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**FORMING A SUCCESSFUL FIRE SAFETY STRATEGY:  
LESSONS FROM BUNCEFIELD**

In December 2005 the largest explosion and fire to have occurred in the UK since the Second World War took place at the Buncefield fuel storage depot. Not only were the depot's installations extensively damaged, and vast quantities of fuel lost, but widespread destruction was inflicted on buildings in the surrounding area, where property losses are likely to be well in excess of £80 million. Finally, the site's containment system of dykes and drains was unable to cope with the run-off of fuel and the enormous quantities of contaminated water and foam arising from the fire-fighting operations, posing a serious environmental hazard to the surrounding countryside. At present, government fire safety strategy concentrates on reducing fire deaths and injuries, but it can now be argued that more attention needs to be given to safety at major and potentially hazardous industrial sites such as Buncefield and to reducing the economic costs of fire in general.

## **The Geneva Association**

The International Association for the Study of Insurance Economics, or by its short name “The Geneva Association”, is a unique world organisation formed by a maximum of 80 chief executive officers from the most important insurance companies in the world (Europe, North and South America, Asia, Africa and Australia). Our main goal is to research the growing importance of worldwide insurance activities in all sectors of the economy. We try to identify fundamental trends and strategic issues where insurance plays a substantial role or which influence the insurance sector. In parallel, we develop and encourage various initiatives concerning the evolution – in economic and cultural terms – of risk management and the notion of uncertainty in the modern economy.

The Geneva Association also acts as a forum for its members, providing a worldwide unique platform for the top insurance CEOs. We organise the framework for our members in order that they may exchange ideas and discuss key strategic issues, especially at the General Assembly where once per year over 50 of the top insurance CEOs gather. The Geneva Association serves as a catalyst for progress in this unprecedented period of fundamental change in the insurance industry and its growing importance for the further development of the modern economy. It is a non-profit organisation.

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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% 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 from over 20 leading countries statistics on national fire costs (see Contents above).

A further important effort is devoted to persuading the European Union to identify fire safety as a topic for collective action, leading to a European fire strategy.

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

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### **The Geneva Association Newsletter - “World Fire Statistics”, No 22, October 2006 Information Bulletin of the World Fire Statistic Centre**

This information bulletin of the World Statistics Centre appears annually. It presents statistics on national fire costs from over 20 leading countries in an effort to persuade governments to adopt strategies aimed at reducing the cost of fire. It has been published since March 1984.

**Printed copies:** 1200. Unrestricted circulation. Free of Charge

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## **I. EDITORIAL - Fire Safety: Progress Towards Encouraging National Fire Strategies**

In last year's Bulletin editorial we set out the Centre's approach to encouraging countries to adopt national fire strategies and to tackle fire prevention with the same energy as spent on road safety.

### Buncefield Explosion and Fire

A striking example of the need for a national fire strategy aimed at reducing the overall cost of fire to the economy occurred in the UK in December 2005, when an explosion and fire at the Buncefield fuel storage depot caused the largest UK property fire loss since the Second World War.

In the UK, central government's fire safety strategy is concentrated mainly on reducing fire deaths and injuries, while economic losses receive considerably less attention. Responsibility for property loss from fire is largely left to others. Consequently the fire precautions taken at Buncefield were not primarily the responsibility of the fire brigades, but rather of other bodies, such as the Health and Safety Executive.

Had the responsibility for protecting Buncefield rested on the fire brigades, major defects might have been avoided. As it was, the damage to installations and the loss of fuel from the site (which may never be re-opened) were enormous. Moreover, the explosion also caused serious damage to many buildings in the surrounding area; property losses there are likely to be well in excess of £80 million. Finally, so much water and foam had to be used in controlling the fire that the containment system of dykes and drains to prevent contaminated water and fuel overflowing into the surrounding area failed, imposing a serious environmental hazard.

The questions therefore arise: should UK national fire strategy now take much more specific account of the risks posed by such large and potentially hazardous sites than has been the case hitherto? And should not economic losses in general receive greater attention in the future?

### Progress in Encouraging National Fire Strategies

Last year the proposal to form a World Fire Strategy Group was reported. Its object would have been to encourage countries to develop a national fire strategy aimed at reducing fire costs, with a drive similar to that shown in many countries over road safety. Although the proposal to form the Group has now been dropped, the Centre continues to seek opportunities to press for what is felt to be a crucial reform if national fire costs are to be reduced.

### United Nations Fire Statistics Study

The Centre presented its annual report to the UN Committee on Housing and Land Management at the meeting in Geneva in September 2006.

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

## II. COST OF DIRECT FIRE LOSSES – Table 1

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

Country	Currency	2001 Direct Losses	2002 Direct Losses	2003 Direct Losses	Percentage of GDP 2001-03
Singapore	\$S	95	115	135	0.07
Poland	Zl	535	620	650	0.08
Slovenia	SIT	4,100	5,400	2,500	0.08
Japan	Yen	535	485	465	0.10
Czech Republic	CzKr	2,300	4,200	2,050	0.12
Hungary	Ft				0.12 (1986-88)
Spain	Pta				0.12 (1984)
Finland	€	190	175	245	0.14
United Kingdom	£	1,600	1,600	1,500	0.15
Australia	\$A				0.16 (1992-93)
Canada	\$Can	1,950			0.17 (1999-2001)
France	€	2,600	2,650	3,400	0.17
Germany	€	3,700	3,750	3,650	0.17
New Zealand	\$NZ				0.17 (1993-94)
Netherlands	F				0.18 (1995-96)
Italy	€	1,900	2,550	2,550	0.19
Sweden	SKr	4,600	4,750	4,050	0.19
Denmark	DKr	2,550	3,300	2,250	0.20
United States	\$US	44,500*	11,000	13,000	0.22
Switzerland	SwF				0.23 (1989)
Belgium	€				0.24 (1998-2000)
Austria	Sch				0.26 (1998-2000)
Norway	NKr	4,650	4,150	4,300	0.28

\* Including 9/11 losses estimated at \$33.4 billion.

Note : Fire losses include explosion losses following fires, but exclude explosion loss where no fire occurs, for example, some acts of terrorism.

**III. COST OF INDIRECT FIRE LOSSES – Table 2**

Average percentage of GDP (2001-03)

Country	%
Norway	0.002
Czech Republic	0.005 [2000-02]
Sweden	0.006
Finland	0.008
UK	0.010
France	0.011
Italy	0.014 [1993-94]
Austria	0.016 [1998-2000]
Germany	0.016
Japan	0.016 [1985-86]
Slovenia	0.017
Canada	0.022 [1991]
USA	0.022*
Netherlands	0.027 [1995-96]
Denmark	0.029 [1993-95]
Hungary	0.029 [1992-93]
Switzerland	0.095 [1989]

- Calculated after allowing for \$8.4 billion losses arising from 9/11 in 2001.

**Note:** This table must be regarded with serious reservations - the figures are produced on widely varying bases and some of the differences look too large for credibility.

**IV. FIRE DEATHS – Tables 3 & 4****Table 3**

Country	Adjusted figures (fire deaths)		
	2001	2002	2003
Singapore	10	0	0
Spain	265	230	
Australia	105	135	135
Italy	355		
Germany	600		
France	550		
New Zealand	40	40	40
UK	635	590	625
Slovenia	20	20	25
Czech Republic	105	115	150
Canada	370		
Poland	510	455	525
Austria	55	40	
Norway	65	65	55
Denmark	75	75	90
Greece	190	145	
Sweden	145	145	140
Ireland	70	60	
USA	6,900*	3,700	4,300
Japan	2,250	2,300	2,300
Finland	85	95	105
Hungary	235	195	210

\* 2,791 from 9/11.

**Table 4 – Population Comparisons for Fire Deaths (2001-03)**Deaths per 100,000 persons

Country	Deaths per 100,000 persons
Singapore	0.08
Switzerland	0.56 (1998-2000)
Spain	0.61 (2000-02)
Australia	0.64
Italy	0.68 (1999-2001)
Netherlands	0.68 (1994-96)
Germany	0.74 (1999-2001)
France	0.94 (1999-2001)
New Zealand	1.03
UK	1.04
Slovenia	1.11
Czech Republic	1.20
Canada	1.25 (1999-2001)
Poland	1.29
Austria	1.31 (2000-02)
Belgium	1.35 (1995-97)
Norway	1.35
Denmark	1.49
Greece	1.59 (2000-02)
Sweden	1.60
Ireland	1.63 (2000-02)
USA	1.71*
Japan	1.79
Finland	1.83
Hungary	2.10

- Calculated after including 2,791 deaths in 2001 arising from 9/11

Note : Population figures used are derived from the United Nations Population website.

## V. COST OF FIRE FIGHTING ORGANISATIONS – Table 5

Average percentage of GDP (2001-03)

Country	%
Singapore	0.04
Slovenia	0.06
Denmark	0.07
Austria	0.11 (1994)
Norway	0.11
Belgium	0.14 (1998-2000)
Finland	0.14 (2002-03)
Netherlands	0.15 (1994-96)
Sweden	0.15
New Zealand	0.17
Poland	0.19
UK	0.21
USA	0.25
Japan	0.34
Canada	0.35 (1991)

Note: The low Danish cost is largely due to the private company, Falck, which runs many fire brigades, together with ambulance, rescue and motor breakdown services.

**VI. COST OF FIRE INSURANCE ADMINISTRATION – Table 6**

Average percentage of GDP (2001-03)

Country	%
Hungary	0.01 (1987-88)
Finland	0.03
Singapore	0.03
Netherlands	0.04 (1987-88)
Italy	0.05
Spain	0.05 (1986)
Canada	0.06 (1991)
Germany	0.06
Slovenia	0.06
Sweden	0.06
Denmark	0.08
France	0.08
Japan	0.09
UK	0.09
USA	0.09
Norway	0.10
Austria	0.14 (1979-80)
New Zealand	0.19 (1993-94)
Belgium	0.23 (1999-2000)

**VII. FIRE PROTECTION TO BUILDINGS – Tables 7 & 8****Table 7**

Estimated Cost of Fire Protection to Buildings

Country	Fire Protection‡ (%)	Currency	Cost in millions (except for Japan – billions)		
			2001	2002	2003
Australia	2.5	\$A			13,000
Canada	3.9	\$C	2,850	3,200	3,450
Czech Republic	3.0	CzKr	4,000	4,300	4,750
Denmark	5.0	DKr	7,000	6,900	
France	2.5	€	2,350	2,400	2,450
Italy	4.0	€	4,000	4,300	4,500
Japan	2.5	Yen	770	730	715
New Zealand	2.5	\$NZ	175	200	250
Norway	3.75	NKr	5,350	5,650	6,050
Singapore	4.0	\$S	550	575	400
Slovenia	2.5	SIT	7,500	8,250	9,350
Sweden	2.5	SKr	3,750	3,900	4,100
UK	2.5	£	1,950	2,150	2,350
USA		\$US	38,000	35,500	36,500

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

**Note:** In the United Kingdom, 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, from 2.5 per cent for housing to 12 per cent for private non-residential structures, and in Canada from 2 percent for single homes to 13.2 per cent for high-rise apartments.

**Table 8 – Fire Protection to Buildings**Average percentage of GDP (2001-03)

Country	%
Japan	0.15
France	0.16
New Zealand	0.16
Slovenia	0.16
Australia	0.17 (2003)
Sweden	0.17
Czech Republic	0.18
UK	0.20
Canada	0.27
Belgium	0.29 (1998-2000)
Switzerland	0.29 (1989)
Netherlands	0.30 (1993-95)
Singapore	0.32
Italy	0.34
USA	0.35
Norway	0.37
Hungary	0.42 (1987-88)
Denmark	0.52 (2000-02)

## VIII. UN SCHEME ENDORSED

In their session held in Geneva on September 20, 2006, the United Nations Committee expressed its interest in the Report, thanked Mr. Wilmot, invited him to present a similar report to its next session and encouraged countries which had not yet done so to participate in the study.

## IX. EUROPEAN PARLIAMENT AND FIRE COSTS

Following a meeting with Sir Christopher Prout MEP and with DG III (Industry), Sir Christopher in 1994 drafted the following Motion for resolution by the European Parliament:

"Whereas fire is currently costing countries of the European Union approximately 1% of GDP,

Whereas in comparison with road safety, crime prevention and industrial safety, little or nothing is being done to monitor progress on safety measures,

Whereas the rewards have been high for Governments, such as the United States of America, which have organised a determined campaign to cut fire costs,

### NOW THEREFORE

1. The European Parliament urges the Council of Ministers to make a public announcement stating their concern over the level of fire costs in the EU.
2. The European Parliament calls on the European Commission to establish a Working Party of fire experts whose terms of reference would be to recommend ways of tackling the fire problem."

Sir Christopher (now Lord Kingsland) shortly thereafter ceased to be an MEP, but in 1995 Ms Christine Crawley MEP put down a similar Motion, which went to the Environment Committee in 1996. However, only three of the twenty proposed motions before the Committee were accepted for pursuit and, although the fire resolution was "recognized to be an issue of great importance", it was not accepted. Lord Kingsland in 1997 raised it again with the Chairman of the Environment Committee, who took it up with the Commission, only to receive a stonewalling response.

## X. EUROPEAN FIRE SAFETY ACTION

In April 1999, an international conference, “Firesafe Europe 99”, was organised in Chester, UK, on behalf of FEU<sup>1</sup> and CACFOA<sup>2</sup> with EU financial support. This resulted in a suggested European fire safety action programme, and the Centre 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 has now been produced and circulated to interested parties, including the Commission.

Another European fire initiative, organised in 2003 by the Swedish Fire and Rescue Service (SRSA), under a contract from the European Commission’s DG III (Environment), was to study “Fire Prevention and other incidents” at the European level. This aimed to find common problems associated with fires and to prepare principles and guidance to handle these problems. A group of five countries worked on the project, which resulted in the publication of a comprehensive report, with recommendations for action, in February 2004. As a result, with the support of the Commission, an EU Fire Safety Network, composed of relevant Government representatives from EU states, has been set up to interchange information and statistics on fire safety matters, and has already held several meetings.

In June 2005, speaking at the meeting of CFPA<sup>3</sup> International at Hanover, the Centre proposed the formation of a World Fire Strategy Group to encourage countries to develop national fire safety strategies aimed at reducing the overall cost of fire. Although some initial reactions were encouraging, the Confederation has now decided that it would prefer to carry this initiative forward in another way.

In a report on “Social and Economic Challenges in Distressed Urban Areas of the UNECE<sup>4</sup> Region” presented to the meeting of the UN Committee on Housing and Land Management in September 2006, the authors drew on the 2005 WFSC report to the Committee in the following paragraph:

“For the UNECE region the annual toll of fire deaths is measured in tens of thousands .... The most effective way to minimize this toll is better fire protection, coupled with consumer education. To coordinate such efforts, urgent actions by governments are needed, which should include (a) collecting fire statistical data and analysis, and (b) developing a national fire safety strategy ....”

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1 Federation of European Union Fire Officers’ Associations.

2 Chief and Assistant Chief Fire Officers’ Association (UK); this body has now changed its name to Chief Fire Officers’ Association (CFOA).

3 Confederation of Fire Protection Associations.

4 United Nations Economic Commission for Europe; the region in question covers the whole of Europe, together with all the republics of the former Soviet Union, even though some are situated in Asia.

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### XI. CONFERENCES ORGANISED AND/OR SPONSORED BY THE GENEVA ASSOCIATION

#### 2006

##### October

- 13 Rome **Montepaschi Vita Annual Forum**, organised by Montepaschi Vita and The Geneva Association
- 17-18 Zurich **4<sup>th</sup> ART of CROs**, hosted by Swiss Re at Centre for Global Dialogue
- 26-27 Zurich **3<sup>rd</sup> Liability Regimes Conference**, a joint initiative by Munich Re, RSA, SCOR, Swiss Re, Zurich Financial Services and The Geneva Association

##### November

- 6-7 Vienna **4<sup>th</sup> Health & Ageing Conference on "Chronic Conditions and Insurance"**, hosted by Uniqa
- 8 Geneva **"Chances et Défis du Vieillissement"**, Université de Genève, Auditoire Piaget, co-organised and sponsored by The Geneva Association
- 16-17 Madrid **MORE 20-Seminar** (Management of Risks in the Economy) on The Role of Risk Management and Insurance in the Leisure Industry, jointly with Mapfre Foundation
- 21-22 Munich **2<sup>nd</sup> Chief Risk Officer Assembly**. A joint initiative of The Geneva Association and Munich Re.
- 28 Milan **European Insurance Forum on "The Insurance Industry: Risk Governance and Solvency II"**, organised with Macros Risk Management, ANIA.

##### December

- 7-8 London **3<sup>rd</sup> International Insurance and Finance Seminar** of The Geneva Association
- 12 Paris **5<sup>th</sup> Paris International Insurance Conference**, co-organised with the FFSA
- 14-15 Amsterdam **4<sup>th</sup> Meeting of the Global Insurance Communications Network**, hosted by ING

#### 2007

##### January

- 9 New York **Joint Industry Forum for P&C Insurance Industry**, co-sponsored by The Geneva Association

##### February

- 22-23 Amsterdam **9<sup>th</sup> Meeting of The Geneva Association's Amsterdam Circle of Chief Economists (ACCE)**, hosted by ING

##### March

- 7-8 Singapore **7<sup>th</sup> Asian CEO Insurance Summit** co-organised by Asia Insurance Review and The Geneva Association
- 22 Munich **11<sup>th</sup> International Liability Forum**, co-organised with Munich Re
- 22-23 Geneva **23<sup>rd</sup> PROGRES Seminar**

##### June

- 6-9 New York **34<sup>th</sup> General Assembly of The Geneva Association**