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EDITORIAL

Fire and Climate Risk

By The Geneva Association Staff

For several years now, the World Fire Statistics Centre (WFSC) has been moving beyond only collecting and disseminating data on fire deaths, injuries and damage (to structures and property), and embracing the wider view of "fire as a vulnerability". We wish in this sense to pay close attention to fires as they are associated with other natural disasters and view fire in the broader risk management and disaster mitigation perspective.

As you will see in the present bulletin, costs due to losses from fire are estimated at approximately 1 per cent of global GDP per year, with the death toll in Europe alone reaching several thousand. Fire safety cannot be taken for granted and therefore a national fire strategy must be part of any national risk management or disaster risk reduction strategy.

It is in fact of growing importance to enact measures that protect citizens and property from fire as well as from floods, earthquakes and other natural disasters, particularly with climate-related extreme events on the rise. Earthquakes and other disasters not only trigger fires in their wake, but the intensity, frequency and duration of wildfires are now considered to be directly influenced by global warming.

The bushfires that ravaged New South Wales, Australia, in October 2013 after record-high temperatures earlier in spring, prompted the statement in a CNN interview from Christina Figueres, the executive secretary of the United Nations Framework Convention on Climate Change (UNFCCC) quoted by *The Verge,* that global warming is "absolutely" linked to a recent spate of wildfires and heat waves.[1]

Wildfires are not only a result of a changing climate, however; they also emit greenhouse gases and therefore also contribute to global warming. Increased temperatures mean more fires, which will raise temperatures even further.

According to model predictions issued last year by the Harvard School of Engineering and Applied Sciences, "Wildfire seasons by 2050 will be three weeks longer, up to twice as

[1] Toor, A. (2013, 22 October) "Climate change is 'absolutely' linked to wildfires, says UN chief". *The Verge*. Available at www.theverge.com/2013/10/22/4865460/climate-change-linked-to-wildfires-heat-waves-united-nations-christiana-figueres

smoky and will burn a wider area in the western United States."[2]

The compilation of fire statistics, as well as their interpretation and dissemination, remains as essential as ever. They also constitute a basis for a call for action to encourage public–private partnerships in developing effective reduction and mitigation strategies. We continue to look to develop our relationships with new country fire services in order to increase the coverage and relevance of the World Fire Statistics Centre in the future.

Introduction

At its session of 24-26 September 2012, the United Nations Economic Commission for Europe Committee on Housing and Land Management received the World Fire Statistics Centre (WFSC) report on a Study of Fire Statistics, which covered the period 2007-2009, and confirmed its continuing interest in the study. The WFSC was invited to submit a similar updated report in 2013. The following tables of international fire cost comparisons are based on those which appeared in the report. They cover mainly the years 2008-2010, but tables 17 and 18, introduced in 2004, look at fire deaths in Eastern, Central and South Eastern Europe, and Central Asia over a nine-year period finishing in 2010.

General Remarks

For many years the Centre has published figures for national fire costs in around 20 countries. These estimates are relevant to the Committee's work on "Improvement of urban environmental performance", to the goal "to promote the sustainable development of human settlements in the ECE region" and, of course, to the new interest in "Building and construction safety". 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, due 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, as well as those from earthquake, flood and windstorm, therefore merit serious attention. The problem is particularly acute in a number of the transitional economies in the ECE region, and for this reason the WFSC has recently been producing a second annex which also shows population changes over the period, as these have a bearing on fire death rate trends.

Tables 17 and 18 show that, while some of the countries concerned have estimated fire death rates comparable with those in Western Europe (generally between 0.5 and 1.5 deaths annually per 100,000 population), many show significantly higher rates, with some—generally in the northern part of the region, perhaps in part reflecting increased heating risks—suffering rates as high as 5 or more per 100,000. As noted in last year's report, many countries have recently begun to show a gradual improvement, with the figures in this year's report continuing that trend. Nevertheless, a few countries have shown little or no improvement. Available evidence suggests that 70-90 per cent of fire deaths occur in domestic housing, and that the most effective way of minimising this toll is through better building fire protection, coupled with consumer education. To co-ordinate such efforts, action by governments is needed, which would include:

(i) collecting and publishing figures showing the extent of the national fire problem;

(ii) developing a considered national fire safety strategy.

The 2013 report deals with the responses of nine United Nations Economic Commission for Europe (UNECE) countries, namely: the Czech Republic, Denmark, Finland, Hungary, Italy, Netherlands, Sweden, the United Kingdom, and the United States of America[3], and some limited (mainly mortality) information from other countries. It also includes responses from Australia, Japan, New Zealand, Romania, and Singapore which, at the invitation of the World Fire Statistics Centre, volunteered to submit their figures. As returns had not been received

[2] www.seas.harvard.edu/news/2013/08/wildfires-projected-worsen-with-climate-change.

[3] The UNECE region covers more than 47 million square kilometres. Its member States include the countries of Europe, but also countries in North America (Canada and United States), Central Asia (Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan) and Western Asia (Israel). For more information on UNECE visit http://www.unece.org/oes/nutshell/region.html.

from Austria, Belgium, France, Germany, Greece, Norway, Poland, Slovenia, Spain, and Portugal at the time of preparing the report, their data mainly cover earlier years or are limited in scope for the current reporting period. All national responses are summarised in Tables 1-16.

The report covers statistics for 2008 to 2010. The international comparisons of fire costs in relation to gross domestic product (GDP) are (wherever possible) based on the average of these three years. The report covers seven key items: Direct fire losses; Indirect fire losses; Human fire losses; Fire fighting organisations; Fire insurance administration; Building fire protection costs; Forest and wildland fires.

The WFSC has been collecting limited data concerning forest and wildfires. Last year, initial data for 2008-2009 were published in this report, and this year the WFSC has continued with information for 2010, providing information for 2008-2010 for selected countries. These fire events have taken on greater significance in the public consciousness over the past decade, in part due to awareness and media coverage of particularly large and ferocious forest/wildfires in countries such as Spain, Portugal, the United States, Canada, Greece, and Australia. The WFSC believes that extending its coverage into this area will provide useful further bases of comparison of the fire situations in WFSC countries. While the entries into this new sector remain limited, the WFSC has included data concerning the number of fire incidents, hectares burned, and economic and human losses. The WFSC continues to expand the number of countries and information collected for this section of the report.

Commentary on the Tables

The responses to the 2012 WFSC Questionnaire mainly cover data from 13 countries.

The resulting figures are the most comprehensive statistics available on national fire costs in an international context. Although it would be rash to rely solely on these figures, it is nevertheless felt that in developing their fire strategy both governments and fire experts may find it helpful to study them in the context of revolving national and international fire research.

The earliest example of a report recommending a national fire strategy is *America Burning,* produced in 1973 by the U.S. National Commission on Fire Prevention and Control, which had been set up by the President. This included the first effort to measure the cost of fire to a national economy, from which annual studies of U.S. fire costs by the National Fire Protection Association (NFPA) have subsequently been developed. Since 1973 the trend of U.S. fire costs has been to steadily decrease (although this was interrupted in 2001 as a result of the heavy toll exacted by the events of September 11th)—a striking tribute to the value of a national fire strategy initiated from the top.

One of the most important developments of the 1990s was a carefully researched study of the total cost of fire in Canada by Phil Schaenman and others (TriData Corp.) for the National Research Council of Canada (December 1994). The report threw fresh light on a number of components of Canadian fire costs, and some of its results were incorporated in subsequent Canadian returns to the Centre's questionnaire. However, the report is also of considerable interest for the methodology employed for collecting fire cost data in a number of difficult areas. In the U.K. this example of an attempt to measure the total national cost of fire was followed by the Home Office, which undertook a preliminary internal study of the costs of fire in England and Wales, published in 1997 as *The Cost of Fires: a Review of the Information Available,* by Donald Roy. This was followed by more thorough studies in 2001, 2003, 2005 and 2006: *The Economic Costs of Fire* (Mark Weiner), *The Economic Cost of Fire: Estimates for 2000* (Scott Dennison), *The Economic Cost of Fire in England and Wales* (Tom Aldred and Daniel Marks, respectively for 2003 and 2004 statistics), and by two further reports, for England only, for 2006 and 2008, commissioned by the Department for Communities & Local Government. These resulted in a very similar estimate for the total cost of fire as a percentage of GDP as indicated by the Centre's research. In 2001, the Danish Emergency Management Agency published an interesting report, edited by Kristian Møller, along similar lines: *The Socio-Economic Costs of Fire in Denmark,* and this has since been followed by *The Cost of Managing the Risk of Fire in New Zealand* (BERL, May 2005) and *Total Cost of Fire in Australia* (May 2008) by B.S.W. Ashe and K.J. McAneney (Macquarie University) and A.J. Pitman (University of New South Wales).

Further Steps

An important purpose of the WFSC annual reports to UNECE has always been to encourage governments and international bodies to take a greater interest in the scope for political action to cut fire costs. In 1998 the WFSC was in touch with the Organisation for Economic Co-operation and Development (OECD), which expressed interest

in the WFSC's work and described it as "an initiative that definitely deserves to be supported". However, its own budgetary situation prevented them from translating that interest into any form of sponsorship.

In April 1999, an international conference, "Firesafe Europe 99", was organised in Chester, U.K. on behalf of FEU[4] and CACFOA[5] with EU financial support. This resulted in a suggested European fire safety action programme, and the WFSC helped FEU to carry this forward by jointly organising an FEU/WFSC seminar in Augsburg in June 2000 on "European Fire Strategy—the Part of Statistics".

As a result of the seminar, the "League of Augsburg 2000" was formed to develop proposals for a European fire statistical database which would meet the needs of likely users of the figures. A core group was formed from among the likely users: fire services, fire protection associations, fire equipment suppliers, fire insurers, government, industry and commerce, and academics. A questionnaire was circulated to core group members seeking (i) views on additional fire statistics that would be useful, and (ii) information on existing statistics available for publication. The European Commission was kept informed of the progress of the core group, whose role was to produce a report suggesting the best way of carrying forward the proposals. This report was produced in 2005 and circulated to interested parties, including the Commission. Copies are available on request from secretariat@genevaassociation.org.

Another European fire initiative, organised by the Swedish Fire and Rescue Service, which was contracted by the European Commission's DG III (Environment) to undertake a project "Fire Prevention and Other Incidents", aimed to find common problems associated with fires and other accidents and to prepare principles and guidance to tackle these problems. A group of experts from five countries worked on the project during 2003, and obtained detailed questionnaire responses from most West European countries. The resulting report, presented to the European Commission in February 2004, contained a chapter on "Statistics and other reports", which inter alia highlighted the need for better statistics and for their comparability throughout Europe. With the support of the Commission, an EU Fire Safety Network, composed of relevant government representatives from EU states, was set up to interchange information and statistics on fire safety matters. The Network's latest initiative has been to contract outside researchers to undertake a major study of European fire statistics, now completed, with publication awaited.

More recently in 2009, the European Fire Safety Network has undertaken work on the adequacy and comparability of fire statistics among EU countries. As part of that work, the consulting firm Greenstreet Berman was commissioned to undertake a study of European fire statistics, based upon a thorough review of available literature, a questionnaire to governmental authorities in Member States, and contacts with a range of relevant stakeholders. Its conclusion is that fire data collection among EU countries is both uneven and inconsistent, and results from inadequate attention and resources given to this issue in many Member States and failure to standardize even the basic data collection categories. It is important that EU Member States be pressed, individually and collectively, to improve their efforts in this field.

The WFSC engaged in a review of the Questionnaire prior to distributing its 2012 version. Following a request for comments from national correspondents, this resulted in several modifications to the Questionnaire format and descriptions of the categories in the document. Consequently, the type of information sought by the WFSC and the statistical bases of that information has been made clearer to users of the Questionnaire, with the goal to obtain more reliable and precise data. In the near future, the WFSC intends to pursue a review and adjustment of several internal methodological procedures concerning the fire data obtained from national sources.

The WFSC's future funding remains a problem. Up to the present, funding has been provided by The Geneva Association. Thus, it is recommended that:

(a) All countries within the UNECE that contributed to the present report should be invited to provide data for the years 2010 and 2011, and those that did not, especially current ECE members, be encouraged to do so.

(b) Other countries outside the UNECE should also be asked whether they would like to join the World Fire Statistics Initiative, including continents in which the WFSC does not currently have a presence.

(c) The Centre should be invited to submit a further report in 2014.

[4] Federation of European Union Fire Officers' Associations.

[5] Chief and Assistant Chief Fire Officers' Association (U.K.), which since then has become the Chief Fire Officers' Association.

Introductory Notes to the Tables

- Figures for 2008 and 2009 that are new or have been amended since the previous report are given in **bold**, as are any altered adjustments.
- Figures that have been estimated rather than derived from official publications or other authoritative sources are indicated by the letter E.
- In order to avoid any spurious impression of precision, the Centre has always rounded off its adjusted figures, but until 2002 on an ad hoc basis. Under the present policy, the original estimates have been rounded to two significant figures, followed by an intermediate 5 where appropriate (e.g. 9,731 is rounded to 9,750), but with the final digit in any case always rounded to 0 or 5.
- The figures for gross domestic product (GDP) used in the tables are derived from the International Monetary Fund's *World Economic Outlook Database April 2013,* using current prices in national currency, while those for population are derived from the United Nations Department of Economic and Social Affairs, Population Division website, using the Detailed Indicators database, annual population, medium variant.
- New to this year's report are some changes to the structure and format of the tables of data. To improve general ease-of-use and to allow easier comparison between lines of data, the WFSC has chosen to no longer separate ECE member countries from non-member countries in data tables. In addition, several increasingly out-of-date historical data records have been removed from the published tables, mainly records derived from data prior to 2002.
- Also new to this year's report is an additional explanatory feature to complement the existing adjustments applied to the raw data throughout the report. For certain countries, no adjustment for specific data was received from national correspondents and a satisfactory adjustment figure does not exist in the WFSC's records. The WFSC is confident though that, given the nature of the data as a whole in a given category, some adjustment is required. In this event, rather than make a notation of "Nil." to indicate that no adjustment was applied or required, the WFSC has applied a label of "Unkn." to indicate that some adjustment is almost certainly required, but that insufficient data exist to reach a satisfactory adjustment figure at the present time. It is the opinion of the WFSC that this unadjusted data do have intrinsic value and can serve at least as a possible source for limited comparison with other figures. Consequently, these data have not been excluded from the report, but should be regarded with a certain degree of caution. The relevant lines in adjusted tables for countries for which the adjusted data would have been derived from raw data with an unknown adjustment are marked with an asterisk beside the country name.

Costs of Direct Fire Losses

(Fire losses include explosion losses following fire, but exclude explosion losses where no fire occurs, e.g. some acts of terrorism.)

Singapore's continued good record reflects effective fire protection in a small, compact territory, though it has been surpassed this year by very low Hungarian fire loss figures (new this year to the report). As per last year's report, Czech Republic figures possibly reflect relatively low levels of property valuations, though fire losses have continued to fall in absolute terms. Results for the U.S., Australia, Japan, and New Zealand also continued to decline, compared to both previous years and other countries. Scandinavian countries continue to suffer above-average fire losses, perhaps due to the harsh climate and a higher percentage of buildings that contain wood. The general trend with respect to the percentage of GDP calculations for direct losses is largely that of stability or a slight decrease in many cases, and with respect to absolute figures that of continued decreasing costs. Many countries experienced a noticeable decrease in the absolute economic cost that fire had in 2010. While not as noticeable or dramatic, proportional losses in general saw minor decreases. Most countries saw very minor (approximately .01 percentage points) decreases in their losses as a percentage of GDP, with no current reporting country demonstrating an increase in proportional losses relative to last year's report. The WFSC believes that some of this decrease possibly reflects a correlation with declining GDP figures due to the global financial crisis and austerity measures in individual countries in combination with improving loss results, rather than any particularly radical improvement in fire loss figures alone.

Table 1: Published figures for fire losses/fire insurance claims together with adjustments
(millions, except for Japan - billions)

Country	Currency	Claims/Losses			Adjustments	
		2008	*2009*	*2010*		
Czech Republic	Kč	3,277	**2,170**	1,960	Add	12.5%
Denmark	kr				Add	12% [2005-2007]
Finland	€	179	174	207	Add	**70% [2008]; 60% [2009-2010]**
France	€	3,455			Add	31% [2006-2008]
Germany	€	1,170	**1,200**	1,100	Add	E 144% [1]
Hungary	Ft		489	175	Add	19% [2009-2010]
Italy	€	1,580	1,906	1,325	Add	98%
Japan [2]	¥	402	**400**	368	Add	52.9% [2008]; 53.1% [2009-2010]
Netherlands	€	1,007	887	649	Add	4% [1]
New Zealand	$NZ	239		210		Nil.
Poland	zl	1,417	1,166			Unkn.
Singapore	$S	83	87	85	Add	35%
Spain	€	E 909				Unkn.
Sweden	kr	4,400	4,100	4,200	Add	35%
United Kingdom	£	1,273	1,113	1,079	Add	53% [2008]; 58% [2009]; 60% [2010]
United States	$US	15,500	12,500	11,600	Add	13.6%

[1] Estimate based on previous years' data.
[2] Japanese adjustment figures are the average of an adjustment range.

Table 2: Adjusted figures for direct fire losses and as average percentage of GDP
(millions, except for Japan - billions)

Country	Currency	Direct Losses			Percentage of GDP	
		2008	*2009*	*2010*	*2008-2010*	
Hungary	Ft		580	210	0.02	[2009-2010]
Singapore	$S	110	115	115	0.04	
Slovenia	SIT				0.07	[2002-2004]
Australia [1, 2]	$AUS	1,000	**955**	940	0.07	
Czech Republic	Kč	3,700	2,450	2,200	0.07	
Spain [3] *	€	910			0.08	[2008]
Poland *	zl	1,450	1,150		0.09	[2007-2009]
United States	$US	17,500	14,000	13,000	0.10	
Japan	¥	615	**610**	565	0.12	
New Zealand	$NZ	240		210	0.12	
Germany	€	2,850	**2,950**	2,700	0.12	
United Kingdom	£	1,950	**1,750**	1,750	0.13	
Netherlands	€	1,050	925	675	0.15	
Finland	€	305	280	330	0.17	
Sweden	kr	5,950	5,550	5,650	0.18	
Denmark	kr				0.20	[2005-2007]
France	€	4,550			0.20	
Italy	€	3,150	3,750	2,600	0.20	
Norway	kr				0.22	[2003-2005]

* Derived from raw data with an unknown adjustment.
[1] Australian data are calculated from figures provided in the *Report on Government Services 2012* and may be influenced by specific methodological features of that publication.
[2] Property losses due to structure fires only; figures adjusted by 20 per cent to account for rural losses as per prior years.
[3] Spanish figures rely upon internal WFSC estimates derived from Spanish insurance data and should be regarded with caution.

Costs of Indirect Fire Losses

Only the U.S. and, for 2004, New Zealand have produced figures for entire indirect losses, but estimates have been made by Finland and France (based on industrial fire claims), and by Japan, Germany, Sweden and U.K. (based on indirect fire insurance claims).

These figures are always difficult to calculate reliably and need to be treated with major reservations. However, the variations among loss records have been much reduced over the years for the countries submitting data. One long-term avenue for improved exploration of this concept rests in the investigation of indirect health costs derived from fire, though this would again, by necessity, be relatively imprecise in quantifying any exact costs. Of interest is that while the report shows a general decrease in direct fire losses, indirect losses for 2010 generally increased relative to 2009, showing a closer similarity to 2008 figures.

Table 3: Published figures for Claims/Losses
(millions, except for Japan - billions)

Country	Currency	Claims/Losses			% of Claims/Losses
		2008	*2009*	*2010*	
Finland	€	77	57	88	50
France	€				50 [2005-2007]
Germany	€	308	287		216 [1] [1989]
Japan	¥	58	57	53	Unkn.
Sweden	kr	300	350	300	115
United Kingdom	£	187	83	153	165

[1] The adjustment figure of 216 pe rcent was calculated for West Germany for 1989 and its application to the whole of Germany for more recent years must therefore be regarded with great caution.

Table 4: Adjusted figures for indirect losses and as a percentage of GDP
(millions, except for Japan - billions)

Adjustments to estimates: deductions of 50 per cent from the estimates below need to be made to allow for the difference between actual losses and their net impact on the economy when calculating the percentage of GDP.

Country	Currency	Indirect Losses			Percentage of GDP	
		2008	*2009*	*2010*	*2008-2010*	
Norway	kr				0.002	[2003-2005]
Czech Republic	Kč				0.005	[2000-2002]
Japan	¥	60	55	55	0.006	
Sweden	kr	345	400	345	0.006	
New Zealand [1]	$NZ				0.007	[2004]
United States	$US	2,500	1,900	1,700	0.007	
United Kingdom	£	310	135	250	0.008	
France	€				0.010	[2005-2007]
Finland	€	40	30	45	0.011	
Germany	€	665	620		0.014	
Italy	€				0.014	[1993-1994]
Slovenia	SIT				0.021	[2002-2004]
Netherlands	€				0.027	[1995-1996]
Denmark	kr				0.029	[1993-1995]

[1] As estimated in the BERL report *The Cost of Managing the Risk of Fire in New Zealand.*

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.

Human Fire Losses (Killed and Injured)

(WHO denotes the World Health Organization, which publishes on its website annual data from many countries on causes of death, including those from "Accidents caused by smoke, fire and flames".)

While Singapore again shows the lowest proportion of fire deaths, many countries have continued to experience an improving long-term trend. Indeed, a majority of countries saw a minor to noticeable decrease in per capita mortality due to fire for this reporting period, coinciding with decreases in deaths due to fire in 2010. The only exceptions to this decrease in per capita mortality occurred in the Czech Republic, Finland, Sweden, and Switzerland, and in each case the increases were minor. Changing population figures also factor into these changing per capita figures, particularly in Eastern European states, and updated population figures available from the United Nations have also affected several countries' per capita figures, so some care must be taken when assessing and comparing this data. As noted last year, the sudden spike in Australian deaths in 2009 is due in large part to the Victorian bush fires of early 2009, which alone killed nearly 200 people. This year, the WFSC sought more specific data for deaths/injuries due to fire for both civilians and fire fighters—though not universal, several countries were able to provide this breakdown, with the WFSC able to note several of these countries in the relevant tables. The WFSC expects this will lead to a more precise division of data in future reports.

Table 5: Published figures for fire deaths

Country	*2008* Fire Brigades	*2008* WHO	*2009* Fire Brigades	*2009* WHO	*2010* Fire Brigades	*2010* WHO
Australia	118		**270**	**227**	92	67
Austria		50		36		39
Barbados		5				
Canada		268		**225**		
Czech Republic	142	55	117	51	131	62
Denmark	91		71	**63**		66
Finland	107	88	**112**	89	90	79
France		476		475		
Germany		398		432		373
Greece		104		87		89
Hungary	140	172	**116**	142	119	140
Ireland		37		45		43
Italy	115	229	141	228		191
Japan	1,969	1,452	**1,890** [2]	1,364	1,750 [2]	1,338
Netherlands	97	57	57 [2]	37	65 [2]	39
New Zealand	33	25	**39**	24	25	
Norway		68		53		38
Poland	534 [1]	559	540	539		568
Portugal		66		56		61
Romania		408		355	247	397
Singapore	0	1	0	1	0	1
Slovenia		10		11		9
Spain	216	199		163		188
Sweden	116	79	124	102	130	80
Switzerland		28		23		21
United Kingdom	451	348	436	**348**	423	292
United States	3,425 [2]	2,912	3,092 [2]	**2,762**	3,192 [2]	2,786

[1] Does not include deaths in hospitals.
[2] Includes civilians and fire fighting personnel.

Table 6: Adjustments to published figures (deaths) and population comparisons

Taking even the higher of the above sets of figures, additions need in most cases to be made for fire deaths unknown to the fire brigades or not recorded on death certificates.

Country	Addition (%)	Adjusted Figures (Fire Deaths) *2008*	*2009*	*2010*	Deaths Per 100,000 Population (2008-2010)	
Singapore	10	1	1	1	0.02	
Switzerland	15	30	25	25	0.34	
Italy	25	285	285	240	0.45	
Netherlands	5	100	60	70	0.46	
Austria	5	55	40		0.47	[2007-2009]
Slovenia	5	10	10	10	0.49	
Spain	25	270	205	235	0.52	
Portugal	Nil.	65	55	60	0.57	
Germany	25	500	540	465	0.60	
Australia	Nil.	120	**270**	90	0.73	
United Kingdom	5	475	460	445	0.75	
Canada	10	295	240		0.77	[2007-2009]
New Zealand	Nil.	35	**40**	25	0.77	
France	25	595	595		0.96	[2007-2009]
Greece	25	130	110	110	1.05	
United States	6.4	3,650	3,300	3,400	1.11	
Norway	0.5	70	55	40	1.14	
Ireland	25	45	55	55	1.17	
Belgium	25				1.21	[2004]
Czech Republic	10	150	**130**	145	1.35	
Denmark	Nil.	90	70	65	1.36	
Sweden	12.5	130	140	145	1.49	
Japan	2	2,000	**1,950**	1,800	1.51	
Poland	5	585	565	595	1.52	
Hungary	**Nil.**	180	**140**	140	1.53	
Barbados	Nil.	5			1.65	[2007-2008]
Romania	Nil.	410	355	395	1.76	
Finland	5	110	120	95	2.03	

Table 7: Fire Injuries

Additions to the published figures are usually needed because of injuries unknown to fire brigades or hospitals.

Country	Published Figures *2008*	*2009*	*2010*	Addition (%)	Adjusted Figures *2008*	*2009*	*2010*
Australia	3,384	3,388	3,538	100	6,750	6,800	7,100
Czech Republic	1,109	980	1,060	100	2,200	1,950	2,100
Denmark				150			
Finland	660	698	618	200	2,000	2,100	1,850
Hungary	492	**686**	695	**Nil.** [1]	740	**685**	**695**
Italy *	451	378		Unkn.	450	380	
Japan	7,998	9,952 [3]	9,603 [3]	100	16,000	20,000 [3]	19,000 [3]
Netherlands *	874	1,018	955	Unkn.	875	1,000	955
New Zealand	363	643 [3]	707 [3]	30	470	835 [3]	920 [3]
Poland	3,129	3,379		50	4,700	5,050	

Romania *			442	Unkn.			440
Singapore	122	**123** [3]	144 [3]	10	135	**135** [3]	160 [3]
Sweden	1,159	**1,405** [3]	1,424 [3]	12.5 [2]	1,300	**1,600** [3]	1,600 [3]
United Kingdom	12,200	11,194		100	24,500	22,500	
United States	96,405 [3]	91,200 [3]	89,595 [3]	200	290,000 [3]	275,000 [3]	270,000 [3]

* Derived from raw data with an unknown adjustment.

[1] 50 per cent adjustment only for 2008.

[2] Adjustment figure is the average of an adjustment range.

[3] Includes civilians and fire fighting personnel.

Note: Mainly owing to varying national definitions and data sources, these figures should be used with caution.

Costs of Fire Fighting Organisations

Singapore's low costs probably again reflect efficient coverage of a small, compact territory. Also reporting low costs, and new to this year's report, is Romania. While in the past Japan reported the highest proportional costs, partly reflecting their widespread fire prevention activities that help to keep property fire losses down, this year's report now sees the United States as having the highest proportional costs. These 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. In general, proportional costs remained largely stable, with generally minor variances between this and last year's report (the greatest variance being a noticeable decrease in Japanese costs); absolute costs also saw relatively minor changes, frequently in the form of comparatively small increases (with the exception of the United States, which saw a noticeable increase in costs in 2010).

Table 8: Published figures for the costs of public fire brigades
(millions, except for Japan - billions)

The published figures need to be adjusted for private fire brigades (additions) and non-fire work (deductions).

Country	Currency	Published Costs			Adjustments (Net)	
		2008	*2009*	*2010*		
Australia [1]	$AUS	E 2,723	E 2,957	E 3,017	Ded.	24%
Denmark	kr				Add	1.4%
Finland	€	407	**432**	443	Ded.	20%
Hungary	Ft	35,400				Unkn.
Japan	¥	2,130	**1,828**	1,779	Ded.	33%
Netherlands	€	1,017	1,094	1,125	Add	15% [2]
New Zealand	$NZ	294	299	304		Nil.
Poland	zl	2,087	2,263		Ded.	8% [2008-2009]
Portugal	€	333				Unkn.
Romania	Lei			285		Unkn.
Singapore	$S	99	104	104	Ded.	19%
Sweden	kr	5,863	5,966	6,062	Ded.	30%
United Kingdom	£	2,921	**2,937**	3,069	Ded.	3%
United States	$US	39,700	40,300	42,600	Add	1% [2]

[1] Australian data (excluding adjustment) is calculated from figures provided in the Report on Government Services 2012 and may be influenced by specific methodological features of that publication.

[2] Based on previous year's adjustment.

Table 9: Adjusted figures for the costs of public fire brigades
(millions, except for Japan - billions)

Country	Currency	Published Costs			Percentage of GDP	
		2008	*2009*	*2010*	*2008-2010*	
Singapore	$S	80	85	85	0.03	
Romania *	Lei			285	0.05	[2010]
Slovenia	SIT				0.05	[2002-2004]
Denmark	kr				0.07	[2006-2007]
Norway	kr				0.11	[2003-2005]
Hungary *	Ft	35,500			0.13	[2007-2008]
Sweden	kr	4,100	4,200	4,250	0.13	
New Zealand	$NZ	295	300	305	0.16	
Poland	zl	1,900	2,100		0.16	
Australia	$AUS	2,050	2,250	2,300	0.17	
Finland	€	325	345	355	0.19	
Portugal *	€	335			0.19	[2006-2008]
United Kingdom	£	2,850	**2,850**	3,000	0.20	
Netherlands	€	1,150	1,250	1,300	0.21	
Japan	¥	1,450	**1,200**	1,200	0.26	
United States	$US	40,000	40,500	43,000	0.29	

* Derived from raw data with an unknown adjustment.

Costs of Fire Insurance Administration

These costs as a percentage of GDP primarily reflect the extent of fire insurance coverage and the cost effectiveness of the insurers concerned; however, they also tend to be influenced by the varying incidence of direct and indirect losses. The rise in popularity of comprehensive, multi-risk insurance has made it increasingly difficult to ascertain and report fire insurance-specific data.

Table 10: Published figures for fire insurance premiums
(millions, except for Japan - billions)

Country	Currency	Published Figures			Estimated expense ratio (%) [1]
		2008	*2009*	*2010*	*2008-2010*
Czech Republic	Kč	4,323	4,540	4,594	
Denmark	kr				22 [2005-2007]
Finland	€	278	298	307	20
France	€	4,000			32 [2008]
Germany	€				22.5 [2007]
Hungary	Ft				15-20
Italy	€	2,346	2,350	2,348	29.7
Japan	¥	981	964	917	45 [2008]; 45.2 [2009]; 45.4 [2010]
New Zealand	$NZ				45 [2004]
Norway	kr				30 [2005-2007]
Portugal	€	732			
Singapore	$S	189	195	199	25.6 [2008-2009]; 25.8 [2010]
Slovenia	SIT				20.3 [2005-2007]
Spain	€	122			
Sweden	kr	7,300	7,100	5,900	23.3 [2008]; 22.5 [2009]; 21.2 [2010]
United Kingdom	£				42.7 [2008]; 44.3 [2009]; 43.9 [2010]
United States	$US				40 [1986]

[1] Fire insurance administrative costs as a percentage of fire insurance premiums.

Table 11: Estimated insurance administration cost
(millions, except for Japan - billions)

Country	Currency	Administration Cost			Cost as Percentage of GDP	
		2008	*2009*	*2010*	*2008-2010*	
Singapore	$S	50	50	50	0.02	
Finland	€	55	60	60	0.03	
Germany	€				0.04	[2005-2007]
Italy	€	695	700	695	0.04	
Sweden	kr	1,700	1,600	1,250	0.05	
Slovenia	SIT				0.06	[2002-2004]
France	€	1,300			0.07	[2006-2008]
New Zealand	$NZ				0.08	[2004]
Denmark	kr				0.09	[2005-2007]
Japan	¥	440	435	415	0.09	
Norway	kr				0.10	[2003-2005]
United Kingdom	£	1,350	1,400	1,350	0.10	
United States	$US	15,000	17,000	19,000	0.12	

Costs of Fire Protection to Buildings

The TriData report contained significantly higher cost estimates for various types of building than those of earlier reports, and also raised important questions about appropriate methods of calculation. For the U.K. these questions were answered to a considerable extent in a study for the Department of the Environment by the Davis Langdon Consultancy and Arup Fire, published in September 1996, *Quantifying the cost of meeting Building Regulations fire safety requirements in new buildings*. This study looked at the costs of meeting the fire safety aspects of U.K. building regulations for different kinds of buildings perceived as typical of those being commissioned in the early 1990s. It estimated the fire protection costs as percentages of the total new building costs, ranging from a negligible figure for one- or two-storey houses up to 9.2 per cent for shopping complexes.

These estimates have been utilised (subject to some updating amendments in 2002) in the subsequent U.K. entries to the report. The BERL report for New Zealand, as in *The Economic Cost of Fire in England & Wales* studies, uses a rather different approach, based on the estimated capital value of the building stock, but reaches a rather similar result to that utilising the previous method. Among other countries, the wide variation in building fire protection costs to some extent reflects differences in estimation assumptions and methods, but also differences in rates of construction activity within the whole economy.

Table 12: Published figures for the total national cost of building and construction
(millions, except for Japan - billions)

Country	Currency	Building/Construction Costs			Estimated percentage attributable to fire protection
		2008	*2009*	*2010*	
Canada [1, 2]	$CAN	E 132,945			3.9 [2006-2008]
Czech Republic	Kč	233,300	197,467	175,633	3.0
Denmark	kr				5 [2005-2007]
France [3]	€	E 131,000			2.5 [2006-2008]
Hungary	Ft				5-10
Italy [3]	€	E 134,000			4 [2006-2008]
Japan	¥	26,836	21,865	21,287	2.5
Netherlands	€	62,842	61,256	54,921	3 [3]
New Zealand	$NZ	11,305	10,125	9,755	3.85 [2008]; 4.4 [2009]; 4.7 [2010]
Singapore	$S	35,680	**22,520**	27,090	4.0

Slovenia	SIT				2.5 [2005-2007]
Sweden	kr	275,000	247,000	264,000	2.5
United Kingdom [4]	£	129,227	111,717	117,011	2.9 [2008]; 2.7 [2009]; 2.5 [2010]

[1] Reflecting the assessment of the fire protection costs of various types of buildings, ranging from 2 per cent for single homes to 13.2 per cent for single homes to 13.2 per cent for high-rise apartments.
[2] Estimates are derived from preliminary national statistics.
[3] Estimates are derived from internal WFSC calculations and reflect figures from previous years.
[4] In the U.K., estimates for fire protection costs vary from 1 per cent for housing to 7 per cent for multi-storey offices and hospitals.

Table 13: Estimated fire protection cost
(millions, except for Japan - billions)

Country	Currency	Fire Protection Cost			Fire protection cost as percentage of GDP 2008-2010	
		2008	*2009*	*2010*		
Japan	¥	670	**545**	530	0.12	
Slovenia	SIT				0.16	[2002-2004]
Czech Republic	Kč	7,000	**5,900**	5,250	0.16	
France	€	3,300			0.18	[2006-2008]
Sweden	kr	6,900	6,200	6,600	0.20	
United Kingdom [1]	£	**3,800**	3,000	2,950	0.23	
New Zealand	$NZ	435	**450**	465	0.24	
Denmark	kr				0.26	[2005-2007]
United States [2]	$US	51,000	41,500	31,500	0.29	
Netherlands	€	1,900	1,850	1,650	0.31	
Canada [3]	$CAN	5,200			0.32	[2006-2008]
Australia [4]	$AUS				0.35	[2006]
Italy	€	5,350			0.35	[2006-2008]
Norway	kr				0.36	[2003-2005]
Singapore	$S	1,450	**900**	1,100	0.40	

[1] In the U.K., estimates for fire protection costs vary from 1 per cent for housing to 7 per cent for entertainment and health facilities.
[2] In the USA, the estimated fire protection costs vary from 2.5 per cent for private residential construction to 12 per cent for private non-residential structures.
[3] Reflecting the assessment of the fire protection costs of various types of buildings, ranging from 2 per cent for single homes to 13.2 per cent for single homes to 13.2 per cent for high-rise apartments.
[4] This estimate, with its underlying methodology, derives from *The Total Cost of Fire in Australia*.

Forest and Wildland Fires

Coverage for these three tables of data remains limited, but availability of data has increased compared to last year's report. Both Hungary and New Zealand have by far the greatest area burnt per fire incident, though in the Hungarian example this is the result of a considerable spike in fire activity in 2009. The new data for fire activity in this year's report show that, for several countries, 2010 was a less serious year for forest/wildfire activity compared to 2008/2009. Economic losses due to forest/wildland fire in virtually all reporting countries were moderate, with the exception of New Zealand; these losses were orders of magnitude higher than other reporting countries. Finally, human losses due to forest/wildland fire appear to be minimal, with the exception of Australia and, to a lesser extent, Japan. As previously noted, the Australian figures for 2008-2009 are due to the Black Saturday bushfires in Victoria in 2009 (due to the nature of the Australian sources from which the WFSC derives its figures, the deaths are averaged over 2008-2009). New Zealand, while suffering the greatest burnt area and economic losses compared to other reporting countries, continued to record no deaths due to forest/wildland fires in 2008-2010.

Note: Following tables have not been data updated.

Table 14: Fire incidents and affected area

Country	Fire Incidents (No.)			Avg. Area Burnt Per Incident 2008-2010 (Hectares)	Hectares Burnt		
	2008	*2009*	*2010*		*2008*	*2009*	*2010*
Australia [1]	43,601	44,599	38,089				
Czech Republic	4,672	**4,086**	3,370	0.30	1,868	**808**	1,015
Hungary	502	**9,104**	3,387	3.98	2,404	**44,020**	7,846
Japan	1,891	2,084	1,392	0.50	839	1,064	755
Netherlands	4,359	4,991	4,413				
New Zealand	1,811	1,302	1,874	6.51	15,000	7,000	11,000
Poland	8,010	8,660		0.35 [2]	2,352	3,517	
Romania			42				
Singapore	426	523	314	0.14 [3]		89	34
Sweden	5,322	**4,179**	3,120	0.51	6,113	912	540

[1] Australian data is calculated from figures provided in the Report on Government Services 2012 and may be influenced by specific methodological features of that publication. Notably, the report's figures are of total landscape fires.

[2] Figures for 2008-2009 only.

[3] Figures for 2009-2010 only.

Table 15: Economic losses due to forest/wildland fire
(millions, including Japan)

Country	Currency	Total Losses			Percentage of GDP *2008-2010*	
		2008	*2009*	*2010*		
Czech Republic	Kč	51.3	**39.6**	29.1	0.0011	
Hungary	Ft		**21.1**	1.4	0.00004	[2009-2010]
Japan	¥	606	**1678**	261	0.0002	
Netherlands	€		**5**		0.0009	[2009]
New Zealand	$NZ	586			0.315	[2008]
Poland	zl	13	14.5		0.0010	
Sweden	kr	23	23	2.4	0.0005	

Table 16: Fire deaths and injuries due to forest/wildland fires

Country	Deaths			Injuries			Deaths/Injuries per 100k Population (2008-2010)
	2008	*2009*	*2010*	*2008*	*2009*	*2010*	
Australia [1]	**92**	**89**	3				0.28 **De.** || **In.**
Czech Republic	4	0	2	27	**33**	25	0.02 **De.** || **In.** 0.27
Hungary		**2**	1		**17**	3	0.01 **De.** || **In.** 0.10 [2]
Japan		**19**	5				0.01 **De.** || **In.**
New Zealand	0	0	0	28	16	24	0.00 **De.** || **In.** 0.52
Poland	2	2		25	16		0.01 **De.** || **In.** 0.05 [3]
Romania			0			0	0.00 **De.** || **In.** 0.00
Singapore	0	0	0	0	0	0	0.00 **De.** || **In.** 0.00
Sweden	4	2	1	11	16	17	0.03 **De.** || **In.** 0.16

[1] Australian data is calculated from figures provided in the Report on Government Services 2012 and may be influenced by specific methodological features of that publication (notably, the report's figures of total landscape fires result in the deaths averaged between years).

[2] Figures for 2009-2010 only.

[3] Figures for 2008-2009 only.

Fire Deaths in Countries of Eastern, Central and South Eastern Europe, and Central Asia: Accidental Deaths from Smoke, Fire and Flames

Table 17

Country	2002	2003	2004	2005	2006	2007	2008	2009	2010
Albania [1]	13	22	10						
Albania (68%)	*19*	*32*	*15*						
Armenia [1]	10	17			2		13	9	4
Armenia (70.6%)	*14*	*23*			*3*		*20*	*14*	*6*
Azerbaijan [1]	290	321	211			20			
Azerbaijan (69%)	*420*	*465*	*306*			*29*			
Belarus	679	718				677		525	
Bulgaria	113	116	104	112	118	121	124	112	72
Croatia	54	49	44	41	41	59	46	38	28
Czech Republic	56	65	69	62	68	50	55	51	62
Estonia	152	153	137	136	145	122	90	60	79
Georgia			122	104	74	89		83	13
Georgia (84.4%)			*151*	*120*	*85*	*102*		*95*	*15*
Hungary	179	192	178	175	162	158	172	142	140
Kazakhstan [1]	401	416	410	433	385	348	340	299	329
Kazakhstan (85%)	*472*	*489*	*482*	*509*	*453*	*409*	*400*	*352*	*387*
Kyrgyzstan [1]	70	71	54	62	60	62	64	49	54
Kyrgyzstan (84%)	*83*	*85*	*64*	*74*	*71*	*74*	*76*	*58*	*64*
Latvia	241	227	190	200	236	187	126	121	156
Lithuania	136	144	136	179	170	113	112	89	93
Macedonia, FYR [1]	6	10			6	20	12	11	9
Moldova, Rep. of [1]	95	97	104	167	179	135	129	142	157
Moldova, Rep. of (90.5%)	*108*	*110*	*118*	*180*	*192*	*145*	*139*	*153*	*169*
Poland	335	498	460	562	575	571	559	539	568
Romania	432	479	360	387	397	439	408	355	397
Russian Federation	12,568	12,985	11,898	12,043	11,423	10,056	9,874	9,408	9,013
Serbia [1, 2]	[56]		55	66	73	83	70	57	72
Serbia (83.1%)			*65*	*80*	*88*	*100*	*84*	*69*	*87*
Slovakia	32	42	49	51			43	37	32
Slovenia	12	9	7	9	7	13	10	11	9
Tajikistan [1]	93	100	111	104					
Tajikistan (61.2%)	*155*	*167*	*185*	*155*					
Ukraine	2,409	2,365	2,409	2,753	2,531		2,604	2,093	1,681
Uzbekistan [1]	417	387	340	289					
Uzbekistan (78.4%)	*535*	*496*	*436*	*361*					

[1] The WHO publishes estimates for the coverage of the data for causes of death in participating countries. In many countries coverage is put at, or close to, 100 per cent, but in others it falls well short. In cases where coverage for this table's time frame is estimated at less than 95 per cent, the countries concerned have appropriately adjusted figures recorded (in italics) in the above table, shown just below the raw data. The percentage estimate provided is an average of the adjustments available in the WHO's database applicable to the years listed, last calculated in 2012. Individual yearly adjustments can vary, and were used in the calculation of the adjusted figures in the table above.

[2] Prior to 2003: Serbia and Montenegro.

Note: Due to significant data source revisions, this table does not highlight altered figures in bold.

Data Source: Internal WHO data, courtesy of WHO staff.

Fire Death Rates in Central, Eastern and South-Eastern Europe, and Central Asia

While most countries in Central and South-Eastern Europe exhibit fire death rates comparable with those in Western Europe, in Eastern Europe the record is far worse, with many countries experiencing death rates of between 5 to 9 per 100,000 population. Of note though is that many of these countries have shown continued improvements of these figures in this year's report. For countries in the Caucasus and Central Asia where population has been increasing rapidly, the availability of timely and reliable data has often been a problem, though the WHO coverage for some countries has improved since 2001. For this year's report, the WFSC has recalculated all death and population figures for the listed countries using the WHO's internal mortality data and the most up-to-date UN population figures. The improved accuracy of these figures and calculations explains the number of small changes from last year's report, and provides a base for improved calculations going forward. In addition, the WFSC has also taken advantage of more recent coverage estimates provided by the WHO, making the numbers in this year's report the most authoritative to date. The WFSC has noted the lack of an increase in Russian fire mortality figures for 2010, despite the extensive and serious wildfires that affected Russia that summer.

Table 18: Fire Deaths per 100,000 Population (Three-Year Averages)

Country	2002-2004	2005-2007	2008-2010	Population Change (%) 2002-2010
Albania	0.85			-3.49
Armenia	0.75 [2002-2003]	0.13 [2006]	0.55	-2.76
Azerbaijan	5.93	0.42 [2007]		9.84
Belarus	8.92 [2002-2003]	8.79 [2007]	6.85 [2008-2009]	-3.67
Bulgaria	1.78	1.92	1.72	-6.11
Croatia	1.39	1.34	1.07	-1.99
Czech Republic	0.78	0.73	0.67	3.33
Estonia	13.75	12.73	7.32	-3.64
Georgia	4.12 [2004]	2.87	1.56 [2009-2010]	-5.04
Hungary	2.26	2.05	1.89	-1.51
Kazakhstan	4.08	3.75	3.01	8.88
Kyrgyzstan	1.93	1.79	1.57	6.62
Latvia	11.98	11.81	7.94	-9.75
Lithuania	5.13	5.94	3.95	-10.32
Macedonia, FYR	0.48 [2002-2003]	0.78 [2006-2007]	0.63	1.35
Moldova, Rep. of	3.60	5.80	5.32	-9.98
Poland	1.41	1.86	1.82	-0.21
Romania	2.39	2.31	2.21	-1.75
Russian Federation	10.77	9.72	8.21	-1.31
Serbia [1]	0.75 [2002,2004]	1.13	1.03	-4.99
Slovakia	0.95	1.18 [2005]	0.86	0.84
Slovenia	0.59	0.60	0.61	3.22
Tajikistan	3.23	2.79 [2005]		19.10
Ukraine	6.26	7.04 [2005-2006]	5.74	-4.46
Uzbekistan	2.39	1.71 [2005]		9.61

[1] Prior to 2003: Serbia and Montenegro.

Notes: *(i)* The population data used here are drawn from the UN Dept. of Economic and Social Affairs, Population Division, Population Estimates and Projections Section online database, Medium Variant Detailed Indicators, based on the *World Population Prospects: The 2012 Revision*. Mortality calculations use the WHO data from Section 1 of Annex II. *(ii)* The WHO fire death figures exclude those by (actual and suspected) homicide and suicide, plus fire deaths resulting from transport accidents. They also involve some inevitable under-reporting. These figures have therefore been increased by an extremely rough adjustment of 25 per cent, based on the WFSC experience of countries making returns both of data derived from fire brigade reports and as submitted to the WHO. In addition, for those countries where survey coverage is estimated by the WHO to be less than 95 per cent, fire deaths have been further adjusted upward proportionally. *(iii)* The countries that are included in the main WFSC reporting have received the same adjustments and used the same WHO mortality base in this table, for purposes of comparison, even though this can be less accurate. Consequently, mortality rates will differ for those countries also listed in Section 3. *(iv)* The Population Change column is provided to assist interpretation of the fire death rate trends. *(v)* Due to significant data source revisions, this table does not highlight altered figures in bold.

THE RESEARCH PROGRAMME ON WORLD FIRE STATISTICS

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 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.

World Fire Statistics Centre (affiliated organisation of The Geneva Association):

Please contact at: secretariat@genevaassociation.org

The Geneva Association

The Geneva Association is the leading international insurance think tank for strategically important insurance and risk management issues.

The Geneva Association identifies fundamental trends and strategic issues where insurance plays a substantial role or which influence the insurance sector. Through the development of research programmes, regular publications and the organisation of international meetings, The Geneva Association serves as a catalyst for progress in the understanding of risk and insurance matters and acts as an information creator and disseminator. It is the leading voice of the largest insurance groups worldwide in the dialogue with international institutions. In parallel, it advances—in economic and cultural terms—the development and application of risk management and the understanding of uncertainty in the modern economy.

The Geneva Association membership comprises a statutory maximum of 90 Chief Executive Officers (CEOs) from the world's top insurance and reinsurance companies. It organises international expert networks and manages discussion platforms for senior insurance executives and specialists as well as policymakers, regulators and multilateral organisations. The Geneva Association's annual General Assembly is the most prestigious gathering of leading insurance CEOs worldwide.

Established in 1973, The Geneva Association, officially the "International Association for the Study of Insurance Economics", has offices in Geneva and Basel, Switzerland and is a non-profit organisation funded by its Members.

The Geneva Association World Fire Statistics Newsletter, N° 29, April 2014

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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FORTHCOMING CONFERENCES OF THE GENEVA ASSOCIATION

2014

May

14-17	Toronto	**41st General Assembly of The Geneva Association** (Members only)

June

4	Zurich	**8th Meeting of Chief Investment Officers in Insurance**, hosted by Swiss Re (CIO members only)
5-6	Paris	**12th Annual Round Table of Chief Risk Officers**, organised jointly by The Geneva Association and SCOR, sponsored by SCOR
22-25	London	**The Geneva Association/IIS Research Award Partnership**

September

15-17	St. Gallen	**41st Seminar of the European Group of Risk and Insurance Economists (EGRIE)**, sponsored by The Geneva Association
17-18	Washington DC	**2nd International Conference on Collateral Risk**, jointly hosted by the American Enterprise Institute and The Geneva Association

October

23-24	New York	**6th CR+I Seminar on "Extreme climate and weather events in the USA and globally"**, organised in collaboration with XL Group

November

4	London	**10th International Insurance and Finance Seminar of The Geneva Association**, hosted by Prudential plc
6-7	Madrid	**11th Health and Ageing Conference on "Emerging health risks and insurance"**, hosted by MAPFRE Foundation
18-19	Munich	**10th CRO Assembly**, hosted by Munich Re

2015

May

13-16	Singapore	**42nd General Assembly of The Geneva Association**, hosted by the Monetary Authority of Singapore (Members only)

August

2-6	Munich	**3rd World Risk and Insurance Economics Congress (WRIEC)**, organised by EGRIE in cooperation with APRIA, ARIA and The Geneva Association