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Study of Insurance Economics

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# 27

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## World Fire Statistics

Information Bulletin of the World Fire Statistics Centre

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## **Aims and Activities of the World Fire Statistics Centre**

The Centre's main objective is to persuade governments to adopt strategies aimed at reducing the cost of fire which, although running at around 1 per cent of GDP in most advanced countries, has generally received much less attention than the cost of crime or of road accidents. In pursuit of this objective, the Centre collects statistics on national fire costs from some 20 leading countries, upon which it reports annually to a United Nations Committee.

Apart from undertaking an annual questionnaire enquiry among national correspondents in participating countries, the Centre also makes use of relevant data published by the World Health Organization in respect of its annual causes of death enquiry, in which many of its member countries take part.

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### **The Geneva Association Newsletter—World Fire Statistics, No. 27, October 2011 Information Bulletin of the World Fire Statistics Centre**

This newsletter from the World Fire Statistics Centre appears annually. It presents statistics on national fire costs from around 20 leading countries in an effort to persuade governments to adopt strategies aimed at reducing the cost of fire.

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## I. EDITORIAL: FIRE AS VULNERABILITY (II)—CHANGING THE FACE OF WORLD FIRE STATISTICS

By Brian Woodrow\*

Last year, as I first took over responsibility for the World Fire Statistics Centre (WFSC), I used the opportunity of this lead editorial to comment generally on **the Changing Face** of World Fire Statistics. The main theme was that fire statistics in our 21<sup>st</sup> century world must be viewed more broadly than in the past through the wide-angle lens of “Fire as Vulnerability”, in addition to the longstanding but narrower emphasis on collecting and disseminating data on fire deaths, injuries and damage to structures and property, particularly in the urban environment. This year, I want to continue the same core theme of “Fire as Vulnerability” but, as we move into the second decade of the 21<sup>st</sup> century, shift the emphasis slightly to that of **Changing the Face** of World Fire Statistics. It is a subtle shift but an important one—what can we do in new or different ways to better understand and communicate our common interest in the phenomenon of fire?

Uncontrolled fire and/or the threat thereof, whether naturally occurring or as the result of human activity, remains a constant but changing feature of our 21<sup>st</sup> century world. This is so in spite of—and sometimes even because of—the many technological changes and changing patterns of human activity now affecting us in an urban and global context. One is continually struck by the many instances in modern life when we confront the different faces of fire: the residential fire which affects lives and property in our communities; the commercial or industrial fire which destroys buildings and disrupts business activity; the wildfires which start in grassland and forest and, under certain climatic conditions, can consume structures and property in urban and semi-urban areas; and, as was particularly evident during 2010, the fires which are attendant upon many of the major natural disasters which increasingly affect our 21<sup>st</sup> century world.

The traditional model for measuring uncontrolled fire occurrence has been to categorise and cost these various incidences of fire and to collect data in terms of annual fire incidence and estimated fire losses, insured and uninsured; deaths and injuries attributed to fire as their cause; government and to a lesser extent private sector budgets for fire protection services and prevention; numbers of professional and volunteer fire services personnel employed; and imputed cost of structure and property protected against uncontrolled fire. This is the approach which the World Fire Statistics Centre has pioneered and has followed since its inception in 1978—and will continue to utilise in the years to come. It is also broadly similar to the approaches followed by the major national fire protection, insurance industry bodies, and country and international health authorities which report on fire statistics in most of the countries for which the WFSC currently assembles data.

Nevertheless, our 21<sup>st</sup> century world needs to understand and evaluate uncontrolled fire occurrence within a broader and more dynamic context. “Fire as Vulnerability” views the incidence and occurrence of fire as a vector of vulnerability which runs throughout our increasingly urbanised world and is amplified and enhanced by the processes of globalisation and environmental change currently underway. Fire may not itself be the most damaging or destructive force affecting our lives, but it is a continual threat at some level and, where that level is elevated or the particular threat acute, actions to deal with the conditions which lead to significant fire occurrence may well be warranted. An essential first step is to collect and collate relevant and reputable national statistics on fire occurrence which takes into account the varied ways that uncontrolled fire affects our 21<sup>st</sup> century world. Then, the four common steps in risk management and disaster reduction—preparedness, prevention, response, and recovery—can all be adapted to deal with our varied fire vulnerabilities.

The WFSC faces three main tasks as we move forward: modernising the way we collect and analyse our data, making sure that the statistics we collect and disseminate remain reliable and relevant in light of changing times and conditions, and expanding the national coverage of our statistics so as to present a truly global picture. In our new Notes and Commentaries Section which follows the presentation of our annual statistics, Michael Szlawieniec-Haw who now ably assists with WFSC work, reports on the steps taken over the past year or so to modernise the way that the WFSC conducts its operations. I would point in particular to the way that all inputs for data collection, adjustments to the

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collected data, and historical statistics have all been digitised, allowing the Centre to maintain a fully electronic WFSC database going forward. Efforts are also underway to review and possibly expand the types of fire data we currently collect, particularly with regard to insured losses, fire services administration, and public/private fire protection activities, in addition to our commitment to expand the WFSC database to take better account of forest/wildfires and fire attendant upon other natural disasters. One first step in this direction is to send out a “Questionnaire on the Questionnaire” to each of our current national correspondents as a way of gauging the need for changes going forward; in addition, we are now preparing a small advisory meeting on data needs and requirements for world fire statistics which we hope to hold in mid 2012.

Just as important is the need to make sure that the data we collect and the statistics we produce are both relevant as well as reliable. Since the 1990s, wildland fires of various sorts and sizes have become increasingly prominent in a swath of countries around the world and each year we read of one country or other facing severe wildfires. These fires typically start in forest or scrub lands but soon infringe upon the urban and semi-urban areas where concentrations of people live and where houses and property are damaged or destroyed. Likewise, fire is also often attendant upon other natural disasters as is the case when fire follows earthquakes or volcanic eruptions, or breaks out in the wake of prolonged excessive heat or even as a result of flooding which sparks electrical fires. Fire is a vector for vulnerabilities which may be triggered by a range of extreme events and natural disasters, large and small. Our brief commentary which follows on fire statistics in the Russian wildfires of 2010 is a case in point. And lastly, it is important to keep in mind that, despite modern fire protection and preparedness, the increasing concentrations of population in ‘megacities’ create the conditions—inherent, circumstantial and contingent—under which large urban fires can occur with significant potential costs and consequences. The WFSC must seek to encompass and respond to these evolving trends affecting our 21<sup>st</sup> century world.

The WFSC’s third and most immediate task is to expand the number of countries for which national fire statistics are collected and reported. It is a striking fact that the governments of many countries do not themselves collect systematic data on fire occurrence within their country and that often only partial information from multiple sources—fire protection services, insurance industry associations, national or international health authorities—is currently available. It is fitting testimony to the dedication and good work of our national correspondents that we have the world fire statistics presented in the tables which follow. However, we urgently need to recruit national correspondents in a range of additional countries from all parts of the world who can contribute to the WFSC database. In another commentary which follows, I report on recent efforts to bring Portugal and Spain into the WFSC database and to profile the fire situation in those two countries. The WFSC is stepping up its efforts to recruit volunteers in selected countries around the world and would be pleased to receive enquiries from individuals or organisations which might be interested in taking on responsibility for reporting data on their country. At the same time of course, the WFSC wishes sincerely to thank our current national correspondents for their invaluable contribution to our ongoing work and to encourage them to continue their participation.

\* \* \* \* \*

### **Call for Submissions**

In preparation for a meeting on Data Needs and Requirements in World Fire Statistics, the WFSC invites submissions and expressions of interest on the changing nature of world fire statistics in the 21<sup>st</sup> century. The date and location for this meeting, to be held in Spring/Summer of 2012, will be published at a later date.

Please send any enquiries or communication to the WFSC at [woodrow@wfsc.info](mailto:woodrow@wfsc.info).

## II. UNITED NATIONS ANNUAL REPORT ENDORSED

The Centre presented its annual report to the United Nations Economic Commission for Europe (UNECE) Committee on Housing and Land Management at the meeting in Geneva in October 2011.

In their session held in Geneva on 3-4 October 2011, the UNECE Committee expressed its interest in the Report, thanked the WFSC Staff, and the presenter, Mr. Tony Paish, invited the WFSC to submit a similar report to the Committee's next session, and encouraged countries which had not yet done so to participate in the study.

The following eight tables of fire cost comparisons are based on those which appeared in the report.

## III. COST OF DIRECT FIRE LOSSES—Table 1

Table 1

Adjusted direct losses (in millions, except for Japan—billions)

Country	Currency	Direct losses			Cost as percentage of GDP 2006-2008
		2006	2007	2008	
Singapore	S\$	125	110	110	0.05
Slovenia	SIT				0.07 [2002-2004]
Australia †	AU\$	860	885	990	0.08
Czech Republic	Kč	2,200	2,450	3,700	0.08
Spain ‡	€			910	0.08 [2008]
Poland	zł	750	920	1,450	0.09
New Zealand	NZ\$	165	180		0.11 [2005-2007]
United States	US\$	13,000	16,500	17,500	0.11
Japan	¥	625	600	605	0.12
Germany	€	3,300	2,950	2,850	0.13
United Kingdom	£	1,650	1,700	1,900	0.13
Netherlands	€	745	900	1,050	0.16
Finland	€	260	315	305	0.17
Italy	€	2,200	2,500	3,150	0.17
Sweden	kr	4,300	5,400	5,950	0.17
Denmark	kr	3,000	4,050		0.20 [2005-2007]
France	€	3,300	3,400	4,550	0.20
Norway	kr				0.22 [2003-2005]

† Australian data is calculated from figures provided in the *Report on Government Services 2011* and may be influenced by specific methodological features of that publication.

‡ Spanish figures rely upon internal WFSC estimates derived from Spanish insurance data and have not had adjustments applied; consequently, this data should be regarded with caution.

NOTE: Fire losses include explosion losses following fire, but exclude explosion losses where no fire occurs (for example, some acts of terrorism).

**IV. COST OF INDIRECT FIRE LOSSES—Table 2**

Table 2

Average percentage of GDP (2006-2008)

Country	Cost as percentage of GDP 2006-2008	
Norway	0.002	[2003-2005]
Czech Republic	0.005	[2000-2002]
Japan †	0.006	[2007-2008]
New Zealand	0.007	[2004]
United States	0.007	
Sweden	0.008	
Finland	0.010	
France	0.010	[2005-2007]
United Kingdom	0.010	
Italy	0.014	[1993-1994]
Germany	0.016	
Slovenia	0.021	[2002-2004]
Netherlands	0.027	[1995-1996]
Denmark	0.029	[1993-1995]

† The Japanese data does not take adjustments into account and should be compared to other figures cautiously.

NOTE: This table must be regarded with severe reservations—the figures are produced on widely varying bases and some differences appear too large for credibility.

**V. FIRE DEATHS—Tables 3 and 4**

Table 3

Fire deaths, adjusted figures

Country	Adjusted estimates (Fire Deaths)		
	2006	2007	2008
Australia	90	105	110
Austria	30	30	55
Czech Republic	150	135	150
Denmark	70	70	
Finland	125	95	110
France	620	605	595
Germany	510		
Greece	90	240	130
Hungary	180	175	190
Ireland	40	55	45
Italy	280	250	285
Japan	2,100	2,050	2,000
Netherlands	85	70	100
New Zealand	25	35	35
Norway	55	70	
Poland	605	600	585
Portugal	65	75	

Singapore	10	5	0
Slovenia	5	15	10
Spain	245	255	270
Sweden	90	110	130
Switzerland	30	15	
United Kingdom	515	465	475
United States	3,550	3,750	3,650

NOTE: Figures adjusted for deaths unknown to fire brigades or hospitals, and for rounding.

Table 4

### **Population comparisons for fire deaths (2006-2008)**

#### Deaths per 100,000 persons

Country	Deaths per 100,000 persons (2006-2008)
Singapore	0.11
Switzerland	0.30 [2006-2007]
Austria	0.46
Italy	0.46
Australia	0.48
Slovenia	0.50
Netherlands	0.52
Spain	0.58
Portugal	0.66 [2006-2007]
Germany	0.68 [2006]
New Zealand	0.75
United Kingdom	0.80
France	0.98
Ireland	1.09
Canada	1.15 [2000-2002]
Sweden	1.20
Belgium	1.21 [2004]
United States	1.21
Denmark	1.28 [2006-2007]
Norway	1.33 [2006-2007]
Greece	1.36
Czech Republic	1.41
Poland	1.56
Japan	1.62
Hungary	1.81
Finland	2.08

NOTE: Population figures derived from United Nations Department of Economic and Social Affairs, Population Division website.

**VI. COST OF FIRE-FIGHTING ORGANISATIONS—Table 5**

Table 5

Average percentage of GDP (2006-2008)

Country	Cost as percentage of GDP 2006-2008
Singapore	0.03
Slovenia	0.05 [2002-2004]
Denmark	0.07 [2006-2007]
Norway	0.11 [2003-2005]
Hungary †	0.13 [2007-2008]
Sweden	0.13
Australia	0.16
New Zealand	0.16
Poland	0.16
Netherlands	0.19
Portugal †	0.19
Finland ‡	0.20
United Kingdom	0.21
United States	0.27
Japan	0.30

† Figures for Hungary and Portugal do not take adjustments into account and should be compared cautiously.

‡ Excludes the cost of private fire brigades.

**VII. COST OF FIRE INSURANCE ADMINISTRATION—Table 6**

Table 6

Average percentage of GDP (2006-2008)

Country	Cost as percentage of GDP 2006-2008
Singapore	0.02
Finland	0.03
Germany	0.04 [2005-2007]
Italy	0.05
Sweden	0.05
Slovenia	0.06 [2002-2004]
France	0.07
New Zealand	0.08 [2004]
Denmark	0.09 [2005-2007]
Japan	0.09
Norway	0.10 [2003-2005]
United Kingdom	0.10
United States	0.12



**VIII. COST OF FIRE PROTECTION FOR BUILDINGS—Tables 7 and 8**

Table 7

Estimated cost of fire protection for buildings (millions, except for Japan—billions)

Country	Currency	Fire protection cost			Fire protection percentage * (2006-2008)
		2006	2007	2008	
Australia ±	AU\$	3,600			
Canada †	CA\$	4,650	5,000	5,200	3.9%
Czech Republic	Kč	6,050	6,950	6,600	3.0%
Denmark	kr	4,350	4,850		5% [2005-2007]
France ‡	€	3,200	3,400	3,300	2.5%
Italy ‡	€	5,250	5,300	5,350	4.0%
Japan †	¥	760	670	670	2.5%
Netherlands	€	1,600	1,750	1,900	3.0%
New Zealand	NZ\$	380	410	440	3% [2007]; 3.5% [2008]
Singapore	S\$	645	980	1,400	4.0%
Slovenia	SIT				2.5% [2005-2007]
Sweden	kr	5,550	6,150		2.5%
United Kingdom	£	2,900	3,150	3,300	2.5% [2006-2007]; 2.6% [2008]
United States	US\$	48,500	60,000	62,500	

± This Australian cost estimate, with its underlying methodology, is derived from The Total Cost of Fire in Australia.

† Figures derived from preliminary national statistics.

‡ Estimates are derived from internal WFSC calculations and reflect figures from previous years and, in the French case, preliminary 2009 data.

\* Estimated cost of building fire protection in relation to total national cost of building and construction.

Table 8

**Cost of fire protection for buildings**

Average percentage of GDP (2006-2008)

Country	Cost as percentage of GDP 2006-2008
Japan	0.14
Slovenia	0.16 [2002-2004]
France	0.18
Czech Republic	0.19
Sweden	0.19 [2006-2007]
United Kingdom	0.22
New Zealand	0.23
Denmark	0.26 [2005-2007]
Netherlands	0.31
Canada	0.32
Australia	0.35 [2006]
Italy	0.35
Norway	0.36 [2003-2005]
Singapore	0.39
United States	0.41

**IX. POINTS OF INTEREST FROM THE 2011 REPORT**

- Safety from fire is a consideration which seems often taken for granted when looking at new building developments or refurbishments, particularly where housing is concerned. The WFSC has expressed this problem using the term 'the banality of fire'. Fire should be, of course, far from banal to any society, thanks to both its economic and human costs. Costs due to losses from fire number in the tens of billions globally, and have been roughly estimated as approximately 1 per cent of global GDP per annum. For Europe as a whole, the annual toll of fire deaths is measured in many thousands, with those suffering fire injuries numbered at many times more. Ways of protecting inhabitants from these dangers therefore merit serious attention.
- In regard to direct losses due to fire, Singapore's good record reflects effective fire protection in a small, compact territory. The results of the Czech Republic and Poland probably reflect their relatively low levels of property valuations. Results for the U.S., Australia, Spain, and New Zealand also show up favourably. Scandinavian countries seem to suffer above-average fire losses, perhaps due to the harsh climate. The general trend with respect to the percentage of GDP calculations for direct losses is of stability, with most countries either experiencing a slight decrease in this figure or holding steady. The U.S., Finland, France, Netherlands and Poland are exceptions to this trend, as these countries saw minor increases in the percentage of GDP that direct fire losses represent.
- The indirect fire losses category remains an imprecise measurement of secondary and tertiary economic costs resulting from fire. This situation is likely to remain unchanged in any significant measure in the future due to the intrinsic inaccuracy in attempting to calculate these (frequently longer term) secondary and tertiary costs.
- Concerning human deaths due to fire, while Singapore again shows the lowest proportion of fire deaths, most countries have been experiencing an improving long-term trend. Interestingly, European Union Member States collectively have a higher average fire mortality rate than non-EU countries within this table. With respect to the number of deaths per 100,000 people, Western and Central European countries compare well against the average situation in Eastern Europe and central Asian/Eurasian countries. According to WFSC figures, derived from both internal research and WHO data, the range for Western and Central European countries from 2006-2008 was roughly 0.5 to 1.5 deaths per 100,000 people, while the average for a selection of 13 Eastern European and Eurasian states was approximately five deaths per 100,000 people.
- When examining the costs due to fire organisations, Singapore's low costs probably again reflect efficient coverage of a small, compact territory. The low Danish figures might reflect the success of the privately owned Falck fire services, which, as of 2010, is responsible for fire services in roughly 65 per cent of Danish municipalities (and is expanding globally), whose expenses are kept down by combining them with ambulance, road breakdown, and rescue services operating from the same buildings. High Japanese costs partly reflect their widespread fire prevention activities, which help to keep down Japan's property fire losses. The U.S.' high costs may be reflective of the large size of the country and major cities, requiring fire-fighting organisations to be both well-equipped and flexible as well as likely incurring additional administrative and oversight costs, rather than any particular inefficiency. Variance that occurs between similar countries' cost figures may be due to differing ratios of activity between public organisations and private or volunteer organisations.
- The figures for the costs of fire protection for buildings reflect the average costs across a country. The percentage costs for different types of buildings in different countries may vary dramatically, due to varying requirements for different types and sizes of buildings. In the United Kingdom, for example, the estimated fire protection costs varied from 1 per cent for housing to 7 per cent for hospitals and office buildings. In the United States, the figures vary from 2.5 per cent for housing to 12 per cent for private non-residential structures. The Canadian variance is from 2 per cent for single homes to 13.2 per cent for high-rise apartments.

## X. NOTES AND COMMENTARIES

### 1. THE WFSC'S MODERNISATION AGENDA

*By Michael Szlawieniec-Haw\**

This past year has been a time of transition and modernisation for the WFSC. As the person involved in the technical aspects of this modernisation plan, I would like to outline the processes that the WFSC uses, the changes that the WFSC has already implemented, and some of those measures we are taking to obtain input that will be used to continue to improve that methodology in future.

In order to appreciate the modernisation plans that the WFSC is now pursuing, it may be helpful to learn more about the basic processes that the WFSC uses to collect and prepare information.

- Each autumn, the WFSC sends out its annual Questionnaire on Fire Statistics to national correspondents in different countries. This questionnaire contains a variety of questions seeking raw fire statistics and data that the WFSC uses as a base for later calculations, as well as recommendations for a variety of adjustments that might be made to the data to help address any gaps or specific characteristics that the raw figures do not necessarily address or express.
- The annual questionnaires are then returned to the WFSC and reviewed. National correspondents provide the best information to which they have access, but when necessary we follow up on any outstanding queries or questions about the data that may emerge. The completed questionnaires are archived for any possible future reference.
- The collated, adjusted, and reviewed sources of data are brought together. We review this assembled data for noteworthy or unusual changes from previous years' data, any striking patterns that emerge from the data, or aspects of the data we think require special attention in our supplementary report material.
- Coinciding with this process, the WFSC obtains other background information from specific international organisations that will be used in the report, including information that will be used to calculate comparative information in conjunction with national fire data. Any adjustments that have been provided, either by the correspondents or through the WFSC's historical records, are examined and applied where appropriate, calculations required to provide comparative data are performed, and the data is prepared in a version that will be used in the WFSC's Annual Report to the UNECE Committee on Housing and Land Management.
- The report to the UNECE Committee on Housing and Land Management that the WFSC presents each year is assembled and finalised, providing consistent tables of data covering a variety of categories over the most recent three year period as well as supplemental material which provides context and draws attention to key aspects and trends in the data. This newsletter on World Fire Statistics, which is issued separately and shortly after, presents the same data, though in somewhat different form, and includes additional editorial, commentary, and supplemental material.

The core work of the WFSC hinges upon the way in which we collect the information that ultimately appears in our reports and publications. Some of this information is generated by WFSC staff, but the vast majority of raw data comes from our national correspondents, volunteers who fill out our annual questionnaire. We would like to take this opportunity to publicly thank our correspondents and all our international contacts on behalf of the WFSC. Without the contributions of information from these individuals and organisations, the WFSC would not be able to produce the work it does and pursue its goal of improving the quality of global urban fire statistics.

As the first step in its modernisation programme, the WFSC has undertaken and completed efforts to digitise the historical copies of the reports it has made to the UNECE's Committee on Housing and Land Management. This has resulted in the creation of a 'WFSC Database' that includes the results of every report provided to the Committee by the WFSC since 1979. While it has proved a challenge to incorporate some of the more nuanced characteristics of the report in an electronic database form, this will allow for easier access to historical published data, not only for the purposes of review and response to external enquiries, but also for longer-term comparisons and study of the fire situation in a variety of countries.

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\* WFSC Research Assistant.

Second, the WFSC's yearly process of receiving and assembling the raw data supplied by correspondents now includes storing all aspects of the data, both raw data and the data treated with adjustments and calculations. This allows the WFSC to electronically reference this raw data and the corresponding calculations, together with the exact breakdown of each calculation used to generate report-level data. This is useful for any possible future reference and review after the publication of the annual report, answering questions from external sources, and in comparing and reviewing future detailed data from these countries to ascertain changing fire patterns and trends in the data that may not be reflected in the overall data included in the report to the Committee (but which manifest in the detailed breakdowns of adjustment and calculations applied to the raw data).

The WFSC is also making some key changes to the nature of the questionnaire that it sends to national correspondents. The format of the questionnaire has been revised and reconstructed to make it easier to fill out and submit electronically. It has been put into PDF format, so correspondents with Adobe Reader software can fill out and save it, and then return it by email to the WFSC. While preferable electronically compared to previous printed iterations of the WFSC questionnaire, this is still a temporary measure; the goal in the future is to create an online-based web questionnaire situated on the WFSC website, eliminating the need to email any distinct files.

New to the annual questionnaire this year is a section designed to obtain some basic information from national correspondents concerning forest fires and wildfires. Since this is a new avenue for the WFSC and due to possible organisational relationships, only certain basic information is being sought at this time. The WFSC's long-term intention is not to integrate pure forest fire data into its report, but rather to compile and disseminate information about the impact that forest fires and wildfires have upon urban structures and property, human life, and economic activity. In the future, the WFSC also intends to develop other aspects of its statistical base, including the issue of fires attendant upon other natural disasters and the linkage to climate change.

Finally, along with the annual questionnaire, the WFSC has included a survey entitled "Questionnaire About the Questionnaire". Its goal is to obtain national correspondents' views and assessments of the existing WFSC questionnaire. We are keen to give correspondents the opportunity to suggest changes or improvements to the WFSC Questionnaire that would make it more comprehensive, easier to fill out, and more relevant to the fire situation in that correspondent's country. The "Questionnaire About the Questionnaire" includes a variety of general and topic-specific questions that we will use to determine improvements that might be made to our methodological approach and as one input towards a future meeting on data needs and requirements for world fire statistics.

We at the WFSC are eager to hear back from all those interested in our work, especially our correspondents, and look forward to any assistance they can provide with our ongoing modernisation programme. We look forward to continuing to address the need for fire statistics in urban settings into the future. Our objective over the coming year is to continue our review of WFSC's internal processes and methodology, and to solicit feedback to determine how we can better determine, obtain, and produce relevant data. Over the longer term, it is our intention to capitalise on the benefits and efficiencies that modernising the work of the WFSC will present, as we continue to seek new correspondents in new territories around the world.

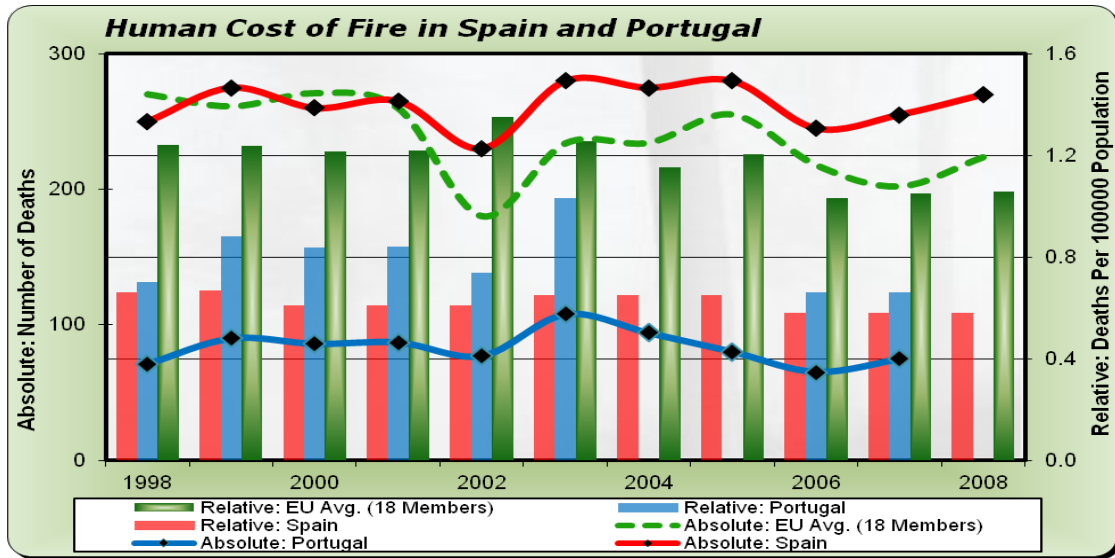
## **2. WFSC EXTENDS ITS COVERAGE OF WORLD FIRE STATISTICS TO INCLUDE PORTUGAL AND SPAIN**

*By Brian Woodrow*

The World Fire Statistics Centre (WFSC) currently includes roughly 20 countries in its coverage of world fire statistics. Long-term data is generally available on major developed countries, including many European countries, as well as a few smaller and developing countries. The WFSC is always interested in adding to the number of countries covered by its database. Spain and Portugal have until now not been included in the WFSC database but, as a result of renewed efforts over the past couple of years, that deficiency is now being remedied.

Spain and Portugal—quite different between themselves in size of territory and population but sharing much the same land mass and environmental conditions—offer interesting comparative perspectives on fire statistics and the overall fire situation in the Iberian Peninsula. Raw fire statistics are now available for both countries and for most of the categories on which the WFSC collects data, and efforts are underway to improve the quality of that data. Spain and Portugal now rank comfortably among the middle rank of countries covered by WFSC data in terms of deaths attributable to fire, with Spain well

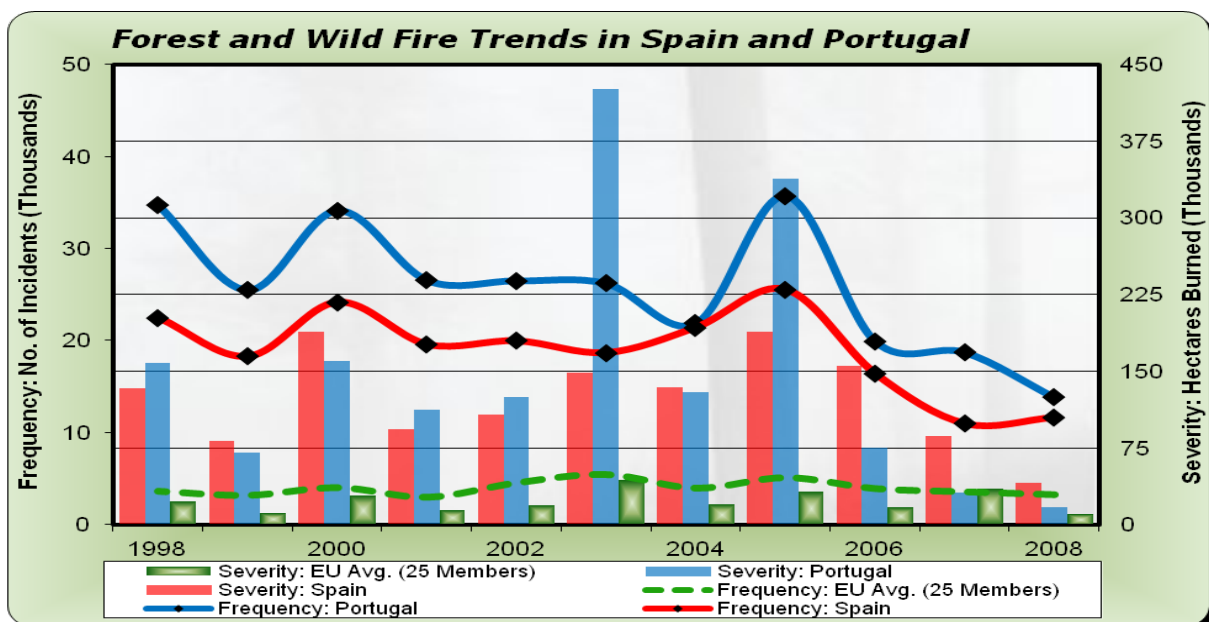
below and Portugal just slightly above the EU average. Direct fire losses, as collected by the two national insurance associations—UNESPA and APS—have generally been on the decline over the past two decades, despite years where single events may have caused insured losses and/or deaths to spike. In both countries, and in line with European Union directives, fire protection capabilities, whether measured by the size and technical sophistication of fire brigades or the ongoing costs of maintaining them, have increased over the same period.



Source: WFSC Annual Reports to UNECE, various years.

As always, broad statistics alone do not tell the full story. Whereas Spain and Portugal have substantially improved their performance, the fire situation in both countries remains serious and changing. Interviews with fire protection, insurance industry, and government officials over the past 18 months indicate that factors largely outside the scope of the existing statistics are very much at work. Spain and Portugal each now have relatively well developed fire protection services in the larger urban centres—although both rely overwhelmingly on volunteer rather than professional fire-fighters in rural areas. Residential and commercial fire or multi-risk insurance coverage is widespread, estimated to cover up to 80 per cent of households and businesses in the case of Spain and more than 50 per cent in Portugal. Industrial insurance against fire and other risks, however, remains more problematic and the two countries have pursued quite different ways of covering catastrophic events.

Since the late 1990s, both countries, but particularly Portugal, have experienced many years with an increasing incidence of wildfires during the hot and dry summer months and this has led many to speculate on the causes and consequences of this now widespread trend.



Source: WFSC internal database drawing upon a variety of European, national, UN sources and publications, including Spanish and EU government statistics databases, UNECE Timber Committee publications, the FAO's "Global Forest Resources Assessment 2005", and the European Commission's "Forest Fires in Europe 2008" report.

The increasing incidence of wildfires has drawn particular attention. Forest fires have long been treated separately from fires in urban areas, and statistics on forest fires—which have not previously been collected directly within the WFSC database—are typically represented in terms of numbers of incidents and hectares of forest burned rather than in terms of economic losses. As one interviewee explained, since forests are often in public rather than private hands, only when an insured structure is damaged or destroyed, or deaths or injuries occur, can a claim be made, as the cost of insuring forested land against fire would be prohibitive. Nevertheless, wildfires are an increasingly prevalent natural disaster in many countries around the globe and, as the wildfire-urban interface becomes more extensive, more attention needs to be directed to their incidence, scope, and economic importance. As well, increasing incidence of wildfires in many countries worldwide is factored in as one of the prime types of “extreme event” which models of climate change predict as possibilities for the years ahead.

Overall and in comparison to Spain, Portugal has a particularly significant fire vulnerability because of its extensive forested areas in the north and central area, in addition to the normal residential/industrial and wildland/urban fire problems of its urban areas (roughly six million of its ten million population live in or around Portugal's four largest cities). Forest/wildfires constitute a major problem in Portugal with significant events in 2003 in the south central region and in 2008 and 2009 in the north. Roughly half of Portugal's forests are also in private hands with two large companies owning and managing them, and responsible for fire protection and safety (and drawing extensively on resources and expertise from Chile where the high season for fire is reversed). Agricultural crop insurance provides cover for only a small part of overall forest fire damages, but there is effectively no special fire cover for public forests or private forests (because the estimated risk premium at 4 per cent of value insured would be much too high).

Finally, the Spanish fire situation is particularly instructive in light of the unique role played by the *Consortio de Compensación de Seguros*. This body was established initially after the Spanish Civil War to deal with claims for compensation arising from war damages, but evolved to take on other functions including insurance solvency regulation, motor insurance, export credit insurance, and, most interestingly, dealing with claims arising out of natural and civil catastrophes. The *Consortio* operates as a public entity established under Spanish law to deal with prescribed risks, but with partial funding from and close relations with the private insurance industry in Spain. Specifically, a small charge is made against all Spanish property and casualty insurance premiums and is directed to the *Consortio*. It does not deal with fires in the normal sense, leaving those to be covered by private insurers, but becomes involved only in cases of natural catastrophe or terrorism. Thus, it was the *Consortio* which covered most of the losses from events such as the bombings/fires of *El Corte Ingles* stores in Barcelona and Zaragoza, the Atocha Station terrorist attacks in 2004, and the Madrid Airport bombing in 2006. It also has covered major natural disasters, including a number of major floods over the years and recent windstorms affecting Northern Spain.

The *Consortio* only becomes involved when specific provisions in its statute are breached and then draws upon its substantial pool of money accumulated from small charges on insurance premiums—effectively serving as a buffer between private insurers and the ultimate risk manager role of the Spanish state. The *Consortio* does also have an underlying concept of vulnerability in the way it assesses and mitigates different types of natural and civil catastrophes. It undertakes its own mapping which sets out different levels of vulnerability by type of risk and by region. Flood dangers and windstorm damages currently account for the largest losses covered by the *Consortio*, but there is much concern that the “Big One” might be a major seismic event around Malaga and Granada. Overall, however, Spain is viewed as having only a middle level of vulnerability when compared to Portugal and other countries, and fires—whether residential/commercial/industrial or on the form of forest/wildfires—are not viewed as constituting more than a normal danger.

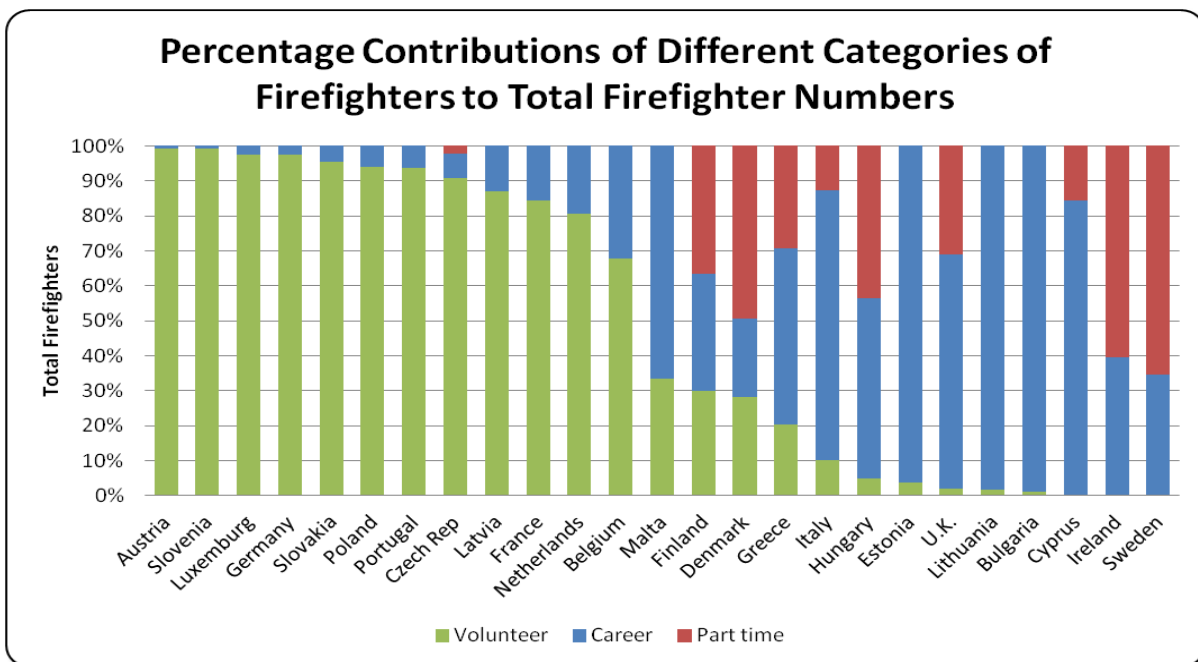
### **3. A CAUTIONARY NOTE ON COMPARATIVE WORLD FIRE STATISTICS, AND SPECIFICALLY THE CASE OF THE RUSSIAN WILDFIRES OF 2010**

*By Brian Woodrow*

In an column published consecutively in the January and February issues of the British magazine *FIRE*, the highly-respected Dennis Davis—after a distinguished career in the U.K. fire services, and

now currently President of the Federation of British Fire Organisations (FOBFO) as well as Europe representative for International Association of Fire and Rescue Service (CTIF)—drew attention to the difficult challenge of using world fire statistics to situate any one country with regard to others in terms of how key comparative measures should be interpreted. As the WFSC knows well, the paucity and unevenness of country reporting of world fire statistics combined with the weakness of systematic data collection procedures has long been a glaring problem, to the point that no European-wide—let alone more global—set of national fire statistics currently exists. The WFSC database holds relatively consistent long-term data only for certain major countries—the U.S., Japan, selected European Union countries large and smaller, as well as a few other countries worldwide—and the prescribed categories of data collected are quite limited and incomplete.

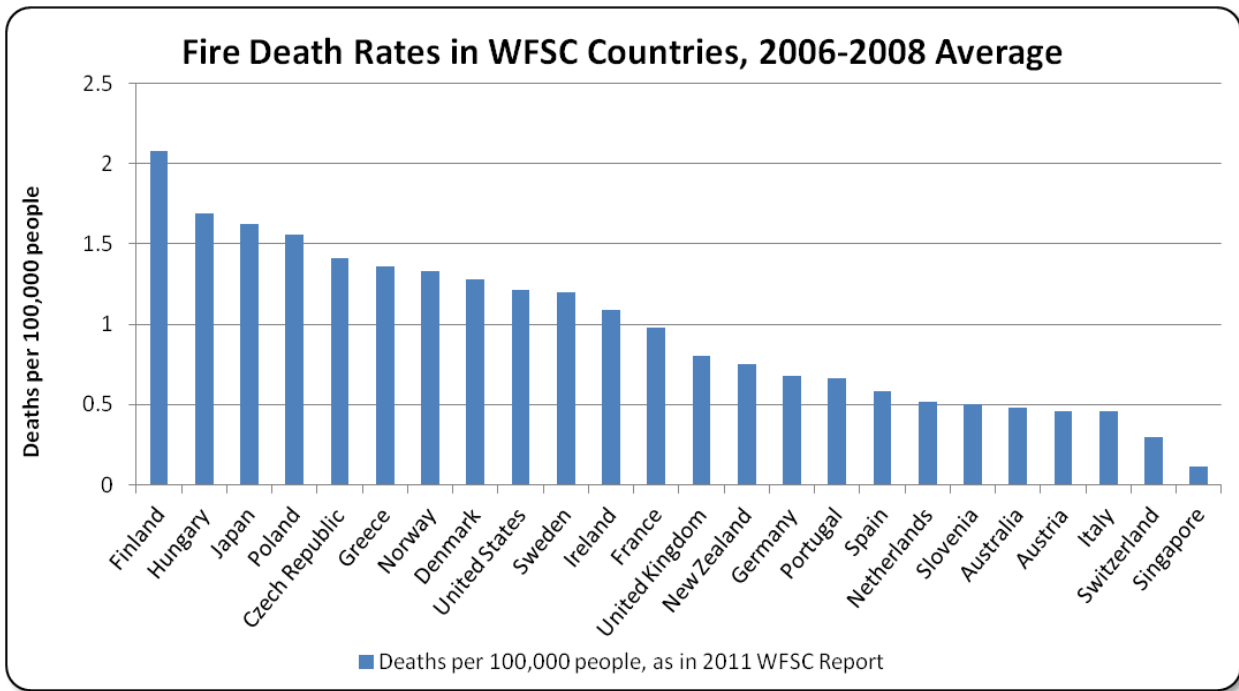
Dennis Davis highlights these deficiencies by focusing on the differing proportion of volunteer versus career firefighters across European countries. This is a most relevant statistic—one which the WFSC does not systematically collect—which he finds to vary considerably among the EU countries for which he could find data. He reports that there are more than 2.7 million firefighters across EU countries, 85 per cent of whom are volunteers, but the proportion of volunteer-to-career firefighters varies widely among different countries. Countries like Germany, Austria, Portugal, or France rely more on volunteer firefighters, while Sweden, Ireland, or the United Kingdom depend overwhelmingly on career firefighters. Moreover, these are statistics which need to be interpreted carefully, both in technical as well as cultural terms, since the role of volunteer fire brigades and even that of part-time firefighters can be quite different in one country which is highly urbanised and with a tradition of strong public sector unions as opposed to another with stronger rural traditions and less extensive public services. In this regard, David Dennis urges an appropriate note of caution and “an overt and explicit warning” about drawing conclusions from comparisons on this matter even among the 27 EU Member States.



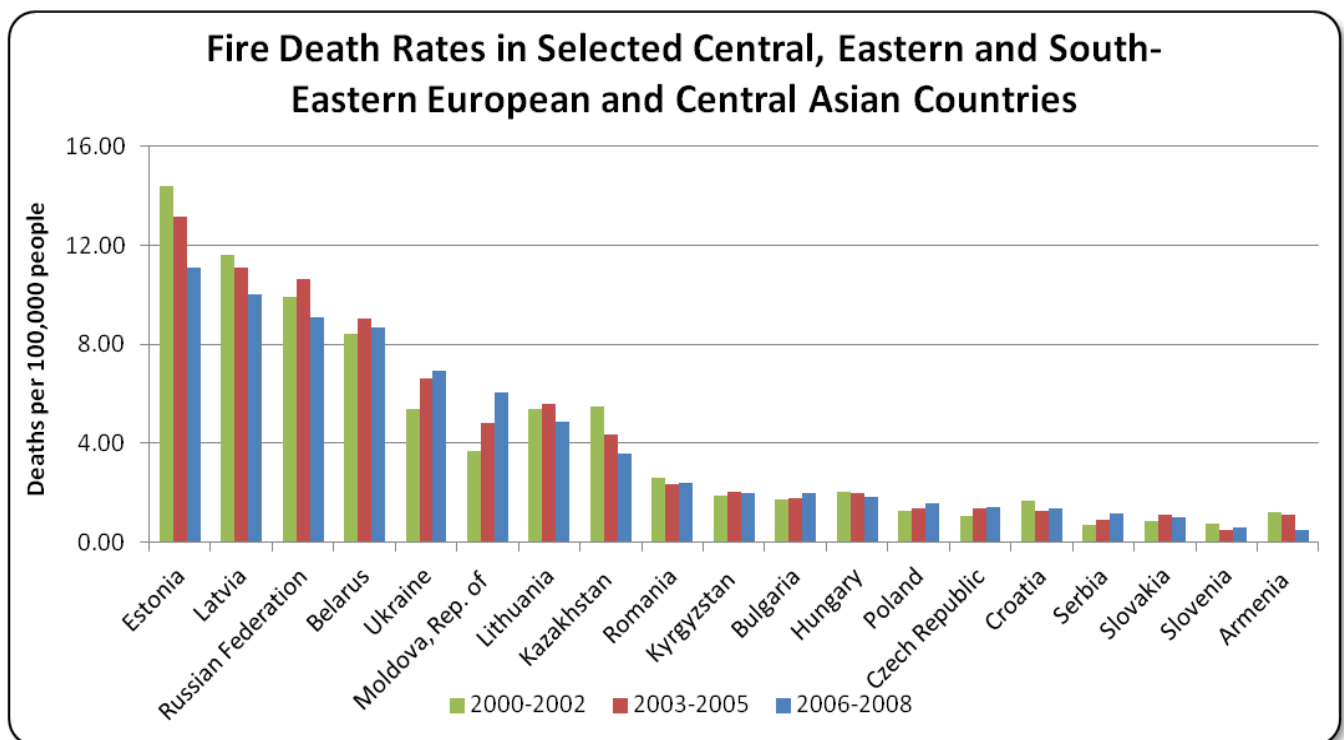
NOTE: Graph is based on tables presented in Dennis Davis’ column “Our Place in Europe”, in *FIRE*, February 2010.

Another prominent example of variance, and its attendant difficulties of interpretation, is with regard to the interpretation of fire deaths. What actually constitutes a “death from fire”? If the death occurs well after the fire event or much later from secondary effects should it still be classified as a fire death? What if fire is only one part of a broader disaster event? These are issues which are not always made clear. In any case, from national reporting as well as based on World Health Organization (WHO) data, the WFSC has long reported—and continues to report in Tables 3 and 4 of this information bulletin—considerably higher death rates from fires of all types in countries such as the United States, Japan or Finland while other countries within the WFSC database like Switzerland, the Netherlands, Singapore or even Australia report consistently lower per capita fire deaths up to 2008. There are of course many complicated factors which would need to be examined to determine conclusively the major causes for this variance: different patterns of urbanisation and land-use planning, differences in building construction and materials used, different approaches to tolerance for social regulation, or even the

mere happenstance of Australia's disastrous wildfires which killed approximately 200 people and occurred in early 2009.



One particular set of regions—Central, Eastern, and South Eastern Europe and Central Asia—has drawn attention for particularly high fire death rates in some countries, well above the EU and the world average as well. In recent years, the WFSC has provided special treatment of fire death rates in these Eurasian countries as an appendix to its Annual Report to the UNECE.



NOTE: Graph excludes countries for which no or limited data was available for 2006-2008. Population figures derived from United Nations Department of Economic and Social Affairs, Population Division website. Mortality figures drawn from WHO data. Calculations incorporate internal WFSC adjustments to compensate for under-reporting.

The 2011 Annual Report continues to show stubbornly high fire death rates in Russia and Ukraine, Belarus and Moldova, and the Baltic States (which although still very high are declining). By comparison, several Central and South Eastern European countries are much closer to EU and world levels. Many different reasons could be advanced for this high variance, from inadequate fire protection



services to poor building construction and maintenance, to high levels of cigarette and alcohol consumption. More detailed national reporting and more sophisticated data analysis would be required to be able to delve into the complicated set of factors involved for any satisfactory explanation. Levels of economic development—and particularly the levels of fire protection infrastructure, equipment and services—remain at a lower level in many of these countries compared to those in Western/Central Europe. Another noticeable point of difference between these countries and those of Western/Central Europe is that some of the Eastern and Eurasian countries are not members of the European Union, and thus have not benefited from the possible advisory benefits/regulatory harmonisation that EU membership might provide in regard to fire protection both in the response (fire organisations for example) and prevention (such as building regulations) fields. For those Eastern European countries where death rates from fire are high, and specifically in the case of Russia, what is clear is that their normal conditions of life seem to engender a vulnerability to deaths from fire which is elevated and particularly serious.

Western Russia was struck by extensive wildfires in 2010. Over the summer period, wildfires ravaged large areas of agriculture and wildlands in western Russia, destroying forests, crops and building structures, generating extensive smoke and air pollution in urban and semi-urban area, and were exacerbated by excessive high temperatures and minimal rainfall. In September 2010, Dr Johann Goldammer—Max Planck Professor of Chemistry at the University of Freiburg and Director of its Global Fire Monitoring Centre—presented a preliminary assessment of the fire situation to the Russian Parliament, stressing the extraordinary conditions which brought about these extensive and devastating wildfires. Others have pointed as well to shortcomings in the ability of the government and fire services to manage this very difficult situation. It has been widely reported from official Russian sources that some 56,000 people died as a result of these Russian wildfires in 2010. These extensive and prolonged wildfires, and the extreme conditions of smoke and air pollution, as well as high temperatures attendant upon them, were indeed a “national” as well as a “natural disaster” of major proportions, although, as Dr Goldammer points out, the evidence suggests that the initial fires were themselves not from natural causes like lightning but were either deliberately or accidentally set.

The startling figure of approximately 56,000 deaths attributed to the Russian wildfires has subsequently been widely reported and is now generally accepted in treating this event. Swiss Re, in its annual *sigma Report on Natural Disasters and Catastrophes in 2010*, listed the Russian wildfires and heatwave as the second deadliest disaster of the year after the earthquake in Haiti which claimed more than 200,000 lives. Similarly, Munich Re, as well as the *Annual World Disasters Report* published by the Centre for Research on the Epidemiology of Disasters (CRED) and which draws upon Munich Re data, reported the Russian wildfires as the major “climatological” disaster in 2010 and specified a figure of 55,736 people killed. It is important to understand that these high figures are based overwhelmingly on excess mortality statistics calculated by Russian health officials comparing reported deaths over the six week summer period in 2010 against previous years, and are attributable primarily to smoke and air pollution, as well as prolonged high temperatures in major Russian cities, rather than actual death from fire. Further analysis by Swiss Re and Munich Re, and recently confirmed by Dr Goldammer as well, indicate that only a much smaller number—perhaps 60 to 100 people—were actually deaths caused directly by fire from the wildfires themselves. It will indeed be interesting, when WHO figures are released in the next couple of years, to see how many fire deaths will be reported for Russia in 2010.

The Russian wildfires of 2010, then, were not so much a fire event, but rather primarily a climate event. Deaths from fire directly were only a small proportion of total deaths reported by the Russian Government and other sources. Two points can usefully be made with regard to the Russian wildfires: 1) world fire statistics need to take more careful account of fire associated with major natural disasters, whether climatological or of other types; and 2) in light of the likelihood that similar “megafires” are increasingly likely to occur, the causes of death attributable to fire need to be carefully recorded and reported more clearly. More generally, these observations hopefully lead to the conclusion that comparative world fire statistics—whether focused on the collection and collation of data about fire incidence and activities or its interpretation in specific cases—make a useful contribution.

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- Davis, D. (2010) “Our Place In Europe”, *FIRE*, February.  
Goldammer, J. (2010) *Preliminary Report on The Fire Situation In Western Russia*, 15 August.  
Swiss Re (2011) *Natural Disasters and Man-Made Catastrophes in 2010*, *sigma* Study, No. 1.  
CRED (2011) *Annual Disaster Review 2010*, Centre for Research on the Epidemiology of Disasters.

## XI. SELECTED RECENT AND UPCOMING CONFERENCES ABOUT FIRE

### 2011

9-11 May	Sun City	<b>5<sup>th</sup> International Wildland Fire Conference</b> , co-hosted and organised by UNISDR Regional Sub-Sahara Wildland Fire Network ("AfriFireNet") and the Forest Fire Association (FFA) Group
25 August	Atlanta	<b>The Institution of Fire Engineers Presents an International Forum</b> , organised by The Institution of Fire Engineers, United States of America Branch
10-11 October	Zurich	<b>Global Fire Service Leadership Summit</b> , organised by the International Association of Fire Chiefs
27-29 October	Denver	<b>4<sup>th</sup> Backyards &amp; Beyond Wildland Fire Education Conference</b> , organised by the National Fire Protection Association's Wildland Fire Operations Division
4 November	Regansdorf	<b>CTIF/SFV International Conference: Rescue organizations—career or hobby?</b> , organised by the International Association of Fire and Rescue Services (CTIF) and Swiss Firefighters Association (SFV)
14-17 November	Florida	<b>Exploring the Mega-fire Reality 2011: A Forest Ecology and Management Conference</b> , organised by Elsevier Ltd.

### 2012

8-10 February	Hong Kong	<b>Fire Asia 2012</b> , jointly organised by a number of fire and engineering related organisations in the Hong Kong Special Administrative Region
27-28 September	Chicago	<b>FIVE 2012 (Fires in Vehicles)</b> , organised by SP Technical Research Institute of Sweden and The Fire Protection Research Association
11-14 June	Las Vegas	<b>NFPA Conference &amp; Expo</b> , co-organised by the National Fire Protection Association, the NFPA Journal, and ROC Exhibitions
Spring/Summer tba	tba	<b>Data Needs and Requirements for World Fire Statistics</b> , organised by the World Fire Statistics Centre ( <i>see Call for Submissions, p. 4</i> )
Forthcoming tba	Abu Dhabi	<b>Fire &amp; Rescue Middle East 2012</b> , organised by Clarion Events Middle East, co-located with Counter Terror Arabia International Conference and Exhibition

## XII. SELECTED RECENT OR FORTHCOMING PUBLICATIONS ABOUT FIRE

Hall Jr., J. R. (2011) *The Total Cost of Fire in the United States*. National Fire Protection Association: United States of America.

"The total cost of fire in the United States, as it is defined, is a combination of the losses caused by fire and the money spent on fire prevention, protection and mitigation to prevent worse losses, by preventing them, containing them, detecting them quickly, and suppressing them effectively.

This report, part of an long ongoing series, calculates the total (both direct and indirect) economic and human costs of fire in the United States for the year 2008. A variety of information forms the basis of the calculations used to reach this figure, including insurance data, economic costs of fire departments, and costs for including fire protection in building construction.

Contact the NFPA at <http://www.nfpa.org/> to order *The Total Cost of Fire* for non-members; freely available to NFPA members.

Department for Communities and Local Government (2011). *Fire Futures Reports: Government response*. United Kingdom.

"The Fire Futures review has provided those working within the fire sector with an exceptional opportunity to influence thinking about the future. Contributors provided a wide range of ideas and proposals on behalf of the sector and participants included the fire safety industry, building control bodies, design specialists, architects, professional bodies, insurance, British Standards Institution, testing and research organisations."

This is the official response to a series of non-governmental papers, available from the same website, generated as part of the *Fire Futures* project, which had as a goal a strategic review of the English Fire and

Rescue Service and the creation of suggestions to meet the “emerging set of economic, social and physical challenges” that the Service faces “over the short and long terms.”

*Fire Futures* papers and the government response are available from the U.K. Department of Communities and Local Government website at <http://www.communities.gov.uk>, free of charge.

USDA Fire Service, Bureau of Land Management, Bureau of Indian Affairs, National Park Service, U.S. Fish and Wildlife Service, National Association of State Foresters (2009). *Quadrennial Review 2009 Final Report*. United States of America.

“This 2009 Quadrennial Fire Review (QFR) builds from its predecessor—the 2005 QFR—to advance a unified fire-management strategic vision for the five federal natural resource management agencies under the Departments of the Interior and Agriculture with the active participation of many of their partners in the larger fire community. The source idea for the QFR was the Defense Department’s Quadrennial Defense Review model, which for the past two decades, has served as a vehicle for the military to reexamine shifts in military strategy and changes in organizational tactics and capabilities. Similarly, the intention of the QFR is to examine the future environment of wildland fire and provide ‘projective thinking’ about potential shifts in mission, roles, responsibilities, and agency relationships while surveying new course directions for fire management.”

The *Quadrennial Review 2009 Final Report* is available from the National Interagency Fire Center website at <http://www.nifc.gov/>, free of charge.

Galey, G. and Kuhn, M. (2009) *Fire Insurance*. Swiss Reinsurance Company Ltd.: Switzerland.

“Pure fire insurance in the original sense is hardly used any more. The risks of fire and lightning, and the more recent additions of explosion and aircraft crash are still always included as basic hazards today. But other causes have become more prominent in assessing risks and in calculating capacity and premiums. These include major natural perils such as windstorms, floods and earthquakes, as well as the risk of terrorism which was implicitly included in the basic hazards but was long paid only scant attention. So-called ‘all risks’ insurance products have also been exerting pressure on fire insurance for many years now, both with simple risks and industrial risks. So why should the reader be concerned with the basics of fire insurance?”

This Swiss Re paper is explicitly targeted towards those involved directly or peripherally in the fire insurance underwriting industry. It outlines the basic principles and history of fire insurance, as well as the technical aspects underpinning the fire insurance industry and key aspects of fire protection that affect the industry. This publication includes a table listing large historical economic losses due to specific fire/explosion events; the WFSC’s future plans for next year’s bulletin will include a commentary focusing on this table and analysis.

*Fire Insurance* is available from the Swiss Re website at <http://www.swissre.com/>, free of charge.

Schmuck, G., San-Miguel-Ayanz, J., Camia, A., Durrant, T., Santos de Oliveira, S., Boca, R., Whitmore, C.J., Giovando, C., Liberta, G., Corti, P. and Schulte, E. (2011) *Forest Fires in Europe 2010*, European Commission Joint Research Centre’s Institute for Environment and Sustainability: Italy.

“Over the years, EFFIS [European Forest Fire Information System] has become a focal point for information on forest fires in Europe; it delivers data and information to support forest fire prevention, preparedness and fire fighting activities on a daily basis since 2000. ... The report is the 11th of the ‘Forest Fires in Europe’ report series. It provides a summary of the 2010 fire season following the usual structure, a first part containing individual country reports and a second part with EFFIS assessments. Summary statistical tables with historical fire data by country are given in the appendix.”

This report offers detailed information, including in-depth statistics, concerning fire dangers, fire incidents and losses, and preventative measures undertaken in regard to forest fires across more than 20 European and near-European countries. It also includes a selection of forest fire-related historical data for selected member states in an Annex.

The *Forest Fires in Europe 2010* report and prior reports in the series are available from the European Forest Fire Information System’s website at <http://effis.jrc.ec.europa.eu>, free of charge.

Bankoff, G., Lübken, U. and Sand, J. (eds.) (2012) *Flammable Cities: Urban Conflagration and the Making of the Modern World*. University of Wisconsin Press: Wisconsin. ISBN-10: 0299283844.

“In most cities today, fire has been reduced to a sporadic and isolated threat. But throughout history the constant risk of fire has left a deep and lasting imprint on almost every dimension of urban society. This volume, the first truly global study of urban conflagration, shows how fire has shaped cities throughout the modern world, from Europe to the imperial colonies, major trade entrepôts, and non-European capitals, right up to such present-day megacities as Lagos and Jakarta. Urban fire may hinder commerce or even spur it; it may break down or reinforce barriers of race, class, and ethnicity; it may serve as a pretext for state violence or provide an opportunity for displays of state benevolence. As this volume demonstrates, the many and varied attempts to master, marginalize, or manipulate fire can turn a natural and human hazard into a highly useful social and political tool.”

This book is forthcoming, and is scheduled to be published in January 2012.

<b>XIII. CONFERENCES ORGANISED AND / OR SPONSORED BY THE GENEVA ASSOCIATION</b>
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**2011****October**

4	Rome	<b>Italian AXA Forum, organised by AXA/MPS, ANIA and The Geneva Association</b>
7	Trieste	<b>9<sup>th</sup> Geneva Association Associates Meeting</b> , hosted by Generali Group ( <i>Associates only</i> )
18	Singapore	<b>3<sup>rd</sup> CR+I Seminar on “Interactions between the Private Sector and Asian Policymakers on Mitigation and Adaptation for Extreme Events and Climate Risk”</b> , organised with the Institute of Catastrophe Risk Management (ICRM) of NTU
27-28	Munich	<b>8<sup>th</sup> Annual Liability Regimes Conference</b> , hosted by Munich Re

**November**

14-15	Toronto	<b>8<sup>th</sup> Health &amp; Ageing Conference of The Geneva Association on “Insurance and Dementia”</b> , hosted by Sun Life Financial
16-17	Rüschlikon	<b>7<sup>th</sup> CRO Assembly on “The Path to Future Growth-Focusing on New Risk Horizons”</b> , jointly organised with Swiss Re and the CRO Forum
30	Geneva	<b>10<sup>th</sup> Geneva Association Associates Meeting</b> ( <i>Associates only</i> )

**December**

6	London	<b>1<sup>st</sup> Bancassurance CEO Roundtable of The Geneva Association</b> , hosted by HSBC ( <i>Bancassurance CEOs only</i> )
7-8	London	<b>8<sup>th</sup> International Insurance and Finance Seminar of The Geneva Association</b> , hosted by Aviva

**2012****January**

10	New York	<b>Joint Industry Forum for P&amp;C Insurance Industry</b> , co-sponsored by The Geneva Association
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**February**

23-24	Amsterdam	<b>14<sup>th</sup> Meeting of the Amsterdam Circle of Chief Economists</b> , hosted by ING ( <i>ACCE members only</i> )
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**March**

1	Zurich	<b>6<sup>th</sup> Meeting of Chief Investment Officers in Insurance</b> , hosted by Catlin Group ( <i>CIO members only</i> )
22	Geneva	<b>The Geneva Association/IAIS Executive Committee High-Level Meeting</b> ( <i>Board members only</i> ), hosted by The Geneva Association
22-23	Geneva	<b>28<sup>th</sup> PROGRES Seminar on Insurance Regulation and Supervision</b> , hosted by The Geneva Association

**April**

12-13	The Hague	<b>10<sup>th</sup> ART of CROs</b> , hosted by Aegon ( <i>CROs of member companies only</i> )
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**June**

6-9	Washington DC	<b>39<sup>th</sup> General Assembly of The Geneva Association</b> ( <i>members only</i> )
17-20	Rio de Janeiro	<b>The Geneva Association/IIS Research Award Partnership</b>