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Center of Fire Statistics

World Fire Statistics

INTERNATIONALE VEREINIGUNG DES FEUERWEHR- UND RETTUNGSWESEN
L'ASSOCIATION INTERNATIONALE DES SERVICES D'INCENDIE ET DE SECOURS

International Association of Fire and Rescue Services
Asociación Internacional de Servicios de Fuego y Rescate
Internationale Vereinigung des Feuerwehr- und Rettungswesens

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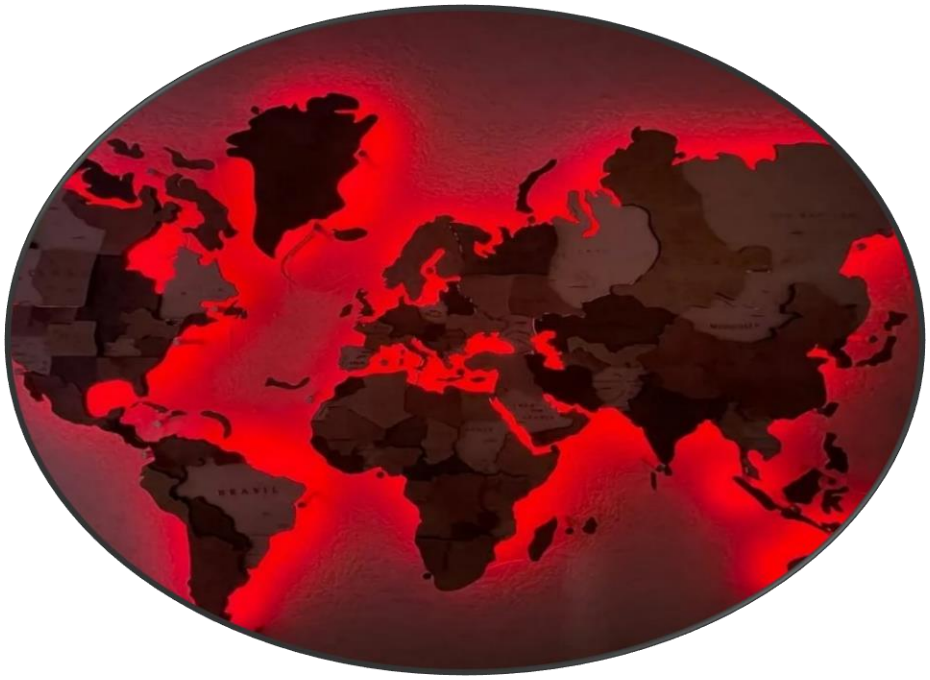
World Fire Statistics
Estadísticas Mundiales de Bomberos
Die Feuerwehrstatistik der Welt

Report / Informe/ Bericht № 28



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All statistical data presented in this report were obtained from responses to the requests of the Fire Statistics Center of CTIF (CFS CTIF) and published previously in official statistical information of various countries.
The data of past years has, in some cases, been updated with revised information.
When comparing statistics of countries and cities, it is necessary to keep in mind that every country has its own rules for reporting fires, fire deaths, and fire injuries. These rules change from time to time.
The authors are always grateful for suggestions to improve the Center for Fire Statistics' work.

Todos los datos estadísticos presentados en el informe se han obtenido a partir de las respuestas a las solicitudes del Centro de Estadísticas de Incendios del CTIF (CFS CTIF) y se han publicado anteriormente en la información estadística oficial de varios países.
Los datos de años anteriores se han actualizado, en algunos casos, con información revisada.
Al comparar las estadísticas de países y ciudades, es necesario tener en cuenta que cada país tiene sus propias normas para informar sobre los incendios, las muertes por incendio y los heridos por incendio. Estas normas cambian de vez en cuando.
Los autores siempre agradecen las sugerencias para mejorar el trabajo del Centro de Estadísticas de Incendios.

Alle im Bericht vorgestellten statistischen Daten wurden den Fragebögen des Centre for Fire Statistics des CTIF (CFS CTIF) sowie den offiziell veröffentlichten statistischen Berichten verschiedener Staaten entnommen. Die Daten vergangener Jahre wurden im Zuge neuerer Informationen aktualisiert.
Beim Vergleich der statistischen Daten einzelner Staaten und verschiedener Jahre muss beachtet werden, dass in einzelnen Ländern spezifische Regeln für die Erfassung von Bränden, der Brandtoten- und Verletztenzahlen gelten, die sich ggf. auch über die Jahre hinweg verändert haben.
Die Autoren sind wie immer für Hinweise, Kritiken und Vorschläge zur Verbesserung der internationalen Feuerwehrstatistik dankbar.

We would like to express our special thanks to Lucía Vilariño Fiore (Directora Ejecutiva Organización de Bomberos Americanos, OBA) and Tomás Erber Rudolph (Chilean-German Fire Brigade Association) for their friendly support in the preparation of Report No. 28.

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Introduction

The CFS CTIF hereby publishes Report No. 28 containing information from countries and cities around the world on fire statistics for 2021 as well as type of fire service calls, number of fires, fire victims and firefighter fatalities for 2017 – 2021.

Statistics for 2021 contain data from 38 countries, representing 1/6 of the total world population, and 26 cities. The study includes the type of fire service calls, the number of fires, fire victims, and firefighters' fatalities for 2017-2021, respectively, in 53, 70, 65, and 20 countries. The type of fire injuries for 2017-2021 were researched in 49 countries of the World. In addition, data was collected on fire services in 62 countries around the World. That is how the formation of world fire statistics continues.

In this report, **Table 1.1** contains generalized data on the situation with fires in the World from 1993 to 2021. The data for all years are constantly updated and supplemented as new sources of information become available. This indicates that more and more countries of the World are involved in the regular analysis of national fire statistics and their publication. It is therefore expected that the data for 2021 will also be replenished in the future.

Tables 1.2-1.6 show fire statistics for the year 2021. **Tables 1.7-1.12** show the type of fire service calls, the number of fires, fire victims, and firefighters' deaths for 2017-2021.

Table 1.13 contains information on fire services in 62 countries from 2010 to 2021.

Table 1.14 presents the ratio of women to men in the fire service. **Table 1.15** provides information on the number of junior firefighters.

Tables 2.1-2.5 present fire statistics in 26 cities around the World for the year 2021.

Tables 2.6-2.8 show the types of fires and fire victims in 60 cities of the World from 2017 to 2021. Finally, **Table 2.9** contains information on fire services in 73 cities around the World.

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Introducción

El Centro de Estadísticas de Incendios de la Asociación Internacional de Servicios de Fuego y Rescate (CFS CTIF) pone a disposición de los especialistas el siguiente informe, el Nº 28, que contiene las estadísticas de incendios de algunos países y ciudades del mundo durante el año 2021, así como el tipo de llamadas al servicio de bomberos, el número de incendios, sus víctimas y los fallecimientos de bomberos en estos países y ciudades del mundo para 2017-2021.

Las estadísticas del 2021 contienen datos sobre 38 países, que representan 1/6 de todos los países del mundo y 1/3 del total de la población mundial, y 26 ciudades del mundo. El tipo de llamadas, los incendios, sus víctimas y de los fallecimientos de los bomberos para 2017-2021 se han estudiado respectivamente en 53, 70, 65 y 20 países. El tipo de lesiones por incendio para 2017-2021, por su parte, fue investigada en 49 países del mundo. Además, se recogieron datos sobre los servicios de bomberos en 62 países. De este modo, continúa la formación de las estadísticas mundiales sobre incendios.

En este informe, el **Cuadro 1.1** contiene datos generales sobre la situación de los incendios en el mundo para el periodo 1993-2021, y los datos de todos los años se actualizan y complementan constantemente (a medida que se dispone de nuevas fuentes de información). Esto significa que cada vez más países del mundo participan en el análisis regular de las estadísticas nacionales sobre incendios y su publicación en los medios de comunicación. Confiamos en que los datos correspondientes a 2021 se repongan en el futuro.

Los **Cuadros 1.2-1.6** muestran las estadísticas de incendios para 2021 en varios países del mundo. Los **Cuadros 1.7-1.12** muestran el tipo de llamadas al servicio de bomberos, el número de incendios, sus víctimas y el fallecimiento de bomberos en los países del mundo para 2017-2021. El **Cuadro 1.13** contiene información sobre los servicios de bomberos en 62 países en 2010-2021. El **Cuadro 1.14** presenta la proporción de mujeres y hombres en el servicio de bomberos en algunos países del Mundo. El **Cuadro 1.15** ofrece información sobre el número de bomberos jóvenes en algunos países.

Los **Cuadros 2.1-2.5** muestran las estadísticas de incendios para el año 2021 en 26 ciudades de todo el mundo. Los **Cuadros 2.06-2.8** muestran el tipo de incendios y sus víctimas en las ciudades del mundo para 2017-2021. El **Cuadro 2.9** contiene información sobre los servicios de bomberos en 73 ciudades del mundo.

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Einführung

Das CFS CTIF stellt der Fachwelt den aktuellen Bericht № 28 vor, der die Feuerwehrstatistik vieler Staaten und Städte für das Jahr 2021 enthält. Weiter werden Informationen über die Entwicklung der Einsätze, der Brandzahlen und der Brandopferzahlen in der Welt für 2017-2021 vorgestellt.

Die Statistik für das Jahr 2021 enthält Daten aus 38 Staaten, d.h. 1/6 aller Staaten der Erde sowie 26 Städte der Erde. Die Zahlen zur Entwicklung der Feuerwehreinsätze, der Brände, deren Opfer und die Anzahl verunglückter Feuerwehrleute für den Zeitraum 2017-2021 liegen entsprechend aus 53, 70, 65 bzw. 20 Staaten vor. Informationen zu Verletzten bei Bränden stehen aus 49 Staaten zur Verfügung. Weiter wurden die statistischen Angaben zu den Feuerwehren aus 62 Staaten in die Statistik aufgenommen. So setzt sich der Prozess der Formierung der Weltfeuerwehrstatistik fort.

Im vorliegenden Bericht stellt die **Tabelle 1.1** die zusammengefassten Daten zur Brandsituation in der Welt für den Zeitraum 1993-2021 vor. Die Daten wurden, je nach Vorliegen neuer Statistiken, ständig ergänzt und aktualisiert. Das bedeutet, dass sich immer mehr Staaten mit der regulären nationalen Brandstatistik und ihrer Veröffentlichung in den Medien beschäftigen. Wir sind sicher, die Daten des Jahres 2021 zukünftig weiter vervollständigen zu können.

In den **Tabellen 1.2** bis **1.6** wird die Brandstatistik einiger Staaten für 2021 analysiert.

In den **Tabellen 1.7** bis **1.12** wird die Dynamik der Feuerwehreinsätze, der Brandzahlen und der Opferzahlen in den Staaten für den Zeitraum 2017-2021 vorgestellt.

Tabelle 1.13 illustriert die Situation der Feuerwehren in 62 Staaten der Erde im Zeitraum 2010-2021. **Tabelle 1.14** zeigt eine Übersicht zum Mengenverhältnis zwischen weiblichen und männlichen Feuerwehrangehörigen in ausgewählten Staaten. **Tabelle 1.15** zeigt eine Übersicht zur Anzahl der Jugendfeuerwehren in ausgewählten Staaten.

In den **Tabellen 2.1** bis **2.5** wird die Feuerwehrstatistik für 2021 aus 26 Großstädten vorgestellt. Die Tabellen **2.6-2.8** beinhalten die Entwicklung der Brandzahlen und deren Opfer in Großstädten für 2017-2021. Die **Tabelle 2.9** zeigt Informationen über die Feuerwehren in 73 Großstädten der Welt.

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Brief comments

1. Countries of the World

Table 1.1 shows that the CFS CTIF, established in 1995, annually summarized statistical data from 27-57 countries of the World, in which 0.9-3.8 billion people lived. In 1993, 40% of the World's population lived in the 39 countries surveyed. In 2008, more than 50% of the World's population lived in the 31 countries surveyed.

In the surveyed countries, 2.5-4.5 million fires were recorded annually, in which 17-62 thousand people died. In just 28 years, more than 1.1 million people have become victims of 104 million fires in these countries.

Table 1.2 summarizes the volume of work and fire situation in 38 countries in 2021.

Table 1.2 shows that in 2021, in 38 countries surveyed, in which 1.2 billion people lived (1/6 of the World's population), 60 million calls of fire and rescue services were registered, of which 3.1 million (5.2% of all calls) were related to fires. 16.9 thousand people died during these fires, and 62.1 thousand people were injured. That means that for every 1,000 people in these countries, there was an average of 47 calls per year, of which 2.5 were fires. At the same time, for every 100 thousand people, on average, 1.3 people died, and 4.9 people were injured in fires during the year, and for every 100 fires, an average of 0.5 people died, and 2.0 people were injured.

Figure 1.1 shows that the largest number of calls per 1,000 people (average figures for the period 2017-2021 (**Table 1.7**) occur in the Finland, Luxemburg, Czech Republic. Conversely, most fires per 1,000 people (averages for the period 2017-2021, **Table 1.8**) - are in Cyprus, Barbados, and Uruguay (**Figure 1.2**).

Figure 1.3 shows that most fire victims per 100 thousand people (average values for 2017-2021, **Table 1.9**) occur in Russia, Belarus, and Ukraine. **Figure 1.4** shows the distribution of fire victims per 100 fires (average values for 2017-2021, **Table 1.9**).

Table 1.3 and **Figure 1.5** show the nature of operational work of fire services in 23 countries. More than 60 million fire service calls were analyzed in 2021.

The share of fires in the total number of fire service calls is 3.8%, calls to accidents (for technical assistance and rescue) 1.9, and calls for medical aid are 63.4% (mainly in Japan, Singapore, France, Ireland, and the USA), false alarms account for 7.2% and others 23.7%.

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Table 1.4 and **Figure 1.6** show the distribution of fires by place of origin in 24 countries. Approximately 31.3% of all fires occur in buildings (23.2% in residential buildings and 8.1% in all other facilities), about 12.7% in transport means, 1.2% in forests, 20% fires of grass and bushes, 15.7% in trash and landfills and 19.1% other fires. When analyzing the data in this table, it should be borne in mind that different countries have their own rules for recording fires for the categories presented.

From the final line of **Table 1.4,** it follows that 44% of all reported fires occurred in buildings (including chimney fires) and transport.

In **Tables 1.5-1.6** and **Figures 1.7-1.8**, the distributions of those killed and injured in fires by place of origin are presented. These data show that 84.6% of all deaths (from 0% in Croatia to 100% in Liechtenstein) and 73.7% of all injuries (from 2.5% in Croatia to 82.5% in Estonia) occur in residential buildings.

Tables 1.7-1.10 contain information on the type and number of fire service calls, fires, and fire victims for 2017-2021 in 53-70 countries. In these countries, there are an average of 58 million fire service calls and 4 million fires, in which about 35 thousand people die and approximately 63 thousand people are injured.

Tables 1.11-1.12 present data on the deaths and injuries of firefighters in 20 countries. In 2021, 150 firefighters died, and 64.673 were injured in these countries.

Table 1.13 and **Figures 1.9-1.11** show the staff numbers of fire services in 62 countries at the beginning of the 21st century. From **Table 1.13,** it follows that 3.2 billion inhabitants of these countries are protected from fires by 15.3 million firefighters, of which 13.8 million are volunteers.

Table 1.14 presents data on the distribution of firefighters by gender in 42 countries.

Table 1.15 presents data on the number of young firefighters in 19 countries.

Figures 1.12-1.13 show the distribution of people who died from “fire, heat and hot substances” in 2019, according to the World Health Organization (WHO).

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2. Cities of the World

It follows from **Table 2.1** that, in the 26 cities surveyed, for every 1,000 people in 2021, there were 45.5 fire service calls, of which 1.5 were fires. It also shows that, an average of 1.1 people died, and 4.4 people were injured for every 100 thousand people in fires in all the cities listed in the table in 2021.

Figures 2.1-2.4 show the distribution of cities by the number of fire service calls and fires per 1,000 people per year (average figures for the period 2017-2021, **Tables 2.6-2.7**) and the number of deaths in fires per 100 thousand people, and per 100 fires per year (average figures for the period 2017-2021, **Table 2.8**).

Table 2.2 and **Figure 2.5** provide data on the nature of fire services work in 16 cities of the World.

The share of fires of the total number of fire service calls for 16 cities averaged 4.6%. Accident visits and technical assistance accounted for 6.3% of all calls; trips to provide medical care accounted for 61.9% of all fire service calls. False exits account for 1.2% of all calls and 26% for other exits.

In **Table 2.3** and **Figure 2.6,** objects and places of occurrence of fires in 20 cities of the World are considered. Summarizing these data, shows that 30% of all fires occurred in buildings (including chimneys) (20.5% in residential buildings and 9.5% in all other buildings), 7.7% in transport (i.e. e. more than 35% of all fires originated either in buildings or in vehicles); forest fires, garbage, landfills, grass, and bushes accounted for 24% of all fires.

Tables 2.4 and **2.5** and **Figures 2.7** and **2.8** show the distribution of people killed and injured in fires by occupancy in 15 cities around the World.

They show that 79.1% of the fatalities and 78% of the injuries occurred in residential buildings. 87,8% of the dead and 94.8% of the injuries happened in all buildings.

Table 2.6 shows the type of calls for 2017-2021 in 53 cities around the World. These cities have 232 million inhabitants and annually register an average of 5.6 million fire service calls per year (i.e., 24.4 calls per 1,000 people).

Table 2.7 shows the number of fires for 2017-2021 in 60 cities around the World. They have 260 million inhabitants, and an average of 238 thousand fires per year are recorded annually (i.e., 0.9 fires per 1,000 people).

Table 2.8 shows the number of fire fatalities from 2017 to 2021 in 48 cities around the World. Two hundred twenty-one million people inhabit them, and annually an average of 1,278 people die in fires, i.e., for every 100 thousand people, on average, there were 0.6 fire fatalities.

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Table 2.9 and **Figures 2.9-2.12** present data on the number of firefighters and their technical equipment at the beginning of the 21st century for 73 cities. There are more than 312 million people in these cities. They were served by approximately 233,000 firefighters, with an average of 1 professional firefighter per 1,647 people (**Figure 2.9**) and 17 sq. km per fire station (**Figure 2.12**). These data should be of some interest to specialists.

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Breves comentarios

1. Países del mundo

El **Cuadro 1.1** muestra que el CFS CTIF, creado en 1995, resume anualmente los datos estadísticos de entre 27 y 57 países, en los que viven entre 900 y 3800 millones de personas. En 1993, el 40% de la población mundial vivía en los 39 países estudiados. En 2008, más del 50% de la población mundial vivía en 31 países.

En los países encuestados se registran anualmente entre 2,5 y 4,5 millones de incendios, en los que fallecen entre 17 y 62 mil personas. En sólo 28 años, más de 1,1 millones de personas han sido víctimas de 104 millones de incendios en estos países.

El **Cuadro 1.2** resume el volumen de trabajo y la situación de los incendios en 38 países en 2021.

El **Cuadro 1.2** muestra que, en 2021, en los 38 países estudiados, en los que viven 1.200 millones de personas (1/6 de la población mundial), se registraron 60 millones de salidas de los servicios de bomberos y salvamento, de las cuales 3,1 millones (el 5,2% de todas las llamadas) estaban relacionadas con incendios. En estos incendios fallecieron 16,9 mil personas y 62,1 mil resultaron heridas. Esto significa que, por cada 1.000 personas en estos países, hubo un promedio de 47 salidas de unidades al año, de las cuales 2,5 fueron incendios. Al mismo tiempo, por cada 100 mil personas, fallecieron en promedio 1,3 personas y 4,9 resultaron heridas en incendios durante el año, y por cada 100 incendios, fallecieron en promedio 0,5 personas y 2,0 resultaron heridas.

El **Gráfico 1.1** muestra que el mayor número de servicios por cada 1.000 personas (cifras medias para el periodo 2017-2021 (**Cuadro 1.7**) se produce en la Finlandia, Luxemburgo, República Checa, Corea y Estados Unidos (en estos países, más de la mitad de las llamadas de los servicios de bomberos están relacionadas con la prestación de asistencia médica). El mayor número de incendios por cada 1.000 personas (promedio para el periodo 2016-2020, **Cuadro 1.8**) - en Chipre, Barbados y Mauricio (**Gráfico1.2**).

El **Gráfico 1.3** muestra que la mayoría de las víctimas de incendios por cada 100 mil personas (valores promedio para el periodo 2016-2020, **Cuadro 1.9**) se producen en Rusia, Bielorrusia y Ucrania. El **Gráfico 1.4** muestra la distribución de las víctimas de incendios por cada 100 incendios (valores promedio para el periodo 2016-2020, **Cuadro 1.9**).

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El **Cuadro 1.3** y el **Gráfico 1.5** muestran la naturaleza del trabajo operativo de los servicios de bomberos en 33 países del mundo. Al mismo tiempo, se analizaron más de 68 millones de llamadas de los servicios de bomberos en 2020.

El porcentaje de incendios en el total de los servicios de bomberos es del 3,6%, las llamadas a accidentes (para asistencia técnica) del 1,6%, las llamadas de asistencia médica son el 55,7% (principalmente bomberos de Japón, Singapur, Francia, Irlanda y EE.UU.), las llamadas falsas representan el 5,3% y otras el 33,9%.

El **Cuadro 1.4 y el Gráfico 1.6** muestran la distribución de los incendios por lugar de origen en 34 países del mundo. Aproximadamente el 33,6% de todos los incendios se producen en edificios (el 24,2% en edificios residenciales y el 8,0% en todos los demás edificios), alrededor del 11,5% - en medios de transporte, el 2,5% - en bosques, el 21,9% - incendios de hierba y arbustos, el 15,8%, incendios de basura, vertederos y el 16,0% - otros incendios. Al analizar los datos de esta tabla, hay que tener en cuenta que los distintos países tienen sus propias normas de registro de incendios para las categorías presentadas.

De la última línea del **Cuadro 1.4** se deduce, en particular, que en los edificios (incluye chimeneas) y en el transporte se produce, en total, el 43,7% de todos los incendios registrados.

En los **Cuadros 1.5-1.6** y en los Gráficos **1.7-1.8** se presenta la distribución de los fallecidos y heridos en incendios. Estos datos muestran que el 83% de todos los fallecidos (desde el 4% en Eslovaquia hasta el 100% en Liechtenstein) y el 61% de todos los heridos (desde el 0,8% en Croacia hasta el 81% en Ucrania) se producen en edificios residenciales.

Los **Cuadros 1.7-1.10** contienen información sobre el número de llamadas de incendio al servicio de bomberos, sus víctimas para 2016-2020 en 51-70 países del mundo. En estos países, hay una media de 55 millones de llamadas al servicio de bomberos, 4 millones de incendios, en los que fallecen unas 31 mil personas, y aproximadamente 62 mil resultan heridas.

Los **Cuadros 1.11-1.12** presentan datos sobre el fallecimiento y lesiones de bomberos en 33 países del mundo. En 2020, fallecieron 89 bomberos y 68.655 resultaron heridos en estos países.

En el **Cuadro 1.13** y los **Gráficos 1.9-1.11** se muestran la cantidad de bomberos en 63 países del mundo a principios del siglo XXI. Del **Cuadro 1.13** se deduce que 3.200 millones de habitantes de estos países están protegidos de los incendios por 15,7 millones de bomberos, de los cuales 14 millones son voluntarios.

El **Cuadro 1.14** presenta datos sobre la distribución de los bomberos por género en 41 países del mundo.

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El **Cuadro 1.15** presenta datos sobre el número de bomberos jóvenes en 16 países del mundo.

Los **Gráficos 1.12-1.13** muestran la distribución de las personas fallecidas por "fuego, calor y sustancias calientes" en 2019 según la Organización Mundial de la Salud (OMS).

2. Ciudades del mundo

Del **Cuadro 1.2** se desprende que, en primer lugar, en las 40 ciudades encuestadas, en promedio, por cada 1.000 personas en 2020, se produjeron 49 llamadas al servicio de bomberos, de las cuales 1,1 fueron incendios; en segundo lugar, por cada 100 mil personas afectadas por incendios en 2020, en todas las ciudades enumeradas en la tabla, un promedio de 0,5 personas falleció y 3,3 personas resultaron heridas.

Los **Gráficos 2.1-2.4** muestran la distribución de las ciudades según el número de llamadas al servicio de bomberos y de incendios por cada 1.000 personas al año (cifras promedio para el periodo 2016-2020, tablas 2.6-2.7) y el número de fallecidos en incendios por cada 100 mil personas, y por cada 100 incendios al año (cifras promedio para el periodo 2016-2020, tabla 2.8).

El **Cuadro 2.2** y el **Gráfico 2.5** proporcionan datos sobre la naturaleza del trabajo de los servicios de bomberos en 25 ciudades del mundo.

La proporción de los incendios en el volumen total de llamados para 25 ciudades es, en promedio, del 3,0%; los servicios por accidentes y asistencia técnica en total representan el 4,7%; los servicios de asistencia médica representan el 46,2%; las falsas llamadas representan el 1,1% de todas las llamadas y el 44,9% son otros servicios.

En el **Cuadro 2.3** y en el **Gráfico 2.6** se consideran los objetos y lugares de ocurrencia de los incendios en 24 ciudades del mundo. Resumiendo estos datos, podemos decir que el 25,7% de todos los incendios se produjeron en edificios (incluyendo chimeneas) (el 15,2% en edificios residenciales y el 10,5% en todos los demás edificios), en el transporte - el 9,8% (es decir, más del 35% de todos los incendios se originaron en edificios o en vehículos); los incendios forestales, la basura, los vertederos, la hierba, los arbustos representaron el 27% de todos los incendios.

Los **Cuadros 2.4 y 2.5** y los **Gráficos 2.7 y 2.8** muestran la distribución de personas fallecidas y heridas en incendios de diversas estructuras en 15 ciudades del mundo.

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De esta tabla se desprende que el 72,8% de los fallecidos y el 69,9% de los heridos se produjeron en zonas residenciales. En total, el 90,7% de los fallecidos y el 89,1% de los heridos se produjeron en todos los tipos de edificios.

El **Cuadro 2.6** muestra el tipo de llamadas para 2016-2020 en 51 ciudades de todo el mundo. Estas ciudades tienen 225 millones de habitantes y registran anualmente un promedio de 5,5 millones de llamadas al servicio de bomberos (es decir, 24,7 llamadas por cada 1.000 personas).

El **Cuadro 2.7** muestra el tipo de incendios para 2016-2020 en 60 ciudades de todo el mundo. En total, tienen 262 millones de habitantes y se registra un promedio de 258 mil incendios al año (es decir, 1,0 incendios por cada 1.000 personas).

El **Cuadro 2.8** muestra la cantidad de víctimas por incendios para 2016-2020 en 46 ciudades de todo el mundo. En ellas habitan 221 millones de personas y anualmente fallece un promedio de 1.216 personas en incendios, es decir, por cada 100 mil personas, en promedio, hubo 0,5 víctimas de incendios.

El **Cuadro 2.9** y los **Gráficos 2.9-2.12** presentan datos sobre el número de efectivos de los servicios de extinción de incendios (y su equipamiento técnico) a principios del siglo XXI en 71 ciudades del mundo. En estas ciudades viven más de 312 millones de personas. Están atendidas por unos 236.000 bomberos, con un promedio de 1 bombero profesional por cada 1.647 personas (**Gráfico 2.9**), y un promedio de 17 km2 por estación de bomberos (**Gráfico 2.12**). Estos datos deberían ser de cierto interés para los especialistas.

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Kurze Kommentare

1. Länder derWelt

Aus **Tabelle 1.1** folgt, dass das CFS CTIF (es wurde im Jahr 1995 gegründet) jährlich die statistischen Daten aus 27-57 Staaten verarbeitet, in denen 0,9-3,8 Mrd. Menschen lebten. Im Jahr 1993 lebten in den 39 untersuchten Staaten 40 % der Weltbevölkerung. Im Jahr 2008 lebten in 31 Staaten mehr als 50 % der Weltbevölkerung.

In den untersuchten Staaten wurden jährlich 2,5-4,5 Mio. Brände registriert. Dabei kamen 17.000 - 62.000 Menschen ums Leben. Innerhalb von 28 Jahren verloren in den untersuchten Staaten bei 104 Mio. Bränden ca. 1,1 Mio. Menschen ihr Leben.

In **Tabelle 1.2** werden für das Jahr 2021 die verdichteten Kennzahlen zum Arbeitsumfang der Feuerwehren sowie zur Brandsituation in 38 Staaten vorgestellt.

Aus **Tabelle 1.2** folgt, dass im Jahr 2021 in den 38 untersuchten Staaten mit einer Bevölkerung von über 1,2 Mrd. Menschen (1/6 der Gesamtbevölkerung des Planeten) mehr als 60 Millionen Feuerwehreinsätze registriert wurden. Davon waren 3,1 Mio. (5,2 %) Einsätze mit Bränden verbunden. Bei diesen Bränden verloren rund 16.900 Menschen ihr Leben. Weitere 62.100 Menschen wurden bei Bränden verletzt. Das bedeutet, dass auf je 1.000 Einwohner dieser Staaten jährlich im Mittel 47 Feuerwehreinsätze entfallen, davon sind 2,5 Brandeinsätze. Dabei kommen je 100.000 Einwohner im Mittel 1,3 Menschen bei Bränden ums Leben. Weitere 4,9 Menschen je 100.000 der Bevölkerung wurden verletzt. Auf je 100 Brände entfallen somit im Mittel 0,5 Tote und 2,0 Verletzte.

In **Bild 1.1** ist zu erkennen, dass die meisten Einsätze je 1000 Einwohner (mittlere Kennzahlen für den Zeitraum 2017-2021 aus **Tabelle 1.7**) auf Finnland, Luxemburg und die Tschechische Republik entfallen. Die meisten Brände je 1.000 Einwohner (mittlere Kennzahlen für den Zeitraum 2017-2021 aus **Tabelle 1.8**) entfallen auf Cypern, Barbados und Uruguay (**Bild 1.2**).

Aus **Bild 1.3** folgt, dass die meisten Brandopfer je 100.000 Einwohner (mittlere Kennzahlen für den Zeitraum 2017-2021 aus **Tabelle 1.9**) in Russland, Weißrussland und in der Ukraine zu beklagen sind. **Bild 1.4** illustriert die Verteilung der Brandopfer je 100 Brände (mittlere Kennzahlen für den Zeitraum 2017-2021 aus **Tabelle 1.9**).

In **Tabelle 1.3** sowie in **Bild 1.5** wird die Struktur des Arbeitsumfangs der Feuerwehren in 23 Staaten der Welt vorgestellt. Hierbei wurden im Jahr 2021 etwa 60 Millionen Feuerwehreinsätze registriert.

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Der Anteil der Brandeinsätze an der Gesamteinsatzanzahl liegt bei 3,8 %, zu Havarien und Technischen Hilfeleistungen – 1,9 %, zu medizinischen Notfalleinsätzen – 63,4 % (im Wesentlichen wurden diese Einsätze in Japan, Singapur, Frankreich, Irland und in den USA realisiert) sowie zu „Fehleinsätzen“ – 7,2 %. Sonstige Einsätze gehen mit 23,7 % in die Statistik ein.

In **Tabelle 1.4** und in **Bild 1.6** stellen wir die Verteilung der Brandeinsätze nach den Orten der Brandentstehung für 24 Staaten vor. Etwa 31,3 % aller Brände brechen in Gebäuden (23,2 % in Wohnungen und 8,1 % in allen anderen Gebäuden) aus, 12,7 % - im Transportbereich, 1,2 % - in Wäldern, 20 % sind Brände von Grasland / Sträuchern / Gestrüpp. Schließlich folgen Brände von Müll / Abfall / Müllhalden - rund 15,7 % sowie 19,1 % sind sonstige Brände.

Bei der Analyse dieser Daten muss beachtet werden, dass die Regeln der Brandstatistik in den einzelnen Staaten sehr unterschiedlich sind.

Aus der Summenzeile der **Tabelle 1.4** folgt, dass auf Gebäude (incl. Schornsteine) und den Transportbereich 44 % aller registrierten Brände entfallen.

In den **Tabellen 1.5-1.6** und in den **Bildern 1.7-1.8** wird die Verteilung der Opferzahlen (Tote, Verletzte) in Abhängigkeit vom Brandobjekt vorgestellt. Die Angaben verdeutlichen, dass 84,6 % der Brandtoten (im Intervall von 0 % in Kroatien bis 100 % in Liechtenstein) sowie 73,7 % der Verletzten (im Intervall von 2,5 % in Kroatien bis 82,5 % in Estland) auf den Wohnbereich entfallen.

Die **Tabellen 1.7** bis **1.10** enthalten Informationen über die Feuerwehreinsätze, Brände (incl. der Opferzahlen) für 2017-2021 in 53-70 Staaten. In diesen Staaten werden im Mittel jährlich 58 Mio. Einsätze, 4 Mio. Brände registriert bei denen rund 35.000 Zivilisten sterben und weitere 63.000 Personen verletzt werden.

Die **Tabellen 1.11-1.12** illustrieren die Angaben über die verunfallten Feuerwehrleute in 20 Staaten. Im Jahr 2021 waren in diesen Staaten 150 tödlich verunfallte und weitere 64673 verletzte Feuerwehrleute zu beklagen.

Tabelle 1.13 und die **Bilder 1.9-1.11** beinhalten die Personalstärken der Feuerwehren in 62 Staaten zu Beginn des 21. Jahrhunderts. Aus **Tabelle 1.13** folgt, dass die 3,2 Mrd. Einwohner dieser Staaten von 15,3 Mio. Feuerwehrleuten, darunter 13,8 Mio. Freiwillige Feuerwehrleute, geschützt werden.

Tabelle 1.14 stellt eine Gegenüberstellung des Anteils an Frauen im Personalbestand der Feuerwehren in 42 Staaten vor.

Tabelle 1.15 stellt Angaben zu Jugendfeuerwehren in 19 ausgewählten Staaten vor.

Die **Bilder 1.12-1.13** illustrieren die Verteilung der Totenzahlen durch „Feuer und Flammen sowie heißen Substanzen“ für das Jahr 2019 vor, die von der Weltgesundheitsorganisation der UNO (WHO) veröffentlicht wurden.

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2. Städte der Welt

Aus **Tabelle 2.1** kann entnommen werden, dass im Jahr 2021 in den 26 untersuchten Städten erstens im Mittel auf 1.000 Einwohner jährlich 45,5 Feuerwehreinsätze (davon 1,5 Brände) entfielen; und das zweitens je 100.000 Einwohner im Mittel 1,1 Brandtote und 4,4 Brandverletzte zu beklagen waren.

Die **Bilder 2.1-2.4** stellen die Verteilung der Städte nach der jährlichen Anzahl der Feuerwehreinsätze und der Brände je 1000 Einwohner (mittlere Kennzahlen für die Jahre 2017-2021 aus den **Tabellen 2.6** und **2.7**); und die Verteilung der Brandopfer je 100.000 der Bevölkerung sowie je 100 Brände (mittlere Kennzahlen für den Zeitraum 2017-2021 nach **Tabelle 2.8**) vor.

In **Tabelle 2.2** und **Bild 2.5** werden die Daten zur Einsatzstruktur der Feuerwehren in 16 Großstädten der Welt vorgestellt.

Der Anteil der Brandeinsätze an der Gesamtanzahl der Einsätze betrug für 16 Städte im Mittel 4,6 %; weitere 6,3 % der Einsätze entfielen auf Technische Hilfeleistungen. 61,9 % aller Einsätze waren medizinische Rettungsdiensteinsätze; 1,2 % aller Einsätze waren so genannte Fehleinsätze. Die restlichen 26 % waren sonstige Einsätze.

In **Tabelle 2.3** und in **Bild 2.6** betrachten wir die Objekte der Brandentstehung in 20 Großstädten. Allgemein gesagt kann man davon ausgehen, dass in Gebäuden (incl. Schornsteine) 30 % der Brände entstanden (20,5 % in Wohngebäuden und 9,5 % in allen anderen Gebäuden); im Transportbereich waren es 7,7% (d.h. 35 % aller Brände brachen entweder in Gebäuden oder im Transportwesen aus). Es folgen Wald-, Müll-, Gras- und Gestrüppbrände mit einem Anteil von 24 %.

Tabelle 2.4 und **2.5** sowie die **Bilder 2.7** und **2.8** stellen für 15 Großstädte die zu beklagenden Opferzahlen nach den Brandobjekten vor.

Aus der Tabelle folgt, dass 79,1 % der Brandtoten und 78 % der Verletzten auf Wohngebäude entfallen. Insgesamt gesehen sind 87,8 % der Brandtoten und 94,8 % der bei Bränden verletzten Personen auf Gebäudebrände zurückzuführen.

In **Tabelle 2.6** ist die Dynamik der Einsatzzahlen für die Jahre 2017-2021 in 53 Städten der Welt zusammengestellt. In diesen Städten wurden 232 Millionen Einwohner gezählt. Jährlich wurden im Mittel 5,6 Millionen Feuerwehreinsätze registriert (d.h. 24,4 Einsätze je 1.000 der Bevölkerung).

Tabelle 2.7 stellt die Entwicklung der Brandzahlen in 60 Städten für den Zeitraum 2017-2021 vor. In diesen Städten lebten fast 260 Mio. Menschen und jährlich wurden dort im Mittel 258.000 Brände, d.h. 0,9 Brände je 1.000 Einwohner, registriert.

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In **Tabelle 2.8** stellen wir die Entwicklung der Brandopferzahlen für den Zeitraum 2017-2021 in 48 Großstädten vor. In den angeführten Städten lebten mehr als 221 Mio. Menschen. Jährlich verloren bei diesen Bränden etwa 1278 Menschen ihr Leben, d.h. je 100.000 Einwohner waren im Mittel 0,6 Todesopfer zu beklagen.

In der **Tabelle 2.9** und in den **Bildern 2.9-2.12** sind Angaben über die Personalstärken der Feuerwehren (und ihrer technischen Ausstattung) zu Beginn des 21. Jahrhunderts für 73 Großstädte enthalten. In diesen Städten lebten rund 312 Mio. Einwohner. Sie wurden von rund 233.000 Feuerwehrleuten geschützt, wobei auf 1647 Einwohner im Mittel 1 Berufsfeuerwehrmann (**Bild 2.9**) entfiel. Eine Feuerwache war im Mittel für 17 km^2 des Stadtgebietes zuständig (**Bild 2.12**). Diese Daten sollten für Fachleute von besonderem Interesse sein.

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Special Report: Fire Causes

Background

In preparation for report No. 28, the Center of Fire Statistics of CTIF initiated a survey on the causes of fires in all member states.
Based on many requests and in the interest of the further development of CTIF statistics, we are surveying the causes of fires at the national level for the first time. The member countries of CTIF were invited to fill the table below with data using the national definitions/terms. In doing so, indicate the six leading fire causes. All other known fire causes should be named "other causes." Finally, "unknown causes" summarizes the unknown cases and cases under investigation.

Table 0-1: Fire Causes in the CTIF-member states

Main Fire Causes	Designation/name:	Absolute value	Share, %
1. Cause of fire	Please add!		
2. Cause of fire	Please add!		
3. Cause of fire	Please add!		
4. Cause of fire	Please add!		
5. Cause of fire	Please add!		
6. Cause of fire	Please add!		
7. Other causes	Please add!		
8. Unknown causes	-		
Total	-		**100**

Table 0-2: Fire Causes in the CTIF-member states, the result of the survey

	Number of countries	Share of countries, %
Information available	17	42,5
Information not available	23	57,5
Total	40	100

Table 0-2 shows the quantitative result of the CTIF survey, i.e., 42.5% of the member states provided information on fire causes.
IFCAA statistics were used as a further data source[1]. After contacting the Center of Fire Statistics of CTIF, IFCAA sent the existing statistical data. We want to take this opportunity to express our gratitude for this.
As additional sources of statistics on the causes of fires, we have used:

1. Publication of the CFS CTIF,
2. Statistical yearbooks of the countries of the world,

[1] IFCAA - International Fire Chief Association of Asia, https://www.fcaj.gr.jp/ifcaa/en/

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3. Annual reports of the ministries responsible for fire protection and fire brigades,
4. Associations for Fire Safety and
5. Publications of insurance companies.

A total of 66 countries are therefore available for the following considerations. In addition, various sources were available for some states. In some cases, national data could not be found, but regional or local data are available.
The sources are distributed among Europe (28), Asia (26), America (5), Africa (5), and Oceania (2). Below we consider all existing sources by state in alphabetical order. Comments and recommendations follow this.

1 Austria

Austria has national statistics that contain statements on the causes of fires. Table 1-1 shows that unknown fire causes, open fire, and electric energy account for 50% of all causes. The terms used in the overview are short. The three leading known causes are open fire, electric power, and lightning.

Table 1-1: Number of Fires by Fire Causes in Austria[2]

Fire Causes (Austria, 2021, source: CTIF)	Fires	%	Cumulation, %
Unknown	1,451	17.5	17.5
Open fire	1,408	17.0	34.5
Electric energy	1,313	15.8	50.3
Lightning	1,149	13.8	64.1
Others	1,006	12.1	76.3
Heaters	805	9.7	86.0
Arson	411	5.0	90.9
Mechanical energy	361	4.4	95.3
Self-Ignition	250	3.0	98.3
Container explosion	143	1.7	100.0
Total	**8,297**	**100**	-

[2] CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.

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2 Bahrain

Bahrain has national statistics that contain statements on the causes of fires. Table 2-1 shows that electrical faults deliberately account for 50% of all causes. The terms used in the overview are short. The three leading known causes are electrical fault, deliberate, and carelessness.

Table 2-1: Number of Fires by Fire Causes in Bahrain[3]

Fire Causes	2005	2006	...	2013	2014	Sum	%	Cumulation, %
Electrical fault	423	561	...	501	563	4,847	29.2	29.2
Deliberately	169	337	...	242	261	3,464	20.9	50.1
Carelessness	397	344	...	280	259	2,940	17.7	67.8
Unknown	334	390	...	104	91	2,279	13.7	81.5
Cigarettes	163	149	...	123	118	1,410	8.5	90.0
Thermal pressure	88	106	...	87	72	863	5.2	95.2
Gas/cooker	53	56	...	48	97	465	2.8	98.0
Welding	15	16	...	8	15	146	0.9	98.9
Candles	20	20	...	10	5	139	0.8	99.7
Chemicals	4	2	...	8	6	45	0.3	100.0
Total	**1,666**	**1,981**	**...**	**1,411**	**1,487**	**16,598**	**100**	

Looking at the causes of fire in Bahrain in the light of the IFCAA surveys, the following picture emerges (Table 2-2).

Table 2-2: Main Fire Causes in Bahrain[4]

Fire Causes, Bahrain, source: IFCAA	2005-2006
Fire cause 1st	Short Circuit
Fire cause 2nd	Unknown
Fire cause 3rd	Carelessness
Fire cause 4th	Deliberately
Fire cause 5th	Cigarettes

[3] Bahrain, Fire Causes (Statistical Yearbook), Police Media Directorate / Ministry of Interior.
[4] Tseng, W., Chien, S. and Shen, T., 2008. Comparative Analysis of Taiwan Fire Risk with Asia/Oceania Countries and Other Countries around the World. Fire Safety Science 9: 981-990. doi:10.3801/IAFSS.FSS.9-981, IAFSS Symposium 9.

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3 Bangladesh

Looking at the causes of fire in Bangladesh in the light of the IFCAA surveys, the following picture emerges (Table 3-1). First, five reasons for the fire are named.

Table 3-1: Main Fire Causes in Bangladesh[5]

Fire Causes, Bangladesh, source: IFCAA	2005-2006
Fire cause 1st	Short circuit
Fire cause 2nd	Oven
Fire cause 3rd	Cigarette
Fire cause 4th	Unknown
Fire cause 5th	Open lamp

Table 3-2: Main Fire Causes in Dhaka (Bangladesh)[6]

Fire Causes, Dhaka (Bangladesh), source: IFCAA				
	2017	2018	2019	2020
Fire cause 1st	Electrical Short Circuit	Electrical Short Circuit	Electrical Short Circuit	Electrical Short Circuit
Fire cause 2nd	Oven	Cigarette Butts	Oven	Oven
Fire cause 3rd	Cigarette Butts	Oven	Cigarette Butts	Cigarette Butts
Fire cause 4th	Unknown	Unknown	Unknown	Unknown
Fire cause 5th	Open Lamp	Open Lamp	Open Lamp	Open Lamp

Table 3-2 illustrates the distribution of the causes of fires in the capital Dhaka between 2017 and 2020. Electrical energy is the leading cause of fire.

[5] Tseng, W., Chien, S. and Shen, T., 2008. Comparative Analysis of Taiwan Fire Risk with Asia/Oceania Countries and Other Countries around the World. Fire Safety Science 9: 981-990. doi:10.3801/IAFSS.FSS.9-981, IAFSS Symposium 9.
[6] IFCAA-Statistics.

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4 Belarus

For Belarus, the fire caused in 2010-2015 could be taken from the below source. Two known causes of fire (carelessness, electrical equipment) account for more than half of all fires. The names of individual causes of fire are sometimes long and cumbersome but easy to understand from the context. Therefore, it is noteworthy that the term "unknown causes" is not included in the Table 4-1.

Table 4-1: Number of Fires by Fire Causes in Belarus[7]

Fire Causes in Belarus	2010	2011	2012	2013	2014	2015	Sum	%	Cumulation, %
Careless handling of fire	4,056	3,935	3,405	3,094	3,003	2452	19,945	46.2	46.2
Violation of the rules for the design and operation of electrical equipment	1,475	1,311	1,295	1,298	1,245	852	7,476	17.3	63.6
Violation of the rules for the design and operation of furnaces	1,523	1,291	1,424	1,133	1,279	718	7,368	17.1	80.7
Arson	755	677	505	513	493	375	3,318	7.7	88.4
Other	398	377	267	350	343	130	1,865	4.3	92.7
Children's play with fire	246	264	164	153	157	113	1.097	2.5	95.2
Natural causes	226	227	173	146	124	147	1.043	2.4	97.6
Violation of the rules for the operation of gas devices and units	124	97	90	118	90	62	581	1.3	99.0
Violation of fire safety requirements during hot work	74	73	87	77	68	59	438	1.0	100.0
Total	**8,877**	**8,252**	**7,410**	**6,882**	**6,802**	**4,908**	**43,131**	**100**	

[7] CTIF database, collection of statistical information on formal and informal communication

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5 Brazil

The country is the fifth largest in the world in terms of area and, with around 215 million inhabitants, the seventh largest in population. Brazil is a federal republic. Brazil consists of 26 states and one federal district. In Brazil, the Military Firefighters Corps (Corpo De Bombeiros Militar) are military public security forces responsible for civil defense, firefighting, and search and rescue inside the federative units. Each Federative Unit has its own Military Firefighters Corps with different structures, rules, and uniforms. A nationwide fire statistic system is not known. But a Brazilian standard for collecting fire data was elaborated and approved in 1997 as Brazilian Standard NBR 14023197 [8].

Table 5-1: Main causes of fires in the 1995-1997 period in Sao Paulo City[9]

Fire causes Sao Paulo	Structure fires	Residential fires	All fires	%	Cumulation, %
Unknown, not verified	5,746	3,086	10,089	50.9	50.9
Other known causes	1,579	644	2,639	13.3	64.3
Arson	995	512	2,576	13.0	77.3
Carelessness at cooking	1,146	986	1,164	5.9	83.1
Inadequate electrical installation	1,441	804	1,932	9.8	92.9
Children play	270	186	576	2.9	95.8
Negligence with candles	435	370	452	2.3	98.1
LPG leakage	354	265	382	1.9	100.0
Total	**11,966**	**6,853**	**19810**	**100**	**-**

In the Table 5-1, we, unfortunately, have to limit ourselves to data taken from an older publication. Nevertheless, it can be seen that a total of eight terms are sufficient to quantify all causes of fire. "Unknown, not verified" and "Other known causes" dominate the events with 64% of all fires. Every 13th fire can be traced back to arson.

Table 5-2 from a conference presentation reflects the causes of fire in Sao Paulo from 1999-2009.

The causes of "deliberate arson" and "electrical installations and equipment" combine almost 70% of all fire causes. All other reasons appear only in the single digits.

[8] Brazilian Association of Technical Standards (ABNT). The standard for registration of fire service activities - NBR 14023. Rio de Janeiro, 1997.

[9] Rosaria Ono (Technological Research Institute of Sao Paulo State), Silvio Bento Da Silva (Sao Paulo State Fire Department): An Analysis of Fire Safety in Residential Buildings through Fire Statistics (2000).

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Table 5-2: Main causes of fire in the Sao Paulo State (1999-2009)[10]

Fire causes Sao Paulo	1999-2009, %	Cumulation, %
Intentional (incendiary act)	56.1	56.1
Installations and equipment electric	12.7	68.8
Smokers (cigarette, etc.)	5.8	74.6
Cooking (equipment, handling)	4.4	79.0
Child's play	3.3	82.3
Equipment overheating	2.7	85.0
Spontaneous ignition	2.5	87.5
Candle	1.7	89.2
Others	10.8	100.0
Total	**100**	-

6 Bulgaria

The transmission of the causes of fires in Bulgaria was carried out according to the scheme proposed by CTIF. According to this, two causes are responsible for almost half of all fires (Table 6-1).

Table 6-1: Number of Fires by Fire Causes in Bulgaria[11]

Fire Causes (Bulgaria, 2021, source: CTIF)	Fires	Share, %	Cumulation, %
Short circuit	2,194	29.3	29.3
Negligence in handling open fire	1,444	19.3	48.6
Under establishment	1,151	15.4	64.0
Technical failure	972	13.0	77.0
Other causes	726	9.7	86.7
Improper use of heaters	378	5.1	91.7
Improper use of devices for heating	351	4.7	96.4
Malice	269	3.6	100.0
Total	**7,485**	**100**	-

[10] Newton dos Reis Barreira (Corpo De Bombeiros): Seguranca em edificacoes, ABINEE TEC 2013.
[11] CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.

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7 Brunei Darussalam

Looking at the causes of fire in Brunei Darussalam in the light of the IFCAA surveys, the following picture emerges (Table 7-1). Five causes of the fire are named. Unfortunately, no other statistical overviews were available on the causes of the fires were not available.

Table 7-1: Main Fire Causes in Brunei Darussalam[12]

Fire Causes, Brunei Darussalam, source: IFCAA	2005-2006
Fire cause 1st	Electricity
Fire cause 2nd	Gas, Other
Fire cause 3rd	Arson
Fire cause 4th	Playing fire
Fire cause 5th	Bonfire

8 Canada

Table 8-1 comes from a different source. If the figures are to be trusted, in 1990-2000, unknown causes accounted for 22.0%, miscellaneous 21%, and smokers' utensils/open flame 18% of all fires. Thus, this is a total of 61%. Unfortunately, more up-to-date figures are not available.

Table 8-1: Fire Causes in Canada[13]

Fire Causes Canada, source: Humanity and Fires	Share, % (1990-2000)	Cumulation, %
Unknown	22	22.0
Miscellaneous	21	43.0
Smokers' utensils and open flame	18	61.0
Cooking equipment	11	72.0
Electrical distribution equipment	9	81.0
Heating equipment	8	89.0
Exposure (structures, lumber yard, forest, grass, etc.)	4	93.0
Electrical appliances and equipment	3	96.0
Other electrical equipment	3	99.0
Lightning stroke	1	100.0
Total	**100**	-

[12] Tseng, W., Chien, S. and Shen, T., 2008. Comparative Analysis of Taiwan Fire Risk with Asia/Oceania Countries and Other Countries around the World. Fire Safety Science 9: 981-990. doi:10.3801/IAFSS.FSS.9-981, IAFSS Symposium 9.

[13] Bruschlinsky, Sokolov, Wagner: Humanity and Fires (2010), Fundacja Edukacja i Technika Ratownictwa, ISBN 978-83-88777-29-5, pp. 353

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Table 8-2: Number of Fire Deaths by Reasons for Non-evacuation in Canada[14]

Cause of death (Reason for non-evacuation), Canada	2005	2006	...	2013	2014	Sum	%	Cumulation, %
Unknown reason for non-evacuation	132	108	...	109	122	1,208	66.9	66.9
Trapped by spreading fire/smoke	32	33	...	20	33	365	20.2	87.1
Not applicable	7	6	...	6	5	84	4.7	91.7
Age/other physical limitation	4	6	...	7	2	79	4.4	96.1
Building collapse/falling debris/explosion	1	7	...	6	2	31	1.7	97.8
Exit blocked, locked, or obstructed	0	1	...	3	3	25	1.4	99.2
Exposure to hazardous materials / toxic fumes	0	0	...	3	3	14	0.8	100.0
Fell, slipped, or tripped	0	0	...	0	0	-	0.0	100.0
Total reason for non-evacuation	**176**	**161**	**...**	**154**	**170**	**1,806**	**100**	**-**
Fire incidents, residential properties	13,619	13,255	...	12,269	12,071	128,710	-	-
Fire-related deaths, residential properties	144	134	...	117	96	1,402	-	-
Fire-related injuries, residential properties	998	862	...	1,009	928	8,287	-	-

Table 8-2 shows the number of fire deaths by reasons for non-evacuation. For the years 2005 to 2014, a total of 1,806 deaths were registered in fires. This number is divided into eight causes. The cause "Unknown reason for non-evacuation" stands out clearly with almost 67%.

[14] Statistics Canada. Table 35-10-0194-01 Fire-related deaths and persons injured, by cause of death or injury and reason for non-evacuation, DOI: https://doi.org/10.25318/3510019401-eng
Statistics Canada. Table 35-10-0196-01 Incident-based fire statistics, by the performance of smoke alarm device, residential fires, DOI: https://doi.org/10.25318/3510019601-eng

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9 China

From the source cited here, it can be seen that three causes of fire account for 66% of all fires. Careless handling of fire and electrical causes dominate (Table 9-1).

Table 9-1: Fire Causes in China[15]

Fire Causes China, 2001	%	Cumulation, %
Careless fire usage	28.7	28.7
Electric	24.9	53.6
Unknown	12.4	66.0
Smoking	8.4	74.4
Other	6.8	81.2
Play with fire	6.4	87.6
Arson	6.2	93.8
False Operation	5.1	98.9
Self-ignition	1.1	100.0
Total	**100**	**-**

10 Colombia (Bogota)

For Colombia, no data from national fire statistics are known. For this reason, we have to resort to figures from the capital Bogotá. Bogota is located 2,640 m above sea level and occupies an area of 1,587 km². The metropolitan area occupies 5,235 km². Around 7.9 million (2022) inhabitants live in the city proper (metro area – 10 million people, 2022). Table 10-1 shows the distribution of building fires in the city for 2014-2019. We recognize that almost 60% of all building fires break out in the residential area.

Table 10-1: Fire Objects in Colombia (Bogota), * - estimation[16]

Fire objects, Colombia (Bogota)	Fires, *	%	Cumulation, %
Residential	332	58.2	58.2
Industrial	84	14.7	72.9
Commercial	73	12.8	85.7
Others	72	12.7	98.4
Business	9	1.6	100.0
Total	**570**	**100**	**-**

[15] China Statistical Yearbook, National Bureau of Statistics of China, 1999-2019
[16] https://www.bomberosbogota.gov.co/content/incendios-estructurales-bogota#.

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Table 10-2 outlines the distribution of building fires (2014-2019) among the most common causes of fire identified. The comparatively small proportion of "other causes" is striking. For example, the cause of "Electrical fault" for the ranking list is almost 41%. It is followed by "Open flames" and "Hot surfaces." The first three causes account for just over 80% of all fires. All other causes of fire occupy their place in the statistics only in the single-digit range.

Table 10-2: Fire Causes in Colombia (Bogota)[17]

Fire causes, Colombia (Bogota)	Fires	%	Cumulation, %
Electrical fault	232	40.7	40.7
Open flame	190	33.3	74.0
Hot surfaces	36	6.3	80.4
Cigarettes	18	3.2	83.5
Food in the pot	14	2.5	86.0
Sparks works	11	1.9	87.9
Chemical reaction	11	1.9	89.8
Burning coal embers	9	1.6	91.4
Children	9	1.6	93.0
Combustible liquids	8	1.4	94.4
Other known causes	8	1.4	95.8
Industrial processes	7	1.2	97.0
Heat source	6	1.1	98.1
Gas leakage	6	1.1	99.1
Gunpowder	3	0.5	99.6
Others	2	0.4	100.0
Total	**570**	**100**	**-**

[17] Ditto.

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11 Costa Rica

Information on the causes of fires in the country exists only based on a comparatively small sample (Table 11-1).

Table 11-1: Fire Causes in Costa Rica[18]

Fires Investigated, Classified by Ignition Source, Costa Rica	2017 (%)	2018 (%)	2020 (%)
Open flame	29.03	32.8	20.5
Electric system	32.26	29.9	0.0
Spark, ember	10.96	19.4	9.1
Not determined	2.58	6.7	17.0
Electrical/electronic equipment	14.19	6.0	19.3
Smoker equipment	6.45	3.7	-
Overheating of materials/oils/fats	1.94	0.7	-
Exothermic Chemical Reaction	0.65	0.7	-
Ray	1.94	-	-
Heating of electrical cables-conductors	-	-	27.3
Lighter	-	-	2.3
Others	-	-	2.3
Matches	-	-	1.1
Spontaneous ignition	-	-	1.1
Total	**100**	**100**	**100**
Number of investigated fires	**157**	**134**	**88**

The figures give the impression that open fires and electrical equipment and systems are mainly responsible for the fires.

[18] Benemerito Cuerpo de Bomberos de Costa Rica, Incendios investigados durante el 2017/2018/2020, clasificados por fuentes de ignición, Annual Reports

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12 Cyprus

The leading causes of the fire in Cyprus include "burning without permission" and "rubbish burning" (Table 12-1).

Table 12-1: Fire Causes in Cyprus[19]

Fire Causes (Cyprus, 2021, source: CTIF)	Fires	%	Cumulation, %
Burning without permission (different)	4,777	69.2	69.2
Rubbish burning	833	12.1	81.3
Different fires with unknown causes	380	5.5	86.8
Burning without permission (Dry vegetation)	283	4.1	90.9
Different Electrical or Mechanical devices	255	3.7	94.6
Fire on purpose	157	2.3	96.9
Overheating, Fuel leaks, Gas leaks, Candles, Cooking	123	1.8	98.7
Defective Chimneys	91	1.3	100.0
Total	**6,899**	**100**	**-**

13 Czech Republic

Table 13-1: Fire Causes in the Czech Republic[20]

Fire Causes (Czech Republic, 2021, source: CTIF)	Fires	%	Cumulation, %
Negligence	5,102	31.6	31.6
Technical failures	3,593	22.2	53.8
Unproven fault	3,580	22.2	75.9
Chimneys and heaters	1,476	9.1	85.1
Deliberate ignition	1,012	6.3	91.3
Special causes	241	1.5	92.8
Other causes	205	1.3	94.1
Unknown causes	953	5.9	100.0
Total	**16,162**	**100**	**-**

The analysis of the causes of fires in the Czech Republic illustrates that three causes should be highlighted: Negligence, technical failures, and unproven fault. These causes account for 76% of all fires (Table 13-1).

[19] CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.
[20] CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.

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14 Denmark

Table 14-1: Fire Causes in Denmark[21]

Fire Causes, Denmark, source: Humanity and Fires	2005-2006, %	Cumulation, %
Other	25.00	25.0
Unknown	21.50	46.5
Chimney fires	15.35	61.9
Carelessness with open fire	8.10	70.0
Deliberate (arson, suicide, children playing with fire)	8.00	78.0
Electricity	6.10	84.1
Improper use of electrical equipment (cooking)	5.40	89.5
Improper use of electrical equipment (other)	5.40	94.9
Smoking	4.60	99.5
Explosion	0.50	100.0
Candles	0.05	100.0
Total	**100**	**-**

In the Table 14-1 of Denmark's fire causes, 'other causes' and 'unknown causes' are visible. In addition, the reported distribution of fires among the listed fire causes raises questions.

[21] Bruschlinsky, Sokolov, Wagner: Humanity and Fires (2010), Fundacja Edukacja i Technika Ratownictwa, ISBN 978-83-88777-29-5, pp. 353

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15 Dubai

Dubai is the emirate's capital of the same name and the largest city in the United Arab Emirates (UAE) on the Persian Gulf (more than 3.5 million inhabitants). Figures regarding fire causes from Dubai are available for the years 2016-2021.

Table 15-1: Fire Causes in Dubai[22]

Fire causes, Dubai	2016	2017	2018	...	2020	2021	Sum	%	Cumulation, %
Fire expert is not informed	92	282	211	...	245	217	1,264	62,4	62.4
Electric spark	72	64	45	...	48	67	341	16,8	79.2
Unspecified	15	19	15	...	17	15	103	5,1	84.3
Cigarette	21	13	14	...	13	20	89	4,4	88.7
Other reasons	6	10	6	...	10	12	52	2,6	91.3
Inflammation	11	9	9	...	6	6	51	2,5	93.8
Heat source	6	9	5	...	4	8	37	1,8	95.6
Left cooking pot	5	2	4	...	3	5	25	1,2	96.8
Flying sparks	4	4	3	...	6	3	23	1,1	98.0
Burning candle	2	3	6	...	2	3	19	0,9	98.9
Leakage of fuel, oil, gas	6	1	3	...	2	2	15	0,7	99.7
Matchstick	1	3	1	...	-	-	6	0,3	100.0
Mechanical fault	0	1	0	...	-	-	1	0,0	100.0
Total	**241**	**420**	**322**	**...**	**356**	**358**	**2,026**	**100**	**-**

The figures are published as "Fire Accidents by Reasons." Other reasons include intentional fires, leaving the censer, the futility of children, and others (Table 15-1).

[22] Statistical Yearbook Dubai 2018 -2021, Source: Directorate of Civil Defense - Dubai

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16 Egypt

Figures from Egypt are available for the years 2017-2021 (Table 16-1). A closer look at the causes of the fire reveals that these are a mixture of fire objects and fire causes. Especially for the term "industrial fires," the question must be asked what is hidden behind this wording regarding fire causes?

Table 16-1: Fire Causes in Egypt[23]

Fire Causes (Egypt)	2017	2018	2019	2020	2021	Sum	%	Cumulation, %
Industrial fires	28,020	7,098	30,039	29,491	27,356	142,004	57.7	57.7
Short circuit or frictional spark	7,623	8,933	9,359	10,576	10,863	47,354	19.2	76.9
Self-ignition	4,799	4,687	5,209	6,340	6,910	27,945	11.4	88.3
Fireplaces, stoves, and boilers	2,816	3,108	3,439	2,594	2,959	14,916	6.1	94.3
Gas fires	1,987	2,198	2,221	2,804	3,237	12,447	5.1	99.4
Petrol fires and flammable liquids	410	299	395	158	208	1,470	0.6	100.0
Total	**45,655**	**46,323**	**50,662**	**51,963**	**51,533**	**246,136**	**100**	**-**

[23] The Annual Report of Fire Accidents in Egypt 2021, Central Agency for Public Mobilization and Statistics, Arab Republic of Egypt

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17 Estonia

Table 17-1: Fire Causes in Estonia[24]

Building Fire Causes, including chimney fires (Estonia, 2021, source: CTIF)	Fires	%	Cumulation, %
Other causes	490	41.0	41.0
Usage of open fire	188	15.7	56.7
Faulty in electricity system(s)	142	11.9	68.6
Usage of heating system(s)	90	7.5	76.2
Smoking	90	7.5	83.7
Arson	82	6.9	90.5
Faulty in electricity	71	5.9	96.5
Unknown causes	42	3.5	100.0
Total	**1,195**	**100**	**-**

For Estonia, figures are available for building fires, including chimney fires. However, the high proportion of "other causes" is striking (Table 17-1).

18 Fiji

Table 18-1: Fire Causes in Fiji[25]

Causes of Structural Fires (Fiji, 2010)	Fires	%	Cumulation, %
Electrical	81	37.5	37.5
Unattended cooking	36	16.7	54.2
Incendiary (arson, suspicious)	31	14.4	68.5
Undetermined	18	8.3	76.9
Matches	15	6.9	83.8
Uncontrolled burning/accidental	14	6.5	90.3
Prayer Diya	9	4.2	94.4
Mosquito coil	7	3.2	97.7
Lit Candle	5	2.3	100.0
Kerosene lantern	0	0.0	100.0
Total Structure Fires	**216**	**100**	**-**

Three causes account for almost 70%of all fires (Table 18-1).

[24] CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.
[25] Fiji Fire Service

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19 Finland

For Finland, figures are available for more than 12,000 fires in 2021. The high proportion of "other causes" is striking (Table 19-1).

Table 19-1: Fire Causes in Finland[26]

Fire Causes (Finland, 2021, source: CTIF)	Fires	%	Cumulation, %
Other	5,096	41.6	41.6
Machine failure or malfunction	1,801	14.7	56.3
Unable to estimate	1,328	10.8	67.2
Arson	1,222	10.0	77.1
Fault or installation failure in electrical equipment	1,126	9.2	86.3
Carelessness while cooking	597	4.9	91.2
Smoking	588	4.8	96.0
Fire of garbage, stick, rubbish, etc.	487	4.0	100.0
Total	**12,245**	**100**	-

[26] CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.

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20 Ghana

In general, it can be said that little is known about the causes of fires in African states. The reasons for this are to be found in the fact that modern fire brigade systems have only been under construction since the 1960s, and this can undoubtedly be seen in the industrial development of the countries that began at that time. For Ghana, it is known that the National Fire and Rescue Service was established in 1963 and reorganized by law in 1997. The same thing probably happened again in 2003. Eighteen thousand employees will be deployed at 140 fire stations and operations centers. [27] Ghana currently has 33 million inhabitants and an area of 238,537 km². A tropical climate characterizes the country.
Up-to-date information is only available from publications of national newspapers and specialist articles. Table 20-1 illustrates an example for the years 2007-2013.

Table 20-1: Fire Causes in Ghana[28]

Fire Causes, Ghana	2007	2008	…	2012	2013	Sum	%	Cumulation, %
Domestic	1,354	1,267	…	2,040	2,063	10,355	40.4	40.4
Industrial	271	323	…	662	757	3,156	12.3	52.7
Vehicular	511	512	…	555	635	3,127	12.2	64.9
Institutional	370	463	…	559	653	2,867	11.2	76.1
Electrical	277	277	…	454	534	2,422	9.4	85.5
Commercial	233	213	…	459	594	2,263	8.8	94.4
Bush	130	128	…	153	161	870	3.4	97.8
Others	52	66	…	113	94	571	2.2	100.0
Total	**3,198**	**3,249**	**…**	**4,995**	**5,491**	**25,631**	**100**	**-**

On closer inspection, the causes of fire listed in the table are a mixture of fire objects and fire causes. Therefore, only "electrical causes" can be identified.
In the national media, issues of fire safety in the country are discussed. We add below some original passages from statements about fire safety in the media[29]:
According to Ghana National Fire Service, the general rate of fire incidence increases each year. This increase was attributed to several factors: population growth and industrialization, unstable electricity, urbanization, negligence, and illegal electrical connection. It categorizes fire outbreaks into domestic, industrial, vehicular, institutional, electrical, commercial, and bush. Among these, domestic

[27] https://www.gnfs.gov.gh/new/
[28] Addai EK, et al., Trend of Fire Outbreaks in Ghana and Ways to Prevent These Incidents, Safety and Health at Work (2016), http://dx.doi.org/10.1016/j.shaw.2016.02.004.
[29] https://newsghana.com.gh/ghanas-surging-fire-incidents-review-of-ghana-national-fire-service/

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fire averagely accounts for about 41% of the total number of fire incidents in the country. In Ghana, significant causes of fire outbreaks have been electrical problems resulting from faulty wiring and misuse of electrical gadgets. Electrical faults originate from poorly designed and poorly constructed electrical circuits, and interestingly most electrical wiring found in many domestic buildings in Ghana is designed by local artisans with little or no knowledge of electrical circuit design. Improper electrical fittings, use of substandard electrical materials, overloading of electrical appliances on the same fuse, defective generators, power fluctuations resulting from frequent power outages, and illegal tapping of electricity from national grid lead to fire outbreaks, including naked flames as a result of cooking with kerosene stoves, electric cookers, gas cookers, and coal pots, or use of lighting devices such as candles and lanterns and lighted mosquito coils.
As a rule, this information is published without giving any figures. However, the Table 20-2 outlines the causes of fires in three of the country's major metropolitan areas.

Table 20-2: Fire Causes in Ghana Metropolitan Areas (2003-2009)[30]

Fire Causes in 3 Ghana Metropolitan Areas	Accra, %	Kumasi, %	Tema, %
Cooking	10	12	10
Smoking	10	10	5
Others	10	13	15
Electrical	45	50	40
Candle	25	15	30
Total	**100**	**100**	**100**

It can be seen without difficulty that electricity is the leading cause of fire in the three regions mentioned. 2010–2021, the Ghana National Fire Service registered 47,845 fires nationwide, resulting in 444 fire deaths.

[30]Ayarkwa A.J., Danso A.K., Adinyra E.: Incidence of domestic Fire outbreaks in three Cities in Ghana: Causes and Prevention, The Ghana Surveyor.

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21 Gibraltar

Table 21-1 lists the causes of fires for the period 2003-2005. Five fire causes account for 60% of all fires. For every 11-th fire, the cause could not be determined.

Table 21-1: Fire Causes in Gibraltar (2003-2005)[31]

Fire Causes, Gibraltar, source: Humanity and Fires	Fires	%	Cumulation, %
Cooking, barbecue, etc.	68	13.3	13.3
Electricity	65	12.7	26.1
Accidents caused by people	58	11.4	37.5
Unknown causes	58	11.4	48.8
Smoking	57	11.2	60.0
Others	52	10.2	70.2
Suspected arson	43	8.4	78.6
Children playing with fire	36	7.1	85.7
Motor vehicles	30	5.9	91.6
Electrical cables	27	5.3	96.9
Overheated materials	16	3.1	100.0
Total	**510**	**100**	**-**

22 Greece

Table 22-1: Fire Causes in Greece[32]

Causes of Fire (Greece, 2021, source: CTIF)	Fires	%	Cumulation, %
Unknown causes	14,169	73.1	73.1
Other causes	1,278	6.6	79.7
Smoking residues	1,207	6.2	85.9
Open flames	779	4.0	90.0
Short circuits	567	2.9	92.9
Soot ignition	487	2.5	95.4
Negligence	459	2.4	97.8
Incandescent surfaces	434	2.2	100.0
Total	**19,380**	**100**	**-**

[31] Bruschlinsky, Sokolov, Wagner: Humanity and Fires (2010), Fundacja Edukacja i Technika Ratownictwa, ISBN 978-83-88777-29-5, pp. 353
[32] CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.

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Almost 80% of all causes are unknown or can only be assigned to other reasons (Table 22-1).

23 Germany (Part 1)

Germany does not have uniform national fire statistics. The investigation of the causes of the fire is the responsibility of the local police authorities. Table 23-1 is an estimate. The figures are based on 1,500 fire-cause investigations conducted annually. The statistics were compiled by a private Institute for Loss Prevention and Loss Research of Public Insurers.

Table 23-1: Fire Causes in Germany[33]

Fire Causes Germany, Estimation	2002-2017, %	Cumulation, %
Electricity	32.0	32.0
Human Misconduct	17.0	49.0
Other, unknown	19.7	68.7
Overheating	9.0	77.7
Arson	9.0	86.7
Flammable work	3.0	89.7
Open fire	3.0	92.7
Self-ignition	2.0	94.7
Lightning strike	0.3	95.0
Explosion	2.0	97.0
Open fire	3.0	100.0
Total	**100**	**-**

Table 23-2: Fire Causes in Germany[34]

Fire Causes Germany, Estimation	2022, %	Cumulation, %
Electricity	32	32
Human misconduct	21	53
Other, unknown	19	72
Overheating	10	82
Arson	9	91
Flammable work	3	94
Self-ignition	2	96
Explosion	2	98
Open fire	2	100
Total	**100**	**-**

[33] 1500 Brandursachenermittlungen pro Jahr, Institut für Schadenverhütung und Schadenforschung der öffentlichen Versicherer, https://www.ifs-ev.org/
[34] https://brandschutz-zentrale.de/wissen/einsatz/die-5-haeufigsten-brandursachen/

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Similar statements are made in another source. For example, the Table 23-2 illustrates that electricity and human error are identified for just over half of all fires. Also, in this overview, "other, unknown" causes of fire account for almost 20% of all registered case numbers.

Table 23-3: Fire Causes in Germany (1905)[35]

Fire Causes, Germany (1905, large cities)	Fires	%	Cumulation, %
Unknown causes	3,069	25.3	25.3
Negligence	3,030	24.9	50.2
Chimneys	1,619	13.3	63.5
Other causes	1,418	11.7	75.2
Playing with matches	511	4.2	79.4
Faulty combustion systems	471	3.9	83.3
Self-ignition	397	3.3	86.6
Explosion	322	2.7	89.2
Faulty structural systems	278	2.3	91.5
Created by the operation	261	2.1	93.6
Flying fire	240	2.0	95.6
Arson	182	1.5	97.1
Faulty lighting systems	171	1.4	98.5
Electrical short circuit	108	0.9	99.4
Lightning strike	54	0.4	99.9
Faulty operating systems	18	0.1	100.0
Total	**12,149**	**100**	**-**

Table 23-4: Fire Brigades in German cities (1905)

German Cities with …	Fire brigades	%	Cumulation, %
Professional and volunteer fire brigade	25	44.6	44.6
Professional fire brigade	11	19.6	64.3
Professional, compulsory, and voluntary fire brigade	9	16.1	80.4
Compulsory and volunteer fire brigade	5	8.9	89.3
Professional and compulsory fire brigade	4	7.1	96.4
Volunteer firefighter	2	3.6	100.0
Total	**56**	**100**	**-**

We also cite statistics from 1905 (Table 23-3, and 23-4). A statistical survey of major German cities showed that a quarter of all causes of fires in cities could not be determined. The causes of "negligence," "chimneys," and "other causes"

[35] Statistisches Jahrbuch Deutscher Städte, 15. Jahrgang

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account for around 50% of all fires. All other known causes of fire are represented with single-digit values.

24 Germany (Part 2) - State of North Rhine-Westphalia

For some regions in Germany, far more extensive statistics can be obtained. Using the example of North Rhine-Westphalia (NRW), this can be shown in great detail below. Table 24-1 shows the causes of fires from 2003 to 2009. First, it is noticeable that the unknown reasons for fire occupy almost 59% of all cases. That is followed by "Negligence" (11.5%) in 2nd place and "Deliberate arson" (10.7%) in 3rd place. For all other known causes of fire, the proportions are in the single-digit range.

Table 24-1: Fire Causes in North Rhine-Westphalia[36]

Fire Causes, NRW	2003	...	2009	Sum	%	Cumulation, %
Unknown causes	27,260	...	22,383	162,880	58.4	58.4
Negligence	5,397	...	4,468	31,947	11.5	69.8
Deliberate arson	5,165	...	3,885	29,893	10.7	80.6
Other sources of fire, light, heat	2,973	...	2,818	19,054	6.8	87.4
Electricity	2,041	...	2,015	14,090	5.1	92.4
Operational, mechanical defects	1,952	...	1,966	12,805	4.6	97.0
Self-ignition	813	...	536	4,417	1.6	98.6
Structural defects	258	...	355	2,085	0.7	99.4
Lightning strike	208	...	156	1,306	0.5	99.8
Explosion	76	..	44	473	0.2	100.0
Total	**46,143**	**...**	**38,626**	**278,950**	**100**	**-**

The sources used here allow a reconstruction of the fire scene in NRW from 1952 to 2010 or 2012. The first of Figure 24-1 show the distribution of fires among the fire objects. The fire objects of this period were grouped into the following groups: Residential buildings, administration and office buildings, agricultural property, industrial facilities, commercial establishments, Theatre/cinema/meeting rooms, vehicles, forest/heath/moor, and other fire objects.
Even though there are no figures for some of the 1960s, an evident trend is emerging. Residential buildings and other fire objects are subject to a steady increase. Then only for the group "vehicles," a boost up to the 1990s is recognizable.

[36] Statistisches Jahrbuch Nordrhein-Westfalen 1962-2015

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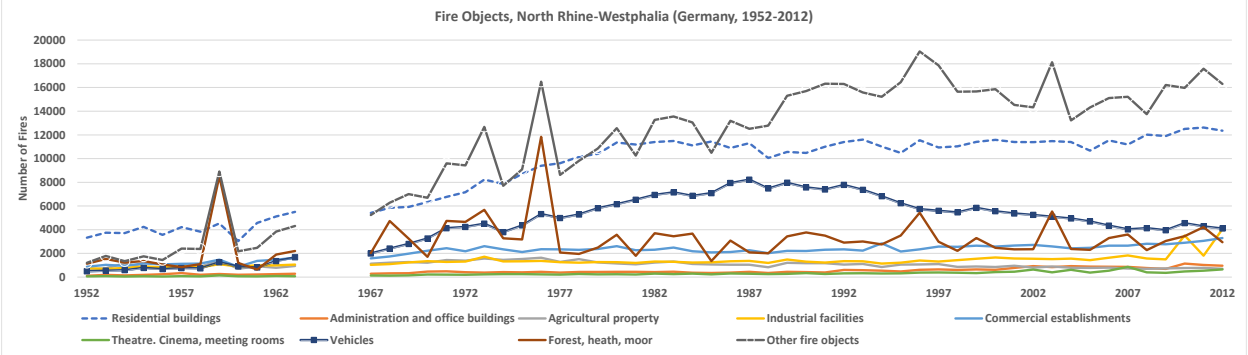

Figure 24-1: Fire Objects, North Rhine-Westphalia (Germany, 1952-2012)[37]

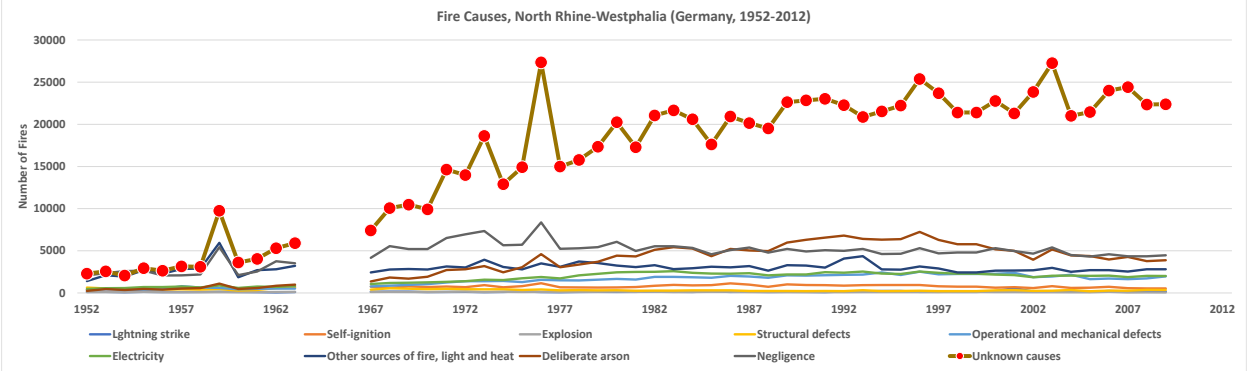

Figure 24-2: Fire Causes, North Rhine-Westphalia (Germany, 1952-2010)

The Figure 24-2 shows the distribution of the causes of fire for the period 1952 to 2010. Among all the fire causes cited, the course of the line for the "unknown causes" attracts special attention.

[37] Statistisches Jahrbuch Nordrhein-Westfalen 1962-2015, and Gefahrenabwehr in Nordrhein-Westfalen, Jahresbericht 2003-2020

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25 Hungary

For Hungary, the causes of the fire are only available in the form of a random sample. According to this, 44% are "open fires/flames." Another 23% can be identified as unknown causes, and around 75 of the fires are caused by electricity (Table 25-1).

Table 25-1: Fire Causes in Hungary[38]

Causes of Fire (Hungary, 2021, source: CTIF)	Fires	%	Cumulation, %
Open flame	304	44.3	44.3
Unknown causes	157	22.9	67.2
Electrical energy	75	10.9	78.1
Heating equipment	40	5.8	84.0
Smoking	36	5.2	89.2
Vehicles, self-ignition, others	32	4.7	93.9
Technological error	25	3.6	97.5
Explosion	17	2.5	100.0
Total	**686**	**100**	-

26 India

Under the title "Short circuit is the cause of most fires in Mumbai, shows data," an Indian source publishes a fascinating assessment of the fire situation in India using the example of Mumbai. Below we reproduce the text in the original[39]: *"Fire brigade officials said Saturday's fire at Tardeo's Sachinam Heights was most likely caused by a short circuit in the electrical duct, and it spread since the firefighting equipment was not functional. Short circuits and non-functional firefighting systems have become a deadly combination for fires in the city, especially in high-rises in the recent past. A majority of fires breaking out in Mumbai have been due to short circuits, and casualties have been high as firefighting systems remain non-functional. According to data received by activist Shakeel Ahmed Shaikh under the RTI Act, 57,540 fires have broken out in Mumbai between 2008 and 2020. In 2020, a total of 3,841 fire accidents killed 33 people and injured 99. 1,568 fires have been reported in high-rises between 2008 and 2018. Data also shows the cause of most fires is short circuits, followed by gas cylinder leaks or blasts; also, more fires have broken out in residential buildings*

[38] CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.
[39] Times of India Jan 23, 2022, https://timesofindia.indiatimes.com/city/mumbai/short-circuit-is-cause-of-most-fires-shows-data/articleshowprint/89066561.cms

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than commercial buildings (8,737 as against 3,833 in commercial buildings). A total of 680 people have died in the fires, 247 of them men, 248 women and 29 children. Property worth over Rs 90 crore was damaged in the fires in 12 years. There were reports of 3,151 fires in slums. The cause of 32,516 fires was short circuits. And 1,116 fires broke out due to gas cylinder leakage and 11,889 due to other reasons. In November last year, the fire at Currey Road's One Avighna Park was caused by a short circuit in the electronic video doorbell of the apartment and spread rapidly into the flat due to the wooden empanelment on the walls, the fire brigade's preliminary investigation had revealed."

Why did we quote this article in this way? The reason is that India is the only large country in the world unwilling to cooperate with CTIF. Not a single request by e-mail, post, or telephone was ever noted, let alone provided with an answer. Only a personal contact of a team member of the CFS of CTIF after a visit to India (Delhi, Agra) some years ago led to the exchange of data between CTIF and the Fire Protection Association of India.

In the Table 26-1, we summarize the data collected by the CTIF-CFS team regarding the causes of fires in the Indian capital of New Delhi.

Table 26-1: Fire Causes in New Delhi[40]

Fire Cause, New Delhi	1993-94	1994-95	1995-96	1996-97	1997-98	Sum	%	Cumulation, %
Electricity short circuit	5,848	6,473	10,959	7,433	7,268	37,981	68.76	68.8
Carelessness	1,701	1,728	2,860	1,896	1,466	9,651	17.47	86.2
Miscellaneous	308	504	117	356	387	1,672	3.03	89.3
Naked flame	105	133	715	351	288	1,592	2.88	92.1
Intentional	75	986	83	121	109	1,374	2.49	94.6
Spark m/heat	156	258	269	203	160	1,046	1.89	96.5
Unknown	138	184	232	181	166	901	1.63	98.2
Fireworks	139	146	262	198	59	804	1.46	99.6
Incendiarism	45	16	58	22	16	157	0.28	99.9
Radiation	10	4	4	1	0	19	0.03	99.9
Spontaneous	13	1	5	0	0	19	0.03	100.0
Children playing with fire	6	2	2	1	0	11	0.02	100.0
Lighting	6	0	3	1	0	10	0.02	100.0
Total	**8,550**	**10,435**	**15,569**	**10,764**	**9,919**	**55,237**	**100**	**-**

For the period 1993-1994 till 1997-1998, the causes of the fire in the Indian capital are known. A total of 13 different reasons are listed. The range of shares is between 68.76% and 0.02%. The definitive cause of the fire is an "electricity short

[40] Fire Protection Association of India. Informal data exchange.

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circuit," with almost 69%. That is followed by "carelessness," with a significant share of 17%. All other causes disappear with a single-digit proportion in the statistical noise.

27 Indonesia

Nationally uniform fire statistics, i.e., statistics on the causes of fires, are not yet known. Efforts to set up mechanisms for unifying the fire report system in Indonesia were conducted in 2007-2008 by the Directorate of Disaster Mitigation of the Ministry of Home Affairs but was not continued since then.
As an example, the figures for two metropolitan governments in Indonesia can be cited from the used publication:

- Surabaya is the capital of Jawa Timur Province in Indonesia (the year 2021, 335 km^2, 2.9 mln. Inhabitants), Table 27-1.
- Jakarta is the capital of the Republic of Indonesia (year 2021, 661 km^2, 10.6 mln. Inhabitants), Table 27-2).

Table 27-1: Fire Causes in Surabaya, Indonesia (2002-2008)[41]

Fire causes, Surabaya	2002	2003	2004	…	2006	2007	2008	Sum	%	Cumulation, %
Others	228	206	159	…	56	116	66	984	43.8	43.8
Stove	107	25	60	…	176	102	187	714	31.8	75.6
Electricity	70	47	39	…	89	62	92	440	19.6	95.1
Light	12	15	4	…	23	8	6	78	3.5	98.6
Cigar	9	1	13	…	0	1	1	31	1.4	100.0
Total	**426**	**294**	**275**	**…**	**344**	**289**	**352**	**2,247**	**100**	**-**
Fire deaths	5	5	5	…	0	0	0	16	-	-
Fire injuries	5	2	73	…	0	0	0	80	-	-

For both cities, exactly five understandable causes of fire are described. The other causes include bun-off grass, rubbish fires, welding torch fires, fireworks, children playing with matches, inappropriate vehicle fuel-filling methods, and other unidentified open fires significant for both cities.

[41] Suprapto: "Glancing at Trend and Challenges of Fire Safety in Indonesia," The Indonesian Fire Protection Association, Fire Science and Technology Vol.31 No.3 (Special Issue) (2012) 107-118.

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Table 27-2: Fire Causes in Jakarta, Indonesia (2002-2008)[42]

Fire causes, Jakarta	2002	2003	2004	…	2006	2007	2008	Sum	%	Cumulation, %
Electricity	397	463	456	…	519	469	475	3,237	55.0	55.0
Others	297	255	214	…	227	220	193	1,567	26.6	81.7
Stove	89	82	83	…	92	94	83	591	10.0	91.7
Cigar	79	84	44	…	58	44	49	400	6.8	98.5
Light	7	4	8	…	6	28	20	86	1.5	100.0
Total	**869**	**888**	**805**	**…**	**902**	**855**	**820**	**5,881**	**100**	**-**
Fire deaths	23	39	29	…	17	15	15	175	-	-
Fire injuries	34	245	83	…	85	63	59	604	-	-

28 Iran (Tehran)

Nationally uniform fire statistics, i.e., statistics on the causes of fires, are not yet known. For this reason, we can only refer to the IFCAA statistics for the causes of the fires. Table 28-1 shows the primary fire causes for Tehran. In addition, the same cause is cited as the leading cause of fire in the years mentioned.

Table 28-1: Fire Causes in Tehran, Iran (2015-2020)[43]

	2015	2016	2017	2018	2019	2020
Fire cause 1st	Throwing Burning Objects on Flammable Materials					
Fire cause 2nd	Abandoned discarded materials			Falling Burning Objects on Flammable Materials		
Fire cause 3rd	Waste materials			Arson		
Fire cause 4th	Carelessness			Electrical Failure		
Fire cause 5th	Matches	Rubbish		Car Electrical System Failure	Lighting Fire by Addicts	

Table 28-2: Fire situation in Tehran, Iran (2015-2020)[44]

	2015	2016	2017	2018	2019	2020
Total fires	22,197	24,731	26,953	23,404	26,823	29,433
Fire Deaths	14	17	26	20	26	50
Fire Injuries	423	432	460	459	517	544

Table 28-2 illustrates the key figures on the fire situation in Iran's 14 million metropolises.

[42] Ditto.
[43] IFCAA-Statistics.
[44] Ditto.

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29 Ireland

Table 29-1: Fire Causes in Ireland[45]

Fire Causes Ireland	2020	2021	Sum	%	Cumulation, %
Unknown Causes	6,076	5,720	11,796	51.6	51.6
Chimneys/Flues/Soot/Hot Ashes	2,180	2,066	4,246	18.6	70.2
Malicious	1,079	1,023	2,102	9.2	79.4
Rubbish Burning	1,023	770	1,793	7.8	87.2
Other Suspected Causes	696	418	1,114	4.9	92.1
Cooking and Heating	246	234	480	2.1	94.2
Electrical Equipment	192	192	384	1.7	95.8
Other Equipment	180	104	284	1.2	97.1
Electrical Wiring Installations	127	115	242	1.1	98.1
Smoking Materials	130	93	223	1.0	99.1
Matches/ Cigarette Lighters	72	80	152	0.7	99.8
Using Fuels to Kindle Fires	16	15	31	0.1	99.9
Explosions	2	16	18	0.1	100.0
Total	**12,019**	**10,846**	**22,865**	**100**	**-**

Ireland's fire cause statistics for 2020 and 2021 show the following picture (Table 29-1). Although the data for Dublin City Council are not recorded, slightly more of all fires are caused by the cause "unknown." Among the known causes, "Chimneys/Flues/Soot/Hot Ashes" are represented in the statistics with almost 19%. Essential are the reasons for "malicious" and "rubbish burning." The remaining causes of fire are in the clear single-digit range.

[45] https://www.gov.ie/en/collection/4c5e7-fire-fatality-statistics/

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30 Israel

The two available statistics from Israel paint a contradictory picture. The first source cites electricity as the leading cause of the fire (Table 30-1). But, on the other hand, the second source shows that unknown reasons dominate, while electricity hardly seems to play a role (Table 30-2).

Table 30-1: Fire Causes in Israel (2005-2006)[46]

Fire Causes, Israel, source: IFCAA	2005-2006
Fire cause 1st	Electricity
Fire cause 2nd	Smoking
Fire cause 3rd	Arson
Fire cause 4th	Playing Fire
Fire cause 5th	Not available

Table 30-2: Fire Causes in Israel (2000)[47]

Fire Causes, Israel, source: Humanity and Fires	Building fires, %	Cumulation, %
Unknown	82.0	82.0
Others	9.0	91.0
Arson	3.0	94.0
Children playing with fire	3.0	97.0
Controlled fires	2.0	99.0
Electrical failure	1.0	100.0
Total	**100**	**-**

[46] Tseng, W., Chien, S. and Shen, T., 2008. Comparative Analysis of Taiwan Fire Risk with Asia/Oceania Countries and Other Countries around the World. Fire Safety Science 9: 981-990. doi:10.3801/IAFSS.FSS.9-981, IAFSS Symposium 9.

[47] Bruschlinsky, Sokolov, Wagner: Humanity and Fires (2010), Fundacja Edukacja i Technika Ratownictwa, ISBN 978-83-88777-29-5, pp. 353

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31 Italy

Table 31-1: Fire Causes in Italy (2018)[48]

Fire Causes, Italy, 2018	Detail of the Cause	Fires	%
Cause provoking need of Rescue of Persons	Not being possible to evaluate	1,299	0.4
Cause of accident of transportation means and vehicles	Lack of attention	424	0.1
Cause of fire ignition	Chimney and/or oven ducts	13,101	4.0
	Cigarette butts and matches	6,499	2.0
	Electrical causes	11,796	3.6
	Fault on heating production plants	333	0.1
	Fireworks	361	0.1
	Glitter from friction of mechanical parts	650	0.2
	Household appliances	1,025	0.3
	Lack of safety and cautioned measures of management	1,612	0.5
	Lighting	579	0.2
	Other	20,547	6.3
	Overheating of engines and machines	1,470	0.5
	Self-combustion	1,784	0.5
Malicious / Intentional Causes	Probably fault-originated causes	2,790	0.9
	Probably malicious/intentional	13,129	4.0
Not being possible to evaluate	Not being possible to evaluate	202,480	62.1
Causes of other types of intervention	Bad working of plants and or machinery	927	0.3
	General lack of attention	2,356	0.7
	Others	6,870	2.1
	Overseen causes	3,429	1.1
Investigation ongoing	-	29,569	9.1
Total		**323,030**	**99,1**

Table 31-1 shows that 62% of all fire causes could not be determined. Among the known reasons, "Chimney and/or oven ducts" (4%), "Cigarette butts and matches" (2%), and "Electrical causes (3.6%) have the comparatively most significant shares.

Table 31-2 was taken from another source, but it refers to the official reports of the National Fire Service. Also, in this overview, the unknown causes dominate with almost 62%. Arson is cited as the cause with around 5%, while electrical causes are not identified.

[48] Ministero dell'Interno, "Statistical yearbook of the Italian National Fire Birgades," 2018.

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Table 31-2: Fire Causes in Italy (2018)[49]

Fire Causes, Italy, source: Humanity and Fires	% (2000, 2003, 2006)	Cumulation, %
Unknown	61.8	61.8
Real fire causes	27.6	89.4
Arson	4.9	94.3
Other causes	2.6	96.9
Not considered	2.5	99.4
Vehicles	0.3	99.7
Accidents	0.1	99.8
Assistance service for people	0.1	99.9
Meteorological causes	0.1	100.0
Total	**100,0**	**-**

Finally, we show the Table 31-3 with a sample of 60,000 fires analyzed in 2000, 2003, and 2006. Again, electricity ranks first with 21%. That is followed by the causes of "chimneys, other fireplaces" and "self-combustion," with 15% each. All other known fire causes appear to be in the clear single-digit range. It is also striking that all other known causes account for 32% of all fires examined.

Table 31-3: Fire Causes in Italy, sample (2000, 2003, 2006)[50]

Fire Causes, Italy, source: Humanity and Fires	% (2000, 2003, 2006)	Cumulation, %
Other causes	32.0	32.0
Electrical causes	21.0	53.0
Chimneys, other fireplaces	15.0	68.0
Self-combustion	15.0	83.0
Sparks	7.0	90.0
Cigarettes, matches	3.0	93.0
Lightning stroke	3.0	96.0
Vehicles and motors	3.0	99.0
Other known causes	1.0	100.0
Total (n=60,000 fires!)	**100**	**-**

[49] Bruschlinsky, Sokolov, Wagner: Humanity and Fires (2010), Fundacja Edukacja i Technika Ratownictwa, ISBN 978-83-88777-29-5, pp. 353.
[50] Ditto.

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32 Japan

For Japan, the causes of the fire are available according to three different detection methods. Table 32-1 lists "Arson & Suspicious" as the most significant cause of the fire.

Table 32-1: Fire Causes in Japan[51]

Fire Causes, Japan, source: IFCAA	2005-2006
Fire cause 1st	Arson & Suspicious
Fire cause 2nd	Cooking Stove
Fire cause 3rd	Smoking
Fire cause 4th	Bonfire
Fire cause 5th	Stove

Table 32-2: Fire Causes in Japan[52]

Fire Causes (Japan)	2010	2015	2018	2019	Sum	%	Cumulation, %
Other causes	14,523	13,248	13,060	13,056	53,887	33.4	33.4
Arson	5,612	4,033	2,784	2,757	15,186	9.4	42.8
Smoking	4,475	3,638	3,414	3,581	15,108	9.4	52.2
Small kitchen furnaces	4,694	3,497	2,852	2,918	13,961	8.7	60.8
Bonfires	2,515	2,305	3,095	2,930	10,845	6.7	67.5
Suspected arson	3,939	2,469	1,977	1,810	10,195	6.3	73.8
Kindling	1,033	1,343	1,856	1,758	5,990	3.7	77.6
Wiring of electric lights, telephones	1,362	1,341	1,642	1,576	5,921	3.7	81.2
Electric machinery and appliances	936	1,104	1,405	1,633	5,078	3.1	84.4
Stoves	1,469	1,228	1,197	1,144	5,038	3.1	87.5
Wiring appliances	1,143	1,160	1,297	1,352	4,952	3.1	90.6
Playing with fire	1,678	752	460	424	3,314	2.1	92.6
Exhaust pipes	700	722	725	705	2,852	1.8	94.4
Matches and lighters	822	730	641	567	2,760	1.7	96.1
Electric equipment	676	627	732	669	2,704	1.7	97.8
Lighting	535	462	444	427	1,868	1.2	98.9
Wiring for transport facilities	508	452	400	376	1,736	1.1	100.0
Total	**46,620**	**39,111**	**37,981**	**37,683**	**161,395**	**100**	-

[51] Tseng, W., Chien, S. and Shen, T., 2008. Comparative Analysis of Taiwan Fire Risk with Asia/Oceania Countries and Other Countries around the World. Fire Safety Science 9: 981-990. doi:10.3801/IAFSS.FSS.9-981, IAFSS Symposium 9.

[52] Fire and Disaster Management Agency, and Japan Statistical Yearbook 2022.

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Table 32-2 lists arson, smoking, and small kitchen furnaces as the three known fire causes with the comparatively highest proportions. Looking at arson (9.4%) and Suspected arson (6.3%) combined, the cause tops the marginal list of known causes of fire.

Table 32-3: Fire Causes in Japan[53]

Fire Causes (Japan, 2021, source: CTIF)	Fires	%	Cumulation. %
Other causes	16,652	47.3	47.3
Unknown causes	4,297	12.2	59.5
Smoking	3,042	8.6	68.1
Bonfire	2,764	7.8	76.0
Gus stove	2,678	7.6	83.6
Arson	2,333	6.6	90.2
Electric device	1,816	5.2	95.3
Field burning	1,640	4.7	100.0
Total	**35,222**	**100**	**-**

Table 32-3, with the indication of the causes of fires from 2021, is based on the survey of the CTIF-member states. Other reasons (i.e., the sum of many unspecified causes in the clear single-digit range) are in 1st place in the ranking. Together with the unknown causes, the total causes of fire are almost 60% of all cases. The proportionately most significant cause of the fire is "smoking" with nearly 9%. All other known reasons are in the clear single-digit range.

[53] CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.

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33 Jersey

Jersey is the largest Channel Islands, between England and France. About 100,000 inhabitants live on around 119 km^2. The Annual Review of the local fire department describes the island's fire situation. Among the home fires, 45% of the fires are in "cooking/kitchen." That is followed by electricity (25%) as the cause of fire in 2nd place (Table 33-1).

Table 33-1: Fire Causes in Jersey[54]

Fire Causes (Home fires), Jersey	2014 (%)	Cumulation (%)
Cooking / kitchen	45	45
Electrics, appliances, and mechanical	25	70
Others	13	83
Candles / tea lights	8	91
Smoking materials	8	99
Chimney, flue, and open fires	1	100
Total	**100**	**-**

Table 33-2 illustrates the distribution of fire causes between public and commercial premises. The two most common causes are arson and electricity, accounting for 55% of all cases.

Table 33-2: Fire Causes in Jersey[55]

Fire Causes (Public and commercial premises), Jersey	2014 (%)	Cumulation (%)
Arson	35.0	35.0
Electrical Faults	20.0	55.0
Housekeeping / Lack of Maintenance	17.5	72.5
Unidentified	15.0	87.5
Smokers' Materials	5.0	92.5
Cooking / Kitchen	5.0	97.5
Deliberate (Good Intent)	2.5	100.0
Total	**100**	**-**

[54] State of Jersey: Jersey Fire and Rescue Service, Service Annual Review 2014.
[55] Ditto.

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34 Jordan

In 1996-2004, 50% of all fires were caused by "children playing with fire" and "arson" (Table 34-1).

Table 34-1: Fire Causes in Jordan[56]

Fire Causes, Jordan, source: Humanity and Fires	1996-2004, %	Cumulation, %
Children playing with fire	31.0	31.0
Arson	19.0	50.0
Smoking	15.0	65.0
Electrical wiring and equipment	13.0	78.0
Carelessness	8.0	86.0
Gas leakage	5.0	91.0
Miscellaneous	3.0	94.0
Heaters	2.0	96.0
Car accidents	1.0	97.0
Friction	1.0	98.0
Cutting and welding sparks	1.0	99.0
Negligence	0.5	99.5
Spontaneous combustion	0.5	100.0
Total	**100**	**-**

Figures from 2012-2014, Table 34-2, show that just over 40% of all fires were caused by "electricity. This is followed by the causes of "arson" and "children's carelessness."

Table 34-2: Fire Causes in Jordan[57]

Fire Causes, Home fires, Jordan, %	2012	2013	2014
Electrical wiring and equipment	43.7	43.9	42.9
Arson	18.4	20.2	22.9
Children carelessness	12.8	12.9	10.8
Gas leak	7.5	7.2	8.9
Negligence	10.9	9.4	8.5
Heaters	2.7	2.2	1.4
Smoking	1.3	0.8	0.8
Others	2.7	3.4	3.8
Total	**100**	**100**	**100**

[56] CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.
[57] Sweis, F. K. (2020). Assessment of Fire Incidents in Jordan (2008-2014). International Journal of Science and Engineering Investigations (IJSEI), 9(102), 48-53, http://www.ijsei.com/papers/ijsei-910220-06.pd.

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35 Kazakhstan

For Central Asian Kazakhstan, the Table 35-1 shows detailed cause statistics. In addition to the number of fires, the relative number of victims and the proportion of the extent of the damage are assigned to each cause of the fire.

Table 35-1: Fire Causes in Kazakhstan concerning the number of fires (F), number of fire deaths (D), and fire damage (M) [58]

Fire Causes, Kazakhstan (2014)	F	F, %	D, %	M, %	Factor
Set arson	1,796	11.9	2.7	17.3	S
Technological process, malfunction of production equipment	70	0.5	0.0	0.7	T, S
Violation of the rules for the installation and technical operation of electrical equipment	3,444	22.8	5.4	31.9	T, S
Violation of fire safety rules during the operation of household electrical appliances	369	2.4	3.6	3.0	T, S
Violation of the fire safety rules during the construction and operation of heat-generating installations	22	0.1	0.0	0.2	T, S
Violation of fire safety rules during the construction and operation of stoves	1,949	12.9	4.5	10.9	T, S
Violation of fire safety rules in the production of electric welding and other hot work	159	1.1	0.0	0.5	T, S
Violation of fire safety rules when operating household gas appliances	174	1.2	0.0	1.6	T, S
Careless handling of fire	5,598	37.0	38.7	24.3	S
Children playing with fire	571	3.8	2.3	1.8	S
Spontaneous combustion of substances and materials	172	1.1	0.0	0.5	N
Direct lightning strikes or their secondary effects	346	2.3	0.0	0.7	N
Unspecified causes	94	0.6	5.0	3.7	T, S
Other causes of fires	359	2.4	37.8	3.0	T, S
Total	**15,123**	**100**	**100**	**100**	
Social factor (S)	-	52.7	43.7	43.4	-
Technogenic, Social factor (T, S)	-	43.9	56.3	55.4	-
Natural factor (N)	-	3.4	0.0	1.2	-
Total	**-**	**100**	**100**	**100**	**-**

Noteworthy is the summary of causes by category (S, T, N).

[58] K.Zh. Raimbekov, A.B. Kusainov: Analysis and assessment of fire risks in the Republic of Kazakhstan, Kokshetau Technical Institute, CoES Ministry of Internal Affairs of the Republic of Kazakhstan, 2016. - 67 p..

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Table 35-2 summarizes the evaluation of press releases regarding fire causes and victims for 2021. The sources indicate that probably 70% of fires break out in residential areas.

Table 35-2: Fire Causes in Kazakhstan [59]

Fire Causes, Kazakhstan	Fires	2021, %
Installation and operation of electrical equipment	4,236	34.6
Installation and operation of heating equipment	1,702	13.9
Carelessness	3,424	27.9
Others	2,894	23.6
Total	**12,256**	**100**
Fire deaths	413	-
Fire injuries	429	-

36 Kyrgyzstan

Table 36-1: Fire Causes in Kyrgyzstan [60]

Fire Causes, Kyrgyzstan	2016 (Jan-Jun)	2017	2019	2020	2021 (Jan-Nov)
Electrical equipment, %	25.0	27.9	-	38.6	40.4
Heating equipment, %	10.8	5.2	-	***8.5****	9.5
Children playing with fire, %	11.3	9.0	-	***5.0****	6.7
Transportation means vehicles, %	9.7	2.2	-	***2.0****	-
Carelessness, %	28.7	49.5	-	21.3	17.0
Others, %	14.5	6.2	-	***24.6***	26.4
Total	**100**	**100**	**-**	**100**	**100**
Number of fires	-	3,739	3,955	2,778	2,801
Fire deaths	80	66	50	43	33
Fire injuries	77	40	-	-	-
Residential fires	-	-	-	-	1,820

Note: * - estimation

There are no official statistics available for Kyrgyzstan. Nevertheless, overviews for 2016 to 2021 could be compiled from the press releases of the Ministry of Disaster Management, which is responsible for fires (Table 36-1).

[59] Kazakhstan, Newspaper internet review, www.zakon.kz.
[60]https://mchs.gov.kg/ru/chislo-pozharov-uvelichilos-na-12-2-po-sravneniyu-s-proshlym-godom/.

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37 Korea

Table 37-1 and 37-2 show the causes of fires in South Korea and the residential sector. The three leading causes are human error, electrical, and unknown, with residential proportions roughly identical to the total number of fires.

Table 37-1: Fire Causes in Korea[61]

Fire Causes in Korea, all fires	2011	%	Cumulation, %
Human error	20,238	46.1	46.1
Electrical	10,663	24.3	70.4
Unknown	4,375	10.0	80.4
Mechanical	4,072	9.3	89.6
Arson, suspicious	1,762	4.0	93.7
Others	861	2.0	95.6
Transportation accident	532	1.2	96.8
Arson	488	1.1	97.9
By nature	386	0.9	98.8
Chemical	299	0.7	99.5
Gas (explosion)	217	0.5	100.0
Total	**43,893**	**100**	-

Table 37-2: Fire Causes in Korea[62]

Fire Causes, Residential structure fires, Korea	2011	%	Cumulation, %
Human error	5,365	50.4	50.4
Electrical	2,461	23.1	73.5
Unknown	1,216	11.4	84.9
Arson, suspicious	525	4.9	89.9
Mechanical	463	4.3	94.2
Arson	230	2.2	96.4
Others	190	1.8	98.2
By nature	93	0.9	99.0
Gas (explosion)	84	0.8	99.8
Chemical	18	0.2	100.0
Car Accident	0	0.0	100.0
Total	**10,645**	**100**	-

[61]Fire Statistics Yearbook 2011 by the National Emergency Management Agency of Korea.
[62]Ditto.

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Table 37-3 the five leading causes of fire for the years 2005-2006.

Table 37-3: Fire Causes in Korea[63]

Fire Causes, Korea, source: IFCAA	2005-2006
Fire cause 1st	Electricity
Fire cause 2nd	Arson
Fire cause 3rd	Cigarette
Fire cause 4th	Sparks
Fire cause 5th	Playing Fire

[63]Tseng, W., Chien, S. and Shen, T., 2008. Comparative Analysis of Taiwan Fire Risk with Asia/Oceania Countries and Other Countries around the World. Fire Safety Science 9: 981-990. doi:10.3801/IAFSS.FSS.9-981, IAFSS Symposium 9.

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38 Kuwait

Table 38-1: Fire Causes in Kuwait[64]

Fire Causes (Cause of Ignition), Kuwait	2013	2014	2015	2016	Sum	%	Cumulation, %
Short Circuit	1,554	1,646	1,681	1,667	6,548	32.4	32.4
Children Playing with Heat Source or Combustibles	799	719	222	645	2,385	11.8	44.2
Arson or Doubtful	423	464	730	409	2,026	10.0	54.3
Discarded Cigarettes and Similar	516	512	288	612	1,928	9.5	63.8
Excessive Electric Load	234	380	166	315	1,095	5.4	69.2
Unattended Cooking Utensil on Gas Cooker	155	140	560	185	1,040	5.1	74.4
Heat Source used or Placed too Close to Combustibles	224	202	133	246	805	4.0	78.4
Other	210	214	105	191	720	3.6	81.9
Lint or Grease Build-Ups Due to Failure to Clean	120	124	298	153	695	3.4	85.4
Traffic Accidents (Collision, Overturn, Sliding)	64	87	349	66	566	2.8	88.2
Leakage or Spill Over of Flammable Liquid Due to Faulty Device or Instrument	92	137	154	165	548	2.7	90.9
Negligence	70	62	349	3	484	2.4	93.3
Improper Storage Procedures	10	9	291	8	318	1.6	94.8
Not Stated, unknown	101	97	66	17	281	1.4	96.2
Self-Flaming	15	12	239	8	274	1.4	97.6
Gas Leakage Due to Faulty Device or Instrument	44	57	9	69	179	0.9	98.5
Natural Cause	3	2	113	2	120	0.6	99.1
Gas Spill Over or Leakage Resulting from Human Fault	17	26	58	4	105	0.5	99.6
Chemical Reaction	7	7	36	3	53	0.3	99.9
Washing Parts, Cleaning, Shining, and Painting with Flammable Liquid	3	1	11	3	18	0.1	99.9
Under Investigation	0	1	11	0	12	0.1	100.0
Total	**4,661**	**4,899**	**5,869**	**4,771**	**20,200**	**100**	**-**

The statistics on the causes of fires in Kuwait for 2013-2016 make it clear that three reasons (short circuit, children playing, arson) account for half of all fires (Table 38-1).

[64]Statistical Yearbook of Kuwait.

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Table 38-2 lists the five leading causes of fire for the years 2005-2006. These causes are also at the top of the ranking in the period 2013-2016.

Table 38-2: Fire Causes in Kuwait[65]

Fire Causes, Kuwait, source: IFCAA	2005-2006
Fire cause 1st	Short Circuit
Fire cause 2nd	Playing Fire
Fire cause 3rd	Cigarette
Fire cause 4th	Overload
Fire cause 5th	Arson/Suspicious

39 Latvia

Table 39-1: Fire Causes in Latvia[66]

Fire Causes (Latvia, 2021, source: CTIF)	Fires	%	Cumulation, %
Careless handling of fire	4,415	65.7	65.7
Electrical devices/equipment	1,283	19.1	84.8
Heating	523	7.8	92.6
Intentional burning	238	3.5	96.2
Other causes	221	3.3	99.4
Children playing with fire	37	0.6	100.0
Under investigation	0	0.0	100.0
Unknown causes	0	0.0	100.0
Total	**6,717**	**100**	**-**

90% of all fires have three causes. However, it should be noted that State Fire and Rescue Service does not compile statistical data on forest fires' causes (Table 39-1).

[65]Tseng, W., Chien, S. and Shen, T., 2008. Comparative Analysis of Taiwan Fire Risk with Asia/Oceania Countries and Other Countries around the World. Fire Safety Science 9: 981-990. doi:10.3801/IAFSS.FSS.9-981, IAFSS Symposium 9.
[66]CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.

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40 Lithuania

Table 40-1: Fire Causes in Lithuania[67]

Fire Causes (Lithuania, 2021, source: CTIF)	Fires	%	Cumulation, %
Other causes	1,935	23.2	23.2
Outside (secondary) source of ignition	1,566	18.8	42.0
Infringements and faults in the installation and operation of stoves, fireplaces, and chimneys	1,535	18.4	60.4
Negligent human behavior	1,377	16.5	77.0
Failure of electrical equipment, appliances, and electrical installation	908	10.9	87.9
Electrical faults in vehicles	603	7.2	95.1
Burning of grass, stubble, and crop waste	374	4.5	99.6
Investigation of the incident in progress	35	0.4	100.0
Total	**8,333**	**100**	-

"Other causes" is the leading cause in Lithuania (Table 40-1).

41 Malaysia

The ranking of the fire causes in the Table 41-1 is also given by electrical causes in 2005-2006. At that time, "Unknown causes" and "Others" were still listed in the list of the top 5 national reasons for the fire.

Table 41-1: Fire Causes in Malaysia[68]

Fire Causes, Malaysia, source: IFCAA	2005-2006
Fire cause 1st	Electricity
Fire cause 2nd	Unknown
Fire cause 3rd	Others
Fire cause 4th	Gas/Kerosene Stove
Fire cause 5th	Mosquito Coils, Candle, Joss Stick

Table 41-2 reflects the causes of fires in Malaysia for 2020-2021. The four leading reasons for fire account for 75% of all fires. On closer inspection, Resistance Heating, Sparks/Short Circuits, Arcs, and Overcurrent/Overload can be

[67]CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.

[68]Tseng, W., Chien, S. and Shen, T., 2008. Comparative Analysis of Taiwan Fire Risk with Asia/Oceania Countries and Other Countries around the World. Fire Safety Science 9: 981-990. doi:10.3801/IAFSS.FSS.9-981, IAFSS Symposium 9.

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summarized under the generic term "Electricity." This results in a share of 61.3%, which is attributable to electrical energy alone. Noteworthy is the tiny proportion of fires related to the causes "Others" and "Cannot Be Determined."

Table 41-2: Fire Causes in Malaysia[69]

Fire Causes in Buildings, Malaysia	2020	2021	Sum	%	Cumulation, %
Resistance Heating	1,918	2,241	4,159	28.9	28.9
Gas Equipment	1,225	1,328	2,553	17.7	46.7
Sparks/Short Circuits	1,035	1,110	2,145	14.9	61.6
Arcs	1,009	964	1,973	13.7	75.3
Matches/Lighters	494	525	1,019	7.1	82.4
Blazing Fire	441	519	960	6.7	89.0
Overcurrent/Overload	294	243	537	3.7	92.8
Surface/Heat/Welding Objects	189	180	369	2.6	95.3
Lamp/Candle/Torch	167	199	366	2.5	97.9
Lightning	43	61	104	0.7	98.6
Friction/Impact	43	38	81	0.6	99.2
Fireworks	8	28	36	0.3	99.4
Others	11	12	23	0.2	99.6
Explosion	13	8	21	0.1	99.7
Spontaneous Fire	12	8	20	0.1	99.9
Chemical reaction	8	10	18	0.1	100.0
Cannot Be Determined	0	3	3	0.0	100.0
Total	**6,910**	**7,477**	**14,387**	**100**	**-**

[69]Laporan Tahunan 2021, Jabatan Bomba Dan Penyelamat Malaysia, Fire Frontlines Family Malaysia, Annual Report Fire and Rescue Department of Malaysia.

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42 Mongolia

For 2005 and 2006, a ranking of the causes of fires is available in the Table 42-1. From the precise naming of the reasons, it is clear that electricity is the number 1 cause of the fire.

Table 42-1: Fire Causes in Mongolia[70]

Fire Causes, Mongolia, source: IFCAA	2005-2006
Fire cause 1st	Electricity
Fire cause 2nd	Open Fire
Fire cause 3rd	Stove
Fire cause 4th	Cigarette, Match
Fire cause 5th	Playing Fire

The causes of fire in Mongolia for 2013-2017 could be taken from a specialist publication. In comparison with the previous source, different names were used. Regardless of this, it can be said that one cause, i.e., careless handling of fire, accounts for significantly more than half of all fires (Table 42-2).

Table 42-2: Fire Causes in Mongolia[71]

Fire Causes, Mongolia	2013	2014	2015	2016	2017	Sum	%	Cumulation, %
Careless handling of fire	2,204	2,570	2,944	2,339	2,231	12,288	61.9	61.9
Man-made (technological)	938	910	884	784	530	4,046	20.4	82.3
Others	467	558	492	342	501	2,360	11.9	94.2
Violation of fire safety rules	175	160	206	216	212	969	4.9	99.1
Deliberate arson	26	20	32	19	58	155	0.8	99.8
Natural disasters	9	4	3	10	4	30	0.2	100.0
Total	**3,819**	**4,222**	**4,561**	**3,710**	**3,536**	**19,848**	**100**	**-**

[70]Tseng, W., Chien, S. and Shen, T., 2008. Comparative Analysis of Taiwan Fire Risk with Asia/Oceania Countries and Other Countries around the World. Fire Safety Science 9: 981-990. doi:10.3801/IAFSS.FSS.9-981, IAFSS Symposium 9.
[71]Uuganbayar Enkhtayvan: Fire Hazard Analysis in the Residential Sector of Mongolia, Fire Safety Journal (2018).

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43 Myanmar

For Myanmar, the causes of the fire from 2015 to 2019 are known. The source cited here states that the entire spectrum of fires can be described with eight reasons. Only two known causes cause 58% of the fires. Noteworthy is the fact that the cause "Forest" is indicated (Table 43-1).

Table 43-1: Fire Causes in Myanmar[72]

Fire causes, Myanmar	2015	2016	2017	2018	2019	Sum	%	Cumulation, %
Negligence	541	599	626	594	734	3,094	33.3	33.3
Electrical Fire	376	414	494	455	599	2,338	25.2	58.5
Kitchen	362	351	316	330	388	1,747	18.8	77.4
Arson	208	187	209	267	261	1,132	12.2	89.5
Forest	170	239	120	61	113	703	7.6	97.1
Spontaneous	40	44	29	29	42	184	2.0	99.1
Insurgency	3	4	29	2	7	45	0.5	99.6
Others	8	9	9	1	11	38	0.4	100.0
Total	**1,708**	**1,847**	**1,832**	**1,739**	**2,155**	**9,281**	**100**	-

[72]Myanmar, Statistical Yearbook, http://mmsis.gov.mm/statHtml/statHtml.do#.

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44 Netherlands

Information from several sources and different time intervals are available for the Netherlands. In 1921-1930, as documented in the Table 44-1, 59% of all fire causes remained unknown.

Table 44-1: Fire Causes in the Netherlands[73]

Fire Causes, Netherlands, source: Humanity and Fires	1921-1930, %	Cumulation, %
Unknown	59	59
Others	12	71
Clothes and textiles	10	81
Chimneys	6	87
Lightning strokes	6	93
Tiled stoves	2	95
Hay, straw, etc.	2	97
Children playing with fire	2	99
Arson	1	100
Total	**100**	**-**

Statistics from 1990-2005 show that almost 29% of all fires were caused by "damaged appliances or devices." For another 22% of the fires, no causes could be determined (Table 44-2).

Table 44-2: Fire Causes in the Netherlands[74]

Fire Causes, Netherlands, source: Brandweerstatistiek	1990-2005, %	Cumulation, %
Damaged appliances or devices	28.7	28.7
Unknown	22.0	50.7
Arson	17.0	67.7
Other causes	17.0	84.7
Fire hazard works	6.0	90.7
Children playing with fire	4.0	94.7
Smoking	3.0	97.7
Spontaneous combustion	2.0	99.7
Fireworks	0.3	100.0
Total	**100**	**-**

[73]Bruschlinsky, Sokolov, Wagner: Humanity and Fires (2010), Fundacja Edukacja i Technika Ratownictwa, ISBN 978-83-88777-29-5, pp. 353.
[74]Centraal Bureau voor de Statistiek: Brandweerstatistiek 1993-2000, ISBN: 903573065-8, ISBN 903571621-3.

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Table 44-3: Fire Causes in the Netherlands[75]

Fire Causes in House Fires (Netherlands, %)	2018	2019	2020	2021
Other causes	33	34	29	26
Human actions	22	23	23	24
Electricity	21	20	21	21
Fireplaces/ Stoves	10	8	8	10
Arson	7	7	8	7
Accumulators, batteries	0	3	2	5
Scalding and spontaneous combustion	3	1	4	4
Work	4	4	5	3
Total	**100**	**100**	**100**	**100**

A Dutch internet source (Table 44-3) states that in the years 2018-2021, on average, about 30% of fires were related to "other causes." Among the known causes are "human actions," "electricity," and "fireplaces/stoves."
CTIF's 2021 survey provided a list of the seven leading fire causes; however, no detailed information could be provided (Table 44-4).

Table 44-4: Fire Causes in the Netherlands[76]

Fire Causes (Netherlands, 2021, source: CTIF)	Fires	%	Cumulation, %
Human action	n.a.	n.a.	n.a.
Technical causes devices	n.a.	n.a.	n.a.
Technical causes buildings	n.a.	n.a.	n.a.
Spontaneous heat generation	n.a.	n.a.	n.a.
Lightning	n.a.	n.a.	n.a.
Other	n.a.	n.a.	n.a.
Unknown	n.a.	n.a.	n.a.
Total	**1,792**	**100**	**-**

Note: n.a. – data are not applicable, based on 1,792 fire investigations (indoor fires)

[75]https://fireprotectionsupport.nl/brand/.
[76]CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.

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45 New Zealand

Table 45-1: Fire Causes in New Zealand[77]

Fire Causes, New Zealand, source: IFCAA	2005-2006
Fire cause 1st	Unlawful
Fire cause 2nd	Deliberate
Fire cause 3rd	Equipment Failure
Fire cause 4th	Careless Disposal Cigarette
Fire cause 5th	Cooking

The source cited only lists the most important causes of the fire but no figures (Table 45-1).

Table 45-2: Fire Causes in New Zealand[78]

Fire Causes, New Zealand	2019	2020	2021	Sum	%	Cumulation, %
Deliberately lit fire	7,110	8,919	6,944	22,973	36.6	36.6
Vegetation cause	5,018	5,629	4,022	14,669	23.4	60.0
Carelessness with heat source	2,671	2,760	2,348	7,779	12.4	72.4
Mechanical failure or malfunction	2,367	2,161	2,082	6,610	10.5	83.0
Other or undetermined cause	2,138	2,150	2,083	6,371	10.2	93.1
Operating failure	812	675	706	2,193	3.5	96.6
Carelessness with material ignited	302	291	244	837	1.3	98.0
Design construction, installation fault	179	185	145	509	0.8	98.8
Natural causes	147	149	121	417	0.7	99.4
Reckless (involving fire)	91	97	86	274	0.4	99.9
Not recorded	76	5	3	84	0.1	100.0
Total	**20,911**	**23,021**	**18,784**	**62,716**	**100**	**-**

Table 45-2, with the figures from 2019-2021, shows that two causes come into question for 60% of all fires and seven reasons for 98%.

[77]Tseng, W., Chien, S. and Shen, T., 2008. Comparative Analysis of Taiwan Fire Risk with Asia/Oceania Countries and Other Countries around the World. Fire Safety Science 9: 981-990. doi:10.3801/IAFSS.FSS.9-981, IAFSS Symposium 9.
[78]OIA2022-00008548 Fire call-outs response statistics, information released under the Official Information Act 1982.

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46 Nigeria (Lagos State)

Nigeria is a state in West Africa with over 200 million inhabitants (2018). It is by far the most populous country in Africa and the sixth most populous country globally. Lagos's former capital and economic center is Africa's second-largest city, with around 16 million inhabitants. There are currently another seven megacities in Nigeria. Regarding the causes of the fire in Nigeria, an exciting publication deals with the fire situation in Lagos State.

Table 46-1: Fire Causes in Home Fires in Lagos State (Nigeria)[79]

Fire causes (Fatal home fires, Lagos)	Fires		%	
	2014	2009-2014, average p.a.	2009-2014	Cumulation
Electrical technical fault	25	28	29.0	29.0
Unknown	12	25	25.3	54.3
Heat transfer	2	9	9.2	63.5
Sparks	7	9	9.0	72.4
Gas cylinders	5	8	8.0	80.4
Others	2	5	5.1	85.5
Arson	2	4	4.5	90.0
Cooking appliance left on	2	4	3.9	93.9
Lighted match	2	2	2.1	96.0
Candle	1	2	1.6	97.7
Power surge	1	1	1.2	98.9
Sparks	1	1	1.2	100.0
Total	**62**	**98**	**100**	**-**

Table 46-1 shows the causes of fatal home fires in Lagos State. For the year 2014, there were precisely 62 such fires. 2009-2014, an average of 98 fatal home fires were registered annually. In 93.7% of these fires, there is one death each, and in another 5.1%, there are two deaths each. In 29% of all fatal home fires, electricity is the leading cause. In another 25%, the cause of the fire could not be determined. Then both of these causes account for almost 55% of all fatal home fires. The remaining reasons are in the single-digit range.

[79]"Adekunle A et al., Statistical Analysis of Fire Outbreaks in Homes and Public Buildings in Nigeria: A Case Study of Lagos State," "International Journal of Engineering Research and Advanced Technology (IJERAT) E-ISSN: 2454-6135, DOI: http://doi.org/10.31695/IJERAT.2018.3294 Volume.4, Issue Aug 8 -2018".

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Table 46-2 from same publication also examines the causes of fires in public buildings.

Table 46-2: Average number of fires (F) in public buildings (T) attended by fire officers per year and most commonly identified fire causes, Lagos, 2009-2014[80]

T	F	1st-Cause	%	2nd-Cause	%	3rd-Cause	%
Office	200	Arson	55	Technical fault	35	Cooking appliance left on	10
Industry	170	Technical fault	54	Arson	30	Heat transfer	16
Shop, boutique, market	150	Arson	62	Technical fault	18	Heat transfer	20
Factory	120	Technical fault	48	Arson	40	Heat transfer	12
Restaurant, nightclub	115	Cooking appliance left on	46	Technical fault	40	Heat transfer	14
Hotel, guest house	110	Cooking appliance left on	60	Heat transfer	30	Candle	10
Theatre, cinema, museum	108	Arson	68	Technical fault	20	Cooking appliance left on	12
School	93	Arson	40	Technical fault	35	Child playing with fire	25
Church	79	Arson	50	Technical fault	35	Heat transfer	15
Prison	74	Arson	45	Smoking	30	Technical fault	25
Hospital	60	Arson	55	Technical fault	35	Smoking	10
Motherless home	54	Arson	52	Candle	10	Heat transfer	38
Petrol station	44	Technical fault	60	Arson	15	Heat transfer	25
Airport	43	Technical fault	65	Arson	10	Heat transfer	25
Bank	41	Technical fault	59	Arson	10	Heat transfer	31
Stadium	38	Arson	45	Heat transfer	20	Technical fault	25

Table 46-2 lists 16 different types of buildings and assigns the number of annual fires (F) and the three most important fire causes. First, one notices that the sum of the percentages in each line correctly results in 100 (exception: "Stadium" – 90%). Among the registered causes of fire, the following are particularly noteworthy: arson – 29.2%, technical fault – 29.2%, and heat transfer -22.9%.

[80]"Ditto.

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47 Norway

The causes of the fire from 205-2006 are available for Norway. Chimney fires because of lack of maintenance etc., blunt. With a share of 9%, the cause of "electricity" is worth mentioning (Table 47-1).

Table 47-1: Fire Causes in Norway[81]

Fire Causes, Norway, source: Humanity and Fires	2005-2006, %	Cumulation, %
Chimney fire (lack of maintenance etc.)	56.7	56.7
Unknown	10.2	66.9
Electricity	9.1	76.0
Deliberate (arson, suicide, children playing with fire)	5.6	81.6
Careless handling of open fire	5.1	86.7
Improper use of electrical equipment (other)	3.5	90.2
Other	3.4	93.6
Improper use of electrical equipment (cooking)	2.9	96.5
Candles	1.8	98.3
Smoking	1.4	99.7
Explosion	0.3	100.0
Total	**100**	**-**

48 Pakistan (Punjab)

For Pakistan, there are no known uniform fire statistics and, therefore, no statistics on the causes of fires. Regardless of this, a comparatively modern fire protection system has developed in the province of Punjab. Thus, data for the year 2012 could be extracted from the source cited here.

The following information can be found in the Table 48-1. First of all, in Pakistan, it is possible to see structured and well-defined terms for naming the causes of the fire. Of all known causes, electricity accounts for half of all fires. If smoking is the second known cause, this is 60% of all fires. One in four fires could not be identified concerning a reason.

[81]Bruschlinsky, Sokolov, Wagner: Humanity and Fires (2010), Fundacja Edukacja i Technika Ratownictwa, ISBN 978-83-88777-29-5, pp. 353.

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Table 48-1: Fire Causes in Pakistan, Province Punjab [82]

Fire causes, Pakistan, Punjab	2012, %	Cumulation, %
Short-circuiting	50.0	50.0
Unknown	25.0	75.0
Careless Smoking	10.0	85.0
Gas Leakage	5.0	90.0
Others	5.0	95.0
Candle/Heater	2.0	97.0
Forest fire	1.0	98.0
Fireworks	1.0	99.0
LPG/Cylinder Blast	0.8	99.8
Kitchen Fire	0.2	100.0
Total	**100**	**-**

49 Papua New Guinea (PNG)

There are 14 fire stations throughout the country, and the national headquarters is in the nation's capital. It is known that PNG Fires Service has a well-trained group of specialists in fire investigation. Table 49-1 lists the known leading causes of fire.

Table 49-1: Fire Causes in Papua New Guinea[83]

Fire Causes, Papua New Guinea, source: IFCAA	2005-2006
Fire cause 1st	Electricity
Fire cause 2nd	Arson
Fire cause 3rd	Unknown
Fire cause 4th	Carelessness
Fire cause 5th	Candle

[82]Muhammad Akram Malik et al.: Fire and Safety Culture Development Issues and Causes of Fires in Industries of Pakistan, Interdisciplinary Journal of Contemporary Research in Business, February 2013, VOL 4, NO 10.
[83]Tseng, W., Chien, S. and Shen, T., 2008. Comparative Analysis of Taiwan Fire Risk with Asia/Oceania Countries and Other Countries around the World. Fire Safety Science 9: 981-990. doi:10.3801/IAFSS.FSS.9-981, IAFSS Symposium 9.

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50 Oman

Table 50-1: Fire Causes in Oman[84]

Fire Causes, Oman	2010	2011	2012	2013	2014	2015	Sum	%	Cumulation, %
Connection to a heat source	1,860	2,043	934	682	371	444	6,334	28.8	28.8
Electricity	736	875	994	1,113	1,150	1,225	6,093	27.7	56.6
Deliver to a heat source	1	103	1,690	1,291	1,161	1,018	5,264	24.0	80.6
Others	61	120	241	215	194	421	1,252	5.7	86.3
Fuel leaking	115	161	212	143	136	180	947	4.3	90.6
Technical, Mechanical fault	101	87	105	81	95	80	549	2.5	93.1
Traffic accidents	55	62	65	44	47	78	351	1.6	94.7
Gas Leaking	45	46	62	59	55	70	337	1.5	96.2
Cooking	28	20	32	37	37	56	210	1.0	97.2
Child playing	41	32	11	27	24	32	167	0.8	97.9
Smoking	20	47	24	24	24	27	166	0.8	98.7
Use of Incense	25	17	24	36	24	21	147	0.7	99.4
Scattered sparks	19	19	37	16	17	32	140	0.6	100.0
Total	**3,107**	**3,632**	**4,431**	**3,768**	**3,335**	**3,684**	**21,957**	**100**	**-**

Table 50-1 shows that three causes of fire account for almost 81% of all fires. The remaining causes only appear in the single-digit range.

51 Philippines

Table 51-1: Fire Causes in the Philippines[85]

Fire Causes, Philippines, source: IFCAA	2005-2006
Fire cause 1st	Electricity
Fire cause 2nd	Combustion/Flames
Fire cause 3rd	Unknown
Fire cause 4th	Others
Fire cause 5th	Cigarette

The Philippines consists of 7,641 islands, of which about 880 are inhabited. In 2018, the islands were occupied by 106 million people. On average, about 16,000 fires were registered annually between 2017 and 2020.

[84]Annual Reports of Civil Defense.

[85]Tseng, W., Chien, S. and Shen, T., 2008. Comparative Analysis of Taiwan Fire Risk with Asia/Oceania Countries and Other Countries around the World. Fire Safety Science 9: 981-990. doi:10.3801/IAFSS.FSS.9-981, IAFSS Symposium 9.

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For the Table 51-1, electricity is also mentioned as the leading cause of fire for 2005-2006.

Table 51-2 shows that electricity is responsible for about one in three fires. Another 21% of the fires have no cause of fire, or the fires are under investigation.

Table 51-2: Fire Causes in the Philippines[86]

Fire Causes, Philippines	2017	2018	2019	2020	Sum	%	Cumulation, %
Faulty Electrical Wiring / Connection	4,872	5,319	3,104	3,812	17,107	26.8	26.8
Under Investigation / Unknown	3,401	3,821	5,258	968	13,448	21.0	47.8
Others	1,801	2,358	1,608	1,288	7,055	11.0	58.9
Direct Flame Contact / Static Electricity	45	69	2,399	2,082	4,595	7.2	66.0
Cigarette Butt	1,002	1,128	1,096	936	4,162	6.5	72.6
Neglected Cooking / Stove	711	877	949	931	3,468	5.4	78.0
Electrical Machineries	82	110	1,517	1,721	3,430	5.4	83.4
Candle/ Gasera	463	521	369	414	1,767	2.8	86.1
Neglected Electrical Appliances / Devices	412	432	438	483	1,765	2.8	88.9
Torch / Sulo"	427	858	114	110	1,509	2.4	91.2
Matchstick/Lighter	320	439	447	287	1,493	2.3	93.6
Spontaneous Combustion	228	370	503	168	1,269	2.0	95.6
Lightning	7	14	446	591	1,058	1.7	97.2
Incendiary Device / Mechanism or Ignited Flammable Liquid	139	138	93	302	672	1.1	98.3
Chemicals	137	93	163	215	608	1.0	99.2
LPG Related	124	104	84	85	397	0.6	99.8
Pyrotechnics	25	22	23	27	97	0.2	100.0
Bomb Explosion	1	2	1	0	4	0.0	100.0
Total	**14,197**	**16,675**	**18,612**	**14,420**	**63,904**	**100**	**-**

[86]Philippine Statistical Yearbook (PSY), 2018-2021.

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52 Poland

Table 52-1: Fire Causes in Poland[87]

Fire Causes (Poland, 2021, source: CTIF)	Fires	%	Cumulation, %
Intentional arsons	26,673	28.0	28.0
Carelessness of adults when using open fire	18,732	19.6	47.6
Incorrect operation of solid fuel heating devices	15,626	16.4	64.0
Unknown causes	12,481	13.1	77.0
Other causes	7,595	8.0	85.0
Defects of electrical devices and installations	5,420	5.7	90.7
Disadvantages of means of transport	4,878	5.1	95.8
Carelessness of adults in other cases	4,004	4.2	100.0
Total	**95,409**	**100**	-

For Poland, the Table 52-1 shows that three known causes of fire account for more than 60% of all fires.

53 Romania

Table 53-1: Fire Causes in Romania [88]

Fire Causes (Romania, 2021, source: CTIF)	Fires	%	Cumulation, %
Open fire	10,531	34.4	34.4
Other determining circumstances	5,440	17.8	52.2
Faulty or improvised electrical installations	5,251	17.2	69.4
Chimney, defective or improvised flue	2,787	9.1	78.5
Defective or improvised heating systems	2,207	7.2	85.7
Smoking without complying with the rules	2,196	7.2	92.9
Intentional action	2,142	7.0	99.9
To be determined/undetermined	43	0.1	100.0
Total	**30,597**	**100**	-

For Romania, the Table 53-1 makes it clear that three known causes of fire account for almost 70% of all fires.

[87]CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.
[88]CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.

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54 Russia

Table 54-1: Fire Causes in Russia (2014-2018) [89]

Fire Causes, Russia (2014-2018)	2014	...	2017	2018	Sum	%	Cumulation, %
Negligence of adults with fire	48,843	...	39,971	37,195	215,105	30.2	30.2
Operation of electrical equipment	40,871	...	40,528	41,763	205,246	28.8	59.1
Operation of furnaces and malfunctions in their device	22,506	...	20,250	21,934	107,685	15.1	74.2
Arson	18,390	...	14,833	13,625	80,252	11.3	85.5
Due to vehicle violations	10,887	...	9,050	9,027	48,529	6.8	92.3
Other causes	2,835	...	1,981	1,958	11,360	1.6	93.9
Children playing with fire	2,994	...	1,843	1,803	11,067	1.6	95.4
Unknown	1,421	...	1,553	1,555	7,334	1.0	96.5
Gas equipment and violations of operating standards	-	...	1,233	1,260	5,158	0.7	97.2
For electrical work	1,017	...	944	922	4,854	0.7	97.9
Heat generating installations	692	...	505	446	2,991	0.4	98.3
Thunderstorms	642	...	457	480	2,906	0.4	98.7
Production equipment, production process	510	...	523	564	2,609	0.4	99.1
Spontaneous combustion	477	...	466	513	2,483	0.3	99.4
Hot work when heating the engine, pipes and other	434	...	335	372	1,774	0.2	99.7
Incorrect operation of gas, gasoline, kerosene devices	1,052	...	88	87	1,503	0.2	99.9
Explosions	146	...	63	72	441	0.1	99.9
Pyrotechnic products	81	...	64	67	375	0.1	100.0
Total	**153,798**	**...**	**134,687**	**133,643**	**711,672**	**100**	**-**

For Russia, the Table 54-1 makes it clear that three known causes of fire account for just over 74% of all fires. What is striking is the fact that the proportion of unknown reasons for fire is comparatively tiny.

[89] Federal State Statistics Service of Russian Federation (RosStat), https://eng.rosstat.gov.ru/.

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55 Saudi Arabia

Table 55-1: Fire Causes in Saudi Arabia[90]

Fire Causes, Saudi Arabia	1430 AH (2008-2009)	1431 AH (2009-2010)	Sum	%	Cumulation, %
Electric petition	10,249	10,453	20,702	34.9	34.9
Kids messing around	8,256	7,915	16,171	27.3	62.1
A slow glowing heat source	3,043	3,096	6,139	10.3	72.5
Transport combustion	3,053	2,889	5,942	10.0	82.5
Waste and waste disposal	1,991	2,012	4,003	6.7	89.2
Stove combustion	1,361	1,493	2,854	4.8	94.1
Criminal	828	920	1,748	2.9	97.0
Petroleum spillage	309	432	741	1.2	98.2
Under the procedure	143	398	541	0.9	99.2
Self-ignition	80	69	149	0.3	99.4
Fatal natural phenomena	71	49	120	0.2	99.6
Gas or dust explosion	49	51	100	0.2	99.8
Chemical reaction	38	29	67	0.1	99.9
Other	0	64	64	0.1	100.0
Total	**29,471**	**29,870**	**59,341**	**100**	**-**

For Saudi Arabia, the Table 55-1 makes it clear that four known causes of fire account for more than 80% of all fires.

[90]Fire Statistics, Civil Defense Saudi Arabia.

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56 Slovakia

Table 56-1 visualizes that half of all fire causes could not be determined. Another 38% of fires have reasons, summarized in the term "Other causes."

Table 56-1: Fire Causes in Slovakia[91]

Fire Causes (Slovakia, 2021, source: CTIF)	Fires	%	Cumulation, %
Other causes	2,908	37.7	37.7
Unknown causes	1,286	16.7	54.4
Intentionally set by an unknown person	760	9.9	64.3
Burning of dry grass and other vegetation	732	9.5	73.7
Handling with naked flame	596	7.7	81.5
Burning of waste (outside of waste dump sites)	499	6.5	88.0
Soot burnout	486	6.3	94.3
Other operational or technical failures	443	5.7	100.0
Total	**7,710**	**100**	-

[91]CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.

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57 South Africa (RSA)

For South Africa, "electricity" and "open flames" are at the forefront of all fire causes.

Table 57-1: Fire Causes in South Africa[92]

Fire causes, Structural fires, RSA	2006-2011, %	Cumulation, %
Electrical	34.5	34.5
Open flames	24.5	59.0
Cooking	14.5	73.5
Heating	9.5	83.0
Arson	8.0	91.0
Smoking	4.0	95.0
Welding	4.0	99.0
Lightning	1.0	100.0
Total	**100**	**-**

Table 57-2: Fire Causes in South Africa[93]

Fire causes, total of fires, RSA	2006-2011, %	Cumulation, %
Open flames	40.0	40.0
Undetermined	33.0	73.0
Electrical	9.0	82.0
Other	5.0	87.0
Smoking	4.0	91.0
Cooking	3.0	94.0
Arson	3.0	97.0
Heating	2.0	99.0
Welding	0.5	99.5
Lightning	0.5	100.0
Unrest	0.0	100.0
Total	**100**	**-**

[92]Johan Van Den Heever: Overview of the fire problem - Fire Services Statistics, Fire Protection Association of Southern Africa (FPASA).
[93]Ditto.

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58 Sweden

Table 58-1: Fire Causes in Sweden (1987-1994) [94]

Fire Causes, Sweden	1987	1988	...	1993	1994	Sum	%	Cumulation, %
Lightning	5,449	13,006	...	12,534	14,941	75,054	26.7	26.7
Unknown causes	10,475	10,054	...	7,513	6,869	70,805	25.2	52.0
Electricity	4,954	7,188	...	5,069	5,885	42,106	15.0	67.0
Other known causes	5,521	5,318	...	4,188	3,856	37,625	13.4	80.4
Other fires in fireplaces or stoves	1,779	2,502	...	2,155	1,994	17,108	6.1	86.5
Intent	1,741	1,412	...	1,936	1,765	14,501	5.2	91.6
Matches, candles, etc.	1,376	1,047	...	1,146	1,143	9,271	3.3	94.9
Chimney fires	1,253	776	...	901	782	6,673	2.4	97.3
Smoking	544	417	...	276	293	3,031	1.1	98.4
Welding	399	161	...	179	146	1,698	0.6	99.0
Spontaneous	248	151	...	209	163	1,478	0.5	99.5
Explosion	299	139	...	146	147	1,326	0.5	100.0
Total	**34,038**	**42,171**	**...**	**36,252**	**37,984**	**280,676**	**100**	**-**

Table 58-1 shows the causes of fires in Sweden from 1987 to 1994. Four causes dominate. The other causes of fire are lost in the statistical noise.

[94]Statistik Arsbok för Service 1996 (Statistical Yearbook of Sweden 1996).

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59 Switzerland

Table 59-1: Fire Causes in Switzerland (2002-2021) [95]

Fire Causes, Switzerland	%	Cumulation, %
Lightning strikes	35.1	35.1
Electricity	26.7	61.8
Matches, lighters, smokers, candles, welding, soldering, fireworks	13.3	75.1
Combustion devises	8.9	84.0
Unknown causes	5.3	89.3
Arson	3.8	93.1
Other known causes	3.3	96.4
Explosions	1.9	98.3
Spontaneous combustion	1.7	100.0
Total	**100**	**-**

Figures for the years 2002-2021 are available for Switzerland. According to the study, 75% of all fires are caused by three known causes. In addition, arson and unknown reasons have a share that is clearly in the single digits in each case (Table 59-1).

[95]Fire damage statistics from Insurance Companies Association.

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60 Taiwan

Both Table 60-1 and 60-2 confirm that electricity and smoking are the known leading causes of fire on the island of Taiwan.

Table 60-1: Fire Causes in Taiwan [96]

Fire Causes, Taiwan, source: IFCAA	2005-2006
Fire cause 1st	Electricity
Fire cause 2nd	Cigarette
Fire cause 3rd	Arson
Fire cause 4th	Machinery
Fire cause 5th	Cooking

Table 60-2: Fire Causes in Taiwan [97]

Fire Causes, Taiwan (2003-2006)	%	Cumulation, %
Electricity	25.0	25.0
Unknown	24.9	49.9
Smoking	13.0	62.9
Arson	9.5	72.4
Machinery	5.9	78.3
Cooking	5.1	83.4
Others	4.5	87.9
Ritual	3.2	91.1
Construction welding	2.0	93.1
Vehicle	1.3	94.4
Playing fire	1.2	95.6
Suicide	1.0	96.6
Light, candle	0.9	97.5
Fire crackers	0.9	98.4
LPG	0.8	99.2
Barbecue	0.3	99.5
Combustible materials	0.2	99.7
Chemistry	0.2	99.9
Natural disaster	0.1	100.0
Total	**100**	-

[96]Tseng, W., Chien, S. and Shen, T., 2008. Comparative Analysis of Taiwan Fire Risk with Asia/Oceania Countries and Other Countries around the World. Fire Safety Science 9: 981-990. doi:10.3801/IAFSS.FSS.9-981, IAFSS Symposium 9.
[97]Ditto.

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61 Türkiye

Table 61-1: Fire Causes in Türkiye[98]

Fire Causes, Türkiye (2004)	Fires	%	Cumulation, %
Other Causes	20,266	33.3	33.3
Cigarette	15,592	25.6	59.0
Electricity	11,362	18.7	77.7
Chimney Fire	4,436	7.3	85.0
Sabotage	3,535	5.8	90.8
Heater / Oven	2,658	4.4	95.1
Bottle Gas	1,908	3.1	98.3
Fuel oil- Haz-Mat	908	1.5	99.8
Stroke of Lightning	136	0.2	100.0
Total	**60,801**	**100**	-

For Türkiye, a 2004 statistic states that smoking and electricity are the known leading causes of fire (Table 61-1).

[98]T.C. Icisleri Bakanligi, Sivil Savunma Gemel Müdürlügü, 2004 Yilina Ait Yangin Istatistikleri (Fire Statistics 2004).

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62 United Kingdom (England)

In the UK fire statistics, Primary fires are defined as fires that meet at least one of the following conditions:

- any fire that occurred in a (non-derelict) building, vehicle, or outdoor structure,
- any fire involving fatalities, casualties, or rescues,
- any fire attended by five or more pumping appliances.

Table 62-1: Fire Causes in England (2021-2022)[99]

Fire Causes, England	Primary Fires	%	Cumulation, %
Other accidental	13,538	28.4	28.4
Misuse of equipment or appliances	8,839	18.6	47.0
Faulty appliances and leads	7,789	16.4	63.3
Faulty fuel supplies	6,333	13.3	76.6
Placing articles too close to heat	5,148	10.8	87.5
Careless handling of fire or hot substances	3,816	8.0	95.5
Chip/fat pan fires	1,714	3.6	99.1
Playing with fire	267	0.6	99.6
Unspecified	174	0.4	100.0
Total	**47,618**	**100**	**-**

Table 62-1 illustrates that among all causes of fire, the group "other accidental" leads the ranking with 28.4%. "Misuse of equipment or appliances" and "Faulty appliances and leads" then follow in 2nd and 3rd place. All three causes then account for 63.4% of all primary fires.
The English fire statistics offer the possibility to analyze "causes of fire" concerning the "source of ignition." Table 61-2 reflects the distribution of primary fires by fire causes (groups of reasons) and ignition source (groups) for 2021-2022. The two most common combinations are "Misuse of equipment or appliances - Cooking appliances" with 15.7% and "Faulty fuel supplies - Electrical distribution" with 7.3% of all cases.

[99] https://www.gov.uk/government/collections/fire-statistics, Cause of fire and source of ignition of accidental primary fires, England.

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Table 62-2: Fire Causes in England[100]

Source of Ignition, %	Cause of Fire, %									
	Faulty fuel supplies	Faulty appliances and leads	Misuse of equipment or appliances	Chip / fat pan fires	Playing with fire	Careless handling of fire or hot substances	Placing articles too close to heat	Other accidental	Unspecified	Sum
Smoking related materials, etc.	0.0	0.0	0.1	0.0	0.2	4.6	0.6	0.7	0.0	6.1
Matches and Candles	0.0	0.0	0.3	0.0	0.1	0.6	1.2	0.6	0.0	2.8
Cooking appliances	0.4	1.2	15.7	3.5	0.0	0.8	4.0	1.2	0.0	26.8
Space heating appliances	0.2	0.6	0.3	0.0	0.0	0.1	1.0	0.4	0.0	2.6
Central and water heating appliances	0.1	0.4	0.0	0.0	0.0	0.0	0.1	0.1	0.0	0.6
Blowlamps, welding and cutting equipment	0.0	0.0	0.3	0.0	0.0	0.0	0.3	0.2	0.0	0.9
Electrical distribution	7.3	4.0	0.4	0.0	0.0	0.1	0.1	2.1	0.0	14.0
Electric lighting	0.6	0.7	0.1	0.0	0.0	0.0	0.3	0.4	0.0	2.0
Office equipment	0.0	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
Other domestic style appliance	0.4	4.4	0.3	0.0	0.0	0.0	0.1	1.0	0.0	6.3
Other Sources	3.7	4.4	1.0	0.1	0.1	1.3	2.5	13.9	0.1	27.1
Unspecified	0.5	0.8	0.1	0.0	0.1	0.4	0.5	7.9	0.2	10.5
Total	**13.3**	**16.4**	**18.6**	**3.6**	**0.6**	**8.0**	**10.8**	**28.4**	**0.4**	**100**

[100] https://www.gov.uk/government/collections/fire-statistics, Cause of fire and source of ignition of accidental primary fires, England.

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63 Ukraine

For Ukraine, the causes of the fire are available for 2021 (Table 63-1). The statistical data are given without considering the Autonomous Republic of Crimea and Sevastopol City. The classification of the primary cause of a fire is given according to ISO/TS 17755-2:2020 Fire safety – Statistical data collection – Part 2: Vocabulary.

Table 63-1: Fire Causes in Ukraine[101]

Causes of Fire (Ukraine, 2021, source: CTIF)	Fires	%	Cumulation, %
Caused by human actions (Unintentional)	52,805	66.5	66.5
Technological (Electrical, e.g., short-circuit, overload, overheating)	11,708	14.7	81.2
Technological (Thermal, e.g., heater, flame)	6,152	7.7	88.9
Explosion; Failure of production equipment; child's play with fire; Violation of the rules of operation of vehicles; Welding works; others	5,435	6.8	95.8
Caused by human actions (Intentional: arson)	2,656	3.3	99.1
Natural (Caused by lightning)	263	0.3	99.4
Spontaneous ignition	236	0.3	99.7
Undetermined	202	0.3	100.0
Total	**79,457**	**100**	**-**

[101]CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.

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64 USA

The following has been reported for home fires, including fires in one- or two-family homes, manufactured homes, and apartments or other multifamily housing, regardless of ownership. Unknowns were allocated proportionally according to our methodology. Data shows annual averages from 2016-2020. Table 64-1 summarizes findings from multiple fields, meaning the same fire may be listed under multiple causes.

Table 64-1: Fire Causes in the USA [102]

Fire Causes in Home Fires (USA, source: CTIF)	Fires	%	Cumulation, %
Cooking	166,400	51.0	51.0
Heating Equipment	44,200	13.6	64.6
Electrical distribution and lighting equipment	30,800	9.4	74.0
Intentional	29,400	9.0	83.1
Smoking materials	15,900	4.9	87.9
Clothes dryer or washer	12,700	3.9	91.8
Exposure fire, fan/air conditioner, Candle	26,600	8.2	100.0
Unknowns were allocated proportionally	-	-	100.0
Total	**326,000**	**100**	**-**

Generally speaking, one cause accounts for over 50% of all fires.

[102]CTIF Center of Fire Statistics, Survey of the Member States 2022-2023.

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65 Uzbekistan

Unfortunately, there are no comprehensive fire statistics available for Uzbekistan. In the Table 65-1, we have compiled the figures on the causes of fire in the form of a sample. According to the study, one-third of all fires can be traced back to electricity. That is followed by heating systems and children's play with fire. It is estimated that 80% of all fires are attributable to residential areas.

Table 65-1: Fire Causes in Uzbekistan [103]

Fire Causes, Uzbekistan, %	2019 (Jan-Nov)	2021 (Jan-May)
Installation and operation of electrical equipment	30.0	35.5
Installation and operation of heating equipment	13.1	23.3
Children playing with fire	9.7	7.2
Transportation means, vehicles	4.0	3.7
Carelessness	37.5	-
Others	5.7	30.3
Total	**100**	**100**
Number of fires	10,520	3,294
Number of fire deaths	98	46
Number of fire injuries	225	94

[103]Uzbekistan Newspapers (Internet publications).

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66 Vietnam

For Vietnam, a detailed analysis of the causes of the fire in 2012 is available (Table 66-1). First, 36.5% of all fires are attributed to electrical reasons. Thus, these fires fall into the category of technological and social causes. Another 33.1% of fires are attributed to "unspecified causes." "Careless handling of fire" then accounts for 15.2% of fires (classified as purely socially categorized fires).

Table 66-1: Fire Causes in Vietnam[104]

Fire Causes, Vietnam	Fires (2012)	%	Cumulation, %	Category of Cause
Violation of the rules for the installation and operation of electrical equipment	639	36.5	36.5	T, S
Unspecified cause	579	33.1	69.6	T, S
Careless handling of fire	267	15.2	84.8	S
Device failure	75	4.3	89.1	T, S
Arson due to a conflict situation	70	4.0	93.1	S
Other reasons	34	1.9	95.0	T, S
Spontaneous combustion of substances and materials	19	1.1	96.1	N
Misuse of electrical equipment	16	0.9	97.0	S
Misuse of household gas and oil appliances	15	0.9	97.9	S
Violation of fire safety rules	12	0.7	98.6	S
Violation of the rules for the device and operation of vehicles	11	0.6	99.2	T, S
Malfunction of production equipment, violation of the production process	8	0.5	99.7	T, S
Lightning strike	3	0.2	99.8	N
Arson due to intoxication, mental illness	3	0.2	100.0	S
Arson for insurance purposes	0	0.0	100.0	S
Total	**1,751**	**100**	**-**	**-**

[104]Chu Quoc Min: Fire Risk Management Based On Methods And Models Of The Theory Of Active Systems, PhD-Thesis (2020).

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Analyze

Before the analysis begins, the question must be formulated as to the actual goal of collecting international data on fire causes. The main objectives are set out below:

- First, the aim is to achieve comparability of international data.
- The world's leading causes of fire are to be identified.
- Finally, the objective is to answer how large the proportion of fires is, for which no cause could be determined.
- The question is to be answered about how large the proportion of fires is, which, according to their presumably small proportions, fall within the group of "other causes."
- Which terms can be understood by "causes of fires" (why did it burn?), and which other words are better to classify in different categories of terms, e.g., fire objects (where did it burn?)?
- Is the analysis of the causes of fire alone sufficient to develop strategies to reduce the number of fires, minimize the number of fire victims and reduce fire damage?

A wide range of questions appear in the statistics on the causes of fires. Let's name the essential anomalies that seem particularly important when looking at the data from the countries examined here.

Let's start with the term "fires." Depending on the objective of the statistics, either all fire incidents in the country or only a specific subset are statistically evaluated:

- total number of fires
- all fires excluding forest fires
- structure fires
- building fires
- residential fires
- home fires.

In the lists of "fire causes," the following designations often appear:

- single fire causes
- combined wording for 1-3 fire causes
- group or category of fire causes
- a mixture of fire causes and fire objects.

The interval of investigation is not always the same:

- one year
- average of several years
- a sum of events of several years

The time frame for data evaluation differs in some countries:

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- Calendar year
- Different calendars in different regions of the world
- Financial years (are not congruent with calendar years).

The periods of coverage, especially in press conferences for the national media, are often different, which makes comparability difficult:

- 1 to 6 months of the current year with comparative figures from the corresponding period of the previous year
- Quarters
- Seasons
- National holidays.

Sources from which the statistical data come can be found in a wide variety:

- National Statistical Yearbooks
- Annual reports of local, regional, or national Fire Services
- Reports of governmental ministries
- Private companies acting as consulting experts
- Insurance companies
- Private companies that use statistics to attract customers to their websites
- International Associations (Fire Chiefs, Fire Protection Associations, etc.).

Now let's look at some terms named as the cause of the fire. Let's start with the fire cause "Other causes":

- Others / other
- Other known causes
- Other reasons
- Other causes
- Other, unknown
- Other sources of fire, light, heat
- Other Suspected Causes
- Other causes of fires
- Other or undetermined cause
- Other determining circumstances
- Other accidental.

The cause of the fire "Arson" also appears in a wide range:

- Arson
- Deliberate (arson, …)
- Incendiary (arson, suspicious)
- Suspected arson
- Deliberate arson

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- Arson and Suspicious
- Arson/Suspicious
- Set arson
- Arson, suspicious
- Arson or Doubtful.

Even the cause of the fire, "smoking," which can be described as banal, appears in the selection process here in a vast number of variants:

- Smokers (cigarette, etc.)
- Smokers' utensils and open flame
- Smoking
- Smoker equipment
- Smoking residues
- Smoking Materials
- Smokers' Materials
- Careless Smoking
- Smoking without complying with the rules
- Matches, lighters, smokers, candles, welding, soldering, fireworks
- Smoking related materials, etc.
- Cigarettes
- Cigarette Butts
- Matches/ Cigarette Lighters
- Cigarette butts and matches
- Cigarettes, matches
- Discarded Cigarettes and Similar
- Careless Disposal Cigarette.

This discussion could be continued with other terms. However, we refrain from doing so at this point, as we believe that the focus of the debate is sufficiently communicated.

Among the three primary data sources used, let's first look at the IFCAA system.[105] To achieve a structurally simple and clear presentation of the causes of fire in the member states (Australia, Bahrain, Bangladesh, Brunei Darussalam, Guam, Hong Kong, India, Indonesia, Iran, Israel, Korea, Kuwait, Malaysia, Mongolia, New Zealand, Papua New Guinea, Philippines, Singapore, Taiwan, Thailand, Vietnam, and Japan), a list of terms containing all important causes of fire was given. Each member state was called upon to enter its state's leading causes of fire in the order

[105] IFCAA - International Fire Chief Association of Asia, https://www.fcaj.gr.jp/ifcaa/en/

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of precedence 1st, ..., 5th. We have generated the Table A-1 from the IFCAA statistics, published every two years.[106] .

Table A-1: Leading fire causes in the IFCAA member states

Name of Fire cause	1st	2nd	3rd	4th	5th	Sum	Sum, %
Electricity	7	-	-	-	-	7	13,7
Arson	0	2	3	0	0	5	9,8
Cigarette **	-	1	2	-	2	5	9,8
Playing fire	-	-	-	2	2	4	7,8
Unknown	-	1	2	1	-	4	7,8
Equipment Failure	-	-	3	-	-	3	5,9
Carelessness	-	-	1	1	-	2	3,9
Cooking	-	-	-	-	2	2	3,9
Deliberate	-	1	-	1	-	2	3,9
Gas, other	-	2	-	-	-	2	3,9
Bon fire	-	-	-	-	1	1	2,0
Candle	-	-	-	-	1	1	2,0
Careless Disposal Cigarette **	-	-	-	1	-	1	2,0
Cigarette, Match **	-	-	-	1	-	1	2,0
Combustion/Flames	-	1	-	-	-	1	2,0
Machinery	-	-	-	1	-	1	2,0
Not available	-	-	-	-	1	1	2,0
Open Fire	-	1	-	-	-	1	2,0
Open lamp	-	-	-	-	1	1	2,0
Others	-	-	-	1	-	1	2,0
Oven	-	1	-	-	-	1	2,0
Smoking **	-	1	-	-	-	1	2,0
Sparks	-	-	-	1	-	1	2,0
Stove	-	-	1	-	-	1	2,0
Unlawful	1	-	-	-	-	1	2,0

Regardless of the given names for the causes of the fire, some terms appear several times in different spellings. For example, "Smoking" with the variants (**) shown in the table. We cannot solve the problem of the various spellings of the terms used or the various combinations of individual words analytically to present a solution. That's why we're approaching the problem differently. As described at the beginning of this section, one of the main reasons for the lack of uniformity is that undesirable cases are not correctly classified in the fire cause statistics. So, first of

[106] IFCAA FIRE STATISTICS: 2019-2020, 2017-2018, 2015-2016

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all, the question must be clarified as to how large the proportion of "unknown causes" (including cases under evaluation, etc.) is.

Table A-2: Distribution of "Unknown Causes" in the "National Statistics" rankings.

	Unknown Causes											
Rank	1	2	3	4	5	6	7	8	9	10	Non	Sum
Sum	10	10	4	2	2	0	1	1	2	3	25	60
Share, %	17	17	6,7	3	3	0	2	1,7	3	5	41,7	100

Table A-3: Distribution of "Other Causes" in the rankings of "National Statistics"

	Other Causes											
Rank	1	2	3	4	5	6	7	8	9	10	Non	Sum
Sum	7	7	7	7	5	5	6	3	1	3	9	60
Share, %	11,7	11,7	11,7	11,7	8,3	8,3	10,0	5,0	1,7	5,0	15,0	100

To do this, consider the information obtained from national statistics (number of examples - 60). Table A-2 clarifies that in almost 41% of all samples, there are no "unknown causes." That is good and has been labeled GREEN. On the other hand, "Unknon causes" appear in rank 1 to 3 with a total share of 40%; this result is not satisfactory (labeled RED). For these cases, the causes should be investigated. The aim should be to keep the "unknown causes" proportion below 10%.
We proceed in the same way with the "Other causes." This cause of the fire (in truth, it is a group of many reasons) should also appear in the ranking in no more than 10% of all cases. However, Table A-3 shows a share of almost 60%. Consequently, it is necessary to investigate the causes behind this phenomenon.

Table A-4: Distribution of "Unknown Causes" in the rankings of "CTIF Statistics"

	Unknown Causes (17 examples)											
Rank	1	2	3	4	5	6	7	8	9	10	Non	Sum
Sum	2	3	2	1	0	1	0	5	0	0	3	17
Share, %	11,8	17,6	11,8	5,9	0,0	5,9	0,0	29,4	0,0	0,0	17,6	100

Table A-5: Distribution of "Other Causes" in the rankings of "CTIF Statistics"

	Other Causes (17 examples)											
Rank	1	2	3	4	5	6	7	8	9	10	Non	Sum
Sum	5	2	0	0	5	0	1	0	0	0	4	17
Share, %	29,4	11,8	0,0	0,0	29,4	0,0	5,9	0,0	0,0	0,0	23,5	100

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A similar picture emerges for recording the causes of fire according to the methodology of CTIF (see Table A-4, Table A-5) and IFCAA (see Table A-6, Table A-7).

Table A-6: Distribution of "Unknown Causes" in the rankings of the "IFCAA Statistics"

	Unknown Causes (12 examples)											
Rank	1	2	3	4	5	6	7	8	9	10	Non	Sum
Sum	0	0	2	2	1	0	0	0	0	0	7	12
Share, %	0,0	0,0	16,7	16,7	8,3	0,0	0,0	0,0	0,0	0,0	58,3	100

Table A-7: Distribution of "Other Causes" in the rankings of the "IFCAA Statistics"

	Other Causes (12 examples)											
Rank	1	2	3	4	5	6	7	8	9	10	Non	Sum
Sum	0	0	0	1	0	0	0	0	0	0	11	12
Share, %	0,0	0,0	0,0	8,3	0,0	0,0	0,0	0,0	0,0	0,0	91,7	100

Table A-8: Distribution of "Unknown Causes" in the rankings of the "All Statistics"

	Unknown Causes (89 examples)											
Rank	1	2	3	4	5	6	7	8	9	10	Non	Sum
Sum	12	13	8	5	3	1	1	6	2	3	35	89
Share, %	13,5	14,6	9,0	5,6	3,4	1,1	1,1	6,7	2,2	3,4	39,3	100

Table A-9: Distribution of "Other Causes" in the rankings of the "All Statistics"

	Other Causes (89 examples)											
Rank	1	2	3	4	5	6	7	8	9	10	Non	Sum
Sum	12	9	7	8	10	5	7	3	1	3	24	89
Share, %	13,5	10,1	7,9	9,0	11,2	5,6	7,9	3,4	1,1	3,4	27,0	100

Tables A-8 and A-9 summarize everything for the real statistical examples from 66 countries examined here.

With this, we can present the following result:

1. The causes of fire for the six most prominent countries in the world in terms of area (Russia, Canada, USA, China, Brazil, India) could be illustrated using various examples.
2. The causes of fires in the ten most populous countries in the world (China, India, USA, Indonesia, Brazil, Pakistan, Nigeria, Bangladesh, Russia, and Japan) can be illustrated using various examples.

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3. Furthermore, the analysis also includes states or regions, or island states that are small in terms of area with good fire cause statistics (Brunei Darussalam, Fiji, Jersey).
4. Most seeds publish fire-cause statistics, which are characterized by understandable terms. As a rule, "Unknown causes" and "Other (known) causes" are shown in the publications.
5. In 40% of the states, the unknown causes are in places 1 to 3 in the decreasing ranking. In almost 60% of the countries, the "other known causes" (shares of more than 10% each) are in places 1 to 7 in the decreasing ranking.
6. To represent half of all fires by cause, 1 and 5 different reasons are used. To classify 75% of all fires, 1 to 7 causes are used. To represent 95% of all fires, up to 14 different causes are required.

Proposal

To compile manageable and understandable international statistics on the causes of fires:

1. All known causes should be grouped into no more than five groups.
2. In addition, a group is "Others," i.e., all other known causes are added with smaller individual proportions.
3. Finally, all unknown reasons and those still being evaluated are to be grouped in the "Unknown" group.
4. The five causes of fire and unknown and other causes of fire are to be compared with the corresponding fire objects. That is the only way to avoid the mixing of objects and causes.
5. The fire objects and the causes are to be grouped into five groups, and "Others" and "Unknown" are to be added accordingly.

Tables P1-P3 illustrate how the result can look like an example.
The distribution of the number of fires is carried out in absolute numbers. Then, a second table presents the percentage distribution. The same applies to showing the number of victims (dead, injured, rescued, affected people). Finally, the statistical distribution of fire damage should be carried out similarly, if possible. Within the tables, all fields with large proportions must be specially marked.
These fields are then subject to further detailed investigation.

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Table P-1: Distribution of the number of fires between fire objects and causes of fire

Fire Causes %	Fire Objects, %							
	Type 1	Type 2	Type 3	Type 4	Type 5	Others	Unknown	Total
1st	12	1	1	1	1	1	1	18
2nd	8	6	1	3	3	1	2	24
3rd	2	1	1	1	1	2	4	12
4th	2	1	2	2	2	1	3	13
5th	2	1	2	2	1	2	2	12
Others	2	2	1	1	2	3	1	12
Unknown	1	1	1	1	3	1	1	9
Total	29	13	9	11	13	11	14	100

Table P-2: Distribution of the number of deaths between fire objects and causes of fire

Fire Causes %	Fire Objects, %							
	Type 1	Type 2	Type 3	Type 4	Type 5	Others	Unknown	Total
1st	25	1	1	1	1	1	1	31
2nd	35	2	1	0	0	1	0	39
3rd	15	1	1	0	0	2	0	19
4th	1	1	0	0	0	1	0	3
5th	0	0	0	2	0	0	0	2
Others	0	0	1	1	0	0	0	2
Unknown	1	1	1	1	0	0	0	4
Total	77	6	5	5	1	5	1	100

Table P-3: Distribution of fire damage between fire objects and causes of fire

Fire Causes %	Fire Objects, %							
	Type 1	Type 2	Type 3	Type 4	Type 5	Others	Unknown	Total
1st	5	1	1	1	1	1	1	11
2nd	5	2	1	0	0	1	0	9
3rd	10	1	1	20	10	2	0	44
4th	1	1	4	0	15	1	0	22
5th	0	0	0	5	0	3	0	8
Others	0	0	1	1	0	0	0	2
Unknown	1	1	1	1	0	0	0	4
Total	22	6	9	28	26	8	1	100

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Next steps

1. We kindly ask study the document, and send comments or questions.
2. CTIF-CFS prepare special table for filling.
3. Preparing a new report with updated information.

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Acknowledgement

The authors of the report thank the National Committees of CTIF, who sent us the fire statistics for 2021 for analysis.

Now the Center of Fire Statistics of CTIF begins work on report №29. We ask all National Committees of CTIF to send us fire statistics of the countries and cities for the year 2022 **before May 1, 2024**.

The report's authors are always grateful for any suggestions to improve the work of the Center for Fire Statistics.

Conclusión

Los autores del informe agradecen a los Comités Nacionales del CTIF, que enviaron las estadísticas de incendios de 2021 para su análisis.

Ahora el Centro de Estadísticas de Incendios de CTIF comienza a trabajar en el informe Nº28. Pedimos a todos los Comités Nacionales de CTIF que nos envíen las estadísticas de incendios de los países y ciudades del mundo para el año 2022 **antes del 1º de mayo de 2024**.

Los autores del informe están siempre agradecidos por cualquier sugerencia para mejorar el trabajo del Centro de Estadísticas de Incendios.

Zusammenfassung

Die Autoren des Berichtes danken den Nationalen CTIF-Komitees für die Übersendung der Feuerwehrstatistik aus 2021.

Gegenwärtig beginnt das CFS CTIF die Arbeiten am Bericht №28. Wir bitten die Nationalen CTIF-Komitees um Übersendung der nationalen Feuerwehrstatistiken für das Jahr 2022 bis zum 1**. Mai 2024**.

Die Autoren sind wie immer für jeden Hinweis, Kritiken und Vorschläge zur Verbesserung der internationalen Feuerwehr Statistik dankbar.

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Table 1 for filling / Cuadro para completar / Tabelle zum Ausfüllen

Statistical data		Name of country	Name of capital / large city
Population (thous. inh.)			
Area (sq.km.)			
Total number of fire service calls a year:			
-fires			
-rescue, technical aid.			
-medical aid			
-false calls			
-other			
Total number of fires:			
structure	- residential (with chimneys)		
	- all other buildings		
-vehicle			
-forests			
-grass, bushes…			
-rubbish			
-other fires			
Number of fire deaths:			
structure	- residential (with chimneys)		
	- all other buildings		
-vehicle			
-other			
Number of fire injuries:			
structure	- residential (with chimneys)		
	- all other buildings		
-vehicle			
-other			
Number of firefighter deaths			
Number of firefighter injuries			
Number of all firefighters:			
-professionals (full time)			
-part time			
-volunteers			
Number of female firefighters:			
-professionals (full time)			
-part time			
-volunteers			
Number of young (junior) firefighters:			
Number of fire stations			
Number of engines (pumper)			
Number of ladders and hydraulic lifts			
Number of other fire automobiles			

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Table 2 for filling / Cuadro para completar / Tabelle zum Ausfüllen

Fire Causes	Fire Objects							
	Type 1	Type 2	Type 3	Type 4	Type 5	Others	Unknown	Total
1st								
2nd								
3rd								
4th								
5th								
Others								
Unknown								
Total								

Note: Please enter the number of fires

Fire Cause	Name, designation	Definition / Remark
1st		
2nd		
3rd		
4th		
5th		
Others		
Unknown		

Note: Please specify the fire causes as simple as possible

Fire Object	Name, designation	Definition / Remark
Type 1		
Type 2		
Type 3		
Type 4		
Type 5		
Others		
Unknown		

Note: Please specify the fire objects as simple as possible

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Table/Cuadro/Tabelle 1.1

Total reported fire statistical data, by country, 1993-2021
Datos estadísticos reportados, por país, 1993-2021
Verdichtete Daten zur Brandsituation der Staaten in den Jahren 1993-2021

Year / Año / Jahr	Number of countries / Cantidad of paises / Anzahl der Staaten	Total population, bln.inh. / Población total en Miles de Mill. / Gesamt-bevölkerung in Mrd.	Number of fires, mln. / Total de incendios en mill. / Anzahl der Brände in Mio.	Number of fire deaths, thous. / Número de víctimas fatales x 1.000 / Anzahl der Brandtoten in 1000	Average number of fires per 1000 inh. / Promedio de incendios por 1000 hab. / Mittelwert der Brandanzahl je 1.000 Einw.	Average number of fire deaths / Promedio de víctimas fatales / Mittelwert der Brandtotenanzahl	
						per 100000 inh. / por 100,000 habitantes / je. 100000 Einw.	per 100 fires / por cada 100 incendios / je 100 Brände
1993	39	2,4	3,9	30,2	1,6	1,3	0,8
1994	27	1,1	4,0	29,5	3,6	2,7	0,7
1995	42	1,2	4,5	32,5	3,8	2,7	0,7
1996	43	0,9	4,0	29,1	4,4	3,2	0,7
1997	48	2,8	3,7	57,7	1,3	2,1	1,6
1998	47	3,0	3,6	51,7	1,2	1,7	1,4
1999	52	3,1	3,9	51,8	1,3	1,7	1,3
2000	57	3,3	4,5	56,2	1,4	1,7	1,2
2001	46	3,5	3,8	61,9	1,1	1,8	1,6
2002	41	3,5	4,3	62,3	1,2	1,8	1,4
2003	39	3,5	4,5	61,1	1,3	1,7	1,4
2004	44	3,5	4,1	60,1	1,2	1,7	1,5
2005	45	3,5	4,3	57,4	1,2	1,6	1,3
2006	37	3,6	4,1	52,2	1,1	1,5	1,3
2007	40	3,8	4,0	52,5	1,1	1,4	1,3
2008	31	3,5	3,6	48,3	1,0	1,4	1,3
2009	31	3,4	3,3	44,7	1,0	1,3	1,4
2010	33	2,2	3,2	46,1	1,5	2,1	1,4
2011	34	2,3	3,3	48,2	1,4	2,1	1,5
2012	35	1,1	3,1	23,7	2,8	2,2	0,8
2013	31	1,1	2,5	21,7	2,3	2,0	0,9
2014	32	1,1	2,7	20,7	2,5	1,9	0,8
2015	31	1,0	3,5	18,4	3,5	1,8	0,5
2016	39	1,1	3,0	18,0	2,7	1,6	0,6
2017	34	1,1	3,2	16,9	2,9	1,5	0,5
2018	46	2,7	4,5	30,8	1,7	1,1	0,7
2019	34	1,3	3,1	19,2	2,4	1,5	0,6
2020	48	3,3	4,0	20,7	1,2	0,6	0,5
2021	38	1,2	3,1	16,8	2,6	1,4	0,5
ẋ	**39**	**2,4**	**3,7**	**40,1**	**1,5**	**1,7**	**1,1**
∑			**104,2**	**1123,6**			

Table/Cuadro/Tabelle 1.2

Common indicators of fire statistics in the countries of the World in 2021
Datos estadísticos reportados, por país, año 2021
Verdichtete Kennzahlen der Brandsituation in den Staaten für das Jahr 2021

№	Country	Population, thous.inh.	Number of				Average number:					
			calls	fires	fire deaths	fire injuries	per 1000 inh.:		fire deaths per:		fire injuries per:	
							calls	fires	100000 inh.	100 fires	100000 inh.	100 fires
	País	Habitantes, en miles	Número de				Promedios:					
			Llamados	Incendios	Víctimas Fatales	Lesionados	Por 1.000 hab.		Víctimas fatales		Lesionados	
							Llamados	Incendios	100.000 hab.	100 incendios	100.000 hab.	100 incendios
	Staat	Einwohner, in 1000	Absolute Anzahl				Mittelwerte:					
			Einsätze	Brände	Brand-tote	Verletzte	je 1000 Einw.		Brandtotenzahl		Verletztenzahl	
							Einsätze	Brände	100000 Einw.	100 Brände	100000 Einw.	100 Brände
1	USA	332 031	36 624 000	1 353 500	3 800	14 700	110,3	4,1	1,1	0,3	4,4	1,1
2	Russia	146 781	-	405 971	8 473	8 403	-	2,8	5,8	2,1	5,7	2,1
3	Japan	125 502	8 016 669	35 222	1 417	5 433	63,9	0,3	1,1	4,0	4,3	15,4
4	Egypt	100 075	-	51 533	252	824	-	0,5	0,3	0,5	0,8	1,6
5	Vietnam	97 757	7 680	2 245	85	130	0,1	0,0	0,1	3,8	0,1	5,8
6	France	67 244	4 680 900	254 151	277	13 905	69,6	3,8	0,4	0,1	20,7	5,5
7	Great Britain	65 185	636 088	186 571	311	7 772	9,8	2,9	0,5	0,2	11,9	4,2
8	Italy	60 317	912 593	264 664	-	-	15,1	4,4	-	-	-	-
9	Republic of Korea	51 738	-	36 267	276	1 854	-	0,7	0,5	0,8	3,6	5,1
10	Poland	37 700	579 713	106 466	516	2 444	15,4	2,8	1,4	0,5	6,5	2,3
11	Kazachstan	19 177	76 592	12 256	-	413	4,0	0,6	-	-	2,2	3,4
12	Romania	19 053	591 105	30 597	255	681	31,0	1,6	1,3	0,8	3,6	2,2
13	Netherlands	17 591	135 359	44 313	33	-	7,7	2,5	0,2	0,1	-	-
14	Belgium	11 492	203 094	32 619	58	1 573	17,7	2,8	0,5	0,2	13,7	4,8
15	Greece	10 788	76 726	28 894	63	44	7,1	2,7	0,6	0,2	0,4	0,2
16	Czech Republic	10 701	2 319 720	16 162	110	1 221	216,8	1,5	1,0	0,7	11,4	7,6
17	Hungary	9 604	78 375	22 428	100	629	8,2	2,3	1,0	0,4	6,5	2,8
18	Austria	8 978	300 620	85 361	51	-	33,5	9,5	0,6	0,1	-	-
19	Switzerland	8 703	83 970	12 600	17	-	9,6	1,4	0,2	0,1	-	-
20	Bulgaria	6 520	55 059	30 918	184	-	8,4	4,7	2,8	0,6	-	-
21	Singapore	5 850	213 615	1 844	3	194	36,5	0,3	0,1	0,2	3,3	10,5
22	Kyrgyzstan	5 552	-	3 050	37	-	-	0,5	0,7	1,2	-	-
23	Finland	5 503	2 782 980	12 245	51	531	505,7	2,2	0,9	0,4	9,6	4,3
24	New Zealand	5 097	84 688	20 005	23	308	16,6	3,9	0,5	0,1	6,0	1,5
25	Slovakia	5 042	1 080 333	7 710	60	191	214,3	1,5	1,2	0,8	3,8	2,5
26	Ireland	5 033	119 092	20 545	20	-	23,7	4,1	0,4	0,1	-	-
27	Oman	4 527	-	4 057	-	-	-	0,9	-	-	-	-
28	Croatia	3 872	43 843	14 087	31	127	11,3	3,6	0,8	0,2	3,3	0,9
29	Moldova	3 553	-	1 608	88	-	-	0,5	2,5	5,5	-	-
30	Uruguay	3 426	33 173	22 691	44	381	9,7	6,6	1,3	0,2	11,1	1,7
31	Mongolia	3 400	4 380	2 671	61	-	1,3	0,8	1,8	2,3	-	-
32	Lithuania	2 810	29 779	8 333	94	172	10,6	3,0	3,3	1,1	6,1	2,1
33	Slovenia	2 108	24 706	7 819	0	33	11,7	3,7	0,0	0,0	1,6	0,4
34	Estonia	1 330	27 502	3 873	39	103	20,7	2,9	2,9	1,0	7,7	2,7
35	Cyprus	918	12 333	7 347	57	19	13,4	8,0	6,2	0,8	2,1	0,3
36	Bhutan	756	-	155	4	0	-	0,2	0,5	2,6	0,0	0,0
37	Luxemburg	643	229 303	2 295	0	46	356,6	3,6	0,0	0,0	7,2	2,0
38	Liechtenstein	39	6 345	35	0	1	162,7	0,9	0,0	0,0	2,6	2,9
	∑	**1 266 396**	**60 070 335**	**3 153 108**	**16 890**	**62 132**	**47,4**	**2,5**	**1,3**	**0,5**	**4,9**	**2,0**

Table/Cuadro/Tabelle 1.3

Type of fire service calls in the countries of the World in 2021
Tipo de llamado, por país, año 2021
Struktur der Feuerwehreinsätze in den Staaten im Jahr 2021

№	Country	Population thous.inh.	Number of calls									
			fires	in %	accidents*	in %	medical aid	in %	false calls	in %	other	in %
	País	Habitantes, en miles	Cantidad de llamados …									
			Incendios	en %	Accidentes*	en %	Asistencia médica	en %	Falsas alarmas	en %	Otros	en %
	Staat	Einwohner in 1000	Anzahl der Einsätze ...									
			zu Bränden	in %	zu Havarien	in %	Medizin. Hilfe	in %	Fehl-einsätze	in %	Sonstiges	in %
1	USA	332 031	1 353 500	3,4	-	-	26 291 000	66,5	2 904 500	7,3	8 979 500	22,7
2	Japan	125 502	35 222	0,4	-	-	5 743 494	72,0	375 603	4,7	1 826 336	22,9
3	France	67 244	254 200	5,5	341 800	7,4	3 717 600	86,2	-	-	317 400	6,9
4	Poland	37 700	106 466	18,4	82 280	14,2	93 664	16,2	45 208	7,8	252 097	43,5
5	Kazachstan	19 177	12 256	16,0	12 947	16,9	-	-	146	0,2	51 243	66,9
6	Romania	19 053	30 597	5,2	114 014	19,3	442 245	74,8	4 249	0,7	-	-
7	Netherland	17 591	44 313	32,7	33 982	25,1	17 491	12,9	-	-	39 573	29,2
8	Belgium	11 492	32 619	16,1	109 419	53,9	-	-	22 469	11,1	38 587	19,0
9	Greece	10 788	28 894	37,7	21 130	27,5	-	-	7 975	10,4	18 727	24,4
10	Hungary	9 604	22 428	28,6	36 297	46,3	-	-	19 650	25,1	-	-
11	Austria	8 978	85 361	28,4	188 541	62,7			11 948	4,0	14 770	4,9
12	Switzerland	8 703	12 600	15,0	27 610	32,9	-	-	18 505	22,0	25 255	30,1
13	Bulgaria	6 520	30 918	56,2	14 571	26,5	292	0,5	1 840	3,3	7 438	13,5
14	Singapore	5 850	1 844	0,9	7 832	3,8	159 479	77,3	5 598	2,7	31 656	15,3
15	Finland	5 503	12 245	0,4	43 300	1,6	-	-	732 200	26,3	1 993 205	71,7
16	New Zealand	5 097	20 005	23,6	11 023	8,9	14 969	17,7	-	-	38 628	45,6
17	Ireland	4 922	20 545	17,4	12 489	10,6	78 856	66,8	6 223	5,3	-	-
18	Croatia	3 872	14 087	32,1	26 792	58,5	741	1,7	126	0,3	2 091	4,8
19	Uruguay	3 426	22 691	68,4	910	2,6	-	-	3 667	11,1	5 905	17,8
20	Lithuania	2 810	8 333	29,7	11 967	42,6	0	0,0	178	0,6	7 606	27,1
21	Slovenia	2 108	7 819	35,2	11 549	51,9	-	-	1 213	5,5	1 657	7,5
22	Estonia	1 330	3 869	14,1	9 547	34,7	-	-	8 545	31,1	5 541	20,1
23	Cyprus	918	7 383	59,9	4 193	34,0	3	0,0	754	6,1	0	0,0
∑		**710 219**	**2 168 195**	**3,8**	**1 122 193**	**1,9**	**36 559 834**	**63,4**	**4 170 597**	**7,2**	**13 657 215**	**23,7**

* - This position includes all kinds of non-fire incidents

Table/Cuadro/Tabelle 1.4

Distribution of fires by types in the countries of the World in 2021
Distribución de tipos de incendios en los países del mundo año 2021
Verteilung der Brände nach Objekten der Brandentstehung in den Staaten im Jahr 2021

№	Country	Population, thous.inh.	Number of fires …															
			structure fires						vehicles	in %	forests	in %	grass, brush	in %	rubbish	in %	other	in %
			residential	in %	others	in %	all	in %										
	País	Habitantes, en miles	Cantidad de incendios …															
			Fuego estructural						Vehículos	%	Forestal	%	Pastizal, Matorral	%	Basura	%	Otros	%
			residencial	%	Otros	%	todos	%										
	Staat	Einwohner in 10000	Anzahl der Brände …															
			in Gebäuden						Transport	in %	im Wald	in %	Gras usw.	in %	Abfall, Müll	in %	Sonstige	in %
			Wohnung	in %	andere	in %	alle	in %										
1	USA	332 031	361 000	26,7	125 500	9,3	486 500	35,9	208 500	15,4	-	-	269 500	19,9	229 500	17,0	159 500	11,8
2	Russia	146 781	114 378	28,2	33 273	8,2	147 651	36,4	17 249	4,2	15 112	3,7	104 982	25,9	100 017	24,6	20 960	5,2
3	Japan	125 502	-	-	-	-	19 549	55,5	3 512	10,0	-	-	1227	3,5	-	-	10934	31,0
4	France	67 244	-	-	-	-	82 144	32,3	45 170	17,8	-	-	39 050	15,4	-	-	87 787	34,5
5	Poland	37 700	33 867	31,8	8 007	7,5	41 874	39,3	9 654	9,1	2 938	2,8	19 450	18,3	13 343	12,5	19 207	18,0
6	Kazachstan	19 177	7 366	60,1	1 005	8,2	8 371	68,3	2 243	18,3	748	6,1	613	5,0	-	-	281	2,3
7	Romania	19 053	4 288	14,0	7 086	23,2	11 374	37,2	1 897	6,2	222	0,7	9 615	31,4	326	1,1	7 163	23,4
8	Netherlands	17 591	7 208	16,3	-	-	7 208	16,3	-	-	-	-	212	0,5	-	-	36 893	83,3
9	Belgium	11 492	7 962	24,4	2 806	8,6	10 768	33,0	2 943	9,0	73	0,2	1 169	3,6	4 691	14,4	12 975	39,8
10	Greece	10 788	-	-	-	-	5 155	17,8	1 479	5,1	1 941	6,7	4 928	17,1	1 368	4,7	14 023	48,5
11	Czech Republic	10 516	3 469	21,5	1 623	10,0	5 092	31,5	2 254	13,9	1 517	9,4	319	2,0	3 758	23,3	3 222	19,9
12	Hungary	9 604	7 188	32,0	2 063	9,2	9 251	41,2	985	4,4	4 541	20,2	-	-	1 899	8,5	5 752	25,6
13	Austria	8 978	-	-	-	-	16 641	19,5	1 793	2,1	-	-	3 723	4,4	-	-	63 204	74,0
14	Bulgaria	6 520	3 386	10,9	4 741	15,3	8 127	26,1	1 958	6,3	164	0,5	10 645	34,2	8 392	27,0	1 802	5,8
15	Finland	5 503	1 944	14,6	3 269	24,6	5 213	39,3	2 179	16,4	1 297	9,8	1 153	8,7	976	7,4	2 459	18,5
16	New Zealand	5 097	-	-	-	-	4 850	24,2	2 291	11,5	-	-	4 141	20,7	3 984	19,9	4 739	23,7
17	Slovakia	5 042	1 600	20,8	545	7,1	2 145	27,8	787	10,2	101	1,3	1 223	15,9	1 357	17,6	2 097	27,2
18	Ireland	5 011	4 894	21,6	1 126	5,5	6 020	27,0	1 852	8,2	-	-	2 158	9,5	6 494	28,6	6 179	27,2
19	Croatia	3 872	1 259	8,9	3 256	37,6	4 515	46,5	906	6,4	-	-	5 420	38,5	1 953	13,9	1 293	9,2
20	Lithuania	2 810	1 856	22,3	1926	23,1	3 782	45,4	949	11,4	89	1,2	987	11,8	1437	17,2	1089	13,1
21	Estonia	1 329	742	19,2	453	11,7	1 195	30,9	329	8,5	814	21,0	-	-	1 100	28,4	435	11,2
22	Cyprus	918	-	-	-	-	369	5,0	369	5,0	40	0,5	3 946	77,5	365	4,9	2 294	31,1
23	Slovenia	2 108	2 437	31,2	1 545	19,8	3 982	51,1	781	10,0	232	3,0	2 322	29,8	482	6,2	-	-
24	Liechtenstein	39	9	25,7	15	42,9	24	68,6	3	8,6	0	0,0	6	17,1	1	2,9	1	2,9
∑		**854 706**	**564 853**	**23,2**	**198 239**	**8,1**	**763 092**	**31,3**	**310 083**	**12,7**	**29 829**	**1,2**	**486 789**	**20,0**	**381 443**	**15,7**	**464 289**	**19,1**

Table/Cuadro/Tabelle 1.5

Distribution of fire deaths by type of fires in the countries of the World in 2021
Distribución de fallecidos según tipo de incendio el países del mundo año 2021
Verteilung der Brändtote nach Objekten der Brandentstehung in den Staaten im Jahr 2021

№	Country	Population, thous.inh.	Number of fire deaths							
			structure fires				vehicles	in %	other	in %
			residential	in %	all others	in %				
	País	Habitantes, en miles	Muertos en incendios							
			Incendios Estructurales				vehículos	en %	otros	en %
			Residencial	en %	Otros	en %				
	Staat	Einwohner in 10000	Anzahl der Brändtote							
			in Gebäuden				Transport	in %	Sonstige	in %
			Wohnung	in %	andere	in %				
1	USA	332 031	2 880	75,8	130	3,4	680	17,9	110	2,9
2	Russia	146 781	7 624	90,0	519	6,1	114	1,3	216	2,5
3	Poland	37 700	421	81,6	25	4,8	55	10,7	15	2,9
4	Romania	19 053	252	98,8	3	1,2	0	0,0	0	0,0
5	Netherlands	17 591	10	30,3	23	69,7	0	0,0	0	0,0
6	Belgium	11 492	34	58,6	4	6,9	9	15,5	11	19,0
7	Czech Republic	10 516	59	53,6	14	12,7	15	13,6	22	20,0
8	Hungary	9 604	83	83,0	4	4,0	2	2,0	11	11,0
9	Bulgaria	6 520	148	80,4	29	15,8	5	2,7	2	1,1
10	Finland	5 503	25	49,0	22	43,1	2	3,9	2	3,9
11	Slovakia	5 042	43	71,7	2	3,3	4	6,7	11	18,3
12	Croatia	3 872	0	0,0	26	83,9	2	6,5	3	9,7
13	Lithuania	2 810	55	58,5	31	33,0	0	0,0	8	8,5
14	Estonia	1 330	38	97,4	1	2,6	0	0,0	0	0,0
15	Liechtenstein	602	1	100,0	0	0,0	0	0,0	0	0,0
∑		**610 447**	**11 673**	**84,6**	**833**	**6,0**	**888**	**6,4**	**411**	**3,0**

Table/Cuadro/Tabelle 1.6

Distribution of fire injuries by type of fire in the countries of the World in 2021
Distribución de lesionados según tipo de incendio en paises del mundo en 2021
Verteilung der Verletzte nach Objekten der Brandentstehung in den Staaten im Jahr 2021

№	Country	Population, thous.inh.	Number of fire injuries							
			structure fires				vehicles	in %	other	in %
			residential	in %	all others	in %				
	País	Habitantes, en miles	Cantidad de lesionados							
			incendios estructurales				vehículos	en %	otros	en %
			residencial	en %	otros	en %				
	Staat	Einwohner in 10000	Anzahl der Verletzte							
			in Gebäuden				Transport	in %	Sonstige	in %
			Wohnung	in %	andere	in %				
1	USA	332 031	11 500	78,2	1 100	7,5	1 500	10,2	600	4,1
2	Russia	146 781	6 174	73,5	739	8,8	323	3,8	1 167	13,9
3	Poland	37 700	1 883	77,0	179	7,3	196	8,0	186	7,6
4	Romania	19 053	440	64,6	142	20,9	57	8,4	42	6,2
5	Belgium	11 492	994	63,2	212	13,5	109	6,9	258	16,4
6	Czech Republic	10 516	649	53,2	234	19,2	141	11,5	197	16,1
7	Hungary	9 604	460	73,1	64	10,2	32	5,1	73	11,6
8	Finland	5 503	331	62,3	121	22,8	49	9,2	30	5,6
9	Slovakia	5 042	119	62,3	22	11,5	18	9,4	32	16,8
10	Croatia	4 047	3	2,4	97	76,4	8	6,3	19	15,0
11	Lithuania	2 810	57	33,1	101	58,7	9	5,2	5	2,9
12	Slovenia	2 108	17	35,4	16	33,3	3	6,3	12	25,0
13	Estonia	1 330	85	82,5	9	8,7	4	3,9	5	4,9
∑		**588 017**	**22 712**	**73,7**	**3 036**	**9,8**	**2 449**	**7,9**	**2 626**	**8,5**

Table/Cuadro/Tabelle 1.7

Trends in calls in the countries of the World in 2017-2021
Dinámica en las operaciones en países del mundo para los años 2017-2021
Dynamik der Einsätze in den Staaten der Welt für die Jahre 2017-2021

№	Country	Population, thous. inh.	Number of calls					Average	
			2017	2018	2019	2020	2021	per year	per 1000 inh. a year
	País	Habitantes, en miles	Cantidad de operaciones					Promedio	
			2017	2018	2019	2020	2021	Por año	Por año y 1000 hab
	Staat	Einwohner in 1000	Gesamtanzahl der Einsätze					Mittelwert	
			2017	2018	2019	2020	2021	je Jahr	je Jahr und 1000 Einw.
1	USA	332 031	34 683 500	34 746 500	37 272 000	35 026 000	36 624 000	35 670 400	107,43
2	Bangladesh	166 303	-	-	93 844	67 568	-	80 706	0,49
3	Russia	146 781	-	995 687	1 161 581	-	-	1 078 634	7,35
4	Japan	125 502	-	-	8 768 855	7 932 672	8 016 669	8 239 399	65,65
5	Vietnam	97 757	-	-	-	8 046	7 680	7 863	0,08
6	Germany	83 020	4 230 433	4 292 022	4 315 723	-	-	4 279 393	51,55
7	France	67 244	4 658 600	4 942 906	4 819 900	4 290 700	4 680 900	4 678 601	69,58
8	Great Britain	65 185	689 169	694 771	705 924	685 083	636 088	682 207	10,47
9	Italy	60 317	1 000 071	908 890	944 332	884 128	912 593	930 003	15,42
10	Republic of Korea	51 738	-	150 069	-	11 274 559	-	5 712 314	110,41
11	Spain	46 570	335 317	-	-	-	-	335 317	7,20
12	Ukraine	41 745	229 313	230 952	269 160	279 671	-	252 274	6,04
13	Poland	37 700	519 902	502 200	512 500	583 300	579 713	539 523	14,31
14	Peru	32 000	119 380	121 998	-	-	-	120 689	3,77
15	Kazachstan	19 177	59 203	55 102	63 727	55 102	76 592	61 945	3,23
16	Romania	19 053	421 015	-	-	525 916	591 105	512 679	26,91
17	Netherlands	17 591	115 340	148 900	143 500	-	135 359	135 775	7,72
18	Belgium	11 495	-	-	-	251 551	203 094	227 323	19,78
19	Greece	10 788	-	65 298	72 545	76 305	76 726	72 719	6,74
20	Czech Republic	10 701	-	-	2 298 681	2 289 149	2 319 720	2 302 517	215,17
21	Jordan	10 659	46 600	56 326	769 780	-	-	290 902	27,29
22	Sweden	10 379	127750	133955	128 044	120 173	-	127 481	12,28
23	Hungary	9 604	77 969	68 337	79 922	77 328	78 375	76 386	7,95
24	Belarus	9 408	46 457	52 974	81 590	-	-	60 340	6,41
25	Israel	9 291	-	-	71 618	65 770	-	68 694	7,39
26	Austria	8 978	302 154	278 672	278 672	247 436	300 620	281 511	31,36
27	Switzerland	8 703	72 185	77 304	70 939	70 493	83 970	74 978	8,62
28	Israel	8 300	-	-	-	65 770	-	65 770	7,92
29	Bulgaria	6 520	60 536	56 120	-	56 057	55 059	56 943	8,73
30	Singapore	5 850	188 761	191 492	194 330	196 345	213 615	196 909	33,66
31	Denmark	5 786	41 040	42 876	39 775	37 496	-	40 297	6,96
32	Finland	5 503	104 392	113 464	-	2 787 190	2 782 980	1 447 007	262,95
33	Norway	5 109	86 253	96 955	93 768	84 862	90 605	90 489	17,71
34	New Zealand	5 097	77 465	82 136	82 632	83 669	84 688	82 118	16,11
35	Slovakia	5 042	-	31 326	123 484	127 408	1 080 333	340 638	67,56
36	Costa Rica	4 973	67 856	41 881	-	-	-	54 869	11,03
37	Ireland	4 920	-	242 631	120 024	114 080	119 092	148 957	30,28
38	Kuwait	4 137	14 087	-	-	-	-	14 087	3,41
39	Croatia	3 872	23 341	22 927	31 393	37 834	43 843	31 868	8,23
40	Uruguay	3 426	-	-	-	-	33 173	33 173	9,68
41	Mongolia	3 400	-	-	4 990	4 006	4 380	4 459	1,31
42	Armenia	2 973	-	-	-	10 669	-	10 669	3,59
43	Qatar	2 881	-	3 125	-	-	-	3 125	1,08
44	Lithuania	2 810	26 954	22 142	30 666	29 305	29 779	27 769	9,88
45	Slovenia	2 108	-	153 313	-	28 677	24 706	68 899	32,68
46	Latvia	1 908	18 638	-	20 749	19 124	22 215	20 182	10,58
47	Estonia	1 329	26 120	26 163	26 076	14 879	27 502	24 148	18,17
48	Mauritius	1 300	10 941	12 634	-	-	-	11 788	9,07
49	Cyprus	918	-	-	-	11 985	12 333	12 159	13,25
50	Luxemburg	602	-	61 157	-	-	229 303	145 230	241,25
51	Brunei	437	-	-	7 218	6 759	-	6 989	15,99
52	Andora	78				6 623	-	6 623	84,91
53	Liechtenstein	39	-	-	-	-	6 345	6 345	162,69
	∑	**1 599 038**	**48 480 742**	**49 723 205**	**63 697 942**	**68 533 688**	**60 183 155**	**58 123 746**	**36,35**

Table/Cuadro/Tabelle 1.8

Trends in fires in the countries of the World in 2017-2021
Dinámica de los incendios en países del mundeo para los años 2017-20210
Dynamik der Brandzahlen in den Staaten der Welt für die Jahre 2017-2021

№	Country	Population, thous. inh.	Number of fires					Average	
			2017	2018	2019	2020	2021	per year	per 1000 inh. a year
	País	Habitantes, en miles	Cantidad de incendios					Promedio	
			2017	2018	2019	2020	2021	Por año	Por año y 1000 hab.
	Staat	Einwohner in 1000	Gesamtanzahl der Brände					Mittelwert	
			2017	2018	2019	2020	2021	je Jahr	je Jahr und 1000 Einw.
1	China	1 390 000	-	-	-	252 000	-	252 000	0,18
2	India	1 359 000	-	1 600 000	-	-	-	1 600 000	1,18
3	USA	332 031	1 319 500	1 318 500	1 291 500	1 388 500	1 353 500	1 334 300	4,02
4	Nigeria	206 100	-	-	-	2 056	-	2 056	0,01
5	Bangladesh	166 303	18 105	19 642	24 074	21 073	-	20 724	0,12
6	Russia	146 781	132 844	144 199	471 426	454 206	405 971	321 729	2,19
7	Japan	125 502	39 773	37 981	37 683	34 691	35 222	37 070	0,30
8	Phillippines	108 771	14 197	16 675	20 109	15 195	-	16 544	0,15
9	Egypt	100 075	-	-	50 662	51 963	51 533	51 386	0,51
10	Vietnam	97 757	4 074	4 182	3 790	2 764	2 245	3 411	0,03
11	Germany	83 020	203 419	248 077	224 966	230 000	-	226 616	2,73
12	France	67 244	306 600	305 500	316 100	282 800	254 151	293 030	4,36
13	Great Britain	65 185	200 056	204 525	222 511	189 266	186 571	200 586	3,08
14	Italy	60 317	325 941	213 116	252 384	242 205	264 664	259 662	4,30
15	Republic of Korea	51 738	44 178	42 338	40 030	38 659	36 267	40 294	0,78
16	Myanmar	51 486	1 832	1 739	2 155	-	-	1 909	0,04
17	Spain	46 570	130 985	118 892	129 544	-	-	126 474	2,72
18	Argentina	44 556	73769	87853	-	-	-	80 811	1,81
19	Ukraine	41 745	84 089	78 602	96 812	101 279	-	90 196	2,16
20	Poland	37 700	125 892	149 434	153 500	128 800	106 466	132 818	3,52
21	Saudi Arabia	34 218	44 258	44 602	44 581	-	-	44 480	1,30
22	Malaysia	32 370	29 356	36 758	50 720	38 865	-	38 925	1,20
23	Peru	32 000	12 114	13 729	14 263	14 249	-	13 589	0,42
24	Nepal	30 430	110	167	-	-	-	139	0,00
25	Taiwan	23 561	30 464	27 922	22 866	51 495	-	33 187	1,41
26	Kazachstan	19 177	14 724	14 557	13 850	13 933	12 256	13 864	0,72
27	Romania	19 053	33 351	28 468	-	33 883	30 597	31 575	1,66
28	Netherlands	17 591	72 980	76 020	38 900	-	44 313	58 053	3,30
29	Senegal	17 098	-	-	3 391	-	-	3 391	0,20
30	Belgium	11 492	-	-	-	35 208	32 619	33 914	2,95
31	Tunis	11 403	-	-	1 659	-	-	1 659	0,15
32	Greece	10 788	27 793	24 459	27 784	31 908	28 894	28 168	2,61
33	Czech Republic	10 701	16 757	20 720	18 813	17 346	16 162	17 960	1,68
34	Jordan	10 659	23 041	24 490	36 650	-	-	28 060	2,63
35	Sweden	10 379	27 783	31 376	26 445	25 502	-	27 777	2,68
36	Hungary	9 604	25 303	19 355	20 913	20 716	22 428	21 743	2,26
37	Belarus	9 408	5 460	6 435	6 100	-	-	5 998	0,64
38	Israel	9 291	46290	49873	50 958	46 458	-	48 395	5,21
39	Austria	8 879	47 951	43 554	43 370	54 701	85 361	54 987	6,19
40	Switzerland	8 703	13 437	13 178	12 935	13 475	12 600	13 125	1,51
41	Serbia	7 187	31 331	24 635	-	-	-	27 983	3,89
42	Bulgaria	6 520	34 373	29 448	42 141	33 693	30 918	34 115	5,23
43	Singapore	5 850	3 871	3 885	2 862	1 877	1 844	2 868	0,49
44	Denmark	5 825	13 107	15 081	11 206	10 920	-	12 579	2,16
45	Kyrgyzstan	5 522	3 739	4 808	3 955	2 778	3 050	3 666	0,66
46	Finland	5 503	11 851	14 264	-	12 043	12 245	12 601	2,29
47	New Zealand	5 097	9 095	18 519	20 714	22 575	20 005	18 182	3,57
48	Slovakia	5 042	8 973	9 288	9 602	8 704	7 710	8 855	1,76
49	Ireland	5 011	21 879	26 534	20 756	21 759	20 545	22 295	4,45
50	Costa Rica	4 973	19 533	23 862	-	-	-	21 698	4,36
51	Oman	4 527	4 748	4 602	-	-	4 057	4 469	0,99
52	Kuwait	4 137	4 882	3 394	-		-	4 138	1,00
53	Croatia	3 872	14 507	9 968	14 980	14 452	14 087	13 599	3,51
54	Moldova	3 553	1 609	1 650	1 653	1 758	1 608	1 656	0,47
55	Uruguay	3 426	-	-	-	-	22 691	22 691	6,62
56	Mongolia	3 400	3 536	3 612	4 330	3 178	2 671	3 465	1,02
57	Qatar	2 881	9 394	11 848	11 509	8 846	-	10 399	3,61
58	Lithuania	2 810	5 573	-	-	6 519	8 333	6 808	2,42
59	Armenia	2 728	1 663	1 922	2 260	2 196	-	2 010	0,74
60	Slovenia	2 108	-	4 119	-	7 778	7 819	6 572	3,12
61	Latvia	1 908	9 137	9 134	10 095	7 551	-	8 979	4,71
62	Estonia	1 329	4 733	5 353	4 675	3 989	3 873	4 525	3,40
63	Mauritius	1 300	6 940	6 664	-	-	-	6 802	5,23
64	Cyprus	918	-	-	-	7 203	7 347	7 275	7,92
65	Bhutan	756	88	100	-	100	155	111	0,15
66	Luxemburg	602	-	1 995	-	-	2 295	2 145	3,56
67	Brunei	437	804	1 249	2 045	1 124	-	1 306	2,99
68	Barbados	277	-	1 925	-	-	-	1 925	6,95
69	Andorra	78	-	-	-	247	-	247	3,17
70	Liechtenstein	39	-	42	49	45	35	43	1,10
	∑	**5 016 302**	**3 721 792**	**5 304 819**	**3 934 276**	**4 012 531**	**3 153 108**	**4 025 305**	**0,80**

Table/Cuadro/Tabelle 1.9

Trends in fire deaths in the countries of the World in 2017-2021
Динамика числа жертв пожаров в странах мира за 2017-2021
Dynamik der Brandtotenzahlen in den Staaten für die Jahre 2017-2021

№	Country	Population, thous. inh.	Number of fire deaths					Average number per		
			2017	2018	2019	2020	2021	year	100000 inh.	100 fires
	País	Habitantes, en miles	Fallecidos por incendios					Promedio por		
			2017	2018	2019	2020	2021	año	100000 hab.	100 incendios
	Staat	Einwohner in 1000	Anzahl der Brandtoten					Mittelwert		
			2017	2018	2019	2020	2021	je Jahr	je 100000 Einw.	je 100 Brände
1	China	1 390 000	-	-	-	1 183	-	1 183	0,09	0,47
2	India	1 359 000	13 159	12 747	10 915	-	-	12 274	0,90	0,77
3	USA	332 031	3 400	3 655	3 704	3 500	3 800	3 612	1,09	0,27
4	Nigeria	206 100	-	-	-	147	-	147	0,07	7,15
5	Bangladesh	166 303	45	130	185	154	-	129	0,08	0,62
6	Russia	146 781	7 816	7 913	8 559	8 313	8 473	8 215	5,60	2,55
7	Japan	125 502	1 456	1 427	1 486	1 326	1 417	1 422	1,13	3,84
8	Philippines	108 771	-	326	448	253	-	342	0,31	2,07
9	Egypt	100 075	-	-	252	199	252	234	0,23	0,46
10	Vietnam	97 757	96	90	85	75	85	86	0,09	2,53
11	Germany	83 020	370	355	387	319	-	358	0,43	0,16
12	France	67 244	277	262	261	249	277	265	0,39	0,09
13	Great Britain	65 185	328	400	319	289	311	329	0,51	0,16
14	Italy	60 317	288	-	-	-	-	288	0,48	0,11
15	Republic of Korea	51 738	345	369	284	364	276	328	0,63	0,81
16	Myanmar	51 466	104	61	79	-	-	81	0,16	4,26
17	Spain	46 570	212	123	165	-	-	167	0,36	0,13
18	Argentina	44 556	142	163	-	-	-	153	0,34	0,19
19	Ukraine	41 745	1 819	1 967	1 909	1 728	-	1 856	4,45	2,06
20	Poland	37 700	475	527	508	488	516	503	1,33	0,38
21	Saidi Arabia	34 218	201	124	183	-	-	169	0,49	0,38
22	Malaysia	32 370	-	-	121	118	-	120	0,37	0,31
23	Nepal	30 430	3	8	-	-	-	6	0,02	3,97
24	Taiwan	23 561	178	173	-	161	-	171	0,72	0,51
25	Kazachstan	19 177	342	434	323	389	-	372	1,94	2,68
26	Romania	19 053	241	292		255	255	261	1,37	0,83
27	Netherlands	17 591	40	52	22	-	33	37	0,21	0,06
28	Belgium	11 492	-	-	-	66	58	62	0,54	0,18
29	Greece	10 788	31	131	21	69	63	63	0,58	0,22
30	Czech Republic	10 701	92	100	128	144	110	115	1,07	0,64
31	Jordan	10 659	28	24	52	-	-	35	0,33	0,12
32	Sweden	10 379	105	74	78	89	-	87	0,83	0,31
33	Hungary	9 604	121	106	113	107	100	109	1,14	0,50
34	Belarus	9 408	490	525	489	-	-	501	5,33	8,36
35	Israel	9 291	17	19	21	22	-	20	0,21	0,04
36	Austria	8 879	-	-	-	41	51	46	0,52	0,08
37	Switzerland	8 703	14	22	18	17	17	18	0,20	0,13
38	Serbia	7 187	128	89	-	-	-	109	1,51	0,39
39	Bulgaria	6 520	146	145	134	130	184	148	2,27	0,43
40	Singapore	5 850	1	4	1	1	3	2	0,03	0,07
41	Denmark	5 786	61	71	49	54	-	59	1,02	0,47
42	Kyrgyzstan	5 522	66	59	50	43	37	51	0,92	1,39
43	Finland	5 503	61	58	49	49	51	54	0,97	0,43
44	Norway	5 109	26	39	41	45	-	38	0,74	-
45	New Zealand	5 097	14	-	21	15	23	18	0,36	0,10
46	Slovakia	5 042	55	49	45	47	60	51	1,02	0,58
47	Ireland	5 011	41	18	16	29	20	25	0,49	0,11
48	Costa Rica	4 973	14	30	-	-	-	22	0,44	0,10
49	Kuwait	4 137	31	24	-	-	-	28	0,66	0,66
50	Croatia	3 872	32	23	30	30	31	29	0,75	0,21
51	Moldova	3 553	80	120	121	117	88	105	2,96	6,35
52	Uruguay	3 426	-	-	-	-	44	44	1,28	0,19
53	Mongolia	3 296	44	77	54	77	61	63	1,90	1,81
54	Qatar	2 881	7	2	3	17	-	7	0,25	0,07
55	Lithuania	2 810	103	86	70	95	94	90	3,19	1,32
56	Armenia	2 728	6	-	-	12	-	9	0,33	0,45
57	Slovenia	2 108	-	7	13	8	0	7	0,33	0,11
58	Latvia	1 908	79	81	76	84	-	80	4,19	0,89
59	Estonia	1 329	38	50	43	36	39	41	3,10	0,91
60	Cyprus	918	-	-	-	3	57	30	3,27	0,41
61	Bhutan	756	0	4	-	1	4	2	0,30	2,03
62	Luxemburg	602	-	0	-	-	0	0	0,00	0,00
63	Brunei	437	4	2	1	-	-	2	0,53	0,18
64	Iceland	357	-	3	1	6	-	3	0,93	-
65	Liechtenstein	39	-	0	1	1	0	1	1,28	1,17
∑		**4 954 922**	**33 272**	**33 640**	**31 934**	**20 965**	**16 890**	**35 277**	**0,71**	**0,88**

Table/Cuadro/Tabelle 1.10

Trends in fire injuries in the countries of the World in 2017-2021
Dinámica en lesionados por incendios en países del mundo años 2017-2021
Dynamik der Brandverletzten in den Staaten für die Jahre 2017-2021

№	Country	Population, thous. inh.	Number of fire injuries					Average number		
			2017	2018	2019	2020	2021	per year	per 100 thous.inh.	per 100 fires
	País	Habitantes, en miles	Lesionados por incendios					Promedio		
			2017	2018	2019	2020	2021	por año	por 100000 hab.	por 100 incendios
	Staat	Einwohner in 1000	Anzahl der Brandverletzten					Mittelwert		
			2017	2018	2019	2020	2021	je Jahr	je 100000 Einw.	je 100 Brände
1	USA	332 031	14 670	15 200	16 600	15 200	14 700	15 274	4,60	1,14
2	Bangladesh	166 303	269	664	586	317	-	459	0,28	2,21
3	Russia	146 781	9 355	9 650	8 461	8 434	8 403	8 861	6,04	2,75
4	Japan	126 146	6 052	6 114	5 865	5 583	5 433	5 809	4,61	15,67
5	Philippines	108 771	-	-	1 248	721	-	985	0,91	5,95
6	Egypt	100 075	-	-	1 203	878	824	968	0,97	1,88
7	Vietnam	97 757	203	208	126	144	130	162	0,17	4,76
8	France	67 244	1 226	1 282	1 289	24 798	13 905	8 500	12,64	2,90
9	Great Britain	64 903	8 897	8 944	8 750	-	7 772	8 591	13,24	4,28
10	Republic of Korea	51 738	1 852	2 225	2 219	1 915	1 854	2 013	3,89	5,00
11	Myanmar	51 486	125	-	226	-	-	176	0,34	9,19
12	Ukraine	41 745	1 474	1 516	1 523	1 453	-	1 492	3,57	1,65
13	Poland	37 700	4 328	4 335	3 782	2 838	2 444	3 545	9,40	2,67
14	Saudi Arabia	34 218	1 834	1 756	2 059	-	-	1 883	5,50	4,23
15	Malaysia	32 370	-	-	455	413	-	434	1,34	1,11
16	Nepal	30 430	2	30	-	-	-	16	0,05	11,55
17	Taiwan	23 561	-		-	464	-	464	1,97	1,40
18	Kazachstan	19 177	801	412	978	363	413	593	3,09	1,88
19	Romania	19 053	712	663	-	681	681	684	3,59	4,94
20	Belgium	11 492	-	-	-	1 247	1 573	1 410	12,27	4,16
21	Greece	10 788	48	187	36	44	44	72	0,67	0,25
22	Czech Republic	10 701	1 392	1 466	1 388	1 250	1 221	1 343	12,55	7,48
23	Jordan	10 659	1 089	1 058	1 092	-	-	1 080	10,13	3,85
24	Sweden	10 379	414	390	882	784	-	618	5,95	2,22
25	Hungary	9 604	897	832	758	756	629	774	8,06	3,56
26	Belarus	9 408	264	311	444	-	-	340	3,61	5,66
27	Israel	9 291	-	-	686	669	-	678	7,29	1,40
28	Serbia	7 187	474	347	-	-	-	411	5,71	1,47
29	Bulgaria	6 520	301	295	293	-	-	296	4,54	0,87
30	Singapore	5 850	60	90	142	184	194	134	2,29	4,67
31	Kyrgyzstan	5 522	-	54	-	-	-	54	0,98	1,47
32	Finland	5 503	696	670	-	595	531	623	11,32	4,94
33	New Zealand	5 097	-	-	273	301	308	294	5,77	3,32
34	Slovakia	5 042	224	194	343	240	191	238	4,73	1,31
35	CostaRica	4 973	71	73	-	-	-	72	1,45	0,33
36	Kuwait	4 137	265	-	-	-	-	265	6,41	5,93
37	Croatia	3 872	117	117	166	131	127	132	3,40	3,18
38	Uruguay	3 426	-	-	-	-	381	381	11,12	2,80
39	Mongolia	3 400	-	-	68	45	-	57	1,66	3,41
40	Qatar	2 881	-	115	-	105	-	110	3,82	3,17
41	Lithuania	2 810	181	174	164	141	172	166	5,92	1,60
42	Armenia	2 728	54	-	-	42	-	48	1,76	0,71
43	Slovenia	2 108	-	284	209	155	33	170	8,08	8,47
44	Latvia	1 908	381	301	279	273	-	309	16,17	4,69
45	Estonia	1 329	102	100	113	120	103	108	8,10	1,20
46	Cyprus	880	-	-	-	103	19	61	6,93	0,90
47	Luxemburg	643	-	-	-	-	46	46	7,15	3,52
48	Brunei	437	8	-	5	17	-	10	2,29	0,47
49	Liechtenstein	39	-	0	-	-	1	1	1,28	1,17
	∑	**1 710 103**	**58 838**	**60 057**	**62 711**	**71 404**	**62 132**	**63 028**	**3,69**	**1,57**

Table/Cuadro/Tabelle 1.11

Trends in firefighter deaths in the countries of the World in 2017-2021
Dinámica en Bomberos fallecidos en incendios en países para los años 2017-2021
Dynamik der Anzahl verunglückter Feuerwehrleute in den Staaten für 2017-2021

№	Country / País / Staat	Population, thous. inh. / Habitantes, en miles / Einwohner in 1000	Number of firefighter deaths / Cantidad de Bomberos fallecidos / Anzahl der FM getötet					Average per year / Promedio anual / Mittelwert je Jahr
			2017	2018	2019	2020	2021	
1	USA	332 031	60	64	48	62	135	73,8
2	Japan	125 502	-	-	12	7	2	7,0
3	France	67 244	-	-	-	-	7	7,0
4	Poland	37 700	2	1	1	2	0	1,2
5	Romania	19 053	0	-	-	0	0	0,0
6	Netherlands	17 591	-	-	0	-	0	0,0
7	Belgium	11 492	-	-	-	0	0	0,0
8	Greece	10 788	-	1	1	0	1	0,8
9	Czech Republic	10 516	2	0	1	0	2	1,0
10	Hungary	9 772	0	0	0	0	0	0,0
11	Austria	8 879	-	-	-	-	1	1,0
12	Bulgaria	6 520	1	1	-	0	0	0,5
13	Finland	5 503	0	0	-	0	1	0,3
14	Slovakia	5 042	-	-	0	0	0	0,0
15	Croatia	4 047	0	0	1	1	0	0,4
16	Lithuania	2 810	0	-	0	0	1	0,3
17	Estonia	1 330	0	0	0	-	0	0,0
18	Cyprus	918	-	-	-	-	0	0,0
19	Luxemburg	643	-	0	-	-	0	0,0
20	Liechtenstein	38	-	0	0	0	0	0,0
∑		**677419**	**65**	**67**	**64**	**72**	**150**	**83,6**

Table/Cuadro/Tabelle 1.12

Trends in firefighter injuries in the countries of the World in 2017-2021
Dinámica de Bomberos lesionados en incendios en países años 2017-2021
Dynamik der Anzahl verunglückter Feuerwehrleute in den Staaten für 2017-2021

№	Country / País / Staat	Population, thous. inh. / Habitantes, en miles / Einwohner in 1000	Number of firefighter injuries / Cantidad de Bomberos lesionados / Anzahl der FM verletzt					Average per year / Promedio anual / Mittelwert je Jahr
			2017	2018	2019	2020	2021	
1	USA	332 031	58 835	58 250	60 225	64 875	60 750	60 587
2	Japan	125 502	-	-	2 229	1 424	1 460	1 704
3	France	67 244	-	-	-	-	10 882	10 882
4	Poland	37 700	204	406	388	244	313	311
5	Romania	19 053	1	-	-	0	0	0
6	Belgium	11 492	-	-	-	94	62	78
7	Greece	10 788	-	16	13	20	41	23
8	Czech Republic	10 516	182	253	217	271	183	221
9	Hungary	9 772	72	84	67	60	63	69
10	Bulgaria	6 520	23	14	-	13	11	15
11	Finland	5 503	43	84	-	63	70	65
12	Slovakia	5 042	-	-	45	45	9	33
13	Croatia	4 047	101	22	17	22	27	38
14	Lithuania	2 810	23	-	29	23	16	23
15	Slovenia	2 108	-	6	146	-	48	67
16	Estonia	1 330	57	54	52	-	47	53
17	Cyprus	918	-	-	-	1	0	1
18	Luxemburg	643	-	27	-	-	45	36
19	Liechtenstein	37	-	0	0	0	0	0
∑		**653 056**	**59 541**	**59 216**	**63 428**	**67 155**	**74 027**	**64 673**

Table/Cuadro/Tabelle 1.13

Statistics of fire services in the countries of the World in 2010-2021 (most recent data)
Estadísticas de personal y equipos en países en 2010-2021
Personal und Ausstattung der Feuerwehren der Staaten in 2010-2021

№	Country	Population thous.inh.	Fire stations	Number of		Number of firefighters			
				engines	ladders	career	part time	volunt.	total
	País	Habitantes, en miles	Estaciones de Bomber.	Cantidad de		Number of firefighters			
				Bombas	Escalas	Rentados	Medio tiempo	volunt.	total
	Staat	Einwohner in 1000	Feuer-wachen	Anzahl der Fahrzeuge		Personal der Feuerwehr			
				LF, TLF	DL, TM	BF	Teilzeit	FF	Gesamt
1	China	1 386 000	-	-	-	130 000	-	7 500 000	7 630 000
2	USA	332 031	53 040	66 300	6 630	364 300	-	676 900	1 041 200
3	Bangladesh	166 302	456	1 312	10	11 752	808	-	12 560
4	Russia	146 781	18 322	22 735	1 326	271 000	-	956 600	1 227 600
5	Japan	125 502	29 157	21 366	1 102	165 928	0	783 578	949 506
6	Philippines	108 771	1 396	2 803	48	26 751	-	-	26 751
7	Vietnam	97 757	292	1 352	164	9 801	-	920 724	930 525
8	Germany	83 020	37 175	41 064	2 509	34 854	-	1 003 594	1 038 448
9	France	67 244	6 093	7 478	1 216	54 140	-	197 758	251 898
10	Great Britain	64 903	2 053	2 900	235	40 100	19 000	1 400	60 500
11	Iran	64 000	452	1 300	20	9 285	-	-	9 285
12	Italy	61 000	902	2 330	307	28 870	-	20 060	48 930
13	Republic of Korea	51 738	226	2 204	453	60 994	-	96 561	157 555
14	Ukraine	41 745	2 217	3 642	301	53 286	-	137 523	190 809
15	Poland	37 700	496	1 625	539	30 242	-	505 520	535 762
16	Canada	35 544	-	-	-	26 000	-	126 650	152 650
17	Malaysia	32 370	320	-	-	12 466	-	14 813	27 279
18	Peru	26 000	174	-	-	-	-	-	-
19	Taiwan	22 450	544	959	197	8 180	-	26 500	34 680
20	Australia	20 016	-	4 448	-	-	-	-	-
21	Kazachstan	19 177	418	1 522	335	17 500	-	43 000	60 500
22	Romania	19 053	391	833	138	25 632	-	61 833	87 465
23	Netherlands	17 591	953	1 070	130	3 145	1 089	18 258	22 492
24	Belgium	11 492	320	1 680	270	6 538	0	10 608	17 146
25	Portugal	11 000	473	1 600	-	4 100	0	45 000	49 100
26	Greece	10 788	284	2 075	110	13 246	-	1 922	15 168
27	Jordan	10 659	445	207	21	4 509	-	10	4 519
28	Czech Republic	10 516	6 732	4 475	395	13 412	3 108	60 168	76 688
29	Sweden	10 379	944	-	-	5 051	10 847	-	15 898
30	Belarus	9 408	714	1 922	178	9 276	-	6 660	15 936
31	Israel	9 291	122	350	42	3 204	-	-	3 204
32	Hungary	9 064	227	1 047	118	10 175	-	19 812	29 987
33	Austria	8 879	5 679	8 332	308	2 729	-	298 972	301 701
34	Switzerland	8 500	1 272	-	-	1 185	0	80 110	81 295
35	Serbia	7 187	186	886	40	3 169	0	-	3 169
36	Laos	6 522	17	52	1	244	0	0	244
37	Bulgaria	6 520	243	712	50	6 601	0	0	6 601
38	Denmark	5 786	285	358	103	1 368	4 416	-	5 784
39	Singapore	5 612	22	86	23	2 745	-	-	2 745
40	Finland	5 503	988	1 539	78	3 937	2 865	11 965	18 767
41	Georgia	5 266	119	200	15	5 128	-	-	5 128
42	Norway	5 109	597	963	70	3 718	8 152	-	11 870
43	New Zealand	5 097	649	628	26	2 785	-	11 847	14 632
44	Slovakia	5 042	118	351	108	4 296	-	79 004	83 300
45	Costa Rica	4 973	76	-	-	-	-	-	-
46	Ireland	4 581	219	300	46	2 012	2 076	0	4 088
47	Croatia	3 872	2 087	2 398	118	3 331	1 131	56 002	60 464
48	Kuwait	3 800	39	50	11	3 800	-	-	3 800
49	Albania	3 601	45	68	6	724	-	-	724
50	Moldova	3 553	62	163	25	1381	-	90	1 471
51	Mongolia	3 297	64	138	6	3 152	74	-	3 226
52	Lithuania	2 810	81	227	45	2 957	-	1 760	4 717
53	Armenia	2 728	61	147	12	2 172	-	225	2 397
54	Slovenia	2 108	1 337	1 462	53	1 000	0	35 689	36 689
55	Latvia	1 908	91	241	37	2 690	-	547	3 237
56	Estonia	1 330	182	104	11	1 593	10	2 306	3 909
57	Cyprus	918	34	86	10	668	170	0	838
58	Luxemburg	643	99	171	26	552	-	3 346	3 898
59	Brunei	437	31	40	3	1 357	-	-	1 357
60	Barbados	267	6	13	2	214	-	-	214
61	Andora	78	4	17	-	120	-	-	120
62	Liechtenstein	39	15	13	4	0	0	622	622
∑		**3 235 258**	**180 046**	**220 344**	**18 031**	**1 519 365**	**53 746**	**13 817 937**	**15 391 048**

Table/Cuadro/Tabelle 1.14

Fire service personnel by gender in the countries of the World in 2010-2021 (most recent data)
Personal de Bomberos según género en países del mundo años 2010-2021 (Datos mas recientes)
Personal der Feuerwehren der Staaten nach Gender in 2010-2021

№	Country	Population thous.inh.	Number of firefighters				
			Male	%	Female	%	Total
	País	Población en miles	Cantidad de Bomberos				
			Masculino	%	Femenino	%	Total
	Staat	Einwohner in 1000	Personal der Feuerwehr				
			Männer	%	Frauen	%	Gesamt
1	USA	332 031	851 600	90	89 600	10	941 200
2	Bangladesh	166 303	12 446	99	114	1	12 560
3	Russia*	146 781	233 227	86	37 773	14	271 000
4	Japan	125 502	915 755	96	33 751	4	949 506
5	Philippines	108 771	19 809	74	6 942		26 751
6	Germany	82 218	938 525	91	89 471	9	1 027 996
7	France	67 244	196 402	78	55 496	22	251 898
8	Italy	61 000	47 503	97	1 427	3	48 930
9	Republic of Korea	51 738	146 035	79	39 006	21	185 041
10	Poland	37 700	476 907	89	58 855	11	535 762
11	Taiwan	23 561	14 301	88	1 919	12	16 220
12	Romania	19 053	85 858	98	1 607	2	87 465
13	Netherlands	17 591	21 113	94	1 379	6	22 492
14	Denmark	17 081	22 757	95	1 286	5	24 043
15	Belgium	11 492	16 733	98	413	2	17 146
16	Greece	10 788	14 087	93	1 081	7	15 168
17	Czech Republic	10 516	80 112	99	1 064	1	81 176
18	Sweden	10 379	14 759	93	1 139	7	15 898
19	Israel	9 291	2 694	84	510	16	3 204
20	Hungary*	9 064	29 240	98	747	2	29 987
21	Austria	8 879	282 558	94	19 143	6	301 701
22	Switzerland*	8 500	81 295	91	8 395	9	89 690
23	Serbia	7 187	3 104	98	65	2	3 169
24	Bulgaria	6 520	6 523	99	78	1	6 601
25	Singapore	5 850	2 291	83	454	17	2 745
26	Denmark	5 786	5 756	96	220	4	5 976
27	Finland	5 503	17 001	91	1 766	9	18 767
28	Norway	5 109	11 673	98	197	2	11 870
29	Slovakia*	5 042	67 455	81	15 845	19	83 300
30	New Zealand	4 748	12 437	85	2 195	15	14 632
31	Ireland	4 459	3 547	100	0	0	3 547
32	Croatia	3 872	51 617	85	8 847	15	60 464
33	Mongolia	3 297	3 224	100	2	0	3 226
34	Armenia	2 972	2 164	97	67	3	2 231
35	Lithuania	2 794	4 204	100	11	0	4 215
36	Slovenia	2 108	31 932	87	4 757	13	36 689
37	Latvia	1 908	5 587	100	0	0	5 587
38	Estonia	1 330	3 466	89	443	11	3 909
39	Cyprus	918	747	89	91	11	838
40	Luxemburg	643	2 330	60	1 568	40	3 898
41	Brunei	437	1 177	87	180	13	1 357
42	Liechtenstein	39	588	95	34	5	622
∑		**1 406 005**	**4 740 539**	**91**	**487 938**	**9**	**5 228 477**

* - career / rentados / BF

Table/Cuadro/Tabelle 1.15

Number of young firefighters in the countries of the World in 2010-2021 (most recent data)
Cantidad de Cadetes o Brigadiers en los países en 2010-2021 (datos mas recientes)
Anzahl der Jugendlichen in den Feuerwehren der Staaten in 2010-2021

№	Country	Population thous.inh.	Number of young firefighters
	País	Habitantes en miles	Cantidad de jóvenes
	Staat	Einwohner in 1000	Jugendfeuerwehrmitglieder
1	Russia	146 781	262 354
2	USA	332 031	28 800
3	Japan	125 502	388 512
4	Germany	82 218	274 694
5	France	67 244	28 185
6	Republic of Korea	51 738	4 357
7	Poland	38 265	83 817
8	Romania	19 053	19 940
9	Greece	10 788	523
10	Hungary	9 604	2 407
11	Belarus	9 408	159 041
12	Austria	8 879	30 391
13	Finland	5 503	7 337
14	Slovakia	5 042	6 296
15	Croatia	3 872	21 151
16	Slovenia	2 108	40 431
17	Latvia	1 908	300
18	Luxemburg	643	1 142
19	Liechtenstein	39	70
∑		**920 626**	**1 317 315**

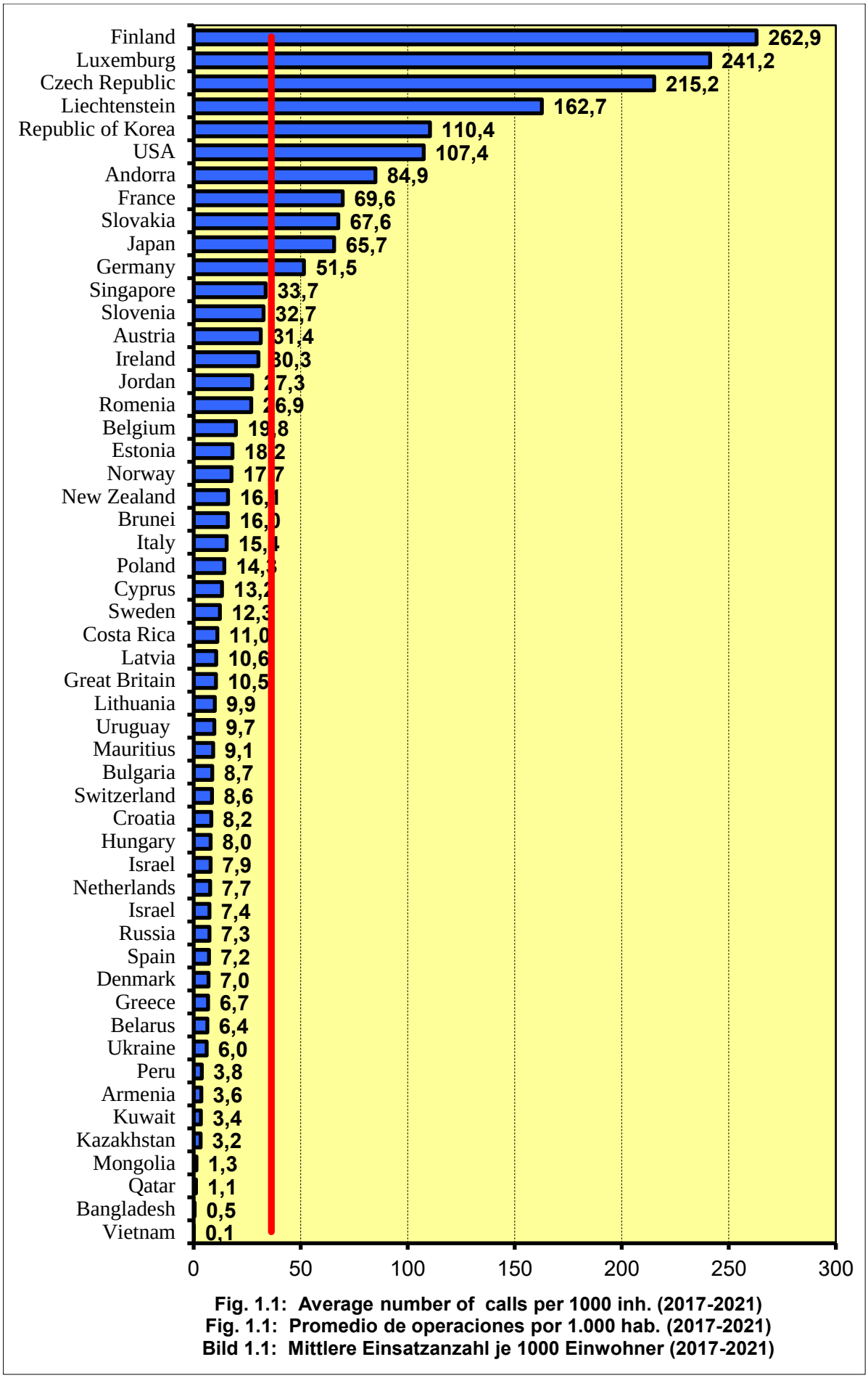

Fig. 1.1: Average number of calls per 1000 inh. (2017-2021)
Fig. 1.1: Promedio de operaciones por 1.000 hab. (2017-2021)
Bild 1.1: Mittlere Einsatzanzahl je 1000 Einwohner (2017-2021)

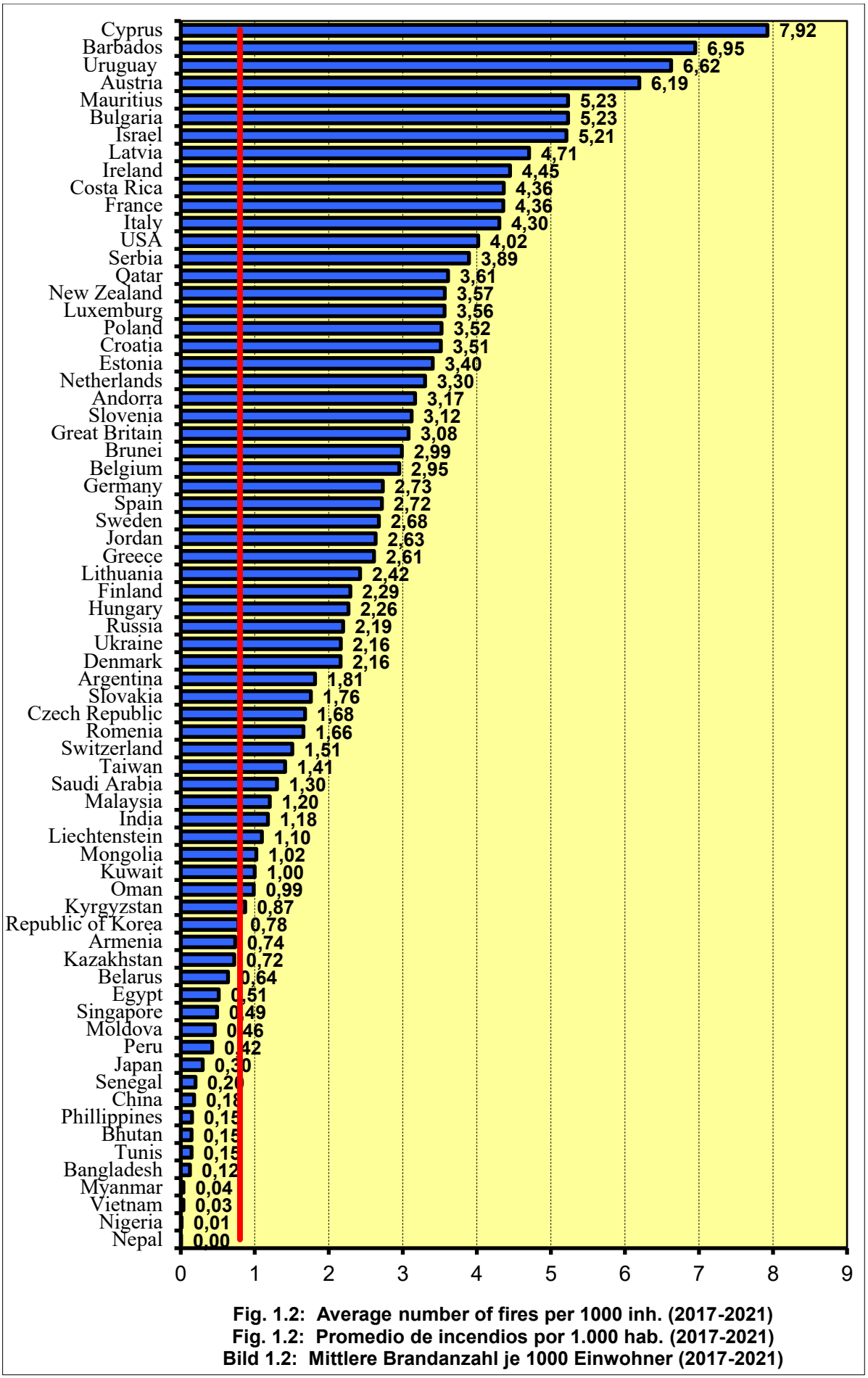

Fig. 1.2: Average number of fires per 1000 inh. (2017-2021)
Fig. 1.2: Promedio de incendios por 1.000 hab. (2017-2021)
Bild 1.2: Mittlere Brandanzahl je 1000 Einwohner (2017-2021)

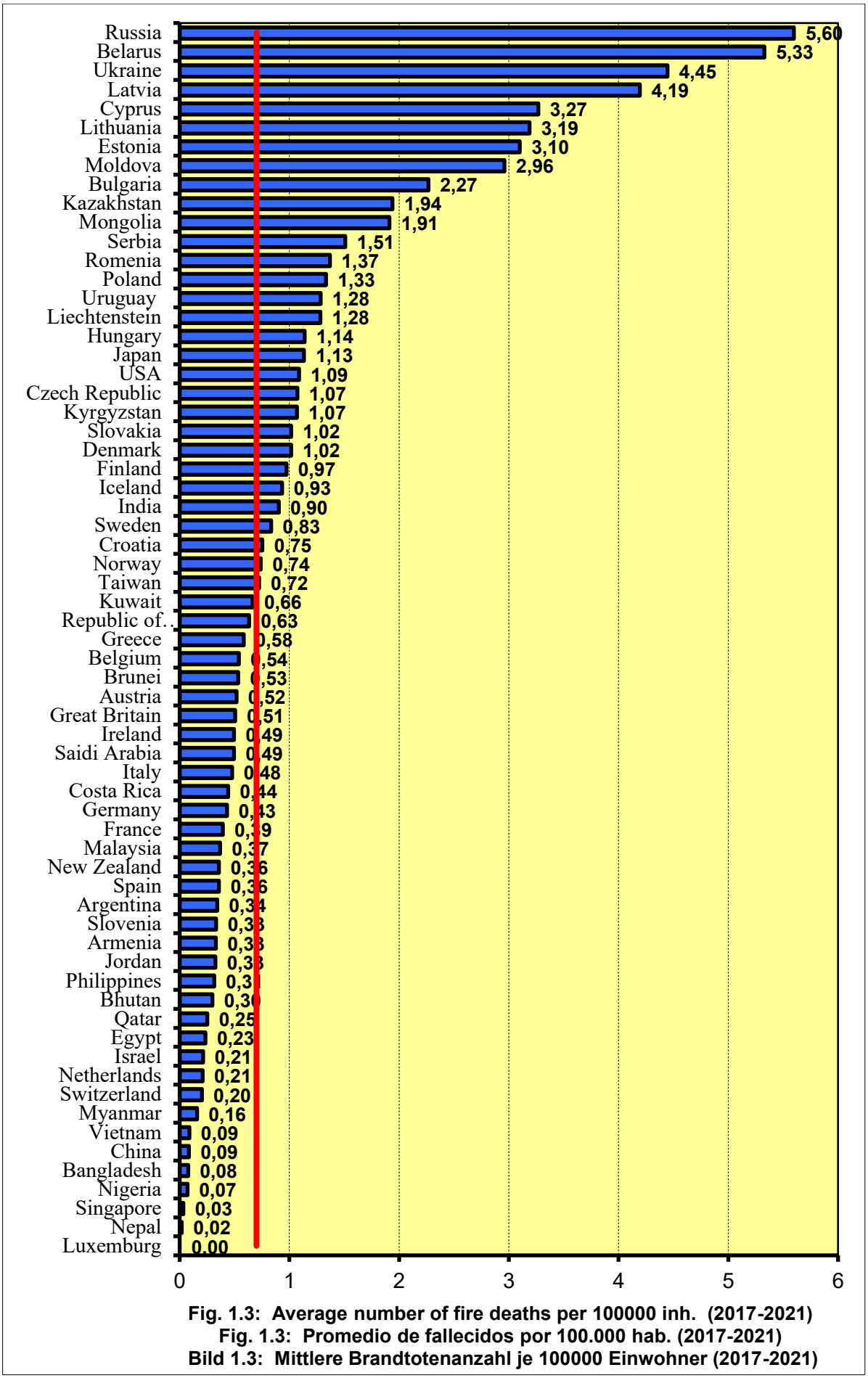

Fig. 1.3: Average number of fire deaths per 100000 inh. (2017-2021)
Fig. 1.3: Promedio de fallecidos por 100.000 hab. (2017-2021)
Bild 1.3: Mittlere Brandtotenanzahl je 100000 Einwohner (2017-2021)

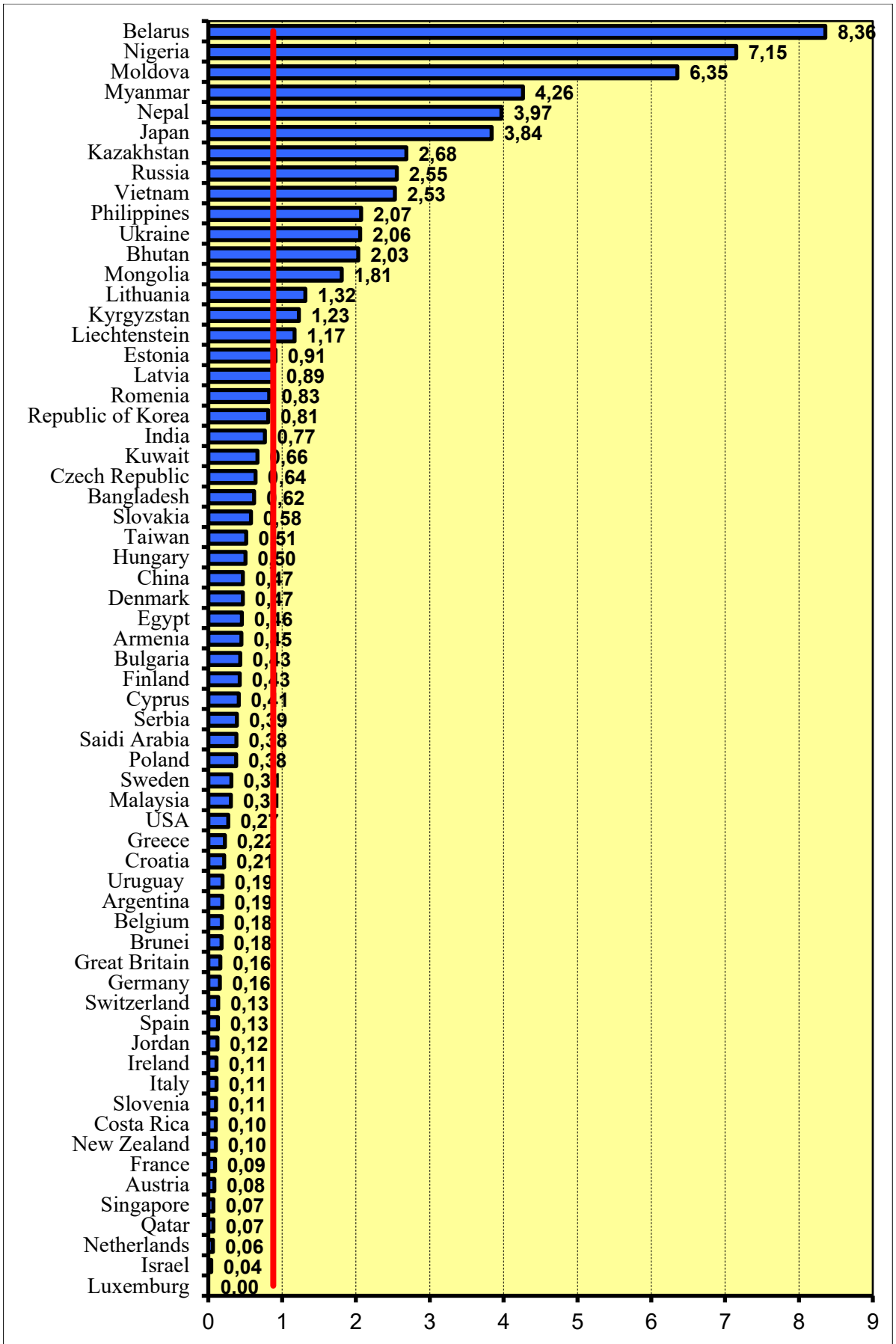

Fig. 1.4: Average number of fire deaths per 100 fires (2017-2021)
Fig. 1.4: Promedio de fallecidos por 100 incendios (2017-2021)
Bild 1.4: Mittlere Brandtotenanzahl je 100 Brände (2017-2021)

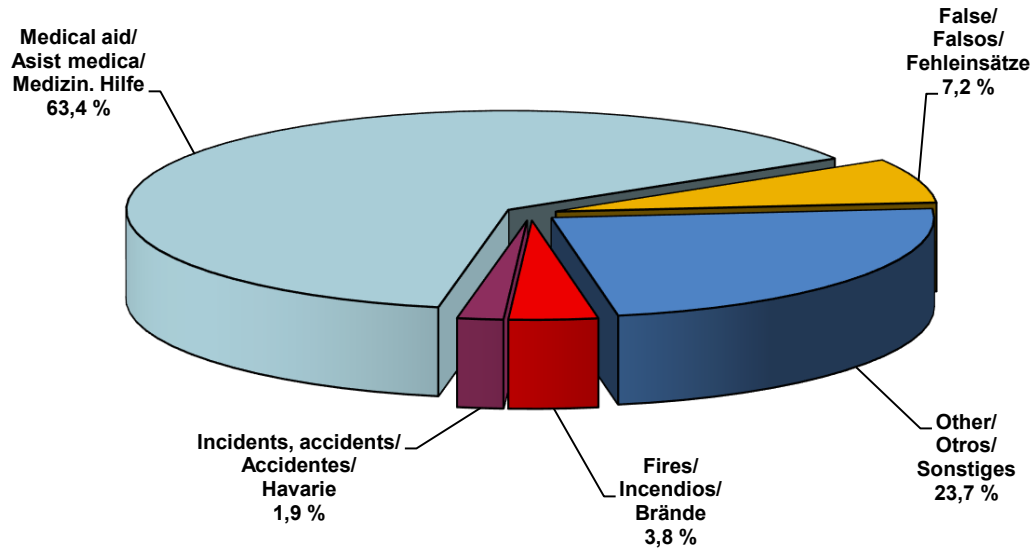

Fig. 1.5: Type of fire service calls in the countries (2021)
Fig. 1.5: Tipo de operaciones en los países (2021)
Bild 1.5: Einsatzstruktur der Feuerwehren in den Staaten (2021)

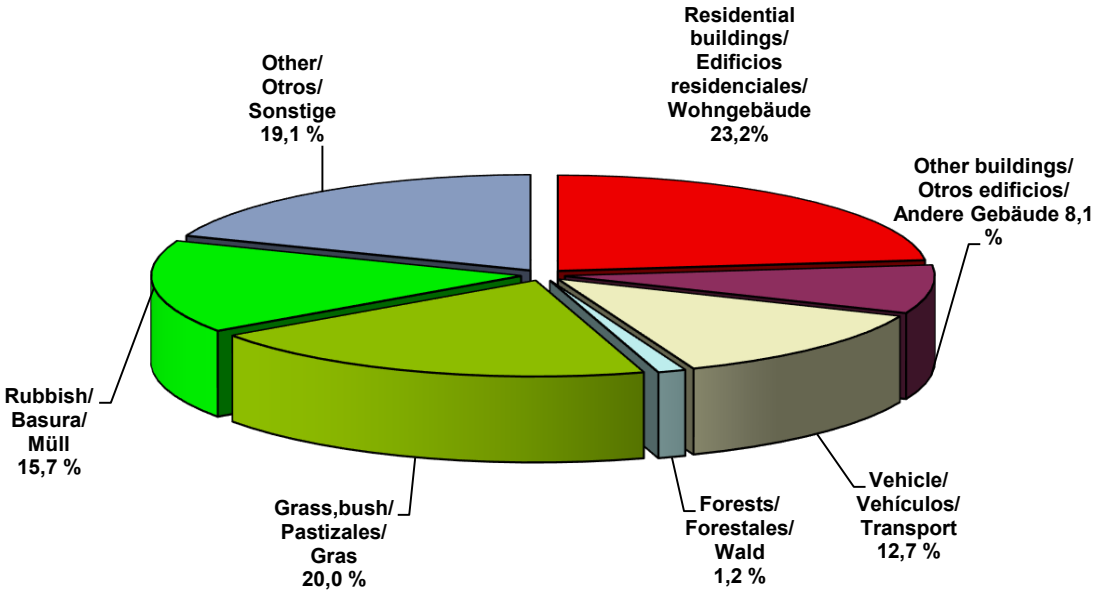

Fig. 1.6: Distribution of fires by types in the countries (20211)
Fig. 1.6: Distribución de incendios en los países (2021)
Bild 1.6: Verteilung der Brände nach Objekten der Brandentstehung in den Staaten (2021)

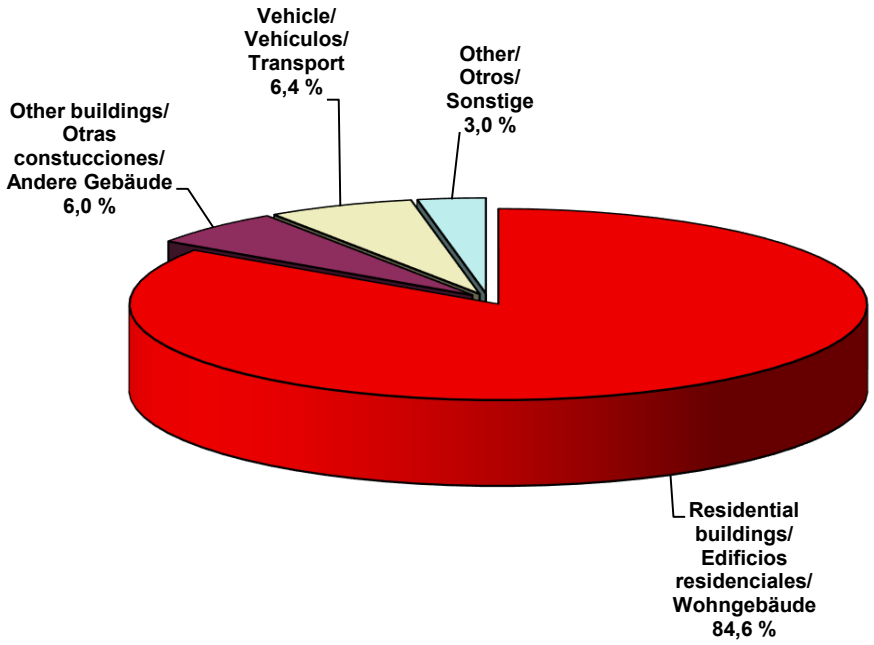

Fig. 1.7: Distribution of fire deaths by types in the counties (2021)
Fig. 1.7: Distribución de fallecidos según tipo de incendio en países (2021)
Bild 1.7: Verteilung der Brändtoten nach Objekten der Brandentstehung in den Staaten (2021)

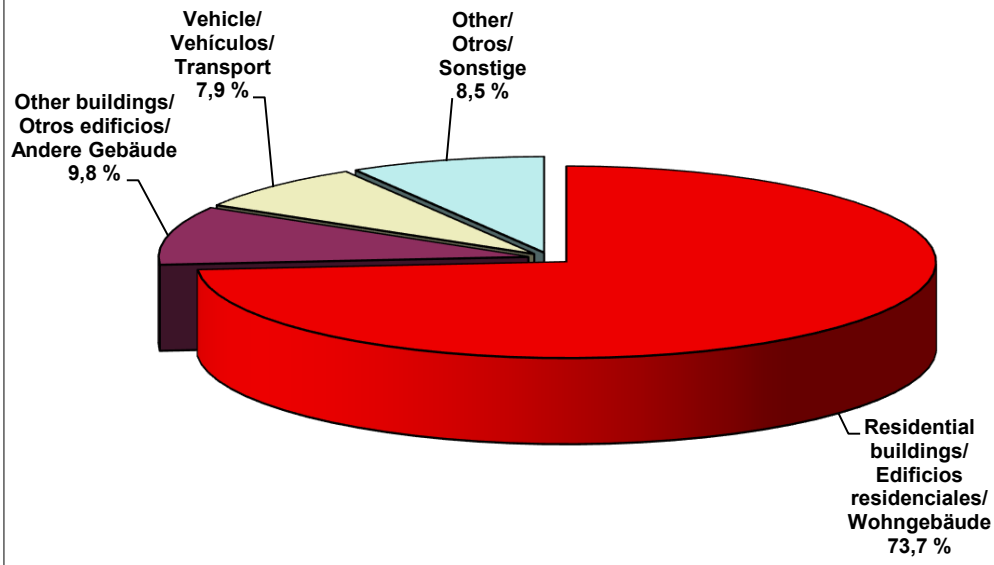

Fig. 1.8: Distribution of fire injuries by types in the countries (2021)
Fig. 1.8: Distribución de lesionados sgún tipo en países (2021)
Bild 1.8: Verteilung der Brandverletzten nach Objekten der Brandentstehung in den Staaten (2021)

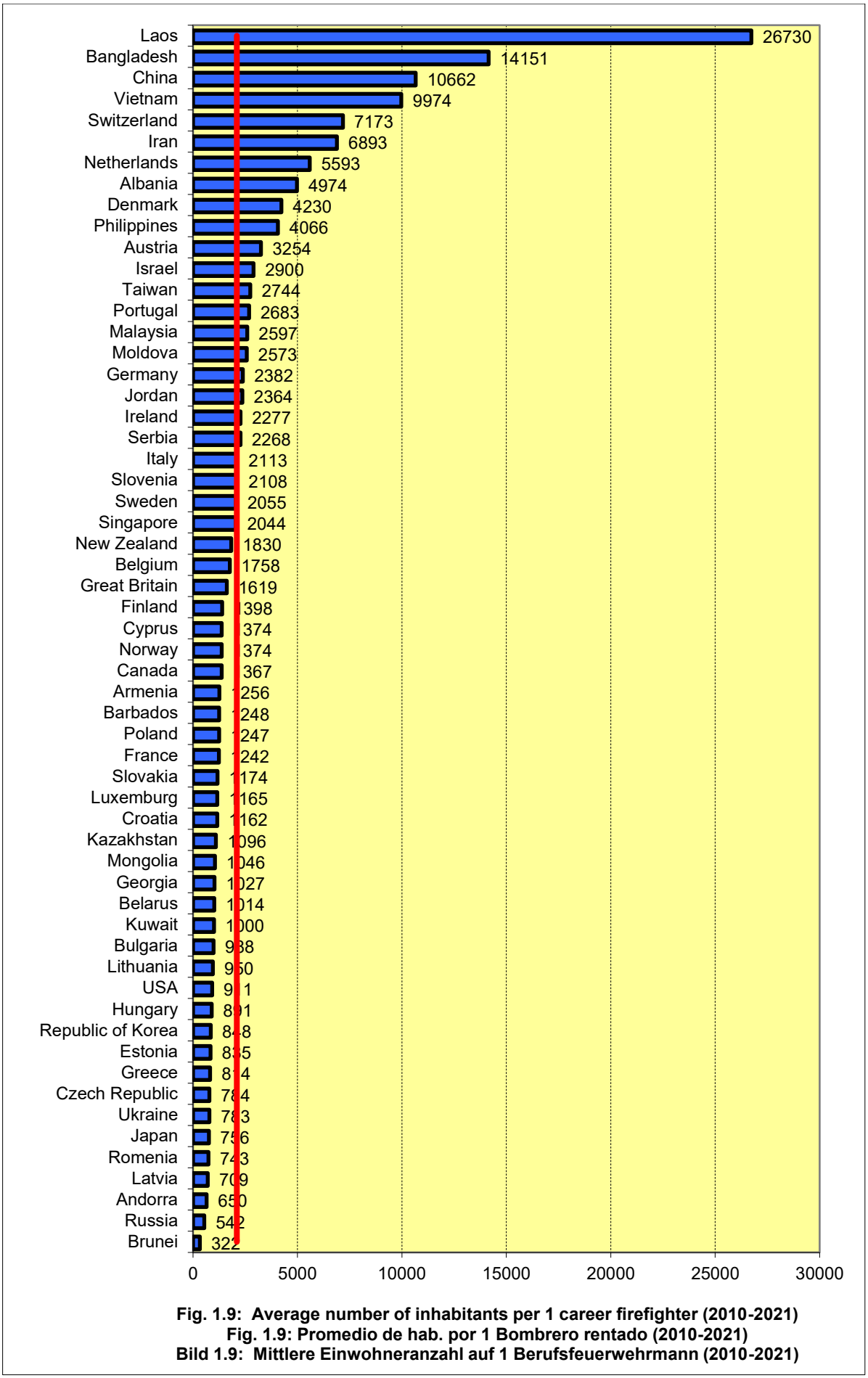

Fig. 1.9: Average number of inhabitants per 1 career firefighter (2010-2021)
Fig. 1.9: Promedio de hab. por 1 Bombrero rentado (2010-2021)
Bild 1.9: Mittlere Einwohneranzahl auf 1 Berufsfeuerwehrmann (2010-2021)

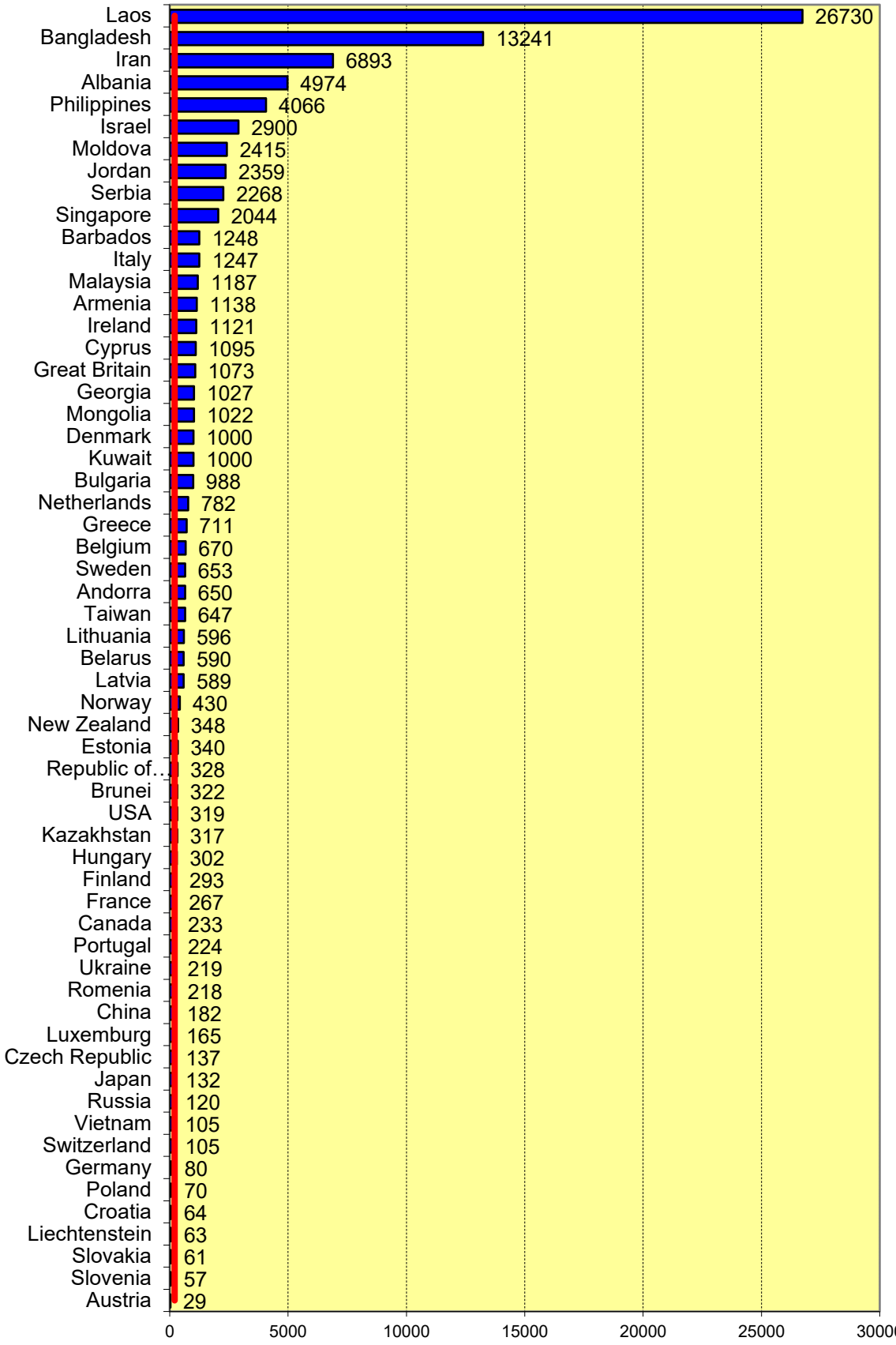

Fig. 1.10: Average number of inhabitants per 1 firefighter (2010-2021)
Fig. 1.10: Promedio de habitantes por 1 Bombero (2010-2021)
Bild 1.10: Mittlere Einwohneranzahl auf 1 Feuerwehrmann (2010-2021)

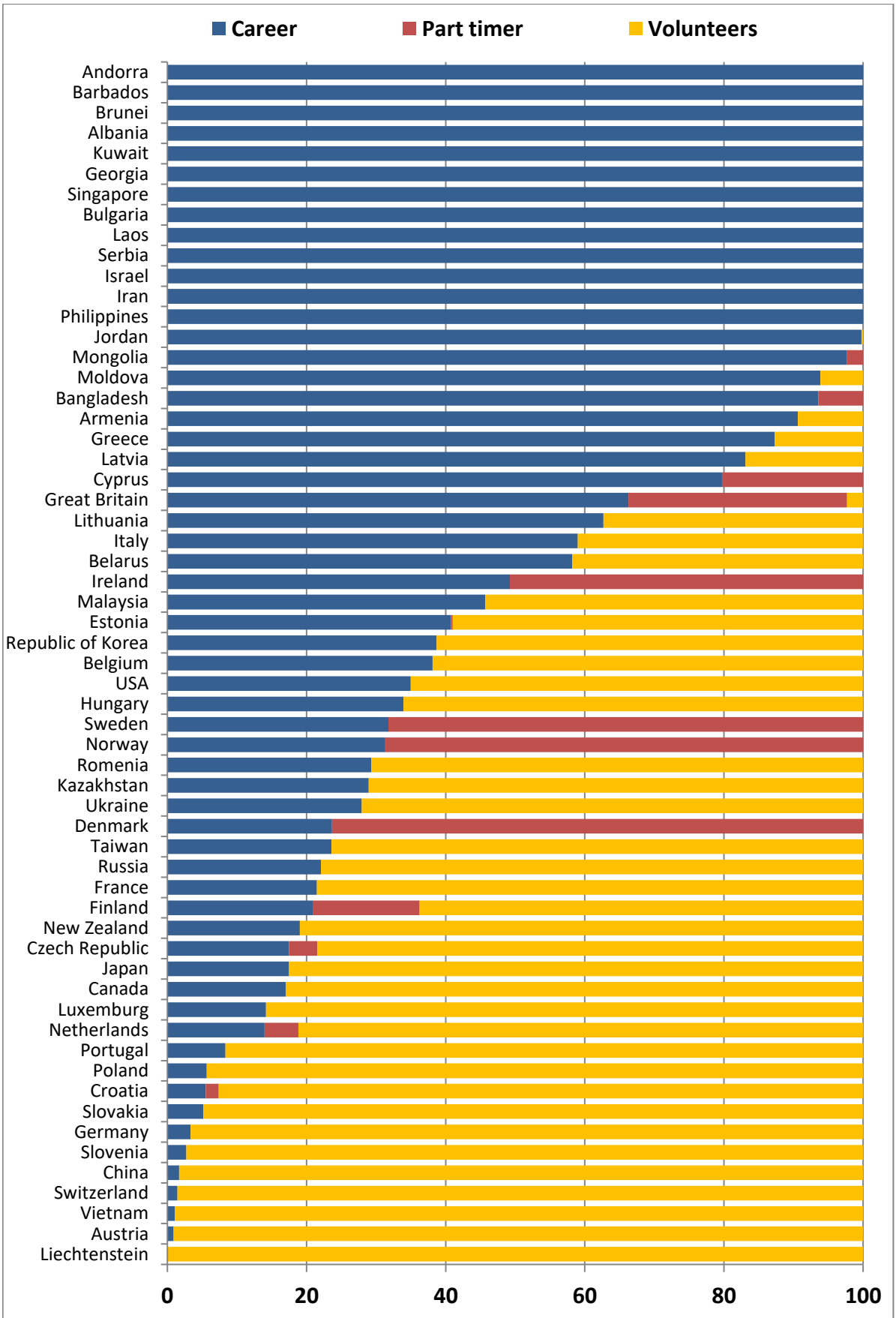

Fig. 1.11: Contributions of categories of firefighters to total firefighters numbers [%]
Fig. 1.11: Cantidad de Bomberos según su categoría [%]
Bild 1.11: Anteile der Feuerwehrmannkategorien [%]

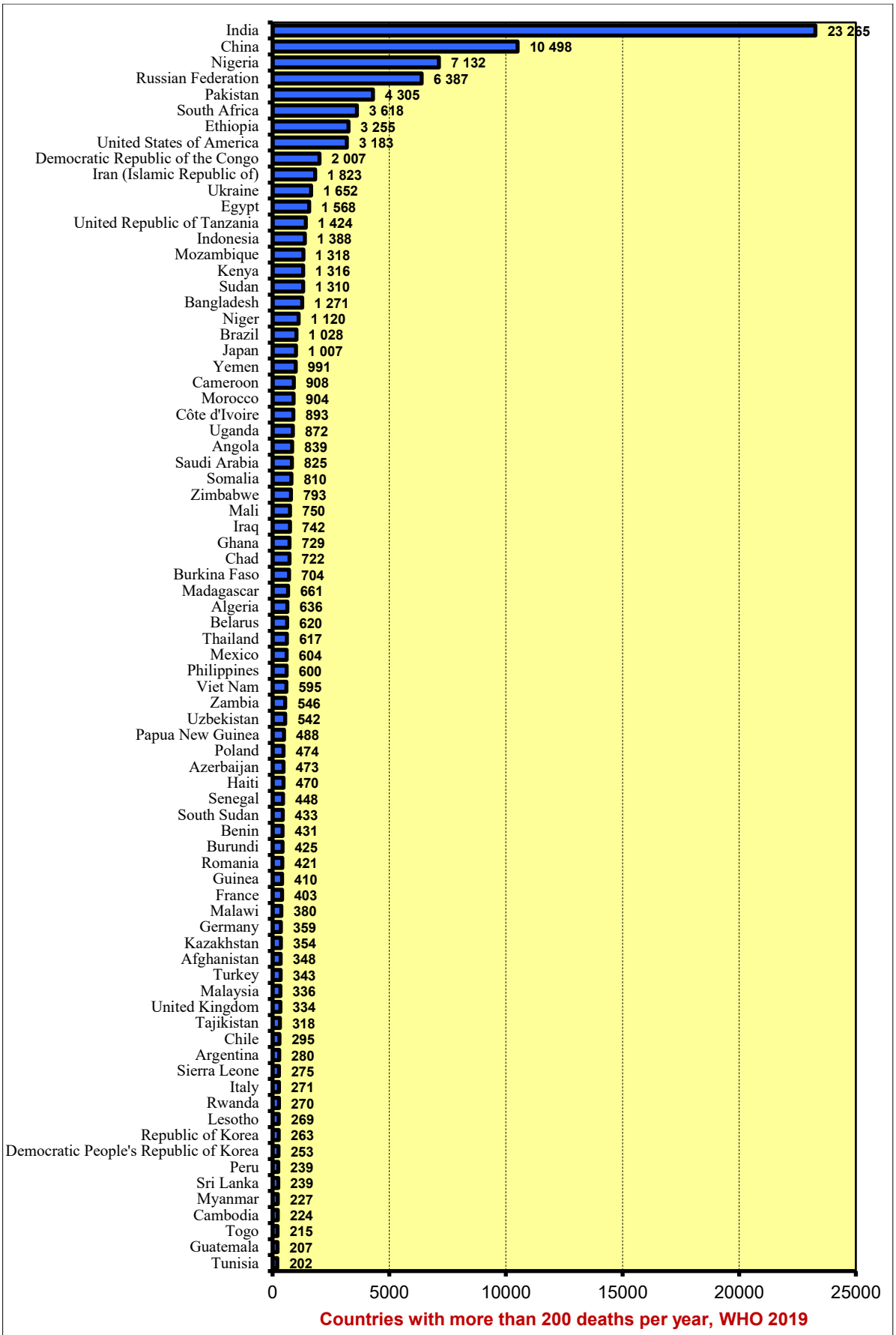

Fig. 1.12: Distribution of estimated deaths from fire, heat and hot substances
Fig. 1.12: Distribución estimada de fallecidos por "fuego, calor y sust. calientes"
Bild 1.12: Verteilung der Toten "Feuer, Flamme, heiße Substanzen"

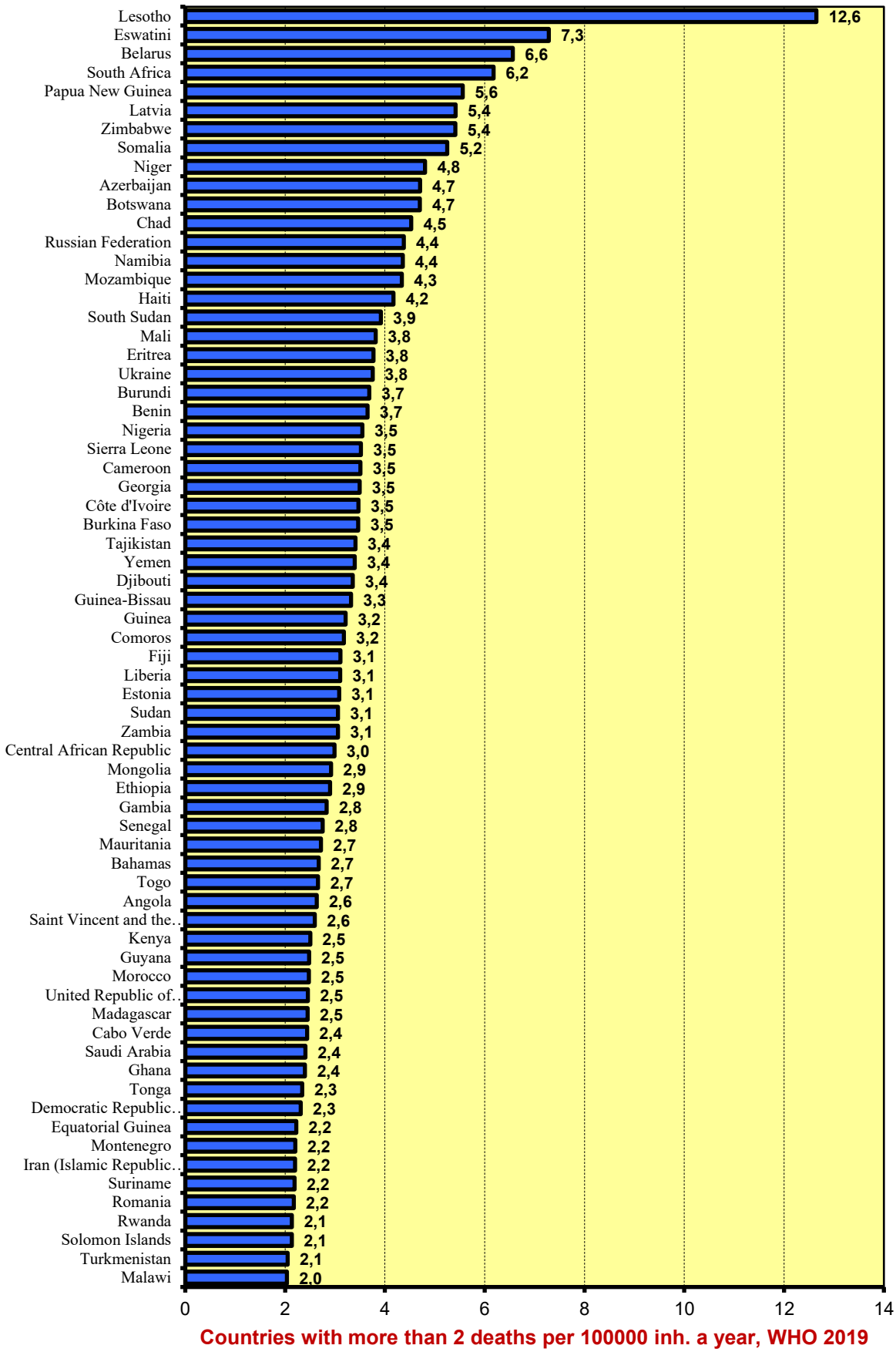

Fig. 1.13: Distribution of estimated deaths from fire, heat and hot substances
Fig. 1.13: Distribución estimada de fallecidos por "fuego, calor y sust. calientes"
Bild 1.13: Verteilung der Toten "Feuer, Flamme, heiße Substanzen"

Table/Cuadro/Tabelle 2.1

Common indicators of fire statistics in the cities of the World in 2021
Indicadores comunes en las estadísticas de incendios en ciudades del mundo en 2021
Verdichtete Kennzahlen zum Arbeitsumfang und zur Brandsituation in den Städten der Welt im Jahr 2021

№	City	Population thous. inhabitants	Area sq.km.	Number of				Average number					
				calls	fires	fire deaths	fire injuries	per 1000 inh.:		of fire deaths per:		of fire injuries per:	
								calls	fires	100000 inh.	100 fires	100000 inh.	100 fires
	Ciudad	Habitantes por mil	Area en km cuadrados	Cantidad de				Promedio					
				Operaciones	Incendios	Fallecidos incend.	Lesionados incend.	Por 1000 habs.		Fallecidos por		Lesionados por	
								Operaci.	Incendios	100000 hab.	100 incendios	100000 hab.	100 incendios
	Stadt	Einwohner in 1 000	Fläche, in qkm	Anzahl der …				Mittelwert					
				Einsätze	Brände	Brandtoten	Verletzten	je 1000 Einw.:		Brandtotenanzahl je:		Verletztenanzahl je:	
								Einsätze	Brände	100000 Einw.	100 Brände	100000 Einw.	100 Brände
1	Delhi	16 787	1 483	-	27 343	591	1 421	-	1,6	3,5	2,2	8,5	5,2
2	Tokyo	14 010	2 194	800 291	3 939	86	664	57,1	0,3	0,6	2,2	4,7	16,9
3	Moscow	12 600	2 561	-	7 413	183	407	-	0,6	1,5	2,5	3,2	5,5
4	London	9 002	1 707	-	14 929	50	717	-	1,7	0,6	0,3	8,0	4,8
5	Ho Chi Minh	9 000	2 095	1 308	374	26	38	0,1	0,0	0,3	7,0	0,4	10,2
6	Hanoi	8 148	3 358	1 246	355	12	23	0,2	0,0	0,1	3,4	0,3	6,5
7	Hong Kong	7 509	1 106	766 500	34 000	-	-	102,1	4,5	-	-	-	-
8	Paris	6 895	800	2 756 048	10 724	29	420	399,7	1,6	0,4	0,3	6,1	3,9
9	St. Petersburg	5 380	1 404	-	9 610	135	220	-	1,8	2,5	1,4	4,1	2,3
10	Athens	3 074	412	20 661	4 382	13	9	6,7	1,4	0,4	0,3	0,3	0,2
11	Bucharest	2 162	240	118 717	2 022	22	64	54,9	0,9	1,0	1,1	3,0	3,2
12	Vienna	1 931	415	41 273	11 343	-	-	21,4	5,9	-	-	-	-
13	Warsaw	1 860	517	19 941	3 239	20	62	10,7	1,7	1,1	0,6	3,3	1,9
14	Budapest	1 682	525	12 504	2 135	14	84	7,4	1,3	0,8	0,7	5,0	3,9
15	Montevideo	1 319	201	15 762	11 802	22	139	11,9	8,9	1,7	0,2	10,5	1,2
16	Sofia	1 276	492	9 195	3 273	23	-	7,2	2,6	1,8	0,7	-	-
17	Prague	1 275	496	325 208	1 795	12	148	255,1	1,4	0,9	0,7	11,6	8,2
18	Brussels	1 212	162	14 386	3 304	7	366	11,9	2,7	0,6	0,2	30,2	11,1
19	Dublin	1 186	921	94 777	9 671	1	-	79,9	8,2	0,1	0,0	-	-
20	Astana	1 184	797	-	718	0	11	-	0,6	0,0	0,0	0,9	1,5
21	Zagreb	767	641	4 086	1 334	3	47	5,3	1,7	0,4	0,2	6,1	3,5
22	Helsinki	656	716	7 780	795	1	5	11,9	1,2	0,2	0,1	0,8	0,6
23	Vilnius	556	401	3 577	1 058	11	23	6,4	1,9	2,0	1,0	4,1	2,2
24	Bratislava	441	368	11 923	683	3	12	27,0	1,5	0,7	0,4	2,7	1,8
25	Tallinn	438	159	6 340	895	6	29	14,5	2,0	1,4	0,7	6,6	3,2
26	Ljubljana	284	163	2 952	1 001	0	4	10,4	3,5	0,0	0,0	1,4	0,4
	∑	**110 634**	**24 334**	**5 034 475**	**168 137**	**1 270**	**4 913**	**45,5**	**1,5**	**1,1**	**0,8**	**4,4**	**2,9**

Table/Cuadro/Tabelle 2.2

Type of fire service calls in the cities of the World in 2021
Tipo de operación en grandes ciudades del mundo en 2021
Struktur der Feuerwehreinsätze in den Großstädten der Welt im Jahr 2021

№	City	Population thous.inh.	Total number of calls a year …									
			fires	in %	accidents	in %	medical aid	in %	false calls	in %	other	in %
	Ciudad	Habitantes en miles	Total de operaciones por año									
			incendio	en %	accidentes	en %	Asist. médica	en %	Falsas Alarmas	en %	otros	in %
	Stadt	Einwohner in 1000	Anzahl der Einsätze je Jahr ...									
			zu Bränden	in %	zu Havarien	in %	Medizin. Hilfe	in %	Fehl-einsätze	in %	Sonstiges	in %
1	Tokyo	14 010	3 939	0,5	-	-	678 206	85,5	8 876	1,1	102 623	12,9
2	Hong Kong	7 509	34 000	4,4	35 000	4,6	697 500	91,0	-	-	-	-
3	Paris	6 895	10 724	1,8	50 577	8,4	11 773	2,0	-	-	527 423	87,8
4	Athens	3 074	4 382	21,2	5 870	28,4	-	-	2 726	13,2	7 683	37,2
5	Bucharest	2 162	2 022	1,7	14 453	12,2	101 102	85,2	1 140	1,0	-	-
6	Vienna	1 931	11 343	27,5	28 361	68,7	-	-	-	-	1 569	3,8
7	Warsaw	1 860	3 239	16,2	1 854	9,3	2 830	14,2	4 154	20,8	7 864	39,4
8	Budapest	1 682	2 135	17,1	6 073	48,6	-	-	4 296	34,4	-	-
9	Montevideo	1 319	11 802	76,4	222	1,4	-	-	1 879	12,2	1 535	9,9
10	Sofia	1 276	3 273	36,5	1 737	19,4	292	3,3	323	3,6	3 350	37,3
11	Brussels	1 212	3 304	18,8	4 676	26,6	-	-	3 319	18,9	6 305	35,8
12	Dublin	1 186	9 671	10,2	3 860	4,1	79 841	84,2	1 405	1,5	-	-
13	Zagreb	767	13 345	82,9	2 657	16,5	8	0,0	5	0,0	82	0,5
14	Vilnius	556	1 058	29,7	1 109	31,1	0	0,0	17	0,5	1 382	38,8
15	Tallinn	438	895	16,5	2 017	37,2	-	-	2 498	46,0	930	14,7
16	Ljubljana	284	1 001	33,9	1 628	55,1	-	-	198	6,7	125	4,2
∑		**46 161**	**116 133**	**4,6**	**160 094**	**6,3**	**1 571 552**	**61,9**	**30 836**	**1,2**	**660 871**	**26,0**

Table/Cuadro/Tabelle 2.3

Distribution of fires by types in the cities of the World in 2021
Distribución de incendios por tipo en grandes ciudades del mundo en 2021
Verteilung der Brände nach Objekten der Brandentstehung in den Großstädten der Welt im Jahr 2021

№	City	Population thous.inh.	Number of fires …																	
			structure fires						vehicles	in %	forests	in %	grass, brush	in %	rubbish	in %	other	in %
	Ciudad	Habitantes enmilies	Cantidad de incendios …															
			Incendios estructurales						Vehículos	en %	forestales	en %	pastizales matorrale	en %	basura	en %	otros	en %
	Stadt	Einwohner in 1000	Anzahl der Brände …															
			in Gebäuden						Transport	in %	im Wald	in %	Gras usw.	in %	Abfall, Müll	in %	Sonstige	in %
			residential	in %	others	in %	all	in %										
			residencial	en %	otros	en %	todos	en %										
			Wohnung	in %	andere	in %	alle	in %										
1	Tokyo	14 010	1 617	46,4	744	21,4	2 361	67,8	216	6,2	-	-	6	0,2	-	-	901	25,9
2	Moscow	12 600	3 563	48,1	1 328	17,9	4 891	66,0	763	10,3	-	-	146	2,0	609	8,2	1 004	13,5
3	London	9 002	5 124	34,3	1 580	10,6	6 704	44,9	-	-	-	-	-	-	-	-	8 225	55,1
4	Paris	6 895	2 414	22,5	581	5,4	2 995	27,9	2 202	20,5	4	0,0	677	6,3	2 360	22,0	2 486	23,2
5	Athens	3 074	-	-	-	-	1 568	35,8	371	8,5	116	2,6	34	0,8	239	5,5	2 054	46,9
6	Bucharest	2 162	475	23,5	1 036	51,2	1 009	74,7	182	9,0	0	0,0	190	9,4	0	0,0	139	6,9
7	Vienna	1 931	-	-	-	-	3 799	33,5	150	1,3	-	-	294	2,6	-	-	7 100	62,6
8	Warsaw	1 860	1 165	36,0	225	6,9	1 390	42,9	372	11,5	26	0,8	141	4,4	844	26,1	466	14,4
9	Budapest	1 682	864	40,5	287	13,4	1 151	53,9	115	5,4	-	-	43	2,0	133	6,2	693	32,5
10	Montevideo	1 319	-	-	-	-	653	5,5	449	3,8	200	5,6	-	-	8 224	69,7	2 276	19,3
11	Sofia	1 276	335	10,2	361	11,0	696	21,3	313	9,6	0	0,0	355	10,8	1 491	45,6	418	12,8
12	Prague	1 275	375	20,9	175	9,7	550	30,6	201	11,2	38	2,1	10	0,6	649	36,2	347	19,3
13	Brussels	1 212	781	23,6	394	11,9	1 175	35,6	230	7,0	1	0,0	20	0,6	615	18,6	1 263	38,2
14	Dublin	1 186	962	9,9	251	2,6	1 213	12,5	730	7,5	-	-	210	2,2	4 246	43,9	3 276	33,9
15	Zagreb	767	98	7,3	422	31,6	520	39,0	140	10,5	199	14,9	-	-	357	26,8	118	8,8
16	Helsinki	656	30	3,8	355	44,9	385	48,7	94	11,9	24	3,0	65	8,2	1	0,1	221	28,0
17	Vilnius	556	73	6,9	257	24,3	330	31,3	122	11,6	6	0,6	56	5,3	364	34,5	178	16,9
18	Bratislava	441	96	14,1	46	6,7	142	20,8	60	8,8	1	0,1	106	15,5	220	32,2	154	22,5
19	Tallinn	438	151	16,9	72	8,1	223	24,9	66	7,4	92	10,3	-	-	415	46,4	98	11,0
20	Ljubljana	284	206	18,3	364	32,3	570	50,6	83	7,4	17	1,5	288	25,6	168	14,9	-	-
∑		**62 626**	**18 329**	**20,5**	**8 478**	**9,5**	**26 807**	**30,0**	**6 859**	**7,7**	**724**	**0,8**	**2 641**	**3,0**	**20 935**	**23,4**	**31 417**	**35,1**

Table/Cuadro/Tabelle 2.4

Distribution of fire deaths by types in the cities of the World in 2021
Distribución de fallecidos según el origen del incendio en ciudades del mundo en 2021
Verteilung der Brändtote nach Objekten der Brandentstehung in den Stadten im Jahr 2021

№	City	Population, thous.inh.	Number of fire deaths							
			structure fires				vehicles	in %	other	in %
			residential	in %	all others	in %				
	Ciudad	Habitantes en miles	Cantidad de fallecidos							
			Incendio estructural				vehículos	en %	otros	en %
			residencial	en %	otros	en %				
	Stadt	Einwohner in 10000	Anzahl der Brändtote							
			in Gebäuden				Transport	in %	Sonstige	in %
			Wohnung	in %	alle anderen	in %				
1	Tokyo	14 010	69	80,2	3	3,5	0	0,0	14	16,3
2	Moscow	12 600	165	89,2	13	7,0	5	2,7	2	1,1
3	London	9 002	46	90,2	1	2,0	-	-	4	7,8
4	Paris	6 895	6	20,7	7	24,1	0	0,0	16	55,2
5	Bucharest	2 162	22	100,0	0	0,0	0	0,0	0	0,0
6	Warsaw	1 860	18	90,0	0	0,0	2	10,0	0	0,0
7	Budapest	1 682	10	71,4	1	7,1	0	0,0	3	21,4
8	Sofia	1 276	18	78,3	2	8,7	2	8,7	1	4,3
9	Prague	1 275	8	66,7	1	8,3	0	0,0	3	25,0
10	Brussels	1 212	5	71,4	1	14,3	0	0,0	1	14,3
11	Zagreb	767	0	0,0	2	66,7	0	0,0	1	33,3
12	Helsinki	656	0	0,0	1	100,0	0	0,0	0	0,0
13	Vilnius	556	1	9,1	8	72,7	0	0,0	2	18,2
14	Bratislava	441	1	33,3	0	0,0	0	0,0	2	66,7
15	Tallinn	438	5	83,3	1	16,7	0	0,0	0	0,0
∑		**54 832**	**374**	**79,1**	**41**	**8,7**	**9**	**1,9**	**49**	**10,4**

Table/Cuadro/Tabelle 2.5

Distribution of fire injuries by types in the cities of the World in 2021
Distribución de lesionados según el origen del incendio en ciudades del mundo en 2021
Verteilung der Verletzten nach Objekten der Brandentstehung in den Stadten im Jahr 2021

№	City	Population, thous.inh.	Number of fire injuries							
			structure fires				vehicles	in %	other	in %
			residential	in %	all others	in %				
	Ciudad	Habitante en miles	Cantidad de lesionados							
			Incendio estructural				vehículos	en %	otros	en %
			residencial	en %	otros	en %				
	Stadt	Einwohner in 10000	Anzahl der Verletzten							
			in Gebäuden				Transport	in %	Sonstige	in %
			Wohnung	in %	alle anderen	in %				
1	Moscow	12 600	344	84,5	58	14,3	5	1,2	0	0,0
2	London	9 002	617	86,1	66	9,2	-	-	34	4,7
3	Paris	6 895	373	88,8	34	8,1	11	2,6	2	0,5
4	Bucharest	2 162	32	50,0	26	40,6	1	1,6	5	7,8
5	Warsaw	1 860	51	77,3	4	6,1	1	1,5	10	15,2
6	Budapest	1 682	68	81,0	9	10,7	1	1,2	6	7,1
7	Prague	1 275	72	48,6	56	37,8	11	7,4	9	6,1
8	Brussels	1 212	265	72,4	81	22,1	4	1,1	16	4,4
9	Zagreb	767	2	4,3	43	91,5	2	4,3	0	0,0
10	Helsinki	656	1	20,0	1	20,0	1	20,0	2	40,0
11	Vilnius	556	3	13,0	20	87,0	0	0,0	0	0,0
12	Bratislava	441	8	66,7	1	8,3	0	0,0	3	25,0
13	Tallinn	438	27	93,1	2	6,9	0	0,0	0	0,0
∑		**39 546**	**1 863**	**78,0**	**401**	**16,8**	**37**	**1,5**	**87**	**3,6**

Table/Cuadro/Tabelle 2.6

Trends in calls in the cities of the World in 2017-2021
Dinámica de las opetraciones en ciudades del mundo período 2017-2021
Dynamik der Einsätze in den Großstädten der Welt für 2017-2021

№	City	Population, thous. inh.	Number of calls					Average:	
			2017	2018	2019	2020	2021	per year	per 1000 inh.
	Ciudad	Habitantes en miles	Cantidad de operaciones					Promedio	
			2017	2018	2019	2020	2021	por año	por 1000 hab
	Stadt	Einwohner, in 1.000	Gesamtanzahl der Einsätze in …					Mittelwert je	
			2017	2018	2019	2020	2021	Jahr	1.000 Einw.
1	Dhaka	21 741	-	-	5 940	4 551		5 246	0,2
2	Istanbul	14 657	60 501	56 125	63 284	63 087		60 749	4,1
3	Tokyo	14 010	983 731	1 017 771	991 278	997 765	942 125	986 534	70,4
4	Tehran	14 000	570 834	-	-	-		570 834	40,8
5	Manila	13 804	-	-	5 589	4 900		5 245	0,4
6	Moscow	12 600	60 097	79 077	50 211	-		63 128	5,0
7	Lima	10 719	64 583	64 733	63 053	38 163		57 633	5,4
8	Jakarta	10 562	-	-	-	38 000		38 000	3,6
9	Seoul	9 552	-	498 700	638 205	1 931 834		1 022 913	107,1
10	London	9 127	103 548	106 005	105 034	-		104 862	11,5
11	Ho Chi Minh	9 000	-	-	-	-	1 308	1 308	0,1
12	New York City	8 550	587 270	619 378	-	-		603 324	70,6
13	Hanoi	8 149	-	-	-	937	1 246	1 092	0,1
14	Hong Kong	7 509	804 570	820 055	833 300	706 226		791 038	105,3
15	Paris	6 895	502 438	507 258	-	2 965 946	2 756 048	1 682 923	244,1
16	Bangkok	5 591	-	-	44 965	49 441		47 203	8,4
17	St.Petersburg	5 380	60 298	77 929	75 251	-		71 159	13,2
18	Berlin	3 770	458 138	463 977	478 281	470 238		467 659	124,0
19	Madrid	3 166	21 242	-	-	-		21 242	6,7
20	Athens	3 074	-	18 068	19 452	17 030	20 661	18 803	6,1
21	Kyiv	2 965	15 376	15 864	19 355	16 477		16 768	5,7
22	Rome	2 806	66 549	-	61 656	-		64 103	22,8
23	Taipei	2 602	129 892	-	136 403	131 474		132 590	51,0
24	Bucharest	2 162	66 541	-	-	103 158	118 717	96 139	44,5
25	Minsk	2 021	5 362	7 016	10 285	-		7 554	3,7
26	Vienna	1 931	40 110	26 085	36 489	35 617	41 273	35 915	18,6
27	Warsaw	1 860	17 537	16 315	17 726	21 085	19 941	18 521	10,0
28	Hamburg	1 852	-	-	264 370	257 280		260 825	140,8
29	Budapest	1 682	14 655	14 089	18 868	12 485	12 504	14 520	8,6
30	Barcelona	1 600	14 493	-	-	-		14 493	9,1
31	Ulaanbaatar	1 540	-	-	882 410	-		882 410	573,0
32	Milan	1 350	42 781	-	47 052	-		44 917	33,3
33	Montevideo	1 319	-	-	-	-	15 762	15 762	11,9
34	Sofia	1 276	10 233	10 848	12 203	8 699	9 195	10 236	8,0
35	Prague	1 275	-	377 951	353 353	321 680	325 208	344 548	270,2
36	Brussels	1 212	-	-	-	14 707	14 386	14 547	12,0
37	Dublin	1 186	-	177 619	94 970	-	94 777	122 455	103,3
38	Astana	1 184	5 720	3 025	3 993	3 904	-	4 161	3,5
39	Stockholm	974	7 144	7 234	6 864	5 904		6 787	7,0
40	Naples	972	44 260	-	40 424	-		42 342	43,6
41	Turin	890	37 473	-	-	-		37 473	42,1
42	Zagreb	767	-	2 740	3 968	8 635	4 086	4 857	6,3
43	Palermo	676	17 915	-	-	-		17 915	26,5
44	Helsinki	656	9 454	9 599	-	-	7 780	8 944	13,6
45	Copenhagen	633	5 655	5 500	-	4 948		5 368	8,5
46	Riga	621	6 034	-	6 231	6 390		6 218	10,0
47	Baltimore	593	-	-	354 772	-		354 772	598,3
48	Vilnius	556	3 201	-	3 741	3 546	3 577	3 516	6,3
49	Bratislava	441	-	-	-	-	11 923	11 923	27,0
50	Tallinn	438	6 803	6 671	6 236	-	6 340	6 513	14,9
51	Ljubljana	284	-	42 000	43 131	6 091	2 952	23 544	82,9
52	Wellington	216	-	-	4 888	4 660		4 774	22,1
53	Bern	143	-	-	-	2 338		2 338	16,3
	∑	**232 539**	**4 844 438**	**5 051 632**	**5 803 231**	**8 257 196**	**4 409 809**	**5 673 261**	**24,4**

Table/Cuadro/Tabelle 2.7

Trends in fires in the cities of the World in 2017-2021
Dinámica de los incendios en ciudades del mundo período 2017-2021
Dynamik der Brände in den Großstädten der Welt für 2017-2021

№	City	Population, thous. inh.	Number of fires					Average:	
			2017	2018	2019	2020	2021	per year	per 1000 inh.
	Ciudad	Pobleción en miles	Cantidad de incendios					Promedio	
			2017	2018	2019	2020	2021	por año	por 1000 hab
	Stadt	Einwohner, in 1000	Gesamtanzahl der Brände in …					Mittelwert je	
			2017	2018	2019	2020	2021	Jahr	1000 Einw.
1	Dhaka	21 741	-	-	3 258	2 541		2 900	0,1
2	Delhi	16 787	29 423	31 264	31 157	25 709	27 343	28 979	1,7
3	Tokyo	14 010	4 205	3 973	4 120	3 721	3 939	3 992	0,3
4	Tehran	14 000	27 209	-	26 829	29 433		27 824	2,0
5	Manila	13 804	-	-	4 768	4 416		4 592	0,3
6	Moscow	12 600	5 101	4 874	9 687	7 834	7 413	6 982	0,6
7	Lima	10 800	5 153	5 914	7 007	6 162		6 059	0,6
8	Jakarta	10 562	-	-	2 183	1 505		1 844	0,2
9	Seoul	9 552	-	6 368	5 881	5 088		5 779	0,6
10	Cairo	9 294	-	-	7 114	-		7 114	0,8
11	London	9 002	19 863	19 675	17 993	17 411	14 929	17 974	2,0
12	Ho Chi Minh	9 000	-	342	342	290	374	337	0,0
13	New York City	8 550	42 423	40 783	-	-		41 603	4,9
14	Hanoi	8 148	-	563	864	415	355	549	0,1
15	Hong Kong	7 509	33 934	33 463	37 606	33 682		34 671	4,6
16	Paris	6 895	14 480	13 524	-	12 947	10 724	12 919	1,9
17	Bangkok	5 590	-	-	-	489		489	0,1
18	St. Petersburg	5 380	3 050	2 932	11 006	9 932	9 610	7 306	1,4
19	Alexandria	4 388	-	-	3 516	-		3 516	0,8
20	Berlin	3 770	6 909	7 570	6 688	8 493		7 415	2,0
21	Dubai	3 331	-	-	329	-		329	0,1
22	Madrid	3 166	6 085	-	-	-		6 085	1,9
23	Athens	3 074	-	4 448	4 950	4 660	4 382	4 610	1,5
24	Kyiv	2 965	5 262	6 101	5 878	5 084		5 581	1,9
25	Rome	2 806	24 596	-	-	-		24 596	8,8
26	Osaka	2 752	-	741	-	-		741	0,3
27	Taipei	2 650	-	2 163	5 484	5 640		4 429	1,7
28	Bucharest	2 162	1 540	-	-	2 554	2 022	2 039	0,9
29	Haiphong	2 028	-	119	119			119	0,1
30	Minsk	2 021	304	270	305			293	0,1
31	Vienna	1 931	10 622	10 685	11 255	10 570	11 343	10 895	5,6
32	Warsaw	1 860	4 903	4 484	4 455	3 380	3 239	4 092	2,2
33	Hamburg	1 852	-	-	11 972	10 952		11 462	6,2
34	Budapest	1 682	2 994	2 558	1 853	2 115	2 135	2 331	1,4
35	Ulaanbaatar	1 540	2 266	-	2 817	1 782		2 288	1,5
36	Kyoto	1 472	-	249	-	-		249	0,2
37	Muscat	1 421	1 296	1 398	1 330	-		1 341	0,9
38	Da Nang	1 353	-	245	245	170		220	0,2
39	Milan	1 350	11 220	-	-	-		11 220	8,3
40	Montevideo	1 319	-	-	-	-	11 802	11 802	8,9
41	Sofia	1 276	1 140	3 488	4 222	3 288	3 273	3 082	2,4
42	Prague	1 275	1 974	2 226	1 998	1 797	1 795	1 958	1,5
43	Brussels	1 212	-	-	-	3 491	3 304	3 398	2,8
44	Dublin	1 186	-	11 204	9 150	9 740	9 671	9 941	8,4
45	Astana	1 184	699	650	717	650	718	687	0,6
46	Yerevan	1 084	1 956	-	-	2 486		2 221	2,0
47	Stockholm	976	1 894	1 829	1 750	1 425		1 725	1,8
48	Naples	972	14 549	-	-	-		14 549	15,0
49	Turin	890	11 959	-	-	-		11 959	13,4
50	Zagreb	767	1 590	1 218	1 483	1 330	1 334	1 391	1,8
51	Frankfurt Main	759	1 580	1 693	1 730	1 539		1 636	2,2
52	Palermo	676	7 435	-	-	-		7 435	11,0
53	Helsinki	656	887	912	-	776	795	843	1,3
54	Copenhagen	633	1 605	1 550	-	1 072		1 409	2,2
55	Riga	621	2 298	-	2 271	1 946		2 172	3,5
56	Vilnius	556	1 350	-	1 481	1 150	1 058	1 260	2,3
57	Bratislava	441	-	-	-	-	683	683	1,5
58	Tallinn	438	1 181	1 284	1 049	880	895	1 058	2,4
59	Ljubljana	284	-	1 099	1 179	1 007	1 001	1 072	3,8
60	Wellington	215	-	-	765	738	-	752	3,5
	∑	**260 218**	**314 935**	**231 859**	**258 806**	**250 290**	**134 137**	**238 005**	**0,9**

Table/Cuadro/Tabelle 2.8

Trends in fire deaths in the cities of the World in 2017-2021
Dinámica de los fallecidos en incendios en ciudades años 2017-2021
Dynamik der Brandtotenzahlen in den Stadten für 2017-2021

№	City	Population, thous. inh.	Number of fire deaths, inh.					Average number of fire deaths:		
			2017	2018	2019	2020	2021	per year	per 100000 inh.	per 100 fires
	Ciudad	Habitantes, en miles	Fallecidos en incendios, hab.					Promedio de fallecidos		
			2017	2018	2019	2020	2021	por año	por 100000 hab.	por 100 incendios
	Stadt	Einwohner, in 1000	Anzahl der Brandtoten					Mittelwert je:		
			2017	2018	2019	2020	2021	Jahr	100000 Einw.	100 Brände
1	Dhaka	21 741	-	-	87	14		51	0,2	1,7
2	Delhi	16 787	318	297	308	346	591	372	2,2	1,3
3	Tokyo	14 010	79	86	108	86	86	89	0,6	2,2
4	Tehran	14 000	21	-	26	50		32	0,2	0,1
5	Manila	13 804	-	-	85	57		71	0,5	1,5
6	Moscow	12 600	116	120	166	146	183	146	1,2	2,1
7	Jakarta	10 562	-	-	27	18		23	0,2	1,2
8	Seoul	9 552	-	53	37	37		42	0,4	0,7
9	London	9 002	102	45	37	30	50	53	0,6	0,3
10	Ho Chi Minh	9 000	-	11	11	12	26	15	0,2	4,5
11	New York City	8 550	86	88	66	-		80	0,9	0,2
12	Hanoi	8 149	-	2	20	6	12	10	0,1	1,8
13	Hong Kong	7 509	21	17	14	24		19	0,3	0,1
14	Paris	6 895	-	-	-	27	29	28	0,4	0,2
15	Bangkok	5 591	-	-	16	6		11	0,2	2,2
16	St. Petersburg	5 380	100	99	133	133	135	120	2,2	1,6
17	Berlin	3 770	31	25	31	17		26	0,7	0,4
18	Madrid	3 166	11	-	15			13	0,4	0,2
19	Athens	3 074	-	101	3	13	13	33	1,1	0,7
20	Kyiv	2 965	56	64	60	51		58	1,9	1,0
21	Osaka	2 713	-	27	-	-		27	1,0	3,6
22	Taipei	2 602	2	16	15	23		14	0,5	0,3
23	Bucharest	2 162	13	-	-	17	22	17	0,8	0,9
24	Haiphong	2 053	-	1	1	1		1	0,0	0,8
25	Minsk	2 021	16	14	24	-		18	0,9	6,1
26	Warsaw	1 860	8	23	10	13	20	15	0,8	0,4
27	Hamburg	1 852	12	14	8	8		11	0,6	0,1
28	Budapest	1 682	13	17	17	12	14	15	0,9	0,6
29	Ulaanbaatar	1 540	17	-	21	35		24	1,6	1,1
30	Kyoto	1 469	-	12	-	-		12	0,8	4,8
31	Da Nang	1 353	-	1	1	0		1	0,0	0,3
32	Montevideo	1 319	-	-	-	-	22	22	1,7	0,2
33	Sofia	1 276	13	12	21	11	23	16	1,3	0,5
34	Prague	1 275	92	10	11	13	12	28	2,2	1,4
35	Brussels	1 212	-	-	-	-	7	7	0,6	0,2
36	Dublin	1 186	4	1	1	7	1	3	0,2	0,0
37	Astana	1 184	27	15	15	22	0	16	1,3	2,3
38	Yerevan	1 084	1	-	-	3		2	0,2	0,1
39	Stockholm	976	11	2	5	8		7	0,7	0,4
40	Zagreb	767	-	6	2	1	3	3	0,4	0,2
41	Helsinki	656	4	5	-	-	1	3	0,5	0,4
42	Copenhagen	633	4	7	-	5		5	0,8	0,4
43	Riga	621	17	-	16	24		19	3,1	0,9
44	Vilnius	556	8	-	7	3	11	7	1,3	0,6
45	Bratislava	441	-	-	-	-	3	3	0,7	0,4
46	Tallinn	438	5	6	2	8	6	5	1,2	0,5
47	Ljubljana	284	-	-	0	0	0	0	0,0	0,0
48	Wellington	216	-	-	0	0		0	0,0	0,0
∑		**221 538**	**1 208**	**1 197**	**1 427**	**1 287**	**1 270**	**1 278**	**0,6**	**0,5**

Table/Cuadro/Tabelle 2.9

Statistics of fire services in the cities of the World in 2010-2021 (most recent data)
Estadísticas de personal y equipamiento en grandes ciudades del mundo años 2010-2021
Personal und Ausstattung der Feuerwehren in den Großstädten in den Jahren 2010-2021

№	City	Population, thous. inh.	Area, sq. km.	Fire stations	Number of		Number of fire fighters			
					engines	ladders	career	part time	volunt.	total
	Ciudad	Habitantes en miles	Area, km cuadrados	Estaciones Bomberos	Cantidad de Bombas	Escalas	Cantidad de Bomberos Profes.	Med. tpo.	Volunt.	total
	Stadt	Einwohner, in 1.000	Fläche, in qkm.	Feuer-wachen	Anzahl der LF, TLF	DL, TM	Personal der Feuerwehr BF	Teilzeit	FF	Gesamt
1	Shanghai	24 644	1 600	107	-	-	-	-	-	-
2	Dhaka	21 741	1 464	15	288	10	1 713	-	-	1 713
3	Beijing	19 000	6 200	139	850	200	6 900	-	-	6 900
4	Delhi	16 787	1 483	56	222	14	3 616	0	0	3 616
5	Istanbul	14 657	5 343	125	-	-	4 842	-	344	5 186
6	Tokyo	14 010	2 194	292	537	87	19 006	0	21 721	40 727
7	Tehran	14 000	750	132	361	32	5 243	-	-	5 243
8	Manila	13 804	620	142	108	-	3 616	-	-	3 616
9	Moscow	12 600	2 561	112	250	52	7 645	0	0	7 645
10	Jakarta	10 562	662	154	238	18	2 571	1 756	-	4 327
11	Seoul	9 552	605	24	124	52	7 126	0	4 382	11 508
12	London	9 002	1 707	103	142	11	5 992	0	0	5 992
13	New York City	8 550	834	218	198	143	11 051	-	-	11 051
14	Hanoi	8 149	3 324	35	129	19	1 121	747	-	1 868
15	Hong Kong	7 509	1 108	82	81	97	10 030	-	-	10 030
16	Paris	6 895	760	78	164	64	8 598	0	683	9 281
17	Bangkok	5 591	1 569	47	56	92	1 697	0	-	1 697
18	Damascus	5 500	400	20	23	2	690	0	0	690
19	St. Petersburg	5 380	1 436	62	180	41	4 630	0	421	5 051
20	Chicago	5 000	776	100	99	61	4 500	0	0	4 500
21	Los Angeles	4 000	1 217	106	98	48	3 586	0	0	3 586
22	Berlin	3 770	892	95	200	41	4 282	0	1 530	5 812
23	Yokohama	3 709	437	96	96	-	3 479	-	-	3 479
24	Sidney	3 600	531	75	225	15	1 800	0	0	1 800
25	Kuwait City	3 500	1 000	33	50	11	3 500	-	-	3 500
26	Madrid	3 166	608	14	45	14	1 800	0	0	1 800
27	Melbourne	3 150	811	46	100	8	1 956	60	0	2 016
28	Athens	3 074	412	19	232	18	2 195	-	337	2 532
29	Kyiv	2 965	848	28	115	26	2 030	0	7 127	9 157
30	Osaka	2 752	222	89	-	-	3 484	-	-	3 484
31	Taipei	2 622	272	44	187	34	1 873	0	1 585	3 458
32	Johannesburg	2 300	573	15	32	10	810	0	0	810
33	Bucharest	2 162	240	36	78	14	2 680	0	0	2 680
34	Havanna	2 100	740	18	32	9	800	0	0	800
35	Minsk	2 021	348	32	78	33	825	-	0	825
36	Vienna	1 931	415	63	71	20	1 809	0	202	2 011
37	Warsaw	1 860	517	17	56	21	1 080	0	433	1 513
38	Hamburg	1 852	755	86	238	24	2 659	-	-	3 086
39	Budapest	1 682	525	21	62	13	1 312	0	898	2 210
40	Belgrade	1 659	360	19	151	5	719	0	-	719
41	Ulaanbaatar	1 540	4 704	14	32	4	696	12	6	714
42	Kuala Lumpur	1 401	243	13	17	4	608	0	271	879
43	Munich	1 367	310	32	79	19	1 445	-	687	2 132
44	Sofia	1 275	492	13	46	3	816	0	0	816
45	Prague	1 275	496	61	137	23	889	-	832	1 721
46	Brussels	1 212	162	8	17	13	1 129	0	0	1 129
47	Dublin	1 186	921	14	-	-	842	-	-	842
48	Nur-Sultan	1 184	797	12	60	26	1 600	-	-	1 600
49	Yerevan	1 078	227	13	28	4	590	-	-	590
50	Cologne	1 021	405	37	32	14	1 957	-	743	2 700
51	Stockholm	976	187	9	-	-	514	41	-	555
52	Bishkek	874	169	9	34	3	384	-	-	384
53	Zagreb	767	641	76	78	8	327	-	5 013	5 340
54	Frankfurt Main	759	248	40	83	12	1 000	-	900	1 900
55	Kishinev	732	120	5	30	7	656	-	-	656
56	Helsinki	656	716	34	37	7	488	0	355	843
57	Copenhagen	633	89	6	13	9	436	19	0	455
58	Oslo	624	454	8	7	4	456	2	-	458
59	Riga	621	304	10	53	11	546	-	21	567
60	Rotterdam	600	280	15	-	-	-	-	-	-
61	Dortmund	588	280	27	54	11	748	-	707	1 455
62	Essen	587	210	26	48	10	750	0	550	1 300
63	Dusseldorf	587	217	17	56	11	890	0	294	1 184
64	Seattle	563	217	33	33	11	1 044	-	-	1 044
65	Vilnius	556	401	7	19	4	380	0	19	399
66	Bremen	547	325	26	66	7	478	0	603	1 081
67	Hannover	525	204	21	56	9	596	0	636	1 232
68	Bratislava	475	368	4	15	2	293	0	301	594
69	Bratislava	441	368	62	13	4	301	0	790	1 091
70	Tallinn	438	159	6	9	3	218	0	282	500
71	Ljubljana	284	163	38	110	3	135	0	1 076	1 211
72	Brunei Darussalam	240	570	9	5	11	644	0	1 700	2 344
73	Wellington (NZ)	216	290	9	9	2	182	0	73	255
∑		**312 636**	**62 856**	**3 709**	**7 472**	**1 618**	**175 304**	**2 637**	**55 522**	**233 463**

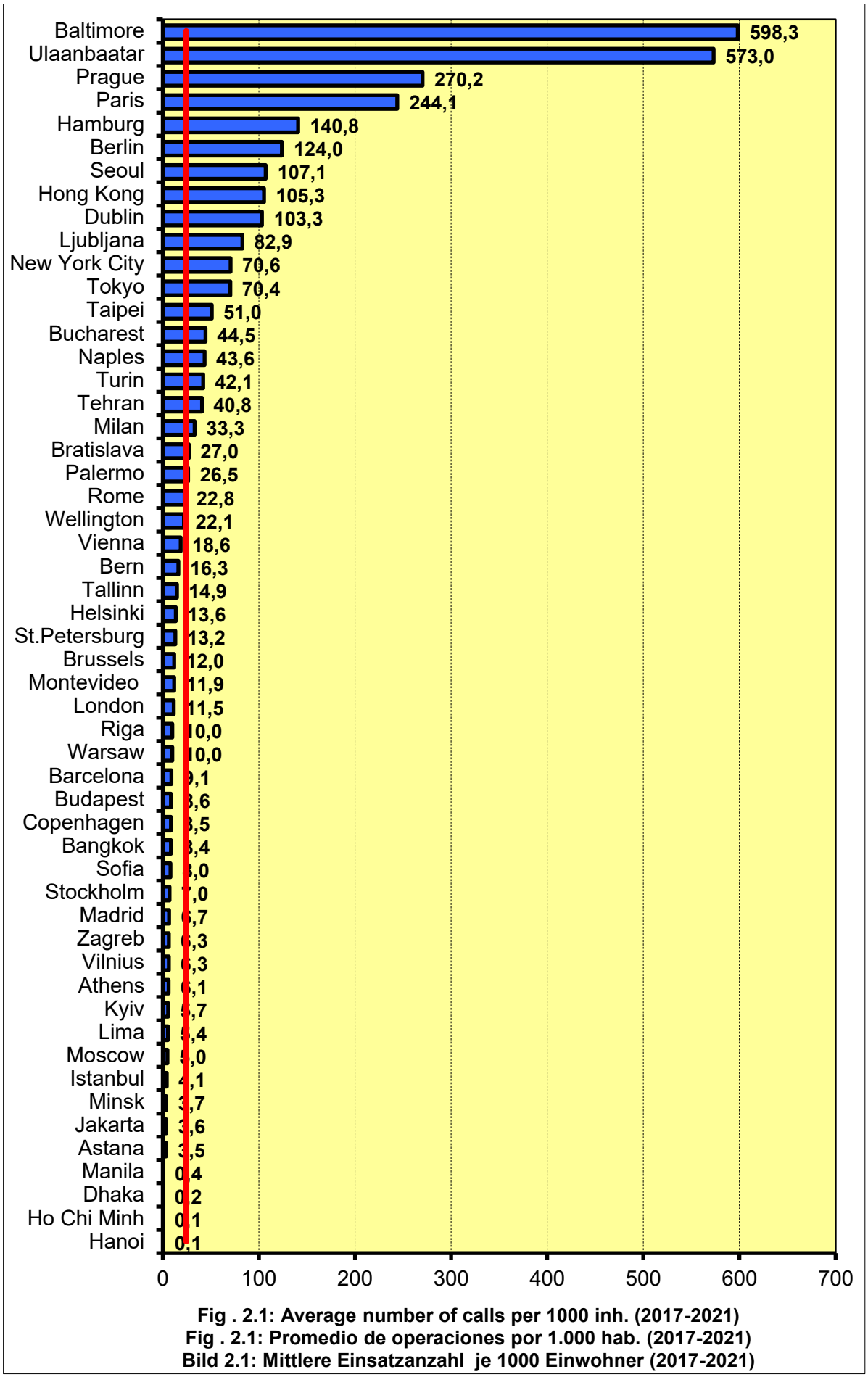

Fig . 2.1: Average number of calls per 1000 inh. (2017-2021)
Fig . 2.1: Promedio de operaciones por 1.000 hab. (2017-2021)
Bild 2.1: Mittlere Einsatzanzahl je 1000 Einwohner (2017-2021)

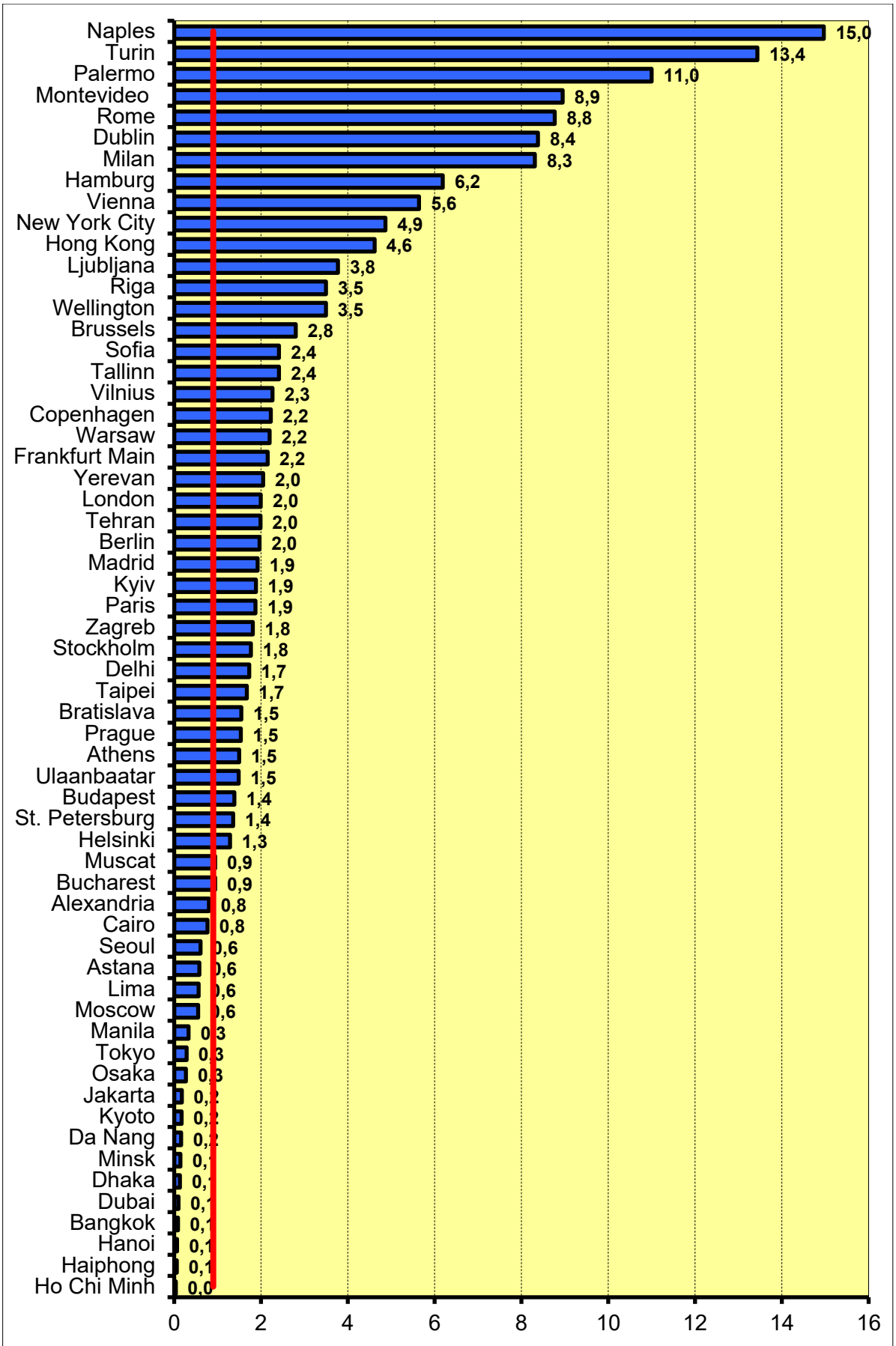

Fig. 2.2: Average number of fires in cities per 1000 inh. (2017-2021)
Fig. 2.2: Promedio de incendios en ciudades por 1.000 hab. (2017-2021)
Bild 2.2: Mittlere Brandanzahl je 1000 Einwohner in Städten (2017-2021)

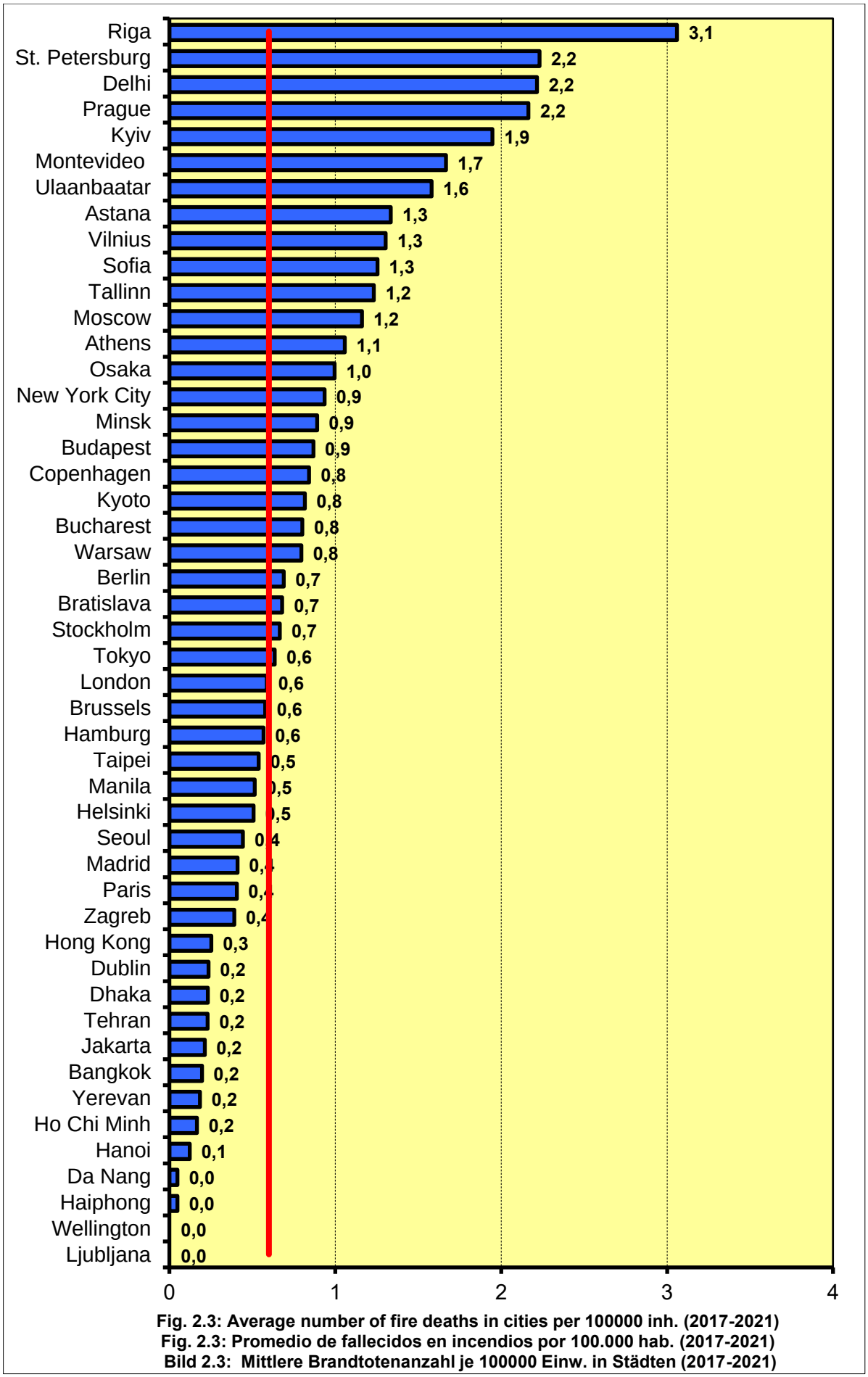

Fig. 2.3: Average number of fire deaths in cities per 100000 inh. (2017-2021)
Fig. 2.3: Promedio de fallecidos en incendios por 100.000 hab. (2017-2021)
Bild 2.3: Mittlere Brandtotenanzahl je 100000 Einw. in Städten (2017-2021)

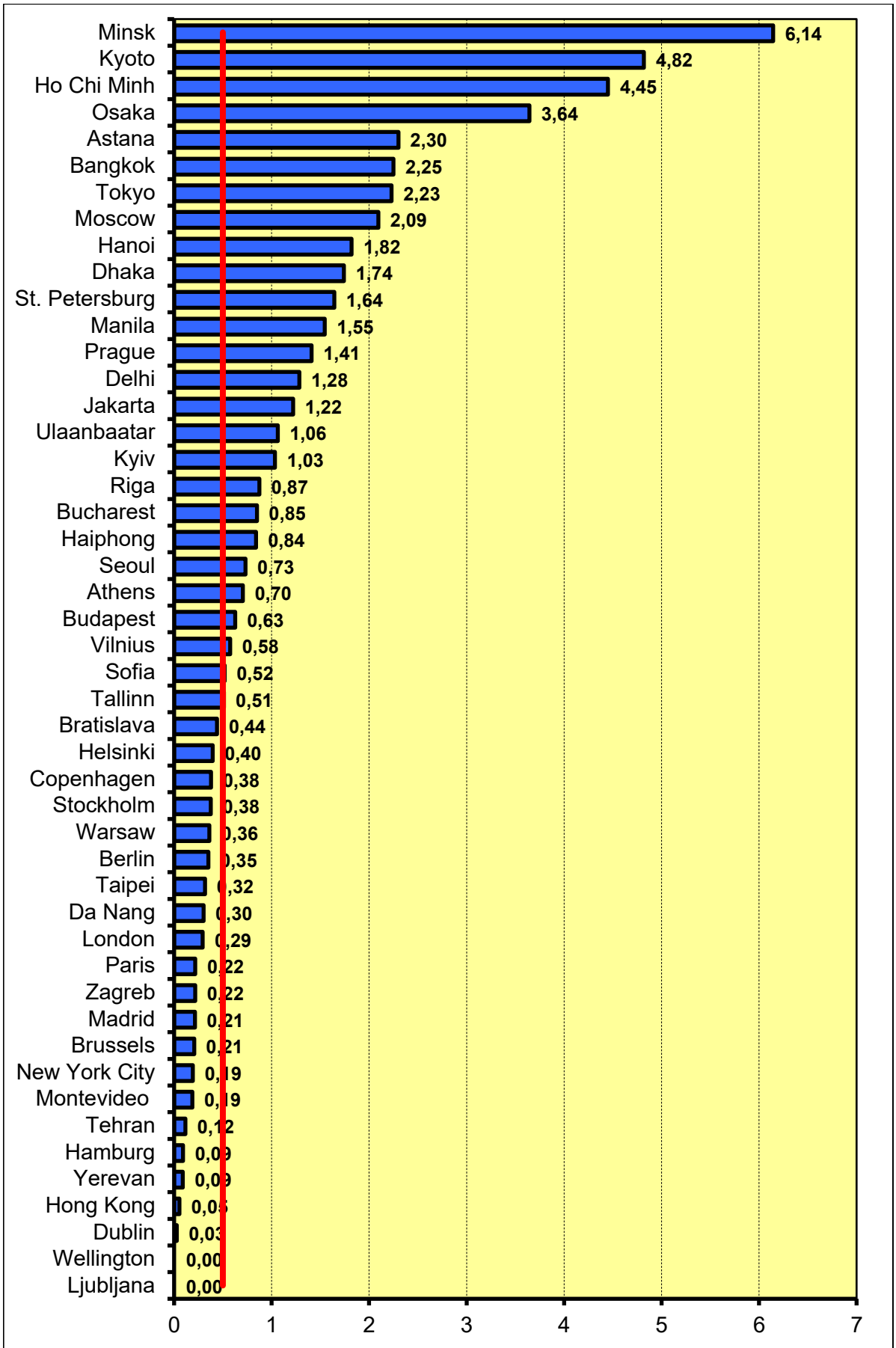

Fig. 2.4: Average number of fire deaths per 100 fires (2017-2021)
Fig. 2.4: Promedio de fallecidos por 100 incendios (2017-2021)
Bild 2.4: Mittlere Brandtotenzahlen je 100 Brände in Städten (2017-2021)

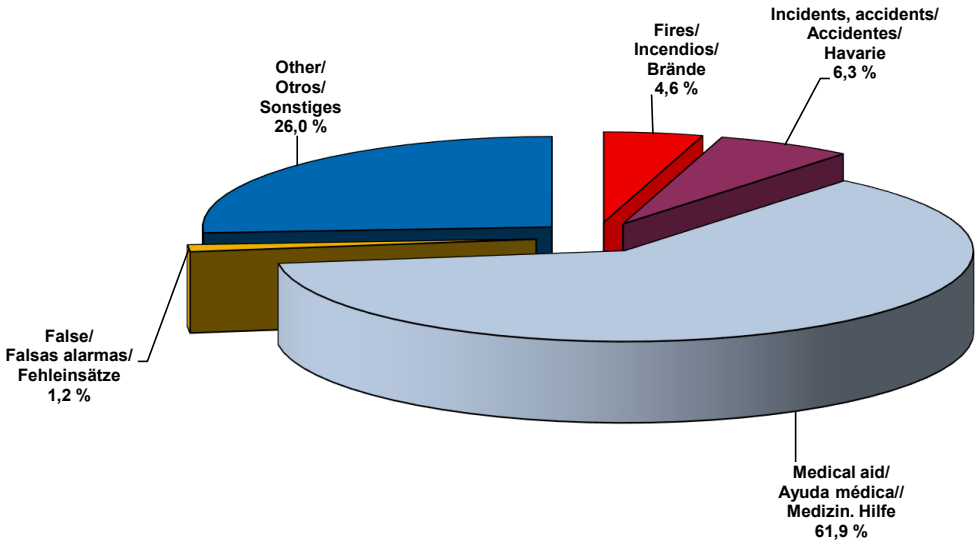

Fig. 2.5: Type of fire service calls in the cities (2021)
Fig. 2.5: Estructura de operaciones en ciudades (2021)
Bild 2.5: Struktur der Feuerwehreinsätze in den Städten (2021)

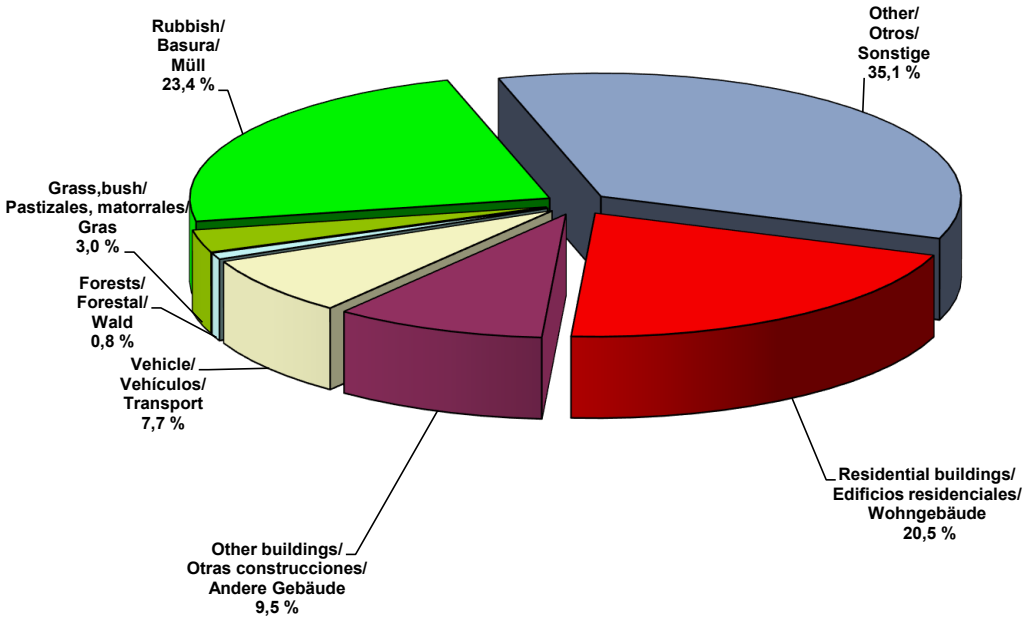

Fig. 2.6: Distribution of fires by types in the cities (2021)
Fig. 2.6: Distribución de incendios por tipos en ciudades (2021)
Bild 2.6: Brände nach Objekten der Brandentstehung in den Städten (2021)

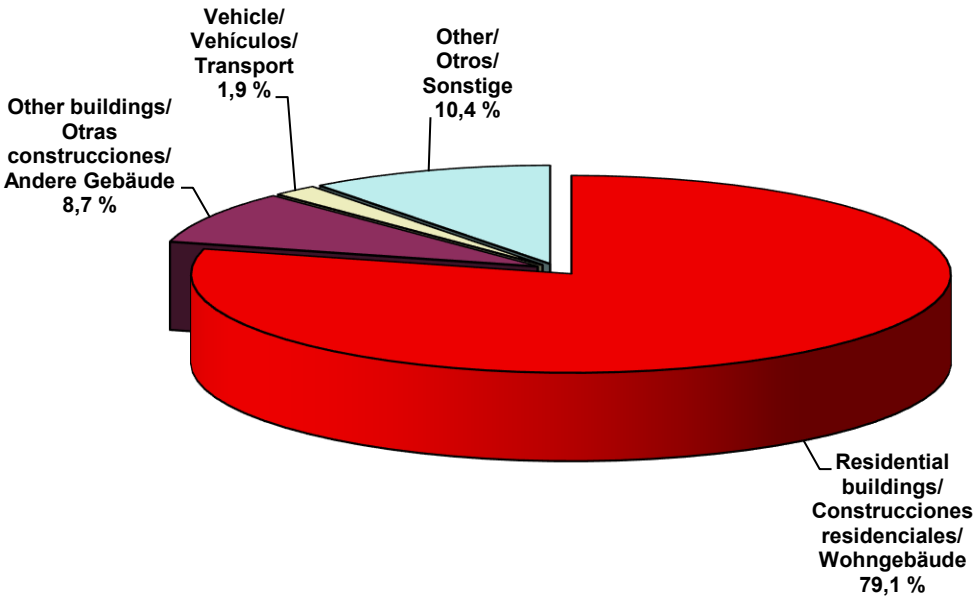

Fig. 2.7: Distribution of fire deaths by types in the cities (2021)
Fig. 2.7: Distribución de fallecidos según tipo mde incendio en ciudades (2021)
Bild 2.7: Verteilung der Brandtoten nach Objekten der Brandentstehung in den Städten (2021)

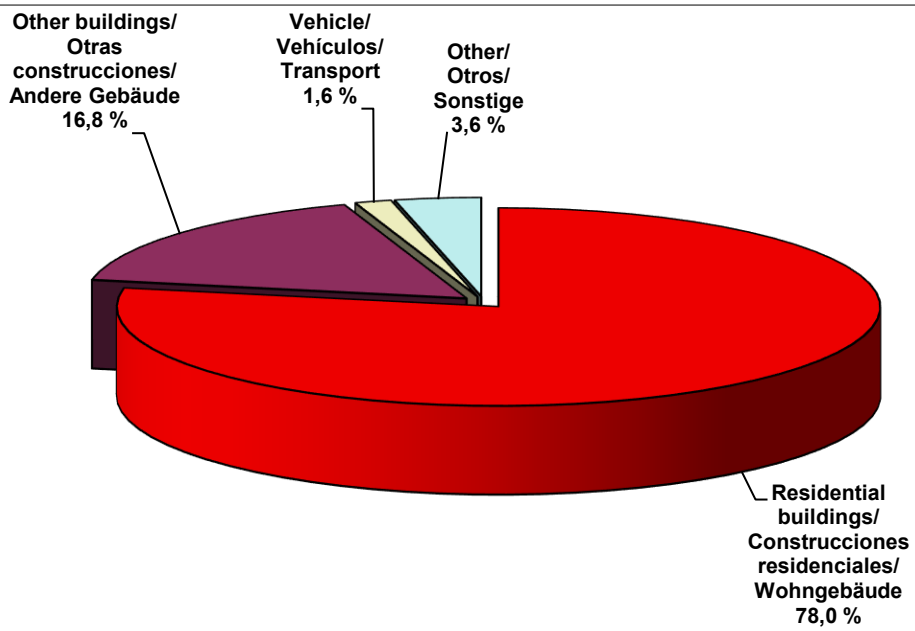

Fig. 2.8: Distribution of fire injuries by types in the cities (2021)
Fig. 2.8: Distribución de lesionados según tipo de construcción en ciudades (2021)
Bild 2.8: Verteilung der Brandverletzten nach Objekten der Brandentstehung in den Städten (2021)

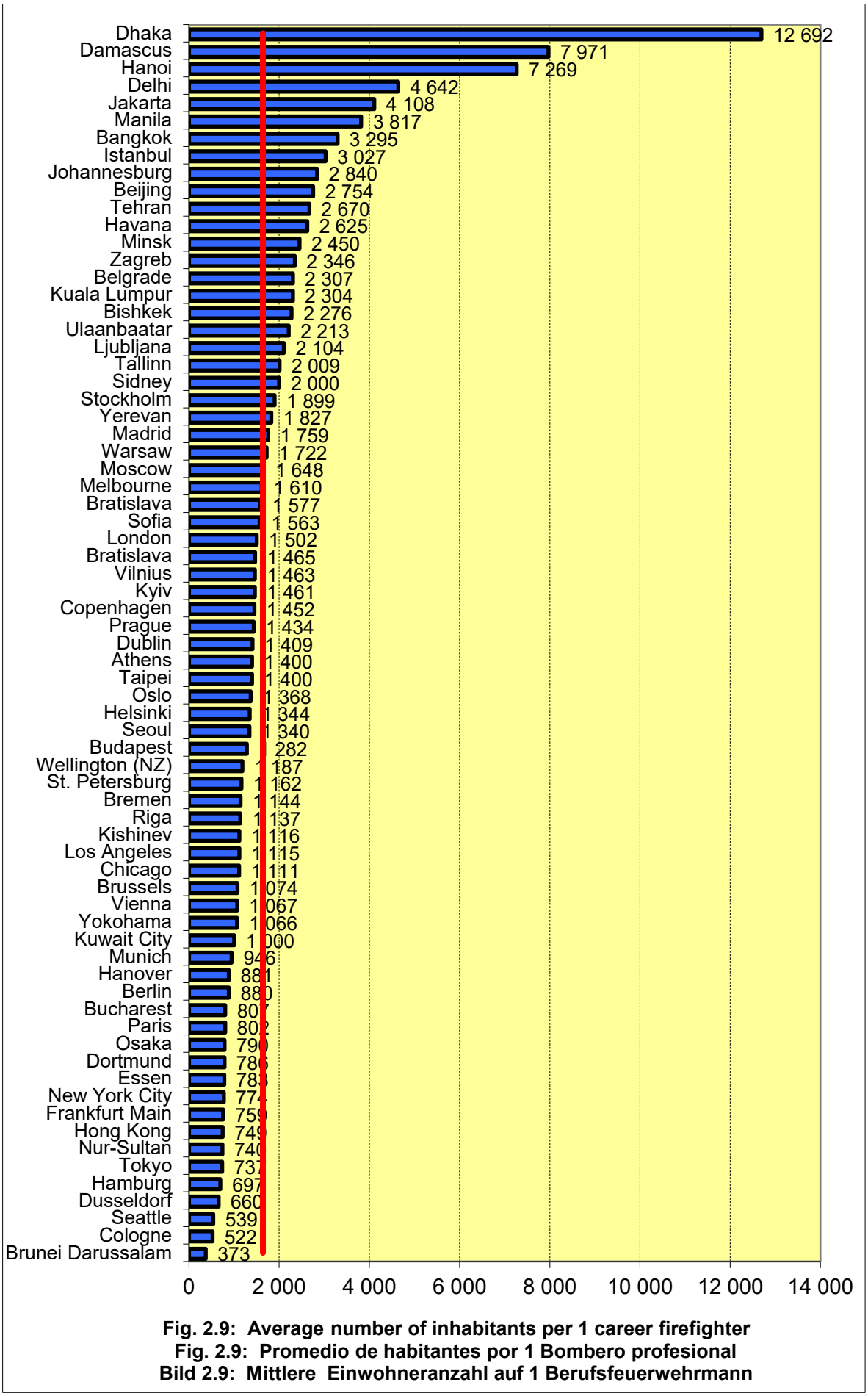

Fig. 2.9: Average number of inhabitants per 1 career firefighter
Fig. 2.9: Promedio de habitantes por 1 Bombero profesional
Bild 2.9: Mittlere Einwohneranzahl auf 1 Berufsfeuerwehrmann

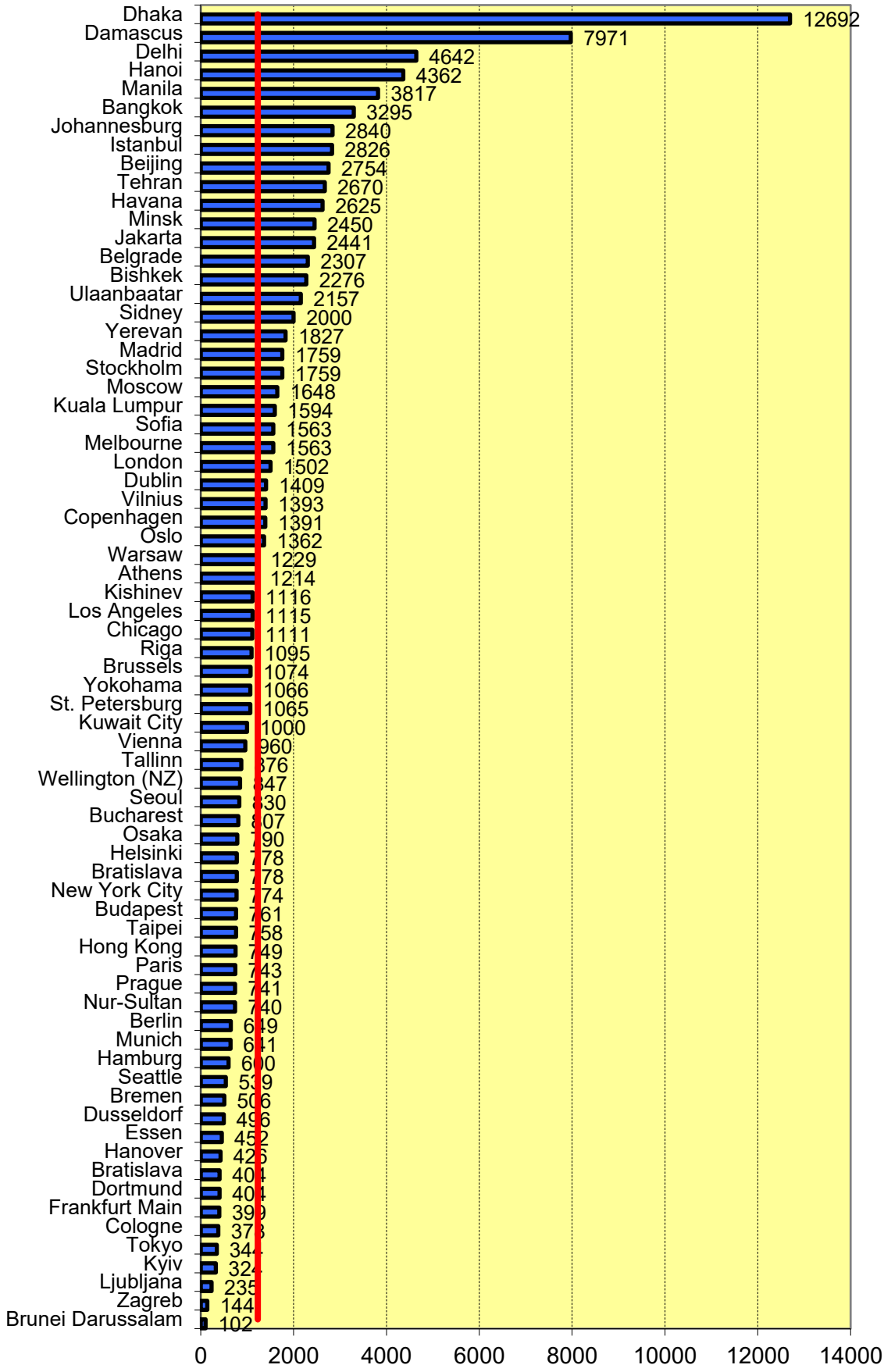

Fig. 2.10: Average number of inhabitants per 1 firefighter
Fig. 2.10: Promedio de habitantes por 1 Bombero
Bild 2.10: Mittlere Einwohneranzahl auf 1 Feuerwehrmann

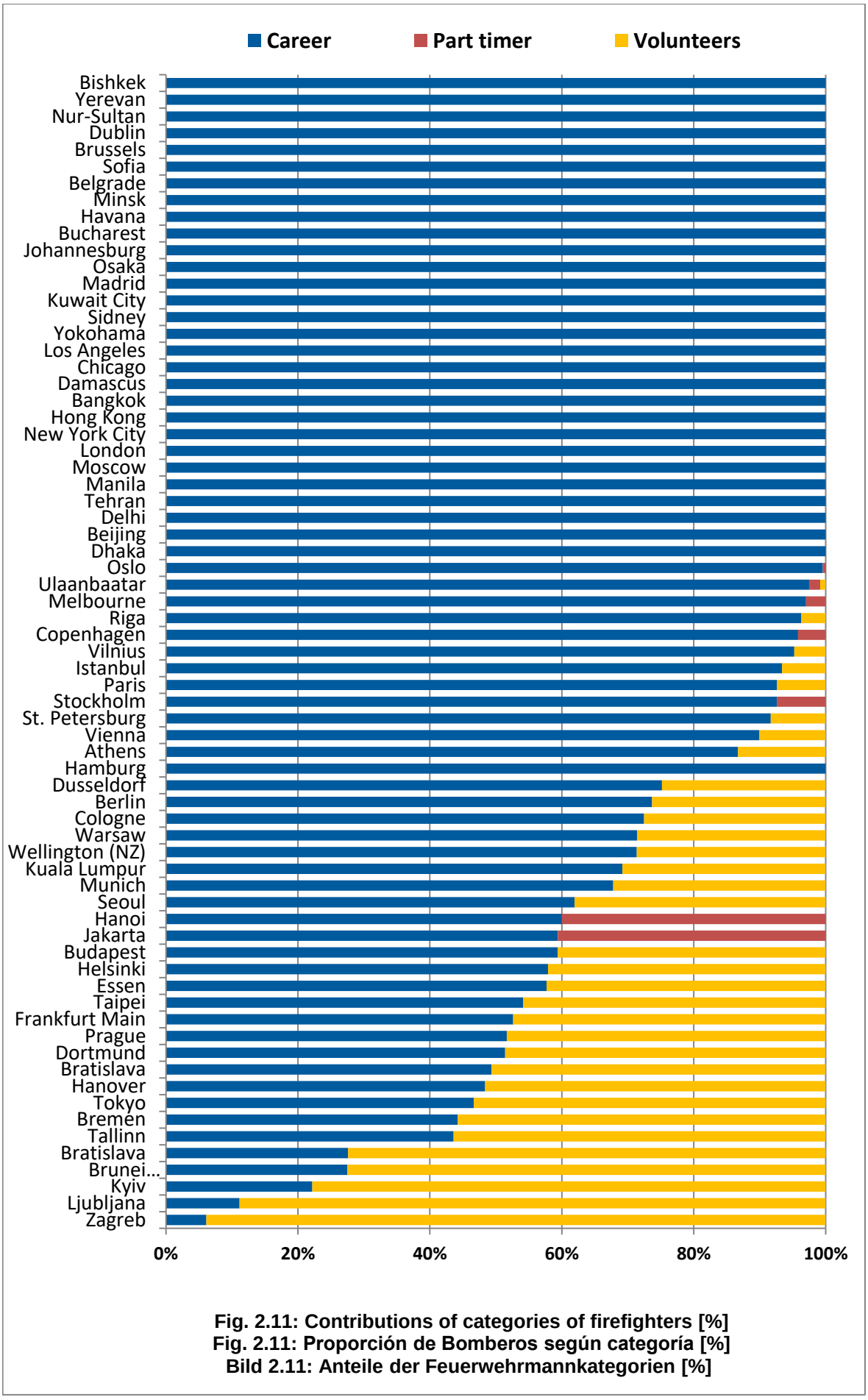

Fig. 2.11: Contributions of categories of firefighters [%]
Fig. 2.11: Proporción de Bomberos según categoría [%]
Bild 2.11: Anteile der Feuerwehrmannkategorien [%]

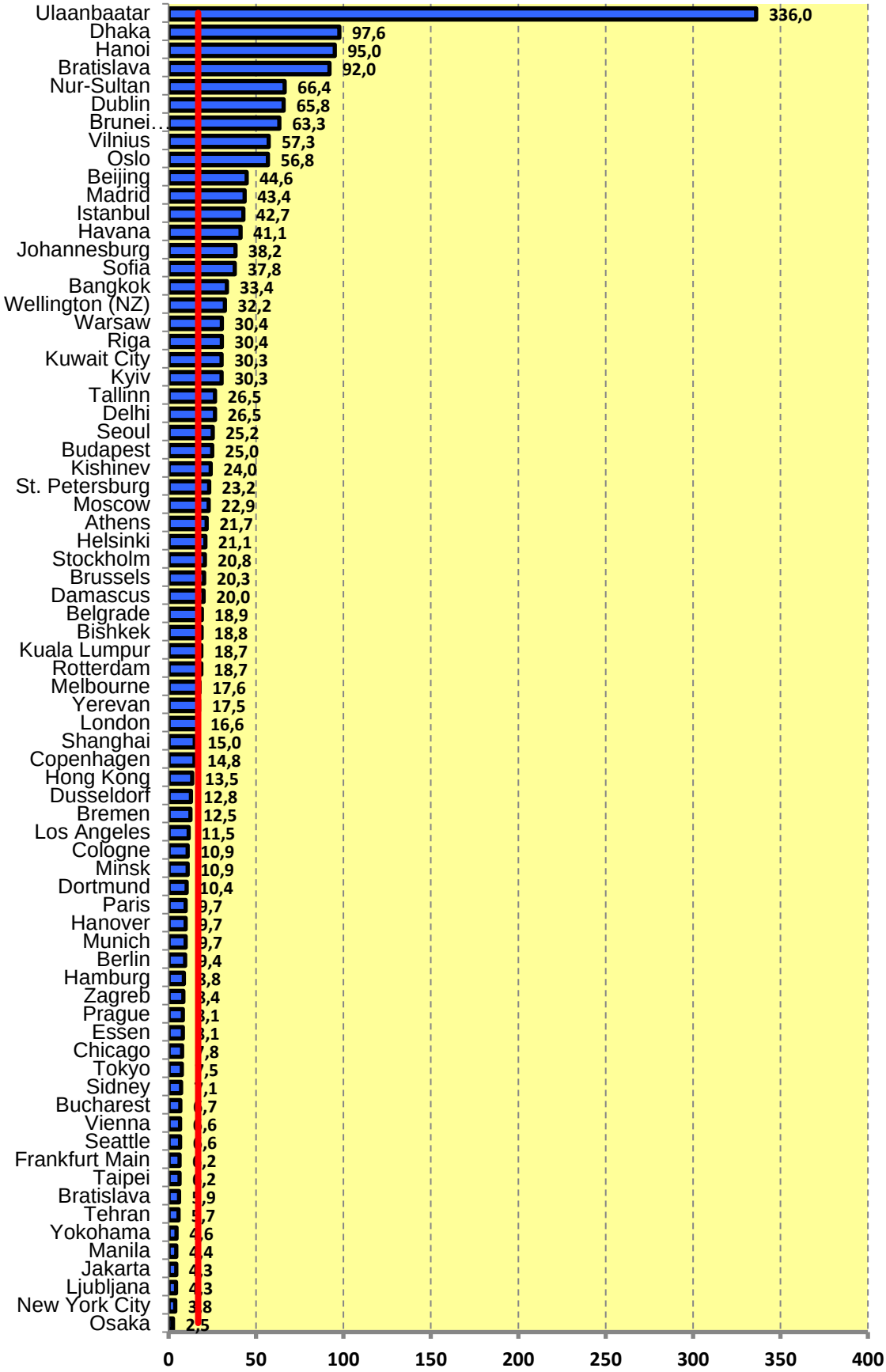

Fig. 2.12: Average response area per one fire station [sq.km]

Fig. 2.12: Area de respuesta promedio por 1 estación de Bomberos [km cuad.]

Bild 2.12: Mittlere Ausrückebereichsfläche 1 FW [qkm]