

Extract of the 2015 White Paper on Fire Service

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**Fire and Disaster Management Agency
(FDMA)**

FY2015 Firefighting White Paper – Extract – Table of Contents

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Section

1

Fire Prevention

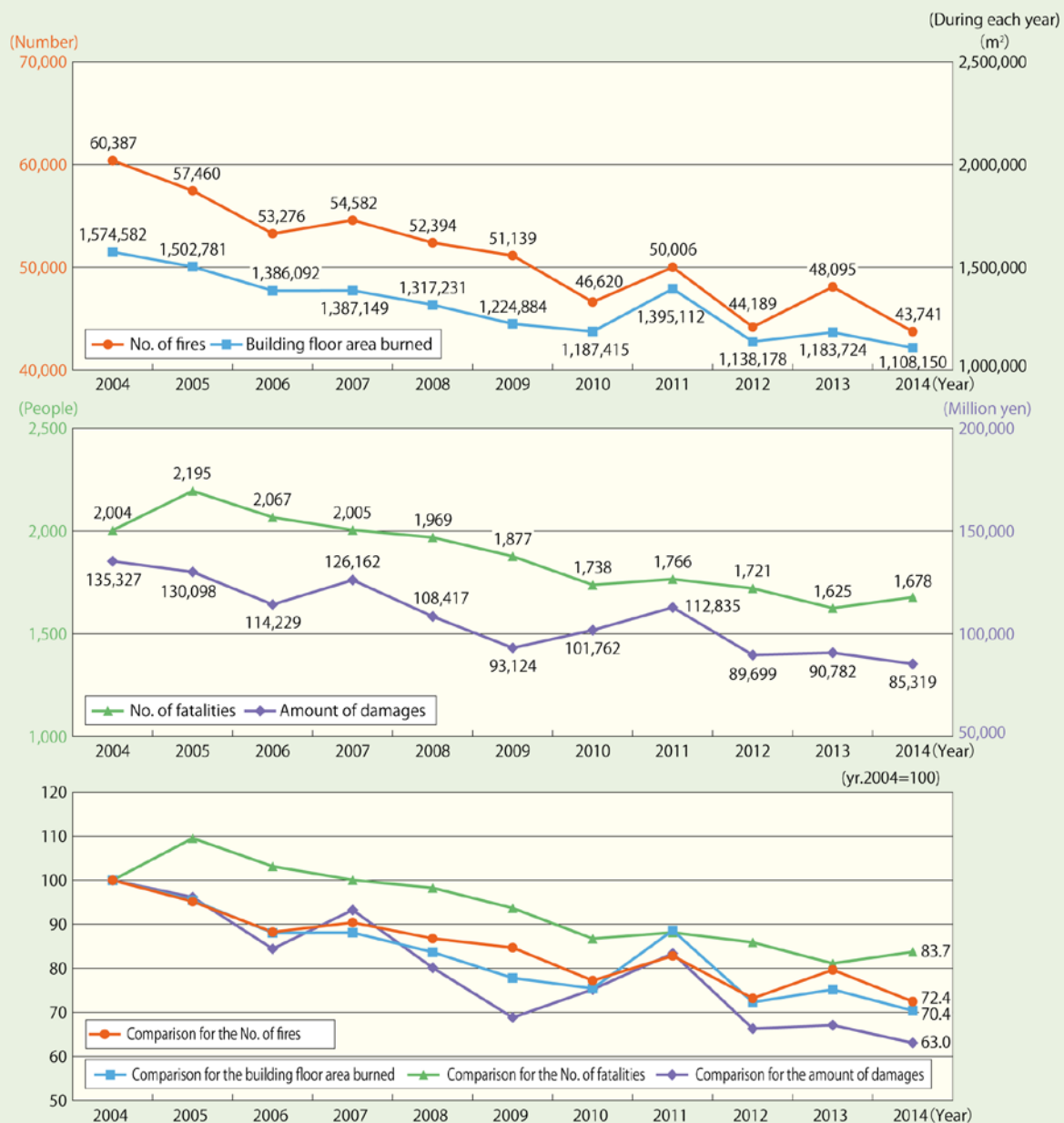
Current Status and Recent Trends with Fires

Looking at the number of fires over the past ten years reveals that this number has largely been trending downwards since 2004, when the number was 60,387. The number of fires that occurred in 2014 came to 43,741, falling by 4,354 (9.1%) compared to the previous year, which is 72.4% of the number from

ten years prior (the number of fires in 2004).

Furthermore, the number of fatalities from fires has also largely been trending downward since 2005, when the number registered came to 2,195. The number of fatalities from fires in 2014 came to 1,678, an increase of 53 (3.3%) compared with the previous year. However, this was 83.7% of the number from ten years prior (the number of fatalities in 2004) (**Fig. 1-1-1, Table 1-1-1**).

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



(Notes) 1 Prepared from Fire Reports

2 See the left axes for the "No. of fires," "No. of fatalities," "Comparison for the No. of fires," "Comparison for the building floor area burned," "Comparison for the No. of fatalities," and "Comparison for the amount of damages," and see the right axes for the "Building floor area burned" and "Amount of damages."

3 For the "Comparison of the No. of fires," "Comparison for the building floor area burned," "Comparison for the No. of fatalities," and "Comparison for the amount of damages" the figures from 2004 were taken as 100.

Table 1-1-1 Status of fires

| (During each year) | | | | | | |
|------------------------------|----------------|-----------|-------------|-------------|----------------------------|--------------------------------------|
| Classification | Unit | 2004 | 2013 (A) | 2014 (B) | Change (B) - (A) (C) | Rate of change (C)/(A)×100 (%) |
| No. of fires | Fires | 60,387 | 48,095 | 43,741 | -4,354 | -9.1 |
| Building fires | | 33,325 | 25,053 | 23,641 | -1,412 | -5.6 |
| Forest fires | | 2,592 | 2,020 | 1,494 | -526 | -26.0 |
| Vehicle fires | | 7,077 | 4,586 | 4,467 | -119 | -2.6 |
| Ship fires | | 132 | 91 | 86 | -5 | -5.5 |
| Aircraft fires | | 10 | 3 | 1 | -2 | -66.7 |
| Other fires | | 17,251 | 16,342 | 14,052 | -2,290 | -14.0 |
| No. of buildings burned | Buildings | 46,018 | 35,031 | 33,380 | -1,651 | -4.7 |
| Totally destroyed | | 10,609 | 8,036 | 7,411 | -625 | -7.8 |
| Half destroyed | | 3,517 | 2,113 | 2,021 | -92 | -4.4 |
| Partially destroyed | | 13,754 | 9,564 | 9,019 | -545 | -5.7 |
| Minor fire | | 18,138 | 15,318 | 14,929 | -389 | -2.5 |
| Building floor area burned | m ² | 1,574,582 | 1,183,724 | 1,108,150 | -75,574 | -6.4 |
| Building surface area burned | m ² | 158,292 | 120,615 | 118,684 | -1,931 | -1.6 |
| Forest area burned | a | 156,779 | 97,079 | 106,182 | 9,103 | 9.4 |
| Fatalities | People | 2,004 | 1,625 | 1,678 | 53 | 3.3 |
| Injured | People | 8,641 | 6,858 | 6,560 | -298 | -4.3 |
| No. of households affected | Households | 29,793 | 21,369 | 20,788 | -581 | -2.7 |
| Totally destroyed | | 7,021 | 4,863 | 4,569 | -294 | -6.0 |
| Half destroyed | | 2,461 | 1,559 | 1,425 | -134 | -8.6 |
| Partially destroyed | | 20,311 | 14,947 | 14,794 | -153 | -1.0 |
| No. of people affected | People | 76,960 | 49,676 | 47,726 | -1,950 | -3.9 |
| Amount of damages | Millions | 135,327 | 90,782 | 85,319 | -5,463 | -6.0 |
| Building fires | | 126,529 | 82,320 | 77,656 | -4,664 | -5.7 |
| Forest fires | | 809 | 233 | 1,369 | 1,136 | 487.6 |
| Vehicle fires | | 3,376 | 3,668 | 2,625 | -1,043 | -28.4 |
| Ship fires | | 627 | 299 | 241 | -58 | -19.4 |
| Aircraft fires | | 141 | 5 | 0 | -5 | -100.0 |
| Other fires | | 2,746 | 2,209 | 2,820 | 611 | 27.7 |
| Explosions | | 1,099 | 2,049 | 608 | -1,441 | -70.3 |
| Fire outbreak rate | Fires/10,000 | 4.8 | 3.7 | 3.4 | -0.3 | — |

(Notes)

- 1 Prepared from Fire Reports
- 2 The figures for each year are calculations of the fires that occurred between January - December. The same holds true in this section hereafter unless otherwise noted.
- 3 "Building fires" refer to fires that burn buildings or the contents contained therein. The same holds true in this section hereafter unless otherwise noted.
- 4 "Vehicle fires" refer to fires that burn automotive vehicles, railway vehicles, trailer vehicles, or their cargo. The same holds true in this section hereafter unless otherwise noted.
- 5 "Forest fires" refer to fires that burn forests, wilderness, or grassland. The same holds true in this section hereafter unless otherwise noted.
- 6 "Ship fires" refer to fires that burn ships or their cargo. The same holds true in this section hereafter unless otherwise noted.
- 7 "Aircraft fires" refer to fires that burn aircraft or their cargo. The same holds true in this section hereafter unless otherwise noted.
- 8 "Other fires" refer to fires other than building fires, vehicle fires, Forest fires, and aircraft fires (fires involving vacant land, fields, roads, flood plains, waste collection sites, outdoor item collection sites, train tracks, utility poles, etc.). The same holds true in this section hereafter unless otherwise noted.
- 9 Fatalities includes those people who were injured by fires and passed away within 48 hours. The same holds true in this section hereafter unless otherwise noted.
- 10 The fire outbreak rate refers to the number of fires per 10,000 people. The same holds true in this section hereafter unless otherwise noted.
- 11 Amount of damages and so forth include cases that are still under investigation, and so this may change. The same holds true in this section hereafter unless otherwise noted.
- 12 The symbol "-" indicates negative numbers. The same holds true in this section hereafter unless otherwise noted.
- 13 Rate of change was found by rounding up less than whole numbers with the displayed units. The same holds true in this section hereafter unless otherwise noted.
- 14 The populations for 2004 and 2013 were found from the Basic Resident Register as of March 31 for each year, while the population for 2014 was found from a survey of the current status of fire prevention and earthquake countermeasures as of March 31.
- 15 If a fire is spread across more than two types of fires, it is aggregated into the number of fires based on which type had the larger amount of damages. For the amount of damages, this is aggregated for each type of fire by the objects damaged in the fire (building, vehicle, forest, ship, aircraft, or other). The same holds true in this section hereafter unless otherwise noted.
- 16 The amount of damages from "Explosions" is posted to "Explosions" within "Amount of damages" without regard to the type of fire.
- 17 The figures in the total column may not align with the totals for each figure due to rounding. The same holds true in this section hereafter unless otherwise noted.

Current Status of Fire Prevention Administration

1. Current Status of Residential Fire Prevention Measures

The number of residential fires in 2014 (11,855, excluding those from arson) accounted for roughly 50% of the number of building fires (21,620, excluding those from arson). What is more, the number of fatalities from residential fires (1,006, excluding suicides by arson), accounts for roughly 90% of the number of fatalities from building fires (1,127, excluding suicides by arson), with this trend holding steady for more than ten years. In addition, elderly people age 65 or older account for approximately 70% of the fatalities from residential fires.

The revision of the Fire Services Act in 2004 mandated that residential fire alarms be installed in newly-built residences starting from June 2006. As for existing residences, it mandated that said alarms be installed in them within all municipalities nationwide based on the ordinances in each municipality by June 2011. The Fire and Disaster Management Agency (FDMA) held the Committee on Measures to Install Residential Fire

Alarms. Based on the basic policy established at this committee, various initiatives were deployed to ensure that residential fire alarms were thoroughly installed and maintained. This was done by the fire defense headquarters throughout Japan in cooperation with volunteer fire corps, women's (female) firefighting clubs, voluntary disaster prevention organizations, and others. As of June 1, 2015, the nationwide installation rate was 81.0% and the ordinance compliance rate was 66.4%. When viewed by prefecture, Fukui Prefecture had both the highest installation rate and ordinance compliance rate.

2. Fire Prevention Properties

The Fire Services Act defines the primary properties that are eligible for fire prevention administration, such as architectural structures, as "fire prevention properties." It also mandates that personnel structures for fire prevention be established, fire defence equipment etc.*¹ be installed, and flame retardant goods be used at those fire prevention properties listed in Appended Table I of the Ordinance of Enforcement for the Fire Services Act according to their purpose, size, and so forth.

Table. 1-1-27 Number of fire prevention properties

(As of March 31, 2015)

| (As of March 31, 2015) | | | | | | | | | |
|--|---|--|-----------------|----------------|--|--|-----------------------|-----------------|----------------|
| Classification of fire prevention properties | | Nationwide | 21 major cities | Percentage (%) | Classification of fire prevention properties | | Nationwide | 21 major cities | Percentage (%) |
| (1) | a. Theaters, etc. | 4,364 | 647 | 14.8 | (9) | a. Special bathhouses | 1,605 | 677 | 42.2 |
| | b. Public halls, etc. | 66,403 | 6,216 | 9.4 | | b. General bathhouses | 5,002 | 1,329 | 26.6 |
| (2) | a. Cabarets, etc. | 1,012 | 122 | 12.1 | (10) | Railroad depots | 3,859 | 1,381 | 35.8 |
| | b. Game centers, etc. | 11,081 | 2,061 | 18.6 | (11) | Temples and shrines, etc. | 56,718 | 11,710 | 20.6 |
| | c. Stores engaged in sex-related businesses, etc. | 206 | 116 | 56.3 | | a. Factories, etc. | 496,345 | 69,894 | 14.1 |
| | d. Karaoke box and stores, etc. | 2,815 | 672 | 23.9 | (12) | b. Studios | 391 | 130 | 33.2 |
| (3) | a. Restaurants, etc. | 3,575 | 582 | 16.3 | | (13) | a. Parking lots, etc. | 50,937 | 15,000 |
| | b. Eating and drinking houses | 83,505 | 16,762 | 20.1 | b. Aircraft hangars | | 696 | 107 | 15.4 |
| (4) | Department stores, etc. | 157,972 | 27,092 | 17.1 | (14) | Warehouses | 325,223 | 52,192 | 16.0 |
| (5) | a. Hotels, etc. | 58,998 | 5,871 | 10.0 | (15) | Offices, etc. | 458,462 | 106,337 | 23.2 |
| | b. Apartment houses, etc. | 1,281,786 | 474,318 | 37.0 | (16) | a. Specified multipurpose fire prevention properties | 363,794 | 133,663 | 36.7 |
| | a. Hospitals, etc. | 64,495 | 12,286 | 19.0 | | b. Unspecified multipurpose fire prevention properties | 254,195 | 117,435 | 46.2 |
| | (6) | b. Special elderly nursing homes, etc. | 41,048 | 6,623 | 16.1 | (16-2) | Underground malls | 64 | 55 |
| c. Elderly daycare centers, etc. | | 68,078 | 11,082 | 16.3 | (16-3) | Semi-underground malls | 7 | 6 | 85.7 |
| d. Kindergartens, etc. | | 18,597 | 4,235 | 22.8 | (17) | Cultural properties | 8,590 | 1,575 | 18.3 |
| (7) | | Schools | 129,298 | 28,623 | 22.1 | (18) | Arcades | 1,332 | 475 |
| (8) | Libraries, etc. | 7,536 | 850 | 11.3 | (19) | Mountain forests | 0 | 0 | |
| | | | | Total | | | 4,027,989 | 1,110,124 | 27.6 |

- (Notes) 1 Prepared based on the Survey on the Actual Conditions of Fire Prevention Properties (targeting those fire prevention properties listed in Appended Table I of the Ordinance of Enforcement for the Fire Services Act that are listed in (1) through (16-3) and have a total area of 150m² or larger, and those listed in (17) through (19); the same hereafter).
- 2 The 21 major cities refer to the 23 wards of Tokyo and 20 ordinance-designated cities (Sapporo City, Sendai City, Saitama City, Chiba City, Yokohama City, Kawasaki City, Sagami-hara 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).

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

As of March 31, 2015, the number of fire prevention properties throughout Japan came to 4,027,989 (this is the number obtained from the Survey on the Actual Conditions of Fire Prevention Properties (targeting those fire prevention properties listed in Appended Table I of the Ordinance of Enforcement for the Fire Services Act that are listed in (1) through (16-3) and have a total area of 150m² or larger, and those listed in (17) through (19)); the same hereafter).

Moreover, the number of fire prevention properties in the 21 major cities (special wards of Tokyo and ordinance-designated cities) came to 1,110,124, accounting for 27.6% of the total fire prevention properties throughout Japan. Those properties that are particularly concentrated in urban areas include underground malls (85.9% of the national total), semi-underground malls*² (85.7% of the national total), stores engaged in sex-related businesses (56.3% of the national total), and so on (Table 1-1-27).

3. Fire Prevention Management System

(1) Fire Protection Managers

The Fire Services Act mandates that people with authority when it comes to managing fire prevention properties that contain large numbers of people (hereafter referred to as “management officials”) undertake the operations necessary for fire protection management. These include appointing the fire protection managers*³ that form the core of voluntary fire protection management structures, as well as preparing firefighting plans for fire protection management*⁴ that include stipulations on firefighting, reporting, and holding disaster drills.

As of March 31, 2015, the number of fire prevention properties that were legally required to establish fire protection management structures and appoint fire protection managers came to 1,064,933 nationwide. Of these, 854,731 properties, which corresponds to 80.3%, have appointed fire protection managers and have notified firefighting agencies to this effect. However, 210,202 fire prevention properties have yet to appoint a fire protection manager. Firefighting agencies are providing the management officials at these fire prevention properties with guidance and instructions in an effort to rectify this.

Additionally, the number of fire prevention properties where the fire protection manager has prepared firefighting plans for fire protection

management in order to carry out the proper fire protection management operations for their own offices and so forth and notified firefighting agencies to this effect came to 790,585, for 74.2% of the total (Table 1-1-28).

(2) Supervisors of Fire Protection Management

For properties like high-rise buildings (buildings that are taller than 31 m high), underground malls, semi-underground malls, and other specified properties under fire prevention at or above a certain size*⁵ where management authority has been divided up, the Fire Services Act stipulates that fire protection managers are to be appointed and carry out fire protection management for each of the various areas which they have management authority over. Conversely, it also states that supervisors of fire protection management are to be appointed in consultation with them in order to carry out fire protection management for the building as a whole in an integrated manner. It mandates that the management officials strive to prevent fires and maintain the safety of the fire prevention properties as a whole by preparing firefighting plans for fire protection management for said properties on the whole, as well as extinguishing fires, issuing reports, and holding evacuation drills (Supervisory Fire protection management System: enacted April 1, 2014).

This was preceded by the former joint fire protection management consultation system (whereby fire protection management was carried out jointly by establishing joint fire protection management consultative committees with the major management officials at the fire prevention properties serving as representatives, and where they established items related to preparing firefighting plans for fire protection management and other necessary operations through consultations). With this system the roles and authorities of the supervisors of fire protection management were not clearly defined in law, which made it impossible to establish a system whereby fire protection management could be carried out autonomously and in an integrated manner. Therefore, the Act for Partial Revision of the Fire Services Act (2012; Law No. 38) mandated that supervisors of fire protection management be appointed and that they be granted the authority to issue instructions to the fire protection managers.

*² 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.

*³ Fire protection managers: People who have been appointed from among those management officials who have certain qualifications, such as having completed a training course on fire protection management for fire prevention properties, and who are in a managerial or supervisory position where they can appropriately carry out the operations necessary for fire protection management at said properties.

*⁴ Firefighting plans for fire protection management: These are plans that establish matters which are necessary for fire protection management. Said plans are prepared by fire protection managers, with fire protection management operations carried out on the basis of said plans.

*⁵ Specified properties under fire prevention measures: Certain properties under fire prevention measures that include department stores, restaurants, and other properties that can accommodate large numbers of people, as well as hospitals, nursing homes for the elderly, kindergartens, and other properties used by people who would require assistance during a disaster.

As of March 31, 2015, the number of fire prevention properties that were required to appoint supervisors of fire protection management came to 88,474 nationwide. Of these, 39,950, which corresponds to 45.2%, have appointed supervisors of fire protection management and notified firefighting agencies to this effect. What is more, the number of fire prevention properties that have prepared overall fire prevention plans for the sake of carrying out fire protection management for the building as a whole in an integrated manner and that have notified firefighting agencies to this effect came to 39,528. This represents a notification rate of 44.7% (Table 1-1-29).

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

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

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

Table 1-1-28 Nationwide fire prevention implementation status

| Classification of properties under fire prevention measures | | Item | No. of properties that must perform fire protection management | No of fire prevention properties that have appointed fire protection managers | Appointment rate (%) | No. of fire prevention properties that have prepared firefighting plans for fire protection management | Preparation rate (%) |
|---|---|---|--|---|----------------------|--|----------------------|
| | | | | | | | |
| (1) | a | Theaters, etc. | 3,377 | 3,052 | 90.4 | 2,941 | 87.1 |
| | b | Public halls, etc. | 60,771 | 48,658 | 80.1 | 45,091 | 74.2 |
| (2) | a | Cabarets, etc. | 824 | 483 | 58.6 | 407 | 49.4 |
| | b | Game centers, etc. | 9,746 | 9,018 | 92.5 | 8,559 | 87.8 |
| | c | Stores engaged in sex-related businesses, etc. | 150 | 115 | 76.7 | 114 | 76.0 |
| | d | Karaoke box and stores, etc. | 2,648 | 2,435 | 92.0 | 2,320 | 87.6 |
| (3) | a | Restaurants, etc. | 2,781 | 2,432 | 87.5 | 2,196 | 79.0 |
| | b | Eating and drinking houses | 75,005 | 58,827 | 78.4 | 53,711 | 71.6 |
| (4) | | Department stores, etc. | 103,196 | 81,964 | 79.4 | 76,331 | 74.0 |
| (5) | a | Hotels, etc. | 36,985 | 34,627 | 93.6 | 33,300 | 90.0 |
| | b | Apartment houses, etc. | 177,148 | 134,015 | 75.7 | 122,281 | 69.0 |
| (6) | a | Hospitals, etc. | 23,454 | 21,264 | 90.7 | 20,503 | 87.4 |
| | b | Special elderly nursing homes, etc. | 32,964 | 31,164 | 94.5 | 30,355 | 92.1 |
| | c | Elderly daycare centers, etc. | 42,312 | 40,052 | 94.7 | 39,068 | 92.3 |
| | d | Kindergartens, etc. | 11,919 | 11,532 | 96.8 | 11,237 | 94.3 |
| (7) | | Schools | 44,327 | 42,471 | 95.8 | 41,191 | 92.9 |
| (8) | | Libraries, etc. | 4,950 | 4,560 | 92.1 | 4,367 | 88.2 |
| (9) | a | Special bathhouses | 1,376 | 1,243 | 90.3 | 1,180 | 85.8 |
| | b | General bathhouses | 3,033 | 2,764 | 91.1 | 2,585 | 85.2 |
| (10) | | Railroad depots, etc. | 684 | 527 | 77.0 | 481 | 70.3 |
| (11) | | Temples and shrines, etc. | 24,406 | 19,618 | 80.4 | 17,670 | 72.4 |
| (12) | a | Factories, etc. | 39,978 | 34,678 | 86.7 | 32,063 | 80.2 |
| | b | Studios | 307 | 251 | 81.8 | 236 | 76.9 |
| (13) | a | Parking lots, etc. | 1,354 | 1,084 | 80.1 | 977 | 72.2 |
| | b | Aircraft hangars | 66 | 48 | 72.7 | 43 | 65.2 |
| (14) | | Warehouses | 10,067 | 7,766 | 77.1 | 7,080 | 70.3 |
| (15) | | Offices, etc. | 98,121 | 80,129 | 81.7 | 74,020 | 75.4 |
| (16) | a | Specified multipurpose fire prevention properties | 210,491 | 149,363 (25,803) | 71.0 (12.3) | 132,901 (27,716) | 63.1 (13.2) |
| | b | Unspecified multipurpose fire prevention properties | 41,119 | 29,330 (4,507) | 71.3 (11.0) | 26,222 (4,817) | 63.8 (11.7) |
| (16-2) | | Underground malls | 64 | 51 | 79.7 | 45 | 70.3 |
| (17) | | Cultural properties | 1,310 | 1,210 | 92.4 | 1,110 | 84.7 |
| Total | | | 1,064,933 | 854,731 | 80.3 | 790,585 | 74.2 |

- (Notes) 1 Prepared based on the Survey on the Actual Conditions of Fire Prevention Properties.
2 When a property under fire prevention measures has multiple management officials, they are only all counted when all of them are involved in the appointment of the fire protection manager or preparing firefighting plans for fire protection management. The numbers in parenthesis are the figures for fire prevention properties where said managers are appointed and plans are prepared only by some of them.
3 The classification of fire prevention properties is the classification pursuant to Appended Table I of the Ordinance of Enforcement for the Fire Services Act. The facility names are illustrations of this. The same holds true in this section hereafter unless otherwise noted.

These qualified inspectors of fire prevention properties consist of people with a certain level of knowledge of fire prevention, such as fire protection engineers*⁶ with three or more years of practical experience with construction work for fire defence equipment etc., or people with three or more years of practical experience as fire protection managers. They must also complete a training course offered by a corporation that has been registered by the Minister of Internal Affairs and Communications, and have been issued a certificate attesting that they have acquired the necessary knowledge and skills when it comes to inspections for fire prevention properties.

What is more, these inspectors are obligated to undergo re-training every five years for new knowledge and skills that they must learn. As of March 31, 2015, the number of such inspectors came to 28,112. Those fire prevention properties for which periodic inspection reports have been mandated and

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

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

Table 1-1-29 Nationwide supervisory fire protection management implementation status

(As of March 31, 2015)

| Classification of properties under fire prevention measures | | | Item | No. of properties that must perform supervisory fire protection management | No of fire prevention properties that have been appointed supervisors of fire protection management | Appointment rate (%) | No. of fire prevention properties that have prepared overall fire prevention plans | Preparation rate (%) |
|---|----|---|------|--|---|----------------------|--|----------------------|
| (1) | a | Theaters, etc. | | 24 | 18 | 75.0 | 10 | 41.7 |
| | b | Public halls, etc. | | 66 | 23 | 34.8 | 23 | 34.8 |
| (2) | a | Cabarets, etc. | | 79 | 12 | 15.2 | 12 | 15.2 |
| | b | Game centers, etc. | | 96 | 51 | 53.1 | 45 | 46.9 |
| | c | Stores engaged in sex-related businesses, etc. | | 37 | 28 | 75.7 | 18 | 48.6 |
| | d | Karaoke box and stores, etc. | | 25 | 10 | 40.0 | 5 | 20.0 |
| (3) | a. | Restaurants, etc. | | 4 | 0 | 0.0 | 0 | 0.0 |
| | b | Eating and drinking houses | | 2,447 | 1,018 | 41.6 | 992 | 40.5 |
| (4) | | Department stores, etc. | | 922 | 278 | 30.2 | 260 | 28.2 |
| (5) | a | Hotels, etc. | | 187 | 110 | 58.8 | 109 | 58.3 |
| (6) | a | Hospitals, etc. | | 194 | 96 | 49.5 | 94 | 48.5 |
| | b | Special elderly nursing homes, etc. | | 126 | 63 | 50.0 | 54 | 42.9 |
| | c. | Elderly daycare centers, etc. | | 154 | 48 | 31.2 | 48 | 31.2 |
| | d. | Kindergartens, etc. | | 20 | 4 | 20.0 | 3 | 15.0 |
| (9) | a. | Special bathhouses | | 67 | 33 | 49.3 | 32 | 47.8 |
| (16) | a | Specified multipurpose fire prevention properties | | 57,518 | 25,572 | 44.5 | 25,375 | 44.1 |
| | b | Unspecified multipurpose fire prevention properties | | 7,595 | 2,806 | 36.9 | 2,747 | 36.2 |
| (16-2) | | Underground malls | | 55 | 45 | 81.8 | 45 | 81.8 |
| (16-3) | | Semi-underground malls | | 4 | 3 | 75.0 | 3 | 75.0 |
| High-rise buildings | | | | 18,854 | 9,732 | 51.6 | 9,653 | 51.2 |
| Total | | | | 88,474 | 39,950 | 45.2 | 39,528 | 44.7 |

(Notes) 1 Prepared based on the Survey on the Actual Conditions of Fire Prevention Properties.

2 High-rise buildings (buildings that are taller than 31 meters) are not classified within Appended Table I of the Ordinance of Enforcement for the Fire Services 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.

*⁶ Fire protection engineer: A person with expert knowledge of fire defence equipment etc. who has been issued a fire protection engineer certification

4. Disaster Prevention Management System

(1) Disaster Protection Managers

In order to handle imminent threats such as major earthquakes, the revisions to the Fire Services Act from June 2007 mandated that those people with authority for the management of large-scale and high-rise buildings and the like (hereafter referred to as “management officials”) are to establish fire defense organizations for self protection.*⁷ Such organizations prepare firefighting plans for disaster protection management*⁸ suited to earthquake and other disasters, and appoint disaster protection managers*⁹ responsible for emergency response structures concerning significant damage when earthquakes strike and for holding evacuation drills. In addition, they carry out the necessary operations in order to mitigate the damage from fires and other disasters.

As of March 31, 2015, the number of properties under disaster prevention measures that were legally required to establish disaster protection management systems and appoint disaster protection managers came to 9,616 throughout Japan. Of these, 7,793, which corresponds to 81.0%, have appointed disaster protection managers and notified firefighting agencies to this effect.

What is more, the number of properties under disaster prevention measures at which the disaster protection manager has prepared firefighting plans for disaster protection management, in order to carry out the appropriate disaster protection management operations at their own offices and other establishments, and notified firefighting agencies to this effect came to 7,226, or 75.1% of the total. The number of said properties that have established fire defense organizations for self-protection came to 8,161, or 84.9% of the total.

(2) Supervisors of Disaster Protection Management

For those buildings that require disaster protection management where management authority has been divided up, the Fire Services Act stipulates that disaster protection managers are to be appointed and carry out disaster protection management for each of the various areas which they have management authority over. Conversely, it also stipulates that supervisors of disaster protection management are to be appointed in consultation with them in order to carry out disaster protection management for the building as a whole in an

integrated manner. It mandates that the management officials establish fire and disaster safety for the disaster prevention properties as a whole (supervisory disaster protection management system: enacted April 1, 2014).

As of March 31, 2015, the number of fire prevention properties that were required to appoint supervisors of disaster protection management came to 2,685 nationwide. Of these, 2,492, which corresponds to 92.8%, have appointed supervisors of disaster protection management and notified firefighting agencies to this effect. What is more, the number of disaster prevention properties that have prepared firefighting plans for the sake of carrying out disaster protection management for the building as a whole in an integrated manner and that have notified firefighting agencies to this effect, came to 2,191. This represents a notification rate of 81.6%.

5. Onsite Inspections and Corrections of Violations

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

Firefighting agencies enter fire prevention properties to perform onsite inspections pursuant to the regulations of Article 4 of the Fire Services 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 FY2014 came to 867,276.

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

*⁷ 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.

*⁸ Firefighting plans for disaster protection management: These are plans that establish matters which are necessary for disaster protection management. Said plans are prepared by disaster protection managers, with disaster protection management operations carried out on the basis of said plans.

*⁹ Disaster protection managers: People who have been appointed from among those management officials who have certain qualifications, such as having completed a training course on disaster protection management, and who are in a managerial or supervisory position where they can appropriately carry out the operations necessary for disaster protection management at disaster prevention properties.

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

Particularly for specified violating properties (this refers to specified fire prevention properties with a floor area of 1,500 m² or more or unspecified fire prevention properties with 11 or more floors, excluding the basement, where sprinkler systems, indoor fire hydrants, or automatic fire alarms have not been installed in a majority of the sections where such equipment must be installed), strict guidance is imposed based on the severity of the violation, such as those that pose a significant hazard to human life in the event that a fire should break out.

As of March 31, 2015, there were 331 specified violating properties, and so therefore it is necessary to continue working to thoroughly correct these violations in a focused manner.

(2) Initiation of the New Fire Safety Certification Mark System

This new labeling system, which fire defense headquarters throughout Japan were notified of in October 2013, provides users with information on a building's compliance with laws and ordinances related to fire 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 marks out on display starting from August 1. Visitors to the FDMA's homepage can check to confirm hotels that have been issued the Fire Safety Certification Mark throughout Japan (reference URL: http://www.fdma.go.jp/kasai_yobo/hyoujiseido/index.html).

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

The System for Publicly Announcing Violating Properties, which came about through a notification from December 2013, is a system for announcing the details of legal violations on the homepages of

municipal governments based on the ordinances of said municipalities. This is aimed at fire prevention properties that have unspecified large numbers of people coming and going that have not yet installed sprinkler systems, indoor fire hydrants, or automatic fire alarms, despite being obligated to do so. This announcement system was initiated in all ordinance-designated cities starting from April 2015.

6. Fire Defence Equipment etc.

(1) Current Status of Fire Prevention Approval

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

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

The number of cases processed regarding fire prevention approval work throughout Japan in FY2014 came to 244,681, with only 37 of these failing to receive approval (Table 1-1-35).

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

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

A look at the installation status for primary fire defence equipment etc. in specified fire prevention properties throughout Japan reveals that, as of March 31, 2015, the installation rate for sprinkler systems (number installed/number that needs to be installed) was 99.6%, while that for automatic fire alarms was 98.0% (Table 1-1-36).

Table 1-1-35 Fire prevention approval processing status

(Cases)

| Breakdown Gist of application | Approved | | Unapproved | | Total | |
|----------------------------------|----------|---------|------------|--------|---------|---------|
| | FY2013 | FY2014 | FY2013 | FY2014 | FY2013 | FY2014 |
| New construction | 235,838 | 215,359 | 33 | 29 | 235,871 | 215,388 |
| Enlargement | 23,296 | 20,858 | 10 | 5 | 23,306 | 20,863 |
| Reconstruction | 1,149 | 928 | 2 | 1 | 1,151 | 929 |
| Relocation | 137 | 143 | 0 | 0 | 137 | 143 |
| Repair | 98 | 115 | 0 | 0 | 98 | 115 |
| Remodeling | 147 | 126 | 0 | 0 | 147 | 126 |
| Change of purpose | 3,414 | 3,807 | 7 | 2 | 3,421 | 3,809 |
| Other | 3,770 | 3,308 | 1 | 0 | 3,771 | 3,308 |
| Total | 267,849 | 244,644 | 53 | 37 | 267,902 | 244,681 |

(Notes) Prepared based on the Survey on the Actual Conditions of Fire Prevention Properties

Table 1-1-36 Installation status for sprinkler systems and automatic fire alarms in specified fire prevention properties throughout Japan

(As of March 31, 2015)

| Classification of properties under fire prevention measures | | Equipment type | Sprinkler systems | | | | Automatic fire alarms | | | |
|---|--|---------------------|--------------------------------|---------------|-------------------|----------------------|--------------------------------|---------------|-------------------|----------------------|
| | | Equipment condition | No. that needs to be installed | No. installed | No. of violations | installation rate(%) | No. that needs to be installed | No. installed | No. of violations | installation rate(%) |
| (1) | a. Theaters, etc. | | 766 | 762 | 4 | 99.5 | 3,676 | 3,661 | 15 | 99.6 |
| | b. Public halls, etc. | | 549 | 546 | 3 | 99.5 | 31,249 | 31,151 | 98 | 99.7 |
| (2) | a. Cabarets, etc. | | 5 | 4 | 1 | 80.0 | 491 | 465 | 26 | 94.7 |
| | b. Game centers, etc. | | 695 | 684 | 11 | 98.4 | 9,919 | 9,880 | 39 | 99.6 |
| | c. Stores engaged in sex-related businesses, etc. | | 0 | 0 | 0 | | 175 | 171 | 4 | 97.7 |
| | d. Karaoke box and stores, etc. | | 12 | 12 | 0 | 100.0 | 2,775 | 2,698 | 77 | 97.2 |
| (3) | a. Restaurants, etc. | | 6 | 6 | 0 | 100.0 | 2,379 | 2,294 | 85 | 96.4 |
| | b. Eating and drinking houses | | 103 | 102 | 1 | 99.0 | 35,311 | 34,418 | 893 | 97.5 |
| (4) | Department stores, etc. | | 7,417 | 7,366 | 51 | 99.3 | 88,017 | 86,541 | 1,476 | 98.3 |
| (5) | a. Hotels, etc. | | 1,996 | 1,988 | 8 | 99.6 | 45,089 | 44,689 | 400 | 99.1 |
| | b. Hospitals, etc. | | 6,979 | 6,967 | 12 | 99.8 | 40,578 | 40,418 | 160 | 99.6 |
| (6) | b. Special elderly nursing homes, etc. | | 33,832 | 33,722 | 110 | 99.7 | 41,112 | 40,942 | 170 | 99.6 |
| | c. Elderly daycare centers, etc. | | 1,439 | 1,438 | 1 | 99.9 | 46,771 | 46,641 | 130 | 99.7 |
| | d. Kindergartens, etc. | | 190 | 189 | 1 | 99.5 | 15,927 | 15,875 | 52 | 99.7 |
| (9) | a. Special bathhouses | | 14 | 14 | 0 | 100.0 | 1,452 | 1,443 | 9 | 99.4 |
| (16) | a. Specified multipurpose fire prevention properties | | 16,751 | 16,673 | 78 | 99.5 | 191,230 | 183,790 | 7,440 | 96.1 |
| (16-2) | Underground malls | | 60 | 60 | 0 | 100.0 | 64 | 64 | 0 | 100.0 |
| (16-3) | Semi-underground malls | | 4 | 4 | 0 | 100.0 | 5 | 5 | 0 | 100.0 |
| Total | | | 70,818 | 70,537 | 281 | 99.6 | 556,220 | 545,146 | 11,074 | 98.0 |

(Notes) 1 Prepared based on the Survey on the Actual Conditions of Fire prevention Properties.

2 Because of the influence of the Great East Japan Earthquake, the numbers for the Fire Defense Headquarters of Rikuzentakata City of Iwate Prefecture and the Fire Defense Headquarters of the Inter-municipal Association of the Futaba Region in Fukushima Prefecture were excluded from the calculation.

With respect to the technical standards pertaining to fire defence equipment etc., regulations are being successively set in place in accordance with technological progress and societal demands. Recently, a fire occurred at a group home for elderly people with dementia in Nagasaki City, Nagasaki Prefecture in February 2013 (that left five people dead and seven injured). In light of this, it was mandated that social welfare facilities that mainly house people who would have difficulty evacuating on their own must install sprinkler systems as a general rule, regardless of their floor area. The installation of these sprinkler systems has been carried out since April 1, 2015 as a result of the Partial Revision of the Order for Enforcement of the Fire Service Act (promulgated on December 27, 2013) and other legislation. To carry this out, transitional measures were established, which state that these are to be installed on existing facilities by March 31, 2018.

Moreover, a fire occurred at a medical clinic with beds in Fukuoka City, Fukuoka Prefecture in October 2013 (which left ten people dead and five injured). In light of this, it was mandated that medical clinics with beds and hospitals with patients that require assistance in order to evacuate must also install sprinkler systems as a general rule, regardless of their floor area. The installation of

these sprinkler systems has been carried out since April 1, 2016 as a result of the Partial Revision of the Order for Enforcement of the Fire Service Act (promulgated on October 16, 2014) and other legislation. To carry this out, transitional measures were established which state that these are to be installed on existing facilities by June 30, 2025.

For properties in violation of fire prevention laws and ordinances, such as those in violation of the obligation to install fire defence equipment etc., orders for them to take measures pursuant to the Fire Services Act are proactively issued and the prompt and effective remediation of the violation is further promoted.

(3) Fire Protection Engineers and Fire Protection Inspectors

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

What is more, fire defence equipment etc. must be properly maintained on a daily basis to ensure that it is capable of performing at any and all times. As a result, it has been mandated that periodic inspections be performed and the results of these be reported. These inspections premised on maintaining the equipment require knowledge and skills with regards to the fire defence equipment etc.. Therefore, the relevant personnel from the fire prevention properties must have fire protection engineers or fire protection 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 inspector certificate) perform the inspections on the fire defence equipment etc..

Efforts are made to improve the quality of these fire protection engineers and fire protection 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 defence 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, 2015, the total number of fire protection engineers came to 1,089,877. In addition, the number of special fire protection inspectors came to 652 special inspectors (for special fire defence equipment etc.), 146,533 Class 1 inspectors (for mechanical systems) and 138,202 Class 2 inspectors (for electrical systems).

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

(4) Flame Retardancy Regulations

A. Usage Status for Flame Retardant Goods

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

properties use goods with the prescribed flame retardant performance (hereafter referred to as “flame retardant goods”) for the curtains, stage curtains, plywood display boards, carpets, and other goods used (hereafter referred to as “goods under the flame retardancy requirement”).

As of March 31, 2015, the number of flame retardancy and fire prevention properties came to 980,031. The conformance rate (share of the flame retardancy and fire prevention properties where flame retardant goods are used for all of the goods under the flame retardancy requirements at said properties) at flame retardancy and fire prevention properties using curtains and stage curtains came to 87.5%, while it was 86.6% at those using carpets, and 83.7% at those using plywood display boards.

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

Aside from those goods under the flame retardancy requirement stipulated in the Fire Services Act such as curtains and carpets, using fireproof goods for futons, pajamas, the body covers for automobiles and motorcycles, and more is also extremely effective for preventing fires. Therefore, the FDMA spreads public awareness of these by uploading videos detailing the effects from these flame retardant goods to its homepage (reference URL:

http://www.fdma.go.jp/html/life/yobou_contents/materials/).

(5) Regulations for Equipment and Tools that Use Fire

From the perspective of fire prevention, the location, construction, management, and handling of equipment and tools that use fire, including home gas burners, stoves, hot-water heaters, fireplaces, kitchen equipment, and sauna equipment, are regulated via the fire prevention ordinances established by each municipality. These are established pursuant to the Ministerial Ordinance Establishing Standards for Enacting Ordinances on the Location, Construction, and Management of Eligible Equipment that Uses Fire and the Handling of Eligible Tools that Use Fire (2002 Ministry of Internal Affairs and Communications Ministerial Ordinance No. 24; hereafter referred to as the “Ministerial Ordinance on Eligible Equipment and Tools that Use Fire”).

In November 2015, the Ministerial Ordinance on Eligible Equipment and Tools that Use Fire was revised on account of the circulation of new equipment and tools like high output IH cookware. For this, the decision was made to newly establish standards regarding the safe distance for fire prevention (offset distance) that should be maintained between flammable objects and the like when such equipment and tools are installed (entered into force on April 1, 2016).

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

(1) Inspections

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

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

These inspections consist of “model approval” (approval indicating that the shape and other factors of the machinery and tools conform with the technical specifications established in ministerial ordinances) and “model compliance inspections” (inspections conducted to confirm that the shape and other factors of the individual machinery and tools subject to inspection are identical to the shape and so forth for models of said equipment that have received model approval) (Table 1-1-39). Moreover, for machinery and tools subject to inspection with regard to the development of new technologies, inspections can be carried out via the technical specifications established by the Minister of Internal Affairs and Communications for those items that conform to the technical standards established by said ministerial ordinance in terms of their shape or the like, or those acknowledged as having performance that meets or exceeds this level. Through this, the aim is to enhance the inspection system so as to promote technological innovation with these machinery and tools subject to inspection.

Regarding the inspection system, it came to light that cases of misconduct occurred in October 2008, including test samples being secretly switched out during model compliance inspections for fire hoses. Moreover, in March 2010 it was discovered that fire-extinguishing foam used in the compressed air foam apparatuses on fire trucks that had not been inspected was being sold. As part of the public service corporation program review carried out in May 2010, evaluation results were issued to the effect that reassessments were to be made with a view towards expanding both voluntary screenings and the increased involvement of the private sector when it comes to inspections.

Table 1-1-39 Inspection application status

(FY2014)

| Type | Classification | No. of model test applications (applications) | No. of model alteration test applications (applications) | No. of model compliance inspection applications (items) | No. of passing model compliance inspections (items) |
|---|----------------|---|--|---|---|
| (1) Fire extinguishers | Large | 12 | 3 | 38,839 | 39,997 |
| | Small | 77 | 7 | 6,119,246 | 5,428,900 |
| (2) Fire extinguishing agent for fire extinguishers | For large ones | 14 | — | 1,932 | 2,043 |
| | For small ones | | | 257,542 | 277,998 |
| (3) Fire-extinguishing foam | | 12 | — | 2,086,000 | 2,071,240 |
| (4) Fire alarms | Detectors | 70 | 2 | 7,049,084 | 6,945,599 |
| | Sounders | 8 | 2 | 319,490 | 334,103 |
| (5) Code Transmitter | | 24 | 2 | 446,564 | 447,613 |
| (6) Control Panel | | 19 | 11 | 516,348 | 521,709 |
| (7) Residential fire alarms | | 135 | 7 | 3,303,812 | 2,549,647 |
| (8) Enclosed sprinkler heads | | 6 | 6 | 2,891,321 | 2,826,220 |
| (9) Water flow detectors | | 9 | 9 | 32,213 | 31,930 |
| (10) Deluge valve | | 6 | 0 | 21,812 | 21,094 |
| (11) Metal evacuation ladders | | 7 | 2 | 147,004 | 151,539 |
| (12) Escape slings | | 0 | 0 | 6,077 | 5,570 |
| Total | | 399 | 51 | 23,237,284 | 21,655,202 |

(Notes) 1 Prepared based on the Japan Fire Equipment Inspection Institute.

2 Model tests (model alteration tests): These are tests conducted by the Japan Fire Equipment Inspection Institute or registered inspection bodies on whether or not machinery and tools subject to inspection which are trying to receive model approval conform to the technical standards.

Based on this, the Act for Partial Revision of the Fire Services Act was promulgated on June 27, 2012. This established collection orders via the Minister of Internal Affairs and Communications and strengthened penal provisions in cases where machinery and tools subject to inspection not in compliance with the standards or which lacked labels indicating their compliance were circulating on the market. It also relaxed requirements in order to promote the entry of private companies into the registered inspection body market, among its other stipulations.

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

(2) Self-labeling

With the self-labeling system, it is the responsibility of the manufacturers to confirm their compliance with specifications on their own according to the regulations in Article 21-16 (3) of the Fire Services Act. The system also gives approval for labeling models that have been reported to the Minister of Internal Affairs and Communications in advance. The number of reports from manufacturers in FY2014 came to 11 for power fire pumps, 589 for fire hoses, 4 for fire suction hoses, 399 for couplers, 3 for disposable aerosol fire extinguishers, and 66 for electric leak alarms.

Machinery and tools that are subject to self-labeling (hereafter referred to as “machinery and tools subject to self-labeling”) are prohibited from being sold, displayed for commercial purposes, and so forth unless they include a label pursuant to the regulations of Article 21-16 (2) of the Fire Services Act. Similar to machinery and tools subject to inspection, the Act for Partial Revision of the Fire Services Act (promulgated on June 27, 2012) established collection orders via the Minister of Internal Affairs and Communications and strengthened penal provisions for machinery and tools subject to self-labeling not in compliance with the standards or which lacked labels indicating their compliance.

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

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

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

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

The performance demanded of fire defence equipment etc. is divided up into three categories.

These are “initial spread inhibition performance,” which is performance for inhibiting the spread of fires during the initial stages, “evacuation safety support performance,” which is performance that supports safely evacuating during fires, and “firefighting activity support performance,” which is performance that supports the activities of firefighting teams. A certain body of knowledge has been gained regarding these, on which their equivalence is evaluated via objective verification methods (methods of objectively and impartially verifying newly developed technologies and technical innovations) and so forth.

At the same time, a certification system via the Minister of Internal Affairs and Communications has been established aimed at equipment for which evaluations of its equivalence cannot be performed solely through the existing objective verification methods (such as special fire defence equipment etc.). Under this system, applications are made for each property under fire prevention measures regarding special fire defence 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, 2015, 58 cases have received certification thus far as special fire defence equipment etc..

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

9. Current Status of Investigations into the Causes of Fires

Advances in science and technology have brought about increasing sophistication for industry and changes in social conditions. This has resulted in a tendency for fires that are large in scale and which assume aspects of complexity to occur with great frequency, and so investigating the causes behind these requires sophisticated expertise. What is more, investigating the causes of fires and illuminating the extent of the damage caused by both fires and firefighting are crucial when it comes to examining modalities for subsequent fire prevention administration.

Investigating the causes of fires is unequivocally the role of local governments, but it is the duty of the national government to complement them in this. In cases where there has been a request from a firefighting agency, or the Commissioner of the FDMA has deemed that there is a particular necessity in doing so, an investigation into the causes of a fire can be carried out by the Commissioner of the FDMA (see White Paper P285). Investigation teams formed from personnel from the FDMA according to the type of fire carry out the investigations into the causes of the fire through this system in coordination with firefighting agencies. Reviews are conducted based on the knowledge and data obtained from the

investigations, and this is reflected in policies for fire defense administration. Cases where responses such as revising fire prevention laws and ordinances were carried out based on the results of investigations into the causes of fires by the Commissioner of the FDMA that were carried out recently are shown in Table 1-1-41.

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

Table 1-1-41 Investigations into the causes of fires by the Commissioner of the FDMA that were recently conducted and responses based on the results of these

| No | Date of fire | Location | Building purpose, etc | Responses by FDMA |
|----|------------------|-------------------------------------|------------------------------------|---|
| 1 | May 13, 2012 | Fukuyama City, Hiroshima Prefecture | Hotel (10 casualties) | Revised the Order for Enforcement of the Fire Services 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 the fire prevention standards in fire prevention laws and ordinances. |
| 2 | February 8, 2013 | Nagasaki City, Nagasaki Prefecture | Group home (12 casualties) | Revised the Order for Enforcement of the Fire Services 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 Services 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 Services 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. |

10. Promoting Countermeasures to Product Fires

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

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

The fires involving automobiles and other vehicles, as well as electronic appliances and burning appliances, that occurred in 2014 (January - December 2014) were aggregated based on what was reported by firefighting agencies. From this, it

was discovered that of the total of 857 product fires, 174 were fires deemed to have been caused by product defects, 526 were fires where the cause could not be identified, and 157 were fires that are still currently under investigation.

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

What is more, with respect to investigations into the causes of fires carried out by firefighting agencies throughout Japan, efforts are also being made to improve the investigation skills of the firefighting agencies. Examples of this include providing them with technical support such as scientific investigation based on the expert knowledge and equipment and materials of the National Research Institute of Fire and Disaster and so forth. In addition to working to enhance investigations into the causes of fires and the

structures for this, the FDMA also strives to proactively collect information on product fires and strengthen collaborations with the relevant agencies. Through this, it is moving forward with ensuring consumer safety and peace of mind, while also preventing fire accidents caused by products.

11. Promoting Fire Prevention Measures at Outdoor Event Venues

In August 15, 2013, a fire broke out at the venue for a fireworks show in Fukuchiyama City, Kyoto, that involved enormous human suffering in the sense that 3 people died and 56 were injured.

Following this, the Order for Enforcement of the Fire Services Act was revised in December 2013 and the Fire Prevention Ordinance (Example) was revised in January 2014 in order to promote fire prevention measures at outdoor event venues. These mandated initiatives like preparing fire extinguishers when handling equipment that use fire at outdoor event venues and the like, and appointing managers for fire prevention at those large-scale outdoor and similar events that have been specially designated by fire chiefs. It also mandated that plans for the operations necessary for fire prevention be prepared and submitted.

Section

2

Countermeasures to Disasters at Facilities for Hazardous Materials

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

Accidents at facilities for hazardous materials are broadly classified into fires (including explosions) and spills of hazardous materials. The number of fire and spillage accidents at facilities for hazardous materials have been trending upward since 1994. In 2014 (January 1 - December 31, 2014), there were 203 fires and 396 spills for a total of 599 accidents. This is 35 more accidents than the previous year, which means that accidents are still holding steady at a high level (Fig. 1-2-1).

1. Fire Accidents

The number of fire accidents that occurred at facilities for hazardous materials in 2014 rose by roughly 1.9-times compared with the 107 such accidents in 1993, which had the lowest number of fire accidents since 1989, despite the fact that the number of facilities for hazardous materials has decreased. Accidents attributable to human factors such as inadequate maintenance and inadequate

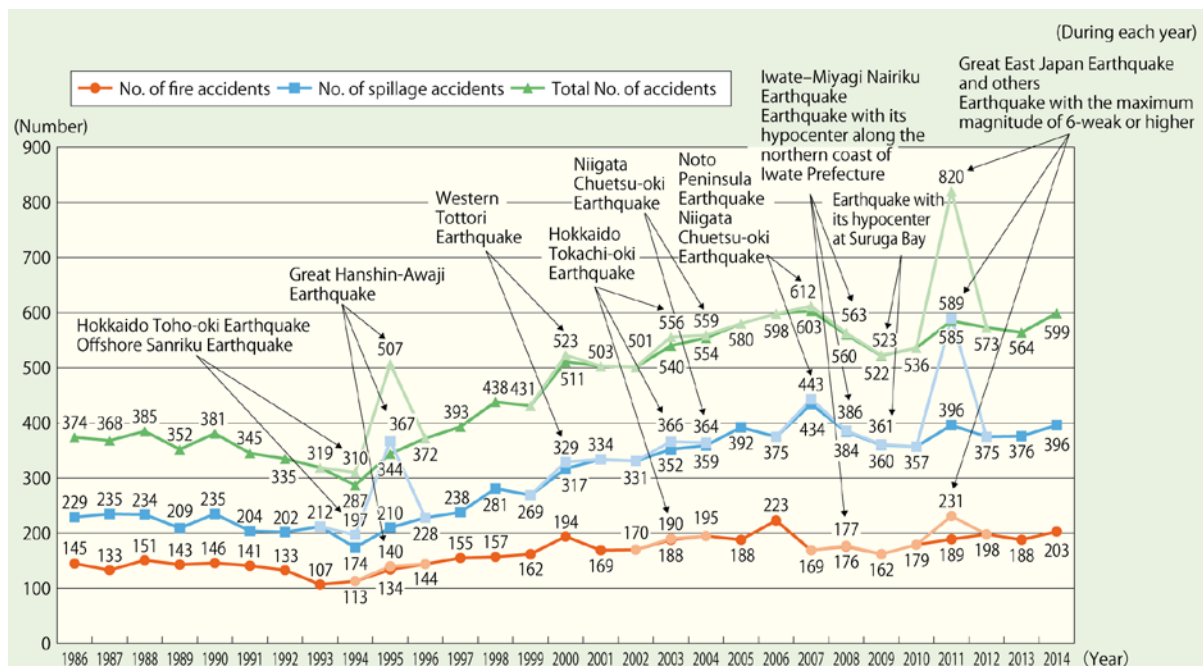
operating checks account for the majority of the primary causes for these. However, accidents caused by physical factors such as design defects are also on an upswing.

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

The number of fire accidents that occurred at facilities for hazardous materials in 2014 came to 203 (an increase of 15 year-on-year), the amount of damages came to 2,140 million yen (a decrease of 2,194 million yen year-on-year), and they left 1 person dead (a decrease of 6 people year-on-year) and 64 people injured (an increase of 9 people year-on-year) (Fig. 1-2-2).

Moreover, looking at the number of fire accidents that occurred by type of facility for hazardous materials reveals that the majority occurred at general outlets, followed by manufacturing facilities and fuel supply depots in that order. The total for these 3 facility classifications account for 92.6% of the total accidents (Fig. 1-2-3). Conversely, of the 203 fire accidents 116 (or 57.1% of the total) were cases where a hazardous material served as the causative agent for the fire (Fig. 1-2-4).

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



(Notes) 1 Prepared based on Accident Reports on Hazardous Materials.

2 In order to determine the trends in the number of accidents that occurred by year, these are denoted by dividing the number of accidents that occurred as a result of earthquakes with a magnitude of 6-week or higher (or a magnitude of 6 or higher for dates prior to September 1996) and the number from all others.

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

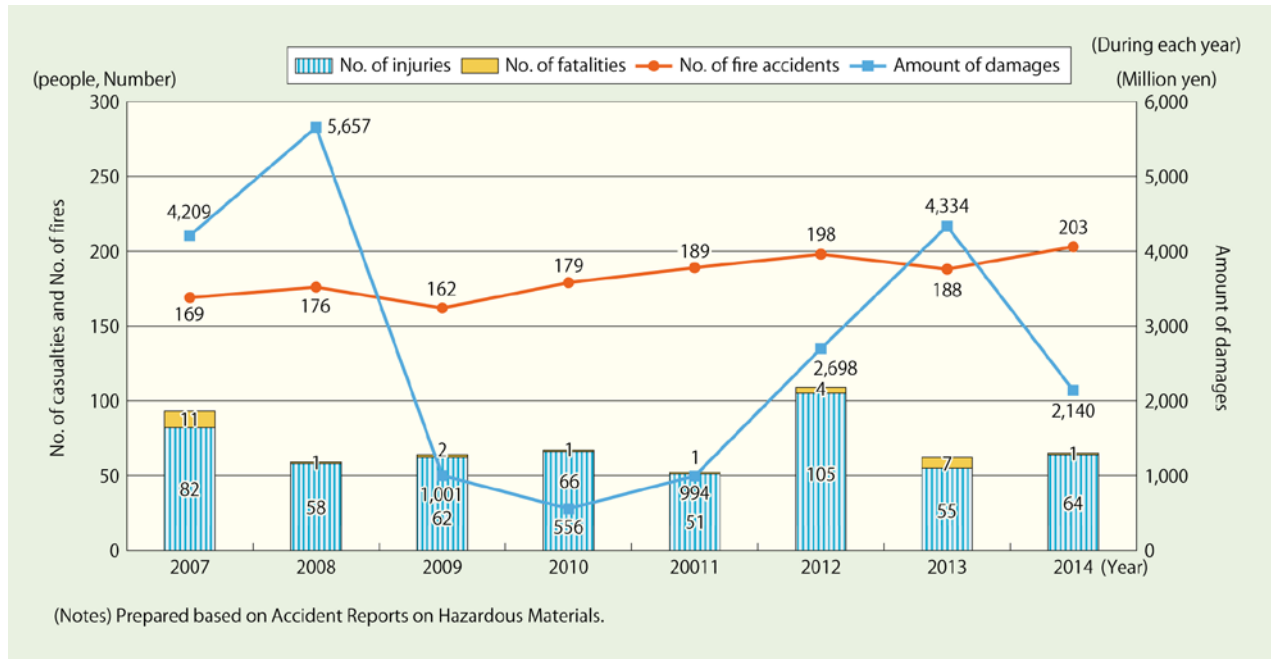
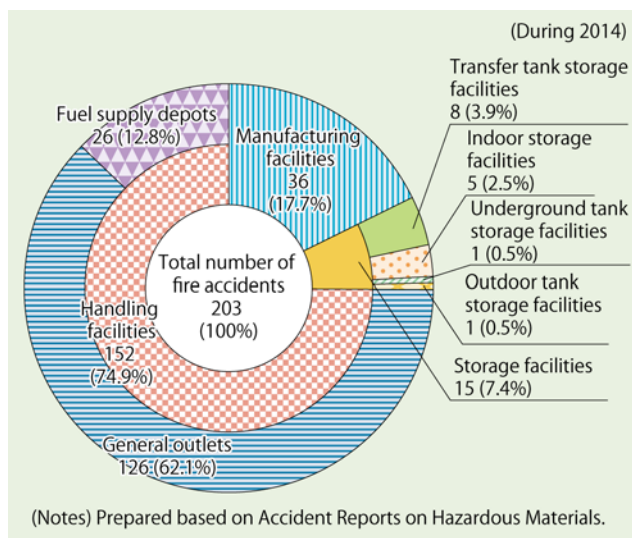


Fig. 1-2-3 Number of fire accidents by type of facility for hazardous materials

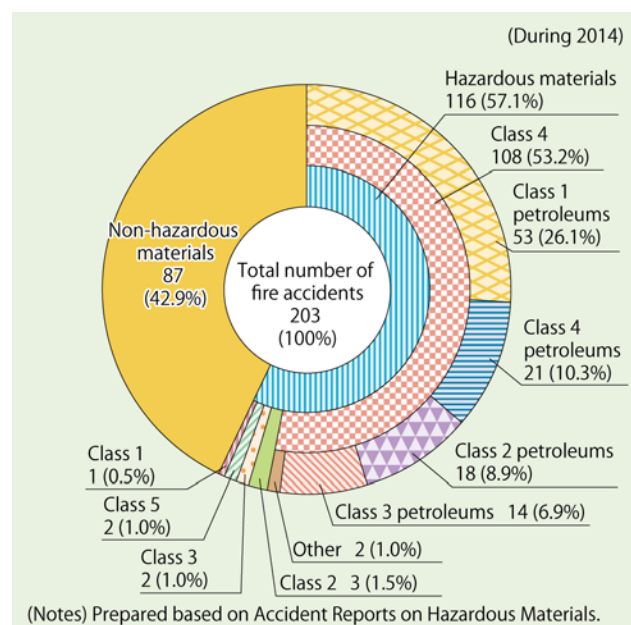


(2) Causative Factors behind the Fire Accidents at Facilities for Hazardous Materials

A look at the causative factors behind the fire accidents at facilities for hazardous materials that occurred in 2014 reveals that human factors accounted for 61.1%; physical factors accounted for 28.1%; and the total for other causes, unknown, and under investigation came to 10.8% (Fig. 1-2-5).

When viewed by ignition source, those ignited by static electricity sparks were most common at 42 (an increase of 7 year-on-year), followed by 33 from high-temperature surface heat (an increase of 14 year-on-year) and 22 from ignition due to overheating (a decrease of 6 year-on-year) (Fig. 1-2-6).

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



(3) Fire Accidents at Unauthorized Facilities

The number of fire accidents that occurred at facilities which were supposed to receive authorization as facilities for hazardous materials yet which failed to do so (hereafter referred to as “unauthorized facilities”) in 2014 came to six (an increase of one year-on-year), and they left one person dead (a decrease of one year-on-year) and five injured (the same year-on-year).

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

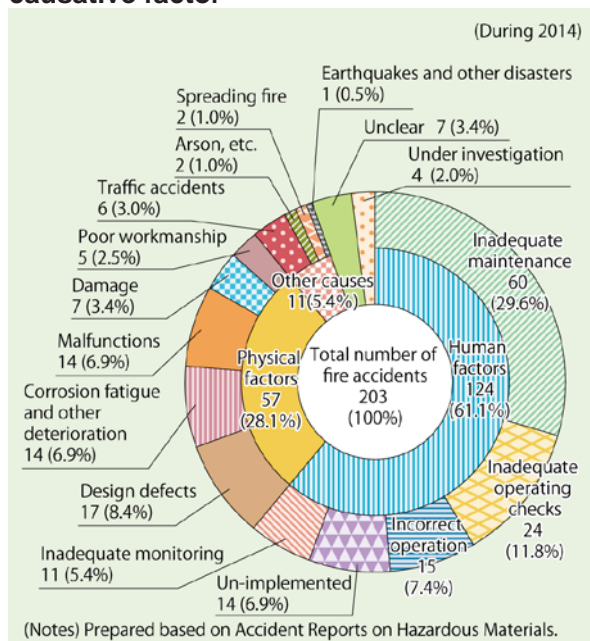
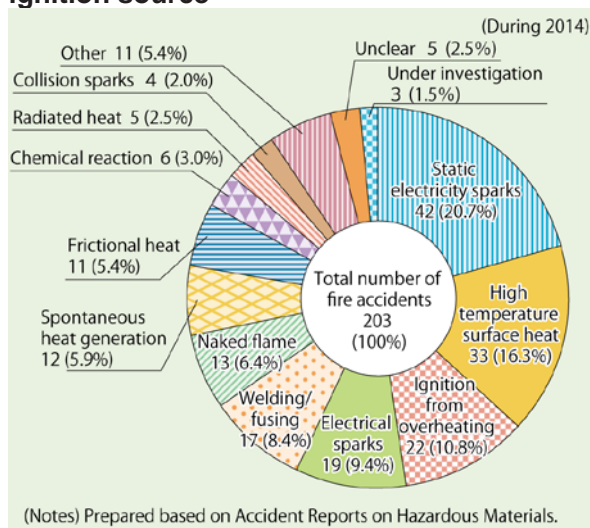


Fig. 1-2-6 Number of fire accidents by ignition source



(4) Fire Accidents during the Transportation of Hazardous Materials

No fire accidents during the transportation of hazardous materials occurred in 2014.

(5) Fire Accidents during Temporary Storage or Handling

Continuing on from 2013, no fire accidents during the temporary storage or handling of hazardous materials occurred in 2014.

2. Spillage Accidents

The number of spillage accidents involving hazardous materials that occurred at facilities for hazardous materials in 2014 rose by roughly 2.3-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, in particular are on the rise.

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

The number of spillage accidents involving hazardous materials that occurred at facilities for hazardous materials (which did not turn into fires) in 2014 came to 396 (an increase of 20 year-on-year), the amount of damages came to 424 million yen (a decrease of 15 million yen year-on-year), and they resulted in no death (the same year-on-year) but left 25 people injured (an increase of 7 people year-on-year) (Fig. 1-2-7).

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

Conversely, 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 petroleum (light oil, etc.) accounts for most of these, followed by Class 3 petroleum (heavy oil, etc.), Class 1 petroleum (gasoline, etc.), and Class 4 petroleum (gear oil, etc.) in that order (Fig. 1-2-9).

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

A look at the causative factors behind the spillage accidents at facilities for hazardous materials that occurred in 2014 reveals that human factors accounted for 31.6%; physical factors accounted for 57.3%; and the total for other causes, unknown, and under investigation came to 11.1% (Fig. 1-2-10).

When viewed by causative factor, those caused by deterioration such as corrosion fatigue were most common at 148 (an increase of 7 year-on-year), followed by 53 from inadequate operating checks (an increase of 6 year-on-year) and 38 from damage (an increase of 7 year-on-year) (Fig. 1-2-10).

(3) Spillage Accidents at Unauthorized Facilities

The number of spillage accidents that occurred at unauthorized facilities in 2014 came to three (a decrease of one year-on-year), with no casualties (same number of dead and injured people year-on-year).

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

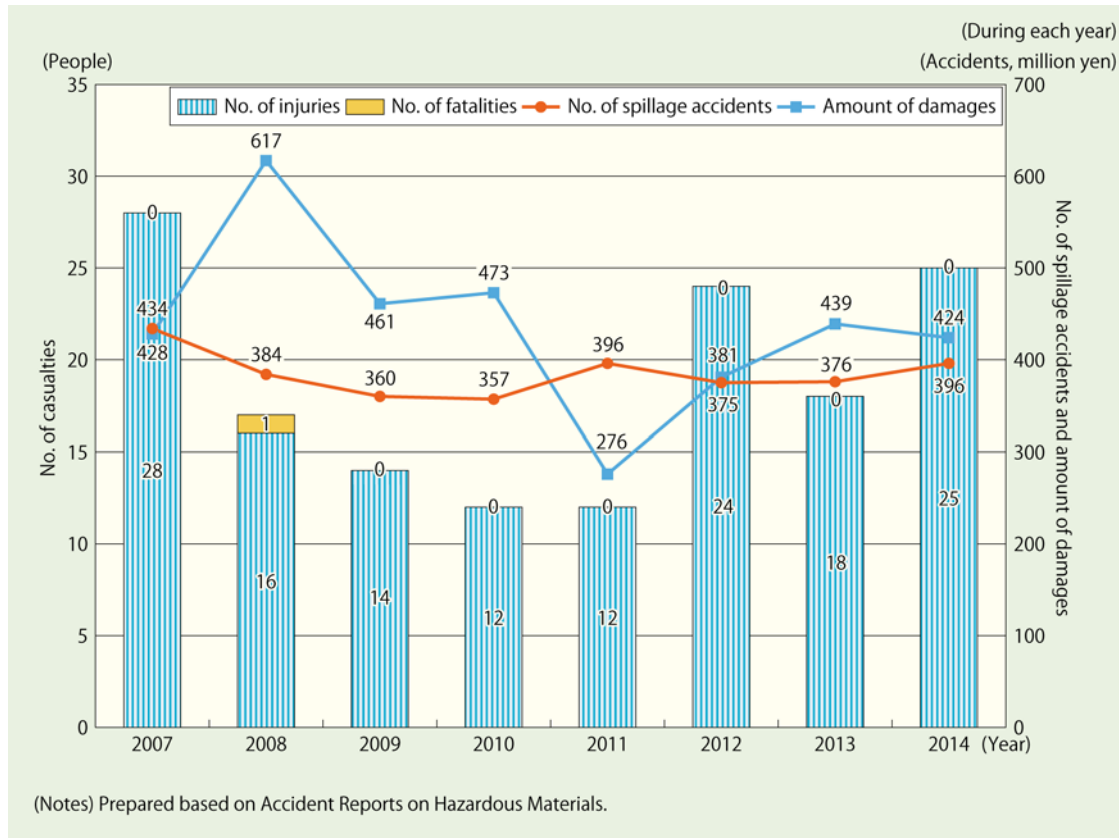


Fig. 1-2-8 Number of spillage accidents by type of facility for hazardous materials

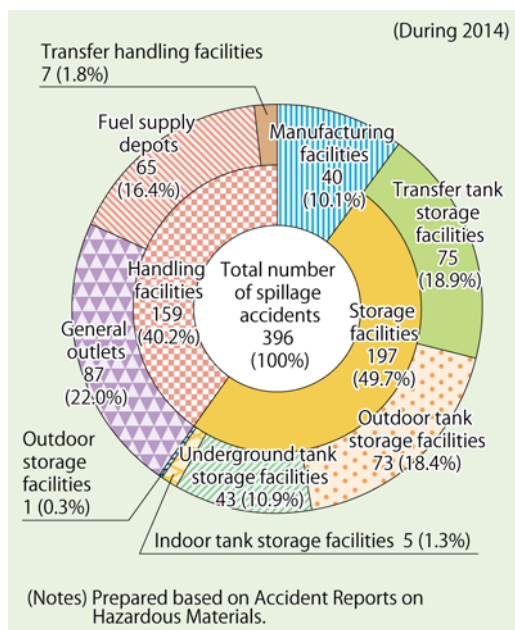


Fig. 1-2-9 Number of spillage accidents by material spilled

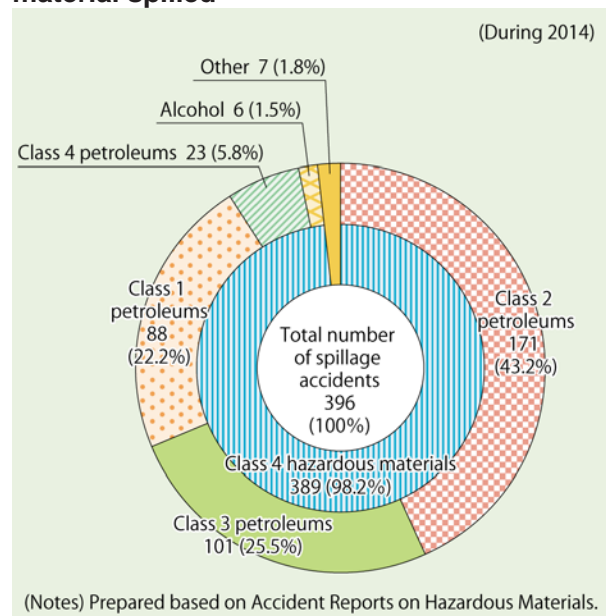
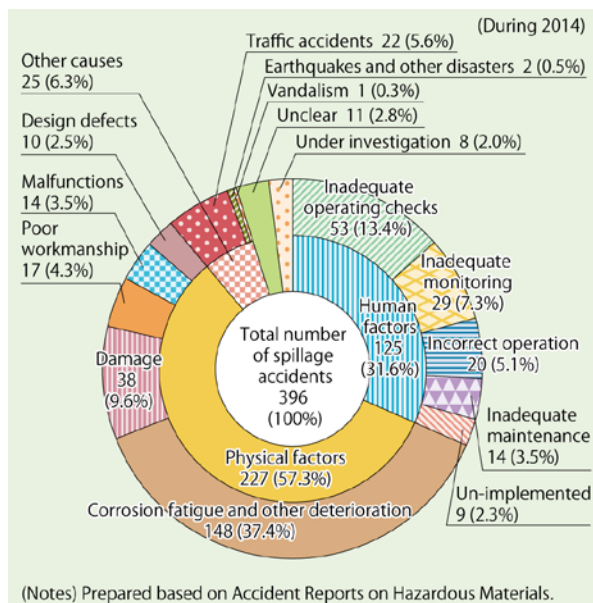


Fig. 1-2-10 Number of spillage accidents by causative factor



Current Status of Hazardous Materials Administration

1. Regulations on Hazardous Materials

(1) Regulatory Structure for Hazardous Materials

The Fire Services 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.”^{*10} Enacting safety regulations for the storage, handling and transportation of these hazardous materials has been posited as contributing to the promotion of social welfare by preventing fires; protecting the lives, health, and property of the public from fires; and mitigating the damage from fires. Regulations concerning hazardous materials have been instituted in a uniform manner throughout Japan through the partial revisions to the Fire Services Act of 1959 and by enacting cabinet orders on regulations for hazardous materials. Since then, efforts like revising the relevant legislation to ensure that it contains content like establishing necessary and sufficient technical standards that are safer for facilities for hazardous materials^{*11} have sequentially

(4) Spillage Accidents during the Transportation of Hazardous Materials

The number of spillage accidents that occurred during the transportation of hazardous materials in 2014 came to 12 (a decrease of 3 year-on-year), and while there were no deaths (the same year-on-year) five people were injured (an increase of 5 year-on-year).

^{*10} Hazardous materials: The Fire Services 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 1 of the Fire Services Act.

[Hazardous materials listed in Appended Table 1 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°C). They easily catch fire, are quick to combust, and are difficult to extinguish. | Red phosphorous, sulfur, iron powder, solid alcohol, lacquer putty |
| Category 3 | Spontaneously combustible substances and water-reactive substances | These substances spontaneously combust when exposed to air, or either combust or generate combustible gasses when they come into contact with water. | Sodium, alkyl aluminum, yellow phosphorous |
| Category 4 | Inflammable liquids | These are liquids that are inflammable. | Gasoline, kerosene, light oil, heavy oil, acetone, methanol |
| Category 5 | Self-reactive substances | These are solids or liquids that generate large quantities of heat at relatively low temperatures or promote explosive reactions as a result of thermolysis and other reactions. | Nitroglycerin, trinitrotoluen, 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 |

^{*11} 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 Services Act. As described below, they are classified into three types: manufacturing facilities, storage facilities, and handling facilities.

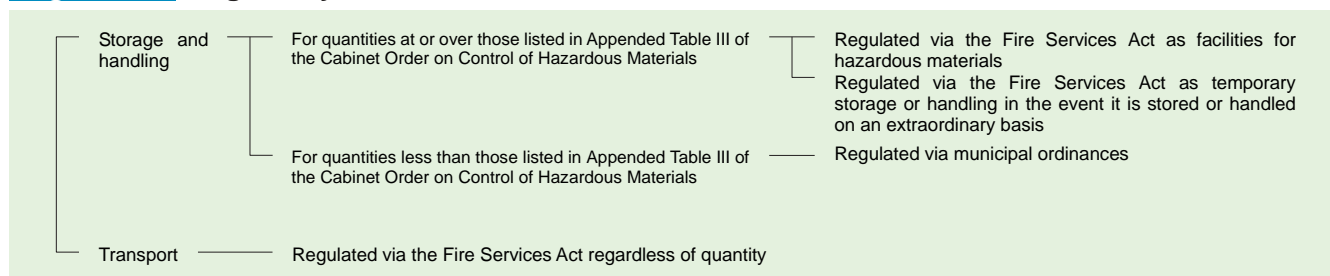
| Classification | Details |
|--------------------------|--|
| Manufacturing facilities | Facilities that manufacture hazardous materials (Ex.: Chemical plants, oil refineries) |
| Storage facilities | Indoor storage facilities |
| | Store hazardous materials inside buildings |
| | Outdoor storage tanks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

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 Services Act) cannot be stored or handled at locations other than facilities for hazardous materials. Persons attempting to establish a facility for hazardous materials must ensure it is in compliance with the standards regarding its location, structure, and equipment specified by law, and receive authorization from the municipal mayor for this.
- The transportation of hazardous materials must be carried out in accordance with the standards for ensuring safety specified in law, regardless of how large or small the quantity is.
- Standards for the storage and handling of hazardous materials in volumes less than the designated quantities are to be established via municipal ordinances.

Fig. 1-2-11 Regulatory structure



(2) Recent Status for Hazardous Material Regulations - Omitted

(3) Current Status of Facilities for Hazardous Materials

A. Number of Facilities for Hazardous Materials

The total number of facilities for hazardous materials (number of facilities for construction permits) as of March 31, 2015 came to 422,029 (Table 1-2-1). A look at the share of facilities by their classification reveals that storage facilities account for

the majority at 68.5%, followed by handling facilities at 30.3% and then manufacturing facilities at 1.2% (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, 2015, those facilities for hazardous materials that hold 50-times the designated quantities or less account for 75.9% of the total (Fig. 1-2-13).

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

(As of March 31 of each year)

| Facility | | Year | 2011 (A) | 2012 | 2013 | 2014 (B) | 2015 (C) | Rate of change (%) | |
|---------------------|------------------------------------|------|-------------|---------|---------|-------------|-------------|--------------------|-------------|
| | | | | | | | | (C/A-1)×100 | (C/B-1)×100 |
| Storage facilities | Manufacturing facilities | | 5,152 | 5,150 | 5,160 | 5,154 | 5,106 | -0.9 | -0.9 |
| | Indoor storage facilities | | 52,219 | 51,516 | 51,245 | 50,888 | 50,553 | -3.2 | -0.7 |
| | Outdoor storage tanks | | 67,470 | 66,294 | 65,330 | 64,206 | 63,093 | -6.5 | -1.7 |
| | Indoor storage tanks | | 11,923 | 11,679 | 11,502 | 11,296 | 11,021 | -7.6 | -2.4 |
| | Underground storage tanks | | 99,383 | 96,120 | 91,255 | 87,831 | 85,499 | -14.0 | -2.7 |
| | Simple storage tanks | | 1,141 | 1,114 | 1,101 | 1,060 | 1,019 | -10.7 | -3.9 |
| | Transfer storage tanks | | 68,746 | 68,299 | 67,916 | 67,665 | 67,498 | -1.8 | -0.2 |
| | Outdoor storage facilities | | 11,114 | 10,953 | 10,793 | 10,598 | 10,351 | -6.9 | -2.3 |
| | Subtotal | | 311,996 | 305,975 | 299,142 | 293,544 | 289,034 | -7.4 | -1.5 |
| Handling facilities | Fuel supply depots | | 67,990 | 66,470 | 64,593 | 63,222 | 62,269 | -8.4 | -1.5 |
| | Class 1 sales handling facilities | | 1,381 | 1,333 | 1,293 | 1,245 | 1,209 | -12.5 | -2.9 |
| | Class II sales handling facilities | | 542 | 537 | 538 | 529 | 518 | -4.4 | -2.1 |
| | Transfer handling facilities | | 1,179 | 1,153 | 1,151 | 1,142 | 1,127 | -4.4 | -1.3 |
| | General outlets | | 67,589 | 66,659 | 65,041 | 63,705 | 62,766 | -7.1 | -1.5 |
| | Subtotal | | 138,681 | 136,152 | 132,616 | 129,843 | 127,889 | -7.8 | -1.5 |
| Total | | | 455,829 | 447,277 | 436,918 | 428,541 | 422,029 | -7.4 | -1.5 |

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

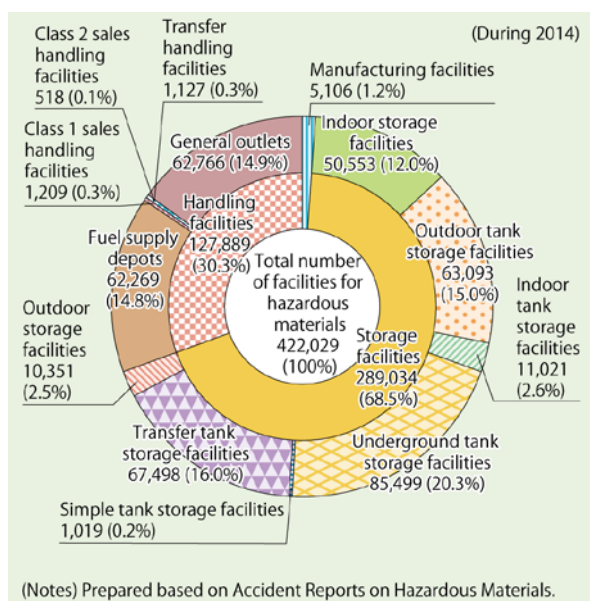
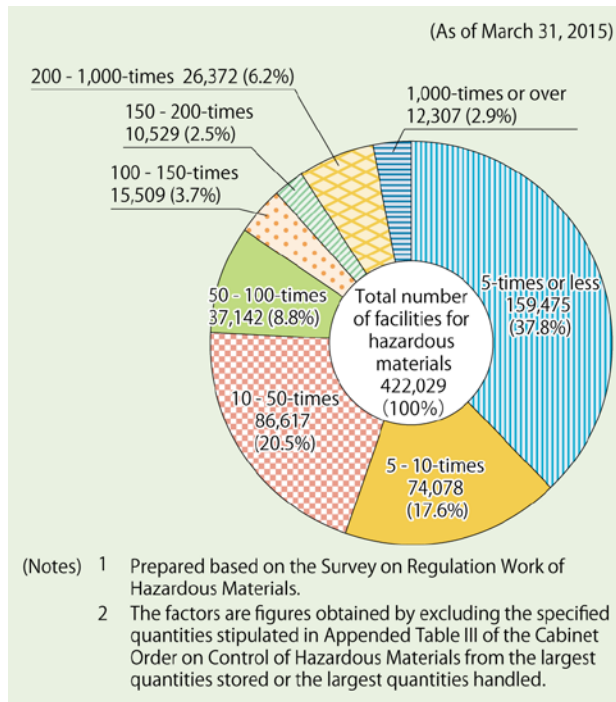


Fig. 1-2-13 Composition ratio of facilities for hazardous materials by size



(4) Hazardous Material Engineers

Hazardous material engineers are classified into three types. Class A engineers can handle all hazardous materials, Class B engineers can handle types of hazardous materials for which they have obtained approval, and Class C engineers can handle designated hazardous materials from among the type 4. When hazardous 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, 2015 the (cumulative) total number of people who have passed the hazardous material engineer test since the hazardous material engineer system was launched came to 8,984,911 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 547 times throughout Japan in FY2014 (an increase of 14 year-on-year). They were taken by 415,006 people (a decrease of 20,929 people year-on-year), with 158,914 people passing (a decrease of 18,246 people year-on-year) for an average pass rate of roughly 38.3% (a decrease of 2.3 points year-on-year). Viewing the situation by test type and category reveals that 66.4% of the people took the test for Class B, Type 4, followed by Class C at 9.0% of the total. These two test types accounted for 75.4% of the total. The number of people who passed these two test types accounted for 61.9% of the total.

B. Safety Training Courses

As a general rule, the hazardous material engineers engaged in handling hazardous materials at facilities for hazardous materials must take a training course on safety

for handling hazardous materials offered by prefectural governors (safety training courses) within each three year period (starting from April 1, 2012, within three years from the first April 1 since the date on which the hazardous material engineer license was issued or the date they took the safety training course). In FY2014 safety training courses were held a total of 1,363 times throughout Japan (a decrease of 11 times year-on-year), and were attended by 162,977 people (a decrease of 1,319 people year-on-year).

(5) Establishment of Safety Systems at Business Establishments

As of March 31, 2015, the total number of business establishments that owned facilities for hazardous materials came to 195,210 throughout Japan. In an effort to establish safety systems at business establishments, it has been mandated that the owners of facilities for hazardous materials that store or handle hazardous materials at or above certain quantities must carry out certain obligations. These include appointing hazardous materials security superintendents, appointing safety officers for facilities for hazardous materials (1,653 business establishments), and preparing fire and disaster prevention rules (46,022 business establishments). Moreover, it has been mandated that said business establishments that own certain facilities for hazardous materials and that store or handle hazardous materials at or above certain quantities must establish fire defense organizations for self protection (76 business establishments) and appoint hazardous material safety supervising managers (200 business establishments).

(6) Safety Inspections

It has been mandated that the owners of outdoor storage tanks and transfer handling facilities at or over a certain size must undergo inspections on the safety of facilities for hazardous materials performed by municipal mayors and similar officials (safety inspections) at regular fixed intervals according to factors like the facilities' size. In FY2014, 295 safety inspections were performed, of which 286 involved outdoor storage tanks and 9 involved transfer handling facilities.

(7) Onsite Inspections and Orders

Municipal mayors and similar officials can perform onsite inspections on facilities for hazardous materials and other such facilities to ensure that their installation, construction, and establishment of equipment, as well as storage or handling of hazardous materials, are in compliance with the standards established in the Fire Services Act. These can be carried out when said official deems it necessary to prevent fires that arise consequent upon the storage or handling of hazardous materials. In FY2014, onsite inspections were carried out a total of 204,848 times at 186,854 facilities for hazardous materials. In cases where violations of the Fire Services Act were discovered as a result of the onsite inspections, these municipal mayors and other officials can issue a variety of different orders to the owners of said facilities for hazardous materials. These include orders to comply with regulations on storage and handling, orders to take measures related to standards for installing, constructing, or establishing equipment, and more.

In FY2014 municipal mayors or similar officials issued such orders to take measures in 247 cases.

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, their operators must listen to the opinions of the Minister of Internal Affairs and Communications regarding formulating basic plans and business licenses in order to ensure safety pursuant to the Petroleum Pipeline Business Act enacted in 1972. What is more, the Minister of Internal Affairs and Communications provides licenses for construction plans, performs completion inspections, provides licenses for safety regulations, performs onsite 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 Services 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.

Section

3

Countermeasures to Disasters at Petroleum Industrial Complexes

Current Status of and Recent Trends in Disasters at Petroleum Industrial Complexes

1. Number of Accidents and Damage

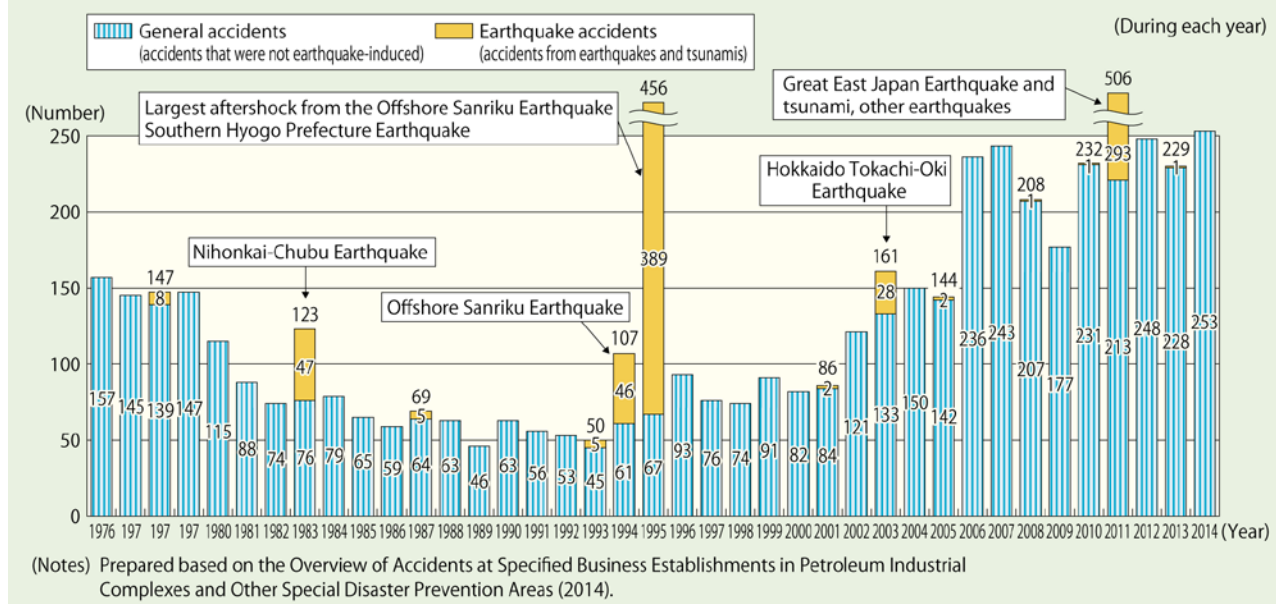
The total number of accidents that occurred at specified business establishments*¹² in petroleum industrial complexes and other special disaster prevention areas (see White Paper P97; hereafter referred to as “special disaster prevention areas”) in 2014 came to 253. A breakdown of this reveals that there were zero accidents from earthquakes and tsunamis (hereafter referred to as “earthquake-induced accidents”) and 253 accidents that were not earthquake-induced (hereafter referred to as “general accidents”). Compared to the previous year, there was an increase in both the total number and the number of general accidents. Limiting the focus to general accidents in particular reveals that these increased by 25 over the previous year (228 such accidents), marking the largest number of these to date (Fig. 1-3-1).

Looking at this by type of accident reveals there were 104 fires (an increase of 22 year-on-year), 6 explosions (an increase of 1 year-on-year), 135 leaks (an increase of 2 year-on-year), and 8 other accidents (a decrease of 1 year-on-year) (Table 1-3-1).

Looking at trends in the number of general accidents that have occurred reveals that these had been on a downswing since the enactment of the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities. However, this has been on an upswing since 1994, and the number surged in 2006. Since then, it continued to decline for two years in a row in 2008 and 2009, after which it once again swung upwards in 2010 before reaching a record high in 2014.

The number of casualties from accidents that occurred in 2014 came to 5 deaths and 76 injuries. Moreover, looking at the causes for general accidents reveals that 140 accidents (55.3%) were due to physical factors like the deterioration of facilities and malfunctions, while 98 accidents (38.7%) were due to human factors, such as those on the management or operating side.

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



*¹² 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).

Table 1-3-1 Accidents that occurred at petroleum industrial complexes

(During each year)

| Type | | Accidents in 2014 | | Accidents in 2013 | | |
|-------|--|-------------------|------------------------------|-------------------|------------------------------|----------------|
| | | General accidents | Earthquake-induced accidents | General accidents | Earthquake-induced accidents | |
| Fires | | 104 (41.1%) | 104 (41.1%) | — (—%) | 82 (35.8%) | 82 (36.0%) |
| | Explosions | 6 (2.4%) | 6 (2.4%) | — (—%) | 5 (2.2%) | 5 (2.2%) |
| | Leaks | 135 (53.4%) | 135 (53.4%) | — (—%) | 133 (58.1%) | 132 (57.9%) |
| Other | Damage | 8 (3.1%) | 8 (3.1%) | — (—%) | 9 (3.9%) | 9 (3.9%) |
| | Accidents not corresponding to the above | — (—%) | — (—%) | — (—%) | — (—%) | — (—%) |
| | Total | 253 | 253 | — | 229 | 228 |

(Notes) 1 Prepared based on the Overview of Accidents at Specified Business Establishments in Petroleum Industrial Complexes and Other Special Disaster Prevention Areas (2014).

2 There was no earthquake-induced accident among the accidents from 2014.

2. Characteristics of Accidents

(1) Number of Accidents by the Classification of Specified Business Establishments

Looking at the number of general accidents by the classification of specified business establishments reveals that Class 1 business establishments accounted for 191 (161 of which were at layout business establishments*¹³), which account for 75.5% of the total (Table 1-3-2).

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

As for the number of general accidents that occurred at specified business establishments by business category, there were 90 chemical industry-related accidents (35.6%), 82 petroleum and coal products manufacturing industry-related accidents (32.4%), 21 electrical industry-related accidents (8.3%), 17 steel industry-related accidents (6.7%), and 43 accidents in other business categories (17.0%).

Table 1-3-2 Number of general accidents by classification for specified business establishments

(During 2014)

| Type of business establishment | No. of specified business establishments (A) | No. of accidents (B) | Share of the total No. of accidents (%) | No. of accidents per business establishments (B/A) |
|---------------------------------|--|----------------------|---|--|
| Class 1 business establishments | 376 | 191 | 75.5 | 0.50 |
| Layout business establishments | 183 | 161 | 63.6 | 0.87 |
| Other business establishments | 193 | 30 | 11.9 | 0.15 |
| Class 2 business establishments | 321 | 62 | 24.5 | 0.19 |
| Total | 697 | 253 | 100 | 0.36 |

(Notes) 1 Prepared based on the Overview of Accidents at Specified Business Establishments in Petroleum Industrial Complexes and Other Special Disaster Prevention Areas (2014).

2 The number of business establishments is as of April 1, 2014.

Current Status of Damage Countermeasures at Petroleum Industrial Complexes

In order to prevent disasters from occurring and spreading at petroleum industrial complexes, where large quantities of hazardous materials, high pressure gasses, and other flammable materials are concentrated, efforts are made to establish comprehensive disaster prevention structures for

these. This includes by applying the various regulations from the Fire Services Act, the High Pressure Gas Safety Act, the Industrial Safety and Health Act, the Act on Prevention of Marine Pollution and Maritime Disasters, and others, as well as by applying the regulations from the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities regarding issues like the layouts of the various facilities and disaster prevention equipment.

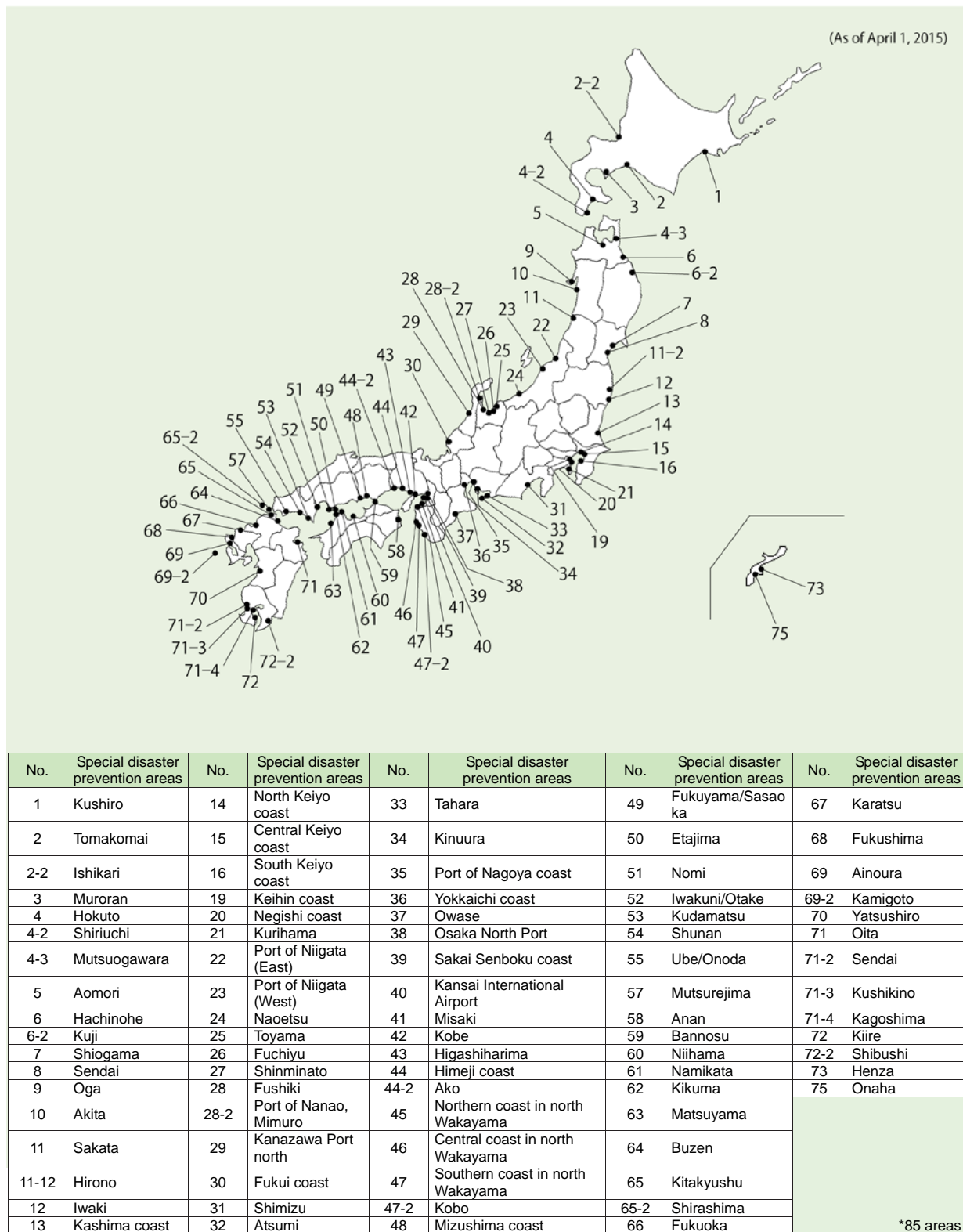
1. Current Status of Petroleum Industrial Complexes and Other Special Disaster Prevention Areas

As of April 1, 2015, 85 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 104 municipalities in 33 prefectures based on the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities (Fig. 1-3-2). These special disaster prevention areas are under the jurisdiction of 92 fire defense headquarters.

What is more, 697 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, 370 are Class 1 business establishments (including 176 layout business establishments) and 327 are Class 2 business establishments.

(The rest is omitted.)

Fig. 1-3-2 Designation status for petroleum industrial complexes and other special disaster prevention areas



(Notes) In December 27 the designations for the "21 Kurihama" area (Kanagawa Prefecture) and the "67 Karatsu" area (Saga Prefecture) were eliminated.

2. Disaster Prevention Structures at Prefectures and Firefighting Agencies

(1) Establishing Disaster Prevention Schemes

The prefectures that contain special disaster prevention areas are moving forward with establishing disaster prevention structures in a comprehensive and systematic manner based on the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities. This is being done through concerted efforts together with relevant agencies centering primarily on disaster prevention headquarters at petroleum industrial complexes and other locations (hereafter referred to as “disaster prevention headquarters”). The disaster prevention headquarters carry out operations such as preparing disaster prevention plans for petroleum industrial complexes and other locations (hereafter referred to as “disaster prevention plans”), liaising and coordinating with relevant agencies when disasters strike, and promoting research studies on disaster prevention.

(2) Responses Measures when Disasters Occur

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

When disasters occur, firefighting agencies carry out activities to curb the damage, give instructions regarding the activities of disaster prevention organizations for self-defense, and carry out other roles that are important for the disaster response measures.

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

There is the concern that disasters that occur within special disaster prevention areas will be large in scale and of a specialized type. Therefore, it is important to maintain firefighting capabilities in order to respond to said disasters. Through the Firefighting Maintenance Policies, which are based on municipal firefighting agencies, the FDMA denotes those firefighting capabilities that must be retained in order to handle disasters involving special disaster prevention areas, and strives to maintain these.

As of April 1, 2015, the firefighting agencies in municipalities containing a special disaster prevention area were found to be equipped with 83 large chemical firetrucks, 63 large, elevated water trucks, 90 foam solution transport vehicles, 19 large, elevated chemical water trucks, 3,048 kl of 3% fire-extinguishing foam, 619 kl of 6% fire-extinguishing foam, 23 fireboats, and more.

What is more, 30 foam solution storage facilities, 12 portable foam cannons, and other equipment is equipped in prefectures that contain special disaster prevention areas. This is designed to complement the firefighting capability of the municipalities while also enhancing and strengthening the disaster prevention structures for the special disaster prevention areas.

3. Disaster Prevention Structures at Specified Business Establishments

(1) Establishing Disaster Prevention Organizations for Self-defense

The Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities mandates that those operators that establish specified business establishments that contain special disaster prevention areas (specified business operators) must set up disaster prevention organizations for self-defense, equip fire defense equipment, appoint disaster protection managers, prepare disaster prevention regulations, and so forth. It also stipulates that they are to establish joint disaster prevention associations,*¹⁴ wide-area joint disaster prevention associations,*¹⁵ and special disaster prevention area councils for petroleum industrial complexes and the like (hereafter referred to as “area councils”)*¹⁶ in order to establish disaster prevention structures through the combined efforts of the specified business establishments.

As of April 1, 2015, disaster prevention organizations for self-defense had been established at every specified business establishment (697 business establishments). In addition, 75 joint disaster prevention associations, 11 wide-area joint disaster prevention associations, and 56 area councils had been established. These disaster prevention organizations for self-defense, joint disaster prevention associations, and wide-area joint disaster prevention associations are constantly equipped with 5,649 disaster prevention personnel, 94 large chemical fire trucks, 54 large, elevated water trucks, 145 foam solution transport vehicles, 114 large, elevated chemical water trucks, 24 high capacity foam cannons, 24 oil recovery vessels, and more.

*¹⁴ 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.

*¹⁵ Wide-area joint disaster prevention associations: Joint disaster prevention associations covering a wide area jointly established by specified business operators involved with specified business establishments containing areas in which there are two or more special disaster prevention areas to carry out tasks related to disaster prevention activities by using large volume foam cannons and other equipment.

*¹⁶ Special disaster prevention area councils for petroleum industrial complexes: Councils jointly established by the specified business operators involved with specified business establishments containing a single special disaster prevention area for the purpose of carrying out activities like preparing voluntary standards for things like preventing disasters and holding joint disaster prevention drills.

What is more, the law states that these specified business establishments must establish embankments to prevent oil spills, outdoor water supply equipment for firefighting, and emergency notification systems according to their size. As of April 1, 2015, 149 business establishments had installed embankments to prevent oil spills, 512 had installed outdoor water supply equipment for firefighting, and 578 had installed emergency notification systems, respectively.

(2) Equipping High Capacity Foam Systems

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

Before this disaster struck, it had been assumed that the fires that would occur at floating roof outdoor storage tanks would be ring fires.*¹⁷ But out of consideration for the risk of earthquakes occurring in Japan, the assumption that had to be made with the floating roof outdoor storage tanks was that a fire would spread to all of the tanks. In light of this, the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities was revised in June 2004 and the order for the enforcement of this law was revised in November 2005 to strengthen and enhance disaster prevention structures. Furthermore, it was mandated that specified business establishments must equip themselves with high capacity foam systems, which were a new type of firefighting equipment then, by November 2008 in order to respond to fires that fully envelop floating roof outdoor storage tanks.

High capacity foam systems are a type of firefighting equipment that consist of high capacity foam cannons, feed pumps, foam mixers, and hoses. They have the capacity to spray more than 10,000 liters of foam per minute. A single high capacity foam cannon is capable of spraying anywhere from three to ten times as much foam as a conventional three-part set (consisting of a large chemical firetruck, large, elevated water truck, and a foam solution transport vehicle). At present, high capacity foam systems with the capacity to spray anywhere from 10,000 to 40,000 liters per minute are stationed at 12 wide-area joint disaster prevention associations throughout Japan.



**Water spraying drill using a high capacity foam system
(Osaka/Wakayama wide-area joint disaster prevention council)**

(3) Enhancing Disaster Prevention Structures for Self-defense

The fact that petroleum industrial complexes handle large quantities of hazardous materials and the like and have equipment that is complexly interconnected makes firefighting activities difficult, and so such carry the risk that this will result in enormous damage. Therefore, when such disasters occur, disaster prevention organizations for self-defense and joint disaster prevention associations are called upon to carry out precise firefighting activities. In addition, the disaster prevention personnel responsible for said activities require extensive knowledge and skills. The FDMA has denoted firefighting activities for disaster prevention organizations for self-defense and others in documents like Introduction to Disaster Prevention Activities for Disaster Prevention Organizations for Self-defense, Guidelines for Education and Drills for Disaster Prevention Personnel, and Disaster Prevention Activities Using High Capacity Foam Systems, in an effort to enhance disaster prevention structures for self-defense.

4. Layout Regulations for Business Establishments

(1) Layout Regulations

Just regulating each individual facility at the business establishments that form petroleum industrial complexes as discrete units is not enough to prevent the spread of damage at such complexes. Rather, the business establishments as a whole must take measures from the perspective of preventing disasters and mitigating damage from them.

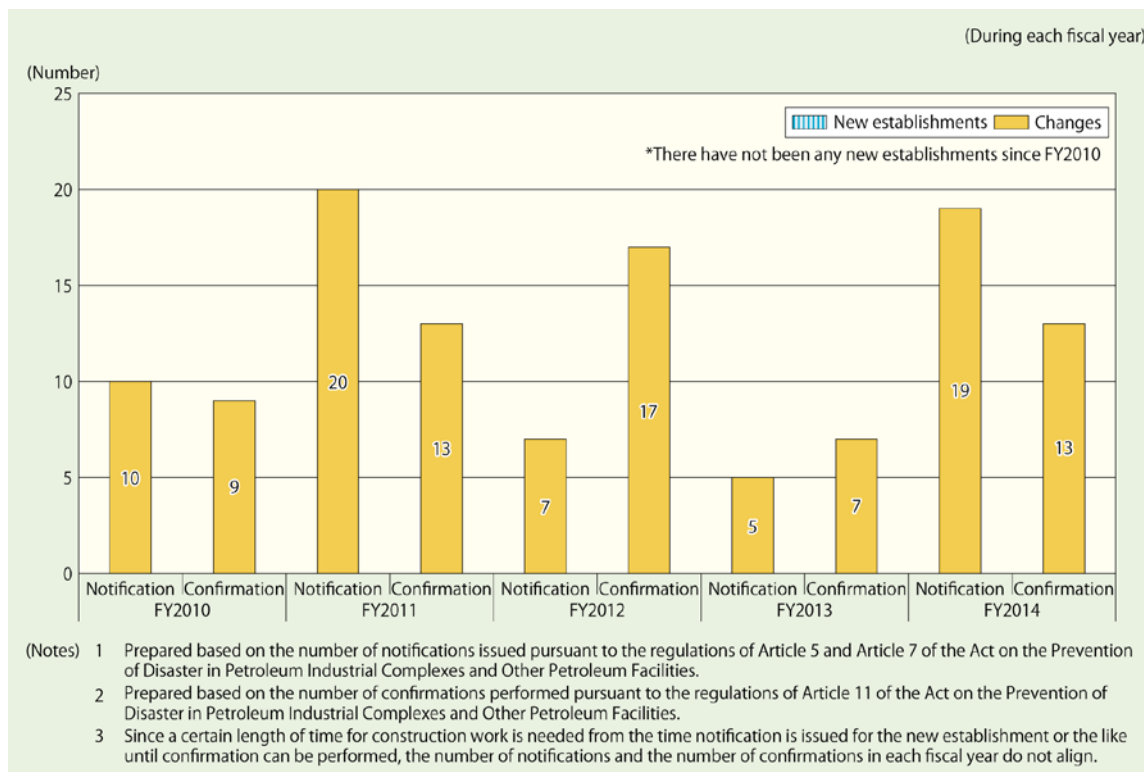
Therefore, the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities mandates that layout business establishments must establish certain standards related to establishing facility areas on their sites and ensuring passageways. It also mandates that in cases like where business establishments are newly established or change their facility area layouts, they must provide notification of the relevant plans for this. It also says that they must undergo confirmation after these have been completed to ensure consistency with the plan (layout regulations). The quantities of oil stored and handled and the quantities of high pressure gas processed at

layout business establishments came to roughly 60% and 98%, respectively, of that for the specified business establishments as a whole (as of April 1, 2015).

(2) Status for New Establishment and Other Notifications

The number of notifications for new establishments or changes in FY2014 from 176 layout business establishments (as of April 1, 2015) came to 19, while the number of confirmations in the same year came to 13 (Fig. 1-3-3).

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



5. Other Disaster Countermeasures

(1) Establishing Disaster Response Structures

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 immediately when any abnormal phenomena occurs.^{*18} 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

Regulations were established in the Act on the Prevention of Disaster in Petroleum Industrial Complexes and Other Petroleum Facilities in relation to matters like installation plans and the cost burden for green buffer zones for disaster prevention established by local governments in the vicinities around special disaster prevention areas in order to prevent damage in said areas from spreading to the surrounding regions.

^{*18} Abnormal phenomena: Fires, spills of oil and other substances, and other such abnormal phenomena at specified business establishments.

Attachment 6 Extent of fire damage by prefecture

(During 2014)

| 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 | 2,083 | 1,165 | 41 | 375 | 6 | | 496 | 1,460 | 333 | 118 | 454 | 555 |
| Aomori | 584 | 291 | 58 | 51 | 3 | | 181 | 519 | 157 | 38 | 158 | 166 |
| Iwate | 482 | 274 | 47 | 50 | 1 | | 110 | 510 | 242 | 37 | 133 | 98 |
| Miyagi | 846 | 449 | 44 | 90 | 1 | | 262 | 708 | 225 | 26 | 171 | 286 |
| Akita | 351 | 199 | 46 | 29 | 1 | | 76 | 371 | 121 | 23 | 130 | 97 |
| Yamagata | 462 | 246 | 32 | 38 | | | 146 | 387 | 126 | 28 | 124 | 109 |
| Fukushima | 678 | 337 | 43 | 94 | | | 204 | 560 | 222 | 35 | 135 | 168 |
| Ibaraki | 1,300 | 646 | 63 | 159 | 3 | | 429 | 1,233 | 453 | 70 | 336 | 374 |
| Tochigi | 856 | 416 | 42 | 84 | | | 314 | 639 | 214 | 54 | 183 | 188 |
| Gunma | 944 | 456 | 37 | 107 | | | 344 | 709 | 197 | 50 | 203 | 259 |
| Saitama | 2,364 | 1,193 | 38 | 235 | | | 898 | 1,788 | 351 | 103 | 517 | 817 |
| Chiba | 2,242 | 1,090 | 93 | 185 | 4 | | 870 | 1,621 | 406 | 81 | 414 | 720 |
| Tokyo | 4,830 | 3,014 | 6 | 334 | 2 | | 1,474 | 3,494 | 110 | 140 | 656 | 2,588 |
| Kanagawa | 2,377 | 1,339 | 20 | 217 | | | 801 | 1,659 | 165 | 75 | 427 | 992 |
| Niigata | 632 | 415 | 24 | 74 | | | 119 | 699 | 207 | 48 | 196 | 248 |
| Tomiya | 219 | 154 | 8 | 27 | | | 30 | 203 | 60 | 26 | 45 | 72 |
| Ishikawa | 257 | 128 | 20 | 37 | | | 72 | 191 | 56 | 10 | 57 | 68 |
| Fukui | 213 | 139 | 3 | 27 | 1 | | 43 | 196 | 39 | 15 | 59 | 83 |
| Yamanashi | 436 | 167 | 14 | 45 | | | 210 | 238 | 60 | 12 | 64 | 102 |
| Nagano | 954 | 445 | 42 | 93 | | | 374 | 650 | 212 | 56 | 201 | 181 |
| Gifu | 869 | 407 | 33 | 77 | 1 | | 351 | 595 | 152 | 44 | 179 | 220 |
| Shizuoka | 1,208 | 589 | 43 | 124 | 1 | | 451 | 841 | 193 | 55 | 221 | 372 |
| Aichi | 2,551 | 1,245 | 44 | 264 | 5 | 1 | 992 | 1,657 | 256 | 103 | 480 | 818 |
| Mie | 797 | 349 | 45 | 96 | 2 | | 305 | 547 | 161 | 36 | 168 | 182 |
| Shiga | 471 | 245 | 15 | 53 | | | 158 | 332 | 84 | 17 | 72 | 159 |
| Kyoto | 537 | 340 | 13 | 69 | 1 | | 114 | 480 | 89 | 25 | 133 | 233 |
| Osaka | 2,478 | 1,680 | 16 | 202 | 3 | | 577 | 2,074 | 162 | 115 | 536 | 1,261 |
| Hyogo | 1,862 | 957 | 50 | 191 | 7 | | 657 | 1,240 | 199 | 74 | 344 | 623 |
| Nara | 525 | 245 | 19 | 49 | | | 212 | 360 | 112 | 21 | 103 | 124 |
| Wakayama | 357 | 209 | 6 | 44 | 2 | | 96 | 314 | 81 | 27 | 85 | 121 |
| Tottori | 234 | 108 | 5 | 21 | 1 | | 99 | 149 | 48 | 18 | 44 | 39 |
| Shimane | 319 | 129 | 38 | 22 | 1 | | 129 | 182 | 55 | 8 | 60 | 59 |
| Okayama | 686 | 377 | 52 | 87 | | | 170 | 592 | 195 | 36 | 178 | 183 |
| Hiroshima | 873 | 488 | 47 | 86 | 5 | | 247 | 734 | 160 | 44 | 216 | 314 |
| Yamaguchi | 500 | 263 | 25 | 58 | 4 | | 150 | 426 | 123 | 30 | 122 | 151 |
| Tokushima | 232 | 144 | 12 | 30 | 1 | | 45 | 219 | 63 | 25 | 61 | 70 |
| Kagawa | 350 | 192 | 10 | 44 | 1 | | 103 | 284 | 83 | 24 | 82 | 95 |
| Ehime | 467 | 281 | 18 | 49 | 6 | | 113 | 410 | 116 | 28 | 113 | 153 |
| Kochi | 319 | 169 | 18 | 23 | 2 | | 107 | 254 | 84 | 22 | 64 | 84 |
| Fukuoka | 1,507 | 878 | 46 | 166 | 2 | | 415 | 1,142 | 198 | 60 | 339 | 545 |
| Saga | 307 | 142 | 17 | 29 | 1 | | 118 | 201 | 56 | 11 | 72 | 62 |
| Nagano | 458 | 245 | 20 | 41 | 8 | | 144 | 361 | 111 | 27 | 96 | 127 |
| Kumamoto | 595 | 339 | 29 | 74 | 2 | | 151 | 537 | 166 | 33 | 156 | 182 |
| Oita | 422 | 219 | 48 | 48 | 4 | | 103 | 367 | 111 | 17 | 118 | 121 |
| Miyazaki | 488 | 237 | 41 | 47 | 2 | | 161 | 357 | 114 | 19 | 111 | 113 |
| Kagoshima | 703 | 373 | 30 | 56 | 2 | | 242 | 626 | 238 | 33 | 129 | 226 |
| Okinawa | 516 | 228 | 33 | 66 | | | 189 | 264 | 45 | 24 | 74 | 121 |
| Prefectural total | 43,741 | 23,641 | 1,494 | 4,467 | 86 | 1 | 14,052 | 33,380 | 7,411 | 2,021 | 9,019 | 14,929 |
| Sapporo City | 545 | 338 | 1 | 97 | | | 109 | 406 | 32 | 24 | 144 | 206 |
| Sendai City | 334 | 213 | 1 | 30 | | | 90 | 278 | 30 | 8 | 55 | 185 |
| Saitama City | 344 | 198 | | 35 | | | 111 | 245 | 28 | 9 | 70 | 138 |
| Chiba City | 300 | 167 | 6 | 23 | | | 104 | 207 | 33 | 9 | 55 | 110 |
| Special wards | 3,553 | 2,309 | | 241 | 2 | | 1,001 | 2,644 | 69 | 79 | 502 | 1,994 |
| Yokohama City | 950 | 535 | | 76 | | | 339 | 638 | 40 | 28 | 173 | 397 |
| Kawasaki City | 381 | 233 | | 38 | | | 110 | 268 | 13 | 8 | 75 | 172 |
| Sagamihara City | 203 | 112 | 8 | 15 | | | 68 | 142 | 20 | 5 | 37 | 80 |
| Niigata City | 160 | 120 | 1 | 24 | | | 15 | 208 | 45 | 16 | 56 | 91 |
| Shizuoka City | 196 | 88 | 3 | 28 | | | 77 | 120 | 18 | 7 | 24 | 71 |
| Hamamatsu City | 236 | 114 | 14 | 21 | | | 87 | 185 | 58 | 10 | 48 | 69 |
| Nagoya City | 661 | 369 | 3 | 83 | | | 206 | 473 | 34 | 21 | 143 | 275 |
| Kyoto City | 236 | 166 | 5 | 29 | | | 36 | 231 | 26 | 16 | 71 | 118 |
| Osaka City | 1,021 | 754 | | 59 | 2 | | 206 | 890 | 43 | 41 | 229 | 577 |
| Sakai City | 239 | 162 | 1 | 29 | 1 | | 46 | 181 | 6 | 5 | 42 | 128 |
| Kobe City | 514 | 273 | 10 | 51 | 2 | | 178 | 307 | 20 | 15 | 76 | 196 |
| Okayama City | 215 | 114 | 3 | 31 | | | 67 | 154 | 30 | 5 | 58 | 61 |
| Hiroshima City | 361 | 219 | 8 | 37 | 1 | | 96 | 309 | 32 | 16 | 94 | 167 |
| Kitakyushu City | 304 | 183 | 1 | 30 | | | 90 | 232 | 33 | 8 | 71 | 120 |
| Fukuoka City | 307 | 213 | 6 | 25 | 2 | | 61 | 263 | 22 | 9 | 79 | 153 |
| | | | | 20 | | | | | | | | |
| Kumamoto City | 181 | 111 | 1 | | 1 | | 48 | 152 | 20 | 11 | 52 | 69 |
| 21 city total | 11,241 | 6,991 | 72 | 1,022 | 11 | | 3,145 | 8,533 | 652 | 350 | 2,154 | 5,377 |

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

Attachment 6 Extent of fire damage by prefecture (continued)

(During 2014)

| Classification Prefecture | Area burned | | | No. of casualties | | No. of households affected | | | | No. of |
|------------------------------|--|--|-------------|-------------------|---------|----------------------------|----------------------|-------------------|----------------------|--------|
| | Building floor area (m ²) | Building surface area (m ²) | Forests (a) | Fatalities | Injured | Total | Totally destroyed | Half destroyed | Minor destruction | |
| Hokkaido | 63,596 | 8,515 | 5,901 | 81 | 240 | 805 | 146 | 68 | 591 | 1,642 |
| Aomori | 27,087 | 2,503 | 5,548 | 26 | 96 | 263 | 70 | 12 | 181 | 659 |
| Iwate | 36,091 | 1,131 | 14,727 | 33 | 85 | 233 | 88 | 15 | 130 | 633 |
| Miyagi | 28,783 | 1,578 | 1,345 | 40 | 120 | 388 | 91 | 15 | 282 | 1,037 |
| Akita | 18,886 | 2,124 | 1,306 | 35 | 61 | 199 | 58 | 9 | 132 | 567 |
| Yamagata | 20,949 | 1,579 | 1,648 | 19 | 78 | 185 | 55 | 16 | 114 | 542 |
| Fukushima | 26,198 | 3,283 | 3,944 | 43 | 107 | 257 | 100 | 17 | 140 | 737 |
| Ibaraki | 43,196 | 6,034 | 2,935 | 46 | 170 | 669 | 177 | 40 | 452 | 1,559 |
| Tochigi | 31,323 | 3,670 | 8,056 | 45 | 104 | 326 | 95 | 38 | 193 | 863 |
| Gunma | 28,309 | 2,671 | 20,504 | 42 | 149 | 396 | 111 | 38 | 247 | 893 |
| Saitama | 39,491 | 6,281 | 872 | 92 | 287 | 1,123 | 248 | 71 | 804 | 2,694 |
| Chiba | 46,261 | 3,254 | 656 | 71 | 370 | 959 | 259 | 45 | 655 | 2,247 |
| Tokyo | 24,036 | 9,132 | 871 | 97 | 794 | 2,597 | 222 | 185 | 2,190 | 4,974 |
| Kanagawa | 22,967 | 3,767 | 225 | 63 | 405 | 1,225 | 162 | 84 | 979 | 2,724 |
| Niigata | 34,156 | 3,204 | 1,414 | 48 | 99 | 425 | 126 | 28 | 271 | 1,202 |
| Tomiyama | 12,721 | 254 | 386 | 22 | 57 | 115 | 46 | 20 | 49 | 315 |
| Ishikawa | 9,765 | 962 | 201 | 19 | 36 | 136 | 50 | 6 | 80 | 326 |
| Fukui | 6,066 | 526 | 30 | 8 | 40 | 101 | 24 | 4 | 73 | 291 |
| Yamanashi | 9,449 | 929 | 394 | 19 | 49 | 117 | 30 | 6 | 81 | 269 |
| Nagano | 29,378 | 2,427 | 1,370 | 33 | 143 | 331 | 103 | 28 | 200 | 835 |
| Gifu | 29,430 | 2,970 | 375 | 22 | 103 | 339 | 68 | 35 | 236 | 873 |
| Shizuoka | 28,641 | 3,006 | 1,129 | 49 | 163 | 489 | 130 | 39 | 320 | 1,224 |
| Aichi | 62,468 | 6,016 | 385 | 63 | 388 | 1,030 | 184 | 79 | 767 | 2,452 |
| Mie | 25,712 | 2,021 | 164 | 29 | 93 | 237 | 67 | 24 | 146 | 542 |
| Shiga | 12,304 | 654 | 329 | 13 | 74 | 137 | 38 | 5 | 94 | 356 |
| Kyoto | 13,457 | 938 | 134 | 30 | 102 | 348 | 52 | 27 | 269 | 734 |
| Osaka | 38,284 | 9,763 | 107 | 84 | 485 | 1,822 | 264 | 127 | 1,431 | 3,767 |
| Hyogo | 35,802 | 3,262 | 8,526 | 70 | 281 | 838 | 154 | 57 | 627 | 1,906 |
| Nara | 14,139 | 1,832 | 715 | 19 | 48 | 190 | 54 | 14 | 122 | 474 |
| Wakayama | 9,066 | 565 | 60 | 19 | 53 | 164 | 45 | 11 | 108 | 385 |
| Tottori | 7,215 | 2,094 | 96 | 8 | 36 | 69 | 20 | 7 | 42 | 185 |
| Shimane | 10,048 | 588 | 601 | 10 | 58 | 99 | 25 | 8 | 66 | 291 |
| Okayama | 25,636 | 1,117 | 549 | 29 | 98 | 306 | 93 | 12 | 201 | 752 |
| Hiroshima | 24,203 | 1,708 | 1,093 | 52 | 130 | 483 | 116 | 29 | 338 | 1,063 |
| Yamaguchi | 13,898 | 728 | 311 | 25 | 73 | 221 | 75 | 16 | 130 | 478 |
| Tokushima | 8,276 | 475 | 37 | 15 | 50 | 128 | 38 | 17 | 73 | 245 |
| Kagawa | 16,268 | 709 | 107 | 13 | 61 | 151 | 51 | 10 | 90 | 347 |
| Ehime | 23,233 | 1,022 | 507 | 35 | 98 | 264 | 81 | 15 | 168 | 577 |
| Kochi | 7,186 | 850 | 161 | 20 | 43 | 140 | 52 | 10 | 78 | 288 |
| Fukuoka | 32,945 | 5,136 | 369 | 46 | 200 | 871 | 195 | 56 | 620 | 1,934 |
| Saga | 10,355 | 700 | 33 | 7 | 46 | 128 | 33 | 5 | 90 | 433 |
| Nagano | 18,007 | 1,323 | 3,859 | 15 | 83 | 231 | 68 | 9 | 154 | 517 |
| Kumamoto | 23,341 | 2,350 | 2,741 | 28 | 79 | 326 | 94 | 19 | 213 | 840 |
| Oita | 14,257 | 1,481 | 7,807 | 20 | 48 | 204 | 55 | 7 | 142 | 436 |
| Miyazaki | 12,887 | 1,343 | 301 | 17 | 60 | 200 | 63 | 7 | 130 | 477 |
| Kagoshima | 26,037 | 1,070 | 1,479 | 47 | 83 | 383 | 159 | 19 | 205 | 795 |
| Okinawa | 6,347 | 1,139 | 1,874 | 11 | 34 | 140 | 34 | 16 | 90 | 346 |
| Prefectural total | 1,108,150 | 118,684 | 106,182 | 1,678 | 6,560 | 20,788 | 4,569 | 1,425 | 14,794 | 47,726 |
| Sapporo City | 6,737 | 2,556 | 0 | 23 | 82 | 281 | 26 | 26 | 229 | 530 |
| Sendai City | 3,631 | 466 | 7 | 17 | 51 | 199 | 20 | 6 | 173 | 440 |
| Saitama City | 2,927 | 573 | 0 | 13 | 40 | 174 | 34 | 11 | 129 | 423 |
| Chiba City | 3,156 | 588 | 11 | 5 | 78 | 147 | 45 | 7 | 95 | 303 |
| Special wards | 15,634 | 6,532 | 0 | 65 | 581 | 2,014 | 164 | 139 | 1,711 | 3,745 |
| Yokohama City | 6,654 | 2,244 | 0 | 20 | 136 | 480 | 41 | 45 | 394 | 1,052 |
| Kawasaki City | 2,767 | 357 | 0 | 9 | 63 | 203 | 32 | 10 | 161 | 443 |
| Sagamihara City | 2,175 | 73 | 56 | 3 | 37 | 111 | 11 | 3 | 97 | 254 |
| Niigata City | 9,989 | 737 | 117 | 12 | 30 | 142 | 34 | 13 | 95 | 392 |
| Shizuoka City | 5,402 | 322 | 6 | 7 | 29 | 87 | 21 | 7 | 59 | 203 |
| Hamamatsu City | 5,905 | 846 | 716 | 11 | 30 | 94 | 28 | 9 | 57 | 240 |
| Nagoya City | 7,027 | 2,396 | 0 | 15 | 119 | 346 | 45 | 33 | 268 | 708 |
| Kyoto City | 3,725 | 458 | 15 | 17 | 53 | 188 | 18 | 20 | 150 | 349 |
| Osaka City | 12,675 | 5,099 | 0 | 36 | 174 | 829 | 73 | 48 | 708 | 1,567 |
| Sakai City | 733 | 506 | 4 | 6 | 33 | 141 | 13 | 9 | 119 | 309 |
| Kobe City | 3,368 | 574 | 56 | 13 | 85 | 244 | 29 | 23 | 192 | 465 |
| Okayama City | 4,219 | 543 | 18 | 3 | 37 | 95 | 15 | 3 | 77 | 227 |
| Hiroshima City | 5,445 | 983 | 678 | 30 | 62 | 250 | 44 | 15 | 191 | 539 |
| Kitakyushu City | 5,415 | 1,350 | 100 | 11 | 39 | 182 | 36 | 12 | 134 | 369 |
| Fukuoka City | 3,127 | 1,586 | 3 | 5 | 57 | 237 | 44 | 18 | 175 | 457 |
| Kumamoto City | 3,323 | 469 | 0 | 9 | 27 | 136 | 25 | 6 | 105 | 332 |
| 21 city total | 114,034 | 29,258 | 1,787 | 330 | 1,843 | 6,580 | 798 | 463 | 5,319 | 13,347 |

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

Attachment 6 Extent of fire damage by prefecture (continued)

(During 2014) (Unit: 1,000 yen)

| Classification Prefecture | Amount of damages | | | | | | | | | |
|------------------------------|-------------------|------------|------------|------------|-----------|-----------|---------|----------|-----------|------------|
| | Total | Buildings | | | Forests | Vehicles | Ships | Aircraft | Other | Explosions |
| | | Subtotal | Buildings | Contents | | | | | | |
| Hokkaido | 3,562,743 | 3,290,356 | 2,437,362 | 852,994 | 48,345 | 162,557 | 2,564 | 0 | 26,668 | 32,253 |
| Aomori | 1,308,212 | 1,179,212 | 843,287 | 335,925 | 89,783 | 27,758 | 1,360 | 0 | 9,826 | 273 |
| Iwate | 2,238,043 | 1,873,208 | 1,415,237 | 457,971 | 235,954 | 54,610 | 41,000 | 0 | 33,168 | 103 |
| Miyagi | 1,590,790 | 1,486,629 | 1,071,437 | 415,192 | 6,646 | 71,080 | 0 | 0 | 24,632 | 1,803 |
| Akita | 804,809 | 763,926 | 529,012 | 234,914 | 5,168 | 13,787 | 725 | 0 | 18,990 | 2,213 |
| Yamagata | 1,030,582 | 997,344 | 738,173 | 259,171 | 3,727 | 20,031 | 0 | 0 | 9,429 | 51 |
| Fukushima | 1,339,936 | 1,252,897 | 858,079 | 394,818 | 12,342 | 55,047 | 0 | 0 | 19,412 | 238 |
| Ibaraki | 4,531,619 | 4,372,677 | 2,359,609 | 2,013,068 | 10,468 | 69,984 | 20,665 | 0 | 47,366 | 10,459 |
| Tochigi | 2,618,240 | 2,286,942 | 1,700,751 | 586,191 | 217,698 | 42,147 | 0 | 0 | 24,497 | 46,956 |
| Gunma | 2,338,649 | 1,614,247 | 1,215,863 | 398,384 | 571,555 | 133,792 | 0 | 0 | 15,852 | 3,203 |
| Saitama | 3,550,566 | 3,375,522 | 2,380,494 | 995,028 | 16,667 | 101,667 | 0 | 0 | 55,287 | 1,423 |
| Chiba | 4,165,588 | 3,834,747 | 2,762,707 | 1,072,040 | 464 | 111,407 | 55,733 | 0 | 150,917 | 12,320 |
| Tokyo | 4,981,293 | 4,696,208 | 2,872,631 | 1,823,577 | 64,880 | 124,704 | 25 | 0 | 82,177 | 13,299 |
| Kanagawa | 2,668,919 | 2,471,324 | 1,845,192 | 626,132 | 0 | 113,939 | 0 | 0 | 78,516 | 5,140 |
| Niigata | 1,705,909 | 1,641,724 | 1,257,456 | 384,268 | 1,298 | 48,622 | 46 | 0 | 14,137 | 82 |
| Tomiyama | 845,620 | 644,556 | 518,496 | 126,060 | 1,182 | 10,618 | 0 | 0 | 19,495 | 169,769 |
| Ishikawa | 626,043 | 608,454 | 477,244 | 131,210 | 4,874 | 12,069 | 0 | 0 | 646 | 0 |
| Fukui | 362,832 | 343,458 | 294,655 | 48,803 | 54 | 13,721 | 120 | 0 | 2,609 | 2,870 |
| Yamanashi | 703,860 | 663,904 | 361,131 | 302,773 | 555 | 21,658 | 0 | 0 | 16,549 | 1,194 |
| Nagano | 1,676,322 | 1,606,734 | 1,281,313 | 325,421 | 1,079 | 48,388 | 0 | 0 | 19,869 | 252 |
| Gifu | 2,511,713 | 2,401,464 | 1,550,537 | 850,927 | 636 | 72,389 | 83 | 0 | 34,807 | 2,334 |
| Shizuoka | 3,471,341 | 2,293,289 | 1,537,096 | 756,193 | 8,137 | 208,137 | 35,702 | 0 | 913,402 | 12,674 |
| Aichi | 6,790,488 | 6,273,727 | 3,742,952 | 2,530,775 | 2,645 | 135,253 | 12,800 | 0 | 339,358 | 26,705 |
| Mie | 1,799,489 | 1,705,394 | 1,195,781 | 509,613 | 1,216 | 63,314 | 1,949 | 0 | 21,732 | 5,884 |
| Shiga | 1,181,631 | 1,149,158 | 551,106 | 598,052 | 427 | 17,374 | 0 | 0 | 14,654 | 18 |
| Kyoto | 938,134 | 866,553 | 621,329 | 245,224 | 1 | 29,555 | 53 | 0 | 41,545 | 427 |
| Osaka | 3,462,202 | 3,314,179 | 2,241,692 | 1,072,487 | 8 | 84,785 | 1,065 | 0 | 58,871 | 3,294 |
| Hyogo | 3,312,078 | 2,888,201 | 2,059,978 | 828,223 | 1,934 | 92,290 | 11,603 | 0 | 310,458 | 7,592 |
| Nara | 1,089,000 | 1,014,281 | 739,226 | 275,055 | 1,630 | 28,729 | 0 | 0 | 16,927 | 27,433 |
| Wakayama | 611,044 | 586,985 | 472,185 | 114,800 | 909 | 19,879 | 80 | 0 | 3,097 | 94 |
| Tottori | 354,412 | 345,667 | 253,490 | 92,177 | 96 | 5,046 | 1,876 | 0 | 1,727 | 0 |
| Shimane | 896,101 | 862,992 | 562,261 | 300,731 | 450 | 23,790 | 610 | 0 | 5,097 | 3,162 |
| Okayama | 1,428,514 | 1,245,722 | 852,780 | 392,942 | 678 | 148,821 | 0 | 0 | 27,126 | 6,167 |
| Hiroshima | 1,505,981 | 1,403,423 | 849,336 | 554,087 | 230 | 42,459 | 32,916 | 0 | 24,366 | 2,587 |
| Yamaguchi | 1,074,211 | 941,928 | 787,338 | 154,590 | 315 | 55,216 | 1,466 | 0 | 11,130 | 64,156 |
| Tokushima | 738,704 | 724,615 | 554,119 | 170,496 | 0 | 9,950 | 1,000 | 0 | 3,139 | 0 |
| Kagawa | 911,977 | 859,577 | 530,786 | 328,791 | 0 | 19,949 | 410 | 0 | 32,041 | 0 |
| Ehime | 1,544,923 | 1,478,876 | 729,454 | 749,422 | 2,306 | 34,129 | 4,729 | 0 | 21,731 | 3,152 |
| Kochi | 431,046 | 411,184 | 326,245 | 84,939 | 1,672 | 8,339 | 900 | 0 | 8,951 | 0 |
| Fukuoka | 2,715,673 | 2,399,521 | 1,450,454 | 949,067 | 409 | 111,485 | 3,640 | 0 | 91,719 | 108,899 |
| Saga | 776,383 | 725,909 | 489,573 | 236,336 | 122 | 14,316 | 0 | 0 | 11,673 | 24,363 |
| Nagano | 830,555 | 812,204 | 649,390 | 162,814 | 0 | 6,346 | 727 | 0 | 11,278 | 0 |
| Kumamoto | 1,184,697 | 1,031,072 | 750,159 | 280,913 | 44,818 | 36,630 | 150 | 0 | 71,867 | 160 |
| Oita | 640,073 | 597,789 | 452,496 | 145,293 | 5,467 | 28,991 | 1,617 | 0 | 6,209 | 0 |
| Miyazaki | 671,838 | 636,129 | 456,196 | 179,933 | 673 | 23,396 | 200 | 0 | 7,700 | 3,740 |
| Kagoshima | 1,419,003 | 1,328,364 | 854,102 | 474,262 | 1,497 | 28,744 | 5,127 | 0 | 55,270 | 1 |
| Okinawa | 377,049 | 353,703 | 311,245 | 42,458 | 0 | 18,230 | 0 | 0 | 4,264 | 852 |
| Prefectural total | 85,318,835 | 77,655,975 | 52,791,435 | 24,864,540 | 1,369,015 | 2,625,128 | 240,941 | 0 | 2,820,181 | 607,595 |
| Sapporo City | 640,465 | 628,202 | 444,913 | 183,289 | 0 | 9,609 | 0 | 0 | 2,465 | 189 |
| Sendai City | 306,386 | 289,049 | 139,819 | 149,230 | 0 | 15,807 | 0 | 0 | 1,529 | 1 |
| Saitama City | 263,248 | 252,021 | 199,956 | 52,065 | 0 | 6,617 | 0 | 0 | 3,460 | 1,150 |
| Chiba City | 381,765 | 285,924 | 249,949 | 35,975 | 0 | 28,660 | 0 | 0 | 59,065 | 8,116 |
| Special wards | 3,363,399 | 3,210,194 | 1,913,054 | 1,297,140 | 0 | 99,390 | 25 | 0 | 40,582 | 13,208 |
| Yokohama City | 934,445 | 824,294 | 640,400 | 183,894 | 0 | 69,946 | 0 | 0 | 35,329 | 4,876 |
| Kawasaki City | 241,785 | 232,963 | 165,506 | 67,457 | 0 | 5,790 | 0 | 0 | 3,032 | 0 |
| Sagamihara City | 134,952 | 129,991 | 87,541 | 42,450 | 0 | 2,993 | 0 | 0 | 1,931 | 37 |
| Niigata City | 491,870 | 463,303 | 377,083 | 86,220 | 0 | 23,667 | 0 | 0 | 4,900 | 0 |
| Shizuoka City | 483,966 | 463,411 | 262,587 | 200,824 | 0 | 20,146 | 0 | 0 | 409 | 0 |
| Hamamatsu City | 445,804 | 390,862 | 309,654 | 81,208 | 6,878 | 43,449 | 0 | 0 | 4,615 | 0 |
| Nagoya City | 617,814 | 496,475 | 351,084 | 145,391 | 0 | 25,215 | 0 | 0 | 96,124 | 0 |
| Kyoto City | 233,135 | 223,963 | 181,175 | 42,788 | 1 | 7,960 | 0 | 0 | 1,134 | 77 |
| Osaka City | 906,963 | 868,756 | 621,955 | 246,801 | 0 | 16,321 | 0 | 0 | 21,096 | 790 |
| Sakai City | 103,943 | 80,391 | 57,476 | 22,915 | 5 | 14,756 | 1,050 | 0 | 7,340 | 401 |
| Kobe City | 456,189 | 397,396 | 303,822 | 93,574 | 536 | 43,642 | 9,480 | 0 | 5,135 | 0 |
| Okayama City | 241,280 | 213,613 | 131,026 | 82,587 | 0 | 16,942 | 0 | 0 | 10,725 | 0 |
| Hiroshima City | 619,375 | 597,885 | 232,672 | 365,213 | 0 | 9,136 | 0 | 0 | 12,342 | 12 |
| Kitakyushu City | 307,951 | 287,115 | 207,988 | 79,127 | 0 | 18,908 | 0 | 0 | 1,764 | 164 |
| Fukuoka City | 346,968 | 325,185 | 239,227 | 85,958 | 0 | 14,148 | 3,640 | 0 | 3,995 | 0 |
| Kumamoto City | 132,671 | 116,013 | 95,647 | 20,366 | 0 | 13,498 | 150 | 0 | 2,930 | 80 |
| 21 city total | 11,654,374 | 10,777,006 | 7,212,534 | 3,564,472 | 7,420 | 506,600 | 14,345 | 0 | 319,902 | 29,101 |

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

Attachment 34 Trends in the number of facilities for hazardous materials

(As of March 31 of each year)

| Types of manufacturing facilities, etc. Year | Net total | Manufac turing facilities | Storage facilities | | | | | | | | | Handling facilities | | | | | |
|---|-----------|---------------------------------|--------------------|---------------------------|---------------------------------|--------------------------------|---------------------------------------|--------------------------------|----------------------------------|----------------------------|----------|---------------------|-----------------------------------|------------------------------------|------------------------------|-----------------|--|
| | | | Subtotal | Indoor storage facilities | Outdoor tank storage facilities | Indoor tank storage facilities | Undergr ound storage facilities | Simple tank storage facilities | Transfer tank storage facilities | Outdoor storage facilities | Subtotal | Fuel supply depots | Class I sales handling facilities | Class II sales handling facilities | Transfer handling facilities | General outlets | |
| 1966 | 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 | |

- (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 Fire Defense Headquarters of Rikuzentakata City of Iwate Prefecture and the Fire Defense Headquarters of the Inter-municipal Association of the Futaba Region in Fukushima Prefecture were calculated based on the numbers at the time of last fiscal year's survey (as of March 31, 2010).