,685,123 (43.0)	1,879,708 (47.9)	1,020 (0.0)	3,922,274 (100)
Traffic accident	1,806 (0.4)	16,243 (3.9)	84,773 (20.6)	308,539 (75.0)	167 (0.0)	411,528 (100)
General injury	5,483 (0.6)	56,774 (6.1)	322,699 (34.8)	541,186 (58.4)	411 (0.0)	926,553 (100)
Other	7,181 (1.0)	118,951 (16.6)	450,950 (62.8)	139,594 (19.5)	977 (0.1)	717,653 (100)
Total	76,697 (1.3)	486,164 (8.1)	2,543,545 (42.5)	2,869,027 (48.0)	2,575 (0.0)	5,978,008 (100.0)

(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) Death: Persons confirmed to be dead at the time of the initial medical examination
(2) Serious (Lengthy hospitalization): Persons whose injury or illness is so severe that they require hospitalization lasting three weeks or longer
(3) Moderate (Hospitalization): Persons whose injury or illness are neither severe nor mild
(4) Minor (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.

the previous year). (**Fig. 2-5-1**, **Attachment 2-5-3**, untranslated)

Furthermore, elderly people accounted for the largest percentage of the people transported by ambulance for sudden illnesses (2,437,522 people, or 62.1%), while the largest percentage transported for traffic accidents consisted of adults (248,330 people, or 60.3%) and the largest percentage for general injuries consisted of elderly people (641,017 people, or 69.2%). (**Attachment 2-5-3**, untranslated)

(4) Time Required to Arrive at the Scene

Looking at a breakdown of the 6,639,767 cases in which ambulances were dispatched in 2019 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 (4,146,519 cases, or 62.4% of the total). (**Fig. 2-5-2**)

Additionally, the average time required to arrive at the scene came to approximately 8.7 minutes (approximately 8.7 minutes, the previous year), and 0.8 minutes longer than it was ten years ago (2009). (**Fig. 2-5-4**)

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

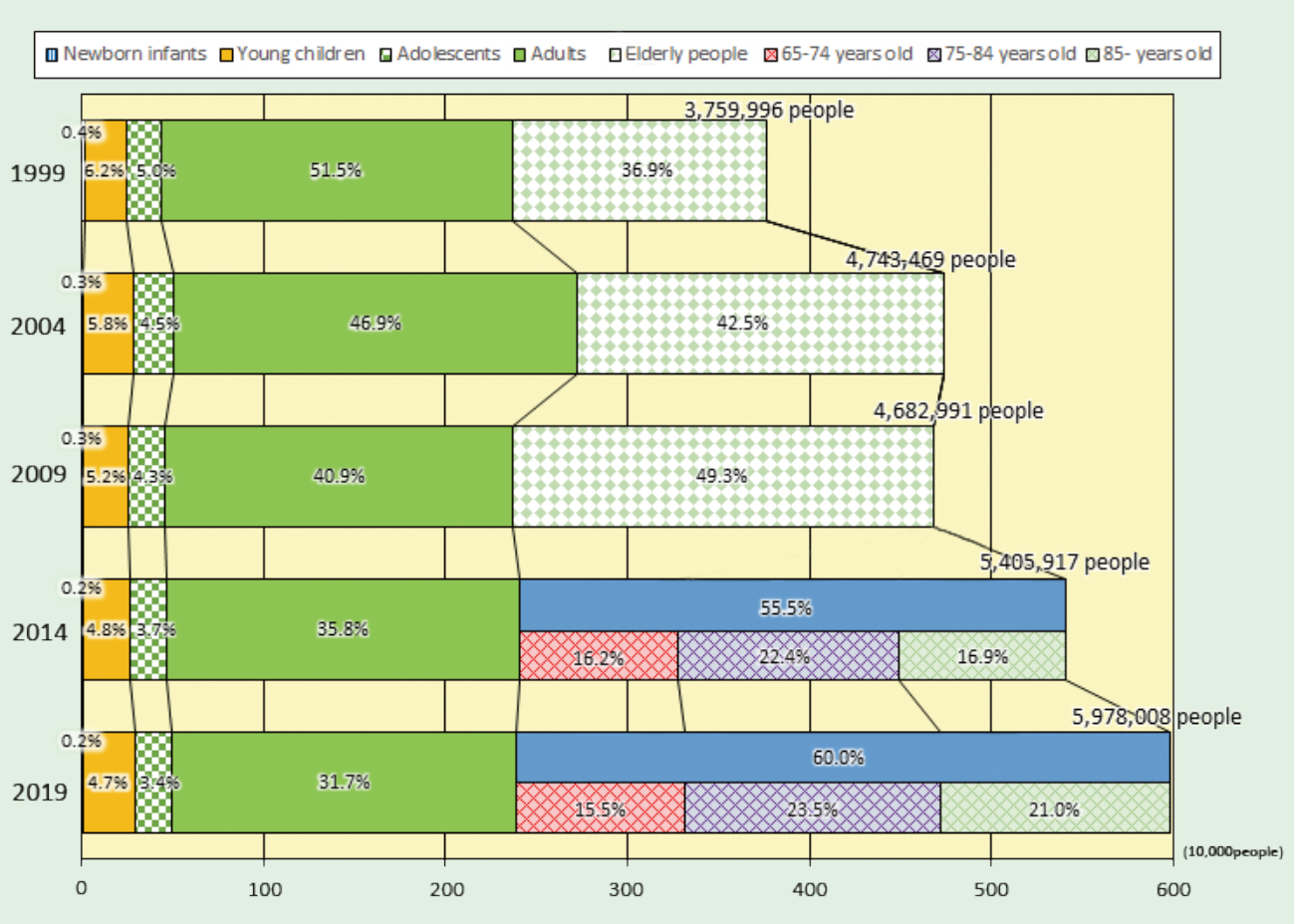
Looking at a breakdown of the 5,978,008 people transported by ambulance in 2019 by the time required to check the patient into a hospital (time required to check the patient into a hospital after the 119 report was received) reveals that the majority of people were checked in between 30 and 60 minutes at 3,790,567 people (63.4%). (**Fig. 2-5-3**)

In addition, the average time required to check the patient into a hospital came to approximately 39.5 minutes (approximately 39.5 minutes, the previous year), and 3.4 minutes longer than it was ten years ago (2009). (**Fig. 2-5-4**)

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

Of the 5,978,008 people transported by ambulances in 2018, ambulance team members administered first-aid treatment to 5,964,950 patients (99.8%). This brings the total number of cases in which ambulance crew members administered first-aid treatment to 23,035,861. (**Table 2-5-4**)

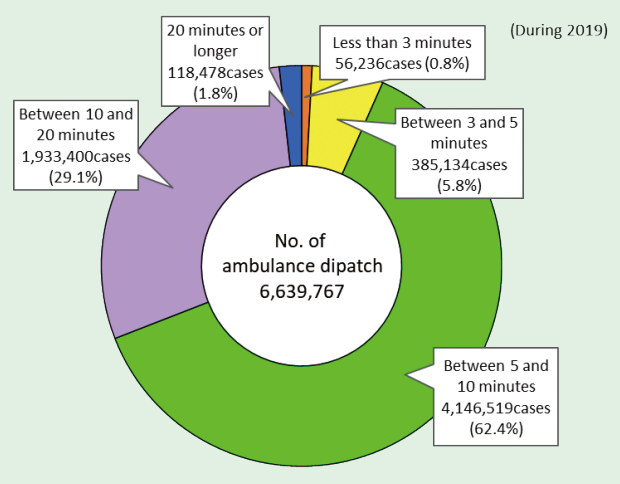
Fig. 2-5-1 Trends in the composition rate for people transported by age group



(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.

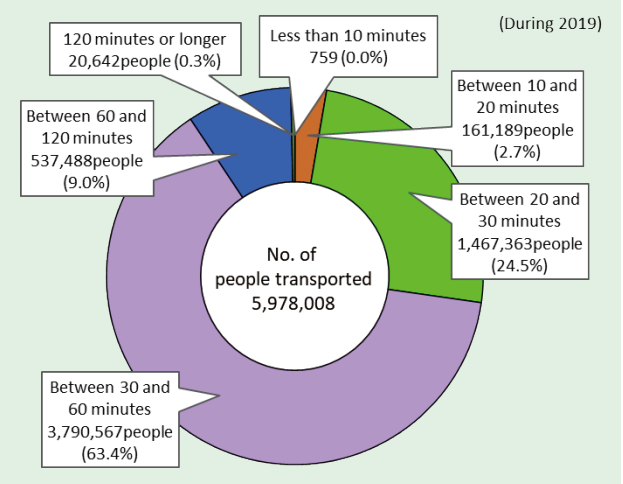
Furthermore, the total number of cases in which first-aid treatment was administered by ambulance crew members since their expansion in 1991 (items with * symbol in **Table 2-5-4**) came to 16,618,225 (a 3.8% increase year-on-year (YoY)). Of these, the number of cases in which EMTs administered first-aid treatment in order to resuscitate a patient (defibrillation*1 (including cases administered by non-EMT ambulance crews), tracheal intubation,*2 ensuring respiratory tracts using laryngeal masks, etc.,*3 ensuring intravenous channels,*4 drug administration,*5 measuring blood sugar,*6 administration of grape sugar,*7 and use of self-injectable adrenaline preparations*8) came

Fig. 2-5-2 No. of dispatch by time required for the ambulance to arrive at the scene



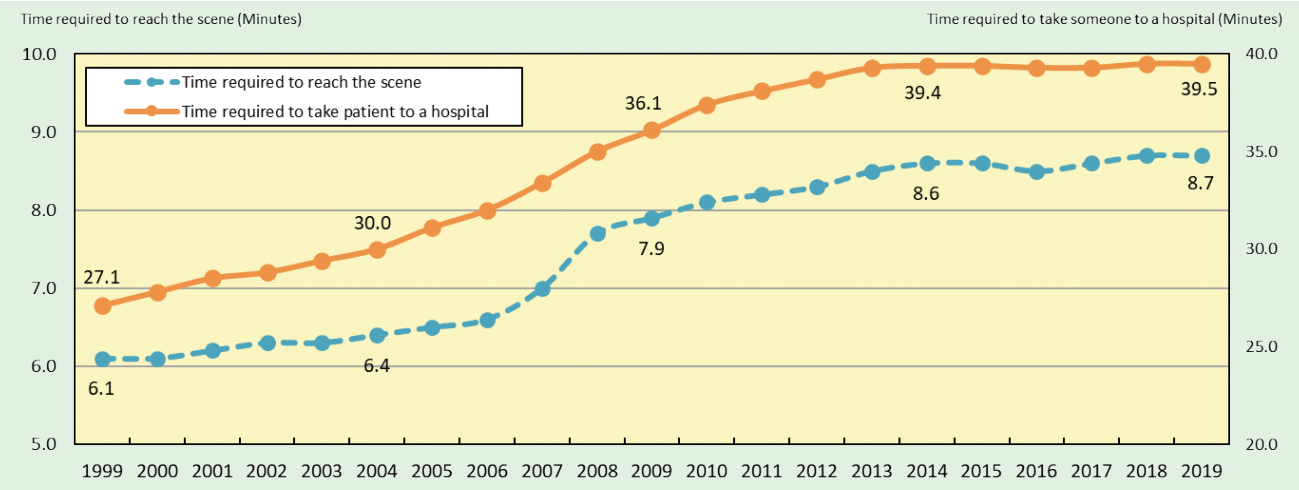
(Notes) 1 Prepared based on "The Annual Report on Ambulance Service".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

Fig. 2-5-3 No. of people transported by ambulance by time it took to check them into a hospital



(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.

Fig. 2-5-4 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 Annual Report on Ambulance Service".
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 Tracheal intubation: A process of securing the airway via the larynx with endotracheal tube.
*3 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.
*4 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.
*5 Drug administration: This refers to administering adrenaline (also called epinephrine; simply called "adrenaline" hereinafter) under the specific instructions of a doctor.
*6 Measuring blood sugar: The measurement of blood sugar levels in sick or injured patients with impaired consciousness.
*7 Administration of grape sugar: This refers to the act of administering grape sugar under the specific instructions of a doctor.
*8 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 2-5-4 First-aid Treatment Administered by Ambulance Team Members

(During 2019)

Type of incident		Sudden illness	Traffic accident	Ordinary injury	Other	Total
No. of people transported who were given first-aid treatment		3,918,211	410,180	923,754	712,805	5,964,950
Items for which first-aid treatment were administered	Stanching bleeding	20,240 (0.1)	19,367 (1.2)	78,408 (2.3)	16,239 (0.6)	134,254 (0.6)
	Covering	18,727 (0.1)	71,961 (4.5)	193,255 (5.7)	34,423 (1.3)	318,366 (1.4)
	Immobilization	31,536 (0.2)	164,217 (10.3)	154,787 (4.6)	42,440 (1.6)	392,980 (1.7)
	Keeping warm	1,060,858 (6.9)	74,853 (4.7)	222,627 (6.6)	171,969 (6.4)	1,530,307 (6.6)
	Oxygen inhalation	768,913 (5.0)	28,207 (1.8)	51,679 (1.5)	188,302 (7.0)	1,037,101 (4.5)
	Artificial respiration	32,467 (0.2)	748 (0.0)	3,230 (0.1)	4,715 (0.2)	41,160 (0.2)
	Pressure on sternum	9,796 (0.1)	289 (0.0)	1,081 (0.0)	1,107 (0.0)	12,273 (0.1)
	*Cases involving automatic chest compression device	3,246	56	384	280	3,966
	Cardiopulmonary resuscitation	97,734 (0.6)	2,501 (0.2)	10,444 (0.3)	10,481 (0.4)	121,160 (0.5)
	*Cases involving automatic chest compression device	15,426	278	1,649	1,358	18,711
	*Continuation of home medical treatment	40,822 (0.3)	279 (0.0)	3,696 (0.1)	3,889 (0.1)	48,686 (0.2)
	*Medical Anti-shock trousers	39 (0.0)	6 (0.0)	7 (0.0)	4 (0.0)	56 (0.0)
	*Measuring blood pressure	3,699,632 (24.1)	398,147 (25.0)	872,464 (25.7)	668,946 (24.9)	5,639,189 (24.5)
	*Listening for heartbeat/sounds of breathing	1,230,335 (8.0)	124,765 (7.8)	173,889 (5.1)	153,225 (5.7)	1,682,214 (7.3)
	*Measuring blood oxygenation levels	3,811,586 (24.8)	403,667 (25.4)	903,330 (26.6)	695,374 (25.8)	5,813,957 (25.2)
	*ECG measurements	2,380,567 (15.5)	117,729 (7.4)	299,815 (8.8)	353,791 (13.2)	3,151,902 (13.7)
	Ensuring respiratory tracts	160,371 (1.0)	4,123 (0.3)	15,900 (0.5)	18,085 (0.7)	198,479 (0.9)
	*Cases involving nasal airways	7,069	87	637	894	8,687
	*Cases involving laryngoscope, forceps, etc.	5,680	103	2,939	460	9,182
	*Cases involving laryngeal mask, etc.	34,947	656	2,794	2,370	40,767
	*Cases involving tracheal intubation	6,626	108	2,213	775	9,722
	*Defibrillation	10,895 (0.1)	155 (0.0)	398 (0.0)	716 (0.0)	12,164 (0.1)
	*Ensuring intravenous lines	62,117 (0.4)	2,000 (0.1)	6,039 (0.2)	4,622 (0.2)	74,778 (0.3)
	*Cases before CPA	22,442	1,207	1,445	1,279	26,373
	*Cases after CPA	39,677	793	4,595	3,344	48,409
	*Drug administration	26,779 (0.2)	630 (0.0)	3,144 (0.1)	2,346 (0.1)	32,899 (0.1)
	*Measuring blood sugar	58,961 (0.4)	498 (0.0)	1,570 (0.0)	1,044 (0.0)	62,073 (0.3)
	*Administration of grape sugar	8,887 (0.1)	19 (0.0)	30 (0.0)	52 (0.0)	8,988 (0.0)
	*Self-injectable adrenaline preparation	217 (0.0)	10 (0.0)	34 (0.0)	23 (0.0)	284 (0.0)
	Other treatments	1,826,948 (11.9)	176,381 (11.1)	400,826 (11.8)	318,436 (11.8)	2,722,591 (11.8)
Total		15,358,427 (100)	1,590,552 (100)	3,396,653 (100)	2,690,229 (100)	23,035,861 (100)
Expanded first-aid treatments, etc.		11,403,831	1,049,193	2,275,032	1,890,169	16,618,225

(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 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.
5 The * symbol indicates first-aid treatment items that were expanded in 1991.
6 Shows the first-aid treatments administered to sick and injured patients transported by ambulance.

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

(As of April 1 of each year)

Category / Group	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
No. of municipalities	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	1,690	1,690
Municipal implementation rate (%)	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	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".

to 241,675 (an increase of 5,926 from the previous year), which is a roughly 2.5% increase year on year.

2. Implementation Structure for Ambulance Services

(1) Number of Municipalities Offering Ambulance Services

The number of municipalities offering ambulance services as of April 1, 2020 totaled 1,690 municipalities (793 cities, 736 towns, and 161 villages) (the special wards of Tokyo were counted as one city; the same hereinafter in this section).

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

When viewed by the configuration through which said ambulance services were offered, 437 municipalities offered them independently, 143 did so by outsourcing them, and 1,110 did so through special district authorities and extended associations. (**Fig. 2-5-5**, **Attachment 2-5-3**, untranslated)

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

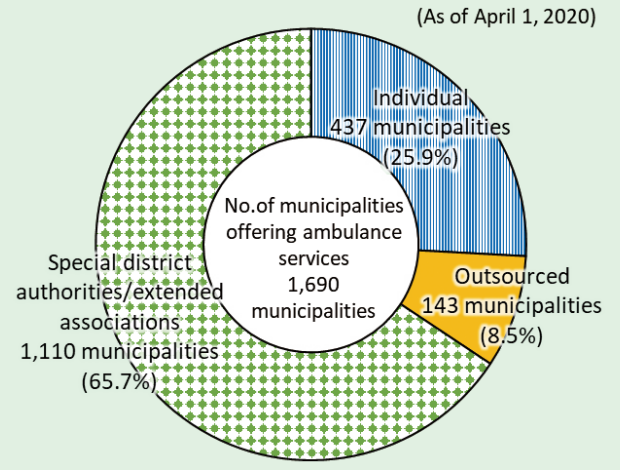
As of April 1, 2020, 5,270 ambulance teams (an increase of 55 YoY) had been established. (**Fig. 2-5-6**)

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, 2020, the number of firefighters who fulfilled this eligibility requirement came to 127,693 (an increase of 71 YoY). Of these, 64,531 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. 2-5-7**)

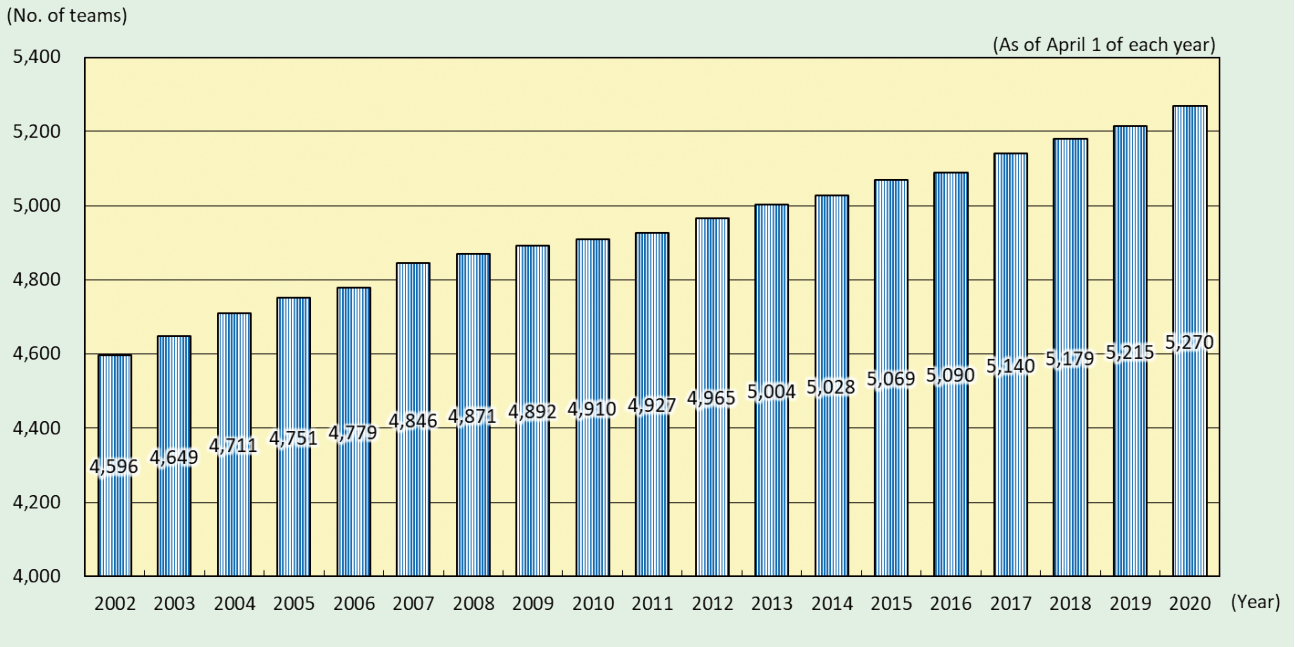
Furthermore, of the firefighters who fulfilled the

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



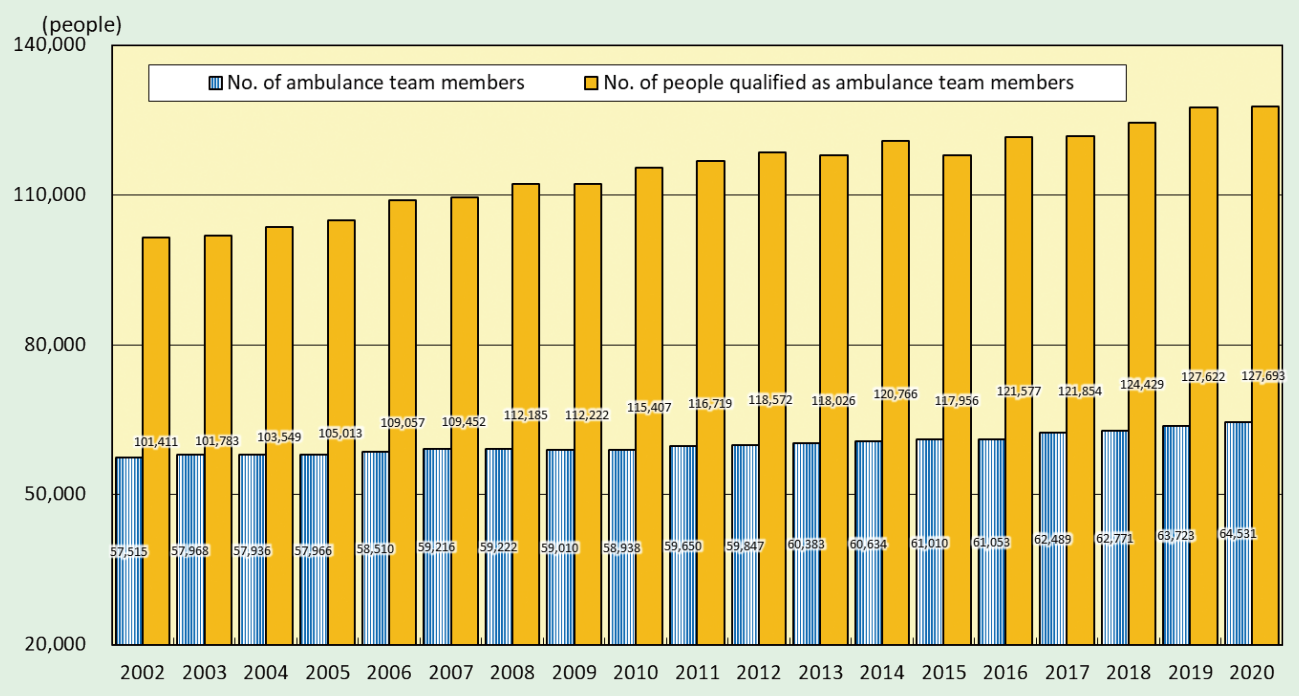
(Note) 1 Prepared based on "The Annual Report on Ambulance Service".
2 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

Fig. 2-5-6 Trends in the number of ambulance teams



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

Fig. 2-5-7 Trends in the number of ambulance team members

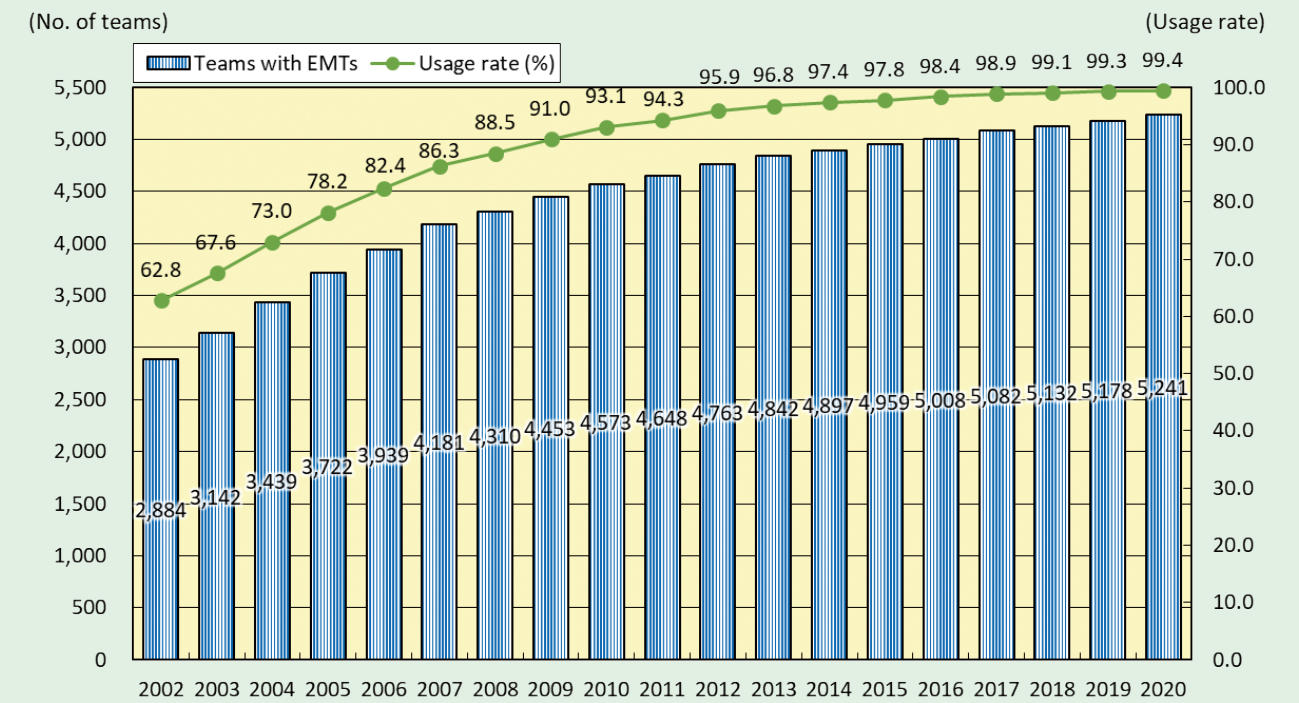


(Note) Prepared based on "The Annual Report on Ambulance Service".

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) totaled 84,771 people (a decrease of 666 YoY) nationwide as of April 1, 2020. Of these, 34,164 are engaged in ambulance services as ambulance team members.

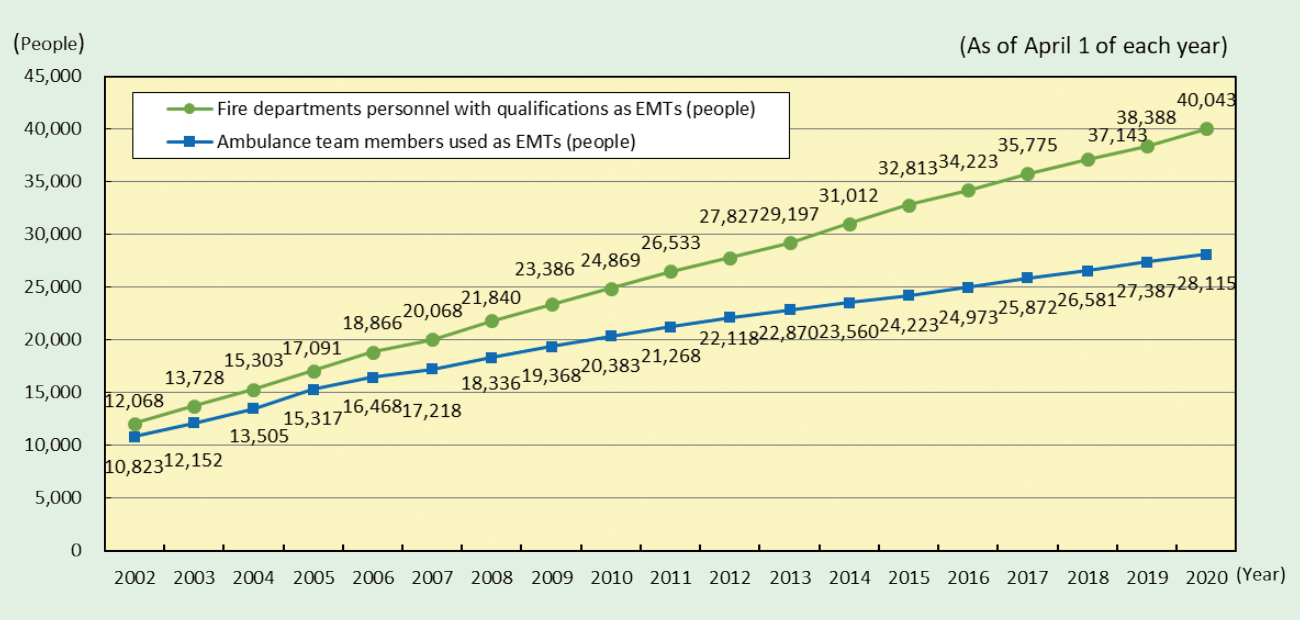
As of April 1, 2020, 13 associate ambulance team member are engaged in ambulance services nationwide. In December 2018, the FDMA promulgated an ordinance to partially revise the Order for Enforcement of the Fire Services Act, and from April 1, 2017, when a

Fig. 2-5-8 Trends in the number of ambulance teams with EMTs



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

Fig. 2-5-9 Trends in the number of EMTs



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

municipality establishes a plan (implementation plan) that describes the matters specified in an ordinance of the Ministry of Internal Affairs and Communications as measures to ensure appropriate ambulance services in depopulated areas and remote islands, it will be possible to form an ambulance team with two ambulance team members and one associate ambulance team member. An associate ambulance team member is defined as a full-time firefighter, etc. who has completed a basic training course (92 hours) on ambulance services. For example, a government employee who has completed the aforementioned course and also serves as a full time firefighter qualifies as an associate ambulance team member. In addition, it also stipulates that those who have the same or higher level of knowledge and experience as those who have completed the above-mentioned courses may be designated as associate ambulance team members. They are doctors, public health nurses, nurses, associate nurses, EMTs, and those who have completed the Ambulance class.

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

As a result of the increasing sophistication of ambulance services, the FDMA is promoting the training of EMTs and the development of an operational system where the objective is to have at least one EMT stationed with every ambulance team.

As of April 1, 2020, 725 fire departments out of 726 fire departments in Japan are making use of EMTs, and the usage rate is 99.9% (same as the previous year). The number of ambulance teams with EMTs came to 5,241 (an increase of 63 YoY), which corresponds to 99.4% of the 5,270 ambulance teams throughout Japan (an increase of 0.1% from the previous year), with this rising year by year. Furthermore, there were 40,043 fire departments personnel with EMT qualifications (an increase of 1,655 people YoY). Of these, 28,115 had been put to use as EMTs (an increase of 728 people YoY), with this number steadily increasing year by year. (**Fig. 2-5-8**, **Fig. 2-5-9**)

(4) Number of Ambulances

The number of ambulances owned by fire departments throughout Japan as of April 1, 2020 totaled 6,443 (an increase of 79 YoY), including those for emergency use. Of these, the number of high-standard ambulances was 6,279 (an increase of 100 YoY), which corresponds to 97.5% 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 (hereinafter 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 (hereinafter 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 April 1, 2020, ambulance services along national and other expressway were provided by municipal firefighting agencies over every section of the 9,188km 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 emergency medical care centers.

The results of the "Survey of Medical Institution Acceptance of Ambulance Transports in 2019" were compared with the results of the same survey from 2018, regarding cases with four or more inquiries or in which the ambulance stayed at the scene for 30 minutes or more, the number of cases involving transporting women with pregnancy related and perinatal conditions decreased, while the number of those involving transporting the seriously injured, transporting injured children, and transporting patients to emergency medical care centers increased.

The proportion of cases with four or more inquiries increased for cases involving transporting patients to emergency medical care centers and remained the same for all other cases. For cases in which the ambulance stayed at the scene for 30 minutes or more, the proportion of cases involving transporting women with pregnancy related and perinatal conditions and transporting injured children decreased, while the proportion of those involving transporting the seriously injured and transporting patients to emergency medical care centers increased. (**Table 2-5-6**, **Table 2-5-7**)

(2) Standards on Patient Transport and Their Acceptance

In light of the occurrence of cases in which it was difficult to select a medical institution that would accept the patient 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 (hereinafter referred to as the "acceptance standards") for the prefectures. The revised

Table 2-5-6 Trends in the number of cases in which four or more acceptance inquiries were made to medical institutions

	2015		2016		2017		2018		2019	
	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage
Cases in which patients with severe conditions or worse were transported	11,754	2.7%	10,039	2.3%	9,834	2.2%	10,861	2.4%	11,067	2.4%
Cases in which pregnant or perinatal patients were transported	549	3.7%	540	3.5%	475	3.3%	545	3.6%	532	3.6%
Cases in which young patients(under 15) were transported	8,570	2.4%	7,527	2.0%	6,442	1.7%	6,368	1.7%	6,702	1.7%
Cases in which patients were transported to emergency medical care centers	25,411	3.3%	20,248	2.6%	20,262	2.5%	23,116	2.6%	24,786	2.8%

(Notes) 1 Prepared based on "The Survey on the Actual Acceptance Status at Medical Institutions for Emergency Transport in 2019".
2 There is some overlap.
3 The percentage is the percentage versus the total number of people transported from each respective category.
4 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

Table 2-5-7 Trends in the number of cases where the time spent at the scene was 30 minutes or longer

	2015		2016		2017		2018		2019	
	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage	No.	Percentage
Cases in which patients with severe conditions or worse were transported	22,379	5.2%	22,104	5.0%	22,620	5.0%	23,643	5.1%	23,790	5.2%
Cases in which pregnant or perinatal patients were transported	1,194	7.9%	1,161	7.5%	1,112	7.8%	1,257	8.2%	1,107	7.4%
Cases in which young patients(under 15) were transported	12,039	3.4%	12,237	3.2%	11,515	3.1%	11,494	3.1%	11,532	3.0%
Cases in which patients were transported to emergency medical care centers	47,030	6.1%	40,213	5.1%	42,491	5.2%	47,455	5.3%	47,598	5.4%

(Notes) 1 Prepared based on "The Survey on the Actual Acceptance Status at Medical Institutions for Emergency Transport in 2019".
2 There is some overlap.
3 The percentage is the percentage versus the total number of people transported from each respective category.
4 Digits in the second decimal place were rounded off, so in some cases the totals may not be consistent.

Fire Service Act, enacted on October 30, 2009, includes content mandating the establishment of committees concerning the acceptance standards (hereinafter referred to as "legally-mandated committees"). 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 follow up by working to understand the efforts and challenges faced by each prefecture, as well as by introducing examples of efforts that are operating effectively in certain regions.

Fire departments and medical institutions (including institutions without emergency services) in each prefecture and region are to cooperate with one another, and furthermore, it is important that in accordance with the region's local circumstances, the public health centers, welfare services, and police are to assemble and thoroughly discuss the actual state of the acceptance of transported patients and share awareness of any issues while simultaneously building "face-to-face relationships" on a daily basis and making concrete and effective rules regarding the smooth acceptance of transported patients (revisions to acceptance standards, etc.), and each organization is required to promote further efforts in those areas. 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 discuss 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*9 by local public bodies in an effort to enhance ambulance medical care structures in local regions.

(3) Ambulance Medical Care Structure

With regard to the notification status of emergency hospitals and emergency clinics, which constitute the primary destinations to which patients are taken, as of April 1, 2020 there were 4,146 such locations throughout Japan. (**Attachment 2-5-5**, untranslated)

There are 568 weekend and nighttime ambulance care centers (as of April 1, 2020) that ensure that initial medical care can be received on weekends and at nights, which serve as the initial ambulance medical care structure. 2,756 hospitals make up the rotating hospital group and joint-use hospitals that comprise the secondary medical care system (as of April 1, 2020), and 294 emergency medical care centers (as of April 1, 2020) make up the tertiary medical care system. Additionally, among the emergency medical care centers are advanced emergency medical care centers capable of handling patients with specific illnesses or injuries, such as extensive burns, severed digits and limbs, and acute poisoning, of which 43 locations have been set in place (as of April 1, 2020).

The approval of emergency hospitals and emergency clinics under the emergency notification system, and the development of initial, secondary, and tertiary medical care systems are implemented in a centralized fashion under the medical care plan approved by the prefectural governor.

Under these emergency care systems and through the acceptance standards enacted by the prefectures in accordance with 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.

4. Promotion of More Sophisticated Ambulance Services

(1) Promotion of Education for Ambulance Service Personnel

On August 15, 1991, in order to enhance pre-hospital care (first aid treatment at the scene of an emergency and during transportation to a hospital or clinic) and improve the lifesaving rate in Japan, the Emergency Medical Technicians Act was enforced and a new qualification system was set up to make EMTs who are responsible for performing certain first-aid treatment under the direction of physicians until the ambulance team members arrive at the hospital or clinic after having arrived at the scene.

In the case of firefighters, the EMT qualification can be obtained by completing an ambulance services course, engaging in ambulance services for 5 years or at least 2,000 hours, and then completing an EMT training course for at least 6 months before passing a national examination. After obtaining the qualification, in order for EMTs to engage in ambulance services, they are required to take at least 160 hours of hospital training according to the hospital training guidelines. It is recommended that after that, they subsequently take at least 128 hours of further training every two years (of which, hospital training should be at least 48 hours).

Based on expanding their first aid content, the FDMA has been promoting various measures to smoothly implement first aid courses and provide steady training to EMTs. As the education and training in order to acquire EMT qualifications (1) includes advanced and specialized contents, (2) requires securing an instructor related to ambulance medical care, and (3) requires consideration be given to the efficiency of the education and training, etc., the enactment of the Emergency Medical Technicians Act lead to the establishment of the Foundation for Ambulance Service Development was established in 1991 with the investment of 47 prefectures nationwide for the purpose of training EMTs for fire departments. It has since been engaged in the training of EMTs.

In FY2019, 789 EMTs at the EMT Training Center of the Foundation for Ambulance Service Development and 395 EMTs at the EMT training centers in the designated cities completed the training course and took the national examination.

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

In the context of almost 30 years having passed since the enactment of the Emergency Medical Technician Act and the promotion of educating personnel to guide other EMTs, because it is thought that having EMTs with a wealth of experience who can instruct others on field exercises at emergency scenes, an environment different from the inside of a hospital, will improve the quality of emergency services and secure the trust of the public, as well as lessen the educational burden on fire departments and medical institutions, the role of EMTs in leadership positions (hereinafter referred to as "supervisory EMTs") is increasing.

As the requirements for supervisory EMTs and the educational curriculum necessary for their training were expressed at the "Investigative Committee on the State of Emergency Services" held by the FDMA in 2013, the Emergency Lifesaving Kyushu Training Center opened its doors in May 2014 and in September the same year, the Emergency Department of the Fire and Disaster Management College Emergency started the education necessary to receive certification as an EMT. Additionally, some fire academy schools conduct their own training of EMTs.

Furthermore, in November 2015, the FDMA created the "EMT Training Textbook" as a nationwide standard that expanded the curriculum to more specific educational content in order to facilitate further training of EMTs.

Against the backdrop of increasing social interest in cardiovascular diseases in response to the promulgation and enactment of the Cerebrovascular and Cardiovascular Disease Control Act, the FDMA received a proposal from relevant academic societies based on the latest scientific findings regarding the observation and treatment of cardiovascular disease and stroke among ambulance teams, and an examination of this proposal was conducted from the perspective of ambulance services at the "FY2019 Investigative Committee on the State of Emergency Services". The FDMA issued a notice regarding items deemed appropriate by the Investigative Committee titled "Observation and Treatment in Ambulance Teams" (Fire and Rescue Notice No.83 from the Manager of the Ambulance Service Planning Division at the FDMA, dated March 27, 2020), with the aim of providing information in order to improve the knowledge and skills of ambulance services nationwide based on the latest scientific findings.

In addition, the promotion of national exchanges among ambulance team members and the improvement of skills relating to emergency efforts are being done through training and research opportunities such as the National Ambulance-Crew Symposium and the Japanese Society for Emergency Medicine.

(2) Increase in the Treatment Scope of EMTs

The treatment scope of EMTs has, on the premise of establishing the medical control system described in (3), gradually increased as shown in [Increase in treatment scope over time] [1] to [4] below.

The most recent example of increasing the treatment scope of EMTs is [4], and its backstory is as follows.

−From 2011, in the "Research on the treatment scope of EMTs", in order to improve the lifesaving rate of the injured and sick and reduce prognostic symptoms, tests of the clinical efficacy, safety, and effectiveness of the three acts of (1) blood glucose measurement and administration of glucose solution for cases of hypoglycemic attacks, (2) use of an inhaled beta-adrenoceptor stimulant for patients with severe asthma, and (3) intravenous catheterization and infusion for cardiopulmonary arrests were conducted at 129 fire departments nationwide.

−As a result of analysis and consideration of this empirical study, it was concluded that (1) and (3) of the three acts in the report, "Examination Meeting on the Work of EMTs" published by the Ministry of Health, Labour and Welfare in August 2013, should be added to the scope of treatment of EMTs. In response to this, from April 1, 2014, intravenous catheterization and infusion for patients suffering from a severe cardiopulmonary arrest and blood glucose measurement and administration of glucose solution for cases of hypoglycemic attacks were added to the scope of EMT treatment.

[Increase in treatment scope over time]

[1] Defibrillation

Since April 2003, defibrillation, which has been carried out by EMTs under the specific instructions of physicians since the Emergency Medical Technicians Act was enforced in 1991, can be carried out by an EMT under the comprehensive instructions of a physician, on the condition that a medical control system is established pre and post defibrillation, and the establishment of a post-treatment verification system in accordance with protocol, the implementation of a necessary short course in line with the course curriculum, and the creation and dissemination of said protocols.

[2] Tracheal intubation

From July 2004, on the condition that the medical control system is established before and after tracheal intubation, tracheal intubation can be performed by an EMT who has been recognized as completing the specific course and hospital training. As of April 1, 2020, of ambulance team members who are qualified EMTs, 15,597 of them can perform tracheal intubation.

When operating tracheal intubation, because using a video laryngoscope will increase the safety and certainty of securing the airway, from August 2011, EMTs who have completed the specified training and hospital training and have been certified are allowed to use a video laryngoscope, and therefore it is expected that the regional medical control councils will continue to consider its operation. As of April 1, 2020, of ambulance team members who are qualified EMTs, 6,359 of them can perform treatment with a video laryngoscope.

[3] Drug administration (adrenaline)

From April 2006, on the condition that the medical control system is established before and after drug administration, drug administration can be performed by an EMT who has been recognized as completing the specific course and hospital training. As of April 1, 2019, of ambulance team members who are qualified EMTs, 26,230 of them can administer drugs (adrenaline).

Furthermore, from March 2009, If the patient's life is at risk due to anaphylactic shock, and they have been administered an epipen in advance, the EMT may use the epipen to administer the adrenaline.

[4] Intravenous catheterization and infusion for patients suffering from severe cardiopulmonary arrest, and blood glucose measurement and administration of glucose solution for cases of hypoglycemic attacks

From April 2014, on the condition that the medical control system is established before and after drug administration, drug intravenous catheterization and infusion for patients suffering from a severe cardiopulmonary arrest and blood glucose measurement and administration of glucose solution for cases of hypoglycemic attacks can be performed by an EMT who has been recognized as completing the specific course and hospital training. As of April 1, 2020, among the ambulance team members who are qualified as EMTs, 25,218 of them can perform intravenous catheterization and infusion for patients suffering from a severe cardiopulmonary arrest, and 25,251 of them can take blood glucose measurements and administer a glucose solution for cases of hypoglycemic attacks.

(3) Enhancement of Medical Control System

The medical control system in pre-hospital care is a system that ensures the quality of first aid, etc. performed by ambulance team members, including EMTs, from a medical point of view. Specifically, it is a system that, in collaboration with fire departments and medical institutions, (1) creates various protocols according to the characteristics of the region based on medical grounds, (2) enables emergency personnel to promptly request instruction, guidance, or advice from physicians at any time from a scene of an emergency, (3) has physicians conduct a medical and objective post-verification of emergency efforts, and feeds back the results of said post-verification, as well as (4) conducting further education, etc. The Medical Control Council, which is a forum for discussions between fire departments and medical institutions, is established in each prefecture and each region. As of August 1, 2019, the number of Medical Control Councils across all regions is 251. The Medical Control Council is actively working to improve the quality of emergency services through post-verification, etc. In order to improve the quality of first aid, etc. performed by ambulance team members, including EMTs, and make emergency services more sophisticated, such as by increasing the scope of EMT treatment, it is necessary to further enhance and strengthen the medical control system.

The FDMA regularly holds the "National Medical Control Council Liaison Meeting", which was established in May 2007, together with the Ministry of Health, Labour and Welfare with the purpose of enhancing and strengthening the National Medical Control Council and sharing information among related parties nationwide.

In addition, the Medical Control Council can also be used for legal counsel on implementation standards based on the Fire Service Act which was revised in 2009.

Furthermore, recently, the roles required of the Medical Control Council have diversified. For example, as the number of elderly people requesting emergency services is increasing, there are cases in which emergency services are requested by the families of patients to stop performing cardiopulmonary resuscitation (CPR). Based on this background, the "Investigative Committee on the Implementation of CPR at the Scene of an Emergency in Line with the Wishes of the Sick or Injured Person" was held in the "2018 Investigative Committee on the State of Emergency Services" to conduct a fact-finding survey of the status of efforts by fire departments, etc. and organize and examine issues. At the investigative committee, experts indicated a basic awareness that 'the person's choices' should be respected' in cases where the patient's family communicates at the scene of an emergency that the patient does not want CPR treatment. At scenes of emergencies, which consist of all kinds of scenarios and are urgent situations and in many cases there is no physician present, usually, the ambulance crew has time and information-related restrictions such as the wishes of the injured or sick person are not shared with them beforehand. Therefore, the committee concluded that it is necessary to clarify the actual situation of the cases and through verification in each place, to increase knowledge about the response of the ambulance crew by accumulating all cases. The Investigative Committee introduced the example of a region that has a policy of using the Medical Control Council to discontinue CPR after sufficient discussion, contacting one's doctor, and receiving a notice to discontinue CPR, once again recognizing the importance of Medical Control Councils.

Based on the results of these surveys, the FDMA issued a notice titled "Report of the Investigative Committee on the Implementation of CPR at the Scene of an Emergency in Line with the Wishes of the Sick or Injured Person at the FY2018 Investigative Committee on the State of Emergency Services" (Fire and Rescue Notice No. 205 from the Manager of the Ambulance Service Planning Division at the FDMA, dated November 8, 2019) to the heads of fire and disaster management departments in each prefecture. This notice states that firefighting agencies will be required to (1) make efforts to appropriately participate in community discussions on the Community-based Integrated Care System*10 and ACP (Advance Care Planning, also known as Jinsei Kaigi)*11 together with those involved in home medical and nursing care, and proactively exchange opinions, etc., (2) make efforts to, when considering the response of ambulance teams and in addition to (1) above, seek participation from those involved in home medical and nursing care in medical control committees, etc., and hold sufficient discussions while taking into account the status of end-of-life medical care and care initiatives at the community level, as well as the status of home medical care and elderly care facilities, and (3) consider making this subject to subsequent verification at medical control councils. In order to properly grasp the actual situation,

*10 Community-based Integrated Care System: A system that comprehensively ensures medical care, long-term care, long-term care prevention (prevention of a state requiring nursing care or support, or reduction/prevention of the worsening of a state requiring nursing care or support), housing, and support for independent living in accordance with local conditions, so that elderly people can lead independent lives within their own communities for as long as possible according to their abilities.

*11 ACP (Advance Care Planning): A process in which the individual repeatedly discusses end-of-life medical treatment and care in advance with family members and their medical care teams.

the notice also requested that each fire department tally the number of calls concerning sick or injured people who do not want CPR. In addition, fire departments were asked to provide information to the FDMA on the procedures they have established for dealing with cases where the patient's family communicates at the scene of an emergency that the patient does not want CPR treatment.

(4) Use of Emergency Resuscitation Statistics (Utstein data)

In Japan, the Utstein Style*12 has been introduced across all fire departments nationwide since January 2005. This unified introduction across the entire country is a first of its kind anywhere in the world and is an innovative initiative. The FDMA also operates an online system for collecting and analyzing the results of research done via the Utstein Style, and has accumulated 15 years' worth of data from 2005 to 2019. On an application basis, the data is provided to related academic societies so that the accumulation of this data can be used appropriately and effectively. The data is also used for constructing measures and systems for improving the lifesaving rate.

In the past, the Utstein Style was published as "Utstein statistics" and "Status of lifesaving rate of patients suffering from cardiopulmonary dysfunction", but the name has been changed to "Emergency Resuscitation Statistics" since 2009 in order to make it easier to understand that the statistics are for patients suffering from cardiopulmonary dysfunction who were transported to a hospital by an ambulance.

–omitted–

*12 Utstein Style: This is a survey and statistical approach for classifying cases of cardiopulmonary arrest according to the cause, whether it was witnessed or not, whether bystanders performed CPR or not, etc., and recording the prognosis (survival rate after one month, etc.) of the injured or sick in each category. It was proposed at an international conference held at Utstein Monastery in Norway in 1990 and is recommended worldwide.

Section 6 Rescue System

☞ Japanese Original P.216

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 2019, 61,340 rescue activities were carried out (a decrease of 167, or 0.3%, YoY) and 63,670 people were rescued (this refers to the number of people rescued through rescue activities; a decrease of 166, or 0.3%, YoY). (**Table 2-6-1**, **Attachment 2-6-1**, untranslated)

The main reason for this decrease was the decrease in the number of rescue activities (down 1,101 cases, or 7.7%, YoY) and the number of people rescued (down 1,499, or 8.0%, YoY) in "traffic accidents."

(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.

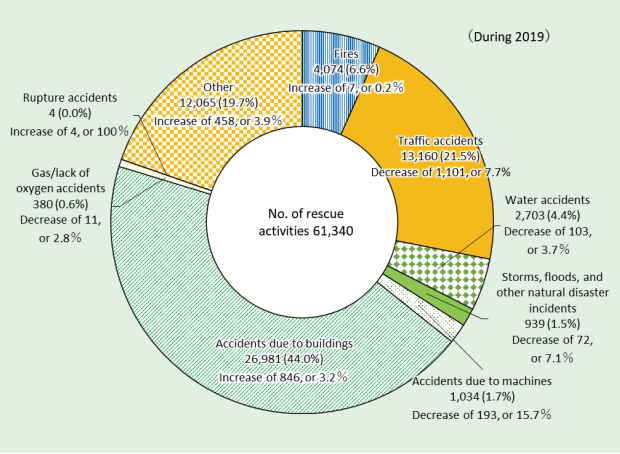
The number of rescue workers dispatched (which refers to the total number of people dispatched in order to carry out rescue activities) came to 1,459,779 in total. Of these, the number of firefighters dispatched was 1,396,315 in total, of which 32.6% were dispatched for "Accidents due to buildings", while 22.1% were dispatched due to "Traffic accidents". At the same time, the number of volunteer firefighters dispatched totaled 63,464, of which 68.9% were dispatched on account of fires.

Table 2-6-1 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 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
During 2018	61,507	9.2	63,836	10.7
During 2019	61,340	△0.3	63,670	△0.3

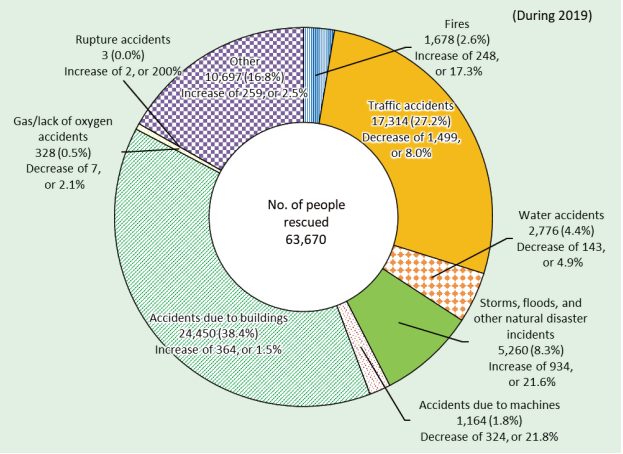
(Note) Prepared based on "The Survey on the Implementation Status of Rescue Activities".

Fig.2-6-1 Number of rescue activities by type of incident



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

Fig.2-6-2 Number of people rescued by type of incident



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

Table 2-6-2 Number of dispatches and status of activities by type of incident

(During 2019)

Category / Year		Fires	Traffic accidents	Water accidents	Storms, floods, and other	Accidents due to machines	Accidents due to buildings	Gas/lack of oxygen accidents	Rupture accidents	Other	Total
No. of rescue activities		4,074 (6.6)	13,160 (21.5)	2,703 (4.4)	939 (1.5)	1,034 (1.7)	26,981 (44.0)	380 (0.6)	4 (0.0)	12,065 (19.7)	61,340 (100.0)
No. of people rescued		1,678 (2.6)	17,314 (27.2)	2,776 (4.4)	5,260 (8.3)	1,164 (1.8)	24,450 (38.4)	328 (0.5)	3 (0.0)	10,697 (16.8)	63,670 (100.0)
Firefighters	No. of rescue workers dispatched	135,481 (9.7)	308,865 (22.1)	76,440 (5.5)	14,139 (1.0)	22,885 (1.6)	455,098 (32.6)	11,676 (0.8)	201 (0.0)	371,530 (26.6)	1,396,315 (100.0)
	No. of people who engaged in rescue activities	60,080 (10.5)	130,208 (22.9)	37,357 (6.6)	8,347 (1.5)	10,408 (1.8)	213,769 (37.5)	4,350 (0.8)	73 (0.0)	105,088 (18.4)	569,680 (100.0)
Volunteer firefighters	No. of rescue workers dispatched	43,724 (68.9)	1,177 (1.9)	2,877 (4.5)	729 (1.1)	177 (0.3)	1,872 (2.9)	121 (0.2)	24 (0.0)	12,763 (20.1)	63,464 (100.0)
	No. of people who engaged in rescue activities	6,853 (62.2)	79 (0.7)	1,521 (13.8)	568 (5.2)	78 (0.7)	13 (0.1)	4 (0.0)	0 (0.0)	1,894 (17.2)	11,010 (100.0)
No. of people who engaged in rescue activities per incident		16.4	9.9	14.4	9.5	10.1	7.9	11.5	18.3	8.9	9.5

(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.

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) totaled 580,690. This means that 9.5 people on average took part in each individual rescue activity. Furthermore, in terms of the number of people engaged in each individual rescue activity by type of incident, rupture accidents had the greatest number at 18.3 people on average, followed by fires at 16.4 people. (**Fig. 2-6-1**, **Fig. 2-6-2**, **Table 2-6-2**)

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; hereinafter 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 2020, 1,438 crews had been established at 709 fire departments, and the number of rescue crew members came to 24,670 people. This means that on average, roughly 2.0 rescue crews have been established at each fire departments, with an average of 17.2 rescue crew members in 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) Possession 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 NBC disasters*2 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 2-6-3**)

3. Holding National Firefighting and Rescue Skills Meets

The National Firefighting and Rescue Skills Meet has been held every year 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

*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.
*2 NBC disasters: Disasters caused by Nuclear, Biological, or Chemical substances.

Table 2-6-3 Possession status of rescue equipment for rescue activities and board vehicles for carrying rescue crews

(As of April 1, 2020)

Major rescue equipment	Ministerial ordinance annex 1	Three Part 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
		7,955	1,777	2,130	2,100	4,416	6,657	7,059	1,277	6,127	50,545	945
	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		
		2,746	2,254	2,246	1,740	1,901	3,358	1,703	2,328	3,323		
	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			
		611	335	1,781	364	236	124	65	88			
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		
		1,243	386	115	240	405	108	28	495	3,020		

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

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, there is "Basic training" where individual crew members practice basic skills, "Coordinated training" where crew members practice their individual skills together by cooperating with other crew members, and "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 49th meet was scheduled to be held on October 24, 2020 in Kitakyushu City, Fukuoka Prefecture, but due to the effects of the new coronavirus infection, the meeting was postponed until October 2021, also in Kitakyushu City Fukuoka Prefecture.

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Section 8 Integrated Fire Service Support and National Fire-Service Team for Disaster Response

☞ Japanese Original P.229

1. Integrated Support System for Fire Service

(1) Mutual Support Agreement for Fire Services

As municipalities are obliged to make efforts to support each other as and when necessary regarding firefighting efforts (Article 39, Paragraph 1 of the Fire Organization Act), by concluding agreements on mutual firefighting support, it is now possible to respond appropriately to large-scale disasters and special disasters.

Currently, in all prefectures, there are firefighting mutual support agreements (including agreements for only municipalities where firefighting services are on hand) in which all municipalities under each prefecture and firefighting administrative associations and so on participate.

(2) Establishment of Integrated Support System for Fire Service

To respond to large-scale disasters and special disasters, it is necessary for firefighting capabilities to operate extensively beyond the districts of municipalities or prefectures. For this reason, the FDMA has both enhanced and strengthened the National Fire-Service Teams described in section 2, as well as formulated the "Guidelines for the Implementation of Wide-Area Aerial Firefighting Support Teams in the Event of a Large Scale Special Disaster" in order to efficiently implement the use of helicopters as, in the event of a forest fire or other large scale disaster, helicopters excel in all areas of firefighting and disaster prevention, such as aerial firefighting, rescue activities, emergency operations, information gathering, and emergency transportation. The guidelines clarify the procedures for requesting support based on article 44 of the Firefighting Agency Organization Act, and promote the active use of firefighting helicopters owned by firefighting agencies and prefectures for wide-area support (Table 2-8-1). In response to a series of large-scale forest fires, the Fire and Disaster Management Agency notified each fire department of the "Strengthening of Vigilance against Forest Fires and the Active Use of Aerial Fire Fighting" (Notice No. 104 from the Manager of the Special Disaster Management Office at the FDMA and Notice No. 157 from the Manager of the Mutual Aid Management Office at the FDMA, dated May 10, 2017). It clarified the request scheme to establish a system to prevent the spread of damage at an early stage through the deployment of a large number of helicopters. In the event that the

Table 2-8-1 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 October 1, 2020; 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
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	6	4		1				1	
2018	13	12						1	
2019	9	9							
2020	4	4							
Total	347	290	4	22	0	6	0	4	21

firefighting helicopters within the jurisdiction of the prefectures are unable to respond to the disaster, support from firefighting helicopters from other prefectures will be requested quickly, and Japan Self-Defense Forces (JSDF) helicopters will also be requested as soon as possible. In 2020, there were 4 forest fires that led to requests for wide-area aerial firefighting support by the end of September, but early requests for support and cooperation with JSDF helicopters helped minimize the damage.

To continue to utilize fire and disaster prevention helicopters effectively across a wide area, it is necessary to further enhance and strengthen the nationwide Integrated Support System for Fire Service in the event of a large-scale disaster by setting up an aviation operation and coordination team at each prefecture's disaster response headquarters, promoting the development of a helicopter system and helicopter video transmission system for prompt information-gathering activities, and utilizing a helicopter dynamic management system for ascertaining the positional information of fire and disaster prevention helicopters and performing efficient adjustments to operations.

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 Defense 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 on 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.

In addition, a number of new types of teams were established in order to handle increasingly complicated and diverse disasters. These included special disaster 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 and disaster prevention helicopters and water teams that use firefighting boats. This brought the types of teams to 8, 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 Tokyo in Land Earthquake 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 included 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 Defense 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. Later, it was also implemented in the July 2018 torrential rains, 2019 East Japan Typhoon (Typhoon No.19), and July 2020 torrential rain.

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

Under Fire Service Organization Act, it has been mandated that the Minister for Internal Affairs and Communications is to enact the Basic Plan.

Table 2-8-2 Enshrining National Fire-Service Teams into law through the 2003 revisions to the Fire Defense Organization Act

		Prior to the revisions	After the revisions
Position of the National Fire-Service Teams		Guidelines for National Fire-Service Teams	Fire Defense 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

This Basic Plan, enacted in February 2004, 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 initially enacted, it set a 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.

Furthermore, 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 2-8-2**)

(e) Free Use of Equipment for National Fire-Service Teams

Regarding the equipment and materials deemed necessary for the activities of the National Fire-Service Team, it would be difficult to expect progress in the maintenance of vehicles and equipment, even with government subsidies, if the maintenance and possessions of such equipment is not efficient in terms of cost-effectiveness. 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 Defense Organization Act

In 2008 the Act for the Partial Revision of the Fire Defense 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 Tokyo in Land Earthquake.

(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 torrential rain 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 (hereinafter 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. 2-8-1**)

(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.

In addition, in March 2019, the Basic Plan was revised to include new decision-making factors in the requirements for the Commissioner of the FDMA to order the dispatch of National Fire Service Teams. It was stipulated that, in the event of a large-scale disaster, instructions shall be given to take necessary measures while taking into consideration the situation surrounding the disaster, the establishment of a disaster response headquarters or emergency disaster response headquarters, and the need for support.

Fig 2-8-1 Organization of coordination headquarter for firefighting support activities

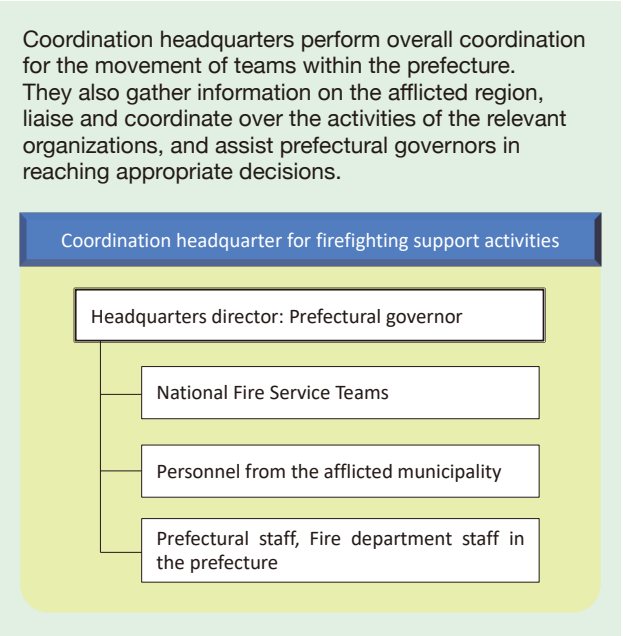


Fig 2-8-2 Organization of teams comprising National Fire-Service Teams

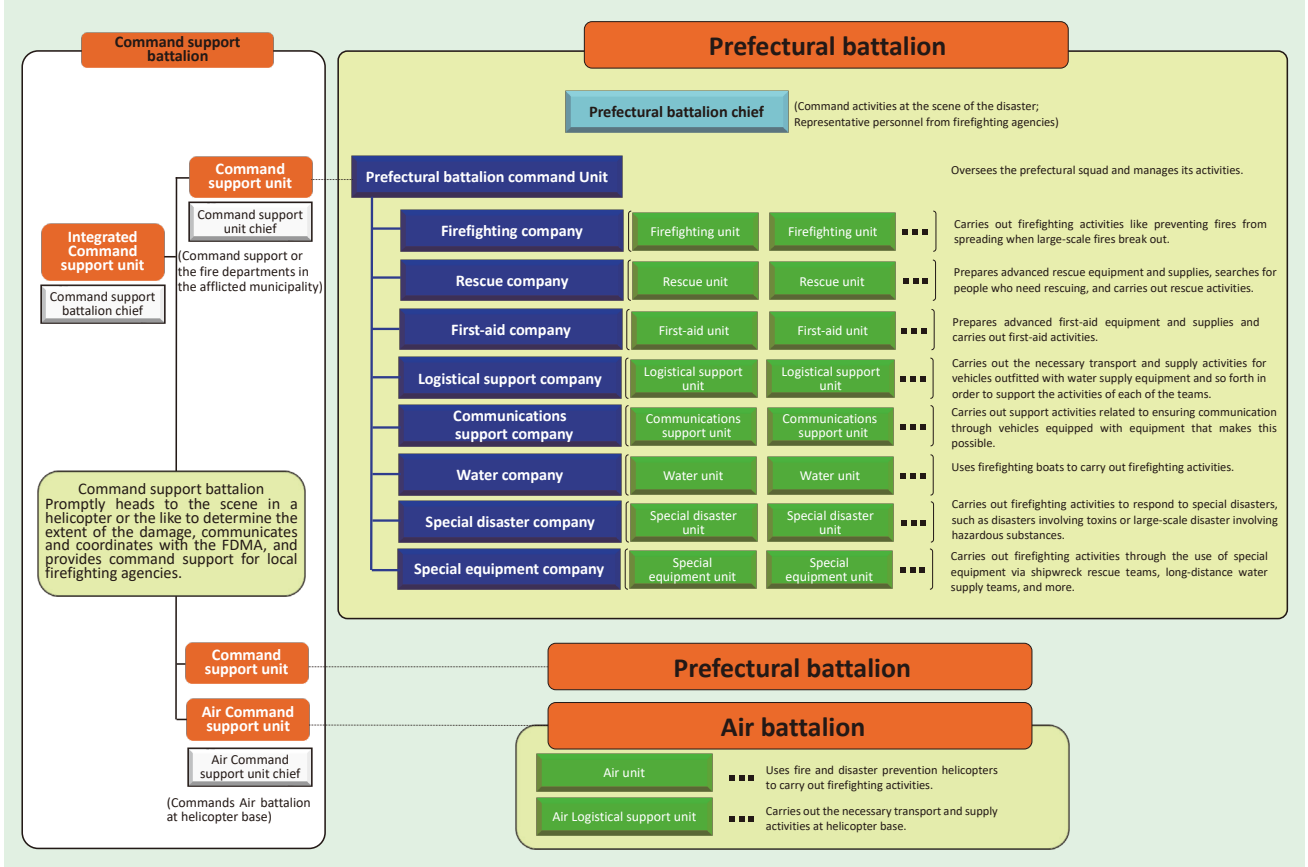


Table 2-8-3 Tasks and organizations of special battalions

Name	Mission	Comprising unit
Integrated Mobile Unit	After a request or instruction by the Director-General to mobilize, to mobilize promptly, to conduct firefighting activities urgently in the disaster area, and to collect and provide information that contributes to the smooth activities of the prefectural battalion in the case that the prefectural battalion follows.	Comprehensive Mobile Command Unit, some 3 Firefighting Units, some 3 Rescue Units, some 3 First-aid Units, Logistical Support Unit, and Communication Support Unit
National Fire-Service Team for Energy/Industrial Disaster	To conduct advanced and specialized firefighting activities quickly and accurately in response to special disasters in areas where energy and industrial infrastructure such as petroleum complexes and chemical plants are located.	Command Unit of National Fire-Service Team for Energy/Industrial Disaster, Special Disaster Company (equipped with large elevated water truck, hose extension vehicle with a large water cannon, chemical fire truck, large elevated water truck, and foam solution transport vehicle), Firefighting Company (equipped with chemical fire truck) In addition to the above Special Equipment Unit, Logistical Support Unit, Communications Support Unit, and Water Unit are added depending on local conditions.
NBC Disaster Battalion	To conduct advanced and specialized firefighting activities against NBC disasters in a prompt and accurate manner.	NBC Disaster Command Unit, Toxic and Hazardous Unit In addition to the above, Logistical Support Units etc. are added depending on local conditions.
Mobile Support Battalion for Landslide, Storm and flood	In response to landslides or wind and flood disasters, conduct firefighting activities using heavy equipment, etc., in cooperation with other prefectural battalions, etc., in a prompt and accurate manner.	Mobile Support Command Unit for Landslide, Storm and flood, Rescue unit (equipped with response vehicle for handling tsunamis and large-scale storm and flood damage and rescue work vehicle), Special Equipment Unit (equipped with heavy machinery and heavy machinery transport vehicle, amphibian motor vehicle and amphibian motor vehicle transport vehicle), Logistical Support Unit In addition to the above, necessary units are added depending on local conditions.

(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 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. The Command Support Battalion is comprised of Integrated Command Support unit, Command Support unit, and Air Command Support unit.

(B) Prefectural Battalions

The Prefectural Battalion is a group of basic companies which 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. 2-8-2**)

(C) Air Battalion

The Air battalion is tasked to conduct aviation-related firefighting activities in the disaster area. It is composed of air units and, if necessary, air logistics support units.

(D) Special Battalions

Besides the prefectural battalions, there are special task forces: Integrated Mobile Unit, National Fire-Service Team for Energy/Industrial Disaster, NBC Disaster Battalion, Mobile Support Battalion for Landslide, Storm and flood. (**Table 2-8-3**)

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 Defense Organization Act. Dispatch plans are to be established ahead of time to enable their prompt and precise dispatch in such cases.

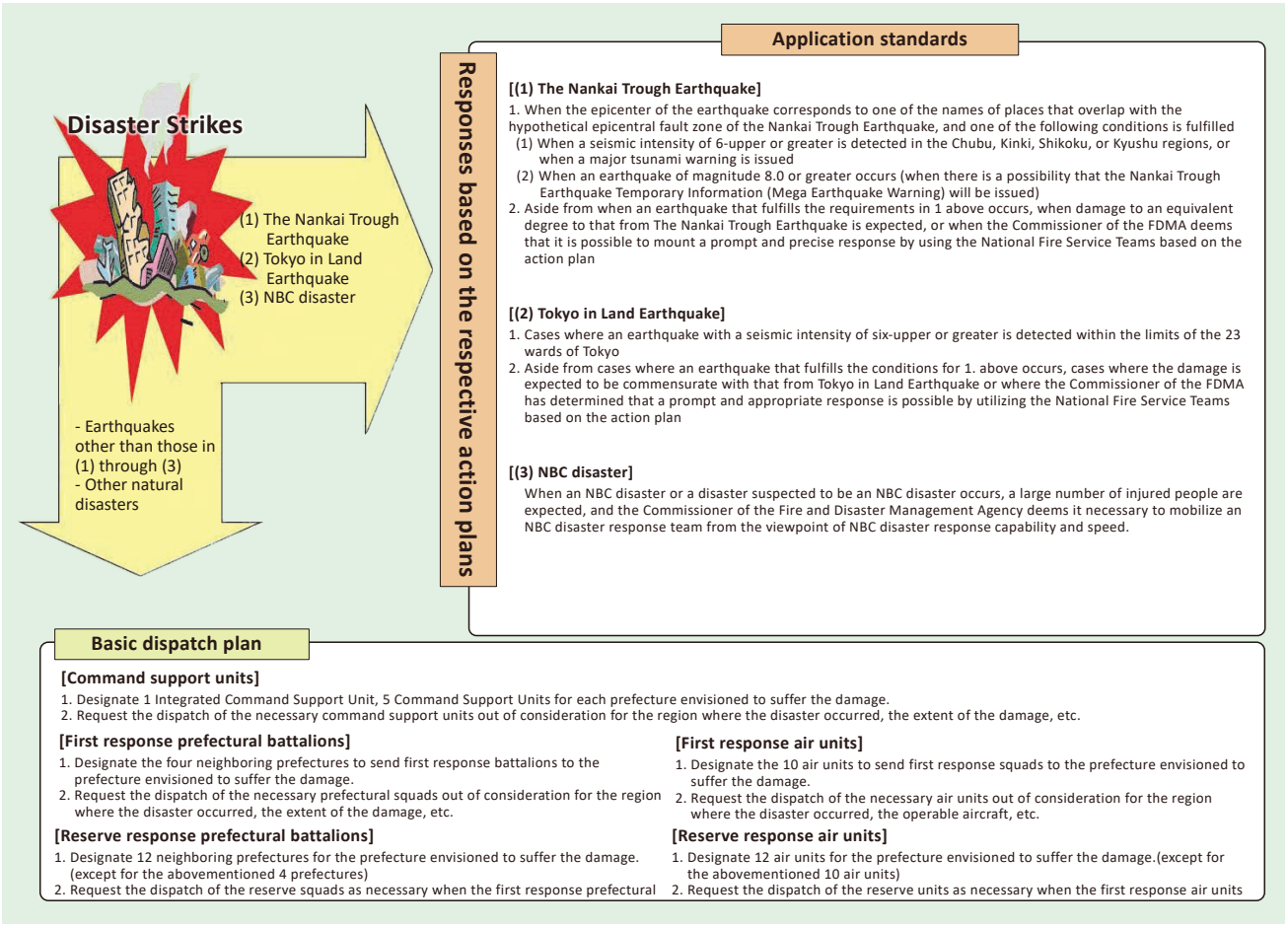
Specifically, for each prefecture in which a disaster occurs, they designate prefectural battalions that dispatched to provide support with a primary focus on neighboring prefectures as “first response prefectural battalions” and prefectural battalions that provide additional support according to the 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, and it is possible that requests for dispatch may not be implemented quickly.

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 Defense Organization Act in advance. The Implementation Guidelines on Rapid Dispatch of National Fire-Service Teams for Large-scale Earthquakes, enacted in July 2008,

Fig 2-8-3 Basic dispatch and action plans for National Fire-Service Teams



contained content on matters like dispatching teams the instant a large-scale earthquake occurs. Then, in March 2015, these implementation guidelines were provided in the Guidelines on Requests for Assistance from National Fire-Service Teams.

(C) Dispatch Plans for the Nankai Trough Earthquake and Other Potential Earthquakes

It is envisioned that the Nankai Trough Earthquake, Tokyo in Land Earthquake, or a Tokai Earthquake 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 the Nankai Trough Earthquake, Tokyo in Land Earthquake, and is based on the response guidelines, estimates of the damage from such disasters, and other data from the Central Disaster Management Council. (**Fig. 2-8-3**)

For example, there is a National Fire-Service Team action plan for the Nankai Trough Earthquake that was formulated in March 2016. This plan determines sites to receive assistance in 37 other prefectures aside from the 10 prefectures designated to receive priority assistance, to which every National Fire-Service Team capable of providing assistance would be simultaneously and promptly deployed. Following the revision of the Dispatch Plan for the Nankai Trough Earthquake in May 2020, the National Fire-Service Team Action Plan for the Nankai Trough Earthquake was revised in July 2020. In addition to the previously envisioned magnitude 9 earthquake, a magnitude 8 earthquake was also included to allow for the flexible operation of National Fire Service Teams, and new provisions were added regarding the response to a subsequent earthquake.

Furthermore, the action plan for Tokyo in Land Earthquake, enacted in March 2017, decides on assistance providers from the 43 prefectures (excluding 4 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.

Regarding the Tokai Earthquake, the aforementioned revisions to the National Fire-Service Team Action Plan for the Nankai Trough Earthquake stipulate not only the response to a magnitude 9 earthquake in which the entire source fault area is destroyed, but also the response to a magnitude 8 earthquake in which surface ruptures occur in some areas. As a result, the operation of the (provisional) National Fire-Service Team Action Plan for the Tokai Earthquake has been temporarily suspended.

(D) Operational Plan for NBC Disaster

When a large number of people are injured due to an NBC disaster, the firefighting capability of the firefighting

organization with jurisdiction over the disaster area and the firefighting organization in the prefecture to which the disaster area belongs alone is considered to be insufficient, and it is necessary to implement advanced and specialized firefighting activities quickly and accurately. For this reason, a special operation plan has been established and NBC disaster response units will be dispatched promptly.

(E) Assistance Plans by the Prefectures, etc.

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, such as how to manage the Coordination Headquarters for Firefighting Support Activities and the Air Operations Coordination Team, as well as how to utilize advance bases, camping sites, and fuel supply bases.

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 local disaster management 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 Defense 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, 2020, 6,441 teams have been registered from 723 fire departments nationwide (roughly 99% of the fire departments nationwide). This is almost 5 times more than its launch. (**Attachment 2-8-1**, untranslated, **Fig. 2-8-4**)

Fig 2-8-4 Trends in registration number of National Fire-Service Teams

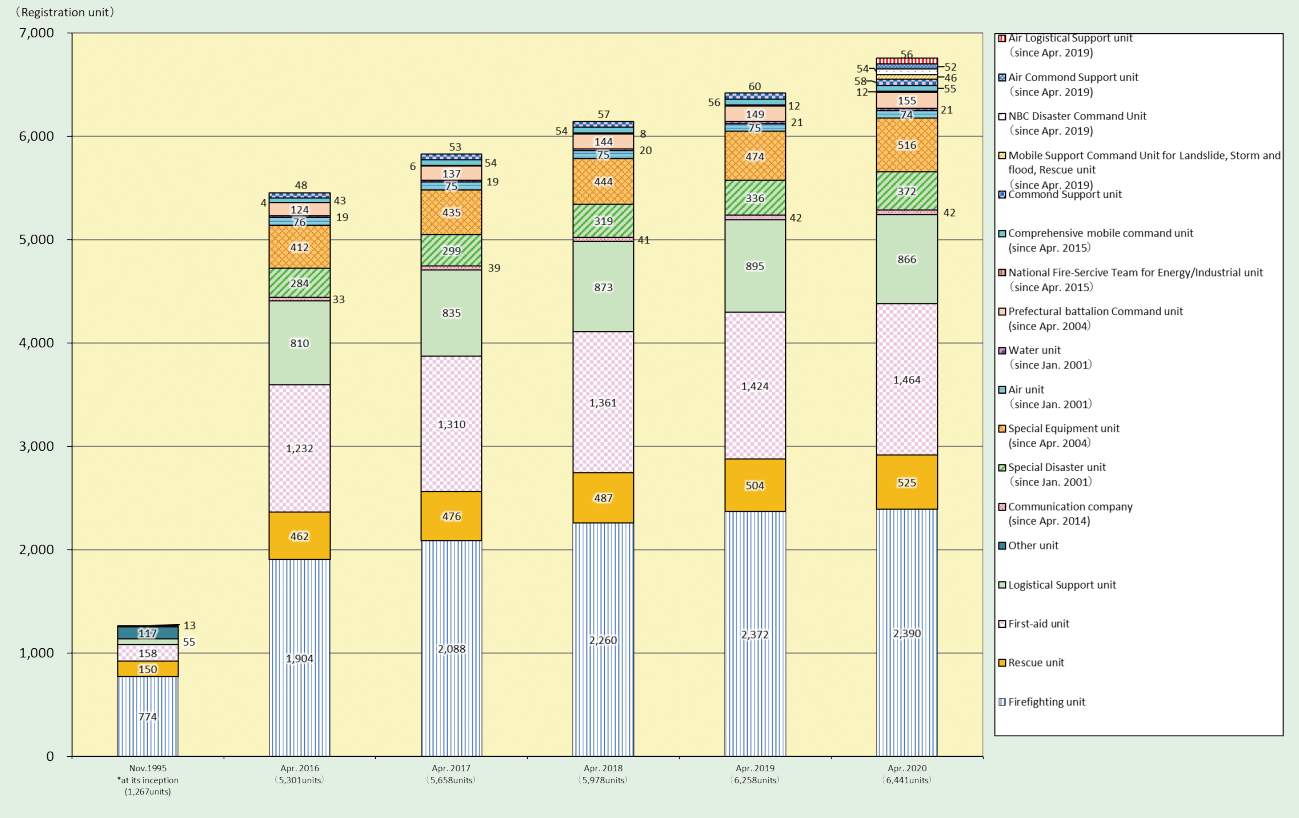


Table 2-8-4 Main allocation of vehicles and other equipment via the system for using equipment free of charge stipulated in Article 50 of the Fire Defense Organization Act

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 uses ocean water	2 systems
2010	Helicopter movement management system	2 systems
	Infrared camera	1 system
	Type 1 support vehicle	47 vehicles
	Firefighting system that uses 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
	Information gathering drone	18 sets
	Chemical agent remote sensing equipment	3 vehicles
2019	Tsunami/Large-Scale Water Disaster Counter measure Vehicle	6 vehicles
	Amphibian motor vehicle and amphibian motor vehicle transport vehicle	5 pairs
	Operation Base Vehicle	1 vehicle
	Heavy machinery and heavy machinery transport vehicles	16 pairs
	High-performance lifeboats	36 vehicles
2020*	Tsunami/Large-Scale Water Disaster Counter measure Vehicle	13 vehicles
	Amphibian motor vehicle and amphibian motor vehicle transport vehicle	1 pair
	Large Amphibian motor vehicle and amphibian motor vehicle transport vehicle	1 pair
	Operation Base Vehicle	1 vehicle
	Information gathering drone	15 sets
	Heavy machinery and heavy machinery transport vehicles	12 pairs
	High-performance lifeboats	29 vehicles
	Watercraft	6 vehicles
	Helicopters	1 helicopter

(Note) * indicates equipment scheduled to be allocated

In March 2019, the basic plan was revised and a target for the number of teams registered was set for the end of FY2023 that would substantially increase the number of teams from its current level of roughly about 6,000 to roughly 6,600 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 the Nankai Trough Earthquake or Tokyo in Land Earthquake, 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.

Furthermore, the stipulations in Article 50 of the Fire Defense 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 2-8-4**)

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 rescue and other 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.

–omitted–

☞ Japanese Original P.320

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

(During 2019)

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	1,892	1,128	33	272	6	0	453	1,707	585	107	447	568
Aomori	606	287	51	40	4	0	224	510	171	40	146	153
Iwate	443	214	59	46	0	0	124	426	198	34	118	76
Miyagi	654	356	31	79	0	0	188	584	181	33	140	230
Akita	356	198	32	31	1	0	94	401	179	26	118	78
Yamagata	332	175	22	33	0	0	102	301	95	18	96	92
Fukushima	657	337	63	75	0	0	182	553	219	28	141	165
Ibaraki	1,249	576	66	135	1	1	470	994	377	56	249	312
Tochigi	760	330	56	85	0	0	289	549	208	32	159	150
Gunma	805	380	27	89	0	0	309	678	217	44	179	238
Saitama	1,867	1,068	20	162	0	0	617	1,757	362	106	508	781
Chiba	1,863	955	77	142	2	0	687	1,431	355	77	325	674
Tokyo	4,120	2,920	5	206	1	0	988	3,304	111	101	589	2,503
Kanagawa	1,920	1,187	15	167	2	0	549	1,517	167	67	342	941
Niigata	528	354	29	66	3	0	76	618	166	42	189	221
Toyama	190	126	3	23	0	0	38	205	50	12	59	84
Ishikawa	223	132	10	27	2	0	52	208	40	17	59	92
Fukui	170	103	4	34	0	0	29	153	34	9	42	68
Yamanashi	359	144	23	44	0	0	148	226	71	7	67	81
Nagano	905	402	45	71	0	0	387	625	235	38	201	151
Gifu	624	318	24	60	0	0	222	496	143	24	111	218
Shizuoka	1,010	530	26	135	1	0	318	733	174	41	198	320
Aichi	2,009	1,102	40	220	1	0	646	1,453	240	77	419	717
Mie	660	335	22	69	3	0	231	463	108	29	147	179
Shiga	383	216	6	46	1	0	114	318	78	15	85	140
Kyoto	501	318	9	55	2	0	117	432	88	18	111	215
Osaka	2,007	1,406	7	183	3	0	408	1,888	235	111	485	1,057
Hyogo	1,507	827	58	148	1	0	473	1,100	193	65	267	575
Nara	385	190	7	39	0	0	149	279	68	21	90	100
Wakayama	346	176	12	21	2	0	135	245	71	13	45	116
Tottori	219	115	6	19	2	0	77	174	50	13	47	64
Shimane	267	124	34	13	0	0	96	214	90	12	44	68
Okayama	662	343	61	56	0	0	202	550	192	29	149	180
Hiroshima	841	432	63	77	5	0	264	661	157	38	183	283
Yamaguchi	513	231	32	35	2	0	213	400	131	17	115	137
Tokushima	277	126	11	31	0	0	109	192	63	13	58	58
Kagawa	331	155	13	32	2	0	129	267	99	13	76	79
Ehime	395	233	14	29	1	0	118	386	116	17	108	145
Kochi	256	156	8	24	1	0	67	294	112	14	78	90
Fukuoka	1,348	741	47	120	4	0	436	988	189	51	264	484
Saga	305	135	23	27	0	0	120	220	64	22	78	56
Nagasaki	425	206	29	36	3	0	151	360	126	14	93	127
Kumamoto	631	300	43	62	4	0	222	469	144	10	122	193
Oita	427	207	45	48	4	0	123	300	108	12	72	108
Miyazaki	384	194	22	37	0	0	131	310	116	15	80	99
Kagoshima	645	309	31	78	4	0	223	465	198	21	94	152
Okinawa	426	206	27	58	1	0	134	249	30	12	60	147
Prefectural total	37,683	21,003	1,391	3,585	69	1	11,634	30,653	7,404	1,631	7,853	13,765
Sapporo city	407	285	1	53	0	0	68	332	26	18	101	187
Sendai City	249	154	0	31	0	0	64	178	10	9	30	129
Saitama City	252	167	0	15	0	0	70	254	38	11	70	135
Chiba City	258	154	4	24	0	0	76	219	35	8	44	132
Special wards	3,052	2,231	0	138	1	0	682	2,484	46	68	455	1,915
Yokohama City	685	428	1	55	1	0	200	527	49	18	128	332
Kawasaki City	328	219	0	28	0	0	81	243	11	3	42	187
Sagamihara City	141	89	3	13	0	0	36	131	16	6	31	78
Niigata City	147	107	0	25	1	0	14	197	32	13	60	92
Shizuoka City	154	88	5	16	0	0	45	119	16	4	26	73
Hamamatsu City	178	100	5	21	0	0	52	155	52	8	51	44
Nagoya City	528	340	2	62	0	0	124	388	22	15	108	243
Kyoto City	215	162	3	18	0	0	32	205	20	11	62	112
Osaka City	745	569	0	56	1	0	119	664	19	25	201	419
Sakai City	178	134	0	12	0	0	32	159	8	14	24	113
Kobe City	373	237	4	37	0	0	95	271	22	13	52	184
Okayama City	185	109	10	16	0	0	50	181	55	12	40	74
Hiroshima City	255	156	3	22	0	0	74	214	24	13	48	129
Kitakyushu City	230	124	3	20	2	0	81	192	38	14	55	85
Fukuoka City	307	217	3	25	0	0	62	246	19	6	63	158
Kumamoto City	161	107	2	13	0	0	39	173	38	3	42	90
21 city total	9,028	6,177	49	700	6	0	2,096	7,532	596	292	1,733	4,911

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

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

(During 2019)

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	69,342	7,884	24,364	91	259	799	153	80	566	1,597
Aomori	32,215	2,526	2,860	37	93	263	82	21	160	629
Iwate	25,998	2,176	881	25	72	182	68	9	105	463
Miyagi	22,449	1,510	1,088	28	97	287	85	9	193	638
Akita	26,977	1,820	1,655	18	85	226	85	19	122	549
Yamagata	15,419	1,585	1,371	16	52	143	46	15	82	381
Fukushima	28,146	2,013	8,682	53	100	294	115	18	161	676
Ibaraki	56,908	4,828	1,216	54	148	506	198	29	279	1,129
Tochigi	37,347	2,261	2,180	31	76	369	95	13	261	673
Gunma	28,096	2,623	931	34	117	359	103	30	226	780
Saitama	51,687	7,061	1,019	88	338	1,189	256	65	868	2,662
Chiba	47,669	5,216	1,377	54	254	902	215	83	604	1,928
Tokyo	18,824	8,027	782	108	706	2,350	206	172	1,972	4,428
Kanagawa	38,665	3,741	78	71	356	1,086	170	45	871	2,512
Niigata	29,715	3,384	993	43	107	323	97	25	201	796
Toyama	7,799	1,054	41	17	31	115	32	11	72	290
Ishikawa	8,667	839	84	9	45	122	21	12	89	292
Fukui	11,009	569	30	10	33	86	20	7	59	197
Yamanashi	7,136	554	1,301	12	49	115	39	10	66	229
Nagano	33,967	3,345	5,162	40	133	356	104	19	233	789
Gifu	20,558	999	392	19	80	239	56	15	168	613
Shizuoka	41,265	2,617	861	33	149	415	96	31	288	932
Aichi	37,939	5,405	647	65	303	876	151	62	663	1,961
Mie	24,045	1,765	284	19	82	219	59	17	143	501
Shiga	8,650	959	16	12	62	148	26	13	109	341
Kyoto	14,529	874	259	49	125	270	39	17	214	562
Osaka	32,032	8,304	569	72	481	1,503	240	108	1,155	3,151
Hyogo	28,965	2,538	667	53	224	694	137	46	511	1,495
Nara	13,079	875	1,266	12	66	183	51	11	121	417
Wakayama	10,359	706	1,355	12	32	148	40	11	97	307
Tottori	11,799	1,147	41	8	27	76	22	2	52	201
Shimane	11,019	864	386	10	28	105	43	6	56	247
Okayama	19,324	1,515	925	21	108	284	84	20	180	635
Hiroshima	22,946	2,333	4,035	32	136	413	92	20	301	877
Yamaguchi	14,627	749	490	27	66	231	96	8	127	493
Tokushima	8,617	748	262	8	25	103	31	7	65	213
Kagawa	12,855	614	153	20	51	151	47	8	96	347
Ehime	14,889	1,442	3,143	23	48	222	63	15	144	497
Kochi	12,716	1,810	1,795	11	44	159	54	8	97	336
Fukuoka	37,163	3,011	1,291	40	165	581	118	28	435	1,348
Saga	11,616	737	71	11	41	104	30	11	63	280
Nagasaki	15,725	1,085	122	24	40	231	81	11	139	542
Kumamoto	17,455	789	6,734	13	109	229	72	3	154	575
Oita	13,181	1,639	463	15	52	152	51	6	95	315
Miyazaki	14,506	1,975	982	13	40	166	66	8	92	374
Kagoshima	25,411	1,984	145	14	94	249	111	8	130	514
Okinawa	9,382	623	202	11	36	141	27	14	100	271
Prefectural total	1,102,687	111,123	83,651	1,486	5,865	18,364	4,173	1,206	12,985	39,983
Sapporo city	10,866	1,901	0	11	63	228	8	21	199	407
Sendai City	1,622	165	0	8	39	114	19	3	92	220
Saitama City	5,295	1,066	0	14	72	189	46	8	135	397
Chiba City	4,005	564	30	9	20	177	32	11	134	336
Special wards	11,971	6,449	0	79	539	1,769	138	133	1,498	3,211
Yokohama City	6,672	1,505	2	22	117	407	39	14	354	948
Kawasaki City	17,601	457	0	5	68	173	13	3	157	418
Sagamihara City	2,120	217	1	5	27	81	16	0	65	299
Niigata City	6,092	1,068	0	13	19	99	25	6	68	243
Shizuoka City	4,206	300	16	6	27	87	17	8	62	182
Hamamatsu City	6,387	1,089	407	8	22	93	30	7	56	209
Nagoya City	4,087	718	2	22	110	266	24	24	218	532
Kyoto City	3,478	446	71	41	85	153	15	10	128	283
Osaka City	6,204	2,766	0	25	187	627	63	44	520	1,107
Sakai City	2,988	285	0	3	34	104	11	11	82	233
Kobe City	3,633	435	62	11	57	219	31	21	167	422
Okayama City	4,723	497	134	8	28	115	23	13	79	222
Hiroshima City	3,139	946	56	9	39	163	22	14	127	342
Kitakyushu City	6,907	813	112	10	47	126	27	8	91	245
Fukuoka City	4,160	491	3	9	45	156	20	9	127	317
Kumamoto City	4,685	353	11	4	37	92	20	0	72	227
21 city total	120,841	22,531	907	322	1,682	5,438	639	368	4,431	10,800

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

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

(During 2019) (Unit: 1,000 yen)

Classification / Prefecture	Amount of damages									
	Total	Building			Forests	Vehicles	Ships	Aircraft	Other	Explosions
		Subtotal	Buildings	Contents						
Hokkaido	5,055,106	4,427,760	3,236,371	1,191,389	14,033	225,056	27,472	0	358,243	2,542
Aomori	1,285,299	1,213,453	817,396	396,057	28,988	20,020	7,491	0	15,345	2
Iwate	939,361	888,535	745,886	142,649	5,326	30,003	0	0	15,333	164
Miyagi	1,305,271	1,239,954	984,560	255,394	12,874	33,053	0	0	19,390	0
Akita	1,127,585	1,098,989	762,892	336,097	4,398	12,784	87	0	11,246	81
Yamagata	773,875	648,995	504,769	144,226	1,124	22,637	0	0	5,543	95,576
Fukushima	2,080,009	1,861,197	1,563,830	297,367	61,582	31,033	50	0	125,576	571
Ibaraki	6,002,784	4,675,605	3,061,327	1,614,278	1,295	91,587	2	3,000	1,086,934	144,361
Tochigi	4,962,989	4,815,693	2,313,791	2,501,902	16,498	41,591	0	0	77,288	11,919
Gunma	1,714,220	1,610,635	1,306,617	304,018	2,118	49,131	0	0	52,296	40
Saitama	5,369,618	5,153,759	3,499,482	1,654,277	1,677	98,817	0	0	113,876	1,489
Chiba	3,855,441	3,539,927	2,472,800	1,067,127	5,975	89,577	1,032	0	218,849	81
Tokyo	7,757,184	7,574,920	3,518,381	4,056,539	1,938	84,653	13,147	0	79,832	2,694
Kanagawa	3,673,198	3,414,936	2,359,285	1,055,651	101	131,579	8,007	0	115,844	2,731
Niigata	1,458,575	1,392,091	1,040,130	351,961	547	36,887	13,310	0	15,429	311
Toyama	618,466	481,560	315,271	166,289	0	13,607	0	0	123,166	133
Ishikawa	540,233	474,555	401,420	73,135	152	12,007	51,850	0	1,669	0
Fukui	1,040,114	1,008,998	501,710	507,288	310	22,567	0	0	6,066	2,173
Yamanashi	559,622	471,886	378,981	92,905	5	76,500	0	0	11,231	0
Nagano	2,042,718	1,882,020	1,355,994	526,026	52,228	51,822	0	0	55,591	1,057
Gifu	1,136,823	1,067,121	731,742	335,379	261	55,520	0	0	13,921	0
Shizuoka	5,543,844	5,374,677	2,514,714	2,859,963	11,054	86,384	181	0	70,199	1,349
Aichi	4,292,689	4,042,286	2,319,818	1,722,468	5,333	161,430	1,550	0	79,020	3,070
Mie	1,793,061	1,598,399	1,079,277	519,122	245	98,635	312	0	86,398	9,072
Shiga	975,716	867,037	569,620	297,417	453	45,995	256	0	5,995	55,980
Kyoto	1,590,203	1,520,975	913,676	607,299	12	24,796	0	0	3,928	40,492
Osaka	3,456,434	3,231,195	2,082,845	1,148,350	300	59,769	4,548	0	54,410	106,212
Hyogo	2,511,689	2,303,998	1,755,627	548,371	271	133,901	0	0	72,313	1,206
Nara	1,637,926	1,621,317	866,332	754,985	2,003	11,466	0	0	3,062	78
Wakayama	650,549	613,754	487,478	126,276	6,904	3,395	22,050	0	4,446	0
Tottori	691,975	684,068	378,966	305,102	270	3,751	3,500	0	386	0
Shimane	557,773	547,800	432,992	114,808	329	8,096	0	0	1,548	0
Okayama	1,122,670	1,051,581	827,126	224,455	760	57,069	0	0	13,260	0
Hiroshima	1,747,284	1,678,537	813,565	864,972	4,905	31,180	2,321	0	30,341	0
Yamaguchi	714,421	627,419	501,104	126,315	1,912	30,746	1,981	0	24,356	28,007
Tokushima	509,151	469,035	277,955	191,080	38	10,993	0	0	27,992	1,093
Kagawa	679,998	650,718	507,893	142,825	0	11,645	251	0	7,442	9,942
Ehime	670,910	591,638	457,344	134,294	4,381	11,245	2,742	0	60,904	0
Kochi	599,519	588,046	350,635	237,411	1,401	5,427	225	0	3,772	648
Fukuoka	1,948,745	1,844,179	1,243,429	600,750	1,369	61,349	4,349	0	31,275	6,224
Saga	690,800	647,839	481,133	166,706	1,916	15,253	0	0	25,792	0
Nagasaki	735,306	604,305	463,115	141,190	145	41,047	84,359	0	5,450	0
Kumamoto	1,054,403	1,010,926	773,412	237,514	2,396	21,894	1,028	0	18,140	19
Oita	1,139,953	1,067,939	470,283	597,656	1,226	31,647	1,985	0	23,169	13,987
Miyazaki	702,675	589,002	501,764	87,238	8,062	20,212	0	0	85,399	0
Kagoshima	1,105,432	1,057,414	662,036	395,378	1,480	27,469	388	0	18,681	0
Okinawa	378,575	359,316	225,363	133,953	110	13,983	0	0	5,164	2
Prefectural total	90,800,192	84,185,989	53,830,137	30,355,852	268,705	2,259,208	254,474	3,000	3,285,510	543,306
Sapporo city	1,606,994	1,564,983	1,299,402	265,581	7	8,515	0	0	32,831	658
Sendai City	161,481	150,718	110,170	40,548	0	10,196	0	0	567	0
Saitama City	515,690	504,405	382,162	122,243	0	6,783	0	0	4,502	0
Chiba City	363,247	265,890	179,749	86,141	360	9,185	0	0	87,812	0
Special wards	5,716,938	5,573,035	2,706,414	2,866,621	0	59,630	13,147	0	68,636	2,490
Yokohama City	703,928	657,103	521,375	135,728	101	37,716	7	0	6,365	2,636
Kawasaki City	1,251,838	1,150,237	656,344	493,893	0	7,788	0	0	93,813	0
Sagamihara City	230,514	209,106	133,904	75,202	0	20,597	0	0	727	84
Niigata City	338,686	319,588	202,439	117,149	0	5,136	8,956	0	4,765	241
Shizuoka City	686,828	623,740	261,308	362,432	0	13,795	0	0	49,293	0
Hamamatsu City	520,135	488,169	362,450	125,719	9,614	12,045	0	0	10,307	0
Nagoya City	333,044	317,486	240,416	77,070	0	11,671	0	0	3,484	403
Kyoto City	430,837	426,313	341,081	85,232	12	3,570	0	0	937	5
Osaka City	756,280	735,222	507,083	228,139	0	13,986	4,272	0	2,800	0
Sakai City	437,107	371,635	186,977	184,658	0	4,283	0	0	1,169	60,020
Kobe City	416,212	382,324	267,040	115,284	0	31,674	0	0	2,214	0
Okayama City	402,552	385,101	288,403	96,698	1	14,872	0	0	2,578	0
Hiroshima City	315,792	306,831	151,437	155,394	40	6,566	2	0	2,353	0
Kitakyushu City	344,409	325,261	216,759	108,502	906	3,434	205	0	14,596	7
Fukuoka City	204,654	200,269	157,024	43,245	6	3,610	0	0	626	143
Kumamoto City	361,739	351,738	269,415	82,323	0	4,357	0	0	5,644	0
21 city total	16,098,905	15,309,154	9,441,352	5,867,802	11,047	289,409	26,589	0	396,019	66,687

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

–omitted–

☞ *Japanese Original P.356*

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
2019	400,639	5,098	273,641	49,717	59,699	10,170	77,988	940	65,425	9,702	121,900	58,865	1,078	482	1,077	60,398
2020	396,457	5,077	270,722	49,613	59,035	9,988	76,425	933	65,124	9,604	120,658	58,124	1,050	474	1,062	59,948

(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.369*

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
2019	726	289	1,719	3,113	165,438	2,198	22,388	—	831,982
2020	726	289	1,719	3,106	166,628	2,199	22,309	—	818,478

(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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