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## **FIRE STATISTICS WORKSHOP SUMMARY: FIRE STATISTICS FOR THE PROTECTION OF CANADIANS**

Research Report No. 201

**Date:** June 30, 2005

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**FIRE STATISTICS WORKSHOP SUMMARY:  
FIRE STATISTICS FOR THE PROTECTION OF CANADIANS**

by

Irene Reid, Nouredine Bénichou, Abderrazzaq Bounagui

**ABSTRACT**

This report describes the discussion that took place during the workshop on Fire Statistics<sup>i</sup>, on April 25 & 26, 2005 in Ottawa. The workshop was organized by the National Research Council of Canada in collaboration with the International Association of Fire Fighters, Canadian Association of Fire Chiefs, representatives of the Provinces & Territories, National Fire Protection Association, Aboriginal Firefighters Association of Canada, Canadian Wood Council, Canadian Forces, Health Canada, Human Resources and Skills Development Canada, Indian & Northern Affairs Canada, and the Ontario First Nations Technical Services Corporation. A number of topics in relation to fire statistics collection were discussed including: government support, resources, education, participation, privacy, needs, a unified reporting system, accuracy, delay, and software. This report also presents the results of the discussion on required steps to establish a centre for fire statistics collection.

# **FIRE STATISTICS WORKSHOP SUMMARY: FIRE STATISTICS FOR THE PROTECTION OF CANADIANS**

by

Irene Reid, Nouredine Bénichou, Abderrazzaq Bounagui

## **INTRODUCTION**

This report describes the discussion that took place during the workshop on Fire Statistics, on April 25 & 26, 2005 at NRC in Ottawa. A number of topics in relation to fire statistics collection were discussed including: government support, resources, education, participation, privacy, needs, a unified reporting system, accuracy, delay, and software. This report also presents the required steps to establish a centre for fire statistics collection.

## **WHY DO CANADIANS NEED FIRE STATISTICS?**

Fire research improves public safety and reduces deaths, injuries and financial losses. However, fire research requires fire incident data to develop statistics. Without data, there is little justification for changing our existing systems. Data informs us of areas of concern and directs us in our efforts. It allows us to improve our existing systems, techniques, materials, education, and technology. We will be equipped to better educate the public and firefighters about fire safety. Fire data and research can lead Canadian Building Officials to make appropriate modifications to the Building Code, as well as lead product manufacturers to improve the safety of their products. Understanding the trends in fire scenarios will allow efforts to be concentrated in the areas of concern. Trends in fire scenarios may range from cigarette incidents, to structural failures, to occupants' ability to evacuate before untenable conditions. Although there are many fire-related concerns, fire statistics will direct researchers in the areas of concern. As a result, resources will be targeted, making good use of Canadian tax dollars.

To obtain fire data, it must be collected. The collection of fire data requires motivation in the form of a benefit. In Canada, there is no obvious benefit to the data collectors, and therefore a lack of Canadian fire data and statistics. Also, the motivation to collect fire data can be assisted from mandated infrastructure, or a shared goal. A common focus, amongst all parties involved, will encourage the data collection.

There is a common agreement that Canadian fire data needs to be collected and used to improve public safety. This need has been identified for many years and is the basis for a new Fire Statistics initiative. This initiative brought the parties involved to the National Research Council of Canada to begin initial discussions on how to make Canadian fire statistics data collection a reality.

## **HISTORY OF FIRE DATA COLLECTION**

In 1916, a meeting was held in Ottawa in which the Fire Prevention Branch was commissioned with collecting fire statistics for Canada. The collection of fire statistics

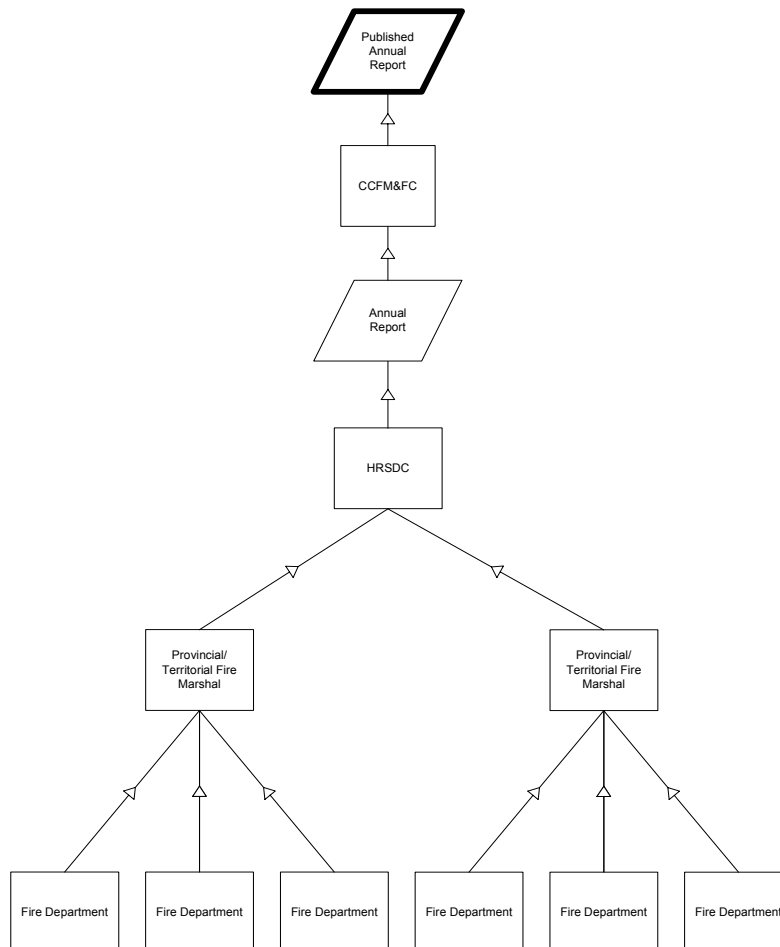
was summarized in their report called “Fire Waste in Canada”. This report explained that the data collected was not reliable, and difficult to obtain. Some data needed to be collected from insurance companies and loss adjusters.

Later, the regulation was revoked, and the Council of Canadian Fire Marshals and Fire Commissioners (CCFM&FC) took over the publishing of the report.<sup>ii</sup> Human Resources and Skills Development Canada (HRSDC) collects the data and prepares the report.

## CURRENT PRACTICES

The Fire Protection Services division of HRSDC prepares the Annual Report of Fire Losses in Canada.<sup>iii</sup> It is compiled from information supplied by the CCFM&FC, Indian and Northern Affairs Canada (INAC) and Statistics Canada.<sup>iv</sup> The CCFM&FC is responsible for publishing the report.

**FIGURE 1 Data Reporting Structure**



Generally, data is collected and reported by the fire departments. The fire departments forward the data to the provincial/territorial fire marshals or commissioners. On a yearly basis, the fire marshals and commissioners are to submit the summary data to HRSDC for the preparation of the Annual Report of Fire Losses in Canada. See

Figure 1. The public has access to the summary data found in the Annual Report, however no incident level data is available.

The data collected is to follow a format called the Canadian Code Structure (CCS). The CCS was developed by the CCFM&FC in an effort to develop a standardized reporting system. The structure was last updated in 2002. The CCS categorizes the fire incident data collection into nine sections. The sections are:

- A. INCIDENT INFORMATION
- B. PROPERTY DESCRIPTION
- C. PROPERTY DETAILS
- D. FIRE PROTECTION FEATURES
- E. CIRCUMSTANCES CONTRIBUTING TO THE OUTBREAK OF FIRE
- F. FACTORS RELATING TO THE ORIGIN AND SPREAD OF FIRE
- G. FIRE LOSS DETAILS
- H. DISCOVERY OF FIRE AND ACTIONS TAKEN
- J. FIRE CASUALTIES

This version of the code structure is adapted by many jurisdictions for reporting purposes, however some jurisdictions are using earlier versions.

Further information on the CCS can be found on the CCFM&FC web site:  
<http://www.ccfmfc.ca/>.

## THE WORKSHOP

A Canadian initiative was started at the National Research Council of Canada to address the need for Canadian fire statistics. On April 25 & 26, 2005, several organizations participated in a Fire Statistics workshop. These organizations included: the International Association of Fire Fighters, Canadian Association of Fire Chiefs, representatives of the Provinces & Territories, National Fire Protection Association, Aboriginal Firefighters Association of Canada, Canadian Wood Council, Canadian Forces, Health Canada, HRSDC, INAC, and the Ontario First Nations Technical Services Corporation. The workshop concentrated on the needs for fire statistics in Canada, as well as the current practices and challenges facing their collection.

The objectives of the workshop were to:

- Provide an opportunity for parties involved in fire statistics data collection to meet,
- Present the information collected by various organizations,
- Present and identify the challenges that we all face in fire statistics data collection,
- Illustrate the U.S. experience in collecting fire statistics as part of a National database, and
- Identify the next steps in the central collection of fire statistics in Canada.

## THE CHALLENGES

During the workshop several challenges in the collection of Canadian fire statistics were identified. They included: government support, resources, education, participation, privacy, needs, a unified reporting system, accuracy, delay, and software.

### Government support

Currently, there is no federal mandate for the collection and reporting of fire statistics. HRSDC is mandated to collect and report data for fires in federal buildings. HRSDC has also assumed the role of reporting all fire statistics for Canada in the form of the Annual Report on Fire Losses.

In addition, the provincial and territorial fire marshals and commissioners must adhere to their individual provincial and territorial legislations. Most of the legislations require that the fire marshals and commissioners report their statistics. However, in many cases the data is late, incomplete or not provided at all.

Clear mandates at all levels of government, reporting structures, and timelines are required. In addition, the firm support of the CCFM&FC is required to ensure the data is collected and reported regularly and accurately.

### Resources

The collection of fire statistics requires time, trained personnel, and software systems. These resources are required at the municipal, provincial/territorial and federal levels. Firefighters are needed to enter the actual fire incident into a data collection system and/or report. The report data is then gathered and forwarded to the Provincial or Territorial fire marshal or commissioner. The fire marshal or commissioner needs to process and forward the summary data to the federal agency collecting and processing the statistics. This agency then needs to create a federal summary. Currently, the agency is HRSDC and they produce a summary called the Annual Report on Fire Losses.

A fire statistics data collection centre could be developed. However, the centre would require resources for its development, commissioning, and operation. It would require more resources than the existing HRSDC resource.

### Education

The reporting agencies, at all levels, require more and better training. The personnel reporting the fire incidents need to be knowledgeable about the CCS, its background, and definitions. The personnel also need to understand the purpose of the data collection and how it will be used.

### Participation

Currently, there is no Canadian organization clearly mandated with the task of collecting Canadian Fire Statistics. HRSDC is responsible for preparing the Annual Report of Fire Losses in Canada, which is compiled from information supplied to them. At the provincial level, the reporting to HRSDC needs improvement.

In addition, there is no feedback mechanism to the firefighters. They question the value of accurately collecting and reporting data. In one scenario, a U.S. firefighter incorrectly reported that the fire incident occurred due to an earthquake. It was never questioned. Firefighters will value the collection of fire statistics if they see their use and benefit.

As a result, HRSDC has experienced difficulty in obtaining timely, accurate data from the jurisdictions. The fire statistics are often late, incomplete, and sometimes not reported at all.

### Privacy

Some data cannot be shared because of privacy. For example, if a province has only one fire death, it will be easy to identify the fire incident. The specific details of the incident will be traceable and the privacy surrounding the incident will be compromised.

### Needs

Determining the data needs and the feasibility of collecting them is difficult. Many different organizations want data to support their work. For example, the National Research Council of Canada may be interested in the response of smoke alarms, fire departments may be interested in average response times, Health Canada may be interested in the percentage of fires that start by cigarettes, and the wood industry may be interested in the percentage of structural failures. The list of different needs is endless. Determining the core statistics needed to improve the fire safety of Canadians is difficult. Requesting too much data is not feasible since firefighters may not appreciate paperwork and will not want to collect unused data.

### Unified Reporting System

Currently, many of the jurisdictions have their own coding system for the reports. Some jurisdictions have made use of the CCS and others have not. The CCS was developed to assist with unified reporting. An agreement among the jurisdictions to use the same codes would be beneficial for the collection of fire statistics.

In addition, the definition of each code needs to be accurately defined to achieve consistency. Otherwise codes can be misinterpreted. For example, the province of Ontario needed to define the term "fire death" for their jurisdiction. The need arose because of obscure events surrounding fires. For example, if an individual suffers an injury from a fire, and eventually dies from the injury, one could assume that the fire resulted in a death. However, what if the death occurs after 15 years? Therefore, in an effort to quantify a death, Ontario defined a fire death as occurring within 1 year and 1 day of the fire. Ontario was able to define many of their terms, however, each definition required several explanatory notes.

The definitions used by the various organizations are different. For example, one province considers an adult someone of 16 years of age and up. Another province uses the minimum age of 18.



### Accuracy

Varying definitions, together with a lack of motivation to properly collect data, will affect the accuracy.

Not all jurisdictions use the CCS. This results in data being reported differently by the jurisdictions. Also, it causes HRSDC difficulty in compiling and organizing the data.

For those using a coding system, the firefighters prefer to fill out the data reports as quickly as possible. They tend to become familiar with certain codes, such as “undetermined” or “other”, and reuse them. Also, with electronic systems, using familiar codes makes it simpler and quicker to satisfy the software, rather than finding the suitable code.

Fire marshals and commissioners have concerns over double counting incidents. This could happen, for example, when a fire occurs on a military base. If the municipal fire department as well as the Canadian Forces reports the incident, it could be counted twice.

In addition, a lack of data reporting is also a concern. For example, INAC reports that approximately 50% of their fires are reported. The Treasury Board policy on fire protection is applicable to Crown assets, but not necessarily to Band assets.<sup>v</sup>

### Delay

HRSDC has communicated that they do not receive reports in a timely manner. This results in the Annual Report on Fire Losses being delayed.

In addition, the provinces and territories are only able to report after a certain amount of time because they need to collect information. In many cases, exact information on losses cannot be determined until one year following the incident.

### Software

Many of the provinces have developed their own software for the purpose of data collection. In some instances, the software is web-based. For example, the province of Alberta has developed a Fire Electronic Reporting System (FERS). This software provides electronic data entry, security checks, error checks, and data transmission over the Internet, resulting in reduced data entry time and increased accuracy.<sup>vi</sup> A jurisdiction will invest a large amount of resources to develop software. A new data collection centre will need to work with each jurisdiction and their province to integrate their system of data collection.

In addition, within the provinces and territories, many of the municipalities use their own systems and applications for data collection. Therefore, accommodation at the provincial and federal level needs to be made to gather the data from each jurisdiction.

The United States attributes much of the success of participation in data collection with providing free software. The jurisdictions were much more likely to provide data if they were given a tool at no cost.

## ANOTHER PERSPECTIVE

The U.S. National Fire Protection Association (NFPA) attended the workshop to provide their insight, and assistance into the collection of fire statistics. They encouraged Canada to move forward, to work towards a system of data collection even if it could not operate perfectly at first. They shared some of the barriers they face on a daily basis such as data accuracy and completeness, core data, participation, education, software, resources, quality control and user support.

## MOVING FORWARD

Canadians need to be protected physically and financially from fire. They also need to know that their tax dollars are being used wisely towards improving their quality of life. This can be accomplished by the collection and use of Canadian fire statistics.

To realize a fire data collection centre, a few key steps need to be implemented:

1. Obtain government written support in terms of mandates and finances, including the CCFM&FC. The mandate should describe the data to be collected and the deadlines for submission.
2. Establish a federal fire data collection centre.
3. Determine useful core data to be collected.
4. Educate and provide feedback to the data collectors and processors.
5. Integrate existing data collection systems of all data providers.

## WORKSHOP PARTICIPANTS

The following people participated in the workshop:

<u>Name</u>	<u>Organization</u>
Eugene McPherson	Aboriginal Firefighters Association of Canada
Mahendra Wijayasinghe	Alberta
Adrian Dolling	British Columbia
Kim Ayotte	Canadian Association of Fire Chiefs
Pat Burke	Canadian Association of Fire Chiefs
Mike Eddy	Canadian Association of Fire Chiefs
Gord Mills	Canadian Association of Fire Chiefs
Don Warden	Canadian Association of Fire Chiefs
Ineke Van Zeeland	Canadian Wood Council
George Hadjisophocleous	Carleton University
Luc Pagé	Department of National Defence (DND)
Mary Korpan	Health Canada
Victoria Tunstall	Health Canada
Sandra Wright	Health Canada
Isabel Renart	Health Canada
Keilee Meraw	Health Canada
Colette Trudel	Human Resources and Skills Development Canada (HRSDC)
Mark Buckley	Indian and Northern Affairs Canada
James Doxtador	Ontario First Nations Technical Services Corporation

Brian Staats	Ontario First Nations Technical Services Corporation
Jim Lee	International Association of Fire Fighters
Louise Hornbeck	Manitoba
Marty Ahrens	National Fire Protection Association (NFPA)
John Hall	National Fire Protection Association (NFPA)
Stacey Barrett	New Brunswick
Lisa Munn	New Brunswick
Mary Prencipe	Ontario
Jean-François Ducre-Robitaille	Quebec
Noureddine Benichou	National Research Council Canada (NRC)
Zaq Bounagui	National Research Council Canada (NRC)
Joe Hum	National Research Council Canada (NRC)
Guylene Proulx	National Research Council Canada (NRC)
Irene Reid	National Research Council Canada (NRC)
Russ Thomas	National Research Council Canada (NRC)
Bert Buettner	National Research Council Canada (NRC)

## ACKNOWLEDGEMENTS

The National Research Council of Canada would like to thank all those who participated and presented at the workshop. In addition, the assistance of Joe Hum and Anne Lawley were very much appreciated.

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