出國報告（出國類別：定期會議）

出席亞洲消防首長協會第 28 屆年會出國報告書

服務機關：內政部消防署

姓名職稱：葉　署長　吉堂

邱　科長　景祥

陳　專員　佩瑜

派赴國家：新加坡

出國期間：103 年 9 月 9 日至 9 月 13 日

報告日期：103 年 11 月 7 日

摘　要

亞洲消防首長協會（International Fire Chiefs' Association of Asia, 簡稱 IFCAA）成立於 1960 年，總部秘書處設於日本東京，成員主要係由亞洲及大洋洲各國的消防首長所組成，每二年定期召開年會一次，現有會員來自日本、新加坡及我國等 24 個國家及地區。協會主要目的在於藉由國與國的交流，促進消防防災資訊與技術的合作，提升亞洲及大洋洲地區災害預防與應變的能力。我國曾於 2004 年在台北主辦第 23 屆年會，為能持續與亞洲及大洋洲各國消防首長保持良好關係與互動，及與國際消防工作團體進行經驗分享，建立國際交流管道，參加亞洲消防首長協會年會及各項活動，是我國參與國際消防事務的一個重要平台。

本次 2014 IFCAA 第 28 屆年會於 2014 年 9 月 10 日（星期三）至 9 月 12 日（星期五）在新加坡博覽中心(Singapore Expo Convention and Exhibition Centre)舉行，主題為「一起為亞洲消防安全努力（Working Together for a Fire Safe Asia）」，係因都市化趨勢與氣候變遷因素，肇致消防人員面臨之挑戰激增，爰期盼透過 IFCAA 會員間之知識與經驗交流，並探討會員國間之合作事宜，以提升緊急事故處理與挑戰之區域能量。是以，確信本次年會將在 IFCAA 不同會員國間之觀念及資訊熱烈交流，並藉由網路與會員間之友愛和忠誠之下，將成功地鞏固彼此間之友誼與合作。

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目　　次

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壹、前言及目的

亞洲消防首長協會（International Fire Chiefs' Association of Asia, 簡稱 IFCAA）成立於 1960 年，總部秘書處設於日本東京，成員主要係由亞洲及大洋洲各國的消防首長所組成，每二年定期召開年會一次，現有會員來自日本、新加坡及我國等 24 個國家及地區。協會主要目的在於藉由國與國的交流，促進消防防災資訊與技術的合作，提升亞洲及大洋洲地區災害預防與應變的能力。我國曾於 2004 年在臺北主辦第 23 屆年會，為能持續與亞洲及大洋洲各國消防首長保持良好關係與互動，及與國際消防工作團體進行經驗分享，建立國際交流管道，參加亞洲消防首長協會年會及各項活動，是我國參與國際消防事務的一個重要平台。

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本屆年會除了理事會、例行會議外，並邀請澳洲、新加坡、日本、香港及我國等國家的首長或專家，分享他們在森林火災搶救有效策略、消防發展之躍進與創新、大量傷患事故之管理與經驗、區域防災力之提升、都市消防首長之挑戰及火災安全對策。因此，基於我國是

亞洲消防首長協會的正式會員，除了有參加二年一次年會的義務外，也負有推動亞洲及大洋洲間消防、災害搶救及國際支援工作的責任，且藉由參加本次年會，蒐集各國對當前消防工作的發展方向，作為國內制定消防、災害預防與應變政策時的參考。

貳、會議過程

一、出國人員：葉署長吉堂、火災預防組邱科長景祥、陳專員佩瑜

二、出國行程：

日期	星期	行　程　及　內　容	備　註
9 月 9 日	二	桃園啟程新加坡樟宜	
9 月 10 日	三	1.參加亞洲防火安全研討會（FiSAC）暨消防防災展(FDA)開幕典禮(新加坡博覽中心)。 2.參加亞洲消防首長協會理事會議。 3.參訪新加坡民防部隊及中央消防隊。 4.參加亞洲防火安全研討會觀迎晚會。	
9 月 11 日	四	1.辦理亞洲消防首長協會會員註冊（新加坡博覽中心）。 2.參加亞洲消防首長協會第 28 屆年會開幕式及例行會議。 3.參訪新加坡民防學院。 4.參加亞洲消防首長協會歡迎晚會。	
9 月 12 日	五	1.參加亞洲消防首長協會第 28 屆年會專題演講並發表大量傷患事故之管理與經驗專題報告。 2.觀摩國際消防及救護挑戰賽（SGFPC）。 3.參加亞洲消防首長協會第 28 屆年會閉幕及代表朗讀宣言。	
9 月 13 日	六	新加坡樟宜返程桃園。	

參、亞洲消防首長協會簡介

一、協會設立

該協會係於 1960 年 5 月 26 日成立於日本東京，英文全名為 International Fire Chiefs' Association of Asia（簡稱 IFCAA），主要發起國為日本及菲律賓、泰國等國，目前加入該協會之會員約有 1,000 人，成員包括日本、臺灣、澳洲、巴林、孟加拉、汶萊、香港、印度、印尼、以色列、伊朗、韓國、科威特、馬來西亞、外蒙古、尼泊爾、紐西蘭、巴基斯坦、巴布亞紐幾內亞、菲律賓、新加坡、敘利亞、斯里蘭卡、泰國等 22 個國家及 2 個地區所組成。

二、設立性質

亞洲消防首長協會的會員主要來自亞洲各國的消防、災害應變的首長，其中理事成員除日本由主要城市的消防局長擔任外，其它國家均以當地最高消防首長為理事，屬官方性質，理事採行職位制，遇有職務異動時，理事的身分自動由新任人選遞補。此外，會員多以地區性消防、災害應變組織首長為主體；因此，召開年會過程，均不擺設各國國旗，或演奏各國國歌。其中，幕僚單位由日本東京消防廳擔任，直接與亞洲各國的消防、災害應變組織連繫合作，所以並不透過一般的外交管道。該協會對我國代表的用語，均統一稱呼「臺灣」。

三、會議召開方式及協會首長

該協會每兩年召開一次年會，採日本承辦一屆，他國承辦次屆之輪流舉辦方式，歷屆年會辦理地點及時間詳如下表：

屆次	時間	主辦單位	屆次	時間	主辦單位
第 1 屆	1960.05	日本東京	第 16 屆	1990.05	日本名古屋

第 2 屆	1962.05	日本東京	第 17 屆	1992.08	馬來西亞吉隆坡
第 3 屆	1964.10	日本東京	第 18 屆	1994.10	日本東京
第 4 屆	1966.11	泰國曼谷	第 19 屆	1996.10	泰國曼谷
第 5 屆	1968.10	菲律賓	第 20 屆	1998.10	日本福岡
第 6 屆	1970.06	日本大阪	第 21 屆	2000.08	馬來西亞吉隆坡
第 7 屆	停辦	以色列	第 22 屆	2002.07	日本京都
第 8 屆	1974.05	日本名古屋	第 23 屆	2004.10	臺灣
第 9 屆	1976.06	韓國	第 24 屆	2006.06	澳洲
第 10 屆	1978.11	新加坡	第 25 屆	2008.06	日本東京
第 11 屆	1980.11	印度德里	第 26 屆	2010.08	韓國大邱
第 12 屆	1982.11	日本東京	第 27 屆	2012.06	日本札幌
第 13 屆	1984.11	菲律賓馬尼拉	第 28 屆	2014.09	新加坡
第 14 屆	1986.05	日本廣島	第 29 屆	未定	日本大阪
第 15 屆	1988.11	新加坡			

四、理事會組織

現任會長由日本東京都消防廳總監擔任，副會長四名，分別為香港、馬來西亞、菲律賓及新加坡之消防首長擔任，協會理事則由其他各國的消防首長擔任，任期為四年。

五、目前推動重要工作

(一) 定期舉辦年會。

(二) 加強各國消防防災技術交流及資訊互通。

(三) 致力於海內外消防安全之研究（包括出席國際會議）。

肆、第 28 屆年會會議議程及重要內容

一、IFCAA 年會會議議程

9 月 10 日（星期三）

08:00　開始註冊（Expo- Hall 1）

09:00 ~ 12:30　2014 亞洲防火安全研討會（FiSAC）暨消防防災展(FDA)開幕典禮（Expo- Hall 1）

12:30 ~ 13:30　午餐（Lunch, Expo- Hall 1）

14:10 ~ 15:00　理事會議（Directors' Meeting, Expo-Peridot,2F）

15:00 ~ 17:00　參訪(Visit to Headquarters SCDF and Central Fire Station）

19:00 ~ 22:00　晚宴（Awards Gala Dinner, Marina Bay Sands）

9 月 11 日（星期四）

09:00　開始註冊

10:00 ~ 10:45　開幕典禮（Opening Ceremony, Expo Peridot Room）

11:15 ~ 12:30　例行會議（Regular Session, Expo Peridot Room）

12:30 ~ 13:30　午餐（Lunch, Expo Peridot Room）

14:00 ~ 17:00　技術參訪（Technical Visit, Civil Defence Academy）

19:00 ~ 21:30　IFCAA 晚宴（Official IFCAA Dinner, Expo Peridot Room）

9 月 12 日（星期五）

09:00 ~ 10:30　專題演講Ⅰ（IFCAA Presentation Ⅰ, Expo Peridot Room）

11:00 ~ 12:30　觀摩國際消防及救護挑戰賽（Singapore Global Firefighters and Paramedics Challenge 2014 Heats, Expo- Hall 1F）

12:30 ~ 13:30　午餐（Lunch, Expo Peridot Room）

14:00 ~ 15:00　專題演講Ⅱ（IFCAA Presentation Ⅱ, Expo Peridot Room）

15:00 ~ 15:30　閉幕（Closing Ceremony, Expo Peridot Room）

二、主要行程之會議內容

亞洲消防首長協會第 28 屆年會於 103 年 9 月 10 日（星期三）至 12 日（星期五）於新加坡博覽中心(Expo)舉行，我國由消防署葉署長吉堂率火災預防組邱科長景祥及陳專員佩瑜與會。

本次行程主要參加理事會議、年會開幕式、例行會議、專題演講以及閉幕式等，以下將就各會議之議程及內容摘要說明。

(一)理事會議

本次理事會於 9 月 10 日（星期三）14 時在新加坡博覽中心 Peridot 201 會議室(Expo Convention and Exhibition

Centre)舉行，其會議程序依序為 1.開會、2.主辦單位致詞、3.會長致詞、4.介紹與會人員、5.選舉主席、6.議案審議、7.散會，參加會議者有 35 位國家（區域）代表人及隨行人員。

本次年會及亞洲防火安全研討會暨消防及救災展之新加坡交通位置圖

理事會審議之議案如下：

1.新加入正式會員討論案：

本次申請加入正式會員有澳洲（Australia）新南威爾斯(New South Wales)Rural 消防局局長 Mr. Shane Fitzsimmons 及副局長 Mr. Rob Rogers 等 2 人。

2.總會第 28 屆年會會議討論提案：

(1)第 27 會計年度（2012 & 2013）業務報告。

(2)第 27 會計年度（2012 & 2013）收支決算報告。

(3)第 28 會計年度（2014 & 2015）業務計畫報告。

(4)第 28 會計年度（2014 & 2015）收支預算報告。

(5)藉由國際消防救助隊的合作以提升災害現場迅速之救援行動決議案。

(6)理事會成員改選。

(7)召開第 29 屆年會準備事宜。

3.理事會討論結論：

(1)第 27 會計年度（2012 & 2013）業務報告，照案通過。

(2)第 27 會計年度（2012 & 2013）收支決算報告，照案通過。

(3)第 28 會計年度（2014& 2015）業務計畫報告，照案通過。

(4)第 28 會計年度（2014 & 2015）收支預算報告，照案通過。

(5)藉由國際消防救助隊的合作以提升災害現場迅速之救援行動決議案，照案通過。

(6)理事會成員改選結果:

會　長	東京消防廳總監	大江　秀敏
副會長	香港消防局長	黎文軒
	馬來西亞消防救助廳長	Dato' Wan Mohd Nor Bin Hj. Ibrahime
	菲律賓消防廳長	Carlito Saqueton Romero
	新加坡民防總監	Eric Yap Wee Teck
理　事	各國、區域現職理事繼續留任	

(7)召開第 29 屆年會準備事宜：由日本大阪主辦。

(二)第 28 屆 IFCAA 總會年會開幕式

本次年會開幕式於 9 月 11 日（星期四）10 時舉行，為時 45 分鐘，假新加坡博覽中心(Expo)2 樓 Peridot Room 舉行，與會貴賓有副會長（4 人）、海外理事（10）、新加坡消防首長、消防機關構、參加來賓，合計約 100 人，會議程序依序

如下：

1.宣布會議開始

2.新加坡民防總監致歡迎詞

3.IFCAA 會長致詞（東京消防廳大江總監）

4.全體大合照

5.閉幕

(三)第 28 屆 IFCAA 總會年會例行會議

例行會議於 9 月 11 日（星期四）11 時 15 分，歷時 75 分鐘，假新加坡博覽中心(Expo)2 樓 Peridot Room 舉行，會議程序依序如下：

1.推舉主席

2.報告新加入正式會員：本次申請加入正式會員有澳洲新南威爾斯(New South Wales)2 人。

3.議案審議：

(1)第 27 會計年度業務報告及收支決算：由 2012 年 4 月 1 日至 2014 年 3 月 31 日，主要為在日本札幌辦理之第 27 屆年會等業務，收入 10,969,132 日圓、支出 9,287,147 日圓、結餘 1,681,985 日圓。

(2)第 28 會計年度業務計畫及收支預算：由 2014 年 4 月 1 日至 2016 年 3 月 31 日止，主要計畫為辦理國際會議、積極實現總會之決議事項、加強與國際會員間的聯繫、消防技術資料交流與發行 IFCAA 刊物、與國際消防長協會（IAFC）、消防機關審議會（AFAC）等團體協調聯繫，預算收入 10,023,000 日圓、支出 10,023,000 日圓。

(3)發展國際消防救災團隊以達到有效率的現場活動決議

案，內容摘譯如下：

比起世界其它區域，亞洲與大洋洲為自然災害發生頻繁的地區，每年亦肇致嚴重之損失，鑑於今後地震、海嘯、洪水、颱風等大規模自然災害可能造成眾多寶貴的生命及財產損失，各亞洲消防首長協會會員所屬亞洲與大洋洲區域之消防及防災機關，於大規模災害發生時，跨越國界進行救災活動之機會將逐漸增加是可以預期的。

因此，各 IFCAA 會員透過國際的訓練及會議，讓所屬國家或區域的國際消防救助隊進行知識及技術交流的同時，更應持續強化互助合作，以達到災害現場有效率的救災活動為目標。

(4)理事會成員改選結果；

會　長	東京消防廳總監	大江　秀敏
副會長	香港消防局長	黎文軒
	馬來西亞消防救助廳長	Dato' Wan Mohd Nor Bin Hj. Ibrahime
	菲律賓消防廳長	Carlito Saqueton Romero
	新加坡民防總監	Eric Yap Wee Teck
理　事	各國、區域現職理事繼續留任	

(四)第 28 屆 IFCAA 專題演講

專題演講於 9 月 12 日（星期五）9 時及 14 時分二階段，假新加坡博覽中心(Expo)2 樓 Peridot Room 進行，各階段報告人及題目依序如下：

1.第一階段(09:00~10:30)

(1)澳洲新南威爾斯洲消防救助局 Greg Mullins 局長(澳洲森林大火)

(2)新加坡民防總部第一分區司令薛守德中校(新加坡民防總部消防與救助之變革創新過程)

(3)內政部消防署葉吉堂署長(臺灣 921 地震後－大量傷患事故之管理與經驗)

(4)東京消防廳企劃調整部德留 壽一部長(創造更安全之社區)

2.第二階段(14:00~15:00)

(1)香港消防處劉克能消防總長(香港消防人員之發展)

(2)日本大阪市消防局企劃部山下 毅部長(大阪市之消防安全挑戰)

(五)閉幕式

閉幕式於 9 月 12 日（星期五）15 時，假新加坡博覽中心(Expo)2 樓 Peridot Room 舉行，閉幕程序依序如下：

1.宣布閉幕式開始

2.新加坡民防總監致感謝詞

3.IFCAA 宣言，由內政部消防署葉吉堂署長代表宣讀，內容摘譯如下:

自 1960 年設立以來，亞洲消防首長協會(IFCAA)一直致力於亞洲與大洋洲地區消防的整體發展。長久以來，超過半世紀，亞洲消防首長協會充分協助並促進亞洲與大洋洲地區的消防首長們之間的交流與友誼。此外，亞洲消防首長協會的消防與緊急服務網絡系統確實每年更臻於成熟。

我們預期亞洲與大洋洲地區在處理頻繁發生的天然災害時，未來將比以往需要更多的全球性搜救與救災介入協助。亞洲消防首長協會將是極其重要的角色，因為是亞洲與大洋洲裡唯一的人命安全首長組織。

這次，年會以「為亞洲消防安全攜手努力」為主題，將大家聚集在新加坡，為了更安全的亞洲及大洋洲，我們將朝向並致力於「發展國際消防救災團隊合作以達到有效率的現場活動」。

以上，新加坡宣言，2014 年 9 月 12 日，第 28 屆亞洲消防首長協會年會。

4.IFCAA 會長致詞（東京消防廳大江總監）

5.IFCAA 第 29 屆年會接辦儀式

6.閉幕

伍、參加新加坡 2014 亞洲消防安全年會開幕暨參觀消防防災展、參訪新加坡民防部隊、中央消防隊及民防學院、觀摩新加坡國際消防及救護挑戰賽

一、參加新加坡 2014 亞洲消防安全年會開幕暨參觀消防防災展

(一)參加新加坡 2014 亞洲消防安全年會開幕

新加坡 2014 亞洲消防安全年會（FiSAC，Fire Safety Asia Conference Singapore 2014）於 9 月 10 日（星期三）9 時假新加坡博覽中心(Expo)1 樓舉行開幕式，研討時間自 2014 年 9

月 10 日（星期三）至 12 日（星期五），每日 9 時至 17 時 30 分，研討位置分別在新加坡博覽中心(Expo)1 樓及 2 樓，其辦理單位如下：

1.主辦單位：國家消防及民防緊急整備會（NFEC, National Fire and Civil Emergency Preparedness Council）、新加坡民防部隊(SCDF, Singapore Civil Defence Force)。

2.協辦及贊助單位：新加坡公司緊急應變隊協會〔A-CERTS, Association of Company Emergency Response Teams (Singapore)〕、顧問工程師協會（ACES, Association of Consulting Engineers）、新加坡防火安全經理人協會〔FSMAS, Fire Safety Managers' Association (Singapore)〕、新加坡工程師學會（IES, The Institution of Engineers, Singapore）、新加坡消防工程師學會（IFE, The Institution of Fire Engineers Singapore）、新加坡房地產開發者協會（REDAS, Real Estate Developers' Association of Singapore）、新加坡建築師學會（SIA, Singapore Institute of Architects）、新加坡安全官研究機構（SISO, Singapore Institution of Safety Officers）、新加坡製造業聯盟（SMF, Singapore Manufacturing Federation）。

3.管理單位：會議暨展覽管理服務公司（CEMS, Conference & Exhibition Management Services Pte Ltd）。

亞洲消防安全年會開幕式於 9 月 10 日（星期三）9 時假新加坡博覽中心(Expo)1 樓舉行，開幕式由新加坡國家消防及民防緊急整備會主席 DPM Teo Chee Hean 先生致詞宣布開幕，貴賓除了新加坡內政部及外交部國家高級部長 Masagos

Zulkifli Bin Masagos Mohamad 先生、民防總監 Eric Yap Wee Teck 先生、IFCAA 會員外，還邀請全國消防防救災產業與會。

(二)參觀新加坡 2014 消防防災展

新加坡 2014 消防防災展（FDA, Fire & Disaster 2014 Singapore）於 9 月 10 日（星期三）9 時併同亞洲消防安全年會假新加坡博覽中心(Expo)1 樓舉行開幕式，展覽時間自 2014 年 9 月 10 日（星期三）至 12 日（星期五），展示位置在新加坡博覽中心(Expo)1 樓，其辦理單位如下：

1. 主辦單位：會議暨展覽管理服務公司（CEMS, Conference & Exhibition Management Services Pte Ltd）。
2. 協辦及贊助單位：新加坡展覽及會議局(Singapore Exhibition & Convention Bureau)、新加坡消防工程師學會(IFE, The Institution of Fire Engineers Singapore)、新加坡建築師學會（SIA, Singapore Institute of Architects）、新加坡防火安全經理人協會〔FSMAS, Fire Safety Managers' Association (Singapore)〕、新加坡安全官研究機構（SISO, Singapore Institution of Safety Officers）、顧問工程師協會（ACES, Association of Consulting Engineers）、新加坡工程師學會（IES, The Institution of Engineers, Singapore）。

本次參展之社團、財團、協會及廠商計有來自 12 個國家共 150 家，以室內展覽為主，展示包括各式消防車、通訊器材、消防衣、化學消防衣、破壞與搜救器材、各式瞄子、各式消防安全設備（火警自動警報設備、滅火器、避難方向與標示設備、氣體滅火）、各種雜誌與消防出版品、消防法令……等等，參觀人員對本次消防、防救災器材技術與發展，留下深刻印象。

二、參訪新加坡民防部隊、中央消防隊及民防學院

(一)民防部隊

新加坡於 1982 年提出之國家民防計畫始將國家之緊急整備納入規範，隨著 1986 年通過之民防法，始於內政部(MHA, Ministry of Home Affairs)設立民防部隊之獨立組織，同年因民防部隊及消防單位(SFS, Singapore Fire Service)聯合搶救新世界酒店倒塌事故之契機，爰於 1989 年 4 月 15 日整併為一個綜合性和協調性的隊伍，提供緊急服務，保護新加坡人民生命和財產安全，進而協助、參與國外的緊急救援。

1.組織架構：包括民防部隊總部、4 個分區(第 1 分區有 7 個消防隊，第 2 分區有 3 消防隊，第 3 分區有 3 消防隊，第 4 分區有 5 消防隊)、1 個民防學院(CDA, Civil Defence Academy)及 1 個國家訓練機構(NSTI, National Service Training Institute)。其任務概念為在各類災害發生時，消防及救災單位可於 1 分鐘內自分隊出動，並於 8 分鐘內抵達火災及災害現場(視事故點與分隊距離而定)，而救護車需在 11 分鐘內抵達事故現場。新加坡災害應變相關單位包含了外交部、國家環境部、能源局、公共事業局、國防部、警政單位、教育部、住宅發展部、建設局(工務)、境管單位、通訊發展及青年事務部、資通訊及藝術部、環境及水資源局、民航局、捷運局、公共汽車處、海港局、公路局、資通發展局、觀光局、國防科技組織、新加坡電力公司、交通部及衛生局等單位。

新加坡民防部隊 4 個分區劃分示意圖

2.三層級應變架構：

(1)一般災害：出動基本戰力，由地區消防分隊隊長為指揮官處理。

(2)大型災害：提升任務戰力，支援設備部署及設立地區性前進指揮所，依管轄區域由 4 個分區中校司令為現場指揮官。

(3)嚴重災害：建立民防部隊全功能性現場總部，動員相關人員制定聯合處置計畫，由民防部隊總監為事故應變之總指揮官。

3.任務範圍：新加坡民防部隊負責之任務範圍，除火災、建築物倒塌等各類災害搶救與緊急救護外，亦於 2012 年 4 月 1 日自海港局承接船舶火災處理任務(目前已有 1 處基地及 2 艘消防艇，在未來亦將以成立 1 個總部及 3 處基地與 5 艘消防艇的方向努力)。並具備生物性災害、危險性物質檢測及聯合國人道救援之處理能力，茲概述如下：

(1)生物性災害應變及髒彈(Dirty Bumb)處理能力：

當生物性擴散(如炭疽病毒)，新加坡民防部隊將進行採樣及針對污染地區進行除污，該部隊並配有微生物檢測器，有能力在 15 分鐘內完成篩檢及分析，並已發展出全國性反應守則，對於輻射性事故進行訓練，並配有檢測及除污裝備，所有處理人員均配有放射量測定器，強化處理簡易爆炸裝置之能力。

(2)危險性物質檢測處理能力：

為亞太地區第一個擁有此能力的國家，並支援聯合國環境處及人道事務處環境部門，提供危險物質之檢測、分析，目前新加坡民防部隊有 18 名危險性物質檢測人員，每日 24 小時待命 。

(3)聯合國人道救援之處理能力：

民防部隊於 1990 年成立快速緊急評估部隊，為登記於聯合國人道事務署之搜救單位，每日 24 小時待命，成員均接受城市搜救訓練，具醫療能力並配有搜救犬，並能在災害現場 14 天內之後勤、通訊及交通自給自足能力，於接獲任務通知後聯合空中交通服務單位在 2 小時內出動，並依照國際搜救規章協助各國進行災害評估。

(二)中央消防隊

中央消防隊建於 1908 年，位於 62 希爾街(Hill Street) ，隸屬新加坡消防部隊第 1 分區，是新加坡歷史最悠久却仍在運作的消防隊，並於 1988 年被新加坡列為國家文物。該隊現有 158 位人員，配置 2 輛消防車、3 部消防機車、1 輛雲梯消防車、1 輛空氣壓縮車、1 輛救助器材車、1 輛水陸兩用車、

4 輛一般救護車、2 輛加護救護車、1 輛救護機車及 2 輛紅犀牛(小型消防車)，共計 18 輛。管轄範圍為及牛車水(Chinatown)。除此之外，新加坡民防與消防歷史陳列館亦附設於中央消防隊，該陳列館放置新加坡 19 及 20 世紀時期之各式消防車、雲梯車、消防器材及消防帽，完整呈現新加坡消防歷史車輛及文物。

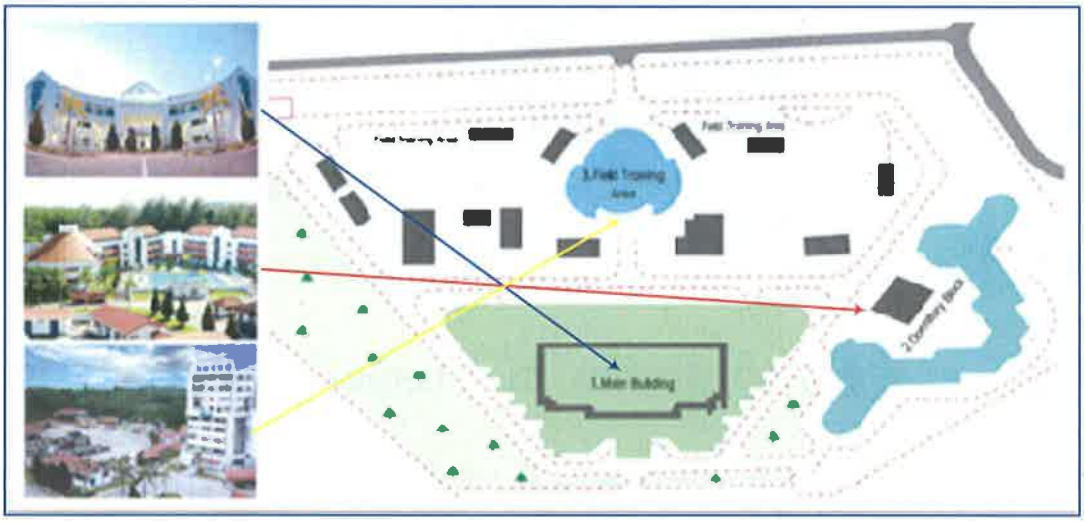
中央消防隊建築物外觀及隊徽章

(三)民防學院

新加坡民防學院(CDA, Civil Defence Academy)建於 1999 年，坐落於新加坡西偏南方，佔地約九公頃，斥資 9 千 6 百萬新加坡幣（約新臺幣 23 億元），隸屬於新加坡民防部隊（SCDF, Singapore Civil Defence Force）。民防學院現任院長為張侯華上校(Teong How Hwa)，組織成員以自願役軍官、士官（約 265 人）及義務性之替代役（約 4 百餘人）組成，係以開辦各種職業和專業特長的培訓課程為主，例如消防救災、化災處理、醫務人員、體能訓練教官及初、中、高階幹部養成進修訓練等，對象除現職民防人員外，亦包含民防退

伍人員、新加坡國內各公、私立機關團體及國外申請之防救災相關團體等。新加坡民防學院為使所有新加坡公民與民防人員，都具備有關的民防知識、技能與價值觀，在實際逼真及安全環境之訓練兩大方針下，為新加坡全體國民提供最完善之訓練，以保護和拯救生命與財產。

1.設施簡介：學院建築物區分為教學及辦公大樓、住宿兼休閒中心、室外模擬訓練場地等三大類，茲概述如下：



民防學院全區位置示意圖

(1)教學及辦公大樓：包括教室、心肺復甦訓練室、電腦室、講堂、餐廳、服務櫃台、醫療中心、資料中心。

民防學院教室、醫療中心及資料中心(由左至右)示意圖

(2)住宿兼休閒中心：包括游泳池、休閒室(MESS，提供人員休息、討論及招待外賓處所)、健身室、學員宿舍。

民防學院休閒室及游泳池(由左至右)示意圖

(3)模擬訓練場地：共計有液化石油氣筒、煉油槽、化學工廠、空氣呼吸器訓練室、交通事故、船艦、倒塌建築物及室內火災綜合模擬訓練大樓(室內火災綜合模擬訓練大樓為地上 9 層、地下 1 層之建築物，內部所有設施均按實際比例建造，讓受訓人員模擬在逼真的環境中，瞭解火災發展的情勢及撲救方法。其地上 1 層為消防控制室，該樓層全部火點均在 1 樓控制，無手持式控制器，由現場教官以無線電指揮 1 樓的控制人員開火或熄火；第 2 層為模擬火災後的場景，供火災原因調查訓練之用；第 3 層為一般住宅、油漆商店、電腦商店，供火災原因調查和撲救火災訓練；第 4 層為政府國民住宅和一般公寓；第 5 層為公司、化學實驗室、廚房、辦公室；第 6 層為科研所和店鋪；第 7 層為危險品倉庫（需用化學泡沫救災，如直接撒水系統將判定錯誤並引發爆炸情境）、行政辦公室、包裝工廠；第 8 層為餐館、廚房、卡拉 OK、酒吧；第 9 層為酒店、百貨公司、超市、洗衣店、清潔店；地下層為地下室火災撲救與救人的模擬設施。)

民防學院 LPG 儲槽、化學工廠及油槽災害模擬場地(由左至右)示意圖

民防學院倒塌建築物、立坑救助及室內火災綜合模擬訓練場地(由左至右)示意圖

2.訓練架構：民防學院依據各種災害防救需求，主要分成五個訓練部門：

(1)指揮幕僚訓練(Command & Staff Training)：包含指揮官指揮、管制、行政管理、軍官的基礎課程以及軍官升等與進階訓練。

(2)火災搶救及搜救訓練(Fire & Rescue Training)：主要針對消防人員之基礎訓練。

(3)專業級訓練(Specialist Training)：提供人員更進階之訓練，負責危險物品 (HAZMAT)、天災及地震等應變之相關訓練。

(4)進階消防訓練(Specialist Fire Training)：針對消防人員強

化基本知能及各種消防滅火能力，類似複訓的課程，以因應各種消防滅火的需求。

(5)醫療訓練 (Vocational Training)：新加坡國內醫療及相關人員之訓練。

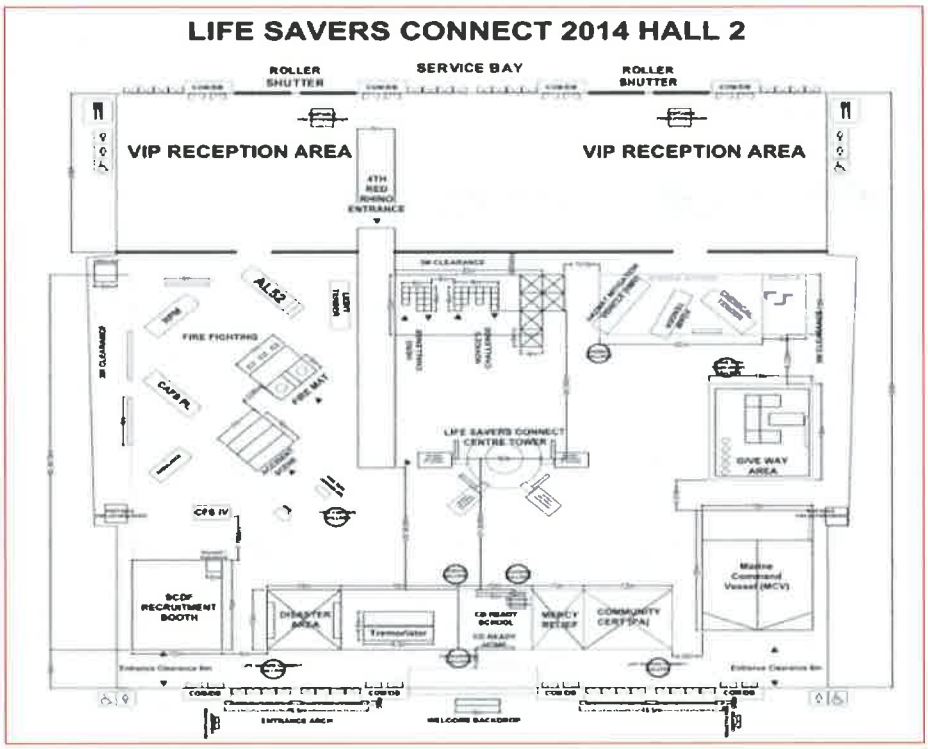
3.未來發展：強化訓練成效並持續追求卓越之訓練，另依據災害防救需求，開發新設備及模組。相關訓練取得包含 ISO 及符合 NFPA 等國際認證，後續持續與國際伙伴合作，並做經驗輸出與國際交流，現階段已有來自全球 123 個國家，超過 4 千 5 百名以上學院參與民防學院之訓練。

三、觀摩新加坡國際消防及救護挑戰賽

新加坡民防部隊多年來一直持續辦理一系列救援和滅火之挑戰，其後來被稱為民防技能大賽(CD Skills Competition)，並於 2012 年起正式更名為新加坡國際消防及救護挑戰賽(SGFPC, Singapore-Global Firefighters & Paramedics Challenge)。本 2014 年新加坡民防部隊將此一競賽以都市災害整備(Urban Disaster Readiness)為主題，併新加坡 2014 亞洲消防安全年會及亞洲消防首長協會第 28 屆年會共同辦理。

2014 新加坡國際消防及救護挑戰賽於 9 月 12 日(星期五)及 13 日(星期六)假新加坡博覽中心(Expo)1 樓展開比賽，區分為國際、新加坡民防部隊及新加坡公共團體〔包括社區、學校及公司緊急應變隊(CERT, Company Emergency Response Teams)〕等三種主要挑戰賽，而國際挑戰賽部分計有阿布達比

(Abu Dhabi)、孟加拉(Bangladesh)、汶萊(Brunei Darussalam)、大陸、香港、印尼(Indonesia)、倫敦(London)、澳門(Macau)、馬來西亞(Malaysia，3 隊)、緬甸(Myanmar)、菲律賓(Philippines)、卡塔爾(Qatar)、沙烏地阿拉伯(Saudi Arabia)、新加坡(Singapore)、東京(Tokyo)、泰國(Thailand)、越南(Vietnam)、西澳大利亞(Western Australia)及我國(內政部消防署特種搜救隊)等 21 隊參加。



新加坡國際消防及救護挑戰賽場地配置圖

我國內政部消防署特種搜救隊參加新加坡國際消防及救護挑戰賽情形圖

陸、心得與建議

一、心得

(一)亞洲消防首長年會為 2 年 1 度的消防盛會，目前已辦理 28 屆，除藉以加強消防人員間情感交流外，並使消防人員接觸了解最新救災科技發展，提升消防人員素質；本次年會除新加坡主辦國外，更有日本等 14 個國家或區域理事與會，透過本次年會之國際會議活動，除瞭解他國目前工作重點(如新加坡計畫於 2025 年前，強化企業、社區、學校等內部災害應變能力，並整合志工資源)，增進會員間友誼及國際交流合作外，並可相互學習彼此之優點與提升進步之空間。另我國與日本消防機關人員向來友好，並時有交流互訪，此次參加年會，對兩國日後交流合作頗有助益。

(二)年會確認新加入正式會員有澳洲新南威爾斯(New South Wales)Rural 消防局局長 Mr. Shane Fitzsimmons 及副局長 Mr. Rob Rogers 等 2 人。

(三)年會審議通過第 27 會計年度業務報告及收支決算案、第 28 會計年度業務計畫及收支預算案、國際消防救助隊的合作以提升災害現場迅速之救援行動決議案，以及共同宣言。

(四)於亞洲消防首長協會第 28 屆年會專題演講「臺灣 921 地震後-大量傷患事故之管理與經驗」，向各與會會員國說明我國自 921 地震後之成長與進步。更代表亞洲消防首長協會於第 28 屆年會閉幕式朗讀年會成果之宣言「為亞洲消防安全攜手努力」，增進我國國際之能見度。

(五)觀摩及派員參加新加坡國際消防及救護挑戰賽，與各國參賽者進行直接交流及切磋，相互提升彼此之消防救災與救護技能。

(六)年會除新加坡外有 14 個國家或區域理事與會，開幕式約有百餘人與會，所有接待人員、車輛及幕僚作業由新加坡民防部隊所屬人員負責，假新加坡博覽中心(Expo)2 樓 Peridot Room 辦理，其雖然參加人數眾多，惟在其詳細的事前規劃及會議、展覽地點硬體設備先進與寬廣，使得會議之接待、服務、程序皆進行得相當順利與圓滿。

二、建議

(一) IFCAA 第 28 屆年會決議「國際消防救助隊的合作以提升災害現場迅速之救援行動」之共識及宣言「為亞洲消防安全攜手努力」，可作為我國在政策形成及國際交流之參考，尤其針對大規模災害時國際相互協力機制之建立，可以縮短我國國際搜救隊在大規模災害前往災區救助之時程，並提升災害現場救援行動之效能。

(二)新加坡於辦理亞洲消防首長協會第 28 屆年會期間，亦特別精心規劃 2014 亞洲防火安全研討會(FiSAC)、消防防災展(FDA)及新加坡國際消防及救護挑戰賽(SGFPC)共襄盛舉，參與之貴賓除了新加坡內政部、民防部隊、日本東京消防廳、大阪市消防局、IFCAA 會員外，還邀請了新加坡消防及防救災學界、產業的參展，也吸引了大量的民眾與媒體參與，提高電視及平面媒體的報導及能見度，有效的達到宣傳的效果，此足以作為我們辦理類似活動時之參考。

附錄一

第 28 屆年會會議照片集錦

附錄一　參加 IFCAA 年會各會議及活動照片集錦

1.參加 103 年 9 月 10 日 08:00~12:00 亞洲消防安全年會開幕暨參觀消防防災展

照片 1	
說明	亞洲消防安全年會開幕葉署長與新加坡內政部及外交部國家高級部長 Masagos Zulkifli Bin Masagos Mohamad 先生寒暄
照片 2	
說明	亞洲消防安全年會開幕與會貴賓合影留念(葉署長左 2)

照片3	
說明	參觀消防防災展時葉署長與澳門消防總長鄒家昌合影
照片4	
說明	參觀消防防災展時葉署長與新加坡民防部隊前總監陳贊成先生合影

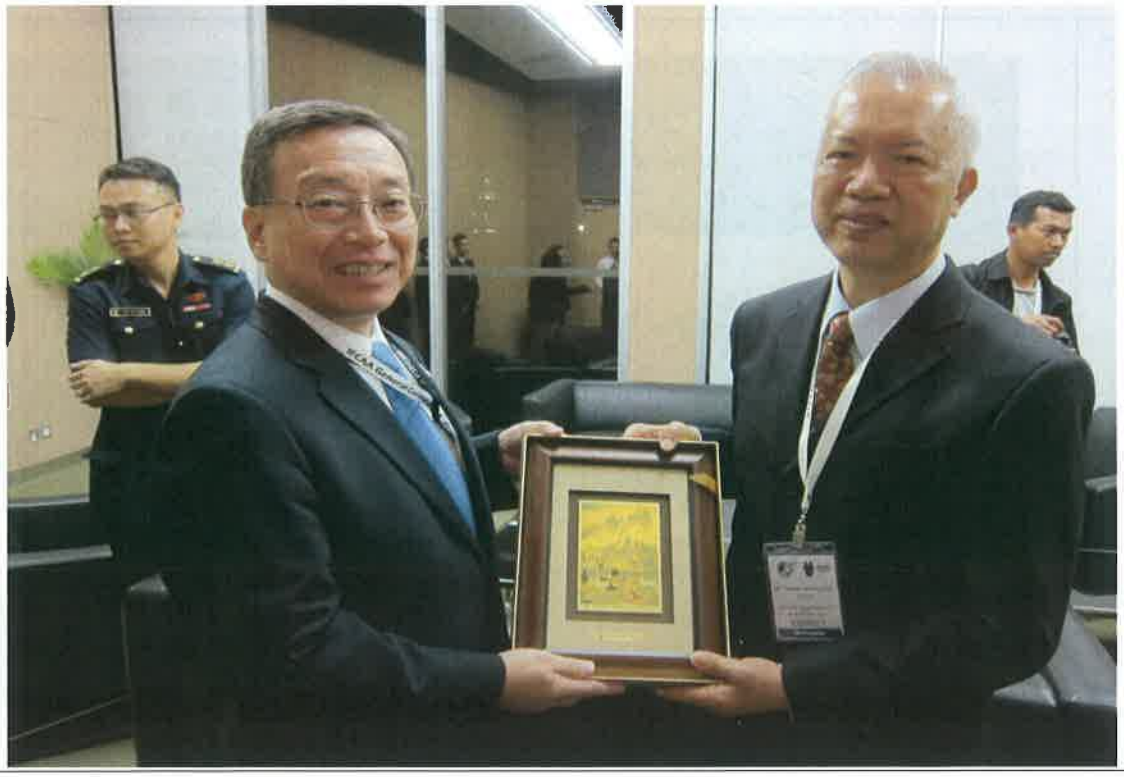
2.參加 103 年 9 月 10 日 14:00~15:00 理事會

照片 5	
說明	葉署長參加理事會(會場中間)
照片 6	
說明	葉署長參加理事會(會場中間)

3.參加 103 年 9 月 11 日 9:00~12:30 第 28 屆 IFCAA 年會開幕

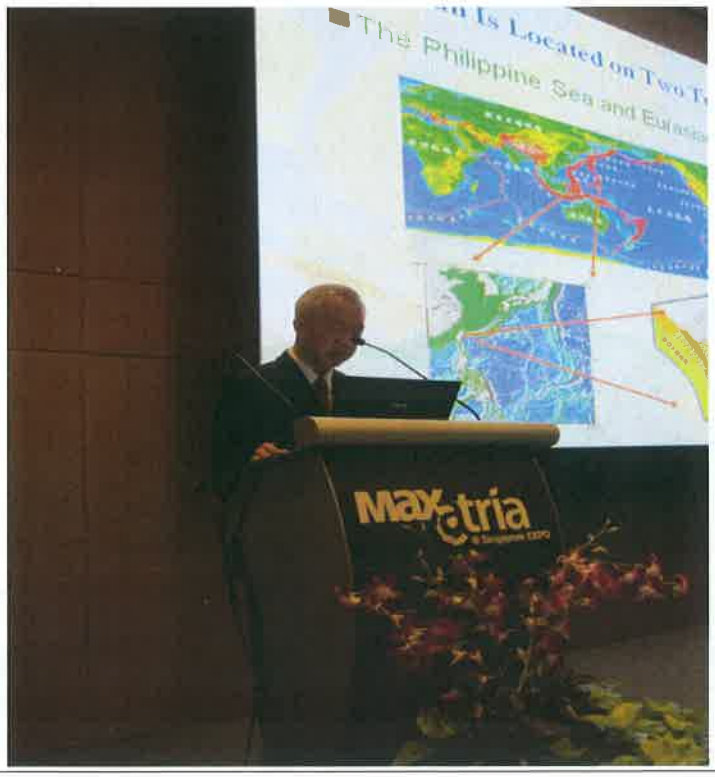
照片 7	
說明	葉署長參加第 28 屆 IFCAA 年會開幕
照片 8	
說明	第 28 屆 IFCAA 年會會後理事與貴賓合影留念(葉署長第一排左 6)

4.參加 103 年 9 月 11 日 19:00~21:30 第 28 屆 IFCAA 年會歡迎晚宴

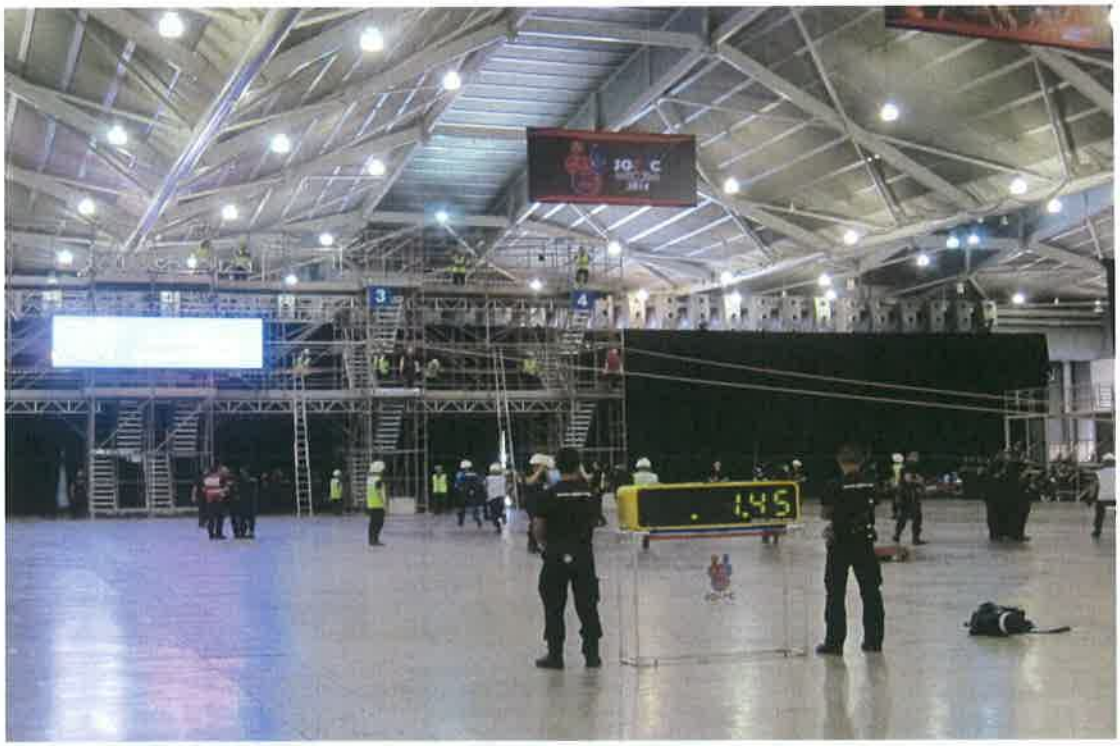
照片 9	
說明	新加坡民防部隊總監 Eric Yap Wee Teck 於歡迎晚宴致詞
照片 10	
說明	葉署長於歡迎晚宴贈送紀念品予東京消防廳總監大江　秀敏

照片 11	
說明	葉署長於歡迎晚宴贈送紀念品予新加坡民防部隊總監 Eric Yap Wee Teck
照片 12	
說明	葉署長於歡迎晚宴贈送紀念品予馬來西亞消防救助廳長 Dato' Wan Mohd Nor Bin Hj. Ibrahime

5.參加 103 年 9 月 12 日 09:00~10:30 IFCAA 年會專題演講

照片 13	
說明	葉署長於 IFCAA 年會以英文作專題演講
照片 14	
說明	葉署長於 IFCAA 年會以英文作專題演講

6.於 103 年 9 月 12 日 11:00~12:30 觀摩新加坡國際消防及救護挑戰賽

照片 15	
說明	新加坡國際消防及救護挑戰賽比賽現場場景
照片 16	
說明	葉署長至挑戰賽現場為我國參賽同仁加油打氣

7. 參加 103 年 9 月 12 日 15:00~15:30 第 28 屆 IFCAA 年會閉幕

照片 17	
說明	葉署長於閉幕會上接受新加坡民防部隊總監贈送之感謝紀念牌
照片 18	
說明	葉署長代表 IFCAA 於第 28 屆年會閉幕式以英文朗讀年會成果之宣言

附錄二

理事會議資料
（新進正式會員、第 28 屆總會年會程序、決議案草案、宣言草案等）

IFCAA Directors' Meeting (Preliminary Meeting)
The 28th IFCAA General Conference

第28回アジア消防長協会総会
理　事　会

On September 10, 2014 in Singapore

2014年9月10日

シンガポール共和国

International Fire Chiefs' Association of Asia

ア　ジ　ア　消　防　長　協　会

IFCAA Directors' Meeting (Preliminary Meeting)
The 28th General Conference
International Fire Chiefs' Association of Asia

1. Time & Date : 14:00 on September 10 (Wed.), 2014

2. Venue : "PERIDOT 201", 2nd Floor, Max Atria
Singapore Expo Convention & Exhibition Centre (EXPO)

3. Program : Opening
Greetings by Host
Greetings by IFCAA President
Introduction of Delegates
Election of Chairman
Deliberations on Proposals
Closing

第28回アジア消防長協会総会
理　事　会

1　日　時　：　2014年9月10日（水）午後2時00分

2　場　所　：　シンガポール EXPO コンベンション&エキシビションセンター（EXPO）
マックス・アトリア2階「ペリドット201」

3　次　第　：　開　会
開催地あいさつ
イフカ会長あいさつ
出席者紹介
議長推挙
議案審議
閉　会

Proposals

1. Conference Schedule

You are kindly requested to agree on the following schedule of the 28th IFCAA General Conference.

Conference Venue : Singapore Expo Convention & Exhibition Centre (EXPO)

September 11 (Thu.)

10:00	Opening Ceremony for the 28th IFCAA General Conference (PD 202&203, 2F, MA)
10:45	Tea Break (Foyer, 2F, MA)
11:15	IFCAA Regular Session (PD 202&203, 2F, MA)
12:30	Lunch Break (Foyer, 2F, MA)
14:00	Technical Visit (Civil Defence Academy)
19:00	Official IFCAA Dinner (PD 204&205, 2F, MA)

議　　案

1　会議等日程について

第 28 回イフカ総会の日程は次のとおりであるので、ご承知願いたい。

総会会場：シンガポール EXPO コンベンション&エキシビションセンター（EXPO）

2014 年 9 月 11 日（木）

10:00	第 28 回イフカ総会開会式（MA２階「ペリドット 202&203」）
10:45	ティーブレイク（MA２階ロビー）
11:15	イフカ定例会議（MA２階「ペリドット 202&203」）
12:30	昼　食（MA２階ロビー）
14:00	視察研修（民間防衛学校）
19:00	イフカ公式夕食会（MA２階「ペリドット 204&205」）

September 12 (Fri.)

09:00 IFCAA Presentation I (PD 202&203, 2F, MA)
10:30 Tea Break (Foyer, 2F, MA)
11:00 Observation of Singapore Global Fire Fighters and Paramedics Challenge (SGFPC) and Tour of Exhibition (Hall, 1F EXPO)
12:30 Lunch Break (Foyer, 2F, MA)
14:00 IFCAA Presentation II (PD 202&203, 2F, MA)
15:00 Closing Ceremony (PD 202&203, 2F, MA)

2. Conference Details

The details of the General Conference are as follows. Your cooperation in holding the Conference as scheduled would be most appreciated.

2014年9月12日（金）

9:00 消防事情発表第１部（MA２階「ペリドット202&203」）
10:30 ティーブレイク（MA２階ロビー）
11:00 SGFPC（シンガポール消防隊員・パラメディック国際競技大会）及び防災展の視察（EXPO１階ホール）
12:30 昼　食（MA２階ロビー）
14:00 消防事情発表第２部（MA２階「ペリドット202&203」）
15:00 閉会式（同上）

2　会議等次第について

会議等次第については以下のとおりであるので、円滑な運営にご協力願いたい。

September 11 (Thu.)

10:00 Opening Ceremony for the 28h IFCAA General Conference
- Opening
- Greetings by SCDF Commissioner
- Greetings by IFCAA President
- Group Photo
- Closing

10:45 Tea Break

11:15 IFCAA Regular Session
- Election of Chairman
- Report on New IFCAA Members
- Deliberations on Proposals

12:30 Lunch Break

14:00 Technical Visit (Civil Defence Academy)

19:00 Official IFCAA Dinner

9月11日（木）

10:00 第28回イフカ総会開会式
- 開　会
- シンガポール民間防衛庁長官あいさつ
- イフカ会長あいさつ
- 写真撮影
- 閉　会

10:45 ティーブレイク

11:15 イフカ定例会議
- 議長推挙
- 新規会員の加入報告
- 議案審議

12:30 昼食（休憩）

14:00 視察研修（民間防衛学校）

19:00 イフカ公式夕食会

September 12 (Fri.)

09:00 IFCAA Presentation I (4 speakers)

(1) "Effective Forest Fire Fighting Strategies" (Mr. Greg Mullins AFSM, Commissioner, Fire & Rescue New South Wales, Australia)

(2) "Innovation in Transforming Fire & Rescue Response - SCDF's Journey" (Mr. Daniel Seet, Commander, 1st CD Division, Singapore Civil Defence Force)

(3) "Managing Mass Casualties Incidents and Lessons Learnt - Taiwan Earthquakes" (Mr. Charles Chi-Tan Yeh, Director General, National Fire Agency, M.O.I., Taiwan)

(4) "Creating Safer Communities" (Mr. Toshikazu Tokudome, Chief, Planning and Coordination Division, Tokyo Fire Department, Japan)

10:30 Tea Break

11:00 Observation of Singapore Global Fire Fighters & Paramedics Challenge (SGFPC) and Tour of Exhibition

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9月12日（金）

09:00 消防事情発表第1部（4名）

○「効果的な森林火災対策」グレッグ・マーリンズ氏（ニューサウスウェールズ州消防救助局長）

○「大いなる消防の発展を目指して一躍進を続けるシンガポール民間防衛庁」ダニエル・シート氏（シンガポール民間防衛庁第1民間防衛本部指揮官）

○「大規模災害－その対応と教訓」葉吉堂氏（台湾内政部消防署長）

○「地域防災力の向上」徳留壽一氏（東京消防庁計画調整部長）

10:30 ティーブレイク

11:00 シンガポール消防隊員・パラメディック国際競技大会（SGFPC）及び防災展の視察

12:30 Lunch Break

14:00 IFCAA Presentation II (2 speakers)

(1) "Leadership Challenges in Modern Fire Services" (Mr. Robert LAU, Assistant Director (Licensing and Certification), Hong Kong Fire Services Department)

(2) "Fire Safety Challenges in Osaka City"

(Mr. Tsuyoshi Yamashita, Chief, Planning Division, Osaka Municipal Fire Department, Japan)

15:00 Closing Ceremony

Opening

Greetings by Host (SCDF Commissioner)

IFCAA Declaration

Greetings by IFCAA President

IFCAA Conference Host Plate Handover

Closing

12:30 昼　食

14:00 消防事情発表第２部（２名）

○「消防長が取り組むべき今日の課題」ロバート・ラウ氏（香港消防局局長補佐兼許可申請部長）

○「大阪市における火災安全対策」山下毅氏（大阪市消防局計画部長）

15:00 閉会式

開会

開催地あいさつ

イフカ宣言

イフカ会長あいさつ

次期総会開催地への引継式

閉会

3. Entry of New Members

You are kindly requested to deliberate on the items stated in "Entry of New Members to IFCAA (*Attachment 1*).

4. Proposals for General Conference

You are kindly requested to deliberate beforehand on the items stated in "The Proposals for the General Conference" (*Attachment 2*).

3　新規会員の加入について

別紙１「新規会員の加入について（案)」のとおりであるが、ご審議いただきたい。

4　総会の議案について

別紙２「総会議案」のとおりであるが、事前にご審議いただきたい。

(Attachment 1 for the Directors' Meeting)　　(理事会 別紙１)

Entry of New Members to IFCAA (DRAFT)
新規会員の加入について（案）

We received a request from the following two persons for active membership :
以下の２名より、正会員への新規加入の申込みがありました。

1　Mr. Shane Fitzsimmons AFSM
シェーン・フィッツシモンズ
Commissioner
New South Wales Rural Fire Service, Australia
オーストラリア連邦ニューサウスウェールズ州地方消防局長

2　Mr. Rob Rogers AFSM
ロブ・ロジャーズ
Deputy Commissioner
New South Wales Rural Fire Service, Australia
オーストラリア連邦ニューサウスウェールズ州地方消防局次長

(Attachment 2 for the Directors' Meeting)　　(理事会 別紙２)

Proposals to The 28th IFCAA General Conference

1 The Achievements in the 27th Fiscal Year (2012 & 2013)

2 The Financial Results in the 27th Fiscal Year (2012 & 2013)

3 The Projects in the 28th Fiscal Year (2014 & 2015)

4 The Budget Plans in the 28th Fiscal Year (2014 & 2015)

5 Developing International Fire-Rescue Units' Teamwork For Effective On-Scene Activities

6 Reelection of Officers

7 The 29th General Conference

総 会 議 案

1　第 27 会計年度（2012～2013）の事業報告について

2　第 27 会計年度（2012～2013）の収支決算について

3　第 28 会計年度（2014～2015）の事業計画について

4　第 28 会計年度（2014～2015）の収支予算について

5　国際消防救助隊の連携による迅速な現場活動の推進について

6　役員の改選について

7　第 29 回総会の開催について

RESOLUTIN (DRAFT)

Developing International Fire-Rescue Units' Teamwork For Effective On-Scene Activities

Asia and Oceania are more often visited by natural disasters than any other part of the world, and suffer serious damage every year. Unavoidable natural forces such as devastating earthquakes, *tsunami* waves, floods and typhoons may continue to cause a great loss of invaluable property and eventually claim a lot of lives in Asia and Oceania. It is expected that Asian and Oceanian fire-rescue department leaders will work together, as IFCAA colleagues, for extensive rescue operations more often than ever before in case of life-threatening disasters.

In such circumstances, IFCAA members are required to continue to share rescue expertise through special training sessions or conferences on the international level. Also, we are going to develop professional teamwork so that we can deal with emergencies in a quick yet appropriate manner.

Resolved on September 11, 2014.
At the 28th General Conference of the International Fire Chiefs' Association of Asia

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決　議（案）

国際消防救助隊の連携による迅速な現場活動の推進について

世界的にも自然災害が多発するアジア・オセアニア地域では、毎年、甚大な被害が発生しており、今後も地震や津波、洪水、台風等の大規模な自然災害による多くの尊い人命や貴重な財産の損失が懸念されていることから、アジア消防長協会（イフカ）会員が所属するアジア・オセアニア地域の消防・防災機関においては、大規模災害の発生時には、国を越えた救助活動を行う機会がますます増加するものと想定される。

このような状況の下、イフカ会員においては、国際的な訓練の実施や会議等の開催を通じて、会員の所属する各国・地域の国際消防救助隊の知識と技術の交流をはかるとともに、連携を強化し、災害現場における迅速な活動を推進するために、引き続き努力していくものとする。

以上決議する。

２０１４年９月１１日

第２８回アジア消防長協会総会

IFCAA OFFICERS (DRAFT)
アジア消防長協会役員（案）

President 会　長	Fire Chief Tokyo Fire Department Japan 東京消防庁消防総監	Mr. Hidetoshi Oe 大　江　秀　敏
Vice President 副 会 長	Director Fire Services Department Hong Kong 香港消防局長	Mr. LAI Man-hin ライ・マンヒン（黎文軒）
	Director General Fire and Rescue Department Malaysia マレーシア消防救助庁長官	Dato' Wan Mohd Nor Bin Hj. Ibrahime ﾀﾞﾄ･ﾜﾝ･ﾓｯﾄﾞ･ﾉｱ･ﾋﾞﾝ･ﾊｼﾞ･ｲﾌﾞﾗﾋﾑ
	Officer-In-Charge Bureau of Fire Protection Philippines フィリピン消防庁長官	Mr. Carlito Saqueton Romero カーリト・サクウェトン・ロメロ
	Commissioner Singapore Civil Defence Force Singapore シンガポール民間防衛庁長官	Mr. Eric Yap Wee Teck エリック・ヤップ・ウィー・テック
Director 理　事	The active directors shall basically keep their directorate. 各国・地域の現任理事が留任するものとする。	

DECLARATION

Since its foundation in 1960, the International Fire Chiefs' Association of Asia (IFCAA) has been working for the overall development of the fire service in Asia and Oceania. For a long period of time, longer than half a century, IFCAA has been well extending assistance to Asian and Oceanian fire chiefs in their promoting mutual exchanges and friendships. In addition, the IFCAA fire and emergency services network system actually achieved and will achieve sophistication each year.

It is expected that Asia and Oceania will need rescue and relief interventions on the global level more often than ever before to cope with frequent natural catastrophes. IFCAA assumes a vital role now as the only life safety leaders' organization for Asia and Oceania.

This time, here in Singapore we assembled－rallied around the General Conference theme of *Working Together For a Fire Safe Asia.* Now for the greater safety of Asia and Oceania, we direct our attention and efforts to **"Developing International Fire-Rescue Units' Teamwork For Effective On-Scene Activities."**

Declared on September 12, 2014.
At the 28th General Conference of the International Fire Chiefs' Association of Asia

宣　　言

アジア・オセアニア地域の消防の全般的発展に資することを目的とするアジア消防長協会（イフカ）は、１９６０年の設立以来、半世紀を越える長きに渡り、当該地域の消防長の相互交流と融和協調に大いに貢献し、イフカを介した各国・地域の消防・防災機関間のネットワークの構築も年々強化されている。

大規模な自然災害が頻発するアジア・オセアニア地域では、近隣諸国の国を越えた救援活動の機会が今後ますます増加していくものと思われ、当該地域で唯一の国際消防団体として、イフカの担う役割は一層重要になってきている。

このような中、「アジアの火災安全のために共に力を合わせて」を総会テーマとして、ここシンガポール共和国に集う我々イフカ会員は、アジア・オセアニア地域の住民の安心・安全の確保のため、国際消防救助隊の連携による迅速な現場活動を特に推進することとする。

以上、ここシンガポール共和国において宣言する。

２０１４年９月１２日

第２８回アジア消防長協会総会

附錄三

年會審議資料
（第 27 會計年度業務報告及收支決算、第 28 會計年度業務計畫及收支預算、幹部改選案、宣言案等）

Proposals to the 28th IFCAA General Conference

1. The Achievements in the 27th Fiscal Year (2012 & 2013)

2. The Financial Results in the 27th Fiscal Year (2012 & 2013)

3. The Projects in the 28th Fiscal Year (2014 & 2015)

4. The Budget Plans in the 28th Fiscal Year (2014 & 2015)

第28回アジア消防長協会総会議案

1. 第27会計年度（2012～2013）の事業報告について

2. 第27会計年度（2012～2013）の収支決算について

3. 第28会計年度（2014～2015）の事業計画について

4. 第28会計年度（2014～2015）の収支予算について

5. Developing International Fire-Rescue Units' Teamwork For Effective On-Scene Activities

6. Reelection of Officers

7. The 29th General Conference

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5. 国際消防救助隊の連携による迅速な現場活動の推進について

6. 役員の改選について

7. 第29回総会の開催について

Booklet - 1
冊 子 － 1

The Achievements and Financial Results in the 27th Fiscal Year

第 27 会計年度事業報告及び収支決算

International Fire Chiefs' Association of Asia
ア ジ ア 消 防 長 協 会

Achievements in the 27th Fiscal Year

(April 1, 2012 – March 31, 2014)

The following are the major achievements in the 27th fiscal year.

1. The 27th IFCAA General Conference

The 27th IFCAA General Conference opened at 10:00 a.m. on June 21 (Thursday), 2012 in the Main Hall on the 1st floor of the Sapporo Convention Center (SORA). The opening ceremony attracted 528 people from 14 countries and two areas including IFCAA fire chiefs and executives in Asia and Oceania

<Conference Outline>
(1) Period
Two days: June 21 (Thurs.) and 22 (Fri.), 2012
(2) Venue
Sapporo Convention Center (SORA)
(3) Program
June 21 (Thurs.)
10:00 – 11:00 Opening Ceremony for the 27th IFCAA General Conference (Main Hall / 1F)
11:20 – 12:30 IFCAA Regular Session (Main Hall / 1F)
14:00 – 16:20 Excursion (to disaster/life safety facilities in Sapporo)
17:30 – 19:00 IFCAA '12 Official Dinner Party (Sapporo Grand Hotel)
June 22 (Fri.)
09:20 – 10:20 IFCAA Presentation Ⅰ (Conference Hall / 1F)
10:30 – 12:00 Opening Ceremony for the IFCAA 2012 Sapporo International Fire & Safety Exhibition (Main Hall & outdoor venue / 1F)
IFCAA 2012 International Rescue Team Joint Training Drill (Outdoor parking)

第 27 会計年度事業報告

(2012 年 4 月 1 日から 2014 年 3 月 31 日まで)

第 27 会計年度において実施した事業並びにその経過について報告します。

1 第 27 回アジア消防長協会総会の開催について

2012 年 6 月 21 日（木）10 時 00 分から、札幌市の札幌コンベンションセンター（以下「SORA」という。）の 1 階「大ホール」において、第 27 回のアジア消防長協会（以下「イフカ」という。）総会の開会式が行われた。開会式には会員のうちアジア及びオセアニア地域の 14 カ国 2 地域から消防長や消防幹部職員等 528 名が出席した。

総会の概要は以下のとおり
(1) 会　期　2012 年 6 月 21 日（木）～ 22 日（金）2 日間
(2) 会　場　札幌市　SORA
(3) 開催内容
6 月 21 日（木）
10:00 ～ 11:00　第 27 回イフカ総会開会式（1 階「大ホール」）
11:20 ～ 12:30　イフカ定例会議（同上）
14:00 ～ 16:20　視察研修（札幌市内の防災施設）
17:30 ～ 19:00　IFCAA'12 合同意見交換会（札幌グランドホテル）

6 月 22 日（金）
09:20 ～ 10:20　イフカ各国消防事情発表第 1 部（1 階「特別会議場」）
10:30 ～ 12:00　IFCAA 2012 札幌国際消防・防災展開会式及び視察（1 階「大ホール」・屋外展示場）
IFCAA 2012 国際消防救助隊合同訓練（第 2 平面駐車場：特設訓練会場）

14:00 – 15:20　IFCAA Presentation Ⅱ (Conference Hall / 1F)
15:30 – 16:10　Closing Ceremony (Conference Hall / 1F)
16:30 – 17:00　Press Conference (Room 108 / 1F)

(4) Countries and Areas of the Conference Participants (IFCAA Members)

Australia, Bangladesh, Brunei Darussalam, Hong Kong, Indonesia, Iran, Japan, Korea, Kuwait, Malaysia, Mongolia, Papua New Guinea, the Philippines, Singapore, Taiwan, and Thailand

○ Other: France

2. Other Related Events

(1) Directors' Meeting

The IFCAA Directors' Meeting was held at 9:00 on June 21 (Thursday), 2012 in Room 204 on the second floor of SORA for the deliberations on the proposals for the General Conference.

(2) IFCAA 2012 Sapporo International Fire & Safety Exhibition

The Tokyo IFCAA Secretariat and the IFCAA 2012 Sapporo Executive Committee organized and held the IFCAA 2012 Sapporo International Fire & Safety Exhibition in the Main Hall and the outdoor venue on the 1st floor of SORA on June 22 (Friday) and 23 (Saturday), 2012. The two-day event had 75 Japanese companies as exhibitors, attracting 13,639 people as visitors.

(3) IFCAA 2012 International Rescue Team Joint Training Drill

The IFCAA, for the first time in its history, held a joint training drill with foreign rescue teams as its participants. It was carried out in SORA's outdoor parking area at 11:00 a.m. on June 22 (Friday), 2012.

The drill was joined domestically by the Sapporo Fire Bureau and the Emergency Fire Response Team in Hokkaido, and internationally by six IFCAA member fire/rescue departments (two members from each) – twelve rescuers from abroad.

(Participants)

14:00 ～ 15:20　イフカ各国消防事情発表第２部（1 階「特別会議場」）
15:30 ～ 16:10　閉会式（同上）
16:30 ～ 17:00　記者会見（1 階「108 会議室」）

（4）会議に出席したイフカ会員の所属する国・地域

オーストラリア連邦、バングラデシュ人民共和国、ブルネイ・ダルサラーム国、香港、インドネシア共和国、イラン・イスラム共和国、日本国、大韓民国、クウェート国、マレーシア、モンゴル国、パプア・ニューギニア独立国、フィリピン共和国、シンガポール共和国、台湾、タイ王国

※その他（1 カ国）　フランス共和国

2　関連行事

（1）理事会

2012 年 6 月 21 日（木）9 時 00 分から、SORA2 階の「204 会議室」において、イフカ理事会を開催し、総会提出議案等を審議した。

（2）IFCAA 2012 札幌国際消防・防災展

2012 年 6 月 22 日（金）～ 23 日（土）の 2 日間、SORA 1 階大ホール及び屋外展示場において、イフカと IFCAA 2012 札幌開催実行委員会の主催による「IFCAA 2012 札幌国際消防・防災展」が開催され、日本国内の 75 社が出展し、2 日間合計で 13,639 人の来場者があった。

（3）IFCAA 2012 国際消防救助隊合同訓練

2012 年 6 月 22 日（金）11 時 00 分から、SORA 屋外平面駐車場の特設会場において、イフカでは初めてとなる国際消防救助隊による合同訓練が行われた。

本訓練には、日本国から札幌市消防局及び北海道内の緊急援助隊が参加すると共に、イフカ会員の所属する 6 つの消防・防災機関からも各 2 名計 12 名の国際救助隊員が参加した。

※訓練に参加した海外の消防・防災機関

① Tehran Safety Services & Fire Fighting Organization ② National Emergency Management Agency of Korea ③ Fire and Rescue Department, Malaysia ④ Mongolia National Emergency Management Agency ⑤ Singapore Civil Defence Force ⑥ National Fire Agency of Taiwan

3. New Members

IFCAA accepted 15 people from the following two countries as its new members.

Mongolia

<Active Members (4)>

Mr. Boldbaatar Baatar (President, University of Internal Affairs, Ministry of Justice and Home Affairs of Mongolia)
Mr. Ganbaatar Gankhuyag (Director of Emergency Management Department, Darkhan-Uul Aimak)
Mr. Jamiyan Ganzorigt (Head of Emergency Management Division, Emergency Management Department, Ulaanbaatar)
Mr. Munkhbaatar Dorji (Chief of Emergency Service, Bayankhongor Aimak)

The Philippines

<Active Members (7)>

Bureau of Fire Protection
Mr. Samuel R. Perez, CEO Ⅵ (Officer-in-Charge / Deputy Chief for Administration)
Mr. Rodrigo R. Abrazaldo (Chief Directorial Staff)
Mr. Gregorio S. Antonio (Provincial Fire Marshal)
Mr. Fausto F. Santiago (Provincial Fire Marshal)
Mr. Ricardo C. Perdigon (Superintendent)
Mr. Benjamin F. Ventajar (Chief Inspector, Office of the Deputy Chief for Operation)
Ms. Carmen B. Castelo (Infor. & Admin. Officer, Office of the Deputy Chief for Admin.)

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①テヘラン消防局、②大韓民国消防防災庁、③マレーシア消防救助庁、④モンゴル国家危機管理庁、⑤シンガポール民間防衛庁、⑥台湾内政部消防署

3　新規入会者について

第27会計年度は以下の2カ国から15名のイフカへの新規入会があった。

モンゴル国：正会員4名

法務内務省内務大学学校長　ボルドバータル・バータル
国家危機管理庁ダルハンオール県危機管理部長　ガンバータル・ガンフーヤグ
同庁ウランバートル市危機管理部長　ジャムヤン・ガンゾリジット
同庁バヤンホンゴ県危機管理部長　ムンフバータル・ドルジ

フィリピン共和国：正会員7名

消防庁総務担当副長官　サムエル・R・ベレツ，Ceo Ⅵ
同庁地方本部長　ロドリゴ・R・アブラザルド
同庁地方消防署長　グレゴリオ・S・アントニオ
同庁地方消防署長　ファウスト・F・サンチャゴ
同庁消防監　リカールド・C・パーディゴン
同庁警防担当副長官室首席検査官　ベンジャミン・F・ベンタジャル
同庁総務担当副長官室総務情報課長　カルメン・B・カステロ

<Associate Members (4)>
Mr. Johnny Gaw Yu (Fire Chief, Team Network Fire Rescue Department, Civil Defense Action Group (C.D.A.G.))
Mr. Junsei Sasaki (Fire Chief, Pilipino Japanese Emergency Response Association, C.D.A.G.)
Mr. Katsumi Fujita (Deputy Fire Chief, Pilipino Japanese Emergency Response Association, C.D.A.G.)
Mr. Leonard Gan (Volunteer Fire Chief, Caloocan City Philipino-Chinese Fire Prevention Association)

4. Association Magazine *IFCAA*

IFCAA prepared and distributed the following issues of the association magazine *IFCAA* to its members and others.
In June 2012: Vol. 27 / No. 52 (1,500 copies)
In November 2012: Vol. 27 / No. 53 (950 copies)

5. IFCAA Fire Statistics

IFCAA compiled the *IFCAA Fire Statistics 2011-2012* (with data presented by 17 countries and two areas), and distributed 100 copies of the material to its members in May 2013.

6. IFCAA Secretariat News

IFCAA e-mailed the *IFCAA Secretariat News* to its members to share the latest information with them on the officers' reshuffle and the IFCAA General Conference. This e-mail network also offered the members a lot of opportunities to stay "updated" on IFCAA nations' fire safety and disaster preparedness facts.

フィリピン共和国：準会員４名
民間防衛活動グループ（CDAG）ネットワークチーム消防隊長 ジョニー・ガウ・ユイ
CDAG 日本チーム消防隊長　佐々木純正
CDAG 日本チーム消防副隊長　藤田カツミ
カローカン市華人防火協会消防隊長　レオナルド・ガン

4　機関誌「*IFCAA*」の発行について

2012 年 6 月に第 27 巻第 52 号を 1,500 冊、2012 年 11 月に第 27 巻第 53 号を 950 冊発行し、会員及び関係機関等へ配布した。

5　イフカ消防統計の発行について

2013 年 5 月に、イフカ会員の所属する 17 カ国 2 地域の 2011 年と 2012 年の消防統計を 100 冊作成し、各国・地域のイフカ役員等へ配布した。

6　イフカ事務局ニュースの配信について

各国・地域のイフカ役員に対して、電子メールによる「イフカ事務局ニュース」を配信し、役員交代やイフカ総会に関する事務局からの情報提供を行うとともに、消防・防災に関する会員相互の各種情報交換の場を提供して、情報の共有化を促進した。

The Financial Results in the 27th Fiscal Year
(April 1, 2012 – March 31, 2014)

第27会計年度決算書
(2012年4月1日から2014年3月31日まで)

1. Revenue 収　　入	¥10,969,132
2. Expenditure 支　　出	¥ 9,287,147
3. Balance 差引残高	¥ 1,681,985 (Balance carried forward) (翌年度へ繰越)

Revenue ¥10,969,132
収入の部

Classification 科目			Budget 予算額	Settled Account 決算額
Article 大	Item 中	Sub-item 小		
Membership Dues 会費			6,008,000	5,956,466
	Membership Dues 会費		6,008,000	5,956,466
		Active Membership Dues 正会員費	3,300,000	3,237,645
		Associate Membership Dues 準会員費	8,000	18,821
		Assisting Membership Dues 賛助会員費	2,700,000	2,700,000
Miscellaneous Incomes 雑収入			2,003,000	2,000,823
	Miscellaneous Incomes 雑収入		2,003,000	2,000,823
		Contributions 寄付金	2,000,000	2,000,000
		Bank Interest 利息	2,000	823
		Miscellaneous Incomes 雑入	1,000	0
Amount Brought Forward 繰越金			3,011,000	3,011,843
	Amount Brought Forward 繰越金		3,011,000	3,011,843
		Amount Brought Forward 繰越金	3,011,000	3,011,843
Total 計			11,022,000	10,969,132

Unit:Yen 単位：円

Increase & Decrease (△) 増 △減	Remark 摘 要
△ 51,534	
△ 51,534	
△ 62,355	Collected from active members 正会員からの会費
10,821	Collected from associate members 準会員からの会費
0	Collected from assisting members 賛助会員からの会費
△ 2,177	
△ 2,177	
0	
△ 1,177	Interest of bank deposits 銀行預金利息
△ 1,000	
843	
843	
843	Balance brought forward from the previous year 前年度繰越
△ 52,868	

Expenditure ¥9,287,147
支出の部

Classification 科目			Budget 予算額	Settled Account 決算額
Article 大	Item 中	Sub-item 小		
Business Expenses 事業費			8,220,000	6,813,442
	Association Magazine Expenses 機関誌費		1,420,000	1,020,317
		Periodical & Information Expenses 定期機関誌等発行諸費	1,400,000	1,020,317
		Data Collection Expenses 資料収集費	20,000	0
	Publicity Expenses 広報費		200,000	97,635
		PR & Publicity Expenses 広報宣伝費	200,000	97,635
	Conference Expenses 会議費		3,300,000	2,700,980
		General Conference Expenses 総会費	2,500,000	2,500,000
		Meeting Expenses 会議諸費	800,000	200,980
	Official Trip Expenses 出張費		1,300,000	994,510
		Official Trip Expenses 出張費	1,300,000	994,510
	Training Promotion Expenses 訓練推進費		2,000,000	2,000,000
		Training Promotion Reserve Fund 訓練推進準備費	2,000,000	2,000,000

Unit:Yen　単位：円

Increase & Decrease (△) 増　△減	Remark 摘　要
△ 1,406,558	
△ 399,683	
△ 379,683	Expenditure for publishing periodicals and others 定期機関誌及びその他資料の発行に要する費用
△ 20,000	Expenditure for collecting data 資料収集に要する費用
△ 102,365	
△ 102,365	Expenditure for conducting PR and publicity 広報宣伝に要する費用
△ 599,020	
0	Expenditure for holding the General Conference 総会開催経費
△ 599,020	Expenditure for holding meetings 会議関係に伴う諸経費
△ 305,490	
△ 305,490	Expenditure on the official trips by the secretariat staff 事務局職員出張旅費
0	
0	Expenditure on the research in the promotion of the Joint International Rescue Drill 国際救助隊合同訓練推進に係る準備費

Classification 科　目			Budget 予算額	Settled Account 決算額
Article 大	Item 中	Sub-item 小		
Office Expenses 事　務　費			2,794,000	2,473,705
	Personnel Expenses 人　件　費		2,000,000	2,000,000
		Personnel Expenses 人　件　費	2,000,000	2,000,000
	Office Expenses 事　務　費		794,000	473,705
		Membership Badge Expenses 会員章費	194,000	183,750
		Office Supplies Expenses 消耗品費	90,000	40,950
		Translation Expenses 翻　訳　費	400,000	211,155
		Contact & Liaison Expenses 事務連絡費	90,000	29,880
		Miscellaneous Expenses 諸　費	20,000	7,970
Reserve Fund 予　備　費			8,000	0
	Reserve Fund 予　備　費		8,000	0
		Reserve Fund 予　備　費	8,000	0
Total 計			11,022,000	9,287,147

Unit:Yen 単位：円

Increase & Decrease (△) 増 △減	Remark 摘 要
△ 320,295	
0	
0	Salaries for the secretariat staff 事務局職員給与分担金
△ 320,295	
△ 10,250	Expenditure for producing membership badges イフカ会員章作成費
△ 49,050	Expenditure for purchasing office supplies 事務用消耗品購入費
△ 188,845	Expenditure on the request for document translation 資料等翻訳委託料
△ 60,120	Expenditure on business contacts and correspondence (*inc.* telephone & mail) 事務連絡諸費（電話、郵送料含む）
△ 12,030	Commission for the payment into bank accounts and others 振込手数料他
△ 8,000	
△ 8,000	
△ 8,000	
△ 1,734,853	

Booklet - 2
冊 子 － 2

The Projects and Budget Plans in the 28th Fiscal Year
第 28 会計年度事業計画及び収支予算

International Fire Chiefs' Association of Asia
アジア消防長協会

The Projects in the 28th Fiscal Year (Draft)

(April 1, 2014 – March 31, 2016)

As in the previous fiscal year, IFCAA will continue to focus on its general conference, membership expansion, and the promotion of friendship among the emergency services personnel of Asia and Oceania including fire chiefs. The Association will also assist emergency responders in sharing professional knowledge and skills for fire safety and disaster preparedness.

IFCAA will conduct the following to achieve its life safety objectives.

1. Planning and organizing IFCAA General Conferences and other international fire service conferences.
2. Working for the realization of what are decided on in the General Conference.
3. Maintaining active contact with its member fire departments in and out of Japan and expanding the membership.
4. Issuing and distributing the periodical *IFCAA* to its members for the promotion of friendships and the common sharing of expertise.
5. E-mailing the *IFCAA Secretariat News* to its members for the sharing of information.
6. Expanding the "network of cooperation" with foreign organizations like the International Association of Fire Chiefs (IAFC) and the Australasian Fire and Emergency Service Authorities Council (AFAC).
7. Handling the other matters needed for the achievement of the Association's objectives.

第 28 会計年度事業計画（案）

（2014 年 4 月 1 日から 2016 年 3 月 31 日まで）

第 28 会計年度も前会計年度に引き続いて、総会の開催及びイフカへの入会促進に関する措置に重点を置き、アジア及びオセアニア地域の消防長及び消防関係者との親睦を更に深めるとともに、消防の使命を達成する業務に必要な、火災をはじめとする各種災害に対応する技術、知識の交換を行なうため、次の事業を実施する。

1　総会を始め消防に関する国際会議の開催を立案し、これを実施する。

2　総会における決議事項について、その実現に向けて積極的な取り組みを実施する。

3　会員が所属する各国・地域の消防機関との連絡を活発に行い、入会を促進する。

4　会員相互の親睦を深め、消防技術等の交流に資するための機関誌「*IFCAA*」を発行し、会員に配布する。

5　会員相互の情報の共有化の促進のため、「イフカ事務局ニュース」の電子メールによる配信を行なう。

6　国際消防長協会（IAFC）やオーストラレイジアン消防機関審議会（AFAC）等との情報交換を通じて、国際消防関係団体間の相互連絡協調体制の確立を推進する。

7　その他、協会の目的を達成するために必要な事業を実施し、運営に必要な事務を行なう。

The Budget Plans in the 28th Fiscal Year
(April 1, 2014 – March 31, 2016)

第28会計年度収支予算(案)
(2014年4月1日から2016年3月31日まで)

1. Revenue Expected　　¥10,023,000
   収　　入

2. Expenditure Expected　¥10,023,000
   支　　出

Revenue ￥10,023,000
収入の部

Classification 科　目			
Article 大	Item 中	Sub-item 小	
Membership Dues 会　費			
	Membership Dues 会　費		
		Active Membership Dues 正会員費	
		Associate Membership Dues 準会員費	
		Assisting Membership Dues 賛助会員費	
Miscellaneous Incomes 雑　収　入			
	Miscellaneous Incomes 雑　収　入		
		Contributions 寄　付　金	
		Bank Interest 利　息	
		Miscellaneous Incomes 雑　入	
Amount Brought Forward 繰　越　金			
	Amount Brought Forward 繰　越　金		
		Amount Brought Forward 繰　越　金	
Total 計			

Unit:Yen　単位：円

Budget 予算額	Remark 摘　要
6,340,000	
6,340,000	
3,120,000	780 members/ ¥4,000 from each １会員　4,000 円　780 名として
20,000	5 members/ ¥4,000 from each １会員　4,000 円　５名として
3,200,000	To be collected from 18 assisting members 賛助会員 18 社からの会費
2,002,000	
2,002,000	
2,000,000	
1,000	Interest of bank deposits 銀行預金利息
1,000	
1,681,000	
1,681,000	
1,681,000	Balance brought forward from the previous year 前年度繰越
10,023,000	

Expenditure　　¥10,023,000
支出の部

Classification 科　目			
Article 大	Item 中	Sub-item 小	
Business Expenses 事　業　費			
	Association Magazine Expenses 機関誌費		
		Periodical & Information Expenses 定期機関誌等発行諸費	
		Data Collection Expenses 資料収集費	
	Publicity Expenses 広　報　費		
		PR & Publicity Expenses 広報宣伝費	
	Conference Expenses 会　議　費		
		General Conference Expenses 総　会　費	
		Meeting Expenses 会議諸費	
	Official Trip Expenses 出　張　費		
		Official Trip Expenses 出　張　費	
	Additional Business Expenses その他事業費		
		Additional Business Expenses その他事業費	

Unit:Yen　単位：円

Budget 予算額	Remark 摘　要
7,225,000	
1,210,000	
1,200,000	Expenditure for publishing periodicals and others 定期機関誌及びその他資料の発行に要する費用
10,000	Expenditure for collecting data 資料収集に要する費用
215,000	
215,000	Expenditure for conducting PR and publicity 広報宣伝に要する費用
2,800,000	
2,500,000	Expenditure for holding the General Conference 総会開催経費
300,000	Expenditure for holding meetings 会議関係に伴う諸経費
1,500,000	
1,500,000	Expenditure on the official trips by the secretariat staff 事務局職員出張旅費
1,500,000	
1,500,000	Expenditure for the promotion of joint international drills and other events 合同訓練等の推進に係る諸経費

Classification 科　目			
Article 大	Item 中	Sub-item 小	
Office Expenses 事　務　費			
	Personnel Expenses 人　件　費		
		Personnel Expenses 人　件　費	
	Office Expenses 事　務　費		
		Membership Badge Expenses 会員章費	
		Office Supplies Expenses 消耗品費	
		Translation Expenses 翻　訳　費	
		Contact & Liaison Expenses 事務連絡費	
		Miscellaneous Expenses 諸　費	
Reserve Fund 予　備　費			
	Reserve Fund 予　備　費		
		Reserve Fund 予　備　費	
Total 計			

Unit:Yen　単位：円

Budget 予算額	Remark 摘　要
2,790,000	
2,000,000	
2,000,000	Salaries for the secretariat staff 事務局職員給与分担金
790,000	
194,000	Expenditure for producing membership badges イフカ会員章作成費
80,000	Expenditure for purchasing office supplies 事務用消耗品購入費
450,000	Expenditure on the request for document translation 資料等翻訳委託料
50,000	Expenditure on business contacts and correspondence (*inc.* telephone & mail) 事務連絡諸費（電話、郵送料含む）
16,000	Commission for the payment into bank accounts and others 振込手数料他
8,000	
8,000	
8,000	
10,023,000	

(Attachment 2 for the Regular Session)　　(定例会議 別紙２)

RESOLUTIN (DRAFT)

Developing International Fire-Rescue Units' Teamwork For Effective On-Scene Activities

Asia and Oceania are more often visited by natural disasters than any other part of the world, and suffer serious damage every year. Unavoidable natural forces such as devastating earthquakes, *tsunami* waves, floods and typhoons may continue to cause a great loss of invaluable property and eventually claim a lot of lives in Asia and Oceania. It is expected that Asian and Oceanian fire-rescue department leaders will work together, as IFCAA colleagues, for extensive rescue operations more often than ever before in case of life-threatening disasters.

In such circumstances, IFCAA members are required to continue to share rescue expertise through special training sessions or conferences on the international level. Also, we are going to develop professional teamwork so that we can deal with emergencies in a quick yet appropriate manner.

Resolved on September 11, 2014.
At the 28th General Conference of the International Fire Chiefs' Association of Asia

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決　議（案）

国際消防救助隊の連携による迅速な現場活動の推進について

世界的にも自然災害が多発するアジア・オセアニア地域では、毎年、甚大な被害が発生しており、今後も地震や津波、洪水、台風等の大規模な自然災害による多くの尊い人命や貴重な財産の損失が懸念されていることから、アジア消防長協会（イフカ）会員が所属するアジア・オセアニア地域の消防・防災機関においては、大規模災害の発生時には、国を越えた救助活動を行う機会がますます増加するものと想定される。

このような状況の下、イフカ会員においては、国際的な訓練の実施や会議等の開催を通じて、会員の所属する各国・地域の国際消防救助隊の知識と技術の交流をはかるとともに、連携を強化し、災害現場における迅速な活動を推進するために、引き続き努力していくものとする。

以上決議する。

２０１４年９月１１日

第２８回アジア消防長協会総会

(Attachment 1 for the Regular Session)　　(定例会議 別紙１)

Entry of New Members to IFCAA
新規会員の加入について

The new active members are as follows :
正会員として新たにイフカに入会された方は以下の通りです。

1　Mr. Shane Fitzsimmons AFSM
シェーン・フィッツシモンズ
Commissioner
New South Wales Rural Fire Service, Australia
オーストラリア連邦ニューサウスウェールズ州地方消防局長

2　Mr. Rob Rogers AFSM
ロブ・ロジャーズ
Deputy Commissioner
New South Wales Rural Fire Service, Australia
オーストラリア連邦ニューサウスウェールズ州地方消防局次長

IFCAA OFFICERS (DRAFT)
アジア消防長協会役員（案）

President 会　長	Fire Chief Tokyo Fire Department Japan 東京消防庁消防総監	Mr. Hidetoshi Oe 大　江　秀　敏
Vice President 副 会 長	Director Fire Services Department Hong Kong 香港消防局長	Mr. LAI Man-hin ライ・マンヒン（黎文軒）
	Director General Fire and Rescue Department Malaysia マレーシア消防救助庁長官	Dato' Wan Mohd Nor Bin Hj. Ibrahime ﾀﾞﾄ･ﾜﾝ･ﾓｯﾄﾞ･ﾉｱ･ﾋﾞﾝ･ﾊｼﾞ･ｲﾌﾞﾗﾋﾑ
	Officer-In-Charge Bureau of Fire Protection Philippines フィリピン消防庁長官	Mr. Carlito Saqueton Romero カーリト・サクウェトン・ロメロ
	Commissioner Singapore Civil Defence Force Singapore シンガポール民間防衛庁長官	Mr. Eric Yap Wee Teck エリック・ヤップ・ウィー・テック
Director 理　事	The active directors shall basically keep their directorate. 各国・地域の現任理事が留任するものとする。	

DECLARATION

Since its foundation in 1960, the International Fire Chiefs' Association of Asia (IFCAA) has been working for the overall development of the fire service in Asia and Oceania. For a long period of time, longer than half a century, IFCAA has been well extending assistance to Asian and Oceanian fire chiefs in their promoting mutual exchanges and friendships. In addition, the IFCAA fire and emergency services network system actually achieved and will achieve sophistication each year.

It is expected that Asia and Oceania will need rescue and relief interventions on the global level more often than ever before to cope with frequent natural catastrophes. IFCAA assumes a vital role now as the only life safety leaders' organization for Asia and Oceania.

This time, here in Singapore we assembled－rallied around the General Conference theme of *Working Together For a Fire Safe Asia*. Now for the greater safety of Asia and Oceania, we direct our attention and efforts to **"Developing International Fire-Rescue Units' Teamwork For Effective On-Scene Activities."**

Declared on September 12, 2014.
At the 28th General Conference of the International Fire Chiefs' Association of Asia

宣　　言

アジア・オセアニア地域の消防の全般的発展に資することを目的とするアジア消防長協会（イフカ）は、１９６０年の設立以来、半世紀を越える長きに渡り、当該地域の消防長の相互交流と融和協調に大いに貢献し、イフカを介した各国・地域の消防・防災機関間のネットワークの構築も年々強化されている。

大規模な自然災害が頻発するアジア・オセアニア地域では、近隣諸国の国を越えた救援活動の機会が今後ますます増加していくものと思われ、当該地域で唯一の国際消防団体として、イフカの担う役割は一層重要になってきている。

このような中、「アジアの火災安全のために共に力を合わせて」を総会テーマとして、ここシンガポール共和国に集う我々イフカ会員は、アジア・オセアニア地域の住民の安心・安全の確保のため、国際消防救助隊の連携による迅速な現場活動を特に推進することとする。

以上、ここシンガポール共和国において宣言する。

２０１４年９月１２日

第２８回アジア消防長協会総会

附錄四

第 28 屆 IFCAA 專題演講資料

Fire & Rescue NSW:

Australian Bushfires

Greg Mullins
Commissioner
Fire & Rescue
NSW
Australia

Outline:

Today I will be telling you about bushfires in Australia; the climate, topography and vegetation that create a very hazardous environment; how Australian fire services are organised; and how the effects of climate change are being felt. I will briefly outline some of the more recent bushfire disasters that have occurred in Australia, and describe some of the issues that arise in massive firefighting operations that can involve thousands of firefighters, hundreds of firefighting vehicles, and dozens of firefighting aircraft over a period of weeks.

The Australian Climate:

Australia is a huge country with huge extremes of climate. Large parts of the interior are arid and semi-arid, and fires only happen there after very wet years that promote prolific growth of native grasses.

In the north the climate goes from tropical to sub-tropical, and much of the coastal vegetation is not prone to burning. However large parts of the inland in the Northern Territory and Western Australia are covered in savannah like grassland, and during the long, hot dry season, massive fires can break out. Thankfully most of these occur in sparsely populated areas, and there is rarely any impact on life and property, however thousands of square kilometres of country can be burnt out in an average year.

The most hazardous areas for bush and grass fires are the south eastern, southern and south western parts of the country, which can be mountainous and heavily timbered with eucalypt forests. These trees produce eucalyptus oil which burns intensely. The trees also drop large quantities of twigs, leaves and bark which provide tonnes of fuel on the ground beneath the trees. Together with the dry native undergrowth, these fuels produce huge temperatures and amounts of energy. On hot, dry windy days, flame can reach more than 30 metres into the air, consuming tree crowns, and burning brands can travel more than 20 kilometres ahead of the main fire, starting new outbreaks, or spot fires.

This makes controlling bushfires extremely difficult and dangerous, and often the only strategy available to firefighting agencies is to protect life and property until conditions ease at night. Because the huge areas that are covered by these fires are often in inaccessible areas,

the only feasible containment strategy is to conduct back burning operations from roads and rivers during the calmer night time conditions.

Key Ingredients for Bush Fires:

There are 3 main factors that contribute to major bushfires: an ignition source, sufficient fuel, and suitable weather conditions. Unfortunately one of the main causes of bush and grass fires in Australia is arson – often involving children playing with lighters and matches. Another common cause is the clashing of overhead electricity transmission lines during windy conditions. Whilst fire authorities do a lot of work trying to manage fuel loads through controlled burning in the cooler months, it is impossible to reduce fuel levels across thousands of kilometres and millions of hectares. Therefore every summer Australia faces the threat of bushfires somewhere across the country.

Australia is an extremely dry continent and during each summer the southern parts of Australia often experience temperatures in the high 30s and low 40s, with a decline in rainfall. This causes the vegetation to dry out and it therefore burns readily and fiercely when ignited. The Bureau of Meteorology works closely with fire authorities to predict serious fire danger days ahead, so that preparations can be made. This involves measuring the soil dryness, which is a reliable guide to fuel moisture content, the fuel load in tonnes per hectare; the predicted maximum temperature, minimum relative humidity, and maximum wind speed. Atmospheric stability is also measured as unstable air allows convection columns to form above fires – this acts like a chimney and draws in more air at the base of the smoke column. There are two main effects – one is to intensify the fire because more oxygen is available, and the other is to draw in burning brands which go up into the smoke column, sometimes thousands of metres high, then fall to the ground to start new fires kilometres away from the main fire.

Preparing for Fires:

All of these variables, as well as the number of days since rain, are used to calculate a forest fire danger index on a scale of 1 to 100. Depending on the predicted fire danger index, each day the Bureau of Meteorology issue a forecast fire danger rating which is used to warn the public. If the index is above 50, fires can spread very quickly and destroy homes – this is called "Severe" bushfire danger. An index of between 75 and 100 is termed "Extreme". Under these conditions lives have been lost when people have been caught on foot or in cars by fast moving fires. Until quite recently, it was thought that the maximum index of 100 would only rarely be exceeded. However the Black Saturday bushfires in 2009 far exceeded this figure. On that day 173 people were killed and more than 3000 buildings were consumed by massive fires on a single afternoon. Ratings above 100 are becoming increasingly common across the country each summer.

As a result, a new rating of "Catastrophic" was introduced after 2009. At this level, all residents are advised to evacuate fire-prone areas the night before, and firefighters focus firstly on their own safety, then on saving life, and if safe to do so, protecting property. When the index exceeds 100, fires are impossible to control, and most firefighting aircraft cannot fly due to wind speed and turbulence.

Sydney, New South Wales – October 2013:

In October last year, Sydney and other parts of the state of New South Wales experienced sustained periods of hot, dry windy weather after months of higher than average temperatures and low rainfall.

Sydney normally experiences the worst fires from November to March, however last year serious fires were experienced from September. Every Australian state is experiencing a trend of longer, hotter summers, and more destructive fires. It appears that this is directly linked to climate change.

On October 17 2013 a number of fires broke out in the Blue Mountains just west of Sydney, and also in coastal regions to the north of Sydney.

The Blue Mountains is considered one of the most fire-prone areas in the world, and at least once each decade it experiences major fires with significant loss of property and sometimes lives.

The weather conditions on 17 October were terrible – temperatures approaching 40 degrees Celsius, relative humidity of 9%, and strong winds gusting to more than 100 kilometres per hour in some places.

A very large fire that had started the day before was burning in largely unpopulated areas to the north of the mountains, however this fire had the potential to sweep south and impact thousands of homes.

Just after lunch time a second fire broke out to the south and under the influence of gale force winds it destroyed a number of homes before burning into inaccessible areas where it would remain for several more days.

An hour or so after this fire started, another broke out about 30 kilometres east. This fire proved to be the most destructive. Within a little over 2 hours it had destroyed 206 homes and severely damaged 109 others.

Every available urban fire appliance from Sydney was sent to this fire as well as water tankers and volunteer firefighters from the rural fire service. A total of about 250 appliances were deployed at the height of the fire, as well as 40 helicopters.

At the same time massive fires were burning to the north of Sydney and a number of fire crews were forced to drive onto a beach to escape flames which destroyed a number of homes and shops.

As is often the case with major fires such as these, firefighters only gained the upper hand when weather conditions moderated and rain fell a week later.

In just one day 248 homes and other buildings were destroyed. Earlier in the year 53 homes had been destroyed in another major fire, making 2013 one of the most destructive years for fires in the state of New South Wales.

This slide shows a photo of the smoke plume from the State Mine fire that broke out on 16 October west of Sydney, and below is a line scan thermal image taken from an aircraft.

The fire travelled 31 km on 17 October during Extreme conditions. It had the potential to combine with 3 other nearby fires and destroy thousands of homes. Thankfully on October 23 2013, which was forecast to be another day of Extreme Fire Danger, rain fell in the early hours of the morning averting what would have been a massive disaster on the western outskirts of Sydney. Instead of 350km of fire edge being fanned by hot, dry winds, only pockets of fire were still burning at daylight. More than 500 fire appliances, 100 aircraft and 3000 firefighters were deployed on that day due to the potential for loss of life and property.

Firefighters came from all over Australia to assist.

Tasmania – January 2013:

The island state of Tasmania suffers fires less frequently than the mainland states, however when fires do occur, they are often very destructive.

In 1967 nearly 1,500 homes were destroyed in a few hours by 125 major fires, and 62 people were killed.

In 2012 Tasmania experienced a warmer, dryer winter than normal, and in January 2013 was experiencing weather conditions not seen for many years with temperatures in the high 30's, very low humidity and strong winds.

During a heat wave lasting several days, numerous fires broke out. Thankfully, unlike the fires of 1967, they did not directly threaten the capital city of Hobart, and were in more sparsely populated areas.

Despite this the fires burned more than 200 buildings and countless cars. Firefighters from other states were sent to assist, but most were unable to bring firefighting vehicles given that Tasmania is separated from mainland Australia by water and there are limited means to rapidly move heavy vehicles.

Every available firefighter, fire appliance and firefighting aircraft in the state was deployed. Some firefighting aircraft were able to be sent from other states, however they were limited by the distances that had to be flown from the mainland.

Fires burning under Catastrophic conditions covered vast distances, threatening communities before people could evacuate and escape. Many people were evacuated from coastal communities by boat when roads were cut and bridges destroyed by fires.

The January 2013 fires were the second most destructive in the state's history and the fire danger index exceeded 100, the first time that the new fire danger rating of Catastrophic was declared in Tasmania.

Western Australia – January 2014:

One of the logistical issues faced by emergency services in Australia is vast distances, and its relatively sparse population – most people in Australia live in cities that are on the coast. The capital of Western Australia, Perth, is almost 6 hours away from Sydney by air.

In January 2014 huge fires broke out near Perth. Fires burned into the outer suburbs ultimately destroying 56 homes before they could be brought under control.

Because of the huge distances involved, like their colleagues in Tasmania, Western Australian firefighters could not rely on interstate help arriving in time.

In every state and territory in Australia, there are 2 main firefighting forces – the urban fire departments in larger towns and cities, which generally have a major focus on bushfire fighting because they are responsible for thousands of kilometres of urban / bushland interface, and volunteer bushfire brigades which are formed mainly in rural areas and on the outskirts of large cities. The volunteer brigades have large numbers of four wheel drive water tankers and can deploy thousands of volunteer firefighters. Most also have sophisticated coordination capabilities at the state level, as well as access to line scan aircraft, thermal imaging, and satellite imagery. Full time officers who oversee the volunteer brigades also usually coordinate firefighting aircraft.

As well as the urban and rural firefighting forces, specialised firefighters from forestry and national parks services play a crucial role, particularly on land that they manage.

Like eastern Australia and Tasmania, Western Australia has a long history of major bushfires and is well organised and equipped to handle them.

Canberra – January 2003:

Canberra, Australia's capital city, is about 300km from Sydney.

In January 2003 it experienced a firestorm never before seen in the nation's capital.

Australian Capital Territory – January 2003:

In January 2003 a number of fires were burning in remote mountainous country where many people thought they could not affect the city.

However, worsening weather conditions saw a number of these fires intensify and join.

On 18 January, weather conditions deteriorated. Fires coming from 2 different directions converged on the city and created a firestorm. Smoke was so thick that the sun was blocked out and street lights had to be turned on. Fires raged into the city outskirts and overwhelmed the combined firefighting capacity of the urban fire brigades, volunteer fire brigades and national parks service.

Whole suburbs were destroyed and ultimately 503 homes were burnt to the ground. Five people were killed and a number of fire appliances caught on fire. Help was sent from Sydney, but it arrived too late to avert the disaster.

Victoria – February to March 2009:

In 2009 we experienced our worst fire which dwarfed the massive fire disasters of 1939, 1967 and 1983.

On a day of Catastrophic fire danger in the State of Victoria, hundreds of fires broke out. Temperatures of 50°, humidity of 3%, and wind gusts of 130kmh were recorded.

Whole towns were wiped off the map, and 173 people were killed in their homes and trying to flee the racing fires on foot and in cars. Many people trying to escape in cars were overtaken by flames and were burnt to death.

More than 3000 buildings were destroyed in a few hours.

Firefighters from across Australia, from New Zealand, the USA and Canada assisted over the following weeks, however, most of the damage was done on one day – the 16th of February, which became known as Black Saturday.

Coordination Issues:

Obviously, major firefighting efforts such as these require special arrangements. Coordinating firefighting resources from multiple jurisdictions require special command and control and communications arrangements. This can involve the integration of thousands of firefighters and vehicles and hundreds of aircraft at multiple locations for weeks or months.

Command and Control:

A major element in interoperability is command and control. Australian fire services respond to the normal array of daily emergencies.

But every summer, they must prepare for the possibility of massive sustained campaign events.

A common command and control system is essential, and since the 1990s all fire services have used the Australasian Inter-service Incident Management System (AIIMS) for command and control. AIIMS allows for seamless integration of people from multiple jurisdictions, not only in Australia, but overseas. New Zealand, the USA and Canada all use almost identical command and control systems, and this is a key factor in inter-operability.

Vehicles:

During major events fire appliances are formed up into tactical units, Strike Teams that comprise a Commander and 5 fire appliances. This enables them to be deployed as an independent unit and integrated into the incident action plan.

Fire Departments in Australia are state, not city based, so there are few issues with radio communications. However when interstate resources have to be integrated into operations, there are standing arrangements to provide radios using local frequencies.

Coordinating Fire Services:

Fire services from across the country use this system to move large numbers of people and resources into fire areas ready for immediate deployment.

Coordinating Aircraft:

Aircraft are a critical resource at major fires, particularly in reducing the intensity of flame fronts as they approach homes.

The Australian Government works with State Governments to control a national fleet of leased firefighting aircraft each spring and summer. They are moved around the country according to risk. Each jurisdiction, in addition to heavy and medium helicopter air tankers, have their own fleets of fixed wing and rotary wing water bombers.

Sophisticated air traffic control and airbase management systems have been developed to maintain air separation, avoid collisions in smoke, and to coordinate water and retardant drops with the needs from ground crews.

Conclusion:

I have tried today to give you a very brief overview of the challenges being faced in Australia as our climate becomes even hotter and drier, and fire seasons become longer. We are increasingly having to deal with the tyranny of distance to support firefighting efforts across the country, because local resources are regularly overwhelmed. Other countries are facing similar challenges, and we are increasingly crossing international borders to provide or to call upon assistance.

Against the background of increasing risk caused by climate change, the threat to life and property in Australia is increasing due to increasing urbanisation and an ageing population – this puts more people at risk and means that people are less able to help themselves.

Thank You

I hope that this has been informative. Thank you for the opportunity to briefly explain our worsening fire problem in Australia.

I think that increasingly, we will need to reach out to each other for assistance.

Fire & Rescue NSW

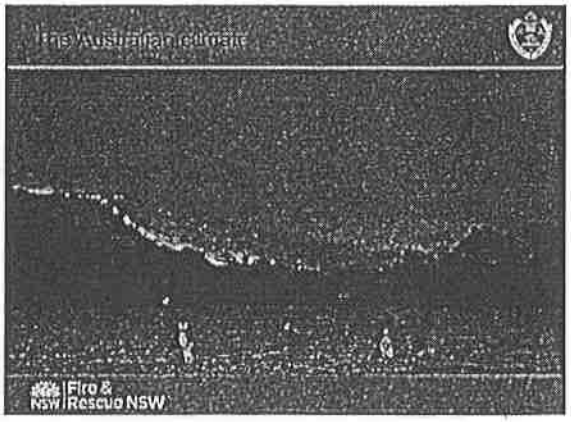
Australian bushfires

Outline

- Australian climate and fire history
- A selection of major loss fires in recent years
- Coordinating large scale operations
- Emerging issues including climate change.

Fire & Rescue NSW

The Australian climate



Fire & Rescue NSW

Key ingredients for bushfires

- Soil dryness: Keetch Byram Drought Index (length of time since rainfall)
- Maximum temperature
- Minimum relative humidity
- Maximum wind velocity
- Atmospheric stability: Haines Index
- Fuel loads in forests and grasslands

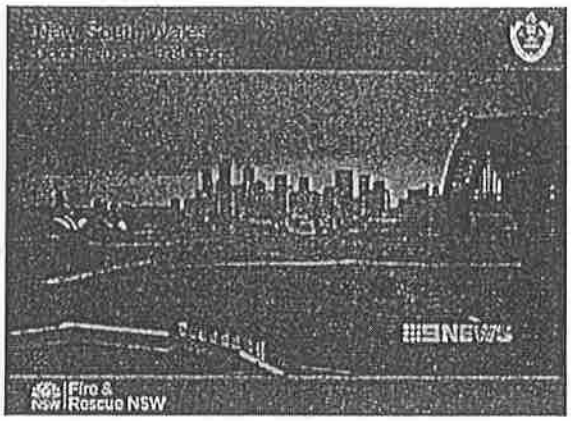
Fire & Rescue NSW

Preparing for fires

Fire & Rescue NSW

Spatial - New South Wales

Fire & Rescue NSW


9NEWS
Fire &
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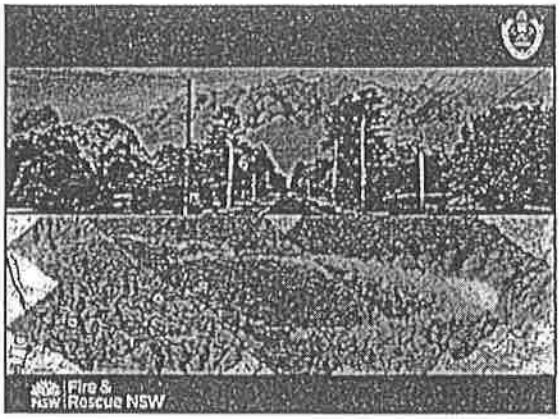
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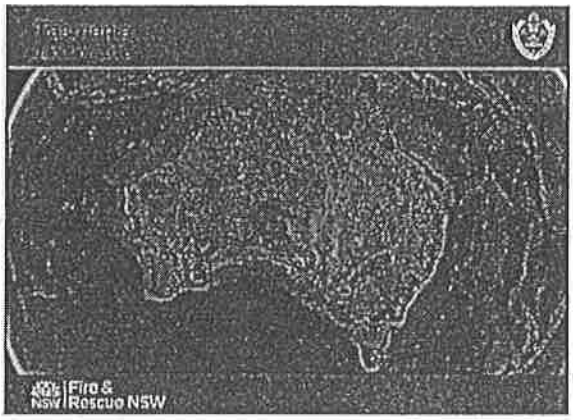
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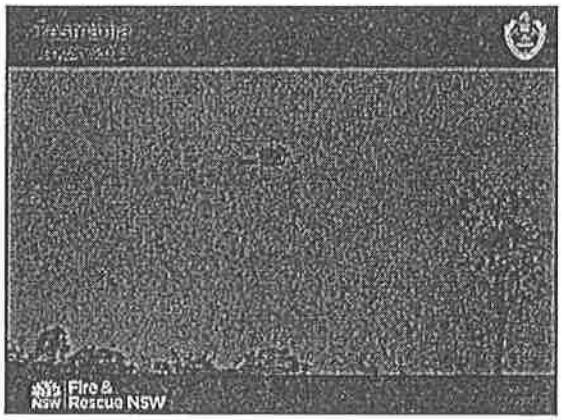
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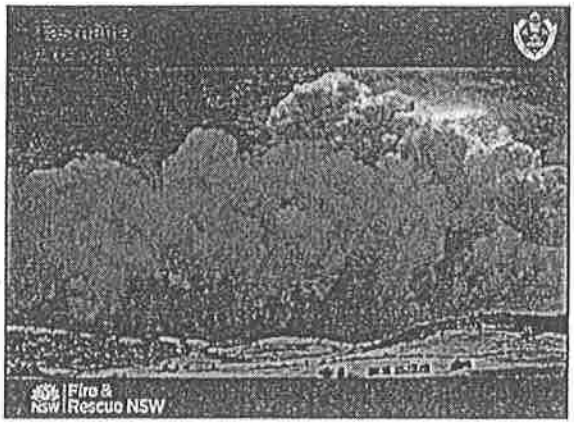
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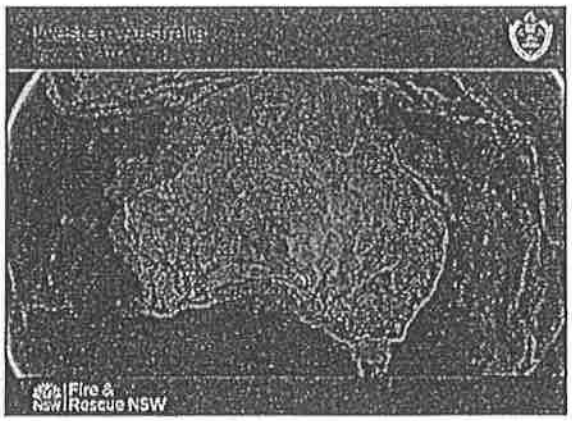
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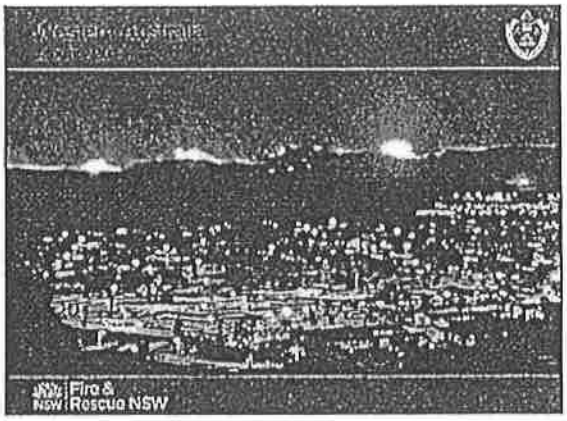
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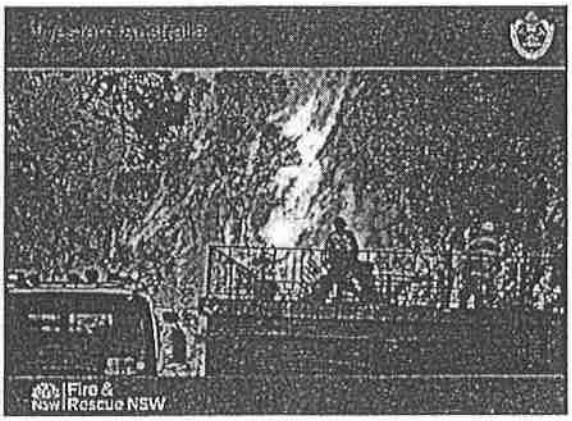
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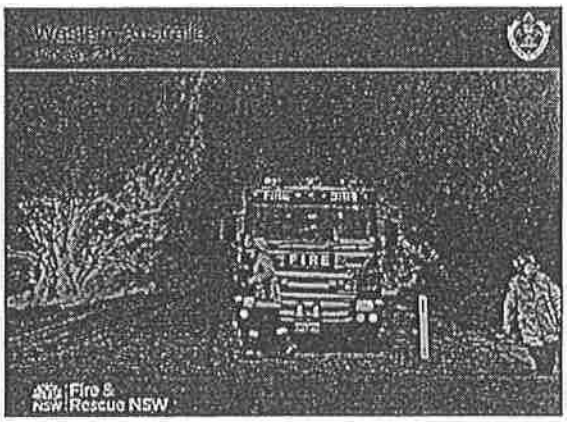
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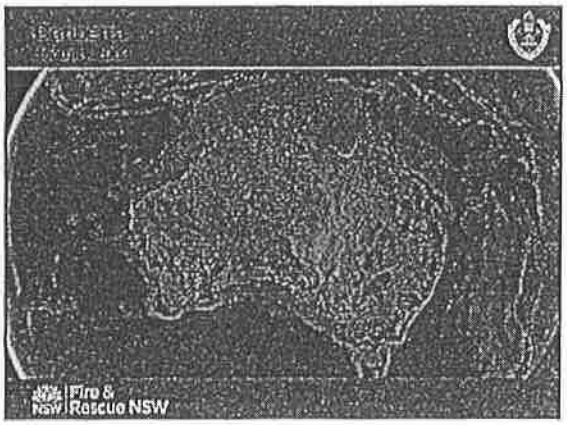
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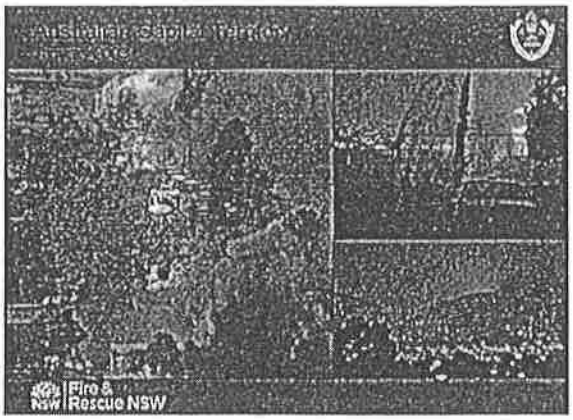
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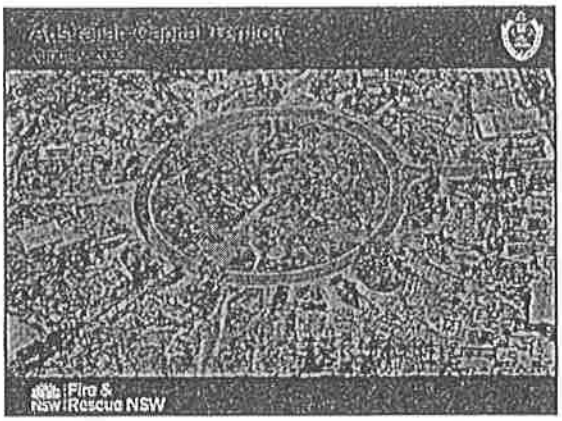
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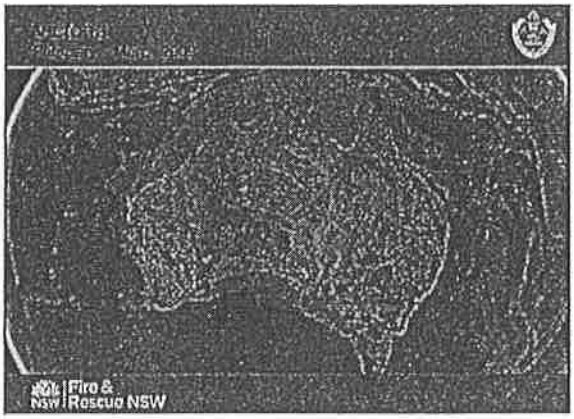
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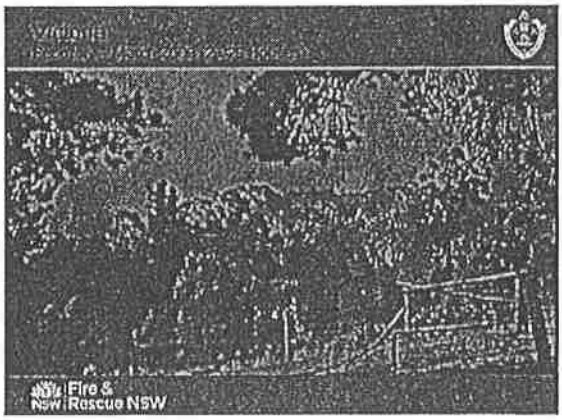
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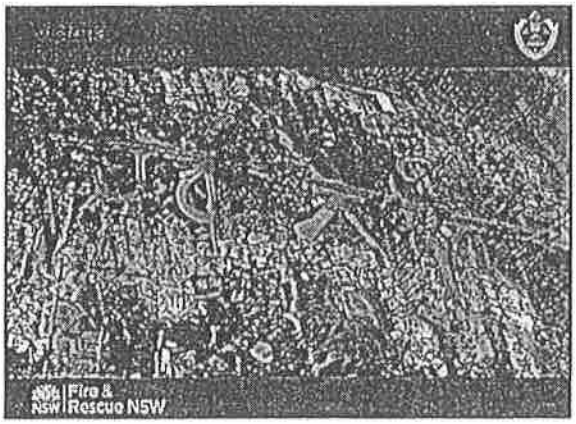
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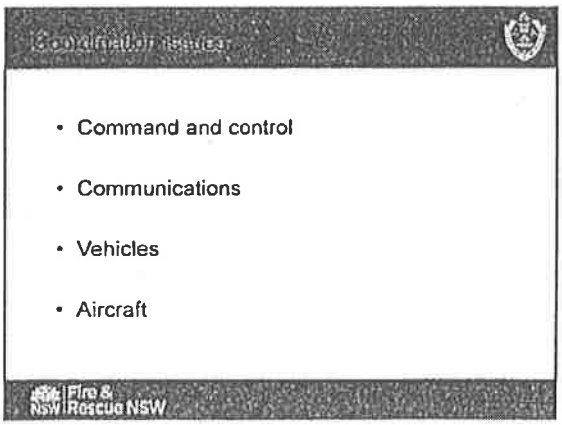
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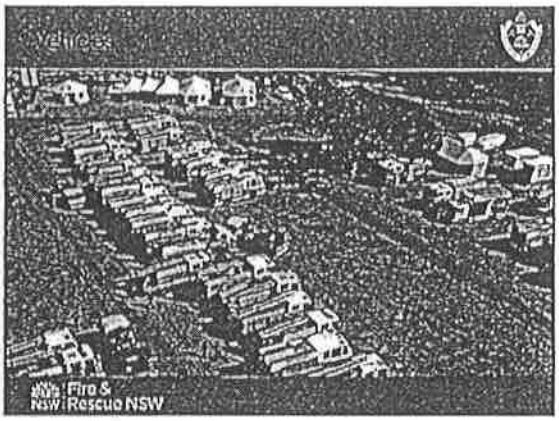

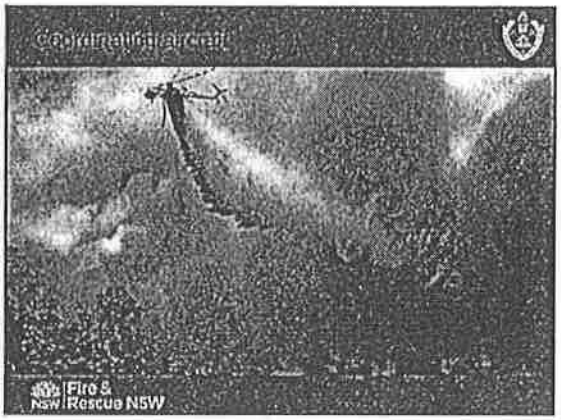

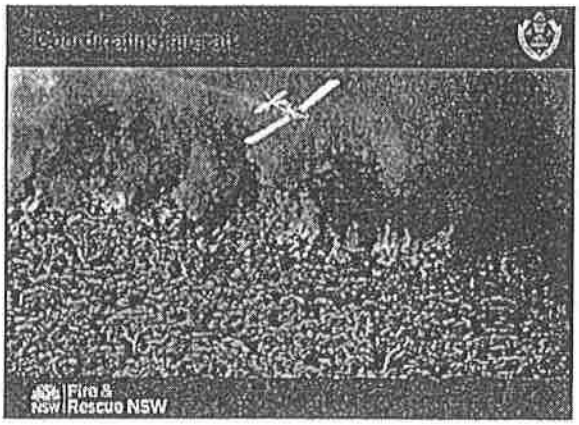

Conclusion

- Fire-prone countries such as Australia, the USA, southern Europe and parts of South America are experiencing a worsening in fire conditions
- This can be traced directly to changes in climate, in particular longer, drier and hotter summers with less rainfall
- Increasing urbanisation and ageing societies means that more people are at risk
- At present Australian firefighters are deployed in Canada. They regularly deploy to the USA in a bilateral arrangement. International cooperation will become more necessary as conditions deteriorate

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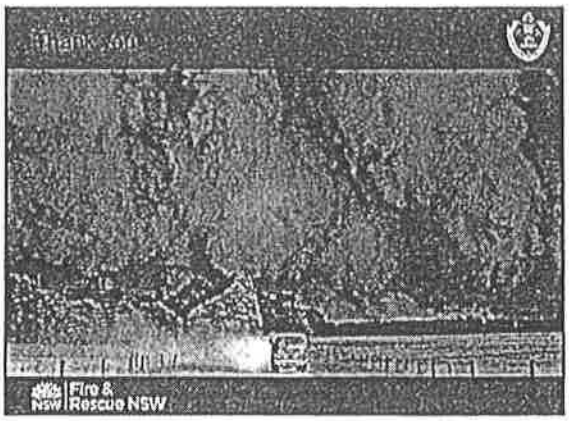
Thank you
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Innovation in Transforming Fire and Rescue Response: SCDF's Journey

LTC Daniel Seet Siew Teck
Commander, 1st SCDF Division
Singapore Civil Defence Force
Singapore

Abstract:

The Singapore Civil Defence Force (SCDF) has undergone tremendous changes in executing its mission of protecting and saving lives and property for a safe and secure Singapore. Through the years, SCDF has improved its life saving operations with innovation as a key pillar for the organisation. Some of the latest projects include frontline operational appliances like the 4th Generation Light Fire Attack Vehicle (4G LFAV), as well as a new C3 Emergency System known as ACES[1] for better incident management that will, among other functions, enable people with speech and hearing disabilities to reach SCDF directly for assistance. Yet despite the new hardware and other capabilities that can be added to enhance its frontline services, the SCDF recognizes the need to integrate community first response as the next critical phase of its total transformation. It envisages the day when trained community volunteers will be activated at the same time as organic fire station resources in what can be described as a full spectrum emergency response. Driving this focus is the new organizational vision of '*A Nation of Life-Savers*' by 2025 that was announced at the SCDF Workplan Presentation in Apr 2014. To ensure that it remains effectively primed for frontline operations and community outreach, the SCDF will need to continue leveraging innovation and new technologies as key drivers in an ever dynamic operating environment, even as it harnesses the power of a trained community of life-savers.

Introduction:

Singapore is a Southeast Asian country saddled between the south of Peninsula Malaysia and the northern Indonesian islands of Bintan, Batam, Riau and Karimun. With a land area of approximately 716km^2 and a population of over five million, Singapore stands among the world's more densely populated countries. Singapore is a free-market economy and over the decades, the Government's effort at diversification has seen the country build up a broad-based foundation ranging from petrochemical and pharmaceutical to the electronic and banking sectors. In recent years there has also been a move to build a hub for the aerospace and biotechnological industries. The sophistry of these developments has increased the

[1] ACES stands for the Advanced C3 Emergency System.

challenges faced by the Government in the timely and adequate provision of safety and security related services.

To this end the SCDF is the city state's national emergency response authority. It is charged with providing round-the-clock emergency fire-fighting, Hazardous Material (HazMat) mitigation, rescue and ambulance services. It also handles the formulation, implementation and enforcement of regulations on fire safety and civil defence shelters in the country. Like any emergency services around the world, the mission of the SCDF changed after 11 Sep 2001 with the threat of terrorism challenging it to redefine the balance between gearing up for terror-related incidents while not losing sight of its traditional responsibilities. This presentation aims to provide a broad overview of the transformation journey of the SCDF and how technology has been integrated into its processes to innovate and enhance frontline capabilities.

Key Challenges facing the Fire and Rescue Services:

Like most city-based fire departments, some of the key challenges that the SCDF faces may be defined from the resource and engagement perspectives. The resource challenge has to do with trying to *accomplish more with the same* or *the same with less*, or *to do more with less* with hardware and human resources. The second domain involves getting the civilian population involved and engaged in emergency preparedness. On one level, it begins with public education and equipping the public with life-saving skills like first-aid, cardiopulmonary resuscitation (CPR) and basic fire-fighting. However, the organization also has to consider the integration of this trained public as part of the overall chain of emergency response because regardless of how fast the emergency services can reach the scene, nothing is faster than the member of the public who is witnessing the case as it unfolds. Getting the community involved as part of the initial response represents the *Mecca* of full spectrum incident response system that emergency departments all around the world are aspiring towards. Over the years, innovation has become an integral part of SCDF's ongoing attempts to answer these challenges.

The following examples document SCDF's developmental journey and have been organized under broad categories such as *hardware innovations*, *capability development*, *process and system* as well as *concept of operation*.

HARDWARE INNOVATION

(a) **4G Light Fire Attack Vehicle:**

The evolution of the SCDF's Light Fire Attack Vehicle (LFAV), also known as the *Red Rhino*, is synonymous with the organization's journey of technological innovation. First introduced in 2001, the *Red Rhino* has introduced capabilities that helped to overcome limitations found in conventional fire engines such as mobility and accessibility issues. As with any city, traffic congestion and narrow roads are the usual obstacles to a speedy response. The SCDF had introduced fire-bikes in the mid 1990s that came with portable backpack fire-fighting equipment

to add speed and maneuverability to the initial response. However, there was a limit to the fire-fighting capabilities that fire-bikes could carry in a working fire. There was therefore a need to have a solution that would provide greater fire-fighting power without compromising on speed and accessibility. A project team finally arrived at the idea of removing the bulky water tank from the fire engine by taking advantage of Singapore's well-established fire-hydrant network. This idea turned out to be a game-changer as it allowed the size of the vehicle to be greatly reduced. By keeping the fire-pump on board, this lighter class of fire engines could still provide sufficient fire-fighting capabilities while at the same time maintain a good degree of mobility and speed. This new vehicle, the *Red Rhino*, provided greater access to narrow streets, in negotiating tight corners, and could even go off-road when necessary.

Various iterations to this emergency vehicle have been rolled out over the years and the SCDF will be unveiling the fourth generation (4G) in Sep 2014. The LF4G is a compact fire-fighting vehicle that comes equipped with a full Compressed Air Foam System (CAFS) pump as well as a remote-controlled 500GPM monitor. While the earlier generations of the LFAV were four-seater appliances, the 4GLF will come with an optimized seating design for a fifth responder to board the vehicle, thus providing added flexibility and scalability in manpower deployment.

(b) **New and Future Developments:**

The SCDF recently added the LUF 60[2] to its emergency response capabilities and the remote-controlled tracked fire-fighting robot was successfully tested in two large scale warehouse and factory fires since its introduction in Apr 2014. This latest equipment in the SCDF's fire-fighting arsenal has added much versatility to its fire-fighting capability due to the range of incidents that the LUV 60 can be deployed in, such as structural and tunnel fire incidents, as well as rail-related emergencies. Other new and cutting-edge platforms that the SCDF is currently working with the research arm of the Ministry of Home Affairs (MHA)[3] to explore include exoskeleton units and Unmanned Aerial Vehicles (UAVs). Exoskeleton suits are commonly associated with USAR operations because of the increased load carriage capabilities provided but the SCDF is also looking at suits that are not only customized to fit the smaller Asian build but are also robust enough to withstand a fire environment. In terms of UAV operations, the SCDF is exploring platforms that can be integrated with thermal cameras and chemical sensors to sharpen our situational analysis and broaden our HazMat detection capabilities.

CAPABILITY DEVELOPMENT

(c) **HazMat Mitigation and Decontamination:**

[2] The LUV 60 is known within the SCDF as the Unmanned Firefighting Machine (UFM).
[3] This research outfit is known as the Office of the Chief Science & Technology Officer (OCSTO).

The SCDF has been building up its HazMat response capability since 1992 with the initial driver being the growth of the energy and chemical sectors in the country, especially when the Jurong Island [4] was established. These were significant years that saw the establishment of four specialized HazMat response fire stations [5] across Singapore. However, incidents such as the Tokyo subway Sarin gas attack in 1995 by the Aum Shinrikyo sect and the 9-11 terrorist attack served as major catalysts to drive its capability enhancements towards attending to unconventional attacks within an urban city landscape. From 2002, the SCDF underwent a major capability facelift with the introduction of a more scalable, tiered response to a HazMat emergency.

At the most basic level, all responders from the regular fire stations are trained to conduct the initial response to Toxic Industrial Chemical (TIC) as well as Chemical Agent (CA) incidents by performing detection and monitoring of the HazMat, the conduct of snatch rescue in the contaminated environment, and the on-site decontamination of casualties. As part of the development of this capability, the SCDF incorporated decontamination showering facilities in all its fire pumpers, and also introduced the Personnel Decontamination Vehicle (PDV), which is a customized multi-purpose decontamination bus for mass decontamination operations. The next level saw the skills of specialists in HazMat stations upgraded to perform HazMat identification, sampling, containment and mitigation. Finally, a third tier of specialization involved the introduction of the Hazmat Emergency Assessment and Response Team (HEART) in HQ SCDF. Equipped with plume modeling software and chemical databases[6] that are constantly refreshed, these specialists provide ground commanders with recommendations on public protective actions as well as countermeasures that are needed to mitigate the incident.

PROCESS AND SYSTEM INNOVATION

(d) Hazmat Transport Vehicle Tracking System (HTVTS):

The HazMat Transport Driver Permit (HTDP) was introduced in Apr 2003 to enhance Singapore's security in HazMat transportation. The HTDP requires HazMat transport drivers to be subjected to security screening as well as undergo

[4] Jurong Island is a 32km^2 island southwest of mainland Singapore. Created by amalgamating several offshore islands through extensive landfill and reclamation in an ambitious project spanning from 1995 to 2009, the island is today home to a vibrant portfolio of more than a hundred leading energy, chemical and specialty companies.

[5] These HazMat stations were situated on Jurong Island, and at Queensway, Tampines and Tuas. A fifth HazMat fire station was added in mid-2014 in Tuas View.

[6] HEART is equipped with advanced detectors and software to perform accurate and specific HazMat analysis. Among these capabilities is an in-house innovation known as the Hazmat Incident Management System (HIMS). This system uses advanced communications technology to gather information from an incident site, including results obtained from real-time reading of HazMat detectors deployed by the initial fire station responders. The data is processed by powerful modelling capabilities that can be translated into indoor or outdoor plume models, and results are transmitted wirelessly to ground commanders to support decision making.

emergency procedures training as first responders during an incident involving their vehicle. To add robustness to the system, the HazMat Transport Vehicle Tracking System (HTVTS) was introduced in Jul 2005 to monitor and control the movement of vehicles carrying HazMat along major transportation routes in the country. HTVTS uses technologies such as GPS (Global Positioning System), GPRS (General Packet Radio Service) and INS (Inertial Navigation System) to track all HazMat transport vehicles, including foreign registered ones entering Singapore. Using the HTVTS, SCDF is able to monitor the vehicle location, identify the driver and the inventory. The Operations Centre will also be alerted should the tracking device be tampered with, or if the vehicle deviates from approved transportation routes and timings. Today the HTVTS also comes with a remote immobilization capability that allows SCDF to bring a vehicle to a safe and gradual stop at the press of a button from the Operations Centre when a breach in security is detected.

(e) **Advanced C3 Emergency System (ACES) and Social Media Monitoring:** The SCDF commissioned the Advanced C3 Emergency System (ACES), its next-generation incident management system, in late Nov 2013. Apart from better software and graphics interface that enable Operations Centre to manage incidents more effectively, ACES also comes with features that enable members of public with visual and hearing disabilities to contact SCDF via SMS (Short Message Service)[7]. Another notable part of the ACES infrastructure is that all fire engines are mounted with in-vehicle cameras that can transmit real-time video imagery of incidents back to the Operations Centre to enhance sense-making capabilities. The SCDF also recently set-up a social media monitoring function within Operations Centre to complement ACES by trawling sites like Twitter and other social medial platforms for breaking information about an incident. This is, however, still a nascent capability that will be developed over time. Moving forward, SCDF is looking to leverage advanced video analytic capabilities as well as Big Data to identify trends, forecast demand patterns and move into pre-emptive or prediction-based resource deployment.

INNOVATION IN CONCEPT OF OPERATION

(f) **Building a Nation of Life-Savers:**
The SCDF this year announced a new vision of building "A Nation of Life Savers" by 2025. This involves training up the community in emergency life-saving skills and integrating trained volunteers in the initiating chain of an incident as

[7] The SCDF recently introduced the Emergency Short Messaging Service (SMS) function as part of its overall 995 emergency call taking capability. Catered for people who are deaf, hard-of-hearing and speech impaired (DHS), members of this community can use a mobile phone to send an SMS (@70995) to SCDF during emergencies like fires or medical situations.

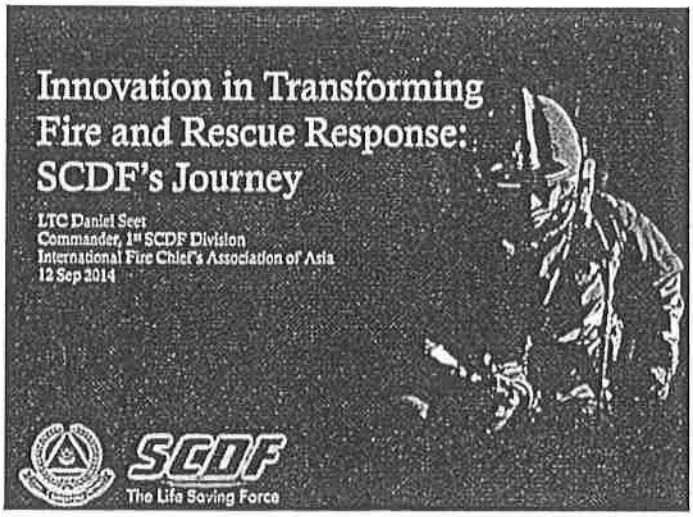
community first responders[8]. This may involve putting out an incipient fire upon its discovery, rendering first-aid or Cardiopulmonary Resuscitation (CPR), or helping to manage the orderly evacuation of others should an incident appear to be getting out of hand. In any fast-paced cityscape, operational response is a dynamic affair. While the emergency services must strive to be faster and more efficient, it is also necessary for the public to undertake responsibilities that would not endanger them unnecessarily. The SCDF is currently looking to leverage technology that would enable the effective mobilization and harnessing of volunteer response on the ground. One approach is to use mobile phone applications utilizing geo-location technology for Operations Centre to activate and dispatch trained members of the public who are near to the scene of an unfolding incident[9]. It is envisaged that in the future, there will be a full spectrum emergency response where the SCDF will be concurrently dispatching community responders and its own forces to attend to an incident, thus promising swifter response and better operational outcomes for the community. However, the success of building this full spectrum response requires a paradigm shift among the public where they recognise the critical and decisive role they play in an emergency. To gradually roll this plan out, the SCDF has introduced start-up Community First Responder programmes at the constituency level and will be looking to seed these initiatives with its own reservists and volunteers. The long-term sustainability, however, depends on it gaining traction among other members of public to come on board for training as volunteer responders.

Conclusion:

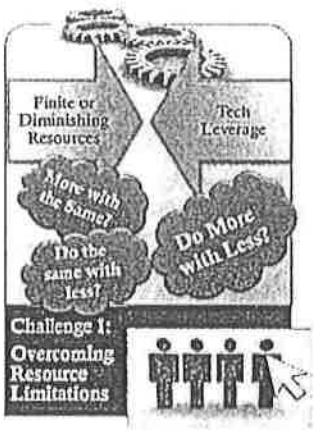
The drive towards innovation has served SCDF well by delivering a consistent line of customised emergency service solutions to meet the needs of the community. However, an even a more pressing challenge lies in engaging and integrating an emergency-trained community into a holistic full-spectrum chain of response. This calls for converting the population into an excited community of emergency preparedness activists, and will be the foremost goal of the SCDF as part of its 2025 vision of building 'A Nation of Life-Savers'. In striving towards this target, the SCDF remains clear that this process of innovation and transformation is a journey that cannot cease, but must always remain a work-in-progress.

[8] On a day-to-day basis, the SCDF is already engaging and training up a sizeable portion of the public in emergency response skills and protocols, whether in the industries or at the commercial premises or even in schools.

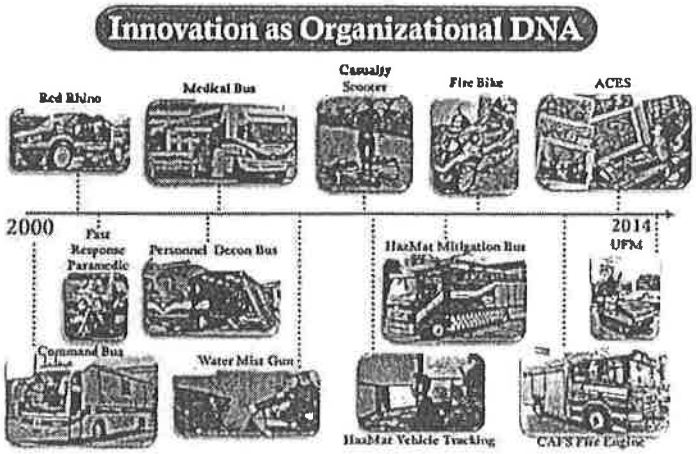
[9] An example of a similar application of mobile phone geo-location services is the recent introduction of the National Online AED Registry programme by the SCDF and the Singapore Heart Foundation (SHF) in Mar 2014. This initiative will see to the development of a comprehensive national online AED registry to improve the overall management of publicly located AEDs. Parallel programmes to promote the installation of AEDs at public premises will also be rolled out. The project, which will involve the geo-tagging of each AED location, will be done in phases and will be fully operational by 2017. With the establishment of the registry, there will be a means for the SCDF Operations Centre to quickly direct callers to the nearest AED during an Out-of-Hospital Cardiac Arrest (OHCA) incident.



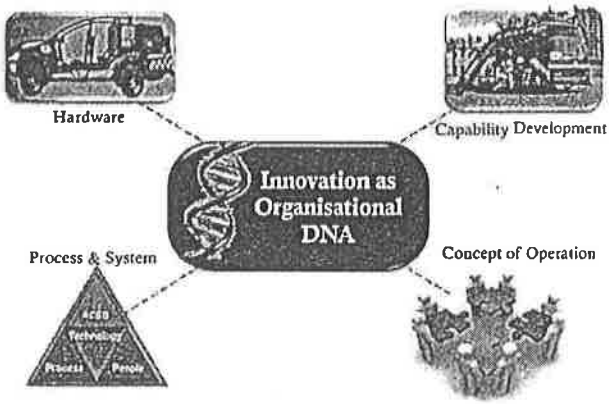
Transformation Amidst Challenges



SCDF's Innovation Journey

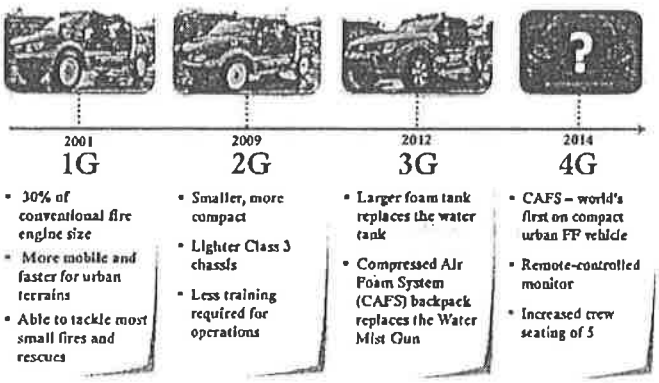


SCDF's Transformation Journey



Hardware Innovations:
The Red Rhino

Hardware Innovations:
Evolution of the Red Rhino



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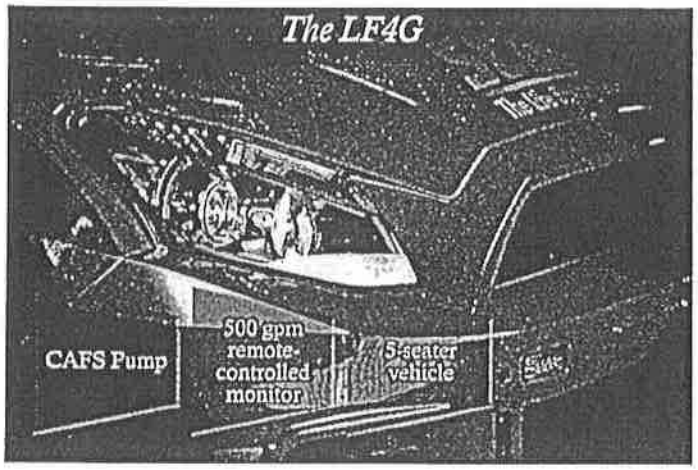

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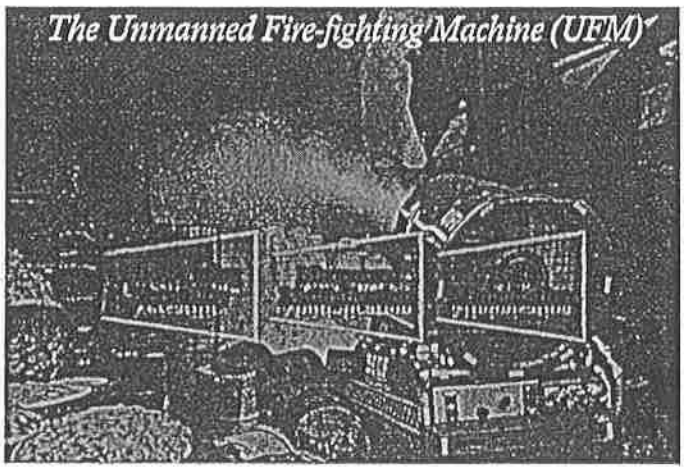

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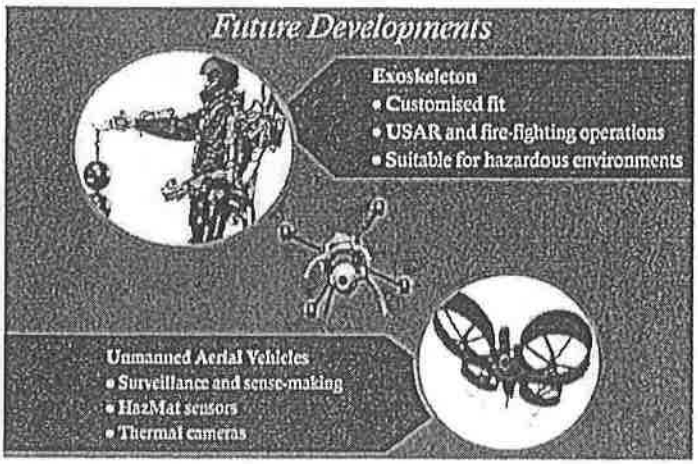
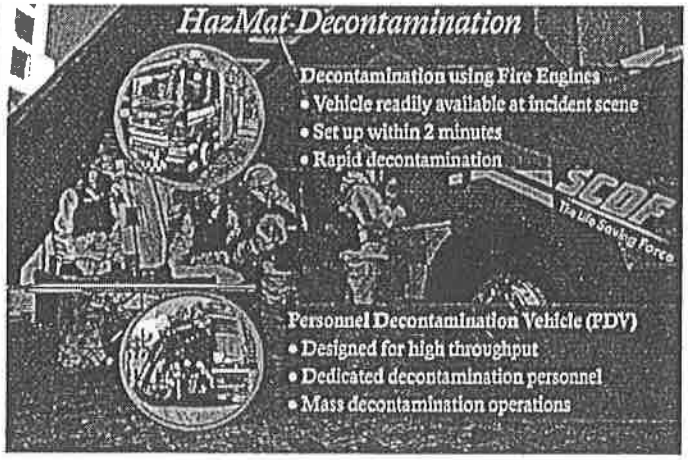


Capability Development:



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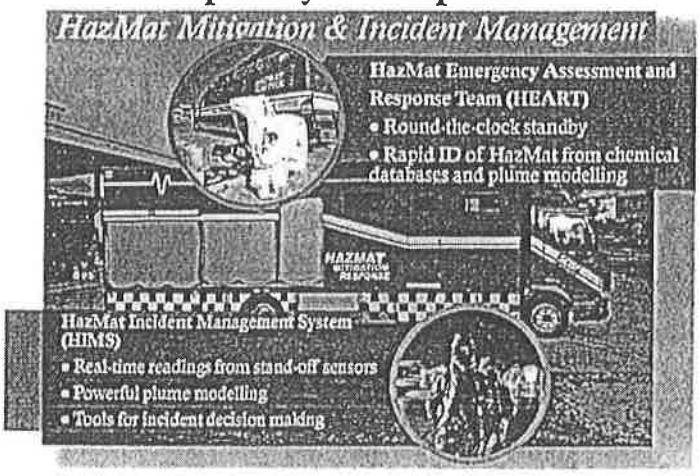
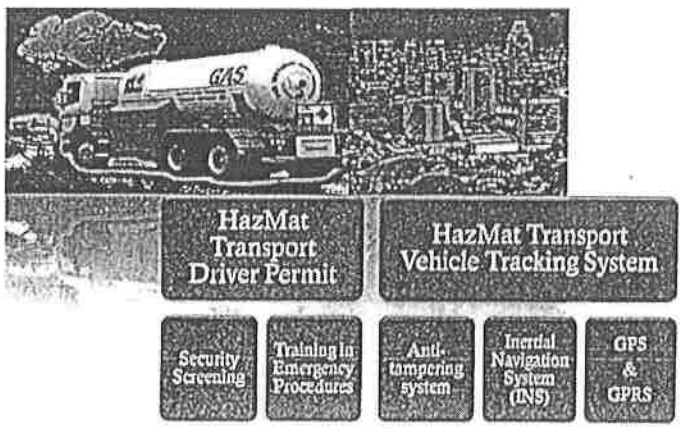


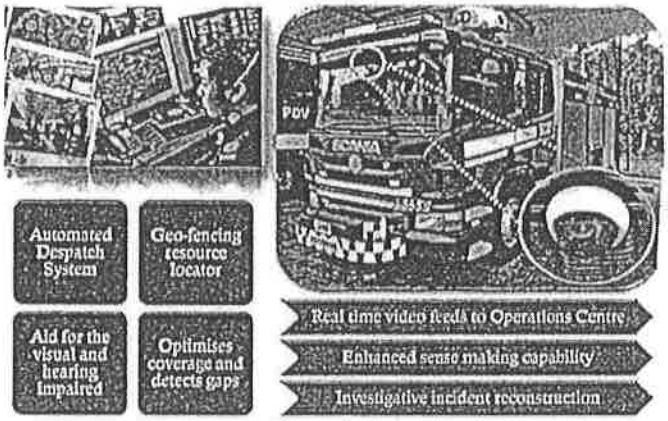
Process and System Innovation:

HazMat Transport Vehicle Tracking System (HTVTS)

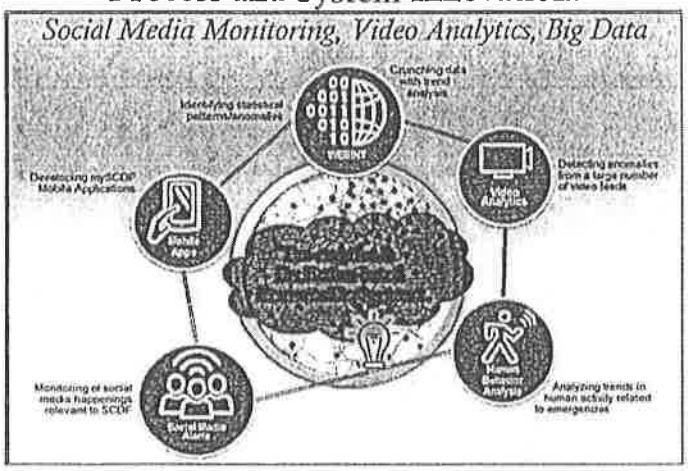


Process and System Innovation:

ACES & Mobile Vehicle Camera

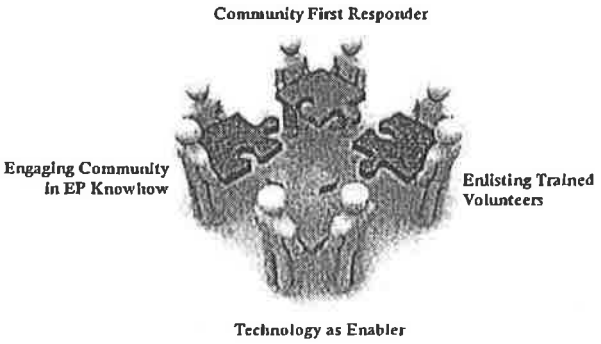


Process and System Innovation:

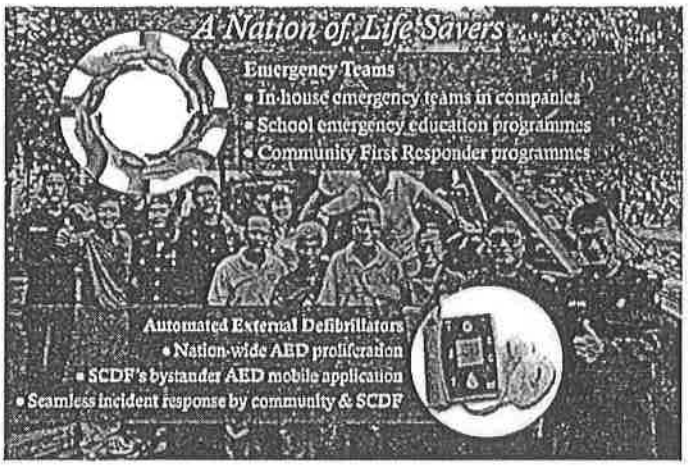


Our Transformation Vision for 2025:

A Nation of Life Savers



Our Transformation Vision for 2025:



After the Chi-chi Earthquake in Taiwan: Mass Casualty Incident Management and Experience

Charles Chi-tang Yeh
Director General
NFA, Ministry of the Interior
ROC
Taiwan

Introduction:

Hello everyone, I am very honored to be here today on behalf of the ROC's National Fire Agency to present a report titled After the Chi-chi Earthquake in Taiwan: Mass Casualty Incident Management and Experience.

My presentation is divided into four parts, through which I will share Taiwan's related experience.

Taiwan Is Located on Two Tectonic Plates:

This tectonic plate map shows that, like many of the countries that are represented here today, Taiwan is situated where two tectonic plates meet.

Map of Faults in Taiwan:

Taiwan isn't just situated where the Philippine Sea and Eurasian Plates meet, it also has many faults on land. Luckily, although east Taiwan has many earthquakes, much of the coastline is rocky and the risk of tsunami strike is relatively low.

Three-dimensional Perspective Drawing of Earthquake Occurrence in Taiwan:

This is a three-dimensional perspective drawing of earthquake occurrence in Taiwan. Taiwan has an average of 18,500 earthquakes annually, around 1,000 of which are felt. The east has the most earthquakes but has a low population; the west sees fewer earthquakes but the dense population means that when an earthquake such as the 1999 Chi-chi Earthquake strikes there are mass casualties and extensive damage.

Statistical Table of Earthquake Disasters in Taiwan in the Past 10 Years:

Earthquake disaster figures for Taiwan for the past 10 years show that eight have caused death or injury, with a total of nine people killed; most injured people were slightly injured and did not require hospital treatment.

Chin-chi Earthquake on September 21, 1999:

The magnitude 7.3 Chin-chi Earthquake that hit on September 21, 1999, killed 2,456 people and injured 10,718 and was the most serious earthquake disaster in Taiwan of the last 15 years.

House Collapse and Fire and Uplifting of Fault:

These are, respectively, house collapse, fire and fault uplifting caused by the earthquake.

Thanks to the Various Fire Rescue Teams that Came to Taiwan to Help:

In the crisis faced at the time, 728 members of 38 emergency search and rescue teams from 21 countries, including Japan, Singapore and Korea, arrived soon after the earthquake to help with the rescue effort, for which we are truly grateful.

Mass Casualty System Reform:

Below, I will share our experience of mass casualty system reform

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System Reform After the Chi-chi Earthquake and Chronology of Major Incidents:

For many countries, a major disaster is the beginning of reform. The Chi-chi Earthquake that struck on September 21, 1999 was a major crisis. In the last 15 years, with regards to the disaster prevention and rescue system, including the mass casualty mechanism, we have

learned much from this painful experience.

Taiwan's Disaster Prevention and Rescue System:

Because of the lesson from this serious disaster, from central to local governments, we now have a disaster prevention and rescue framework in place that leaves us prepared at all times to promptly respond to emergencies, carry out rescue and launch the recovery effort.

Earthquake drills on National Disaster Prevention Day on September 21st:

To remember the lesson of the Chi-chi Earthquake, September 21 was designated National Disaster Prevention Day in 2000. On this day every year, earthquake disaster prevention and rescue drills are held across Taiwan and earthquake disaster prevention and rescue plans and response procedure reviewed in a timely way.

The drills involve actual mobilization drills and tabletop simulations.

Establish Earthquake Disaster Response Activation Process:

On the basis of the Chi-chi Earthquake experience, we have established the earthquake disaster response activation process; for example, when the CWB reports an earthquake of over magnitude 5, the National Airborne Service Corps is immediately instructed to carry out helicopter reconnaissance over areas potential affected by disaster to check if the mass

casualty mechanism needs to be activated or the Central Emergency Operations Center established.

Mass Casualty Simulations Introduced to Earthquake Drills:

In terms of actual mobilization drills, a mass casualty situation caused by a large

earthquake is included.

National Disaster Prevention Day tabletop simulation location at the Central Emergency Operations Center:

Also, we will bring together central and local related earthquake disaster prevention and rescue agencies at the Central Emergency Operations Center for the holding of earthquake disaster simulations.

The tabletop simulation on National Disaster Prevention Day chaired by Commander, the Minister of the Interior – Oct 4, 2010:

The earthquake disaster tabletop simulation on National Disaster Prevention Day annually is chaired by the Commander, the Minister of the Interior.

National Disaster Medical Assistance Team takes part in the National Disaster Prevention Day drills:

Also, the National Disaster Medical Assistance Team also takes part in the National Disaster Prevention Day drills.

The scene shows a patients being taken to hospital by helicopter after triage.

Mass Casualty Emergency Medical Treatment Process Chart:

Through the drills, we examine whether the mass casualty medical treatment process that has been established needs adjusting.

Definition of Mass Casualties and Handling Principle:

In Taiwan the definition of "mass casualty" is a single incident in which there is more than 15 casualties or it can be predicted that more than 15 will require emergency medical treatment.

The three main handling principles are onsite triage, treatment, and evacuation.

Mass Casualty on Site Operation Chart:

We make a mass casualty site operation chart for all mass casualty sites and first grade victims for seriousness of injury by triage.

Training of Fire Fighters into EMT-P in 2002:

Having a mechanism is not enough, the fire service personnel who are the first to arrive at the scene also need to have sufficient emergency medical skills, which is why since 2002 we have trained fire service personnel to become EMT-P to raise their overall level of emergency medical skills.

Percentage of Fire Service Personnel Qualified as EMT-P:

The percentage of fire service personnel qualified as EMT-P increases every year; at present 890 have qualified as EMT-P (7% of total), and 10,026 had qualified as EMT-II (82%), giving a combined total of 89% .

Mass Casualty Incident Experience:

Below I will share our experience of dealing with mass casualty incidents:

Derailment of Alishan Mountain Railway Train in Chiayi County in March 2003:

The Alishan Mountain Railway is a historic railway line over 100 years old. The railway climbs from 30 meters elevation to 2,216 meters; it is one of the three great mountain railways of the world. In March, 2003, a train unfortunately turned over in a remote spot at

elevation 2,100 meters, killing 17 people and injury 171.

Mass Casualty Process Activated Immediately – 1:

With the mass casualty operation process we had already put in place, when this accident happened the fruits of routine training were put into good use at the accident site.

The mass casualty mechanism was quickly activated: including disaster situation reporting, setting up of onsite forward command post, and effective integration of the rescue resources of different units.

Mass Casualty Process Activated Immediately – 2:

The victims were graded for seriousness of injury onsite by triage, an evacuation route established and the emergency helicopter evacuation mechanism activated. This picture shows a military helicopter evacuating a victim.

Completing the Major Disaster Air Rescue Mechanism for Remote Areas:

Review of this accident made us even more aware of the importance of strengthening our mass casualty handling capability.

To make the major disaster air rescue mechanism for remote areas complete, 1,264 emergency heliports have been established around Taiwan.

Regional Medical Emergency Operations Centers Established on April, 2008:

Special features of Regional Medical Emergency Operations Centers established on April, 2008:

Ordinary day: operate a 24 hours a day shift system constantly monitor disaster incidents that require emergency medical care in their area, as well as helping with the establishment and updating of the regional disaster medical assistance resource databank.

When disaster occurs: the mass casualty rescue mechanism is immediately activated, and cross-area medical assistance resources are dispatched, with the fire service, hospitals, private EMS companies and the military jointly joining the emergency medical effort.

March 4, 2010 - 6.4 Earthquake at Jiaxian, Kaohsiung:

Magnitude 6.4 earthquake occurred at Jiaxian, Kaohsiung on March 4, 2010. There were no fatalities, but a Taiwan High Speed Railway train was derailed.

Earthquake Response - High Speed Railway Train Passengers Evacuated:

The train was travelling at 300kmh but, when the earthquake struck the Disaster Warning System (DWS) was activated, and it was able to stop safely, showing the level of safety of the high speed railway.

The high speed railway company quickly launched rescue work in unison with local fire service and police personnel. 2,376 passengers on six trains were evacuated smoothly and safely, showing the effectiveness of regular inter-unit drills.

Handling of Smangus Road Accident in December 2012:

On December 1, 2012, a tour bus turned over and fell into a ravine in a remote area of Hsinchu County, carrying the driver and 22 passengers. The mass casualty mechanism was activated, reporting, command and dispatch carried out, and the victims quickly taken to seven hospitals after triage, successfully reducing casualties to a minimum.

Strengthening Remote Area's Preliminary Disaster Response Emergency Medical Capability:

After reviewing this case, it was decided to improve the emergency medical capability of remote mountain villages in two ways:

Provide sufficient rescue and medical assistance equipment.

Organize villagers into autonomous disaster prevention and rescue teams and strengthen accident first response and medical assistance training.

Conclusion:

The conclusion follows below.

Significance of the Inauguration of the NFA Training Center on January 19, 2010:

The NFA Training Center opened on January 19, 2010, covers 109 hectares and has 13 disaster simulation rescue training grounds, including earthquake rescue training.

The place where the Chi-chi Earthquake occurred, Nantou County, was chosen as the location for the center.

Facilities for Simulating Actual Fire Disasters & Professional Medical Assistance Classrooms and Victim Drill Facilities:

Like the phoenix emerging from the fire, without the lessons of the Chi-chi Earthquake we would not have such advanced facilities today.

Over the years, we have learned much from the experience members of the IFCAA, and this has been vital in the improvements we have made in our fire and disaster prevention and rescue capability and in establishing our mass casualty mechanism.

Strengthening International Fire and Disaster Prevention and Rescue Cooperation:

When the NFA Training center was established on Jan. 19, 2010, many countries around the world expressed their willingness to cooperate with Taiwan with respect to joint fire and disaster prevention and rescue, and we are grateful for this.

We believe that there is no end to the disaster prevention road. Only by studying disaster cases, improving fire service personnel training continually and increasing their specialized skill level can we effectively protect the public and property.

I believe that in the future we can continue, through the IFCAA, to strengthen fire and disaster prevention and rescue cooperation between member countries.

Finally, I wish you all the best of health and the IFCAA annual meeting every success.

International Fire Chiefs' Association of Asia (IFCAA)

After the Chi-chi Earthquake in Taiwan: Mass Casualty Incident Management and Experience

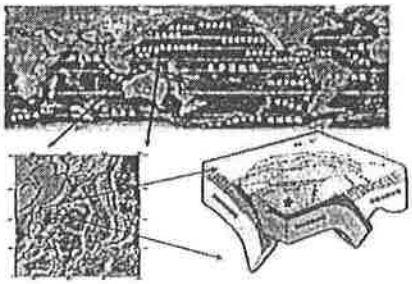
Charles Chi-lang Yeh
Director General
National Fire Agency, Ministry of the Interior, ROC
September 12, 2014

Outline of Presentation

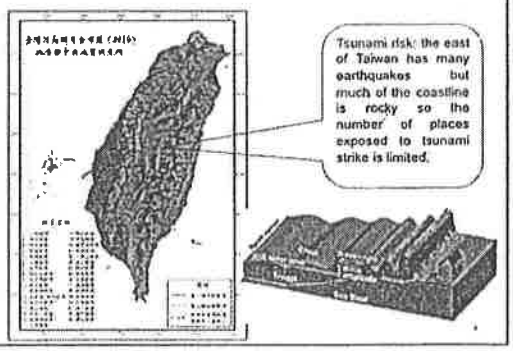
1. Taiwan's Earthquake Disasters
2. Mass Casualty System Reform
3. Mass Casualty Incident Experience
4. Conclusion

1. Taiwan Is Located on Two Tectonic Plates:

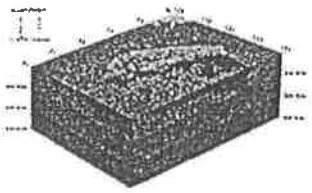
■ The Philippine Sea and Eurasian tectonic plates



2. Map of Faults in Taiwan



3. Three-dimensional Perspective Drawing of Earthquake Occurrence in Taiwan



Taiwan has an average of 18,500 earthquakes annually, around 1000 of which are felt. The east has the most earthquakes but has a low population; the west sees fewer earthquakes but the dense population means that when an earthquake such as the 1999 Chi-chi Earthquake strikes there are mass casualties and extensive damage.

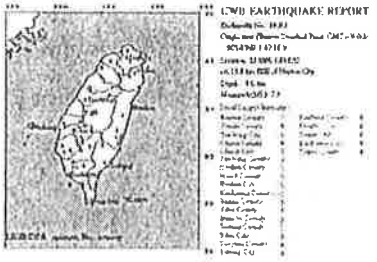
4. Statistical Table of Earthquake Disasters in Taiwan in the Past 10 Years

Year	Number of disasters	Number injured (persons)			Collapsed houses (households)	
		Deaths	Missing	Injured	Totally collapsed	Partially collapsed
2004	1	2	0	1	0	0
2005	0	0	0	0	0	0
2006	2	2	0	39	17	11
2007	0	0	0	0	0	0
2008	0	0	0	0	0	0
2009	2	0	0	3	0	0
2010	1	0	0	72	207	1
2011	0	0	0	0	0	0
2012	0	0	0	0	0	0
2013	2	5	0	117	1	0
Total	8	9	0	272	226	12

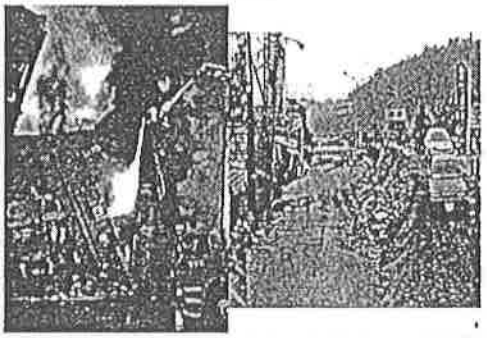
5. Chi-chi Earthquake on September 21, 1999

Time: 01:47 Sept. 21
Epicenter: 12.5 kilometers to the west of Sun Moon Lake
Magnitude: 7.3
Depth: 8km

Disaster situation:
Number of dead: 2,456
Injured 10,718 people
53,051 houses totally destroyed
53,024 partially destroyed

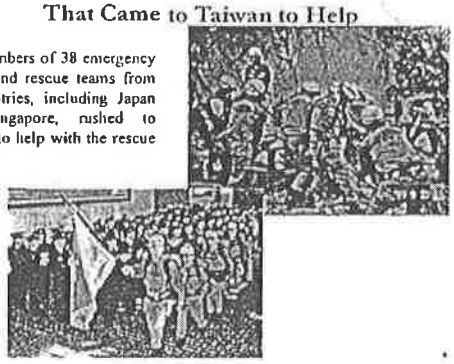


6. House Collapse and Fire and Uplifting of Fault



7. Thanks to the Various Fire Rescue Teams That Came to Taiwan to Help

728 members of 38 emergency search and rescue teams from 21 countries, including Japan and Singapore, rushed to Taiwan to help with the rescue effort.



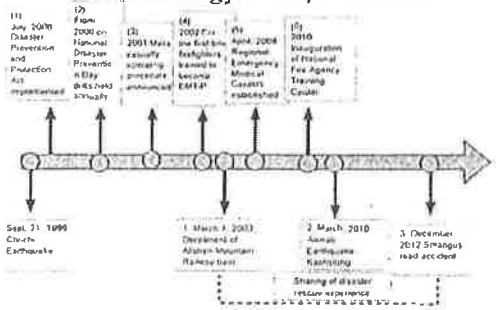
1.Taiwan's Earthquake Disasters

2.Mass Casualty System Reform

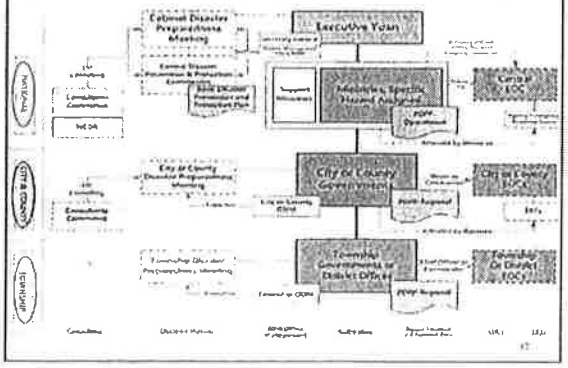
3.Mass Casualty Incident Experience

4.Conclusion

※ System reform after the Chi-chi Earthquake and chronology of major incidents



(1)Taiwan's Disaster Prevention and Rescue System

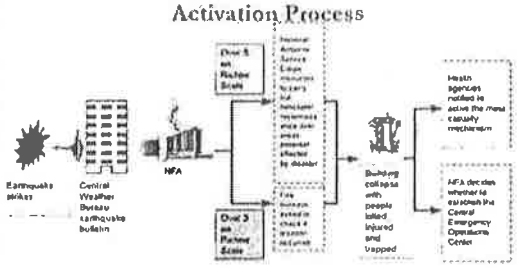


(2)Earthquake drills on National Disaster Prevention Day on September 21

(1) To remember the lesson of the Chi-chi Earthquake, September 21 was designated National Disaster Prevention Day in 2000. On this day earthquake disaster prevention drills are held across Taiwan and earthquake operational plans and response procedure reviewed in a timely way.

(2) The drills involve actual troop mobilization and simulations.

※ Establish Earthquake Disaster Response Activation Process

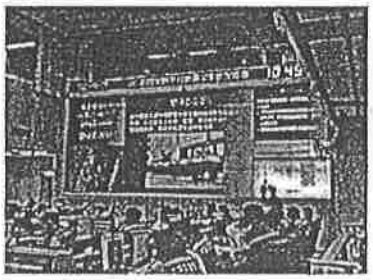


※ Mass casualty simulations introduced to earthquake drills

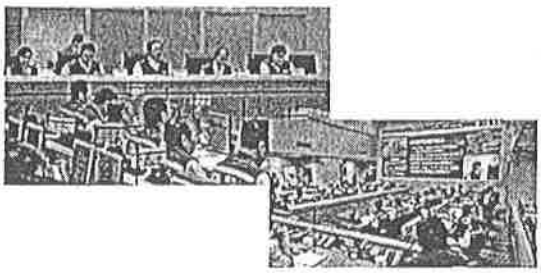
(1) An urban center earthquake that causes mass casualties is simulated.

(2) As well as practicing various disaster rescue skills, more important is that the national emergency medical system is immediately activated and mass casualty medical treatment drills carried out.

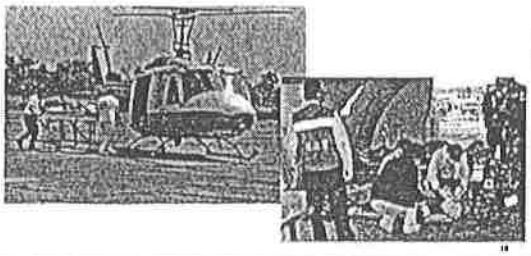
※National Disaster Prevention Day tabletop simulation location: Central Emergency Operations Center



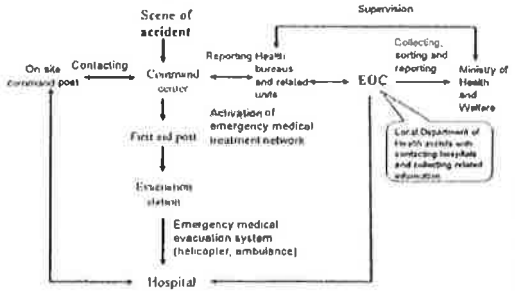
※The tabletop simulation on National Disaster Prevention Day is chaired by the Commander, the Minister of the Interior (Oct. 4, 2010)



※ National Disaster Medical Assistance Team also takes part in the National Disaster Prevention Day drills.

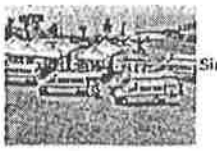


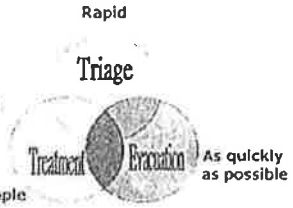
(3)Mass casualty emergency medical treatment process chart



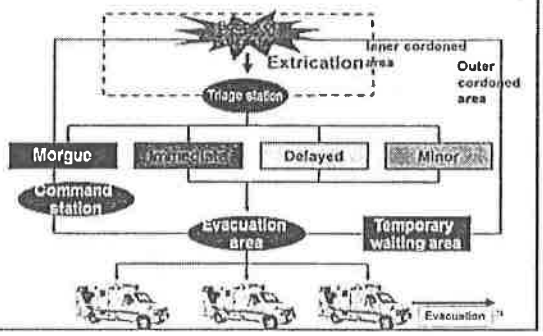
※Definition of mass casualties and handling principle

Definition: means a single incident in which there are more than 15 casualties or it can be predicted that more than 15 will require emergency medical treatment

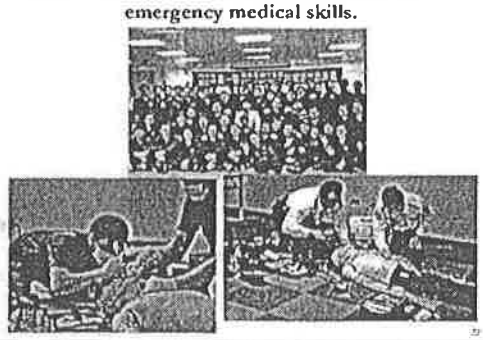




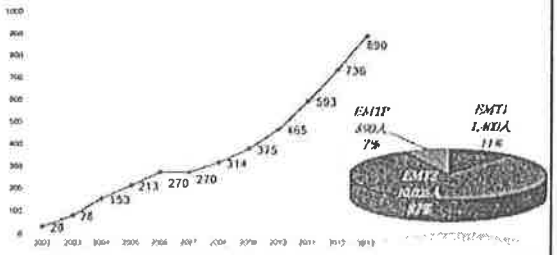
※Mass casualty on site operation chart



(4)In 2002 training of fire fighters to turn them into EMT-P began, raising the level of professional emergency medical skills.



※The percentage of fire service personnel qualified as EMT-P increases every year; at present 890 have qualified as EMT-P (7% of total), and 10,026 had qualified as EMT-II (82%), giving a combined total of 89% .



1.Taiwan's Earthquake Disasters

2.Mass Casualty System Reform

3.Mass Casualty Incident Experience

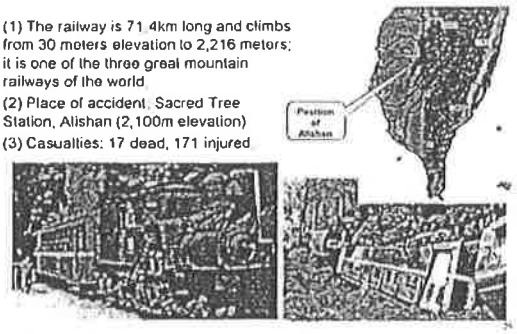
4.Conclusion

1. Derailment of Alishan Mountain Railway Train in Chiayi County in March 2003

(1) The railway is 71.4km long and climbs from 30 meters elevation to 2,216 meters; it is one of the three great mountain railways of the world.

(2) Place of accident: Sacred Tree Station, Alishan (2,100m elevation)

(3) Casualties: 17 dead, 171 injured.



※Mass casualty process activated immediately-1

(1) Disaster situation reporting

a. The local fire department notified local agencies (health units and police) and central government agencies. (Ministry of Health and Welfare, National Fire Agency, National Rescue Command Center)

b. Mass casualty process activated

(2) On site forward command post established

a. Mass casualty triage area established.

b. Site access controlled to ensure rescue Safety.

c. Grasps maintained of the disaster rescue situation of the various units.

※Mass casualty process activated immediately-2

(3) Mass onsite triage to grade seriousness of victim injuries

- After grading patients, the most seriously injured were evacuated by helicopter, each flight taking 4-5 patients; the minor injured were evacuated by ambulance, 2-3 patients in each vehicle.

(4) An evacuation route was established

- The road up the mountain was closed to other users and opened only to rescue vehicles.

(5) Simultaneous activation of the air emergency assistance mechanism

Helicopters of National Airborne Service Corps and National Defence were dispatched to take victims requiring immediate hospital treatment to hospital.

※To make the major disaster air rescue mechanism for remote areas complete, 1,264 emergency heliports have been established around Taiwan

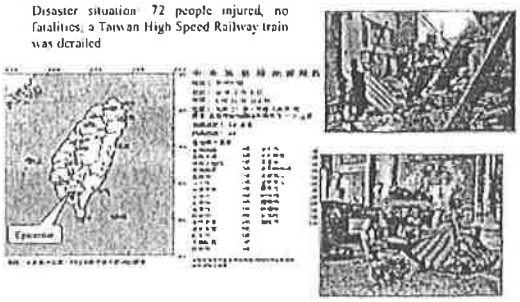
(5)Regional Medical Emergency Operation Centers Established on April, 2008

(1) Ordinary day: operate a 24 hours a day shift system constantly monitor disaster incidents that require emergency medical care in their area, as well as helping with the establishment and updating of the regional disaster medical assistance resource databank.

(2) When disaster occurs: the mass casualty rescue mechanism is immediately activated, and cross-area medical assistance resources are dispatched, with the fire service, hospitals, private EMS companies and the military jointly joining the emergency medical effort.

2. March 4, 2010 6.4 Earthquake at Jiaxian, Kaohsiung.

Disaster situation: 72 people injured, no fatalities; a Taiwan High Speed Railway train was derailed



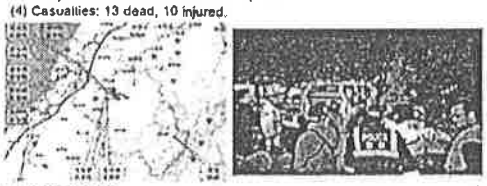
※Earthquake response—High speed railway train passengers evacuated

- A response plan was activated in line with the Taiwan High Speed Railway's overall disaster prevention and rescue plan, with rescue work quickly started in unison with local fire service and police personnel. 2,376 passengers on six trains were evacuated smoothly and safely, showing the effectiveness of routine inter-unit drills.

3. Handling of Smangus Road Accident in December 2012

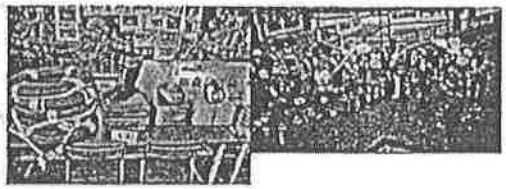
A tour bus turned over and fell into a ravine in a remote area (carrying the driver and 22 passengers)

(1) Reporting: Dispatch center notified local health bureau, and mass casualty medical assistance mechanism activated
(2) Command and dispatch: Onsite command post set up, joint rescue carried out
(3) Triage and Evacuation: Triage graded victims by seriousness of injury and they were distributed to seven hospitals.
(4) Casualties: 13 dead, 10 injured.



※Strengthen remote area preliminary disaster response emergency medical capability

(1) Giving mountain villages sufficient first response rescue and medical assistance equipment.
(2) Organize villagers into autonomous disaster prevention and rescue teams, strengthen accident first response and medical assistance training.



1.Taiwan's Earthquake Disasters

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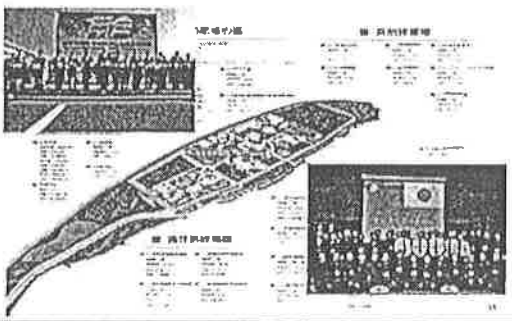
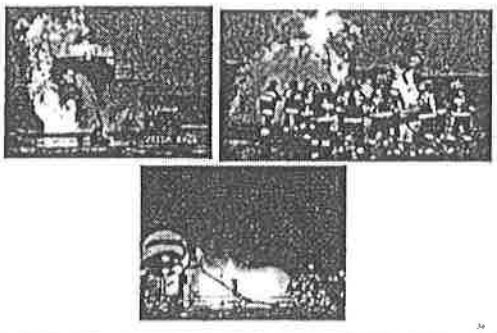
4.Conclusion

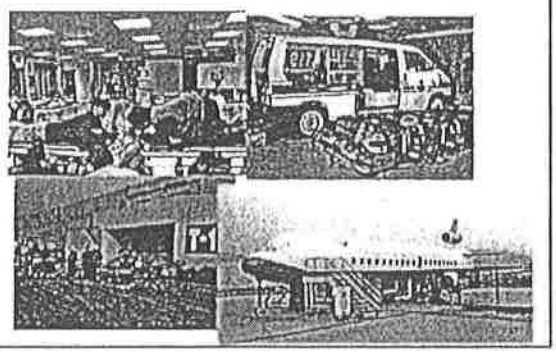
(6)The Significance of the Inauguration of the NFA Training Center on January 19, 2010



※Facilities for simulating actual fire disasters



※Professional medical assistance classrooms and victim drill facilities



※ Strengthen International Fire and Disaster Prevention and Rescue Cooperation

We have learned much from the experience members of the IFCAA, and this has been vital in the improvement we have made in our fire and disaster prevention and rescue capability and in establishing our mass casually mechanism

When the NFA Training center was established on Jan. 19, 2010, many countries around the world expressed their willingness to cooperate with Taiwan with respect to joint fire and disaster prevention and rescue, and we are grateful for this

That is the end of my report

Thank you for your attention

Creating Safer Communities

Toshikazu Tokudome
Chief
Planning & Coordination Division
TOKYO FIRE DEPARTMENT
Japan

DISASTERS IN JAPAN - They Come and Go:

In the world, Japan tends to be "hit" more often by typhoons, torrential rains, snowstorms, floods, mud streams, earthquakes, tsunami waves, volcano eruptions, etc. This vulnerability is actually caused by the natural factors such as location, landform, soil, and weather.

Japan takes up only 0.25 percent of the entire area of the world, and is actually hit by earthquakes much easier than any other country. Japan takes up 20.5 percent of the total of the past quakes with a magnitude of 6 or more in the world, and also takes up 1 1.9 percent of the total of the entire disaster damage amount in the world.

Meanwhile, Japan takes up only 0.3 percent of the world's disaster deaths. This goes to show how widely and successfully Japan can cope with disasters.

EARTHQUAKE - You May Be Hit Anywhere in Japan:

This is the map completed by the Meteorological Agency showing where the quakes of magnitude of 5 and more have broken out so far together with plates in the world.

We can see a lot of seismic events around Japan.

Earthquake focuses tend to concentrate in a long line.

Many quake focuses can be found between plates.

Japan is located between the oceanic plate and the continental plate. So, Japan may be hit by a huge quake with its focus exactly between two subdued plates, or otherwise may be hit by an inland quake with plates moving below the crust.

In addition, Japan, surrounded by the sea, has long zigzag coastlines. They can have tsunami forces all the more developing.

With complicated crust structure, Japan has been and may be hit by large quakes.

EARTHQUAKE - 50 and More Deaths in the Past 20 Years:

Japan had four major earthquakes in the past 20 years, which brought about 50 and more deaths:

1995/1/17 - Great Hanshin-Awaji Earthquake (Magnitude 7.3) / With 6,434 people killed & 104,906 houses all destroyed.

2004/10/23 - Mid Niigata Prefecture Earthquake (Magnitude 6.8) / With 68 people killed & 3,175 houses all destroyed.

2011/3/11 - Great East Japan Earthquake (Magnitude 9.0) / With 18,703 people killed & 126,574 houses all destroyed.

At any moment now, Japan may be hit by a Tokai quake, a Tonankai quake, a Nankai quake, and/or a devastating Tokyo quake. These quakes may be as large as, or larger than the Great East Japan Earthquake.

MEGAQUAKE① - Nankai Trough Earthquake:

This shows the possibilities of a Tokai quake, a Tonankai quake, and a Nankai quake.

The Nankai Trough found at the boundary where continent side plates meet. Specifically, the Philippine Sea Plate off the Pacific Ocean running from Suruga Bay to Kushu, the Eurasia Plate on the side of Japan, and others.

At the Nankai Trough, "magnitude 8 class quakes" have occurred every 100 to 150 years. Another huge quake will occur if the focuses of a Tokai quake, a Tonankai quake and a Nankai quake move at the same time, or separately.

The last Tokai quake occurred 158 years ago. The last Tonankai and Nankai quakes occurred about 60 years ago. So, early in this century, large quakes may occur. Anyway, Japan may be hit any moment

---

MEGAQUAKE② - "Below Tokyo" Earthquake:

This shows the possibility of the occurrence of a Tokyo quake within 30 years. That is, an earthquake with its focus directly below a Tokyo metropolitan area.

A devastating Tokyo quake would get Tokyo's political, administrative and economic centers down, and eventually would give harm to people overall both at home and abroad.

Tokyo is expected to have a "magnitude 8 class quake" every 200 to 300 years. It is like the Great Kanto Earthquake back in 1923.

About 90 years have passed since the Great Kanto Earthquake. So, the next big one may come 100 to 200 years ahead.

Meanwhile, "magnitude 7 class Tokyo quakes" may well occur several times any moment.

Around the end part of last year, the Central Disaster Management Council of the Cabinet Office mentioned that Tokyo has a 70-percent possibility of having a direct major quake within 30 years.

TOKYO - Creating a Safe Tomorrow:

To protect people's lives and property from a Tokyo quake and post-quake disasters, Tokyo reviewed its earthquake safety concept.

Actually we encourage people to keep themselves safe from disasters, see what their communities are like, and get together for their communities' safety.

Assistance from public service organizations is also important. The Fire Department is working for the overall improvement of its disaster response system to create a "safe tomorrow" in Tokyo.

The Tokyo Fire Department came out with basic earthquake policies, and pushes forward the measures for your own safety, for your community's safety, and for fire stations to be able to assist you effectively.

GREAT HANSHIN-AWAJI EARTHQUAKE - Rescue Teamwork:

This shows who rescued the victims and how many people were actually saved by them right after the Great Hanshin-Awaji Earthquake back in 1995.

This quake was too big to be completely coped with in an early stage only by the Fire Department and other administrative bodies on the local level.

Rescue efforts were needed, and at the same time firefighting was also needed.

The Administration was all too occupied to help every victim. Notably, however, residents themselves went out and gave a helping hand, leading a lot of victims to safety.

A survey shows that about 80 percent of the collapsed house victims were saved by their families or neighbors.

Collapsed house victims need to be rescued as soon as possible. However, a devastating quake may make it difficult for fire department rescue members to save all victims with ease.

With this in mind, we have to encourage community residents to protect themselves, and also work together in emergencies.

Consequently, residents must learn what to do and how to act to keep themselves and others safe. We must keep on promoting practical local community fire drills, showing the trainees how to use firefighting water sources and equipment effectively.

In addition, citizen-initiated basic firefighting is also required.

The Great Hanshin-Awaji Earthquake made Japan review its anti-disaster measures, telling how important emergency teamwork is. Specifically, cooperation must be achieved by the Administration, residents, communities, voluntary associations, private sectors, schools, and so on.

FOR SAFER SOCIETY - What Are Needed?

Replying to the disaster preparedness questionnaire by the Cabinet Office, a lot of people chose and insisted on the importance of three items: "Making communities stronger against disasters," "Developing community life safety leaders' capabilities," and "Working together with outside voluntary members."

All in all, this means community residents think both local efforts and outside help are so important.

MAKING TOKYO SAFER: [What Are the Problems?]

Tokyo has a lot of old wooden house areas. In this situation, a Tokyo quake, another Nankai Trough quake or others would easily flatten old constructions, cause traffic problems, and let forceful fires start almost at the same time.

Meanwhile, particularly in bay areas, we find a lot more high-rise apartment buildings and single households with a heavier influx of people than ever before. These residents don't know each other well. Additionally, society is getting older with fewer young people, with fewer community life safety leaders. Problems are lying ahead.

TOKYO FIRE DEPARTMENT - Save Yourself and Help Each Other:

The three photos above show the training for yourself, and the three others below show the training for you and others.

- The two photos on the left above show the pupils and students at drill. It is the overall disaster education training.

The trainees are shooting water, and carrying a victim on a stretcher.

The photo on the right above shows the furniture safety learning section in a life safety drill event.

- The photo on the left below shows the Day-To-Day Town Life Safety Drill for the community. This is the water bucket relay to put out a fire.

The photo in the middle...You can find a firefighting standpipe system. Volunteer firefighters evacuating a victim are found in another photo.

2020 Olympic and Paralympic Games:

Tokyo is going to host the 2020 Olympic and Paralympic Games. With the circumstances continuously changing in Tokyo, we take this future event as the best opportunity for us to give another change to Tokyo in terms of disaster preparedness. We have been working more often than ever before with other organizations and promoting our policies for greater life safety.

We believe Japan's efforts and other countries' cooperation will bring a huge success to the Olympic Games. We could not be happier with your assistance and cooperation.

We hope a lot of people will join us in Tokyo in 2020 to develop their friendship with other Asian nations, enjoy the Olympic Games, and widely see what Japan's culture is like.

Tokyo citizens and all other citizens throughout Japan...We are really expecting you.

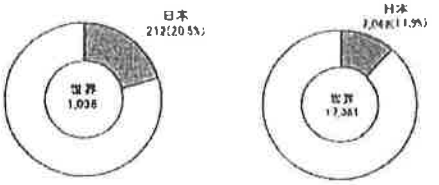
Thank you very much, indeed!

Creating Safer Communities

Toshikazu Tokudome
Chief, Planning & Coordination Division
TOKYO FIRE DEPARTMENT

1 DISASTERS IN JAPAN : They Come and Go

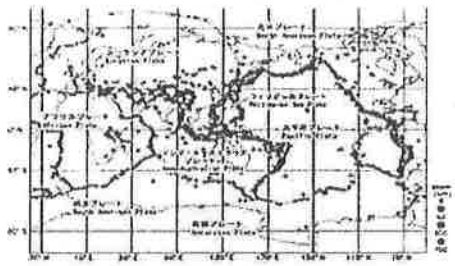
マグニチュード6．0以上の地震回数　　災害被害額(億ドル)



⇒Japan is a small country with a large number of disasters.

(*White Paper on Disaster Management 2010*, Cabinet Office)

2 EARTHQUAKE: You May Be Hit Anywhere In Japan



3 EARTHQUAKE: 50 and More Deaths in the Past 20 Years

1995/1/17 Great Hanshin-Awaji Quake M7.3

2004/10/23 Mid Niigata Pref. Quake M6.8

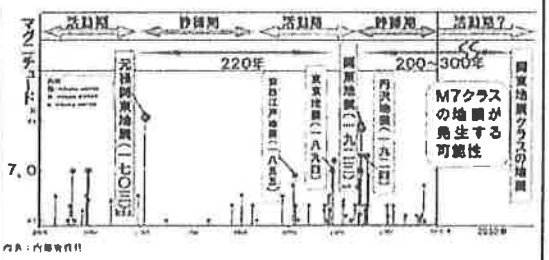
2011/3/11 Great East Japan Quake M9.0

(As of July 31, 2014)

4 MEGAQUAKE① - Nankai Trough Earthquake

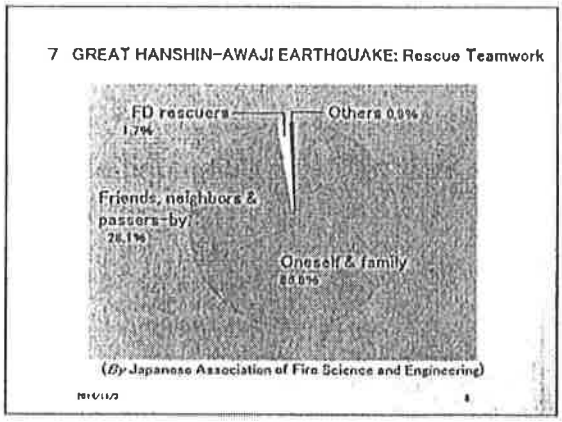
It may hit Japan early in this century.

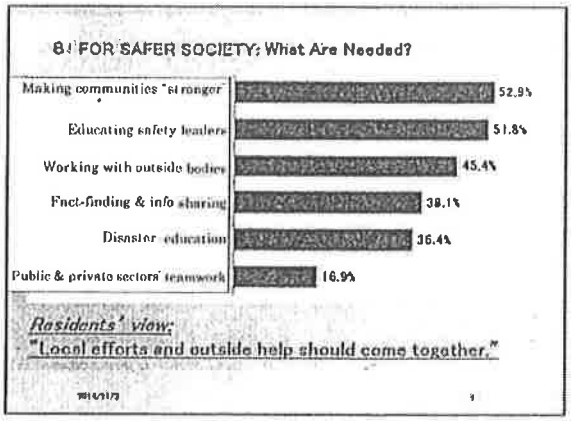
5 MEGAQUAKE② -"Below Tokyo" Earthquake

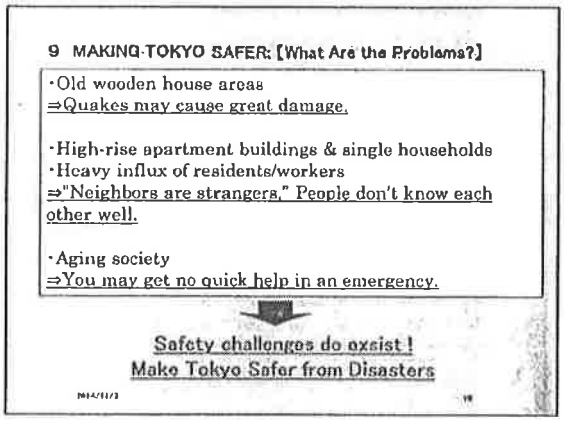


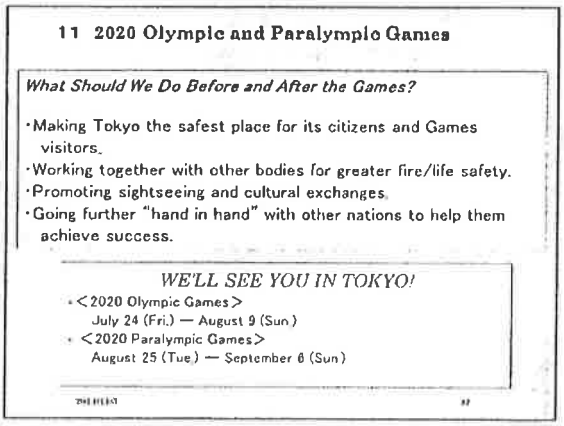
"7-magnitude quake" in Tokyo within 30 years.....
Possible? ⇒ 70%

IFCAA 地域防災力の向上について









DEVELOPMENT OF SPECIALIST IN HONG KONG FIRE SERVICES DEPARTMENT

Mr. Robert Lau
Assistant Director
Hong Kong Fire Service
Hong Kong

Introduction:

Good morning Chiefs, ladies and gentlemen. It is indeed my honour and privilege to be one of the speakers at this conference. I would like to thank the organizing committee for letting me to give a presentation on Development of Specialist in Hong Kong Fire Services Department. May I take this opportunity to wish the conference a great success to which I do hope my sharing from the Hong Kong perspective would make some contribution.

Hong Kong Fire Services Department:

For a metropolitan city like Hong Kong, a multi-faceted and well equipped fire brigade is fundamental in making it a safe place to live and work. To this end, a total of 87 fire stations and 38 ambulance depots are strategically located in the territory. Among its 10,043 strong members, about 9,347 are uniformed members and 696 are supporting staff. Our fire fighting and rescue services are supported by 581 operational appliances and vehicles, 347 ambulances and 21 fire vessels.

Training of specialists is one of the continuous developments in our department. We have formed varies teams and units with specific skills to deal with special incidents. The following items will be covered in the presentation:

- I will talk about our Diving Unit, and our Diving Base which provides advanced diving training to our divers.
- Rescue operations at high angel locations carried out by our High Angel Rescue Team.
- How can our Urban Search and Rescue Team handle incidents involving people trapped or buried underneath the rubble after structural collapse or landslide.
- And finally, our HazMat Team which is responsible for dealing with Chemical, Biological, Radiological or Nuclear attacks or leakage incidents.

Diving Services:

Our Diving Unit is responsible for all aquatic search and rescue operation within HK waters to a maximum depth of 42 m. We will respond to emergencies at sea, reservoirs, caissons, ponds, sewers and other compressed atmosphere. Our Diving Unit comprises about 150 divers in 7 teams. The Diving Operation and Training Support Team provides additional operation support and training to our divers. (1 in Causeway Bay, 1 in Stonecutters Island, 1 in Shatin, 1 in Castle Peak, 2 in the airport and 1 in the Diving Base.)

Our Department has a Diving Base on Stonecutters Island which is equipped with a range of advanced professional and training facilities to enhance the search and rescue skills of our divers.

With the rapid increase of maritime traffic in Hong Kong waters, serious ship incidents do happen once in every few years, which often require underwater search and rescue.

In order to better prepare our divers to deal with these dangerous and demanding tasks, we have invested heavily on our Diving Base for providing advanced training to our divers.

Diving Training Facilities:

With the aid of training facilities, we can simulate different scenarios. Major training facilities in the Diving Base include:

- A Main Diving Pool
- A Rapid Pool
- A Ship Wreck Simulator
- A Deep Diving Simulator System
- An Underwater Welding Tank

The Main Diving Pool has a big wave making ball and 4 Helicopter downwash fans for simulating choppy waters up to 1.8m of wave; and a helicopter winch for lowering divers onto a diving platform or lifting up rescuers from sea.

A Rapid Pool can generate water current up to 1.5 m/s to provide rescue training in swift water.

The ship wreck simulator is a new training concept for divers. It has been put into commission in 2012. Since there is no ship wreck available for diving training in Hong Kong Waters, as all ship wreck would be removed by the staff of Hong Kong Marine Department,

we have to design our own ship wreck simulator for training purposes. The simulator was designed and built in a shipyard in Hong Kong. It is constituted by real ship components in cubic module. Our ship wreck simulator adopts the blocks concept like Lego. All components can be assembled in any position to simulate a capsized or overturned vessel in waters. Before training, the components will be assembled beside the Main Diving Pool by our divers and then put into the pool for training. The composition of the ship wreck simulator can be changed as you wish according to the training scenario. The simulator not only enhances our divers' penetration diving skill, but also provides a more realistic training environment for our divers.

We have another simulator which is called Deep Diving Simulator System in our Diving Base. It has been put into commission in 2010. The system was designed and built by HAUX in Germany. As you can see the picture on the left, the main tank is about 7m high. We needed to take the photo from outside. The system is the most advanced Deep Diving Simulator System in the South East Asia and cost about 1M Euro. It is an integrated system with Deep Diving Simulator and Treatment Chamber. This fully computerized system can be operated automatically according to the plan input by the operator. The maximum working pressure of the Simulator is 10 bar, equivalent to 100m water depth. Divers are provided with mixed - gases, Helium, Oxygen & Nitrogen, as breathing gas by the system for deep diving training. After the deep diving training or in case of emergency, divers can carried out decompression procedures in the inter - connected treatment chamber. Before the introduction of Deep Diving Simulator System, our divers can only reach the depth of 42m in operation.

Underwater Welding Tank simulates an environment for underwater cutting and welding training.

High Angle Rescue Team:

With the commissioning of new cable cars which run almost 140m high from sea level as well as the high suspension bridges linking different parts of Hong Kong, we recognize the importance of enhancing our high angle rescue capability. In this regard, a dedicated High Angle Rescue Team has been set up.

「Stonecutters Bridge:
Navigation clearance of about 73.5m;
Height of Towers of about 298m
Tsing Ma Bridge:
Navigation clearance of about 62m;
Height of Towers of about 206m」

Apart from that, the super high - rise buildings in Hong Kong have posed special risks for us. For instance, cleaning workers stranded at collapsed gondola while cleaning external wall, and people threatening to jump from height require our rescue.

Urban Search and Rescue Team:

The search and rescue operations after earthquakes in major cities of the world in recent years and the collapse of an old building in Hong Kong in 2009 had brought to our attention that the importance of forming a special team for search and rescue in urban area. Many casualties would be trapped underneath the fragmented structures. It could take days to locate and rescue them.

Our USAR team are trained with specialized skills and equipment to deal with the urban search and rescue operations.

It consists 161 members of fire and ambulance personnel who are selected from Special Rescue Squad. In 2010, 2 canines were procured from Beijing, namely Wai Wai (威威) & On On (安安). 2 members were sent to Beijing for 3 months Canine Handling Training. Under the supervision of our professional dog handlers, Wai Wai and On On have been deployed to the incidents since Jan 2011 for urban search and rescue operations.

HazMat Team:

Terrorist attacks and hazardous materials leakage incidents, like those that occurred globally in recent years, may lead to massive deaths and injuries. Hong Kong, like any other cosmopolitan city, is not immune to these catastrophes. It is therefore prudent to set up a specialized team to deal with these incidents. We have set up a HazMat Team in our department to:

(i) give advice on operational strategies, tactics and safety measures to the incident commander;
(ii) monitor and access situation at scene, take mitigation measures to contain and confine the hazardous matters; and
(iii) provide on-site decontamination.

Our HazMat Team encompasses:

- A Service HazMat Coordinator;
- A Commander HazMat Advisory and Support group; and
- A Frontline HazMat Group comprising 4 HazMat Sub-teams and qualified on commissioned officers.

In 2013, over 700 frontline members have received extensive training as HazMat Technicians. To enhance HazMat respond capability, our department will continue sending officers to attend HazMat courses organized by Illinois Fire Service Institute (IFSI), University of Illinois, USA.

Thank You:

For a metropolitan city like Hong Kong, a multi-faceted and well equipped fire brigade is fundamental in making it a safe place to live and work. Training of specialists to deal with various types of incidents is one of our strategies and we will continue to strive for professionalism and continuous improvement. That concludes my presentation.

Thank You.

Hong Kong Fire Services Department

DEVELOPMENT OF SPECIALIST IN
HONG KONG FIRE SERVICES DEPARTMENT

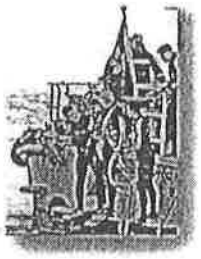
Speaker Mr. Robert LAU

Contents

- Diving Services
- High Angel Rescue Team
- Urban Search and Rescue Team
- HazMat Team

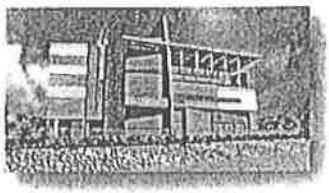
Diving Services

- Diving Services responsible for all aquatic search and rescue operation within HK waters to a maximum depth of 42 m
- Diving Unit comprises about 150 divers in 7 teams
- Diving Operation and Training Support Team

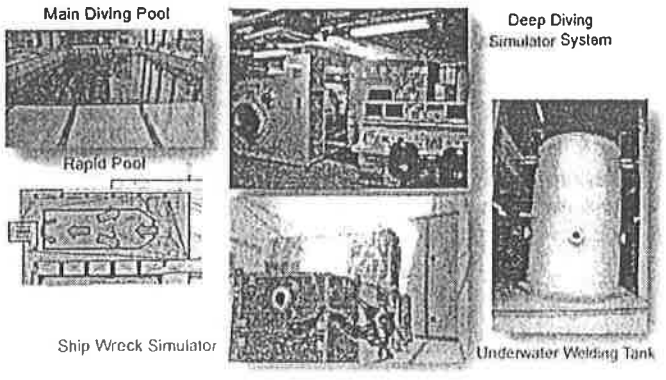


Diving Services

Diving Base on Stonecutters Island is equipped with a range of advanced professional and training facilities to enhance the search and rescue skills of our divers

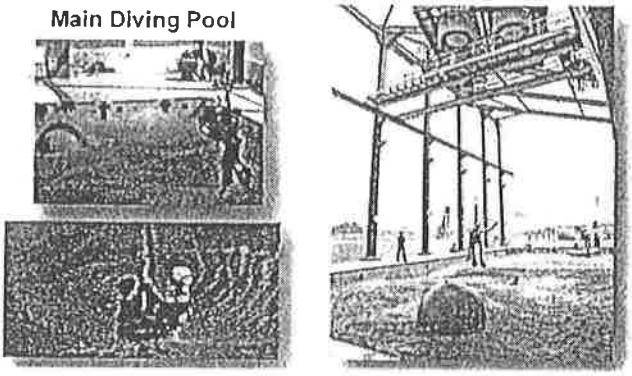


Diving Training Facilities



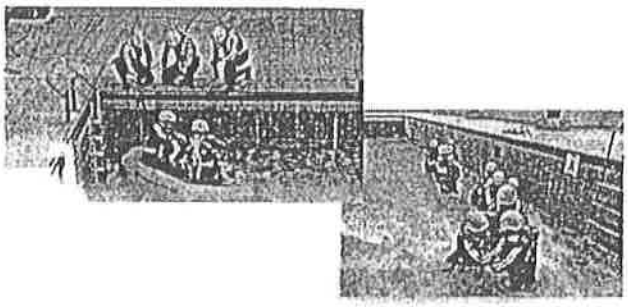
Diving Training Facilities

Main Diving Pool



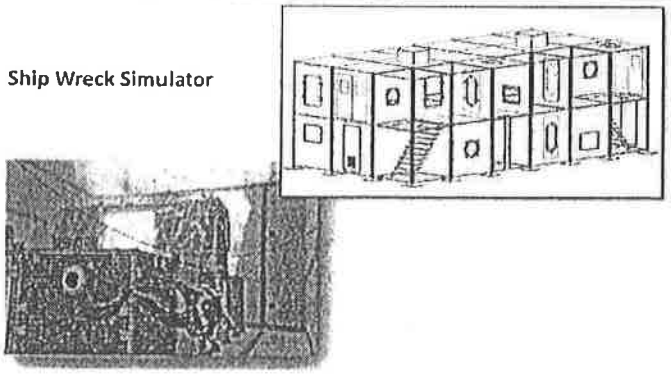
Diving Training Facilities

Rapid Pool



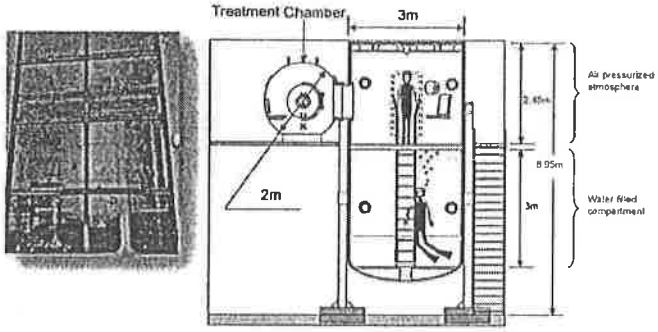
Diving Training Facilities

Ship Wreck Simulator



Diving Training Facilities

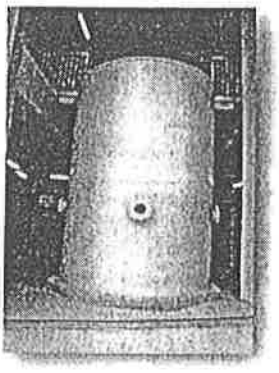
Deep Diving Simulator System



Diving Training Facilities

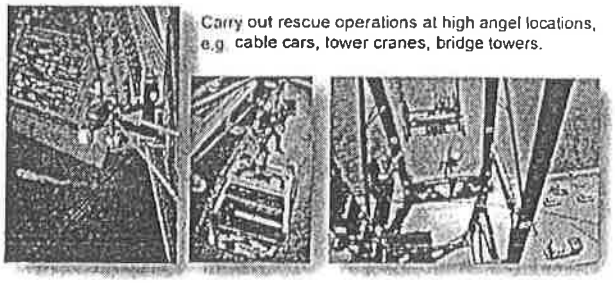
Underwater Welding Tank

5m depth
underwater environment



High Angle Rescue Team

Carry out rescue operations at high angel locations, e.g cable cars, tower cranes, bridge towers.



High Angle Rescue Team

- Formed in 2011
- Comprise of 40 members of Special Rescue Squad
- All members of High Angle Rescue Team must undergo 5 weeks advanced training

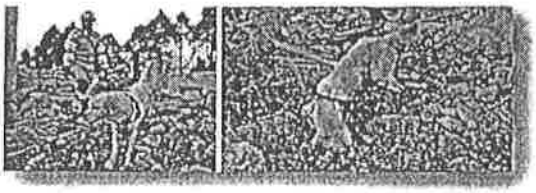
Urban Search and Rescue Team

Urban Search and Rescue Team (USAR)

Carry out search and rescue of victims trapped/buried underneath the rubble after structural collapse, landslide or other major incidents

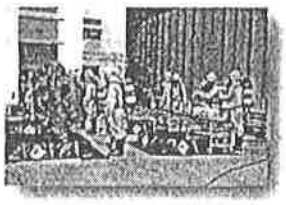
Urban Search and Rescue Team

- Consist 161 members of fire and ambulance personnel who are selected from Special Rescue Squad
- 2 USAR dogs



HazMat Team

- Advice on operational strategies, tactics and safety measures to the incident commander
- Monitor and access situation at scene, take mitigation measures to contain and confine the HazMat
- Provide on-site decontamination



HazMat Team

The HazMat Team encompasses:

- Service HazMat Coordinator
- Commander HazMat Advisory and Support Group
- Frontline HazMat Group comprising 4 HazMat Sub-teams

Thank You

Fire Safety Challenges in OSAKA City

Tsuyoshi Yamashita
Senior Fire Superintendent Chief
Planning Division
Osaka Municipal Fire Department

Introduction:

(As I was just introduced,) I am Tsuyoshi Yamashita, the Chief of the Planning Division at the Osaka Municipal Fire Department. Today, I would like to make a presentation about the fire safety measures in Osaka, which will be the hosting city for the 29th General Conference of the International Fire Chiefs' Association of Asia, to be held in 2016.

About the City of Osaka:

To begin, I will introduce the city of Osaka.

City of Osaka:

Osaka is the city at the center of Western Japan in terms of government, the economy, culture, and transportation. It is located approximately 400 km from Tokyo, the capital of Japan, when measured in a straight line. It is positioned near the center of Osaka Prefecture, and on the western side, it faces Osaka Bay.

In terms of the population, Osaka has approximately 2.7 million people at night. However, a distinguishing feature is that the population increases drastically to 3.6 million people during the day. It has an area of 223 km^2.

The Situation Regarding Osaka:

Supported by water transportation, Osaka developed as a central economic and cultural city. Around the Meiji era, which was from 1868 to 1912, it was called the "Water Capital." It is notable for almost its entire area being level ground, as well as its high population density.

Sights of the Business Districts:

You are looking at the business districts of Osaka, located in the center of the city. There are many skyscrapers here.

Shopping Districts in Osaka:

In addition, there are also numerous large-scale shopping districts, bustling with many shoppers. Areas such as Kita-ku, featuring Umeda, and Chuo-ku, featuring Namba and Shinsaibashi, have even higher population densities in the daytime than the 23 wards of Tokyo.

The Distribution of Deteriorated Wooden Houses:

On the other hand, in the fringes of the city limits, the blue and light blue portions just around the outer periphery of the JR Osaka Loop Line indicate areas that possess many deteriorated wooden houses.

Condition of Roads in Osaka Area (portions in red indicate roads with width of less than 4 m):

In addition, the red portions here indicate narrow roads with width of less than 4 m. In particular, many of these roads are located in the southeastern area, which is clustered with wooden houses.

Sights of Congested Urban Areas:

Over half of the buildings in Osaka were destroyed by fire in air raids during the Second World War. However, in areas that were spared from fire during the war, many old wooden houses remain even now, as seen in these photographs.

Area Features of Osaka:

Summarizing the characteristics of the areas in Osaka, one can see the following:

- It is entirely made up of urban area (there are no mountains or fields).
- There is high population density, and there are many households (the population is aging).
- It is dotted with areas that contain narrow roads.
- There are many areas clustered with deteriorated wooden houses (activities such as land reallocation and town area development haven't moved forward).

Accordingly, one can say that if a fire breaks out, there are many areas in which there is a high risk for that fire spreading.

Maintenance Guidelines for Firefighting Capabilities:
If firefighting procedures are carried out as quickly as possible and there is a sufficient quantity of water for spraying, it is possible to suppress fire before it expands and spreads.

In Japan, the national government offers "Maintenance Guidelines for Firefighting Capabilities," which indicate firefighting capability maintenance standards that municipalities should aim for. These guidelines have set the target value from the dispatch of firefighting units to the beginning of spraying water to within 6.5 minutes in order to keep fires that have broken out in detached wooden houses from spreading to neighboring buildings and confined to the houses to which they originated.

Effectiveness in Simulations of Fire Spreading Power and Firefighting Capability:
However, in Osaka, which features many areas clustered with deteriorated wooden houses as mentioned before, simulations indicate that even if firefighting units begin spraying water within 6.5 minutes of dispatch as indicated by the national government's standards, fires will spread.

Accordingly, we conducted simulations in which the time from the dispatch of firefighting units and the start of spraying water was gradually shortened. As you can see, even at 5.5 minutes, the requirements are not cleared. However, at 4.5 minutes, the proportion of areas that meet the target value sharply increases. For that reason, the Osaka Municipal Fire Department has set the target value for the time from the dispatch of firefighting units to the start of spraying water to within 4.5 minutes.

Current State of Osaka Municipal Fire Department:
Now I would like to explain the current state of the Osaka Municipal Fire Department as of April 1, 2014.

There are 3,474 employees, and there are 25 fire stations and 64 offices under the Osaka Municipal Fire Department headquarters, which is pictured here.

In terms of the main machinery, there are 252 fire engines; 72 ambulances; 77 other firefighting vehicles including directing vehicles, loudspeaker vehicles, radio relay vehicles, and so forth; 2 fireboats; 1 firefighting and rescue boat; and 2 firefighting helicopters. The Osaka Municipal Fire Department has the second largest scale of any firefighting organization in the country, behind the Tokyo Fire Department.

Deployment of Small Tankers:
Now I will introduce the efforts of the Osaka Municipal Fire Department to secure a firefighting structure as quickly as possible and achieve the target value of 4.5 minutes.
First, I will speak about the deployment of small tankers.

Multi-Element Comparison of Tankers:
Compared to general normal-sized tankers, small tankers have less overall length and width.

Superiority of Small Tankers on Narrow Streets:
For that reason, they can run even on narrow streets, and the necessary width of streets when making sharp turns at locations such as intersections can be narrow. Accordingly, the time to arrive at areas with narrow streets, such as crowded urban areas, is shortened.

Shortening of Time to Begin Spraying Water (Nearest Station):
Pump vehicles stop at locations with fire hydrants, feed water there, extend their hoses, and begin spraying water. However, in the case of tankers, water is not fed from a fire hydrant, and the fire engine can draw near the burning building and spray water utilizing the tank water loaded into the fire engine. For this reason, the distance that the hose is extended is shorter, and the time to the start of spraying water is shortened.

As the volume of the tank water is 800 L, it is possible to spray water for approximately 2 minutes.

Original Firefighting Tactics:
I will introduce the original firefighting tactics of the Osaka Municipal Fire Department.
I'll make this introduction while conducting a simulation of the event of a fire having broken out.

Activities of Firefighting Units When a Fire Has Broken Out:
When the report of a fire outbreak arrives, 6 fire engines are dispatched as the "1st Deployment."

As I explained a moment ago, the fire engines that arrive at the site of the fire the fastest perform "Immediate Extinguishing," in which the fire engines draw near the burning building and spray water utilizing the tank water loaded into the fire engine without feeding water from a fire hydrant.

The next fire engines that arrive feed water from fire hydrants and carry out firefighting activities from the fire engines that arrived before, while also sending water to the fire engines that arrived first.

The extent of fires varies depending upon building structure, wind direction, wind speed, and the situation of flammable objects. However, as fires expand to the surrounding areas, we use a strategy called the "Area Principle." In this strategy, the burning building is securely surrounded by giving commands for units to take paths of approach so as to arrange nozzles around the circumference of the building and be dispatched to utilize water supplies.

In addition, in instances in which the fire expands, 4 additional fire engines are dispatched as the "2nd Deployment." However, the additionally dispatched fire engines do not feed water from fire hydrants and spray it; they carry out firefighting activities from the fire engines that fed water from fire hydrants before and are spraying water. By doing so, they are employing the "Relaying/Team Coordination Tactic," in which many water spraying outlets are arranged quickly.

By employing such tactics, with 10 fire engines, it is possible to secure up to 15 water spraying outlets from 5 fire hydrants.

Area Defense Planning - No. of Blocks in Each Area Category:
Next I would like to explain area defense planning.

In order to efficiently operate firefighting units in accordance with area characteristics, the risk of fire spreading is evaluated using elements such as the building coverage ratio and ratio of wooden architecture in each of Osaka's 25,164 blocks. "Specified Congested Areas" are indicated by the portion in the red circle, with 1,842 blocks and 7.3% of the total. "Congested Areas" are indicated by the portion in the yellow circle, with 4,732 blocks and 18.8% of the total. Finally, there are "General Areas," for a total of three categories.

In addition, the difficulty of establishing an encircling approach was judged based upon the situation regarding road width, and areas were categorized into "Water Supply Designation Plan Areas," for which fire hydrants to be utilized are specified beforehand—accounting for 5,320 blocks and 21.1% of the total—and areas for which no such specification was made.

In this way, all of the blocks in Osaka were divided into 6 categories, and operational plans for the firefighting units were drawn up.

Operation of Firefighting Units in Area Defense Planning:

I will explain the specifics regarding the operational planning of the firefighting units.
If a fire breaks out in a "Specified Congested Area," the risk of the fire spreading is extremely high. For this reason, while in the case of normal fires, 6 fire engines are dispatched for the duty of firefighting, in this operation, the number of dispatched fire engines increases to 10.

In other words, a firefighting unit on the scale of the "2nd Deployment," which I introduced a moment ago in the fire outbreak simulations, would be dispatched from the beginning. This is an operation that has a structure that can quickly extinguish fires with its many firefighting units, even if the fire spreads.

Next is "Congested Areas." These do not carry a risk as high as "Specified Congested Areas," but the risk of the spreading of fire in the event of a fire outbreak is higher than for a general area. For this reason, an operation is carried out in which after dispatching 6 engines for the duty of firefighting, if it is grasped through such means as information from high-altitude cameras or radio information from dispatched fire engines that the burning continues, a reinforcement of 4 fire engines is swiftly dispatched without waiting for a request for reinforcement from the actual site.

"Water Supply Designation Plan Areas" are areas in which it is difficult to undertake an approach to surround the site of the fire due to reasons such as narrow roads or fire engines only being able to approach the site from one direction. For this reason, an operation is undertaken in which for firefighting units predicted to arrive at the site of the fire as the second unit or afterward, the fire hydrants to be utilized are specified.

(Reference) Situation of Water Supply Facilities in Osaka
Fire Hydrants: 32,108 (31,764 public + 344 specified)
Fire Prevention Water Tanks: 1,789 (715 public + 1,074 specified)
Pools: 539
Other: 208 (23 public + 185 specified)

Area Categories for Area Defense Planning:

The table here indicates the proportion of plans divided into 6 categories. General areas make up 65% of the total; however, in the remaining 35%, special operational systems for firefighting units, which I introduced earlier, are being implemented.

Firefighting Information System "ANSIN":

Next I will introduce the firefighting information system "ANSIN." This is an acronym for "Advanced Network System for Intelligence and Navigation."

Osaka Municipal Fire Department Command Information Center:
The location that you see now is the Osaka Municipal Fire Department's "Command Information Center," which receives all of the emergency information (119 on the phone) for Osaka and dispatches fire engines and ambulances.

"ANSIN," the firefighting information system, is the central system of the "Command Information Center," and it is a system composed of a communications network with not only command functions for events such as fires and emergencies, but support information functions that are necessary for firefighting, functions to respond to large-scale disasters, and more.

Moreover, the "Command Information Center" handles approximately 1,000 reports each day.

Management of Fire Engine Movement:
This system utilizes GPS (Global Positioning System) to manage in real time information such as the position and availability for dispatch of fire engines and ambulances.

Explaining in terms of this example of the display on a monitor at the "Command Information Center," the red symbols indicate vehicles that are currently being dispatched to the site of a disaster. When this symbol changes to pink, it indicates that they have arrived at the site of the disaster.

Further, when vehicles leave the site of a disaster, the color changes to light blue.
By controlling terminals that are installed in the vehicles, the displays change in sequence.

In addition, the black symbols indicate vehicles that are awaiting command at fire stations, and the green symbols indicate vehicles that are working outside of fire stations.

Further, yellow symbols indicate vehicles that cannot operate due to an accident or trouble.

In this way, by looking at the symbols displayed on the monitors at the "Command Information Center," it is possible to grasp at a glance which vehicles are in what kind of condition, and where they are.

Organization of Dispatched Units Based on Prediction of Arrival Order:
In the event of giving commands for fires or emergencies from the "Command Information Center," it is possible for the system to sequentially select and dispatch vehicles that will arrive at the site of the disaster the most quickly.

The method for doing this is not selecting the vehicles that are the shortest distance from the

site of the disaster. From vehicles that are able to respond to the disaster, the vehicles that will arrive the fastest are selected and given commands, taking into consideration factors such as speeds appropriate to road widths and driving routes.

(Reference) Calculations are conducted the following way:

For expressways and roads with widths of 13 m or more: 28 km/h
For roads with widths of 13 m to 5.5 m: 24 km/h
For roads with widths of 5.5 m or lower: 20 km/h

For instance, in a case where a disaster has occurred at this location on the screen, let us say that there are 3 fire engines in the area: one black, one blue, and one red.
The red fire engine is in the closest location in terms of straight distance, but as there is a river along the way, it would need to go around and cross a bridge. As a result, it would arrive later than the blue and black fire engines.
Applying the tactics I introduced before, for the blue fire engine, which would arrive first, the vehicle itself will draw near the burning building and spray water utilizing tank water that is loaded in the fire engine without feeding water from a fire hydrant. The black fire engine, which will arrive next, will feed water from a fire hydrant and carry out firefighting from the blue fire engine while sending water to the blue fire engine.

Functions of In-Vehicle Terminal Equipment:

Differing from a typical car navigation system, which has the objective of giving directions to a certain destination, in addition to displaying information such as the address and a map of the location in which a disaster took place, the monitors loaded into fire engines are able to display various supporting information necessary for firefighting, such as the location information of other dispatched vehicles, information regarding road availability, and information about fire hydrants that are out of order.

In addition, information such as the arrival at and departure from the site of the disaster can also be sent to the Command Information Center using a touch panel.

Arrangement of High-Altitude Cameras:

In order to see out over the entire area of Osaka, cameras have been installed on the roofs of 3 skyscrapers (2 cameras are installed on each building, for a total of 6 cameras):

(1) Abeno Harukas

The tallest building in Japan, with a height of 300 m and featuring a hotel, a department store, restaurants, and more.

(2) OAP (Osaka Amenity Park) Tower

A multipurpose building with a height of 176 m and featuring offices, restaurants, and more.

(3) Fire Department
Height of 120 m

When a 119 report is received and an address is input, the 6 cameras installed on the roofs of the skyscrapers operate together and rotate in the direction of the disaster site and zoom in, making it possible to verify the status of the fire outbreak at the Command Information Center.

When the presence of flames has been confirmed via images from the high-altitude cameras, as with the "Congested Areas" I introduced before, reinforcement fire engines are dispatched at the discretion of the Command Information Center, and information regarding the direction of the fire's spread and individuals who have been left behind is conveyed to the firefighting units.

Diagram of High-Altitude Camera Network:
While images from the high-altitude cameras are transmitted to locations such as the Fire and Disaster Management Agency in Tokyo, as well as the Osaka Prefectural Office and Osaka City Hall, these images can also be viewed at the site of the disaster using tablet devices.

Conclusion (Effectiveness):
Lastly, I will speak about the effectiveness of the Osaka Municipal Fire Department's efforts to secure a firefighting structure as quickly as possible.

Proportion of Firefighting Units That Were Able to Begin Spraying Water within 4.5 Minutes of Dispatch (Achievement Ratio):
As I have explained, over the entire area of Osaka, the Osaka Municipal Fire Department has undertaken many efforts in order to make it possible to conduct "Immediate Extinguishing," in which fire engines begin spraying water from tank water loaded into the vehicles as they arrive at sites. These efforts have included changing the majority of fire engines tasked with firefighting to small tankers, reexamining aspects such as dispatch planning and firefighting, continuing to gradually enhance various types of training, and aiming to raise the technical level of all firefighting unit members. In carrying out such measures, we have improved the rate of achievement for the target value of beginning to spray water within 4.5 minutes of dispatch.

This graph displays the proportion of instances for the duration from 2005 to 2013 in which it was possible to begin spraying water within 4.5 minutes of dispatch as the "achievement ratio."

While there is some scattering, for the most part, the achievement ratio is above 70%.

Proportion of Individual Building Fires:
This graph indicates the proportion for the duration from 2008 to 2013 of house fires, which account for over 70% of total building fires, in which the fires were not allowed to spread to surrounding buildings from the buildings in which they originated. This has a high proportion of over 90%.

Area of Fire Damage for Each Individual House Fire at the Building in Which It Originated (m^2):
This graph indicates the area of fire damage for the duration from 2008 to 2013 for each individual house fire at the building in which it originated, for house fires that were not allowed to spread to surrounding buildings from their original buildings. This figure has a trend of decreasing each year.

Damaged Floor Space in Housing Fires (m^2):
Lastly, this graph indicates the annual damaged floor space (total) for all house fires for the duration from 2007 to 2013.

For the most part, this has a trend of decreasing each year.

As you can see from these four graphs, the city of Osaka is successfully endeavoring to decrease the damage from fires, and especially the damage from house fires.

This marks the end of my presentation, "Fire Safety Challenges in OSAKA City."

Thank you very much for your attention.

大阪市における火災安全対策

Fire Safety Challenges in OSAKA City

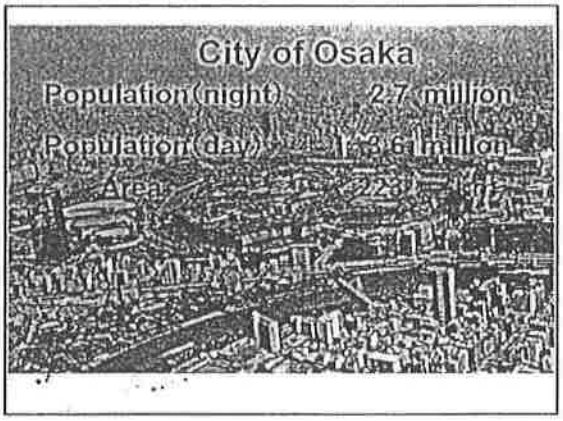
2014年9月12日
September 12, 2014

大阪市消防局 企画部長 山下 毅
Tsuyoshi Yamashita
Chief , Planning Division
Osaka Municipal Fire Department

Table of Contents

Source: Fire Department Survey

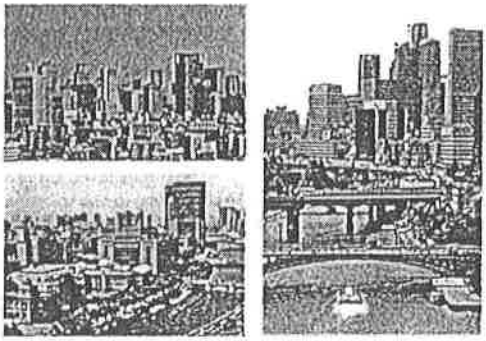
1. About the City of Osaka

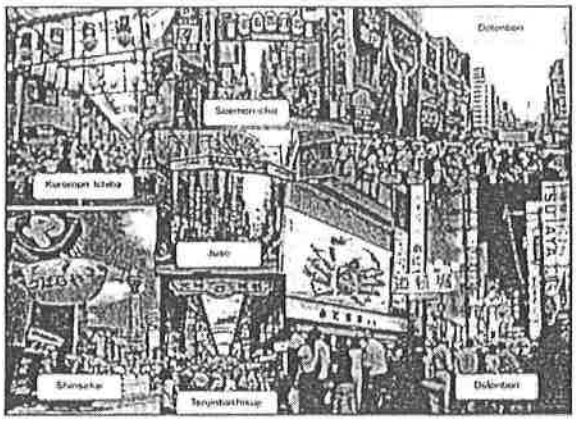


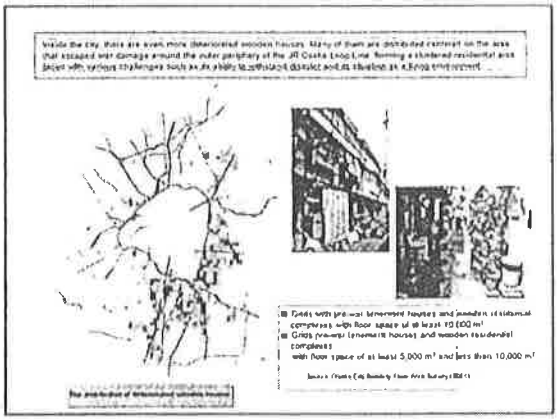
The Situation Regarding Osaka

• Population (Est.)	2,685,076 People
• Area	223.00 km²
• Population Density	12,041 people/km²
• No. of Households (Ref.)	1,361,673 Households (As of June 1, 2014)
• No. of People in Daytime	3,538,576 People (2010 National Census)

Sights of the Business Districts







Condition of Roads in Osaka Area

(portions in red indicate roads with widths of less than 4 m)

Area Features of Osaka

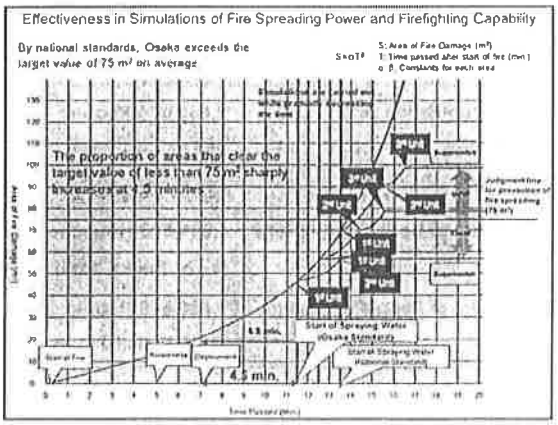
- Entirely urban area
- High population density
- Many households
- Dotted with areas featuring narrow roads
- Many congested areas with deteriorated wooden houses.

Given such characteristics as those described above, it is said that if a fire disaster were to break out, the risk of that fire spreading would be extremely high.

Maintenance Guidelines for Firefighting Capabilities

- For the fire engines that arrive first at the site of a fire, the less time there is between dispatch and the start of spraying water, the lower the probability of that fire spreading
- In particular, for fires occurring at locations that are at least 1 m and less than 5 m away from neighboring buildings, the more quickly firefighting is commenced, the more the effectiveness of fire spreading prevention will be demonstrated.
- Looking at the example of a fire in which the distance to neighboring buildings is at least 1 m and less than 5 m, as the probability of the fire spreading increases sharply when the time from dispatch to the start of spraying water exceeds 6.5 minutes, firefighting capabilities are maintained with the peak time from dispatch to the start of spraying water set to 6.5 minutes in order to extinguish independent fires at the building in which they originate.

* The probability of fire spreading was sought by dividing [(entire destruction by fire) + (halfway destruction by fire)] by [(entire destruction by fire) + (halfway destruction by fire) + (small fire) + (no damage)] with regard to the extent of fire damage to neighboring buildings.



Current State of Osaka Municipal Fire Department

- Employees: 3,474
- 25 Fire Stations, 64 Offices
- Main Machinery
  Fire Engines: 252
  Ambulances: 72
  Other Firefighting Vehicles: 77
  Fireboats: 2
  Firefighting and Rescue Boats: 1
  Firefighting Helicopters: 2
  (As of April 1, 2014)

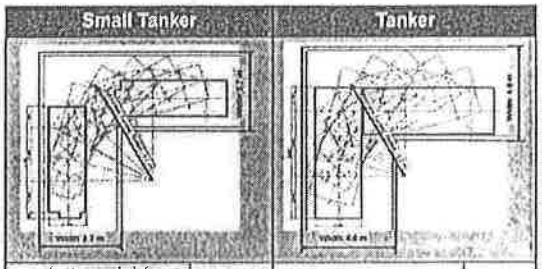
2. Deployment of Small Tankers

Source: Fire Department Survey

Multi-Element Comparison of Tankers

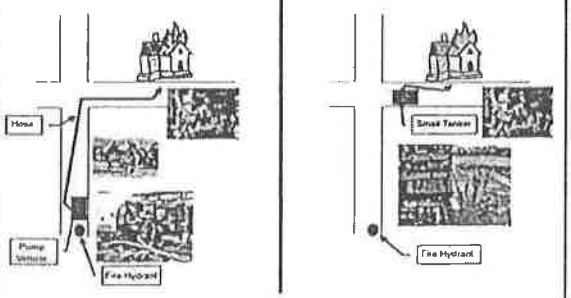
	Small Tankers	Tankers	Comparison
Total Length	5,250 mm	6,500 mm	- 1,250 mm
Total Width	1,700 mm	2,300 mm	- 600 mm
Total Height	2,500 mm	2,700 mm	- 200 mm
Wheelbase	2,520 mm	3,250 mm	- 730 mm
Overall Vehicle Weight	5,990 kg	10,305 kg	- 4,315 kg
Passenger Limit	6 people	7 people	- 2 people
Volume of Water Tank	800 L	2,000 L	- 1,200 L
Firefighting Pond Performance	2,000 L/min or more	2,000 L/min or more	Same

Superiority of Small Tankers on Narrow Streets



Small Tanker		Tanker	
Width of right-angle roads on which it can turn	3.7 m	Width of right-angle roads on which it can turn	4.6 m

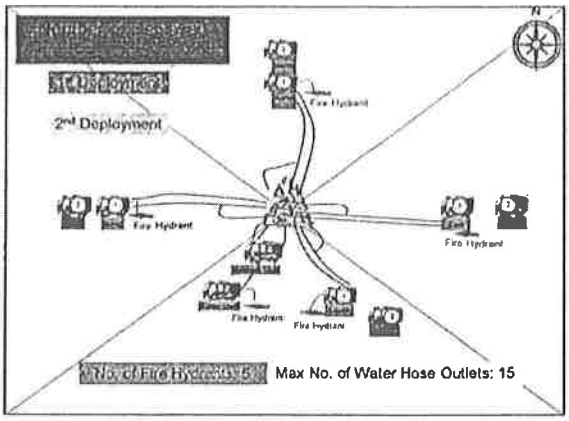
Shortening of Time to Begin Spraying Water (Nearest Station)

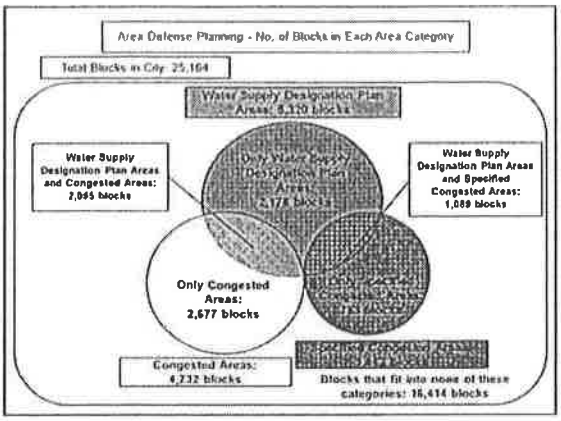


3. Original Firefighting Tactics

- **The Area Principle**
- **Relaying/Team Coordination**
- **Area Defense Planning**

Source: Fire Department Survey





Operation of Firefighting Units in Area Defense Planning

- Specified Congested Areas

  Areas to which 10 fire engines with the duty of firefighting are dispatched, as there is an extremely high risk of fire spreading if a fire breaks out (the normal dispatch for a fire is 6 fire engines).

- Congested Areas

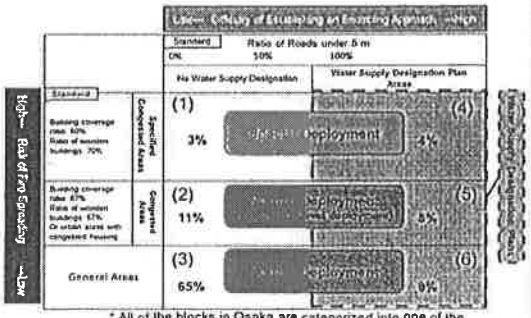
  These are areas in which, as with normal fires, 6 fire engines with the duty of firefighting are dispatched, but the presence of burning is verified via high-altitude camera information. Alternatively, these are areas in which an additional 4 vehicles are dispatched for reinforcement based upon radio information from dispatched fire engines.

- Water Supply Designation Plan Areas

  These are areas in which fire hydrants installed for the supply of water are designated for the firefighting units predicted to arrive at the site of the fire as the 2nd unit or after.

21

Area Categories for Area Defense Planning



* All of the blocks in Osaka are categorized into one of the categories from (1) to (6).

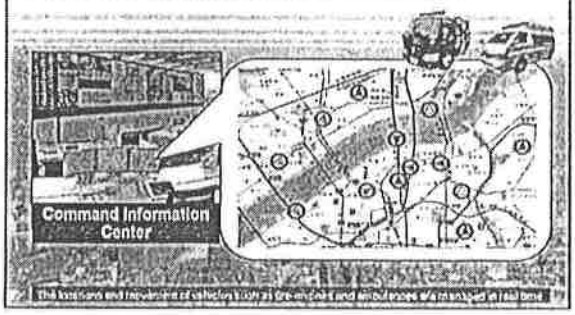
22

4. Firefighting Information System "ANSIN" (Advanced Network System for Intelligence and Navigation)

Source: Fire Department, Survey

Swift Deployment System

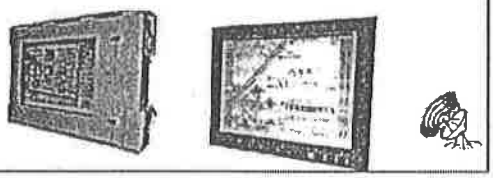
<Management of Fire Engine Movement>



Organization of Dispatched Units Based on Prediction of Arrival Order

Functions of In-Vehicle Terminal Equipment

In addition to displaying information such as the addresses and maps of locations in which disasters have taken place, various supporting information is also displayed on the monitor, such as the location information of vehicles such as fire engines and ambulances being dispatched at the same time, as well as information regarding aspects such as roads and fire hydrants that are out of order.



Arrangement of High-Altitude Cameras

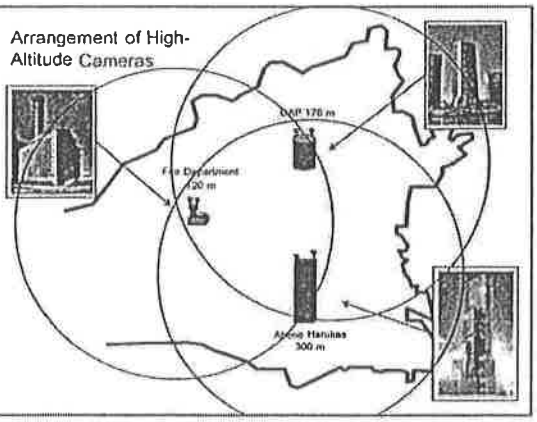
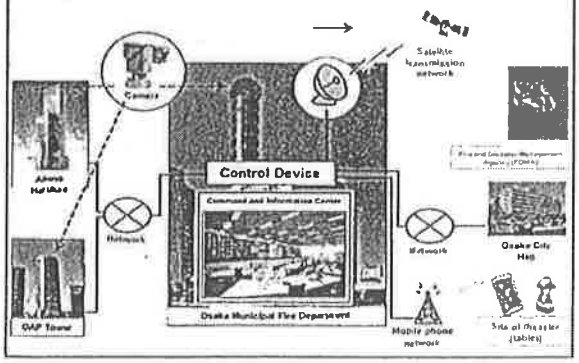
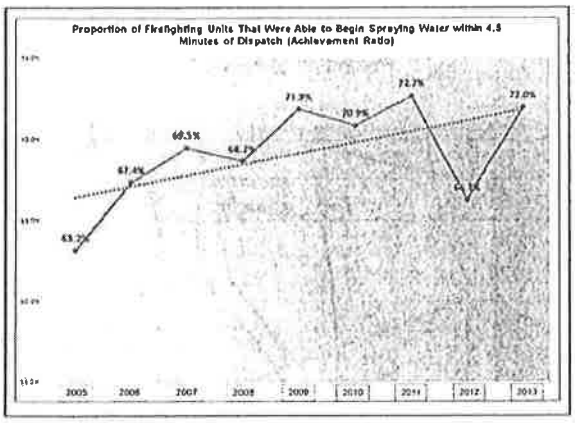
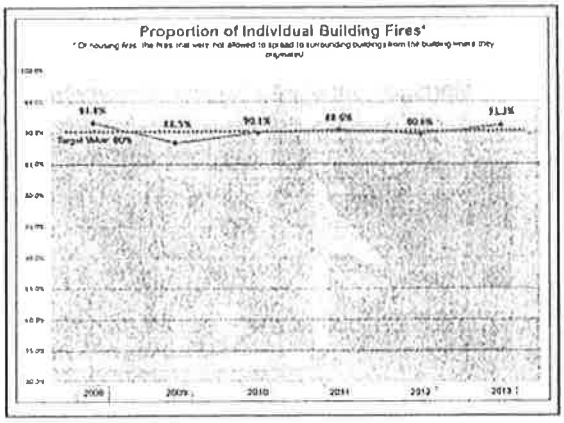


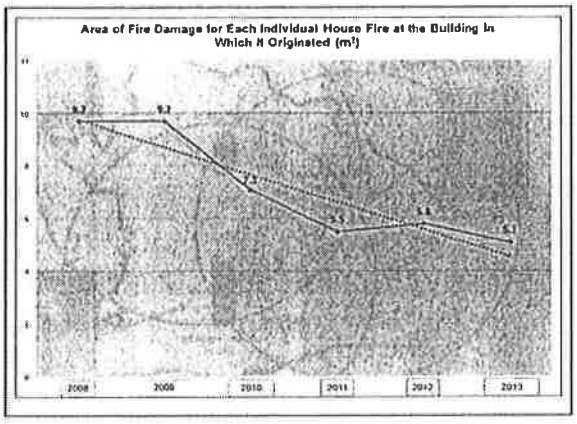
Diagram of High-Altitude Camera Network

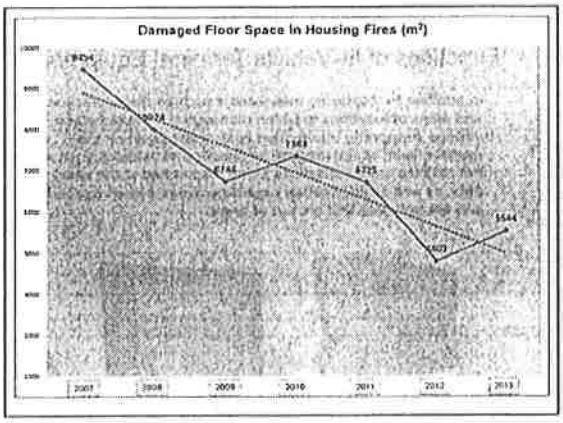


5. Conclusion (Effectiveness)









Thank you very much for your attention.