



# 100 CITIES – 100 YEARS

Evaluation Of Urban Fire Risks

## EXPOSEE

Over the centuries, cities became economic, scientific, administrative and cultural centers of the countries. This process accelerated especially in the 20th century. Life in the cities has become very pleasant for their inhabitants. Notwithstanding these manifold benefits of city life, the administrations of urban centers are increasingly confronted with problems: The streets of the cities are suffering from the ever increasing mass of vehicles. Noise and air pollution are the result. Housing is scarce in the centers. They cities grow in height and on the outskirts. The supply of drinking water is a problem in many places. Waste management is a major organizational and technical challenge for the city administration. One of the most important issues within the increasingly complex infrastructure of large cities is the safety and security factor. It is no coincidence that the municipalities have set up special services that deal with these problems: police, fire brigade, emergency services, disaster services for the gas, electricity, gas supply and communication networks (telephone, Internet). Purpose of the book is to take a closer look at the subject of fire safety. In the last century, cities have experienced a variety of revelations with the introduction of new building materials, new types of buildings, and new ways of using the buildings. Many advances in fire prevention have been made. Nevertheless, the fire danger in the cities is not banished.

Center for Fire Statistics of CTIF  
CFS-CTIF

## FAQ and Project Diary

Dear Sir or Madam, dear colleagues and friends!

The table below shows the activities undertaken for moving forward with the project. All news and changes in the project are displayed here. Please search for:

**Table 1 Project Diary**

| Date       | Remark / Contact person / organization  | Content, remark   |                      |                  |
|------------|---|---|----------------------|------------------|
| 2022-07-20 | CTIF General Assembly   | The current project status presented at General Assembly in Celje (Slovenia).   |                      |                  |
| 2022-06-18 | Africa  | Draft chapters available now for Lagos, Kampala, Accra.   |                      |                  |
| 2022-06-17 | Summary of cities participating/included in the project?<br>We are missing cities: North America, Africa. | <b>Region</b>   | <b>Cities, total</b> | <b>Cities, %</b> |
|            |   | Africa  | 6                    | 5,0              |
|            |   | Americas  | 28                   | 23,5             |
|            |   | Asia  | 32                   | 26,9             |
|            |   | Europe  | 51                   | 42,9             |
|            |   | <b>Total</b>  | <b>119</b>           | <b>100,0</b>     |
| 2022-05-22 | Where will the book be printed?   | For logistical and financial reasons, we prefer the option of printing the book in Europe. Distribution is also based on European possibilities. Alternative suggestions are welcome.   |                      |                  |
| 2022-05-16 | Is there actually a fee for the authors of the individual chapters?                                       | Yes, this is included in the calculation for publication. So all co-authors should be positively motivated.   |                      |                  |
| 2022-04-25 | Are the authors aware of the various current problems in the states of the participating cities?          | We fundamentally believe that the need for safety plays an important role in every family, in every community and in every state. With regard to the fires that unfortunately break out in every city of our planet, causing much suffering, all people are threatened by similar dangers. We want to help understand why these hazards arise and how solutions can be found to reduce these hazards. |                      |                  |
| 2021-12-23 | Europe  | Work on the chapters of new cities has started: <b>Switzerland, Austria.</b>  |                      |                  |
| 2021-12-15 | Asia  | Work on the chapter of new city has started: <b>Lahore.</b>   |                      |                  |
| 2021-09-27 | Summary of cities participating/included in the project?<br>We are missing cities: North America, Africa. | <b>Region</b>   | <b>Cities, total</b> | <b>Cities, %</b> |
|            |   | Africa  | 4                    | 3                |
|            |   | Americas  | 29                   | 25               |
|            |   | Asia  | 31                   | 27               |
|            |   | Europe  | 50                   | 43               |
|            |   | <b>Total</b>  | <b>116</b>           | <b>100</b>       |

| Date       | Remark / Contact person / organization | Content, remark   |
|------------|--|---|
| 2021-09-26 | Africa                                 | The chapter about Lagos (Nigeria) finalized. Chapter about Accra (Ghana) is finished now. We have now made contact with Cairo.  |
| 2021-09-11 | Participation of City of Dresden       | In connection with the 9/11 events in the USA, some cities and fire departments asked us which cities in Germany are represented in the project. The question arose why only Berlin from eastern Germany was on the list. All other cities (Cologne, Hamburg, Munich and Frankfurt) represent western Germany. Suddenly the desire arose to include the city of Dresden on the list of Europe because of its cultural and historical importance and the special situation during WWII. We comply with the request and have sent out a corresponding invitation. |
| 2021-09-08 | Data requested as MINIMUM              | <p>A number of emails and calls received give us the option clarify the MINIMUM of statistical information we need to evaluate the urban fire risks for every single city:</p> <ul style="list-style-type: none"> <li>• Inhabitants (1900-2018) p.a.</li> <li>• Area of city in sq.km (1900-2018) p.a.</li> <li>• Sum of fires (1900-2018) p.a.</li> <li>• Fire Deaths, total (1900-2018 p.a.)</li> </ul> <p>All other data fields are nice to have, but it is up to the city present more interesting information, if you can and if you wish.</p>             |
| 2021-04-12 | Table of contents, chapter 2           | <p>The newly organized Chapter 2 now deals with the following questions:</p> <ul style="list-style-type: none"> <li>• Fire risks in the world (experience of the CTIF from more than 25 years of work on the World Fire Statistics),</li> <li>• About the Term City,</li> <li>• Urban Fire Risks (how many fires there were in the cities before 1900, Fire Gap - Crisis Notes on the Development of Fires and Population in Urban Areas).</li> </ul>   |
| 2021-03-01 | Guttorm Liebe has passed away          | Guttrum Liebe is author of chapter "Oslo". Dear friend rest in peace!   |
| 2020-12-03 | Status                                 | <p>We have currently almost completed work on the Japanese cities: Kobe, Kyoto, Nagoya, Osaka, Sapporo, Tokyo, and Yokohama.</p> <p>In the meantime, colleagues from the Italian fire brigades have joined our project: Bari, Bologna, Florence, Genoa, Milan, Naples, Palermo, Rome, San Marino, Turin, Vatican City, and Venice.</p> <p>The work for the chapters of the cities of South America has actively started: Bogota, Buenos Aires,</p>  |

**100 Cities – 100 Years - Evaluation Of Urban Fire Risks**

| Date         | Remark / Contact person / organization  | Content, remark  |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
|--------------|---|--|--|--|--------|---------------|-----------|--------|---|---|----------|----|----|------|----|----|--------|----|----|---------|---|---|--------------|------------|------------|
|              |   | Montevideo, Quito, Rio de Janeiro, Santiago de Chile, Sao Paulo, Valparaiso, Mexico City, and Lima.<br>In the appendix to this email you will find the description of the current project status.<br>We ask all cities to continue working on the respective chapter and to send you the information step by step.   |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| 2020-12-03   | Summary of cities participating/included in the project?<br>We are missing cities: North America, Africa.   | <table border="1"> <thead> <tr> <th data-bbox="781 485 984 516">Region</th> <th data-bbox="987 485 1174 516">Cities, total</th> <th data-bbox="1177 485 1386 516">Cities, %</th> </tr> </thead> <tbody> <tr> <td data-bbox="781 520 984 552">Africa</td> <td data-bbox="987 520 1174 552">2</td> <td data-bbox="1177 520 1386 552">2</td> </tr> <tr> <td data-bbox="781 556 984 588">Americas</td> <td data-bbox="987 556 1174 588">29</td> <td data-bbox="1177 556 1386 588">27</td> </tr> <tr> <td data-bbox="781 592 984 623">Asia</td> <td data-bbox="987 592 1174 623">26</td> <td data-bbox="1177 592 1386 623">24</td> </tr> <tr> <td data-bbox="781 627 984 659">Europe</td> <td data-bbox="987 627 1174 659">48</td> <td data-bbox="1177 627 1386 659">45</td> </tr> <tr> <td data-bbox="781 663 984 695">Oceania</td> <td data-bbox="987 663 1174 695">2</td> <td data-bbox="1177 663 1386 695">2</td> </tr> <tr> <td data-bbox="781 699 984 730"><b>Total</b></td> <td data-bbox="987 699 1174 730"><b>107</b></td> <td data-bbox="1177 699 1386 730"><b>100</b></td> </tr> </tbody> </table>                                 |  |  | Region | Cities, total | Cities, % | Africa | 2 | 2 | Americas | 29 | 27 | Asia | 26 | 24 | Europe | 48 | 45 | Oceania | 2 | 2 | <b>Total</b> | <b>107</b> | <b>100</b> |
| Region       | Cities, total   | Cities, %  |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| Africa       | 2   | 2  |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| Americas     | 29  | 27   |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| Asia         | 26  | 24   |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| Europe       | 48  | 45   |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| Oceania      | 2   | 2  |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| <b>Total</b> | <b>107</b>  | <b>100</b>   |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| 2020-07-31   | Can the city get the book "100 Cities - 100 Years" when participating in this project?<br>Does the city have to pay for participating in the project or receiving the book? | 1. After publishing the book, every city gets a copy of the book.<br>2. Participation in the project is free, with no fees.  |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| 2020-06-26   | Summary of cities participating/included in the project?<br>We are missing ten more cities.   | <table border="1"> <thead> <tr> <th data-bbox="781 961 984 993">Region</th> <th data-bbox="987 961 1174 993">Cities, total</th> <th data-bbox="1177 961 1386 993">Cities, %</th> </tr> </thead> <tbody> <tr> <td data-bbox="781 997 984 1029">Africa</td> <td data-bbox="987 997 1174 1029">2</td> <td data-bbox="1177 997 1386 1029">2</td> </tr> <tr> <td data-bbox="781 1033 984 1064">Americas</td> <td data-bbox="987 1033 1174 1064">25</td> <td data-bbox="1177 1033 1386 1064">28</td> </tr> <tr> <td data-bbox="781 1068 984 1100">Asia</td> <td data-bbox="987 1068 1174 1100">27</td> <td data-bbox="1177 1068 1386 1100">30</td> </tr> <tr> <td data-bbox="781 1104 984 1136">Europe</td> <td data-bbox="987 1104 1174 1136">34</td> <td data-bbox="1177 1104 1386 1136">38</td> </tr> <tr> <td data-bbox="781 1140 984 1171">Oceania</td> <td data-bbox="987 1140 1174 1171">2</td> <td data-bbox="1177 1140 1386 1171">2</td> </tr> <tr> <td data-bbox="781 1176 984 1207"><b>Total</b></td> <td data-bbox="987 1176 1174 1207"><b>90</b></td> <td data-bbox="1177 1176 1386 1207"><b>100</b></td> </tr> </tbody> </table> |  |  | Region | Cities, total | Cities, % | Africa | 2 | 2 | Americas | 25 | 28 | Asia | 27 | 30 | Europe | 34 | 38 | Oceania | 2 | 2 | <b>Total</b> | <b>90</b>  | <b>100</b> |
| Region       | Cities, total   | Cities, %  |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| Africa       | 2   | 2  |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| Americas     | 25  | 28   |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| Asia         | 27  | 30   |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| Europe       | 34  | 38   |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| Oceania      | 2   | 2  |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| <b>Total</b> | <b>90</b>   | <b>100</b>   |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| 2020-06-22   | Directora Ejecutiva de Organizatio De Bomberos Americanos (O.B.A.)<br><a href="https://www.bomberosamerica.org/en/">https://www.bomberosamerica.org/en/</a>                 | Latin America and the Caribbean (by UN definition) now enter the project: Ecuador, Guatemala, Argentina, and Uruguay.  |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| 2020-06-14   | Please indicate the name of the country according to the name of the city.  | We use:<br><a href="http://www.unece.org/cefact/locode/countries.html">http://www.unece.org/cefact/locode/countries.html</a> ,<br>UN/LOCODE Country names ISO 3166-1   |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| 2020-06-13   | There are dates in the "Notable Fires" table. The format of this information should be explained at the end of the table.   | The following explanation is inserted in the footnote of the table: Date - <b>YYYY-MM-DD</b> .   |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| 2020-06-01   | Proposal for Book title:  | As the aim of the book is the evaluation of fire risks in large cities its proposed the following title name: " <b>100 Cities – 100 Years - Evaluation Of Urban Fire Risks</b> ";<br>There should be a clear distinction from forest fires   |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |
| 2020-05-31   | Can you please mark the positions better with updates?  | Thanks for the hint! Updated text passages are marked with the word (and highlighted in color). We hope it is now easier to find. Please use the search function in the PDF program to search for search.  |  |  |        |               |           |        |   |   |          |    |    |      |    |    |        |    |    |         |   |   |              |            |            |

**100 Cities – 100 Years - Evaluation Of Urban Fire Risks**

| Date       | Remark / Contact person / organization  | Content, remark  |
|------------|---|--|
| 2020-05-30 | New date for publishing the book?   | We try realize May 2021.   |
| 2020-05-10 | Is it possible to better visualize the status of the chapter?   | Thanks a lot for the advice! We propose to use three colors: <b>Red</b> – poor status, <b>Yellow</b> – in progress, and <b>Green</b> – functional status. Please check status of your chapter and send a feedback.   |
| 2020-05-07 | When will the book be published?  | The book will published in 2011 due to the circumstances associated with the corona pandemic and the relocation of INTERSCHUTZ to next year.   |
| 2020-04-05 | Some authors suggested that the current status for each city should show at different points in the document, but only temporarily in the table of contents | Status of chapter shown in the table of contents of each city. The following information is constantly updated: [00% -Data_00% -Text_00% Risks] - Share of statistical data, the share of written text passages, and share of the identified fire risks. So there are two basic situations: either [00% -Data_00% -Text_00% Risks] - the city in charge has provided absolutely no information or [95% -Data_95% -Text_95% Risks] - the city in charge has provided all data (the remaining 5% are reserved for proofreading by experts).  |
| 2019-10-25 | Center of Fire Statistics (CFS) of CTIF participated at "Fire, Rescue & New Challenges - CTIF Seminar in Ostrava October 25-26 2019                         | <p>Prof. Dr. Sokolov Sergei is vice chief of the CFS. The priority areas of his activity are fire statistics and computer modeling of emergency services operations. His presentation discusses the results of the CFS activity for 24 years. The CFS was founded in 1995. Since 1995 the CFS has published 25 reports in English, Russian and German. Additionally, various CFS descriptions have been translated into five other languages - Polish, Spanish, Hungarian, Turkish, and Persian. All reports of the CFS since 2005 are available on the CTIF website for free download.</p> <p>For 24 years, the Center has analyzed 92 million fires and 1 million victims of these fires. The research includes almost 90 countries of the World and the 100 largest cities of the World.</p> <p>All data presented in the report based on information sent by the national committees of the countries to the CFS and official statements of the fire services of these countries. The work carried out over 24 years allows us to answer the questions: How many fires are on the Earth? How many fire deaths and fire injuries on the Earth? How much "cost" of fires? And many others.</p> |
| 2019-09-15 | President of DFV (National Firefighter Federation of Germany  | Proposed participation of the Center of Fire Statistics of CTIF at INTERSCHUTZ 2020 in Hannover to present the World Fire Statistics and the book project "100-Years – 100 Cities ...".  |

| Date       | Remark / Contact person / organization   | Content, remark  |
|------------|--|--|
| 2019-05-22 | President of European Fire Service Colleges' Association (EFSCA), <a href="https://www.efsc.org/">https://www.efsc.org/</a>                                    | Peter Wagner participated at EFSCA annual conference in Tallinn (Estonia). A presentation about the book project was made. EFSCA is interested in support.   |
| 2019-05-16 | President of Federation of the European Union Fire Officers Associations (FEU), <a href="https://www.f-e-u.org/index.php">https://www.f-e-u.org/index.php</a>  | Peter Wagner participated at FEU Council Meeting in Porto (Portugal). A presentation about the book project was made. FEU is interested in support.  |
| 2019-05-16 | Directora Ejecutiva de Organizatio De Bomberos Americanos (O.B.A.) <a href="https://www.bomberosamericanos.org/en/">https://www.bomberosamericanos.org/en/</a> | During FEU meeting in Porto (Portugal) Lucia Vilarino, as representant of Organizatio De Bomberos Americanos expressed interest in cooperation in the proposed project.  |
| 2019-04-09 | How is the circumstance of the change of the area of a city handled?   | In the history of the cities, as a rule, the city area grew. In many cases, neighboring communities were incorporated into the city. With this measure, the cities tried to cover the need for land for housing, industry, etc. Incorporations are a tried and tested means of keeping population density at a tolerable level. Otherwise, there will be difficulties in developing the infrastructure. Classic examples of radical urban expansion is the formation of Greater Berlin and Greater London. The participating cities are invited to display significant territorial extensions in the database. Associated with this, the number of inhabitants often changes. For the respective year so the appropriate information on the area, the number of inhabitants and the number of fires, etc. are to make. |
| 2019-04-08 | Why are other terms used in the text beside the phrase "Fire department"?  | The different terms based on historical and regional conditions. In North America, for example, the term <b>Fire Department</b> is used. Europe usually uses the term <b>Fire Brigade</b> . Next, the term " <b>Fire Service</b> " is used. After all, some fire departments call themselves part of the local <b>Civil Defense</b> . There are also organizational differences: professional fire brigades, volunteer fire brigades and industrial fire brigades. The fire brigades have emerged historically different: public fire departments, military fire brigades or private fire brigades. After all, there are many hybrid forms between paid and unpaid fire departments. In the project, every fire brigade is allowed to make a speech as she sees fit; that does not change the fire risks.              |

| Date       | Remark / Contact person / organization  | Content, remark  |
|------------|---|--|
| 2019-04-07 | What are the main categories of fire service calls related to the book project? | The main categories of fire service calls related to the book project are: <ul style="list-style-type: none"> <li>• Fires</li> <li>• Technical aid</li> <li>• Ambulance calls</li> </ul> Other calls (service to the public – non-emergency activities).   |
| 2019-04-02 | What is the definition of "technical aid"?                                      | It is well-known to all that internationally, there is no uniform definition. Since the project is dedicated to fire risks, all other types of fire service operations categorized accordingly. Under the term "technical aid," we understand all types of fire service calls that are not defined as "fires" or "ambulance calls". That means that technical aid calls cover all traffic accidents, hazmat calls, industrial accidents, water rescue, animal rescue, calls connected with bad weather (floods, storms and so on). |

## Chapter of book project

The preliminary outline of the book is displayed below.

Used temporary abbreviations:

- City of XXX - your city, could appear here!
- (by YYY) - the name of the author of this chapter is still specified
- [Y=AAAA-BBBB] – Time interval for which data is currently available
- [done] - This entry made when the respective subchapter was written
- Status of chapter [00%-Data\_00%-Text\_00% Fire Risks] – a share of finished work.

In the book, all named cities are represented. The list is continually expanding until we reach the number of 100. It intended to enumerate the cities in the final form in alphabetical order per continent.

**Table 2 Content of the book**

| Chapter  | Description / Status of chapter          | Author (s)  |
|----------|--|---|
| <b>0</b> | <b>Prolog</b>                            | <b>Center of Fire Statistics of CTIF (CFS CTIF)</b> |
| <b>1</b> | <b>Forewords</b>                         |   |
| 1.1      | Foreword from CFO of FD of Africa        | YYY   |
| 1.2      | Foreword from CFO of FD of North America | YYY   |
| 1.3      | Foreword from CFO of FD of South America | YYY   |
| 1.4      | Foreword from CFO of FD of Asia          | YYY   |

| Chapter  | Description / Status of chapter                        | Author (s)     |
|----------|--|----------------|
| 1.5      | Foreword from CFO of FD of Arab Countries              | YYY            |
| 1.6      | Foreword from CFO of FD of Europe                      | YYY            |
| 1.7      | Foreword from CFO of FD of Oceania                     | YYY            |
| 1.8      | Foreword from The Geneva Association                   | YYY            |
| 1.9      | Foreword from the President of CTIF                    | Milan Dubravac |
| 1.10     | Foreword from Metro Fire Chiefs Association            | YYY            |
| 1.11     | Foreword from NFPA                                     | YYY            |
| 1.12     | Foreword from CFPA EUROPE                              | YYY            |
| <b>2</b> | <b>Introduction - How to read the publication?</b>     |                |
| 2.1      | World Fire Risks [95%-Data_95%-Text_95% Fire Risks]    | CFS CTIF       |
| 2.2      | About the term City [95%-Data_95%-Text_95% Fire Risks] | Peter Wagner   |
| 2.3      | Urban Fire Risks [95%-Data_95%-Text_95% Fire Risks]    | Peter Wagner   |

|            |  |                |
|------------|--|----------------|
| <b>3</b>   | <b>Fires in the cities of the continents</b>                         |                |
| <b>3.1</b> | <b>Africa</b>  |                |
| 3.1.1      | Accra (Ghana) [90%-Data_90%-Text_90% Fire Risks]                     | Peter Wagner   |
| 3.1.2      | Cairo (Egypt) [10%-Data_10%-Text_05% Fire Risks]                     | Adham Abulnour |
| 3.1.3      | Cape Town (South Africa) [0%-Data_0%-Text_0% Fire Risks]             | YYY            |
| 3.1.4      | Kampala (Uganda) [90%-Data_90%-Text_90% Fire Risks]                  | Peter Wagner   |
| 3.1.5      | Lagos (Nigeria) [95%-Data_95%-Text_95% Fire Risks]                   | Peter Wagner   |
| 3.1.6      | Tshwane / Pretoria (South Africa) [00%-Data_00%-Text_00% Fire Risks] | YYY            |
| 3.1.7      | Nairobi (Kenia) [10%-Data_25%-Text_00% Fire Risks]                   | YYY            |



**100 Cities – 100 Years - Evaluation Of Urban Fire Risks**

|            |   |   |
|------------|---|---|
| <b>3.2</b> | <b>Americas</b>   |   |
| 3.2.1      | Baltimore (USA) [45%-Data_00%-Text_00% Fire Risks]              | YYY   |
| 3.2.2      | Bogota (Colombia) [45%-Data_00%-Text_00% Fire Risks]            | YYY   |
| 3.2.3      | Boston (USA) [95%-Data_50%-Text_90% Fire Risks]                 | YYY   |
| 3.2.4      | Buenos Aires (Argentina) [00%-Data_00%-Text_00% Fire Risks]     | Rafael Daniel De Wouters                                    |
| 3.2.5      | Calgary (Canada) [10%-Data_00%-Text_00% Fire Risks]             | Steve Dongworth   |
| 3.2.6      | Chicago (USA) [45%-Data_25%-Text_00% Fire Risks]                | YYY   |
| 3.2.7      | Edmonton (Canada) [05%-Data_00%-Text_00% Fire Risks]            | Ken Block   |
| 3.2.8      | City of Fairfax County (USA) [95%-Data_95%-Text_95% Fire Risks] | Richard Merrell, Alyssa Vance                               |
| 3.2.9      | Guatemala City (Guatemala) [00%-Data_30%-Text_00% Fire Risks]   | Miriam Morales, Marco España, Kevyn Edoardo González García |
| 3.2.10     | Guayaquil (Ecuador) [00%-Data_90%-Text_00% Fire Risks]          | Cinthy Chávez, Goldy Rivas                                  |
| 3.2.11     | Hartford (USA) [00%-Data_95%-Text_00% Fire Risks]               | C. Cooper, H. Tulier, M. Eremita, L. Cieri                  |
| 3.2.12     | Houston (USA) [05%-Data_00%-Text_00% Fire Risks]                |   |
| 3.2.13     | Kansas City (USA) [95%-Data_90%-Text_95% Fire Risks]            | Justin Powers   |
| 3.2.14     | Lima (Peru) [30%-Data_10%-Text_05% Fire Risks]                  | YYY   |
| 3.2.15     | Mexico-City (Mexico) [90%-Data_95%-Text_90% Fire Risks]         | Peter Wagner  |
| 3.2.16     | Montevideo (Uruguay) [00%-Data_10%-Text_05% Fire Risks]         | Lucas Cardoso, Martín Miguez                                |
| 3.2.17     | New York City (USA) [90%-Data_90%-Text_90% Fire Risks]          | Peter Wagner  |
| 3.2.18     | Oklahoma (USA) [00%-Data_00%-Text_00% Fire Risks]               | YYY   |
| 3.2.19     | Philadelphia(USA) [20%-Data_00%-Text_00% Fire Risks]            | Adam Thiel  |
| 3.2.20     | Phoenix (USA) [15%-Data_90%-Text_00% Fire Risks]                | Cody Worrell  |
| 3.2.21     | Quito (Ecuador) [05%-Data_00%-Text_00% Fire Risks]              | Ana Maria Corral, Diana Realpe                              |
| 3.2.22     | Rio de Janeiro (Brazil) [05%-Data_00%-Text_00% Fire Risks]      | YYY   |
| 3.2.23     | Sacramento (USA) [05%-Data_00%-Text_00% Fire Risks]             | YYY   |
| 3.2.24     | San Antonio (USA) [05%-Data_00%-Text_00% Fire Risks]            | YYY   |
| 3.2.25     | San Francisco (USA) [50%-Data_00%-Text_00% Fire Risks]          | Brice Peoples   |
| 3.2.26     | Santiago de Chile (Chile) [75%-Data_90%-Text_75% Fire Risks]    | Víctor Arias, Luis Carrasco, Gonzalo Rudolphy, Juan Carlos  |
| 3.2.27     | Toronto (Canada) [50%-Data_10%-Text_50% Fire Risks]             | Michelle Stronach   |
| 3.2.28     | Valparaiso (Chile) [10%-Data_00%-Text_00% Fire Risks]           | YYY   |
| 3.2.29     | Winnipeg (Canada) [05%-Data_00%-Text_00% Fire Risks]            | John A. Lane  |

**100 Cities – 100 Years - Evaluation Of Urban Fire Risks**

|            |   |  |
|------------|---|--|
| <b>3.3</b> | <b>Asia</b>   |  |
| 3.3.1      | Amman (Jordan) [97%-Data_95%-Text_95% Fire Risks]                     | O. Latifeh, S. Werekat and A. Khraisat |
| 3.3.2      | Beijing (China) [97%-Data_95%-Text_95% Fire Risks]                    | Peter Wagner                           |
| 3.3.3      | Chennai / Madras (India) [97%-Data_95%-Text_95% Fire Risks]           | Peter Wagner                           |
| 3.3.4      | Busan (Korea) [10%-Data_25%-Text_10% Fire Risks]                      | YYY                                    |
| 3.3.5      | Delhi (India) [97%-Data_95%-Text_95% Fire Risks]                      | Peter Wagner                           |
| 3.3.6      | Dhaka (Bangladesh) [90%-Data_90%-Text_90% Fire Risks]                 | Md. Humayun Kabir; Hussain, Md. Sazzad |
| 3.3.7      | Dubai (United Arab Emirates) [97%-Data_95%-Text_95% Fire Risks]       | Peter Wagner                           |
| 3.3.8      | Hanoi (Vietnam) [85%-Data_85%-Text_85% Fire Risks]                    | Sergei Sokolov / Peter Wagner          |
| 3.3.9      | Ho Chi Minh / Saigon (Vietnam) [40%-Data_65%-Text_20% Fire Risks]     | Sergei Sokolov / Peter Wagner          |
| 3.3.10     | Hong Kong (China) [97%-Data_95%-Text_95% Fire Risks]                  | Peter Wagner                           |
| 3.3.11     | Jakarta (Indonesia) [95%-Data_95%-Text_95% Fire Risks]                | Peter Wagner                           |
| 3.3.12     | Kathmandu (Nepal) [90%-Data_90%-Text_90% Fire Risks]                  | Peter Wagner                           |
| 3.3.13     | Kawasaki (Japan) [35%-Data_40%-Text_35% Fire Risks]                   | Kyoichi Kobayashi / Peter Wagner       |
| 3.3.14     | Kobe (Japan) [95%-Data_95%-Text_95% Fire Risks]                       | Kyoichi Kobayashi / Peter Wagner       |
| 3.3.15     | Kuala Lumpur (Malaysia) [10%-Data_00%-Text_00% Fire Risks]            | YYY                                    |
| 3.3.16     | Kuwait City (Kuwait) [90%-Data_95%-Text_90% Fire Risks]               | Peter Wagner                           |
| 3.3.17     | Kyoto (Japan) [95%-Data_95%-Text_95% Fire Risks]                      | Kyoichi Kobayashi / Peter Wagner       |
| 3.3.18     | Lahore (Pakistan) [05%-Data_50%-Text_05% Fire Risks]                  | YYY                                    |
| 3.3.19     | Macau (China) [95%-Data_95%-Text_95% Fire Risks]                      | Peter Wagner                           |
| 3.3.20     | Manila (The Philippines) [97%-Data_95%-Text_95% Fire Risks]           | Peter Wagner                           |
| 3.3.21     | Mumbai / Bombay (India) [85%-Data_85%-Text_85% Fire Risks]            | Peter Wagner                           |
| 3.3.22     | Nagoya (Japan) [97%-Data_95%-Text_95% Fire Risks]                     | Kyoichi Kobayashi / Peter Wagner       |
| 3.3.23     | Osaka (Japan) [97%-Data_95%-Text_95% Fire Risks]                      | Kyoichi Kobayashi / Peter Wagner       |
| 3.3.24     | Pune (India) [97%-Data_95%-Text_95% Fire Risks]                       | Peter Wagner                           |
| 3.3.25     | Sapporo (Japan) [97%-Data_95%-Text_95% Fire Risks]                    | Peter Wagner                           |
| 3.3.26     | Riyadh (Saudi Arabia) [97%-Data_95%-Text_95% Fire Risks]              | Peter Wagner                           |
| 3.3.27     | Seoul (Korea) [75%-Data_45%-Text_45% Fire Risks]                      | Jihee Eom, Myung eun Son               |
| 3.3.28     | Shanghai (China) [90%-Data_95%-Text_90% Fire Risks]                   | Peter Wagner                           |
| 3.3.29     | Singapore (Singapore) [97%-Data_95%-Text_95% Fire Risks]              | Peter Wagner                           |
| 3.3.30     | Taipei (Taiwan, Province of China) [97%-Data_95%-Text_95% Fire Risks] | Peter Wagner                           |
| 3.3.31     | Tokyo (Japan) [97%-Data_95%-Text_95% Fire Risks]                      | Kyoichi Kobayashi / Peter Wagner       |

---

100 Cities – 100 Years - Evaluation Of Urban Fire Risks

---

|        |   |                                  |
|--------|---|----------------------------------|
| 3.3.32 | Ulaanbaatar (Mongolia) [10%-Data_10%-Text_10% Fire Risks] | Byamba Dugar                     |
| 3.3.33 | Yokohama (Japan) [85%-Data_95%-Text_85% Fire Risks]       | Kyoichi Kobayashi / Peter Wagner |

**100 Cities – 100 Years - Evaluation Of Urban Fire Risks**

|            |   |  |
|------------|---|--|
| <b>3.4</b> | <b>Europe</b>   |  |
| 3.4.1      | Amsterdam (Netherlands) [97%-Data_95%-Text_95% Fire Risks]            | Peter Wagner   |
| 3.4.2      | Andorra City (Andorra) [10%-Data_95%-Text_10% Fire Risks]             | Xavier Nuez  |
| 3.4.3      | Athens (Greece) [97%-Data_95%-Text_95% Fire Risks]                    | Michail Chalaris                                       |
| 3.4.4      | Barcelona (Catalonia / Spain) [97%-Data_95%-Text_95% Fire Risks]      | Ana Miguel Quesada                                     |
| 3.4.5      | Bari (Italy) [55%-Data_95%-Text_55% Fire Risks]                       | Antonio Pacini, Marcello Serpieri, Maurizio Alivernini |
| 3.4.6      | Belgrade (Serbia) [95%-Data_95%-Text_95% Fire Risks]                  | Dragan Mladjan, Dane Subošić                           |
| 3.4.7      | Berlin (Germany) [99%-Data_99%-Text_99% Fire Risks]                   | Peter Wagner   |
| 3.4.8      | Bern (Switzerland) [50%-Data_60%-Text_30% Fire Risks]                 | YYY  |
| 3.4.9      | Bologna (Italy) [10%-Data_65%-Text_00% Fire Risks]                    | Antonio Pacini, Marcello Serpieri, Maurizio Alivernini |
| 3.4.10     | Bratislava (Slovakia) [70%-Data_90%-Text_90% Fire Risks]              | YYY  |
| 3.4.11     | Brussels (Belgium) [90%-Data_90%-Text_90% Fire Risks]                 | Nicoletta Casano                                       |
| 3.4.12     | Budapest (Hungary) [97%-Data_95%-Text_95% Fire Risks]                 | Laszlo Z. Nagy   |
| 3.4.13     | Cologne (Germany) [95%-Data_50%-Text_95% Fire Risks]                  | Peter Wagner   |
| 3.4.14     | Copenhagen (Denmark) [90%-Data_80%-Text_95% Fire Risks]               | YYY  |
| 3.4.15     | Dresden (Germany) [20%-Data_00%-Text_00% Fire Risks]                  | YYY  |
| 3.4.16     | Dublin (Ireland) [05%-Data_15%-Text_05% Fire Risks]                   | Las Fallon   |
| 3.4.17     | Florence (Italy) [10%-Data_65%-Text_00% Fire Risks]                   | Antonio Pacini, Marcello Serpieri, Maurizio Alivernini |
| 3.4.18     | Frankfurt - Main (Germany) [95%-Data_95%-Text_95% Fire Risks]         | Peter Wagner   |
| 3.4.19     | Genoa (Italy) [10%-Data_65%-Text_00% Fire Risks]                      | Antonio Pacini, Marcello Serpieri, Maurizio Alivernini |
| 3.4.20     | Gibraltar City (Gibraltar) [97%-Data_95%-Text_95% Fire Risks]         | Peter Wagner   |
| 3.4.21     | Graz (Austria) [55%-Data_85%-Text_55% Fire Risks]                     | Heimo Krajnz   |
| 3.4.22     | Hamburg (Germany) [97%-Data_95%-Text_95% Fire Risks]                  | Peter Wagner   |
| 3.4.23     | Helsinki (Finland) [99%-Data_99%-Text_99% Fire Risks]                 | Hanna Rekola   |
| 3.4.24     | Istanbul / Constantinople (Turkey) [30%-Data_75%-Text_30% Fire Risks] | Özge Karaman   |
| 3.4.25     | Kaliningrad / Königsberg (Russia) [97%-Data_95%-Text_95% Fire Risks]  | S. Sokolov, P. Wagner                                  |
| 3.4.26     | Klagenfurt (Austria) [15%-Data_25%-Text_15% Fire Risks]               | YYY  |
| 3.4.27     | Linz (Austria) [25%-Data_65%-Text_25% Fire Risks]                     | YYY  |
| 3.4.28     | Ljubljana (Slovenia) [30%-Data_85%-Text_50% Fire Risks]               | Janez Hocevar  |
| 3.4.29     | London (United Kingdom) [50%-Data_00%-Text_50% Fire Risks]            | David Wyatt  |
| 3.4.30     | Madrid (Spain) [50%-Data_50%-Text_50% Fire Risks]                     | YYY  |
| 3.4.31     | Milan (Italy) [10%-Data_65%-Text_00% Fire Risks]                      | Antonio Pacini, Marcello Serpieri, Maurizio Alivernini |
| 3.4.32     | Moscow (Russia) [95%-Data_95%-Text_95% Fire Risks]                    | Sergei Sokolov   |

**100 Cities – 100 Years - Evaluation Of Urban Fire Risks**

|            |  |  |
|------------|--|--|
| 3.4.33     | Munich (Germany) [97%-Data_95%-Text_95% Fire Risks]  | Peter Wagner   |
| 3.4.34     | Naples (Italy) [10%-Data_65%-Text_00% Fire Risks]  | Antonio Pacini, Marcello Serpieri, Maurizio Alivernini |
| 3.4.35     | Oslo (Norway) [99%-Data_99%-Text_99% Fire Risks]   | Guttorm Liebe  |
| 3.4.36     | Palermo (Italy) [10%-Data_65%-Text_00% Fire Risks]   | Antonio Pacini, Marcello Serpieri, Maurizio Alivernini |
| 3.4.37     | Paris (France) [25%-Data_95%-Text_25% Fire Risks]  |  |
| 3.4.38     | Porto (Portugal) [45%-Data_35%-Text_45% Fire Risks]  | Antonio Oliveira, Óscar Silva, João Nogueira           |
| 3.4.39     | Prague (Czech Republic) [10%-Data_05%-Text_05% Fire Risks]   | YYY  |
| 3.4.40     | Rome (Italy) [10%-Data_65%-Text_00% Fire Risks]  | Antonio Pacini, Marcello Serpieri, Maurizio Alivernini |
| 3.4.41     | San Marino (Repubblica di San Marino) [10%-Data_60%-Text_00% Fire Risks]   | Antonio Pacini, Marcello Serpieri, Maurizio Alivernini |
| 3.4.42     | Sankt Petersburg (Russia) [95%-Data_95%-Text_95% Fire Risks]   | Sergei Sokolov   |
| 3.4.43     | Stockholm (Sweden) [97%-Data_95%-Text_95% Fire Risks]  | YYY  |
| 3.4.44     | Tallinn (Estonia) [75%-Data_45%-Text_75% Fire Risks]   | Ivo Paulus; Peeter Randoja                             |
| 3.4.45     | Turin (Italy) [50%-Data_90%-Text_00% Fire Risks]   | Antonio Pacini, Marcello Serpieri, Maurizio Alivernini |
| 3.4.46     | Vatican City (Holy See) [10%-Data_90%-Text_00% Fire Risks]   | Antonio Pacini, Marcello Serpieri, Maurizio Alivernini |
| 3.4.47     | Venice (Italy) [10%-Data_90%-Text_00% Fire Risks]  | Antonio Pacini, Marcello Serpieri, Maurizio Alivernini |
| 3.4.48     | Vienna (Austria) [95%-Data_90%-Text_95% Fire Risks]  |  |
| 3.4.49     | Warsaw (Poland) [97%-Data_95%-Text_95% Fire Risks]   | Krzysztof Biskup                                       |
| 3.4.50     | Yerevan (Armenia) [00%-Data_00%-Text_00% Fire Risks]   | Khachik Shahbazyan                                     |
| 3.4.51     | Zagreb (Croatia) [95%-Data_95%-Text_95% Fire Risks]  | Milan Komorcec   |
| 3.4.52     | Zurich (Switzerland) [90%-Data_90%-Text_90% Fire Risks]  | YYY  |
| <b>3.5</b> | <b>Oceania</b>   |  |
| 3.5.1      | Perth (Australia) [00%-Data_00%-Text_00% Fire Risks]   | YYY  |
| 3.5.2      | Sydney (Australia) [00%-Data_00%-Text_00% Fire Risks]  | YYY  |
| <b>4.</b>  | <b>Analysis of fire risks</b>  |  |
| 4.1        | Risk R1 "Risk for a person to be directly exposed to the dangerous factors of a fire within a certain time interval." [25%-Data_25%-Text_25% Fire Risks] | Sergei Sokolov, Peter Wagner                           |
| 4.2        | Risk R2 "Risk of a person losing his life as a victim in a fire" [25%-Data_25%-Text_25% Fire Risks]  | Sergei Sokolov, Peter Wagner                           |
| 4.3        | Risk R3 "Risk of a person losing his life through a fire within a certain time interval." [25%-Data_25%-Text_25% Fire Risks]                             | Sergei Sokolov, Peter Wagner                           |
| 4.4        | Risk R4 "Risk of fire material damage." [25%-Data_25%-Text_25% Fire Risks]   | Sergei Sokolov, Peter Wagner                           |
| <b>5</b>   | <b>Strategy for controlling fire risks</b>   |  |
| 5.1        | Fire prevention (Survey in all participating cities)   | YYY  |
| 5.2        | Fire education (Survey in all participating cities)  | YYY  |
| 5.3        | Fire suppression (Survey in all participating cities)  | YYY  |
| 5.4        | Fire models (scientific models)  | YYY  |

|          |  |     |
|----------|--|-----|
| 5.5      | Fire Department modeling (master planning using computer technology)     | YYY |
| <b>6</b> | <b>Visions for further fire safety in the 21<sup>st</sup> century</b>    |     |
| 6.1      | Fire vehicles for tomorrow – Vision of a car manufacturer                | YYY |
| 6.2      | Personal Protective Equipment - Vision of a respirator manufacturer      |     |
| 6.3      | Personal Protective Equipment - Vision of a protective suit manufacturer | YYY |
| 6.4      | Fire detection and extinguishing systems of tomorrow                     | YYY |
| 6.5      | Virtual reality - Training systems for firefighters in the future        | YYY |
| 6.6      | Building fire prevention – Vision of Architects                          | YYY |

## General Description of the Project

The CFS CTIF (Center of Fire Statistics of CTIF) works since 1995 on the creation of the World Fire Statistics. In the first year, report number 1 appeared with the statistical data from 17 countries of the Earth. Today in 2022, we have release the report number 27. Statistical information on activity in almost 40 countries presented. The reports also contain information on the fire situation in major cities around the World. In summary, the CFS CTIF has collected data from more than 70 countries or large cities.

Now it is time to recompile all collected information and to pass it on to the world public for the sake of complaisant knowledge. From our point of view, the best way is an international book publication. The topic is the development of fire risks in the cities in the period 1900-2018. We do not want to accomplish this work alone as a statistics team of the CTIF. We think it is better to carry out this work together with experts from local fire departments in the large cities of the World. The draft concept for the English-language publication is to read below this letter.

We believe that besides the fire departments in the major cities of the World, the national and international associations, universities, and research institutes are also interested in this publication. Indeed, the common Fire and Safety Industry will be interested too.

We at this moment suggest the cooperation for this project. We kindly ask you to nominate an expert employee from your department or city who will be available to us as a contact person. The forms of cooperation can be as follows:

- a) The City Fire Department appoints an expert co-author.
- b) The City Fire Department appoints an expert to provide us with the necessary statistical data (CFS CTIF, then writes the book chapter).
- c) The fire brigade recommends us other contacts and sources (persons, links to website, libraries, historical archive, etc.) and does not participate in the project.

Of course, we wish each city to agree to variant a).

We intend to publish the book as an e-book as well as a hardcopy. Currently, we expect it to published by major international publishers such as Springer Nature Switzerland AG or Nova Science Publishers, Inc. (USA). Any other recommendation is welcome.

Now something to the term "Fire Department in a large city." With this letter, we wrote to the Fire Departments on every continent in the World. Theoretically, we expect to achieve cooperation with not less than ten fire departments per continent.

We are a bit skeptical about Africa. We hope that the fire brigades Cape Town and Tshwane (Pretoria) cooperate with us.

As for Canada, we hope for a response from Toronto, Ottawa, Montreal, Winnipeg, Vancouver, and Québec. We have high hopes for the participation of the prominent Fire Departments in the USA, whose immense wealth of experience should take into account: New York City, Los Angeles, Chicago, Dallas,

Houston, Washington, Philadelphia, Miami, Atlanta, Boston, San Francisco, Phoenix, Detroit, Seattle and Baltimore.

We hope that at least some South American cities are represented: Sao Paulo, Bogota, Lima, Rio de Janeiro, Santiago de Chile, Buenos Aires, Salvador da Bahia, Brasilia, Belo Horizonte, Fortaleza, Medellin Guayaquil, Caracas, Curitiba, Manaus, Montevideo and Quito. It are exactly these fire brigades that have undergone a very own historical development.

From Central America, we hope to receive feedback from the following cities: San José, San Salvador, Guatemala City, Tegucigalpa, Managua, Panama City. Somewhat more problematic are the contacts with fire departments in the Caribbean: who can help?

If we now look at Asia, then we have another big problem. The number of the World's largest cities is particularly high in Asia. For purely legal reasons, we can only select the huge cities, which also know that there is a well-organized fire brigade there as a point of contact: Tokyo-Yokohama, Delhi, Mumbai, Osaka-Kobe, Dhaka, Calcutta, Manila, Jakarta, Chennai, Seoul, Nagoya, Bangkok, Hong Kong, Ho Chi Minh City, Kuala Lumpur, Singapore, Fukuoka, Ankara, Hanoi, Busan, Kuwait City, Taipei, Dubai, Baku, Tashkent, Beirut, Almaty, Tbilisi, Abu Dhabi, Yerevan. Other cities are welcome too.

For Europe, we have compiled the following alphabetical list of cities: Amsterdam, Athens, Belgrade, Berlin, Budapest, Bucharest, Helsinki, Istanbul, Kiev, Copenhagen, Lisbon, London, Madrid, Minsk, Moscow, Oslo, Paris, Prague, Riga, Rome, Saint Petersburg, Skopje, Sofia, Stockholm, Tirana, Vilnius, Warsaw, Vienna, Zagreb.

For Australia and Oceania, these cities focus on our interest: Sydney, Melbourne, Brisbane, Perth, Adelaide, Port Moresby, Wellington.

We are sure: every city has an exciting story to tell, and the fire brigades were always up to date!

What do we expect from every city (local fire department):

- Every fire brigade describes the history of its city on a maximum of two DIN A4 pages. The city should provide concise facts.
- Furthermore, every fire brigade represents the history of organized firefighting: the fire department's founding, motorization, remarkable technical developments, etc. The scope should not exceed two pages.
- Then a table is to be created: Notable fires (maximum one page).
- Then we will send a template: year, the number of fires, specific details of victims, etc. In a template, we carry a table to fill in: Fire data. Of course, older data is also welcome. For example, the Berlin Fire Brigade (Germany) provides us with complete data from 1851 (the founding year) until today.
- All of this local city information transferred to chapter 3.
- We do not want to include photos, maps, or other illustrations in the book at any price. There may be copyright issues. However, if suggestions for pictures come from the cities, we are open to discussion.



We prepare all the other chapters. We send the draft version to each participating city with the request to comment. In section 4, an analysis of fire risks describes the fire situation's development in the different parts of the World's leading cities. There will be a unique feature in chapter 5. Here we organize for the listed questions a survey of all cities. The results are summarized and reproduced in each case under the name of the respective continent. The names of the individual towns are not displayed. Also, this draft we send to comment to all cities.

Ultimately, the question of financing the project has to ask. We suggest inserting chapter 6, "Visions for further fire safety." In this chapter, leading manufacturers of firefighting technology will have the opportunity to present their visions on the future of fire safety in cities. These companies will provide a financial contribution to the book. We would like to hear the opinion of the fire brigades from all towns.

### 1. Amount of data

**Necessary part:** *Number of the population by year, number of fires per year, number of fire deaths per year.* Without this data, fire risks cannot be calculated. In case a single city cannot provide the data for the proposed time interval (1900-2018): please send at least the data for 2000-2018.

**Mandatory part:** all other data as described in the subchapter "Description of "Data-Sheet-File" (please see below). In case a single city cannot provide the data for the proposed time interval (1900-2018): please send at least the data for 2000-2018.

### 2. Purposed name of the book

At the beginning, we use the working title: "**Development of fire risks in the cities in the period 1900-2018**". Several fire departments support the following right alternative name: "**100 Years – 100 Cities – Evaluation of Urban Fire Risks**".

### 3. Purpose of the book

The purpose of the book based on the following considerations. Over the centuries, cities became economic, scientific, administrative, and cultural centers of the countries. This process accelerated notably in the 20<sup>th</sup> century. Life in cities has become very pleasant for their inhabitants. Modern apartments offer sufficient comfort. The food supply is diverse and safe. Energy (water, electricity gas, etc.) is available to an adequate extent. Modern hospitals ensure medical care and care for all age groups. The children go to kindergartens and schools. At the universities, young people study in a carefree environment. Cities have good transport systems in many places.

Notwithstanding these manifold benefits of city life, the administrations of urban centers increasingly confronted with problems: The streets of the cities are suffering from the ever-increasing mass of vehicles. Noise and air pollution are the results. Housing is scarce in the centers. The cities grow in height and on the outskirts. The supply of drinking water is a problem in many places. Waste management is a major organizational and technical challenge for the city administration.

One of the most critical issues within the increasingly complex infrastructure of large cities is the safety and security factor. It is no coincidence that the municipalities have set up special services that deal with these problems: police, fire brigade, emergency services, disaster services for the gas, electricity, gas supply, and communication networks (telephone, Internet, etc.). The purpose of the book is to take a closer look at the subject of fire safety. In the last century, cities have experienced various revelations with the introduction of new building materials, new types of buildings, and new ways of using the premises. Many advances in fire prevention have been made. Nevertheless, the fire danger in the cities is not banished.

If we look back a little more than 100 years, we recognize that just in the 20<sup>th</sup> century, professional fire brigades founded in most major cities due to the increasing fire risks. Many cities cover fire safety with volunteer fire brigades. Some cities develop a hybrid system – volunteers and professional fire brigades. There are so many practical solutions to tame the problem of fire hazards. Historical experiences, cultural backgrounds, and other circumstances have led to a diverse landscape of extinguishing institutions today. There are so many practical solutions to tame the problem of fire hazards. Historical experiences, cultural backgrounds, and other circumstances have led to today's very diverse landscape of firefighting institutions. No matter how big or small the organizational differences are, all these systems have one thing in common: saving lives, protecting assets, and protecting the environment from the consequences of fires. To put it bluntly, the growing complexity of urban infrastructure is never why firefighters lose their lives during firefighting! It is essential to sensitize the attention to the dangers of cancer risk of firefighters through fire.

The book shows how the fire risks developed in the period from 1900 to the present. For this purpose, the data from 100 large cities compiled and analyzed. The first time in history that 100 cities, represented by their professional fire brigades, are jointly considering the problem of fire risks. Methodologically, the book project relies on the definitions developed by the Center of Fire Statistics of CTIF. This method has been used since 1995 and has proven itself many times over because of its simplicity and universality.

Since each city brings its data on the fire risks for comparison in the project and presents the history of the town and its fire department, the book moreover fulfills other functions. The aim is to support and promote friendly relations between the cities and their brave firefighters because we all live in a shared world.

#### 4. How statistics in the book will be verified or checked for accuracy

The comparison of the statistical data for the determination of the fire risks follows a uniform methodology. It has been a tried and tested method for over 25 years. The starting data comes from the respective participating cities. The statistics should be provided primarily by the fire brigades and not by non-experts. For the compilation of the statistical data, a uniform instruction was sent to all cities. The definitions for each parameter also follow the experience of the CTIF.

#### 5. Timeline for the book project: The year 2023 is the target

One hundred cities from the whole World invited. Each city gets the opportunity to process the data within the next 2-3 months and then send us. The Center for Fire Statistics of CTIF processes the data and compiles the results into uniformly structured tables. We send these tables to all participating fire brigades. These asked to check and correct if necessary. Questions are always welcome, and will answer. This process will last about 3-4 months.

Then the text about the history of the city or the fire department incorporated into the project. Then the proofreading and the linguistic adaptation of the book chapters take place. Then we send the jointly developed questionnaires to all cities. The results incorporated into the project in 1-2 months. Finally, we ask some cities or organizations to write forewords. All in all, all work should completed after two years.

Purely computationally results in a processing time of 1 week per city:  $104 \text{ weeks} / 100 \text{ cities} = \text{one week}$ . Some cities will be able to provide the data very quickly. Other cities certainly need more time. Since many processes run parallel, the total duration of the project of 2 years seems realistic to us.

The whole project is new; there are no comparable experiences. But we believe that the amount of work for each city is manageable. We are happy to learn something about your position on this. We always remain optimistic!

#### 6. Editorial team of the project

Team members are:

Mr. Sergei Sokolov, Professor PhD., Engineer of Fire Safety and Fire Protection. Since 1995 working in the Center of Fire Brigade Statistics of the CTIF. Mr. Sokolov is a World-leading expert in the field of computer simulation systems for mid-term and long-term master planning in fire and rescue services.

Mr. Nikolay Bruschlinsky, Professor, Ph.D., is a professional mathematician, a primary developer of fire department statistics and applied math's fire safety. He is considered the founder of modern fire brigades

and fire statistics in strong cooperation with CTIF. He is an outstanding Fire Scientist in the field of scientific organization of the international fire services. The worldwide well-known expert is an exclusive advisor of the German Fire Protection Association.

Mr. Peter Wagner, PhD. in Fire Engineering, Engineer of Fire Safety and Fire Protection, started his career as a firefighter in 1982 and worked after higher education study as a shift officer and station officer in the Berlin Fire Brigade. For several years, he worked in the Operations Department, the Operations Control Center, to develop master plans for the Fire Department. Now Peter is the specialist for the teaching of leadership at the Berlin Fire and Rescue Academy. He is an international expert in CTIF (International Fire and Rescue Association), EFSCA (European Fire School Colleges Association), and GFPA (German Fire Protection Association).

Please do not hesitate to ask us questions.

We apologize for not very good English.

Yours sincerely

Ltn. Col. Dr. Peter Wagner

Center of Fire Statistics of CTIF

Berlin Fire Brigade

[drpeterwagner@freenet.de](mailto:drpeterwagner@freenet.de)

+49 175 5935258

## 7. Scope of work

The scope of work for each city is described in the section below.

1

3

2

5

4

The chapter for each city should have a similar structure:

1. Text block about the history of the City and History of the Fire Department (text may be separated or merge as one text block, for illustration the following figures may be added: "Historical Map", "Historical Fire Station", "Historical Fire Vehicle" and "Historical Fire")
2. Table "Notable Fires" (please select significant examples)
3. Basic data as an illustration: Graphic" Population in 1000000", Graphic" Fires in 1000", Graphic" Fires deaths", Graphic" City surface in sq.km", Graphic" Population density", Graphic" Fire Damage in 1000000" with short comments
4. Table "Fire Risks" with short comments
5. Fire Risks as Graphic" R1", Graphic" R2", Graphic" R3", Graphic" R4" with short comments

## 8. Description of "Data-Sheet-File"

The following minimum data required for the idea of describing the development of fire risks:

- Column B: **Number of inhabitants** (\*) relative to the respective urban area.
- Column L "**Sum of fires**" (\*): The sum of all fires from columns G-K. The value is calculated automatically with a stored formula. If the numbers for the columns G-K are not available, the total number of fires must be entered manually (\*).
- Column S "**Fire Deaths, total**" (\*): Number of dead to be complained of in fires. It is known that in some states, different definitions exist (dead at the scene of the fire, deaths including those who later died in hospitals, etc.). Therefore, if necessary, the description used in the FD must be reported.

These three parameters are needed to calculate the fire risks:

- Risk R1 "Risk for a person to directly exposed to the dangerous factors of a fire within a certain time interval."
- Risk R2 "Risk of a person losing his life as a victim in a fire"
- Risk R3 "Risk of a person losing his life through a fire within a certain time interval."

All other parameters are explanatory: how big are the fires? In which objects does it burn frequently? What are the causes of the fire? What infrastructure does the city administration provide for successful firefighting (number of fire stations, vehicles, and personnel as well as budget)?

It is not our intention that the FD will now be in a shock situation - so much data - so much work with this data to procure it. All FD have plenty of time to find the data without time pressure, prepare it, and insert it into the table we have suggested.

Let's give an example: For 100 cities in Germany, we have carried out precisely this procedure. For this, we have written letters to the FD of the towns for help. The FD has often answered they are overwhelmed, there is no data available, or they do not understand the meaning of this work. We have shown that there are reliable historical sources: annual reports of the professional fire brigades (thesis exist in Germany for more than 100 years), statistical yearbooks of the cities, and administrative reports of the towns for the last century. Another example: from a distance, I can see the City Library Toronto's catalogs: all just above annual reports of the fire department and the city reports are available there. However, I cannot see any data because the books are only locally known. So I would have to travel to this city. Although this is a beautiful idea, I have incidentally in my hometown every day to serve in the Berlin Fire Department. Ultimately, the concept of the project is to bring together 100 votes from 100 cities worldwide!