

FIRE SAFETY EDUCATION IN BRAZIL

Rosaria Ono
Associate Professor
University of São Paulo, Brazil



Organizadores / Organizers

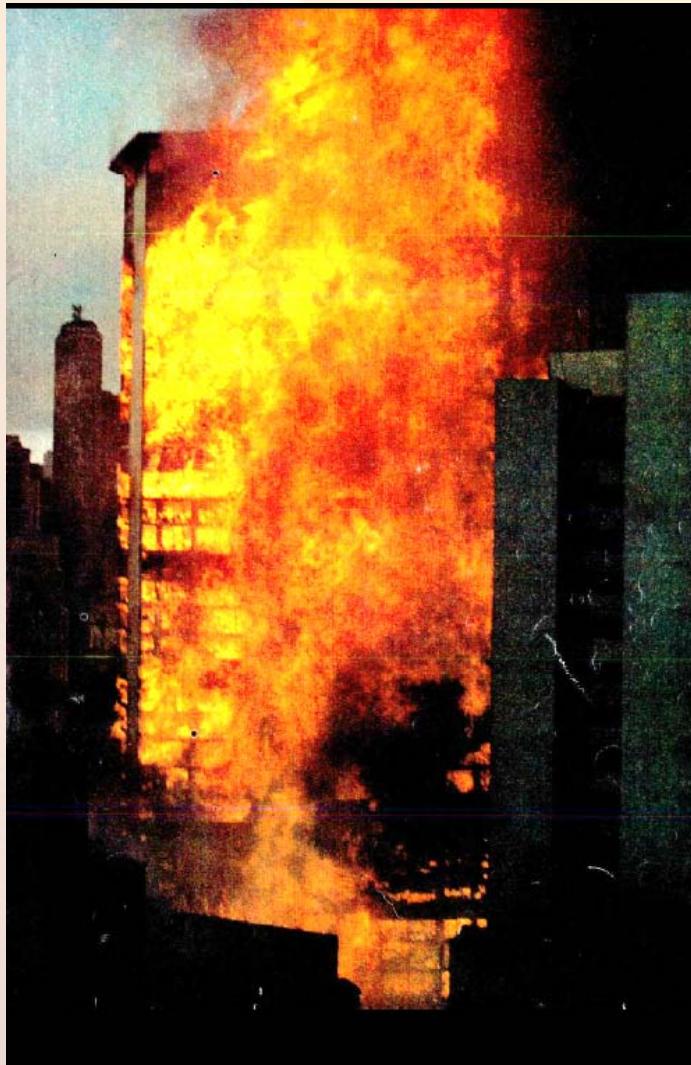


Madrid, 20 – 22 de Febrero de 2013
Centro de Convenciones Mapfre

Fire Safety Education in Brazil

- **Historical Background**
 - Late 1950's in Brazil:
 - Uncontrolled growth of urban areas, such as São Paulo
 - “Modern” high-rise buildings;
 - NO fire safety regulations.
 - **Fire safety was not an important matter until the 1970's**

Andraus (São Paulo)



- **24/Feb/1972**
- Starting time: 4 pm
- 31 floors-high
- Fire origin: 4th floor.
- 16 deaths
- + 375 injured
- Damages: 4th up to 27th floor

Joelma (São Paulo)

- 01/Febr/1974
- 24 floors-high
- Fire origin: 12 floor
- 179 deaths
- Damages 12th up to 24th floor.



Fire Safety Education in Brazil

- **Historical Background**
 - After Two Catastrophic Fires in São Paulo:
 - 1975: New Building Code for São Paulo City, including fire exits requirements;
 - 1976: New Fire Regulation for Rio de Janeiro State;
 - 1983: New Fire Regulation for São Paulo State.

Fire Safety Education in Brazil

Fire Safety Policy in the Brazilian context

- Fire Service is State government responsibility:
 - Fire Services are independent by State, in a military-structured system;
 - Fire Regulation are reinforced in a State and Local government basis.
- No National Fire Safety Agency
- No National Fire Regulation

Grande Avenida (São Paulo)



- **14/Feb/1981**
- 23 floors
- Fire origin: 1st floor
- 17 deaths
- Damages 1st up to 19th floor.

CESP Towers (São Paulo)



- **21/May/1987**
- Tower 1: 21 floors
- Tower 2: 23 floors
- Fire origin: 5th floor
- 01 death
- Fire damages in all floors and partial collapse of one of the towers

Little was the development in the fire safety field in the 1980s and 1990s:

- No significant research programs;
- Few improvements on fire regulations;
- No fire safety education at any level.

This situation has been slightly changed in the last decade, due to factors such as:

- The improvement of local fire regulations and national standards;
- The interest of some sectors of the construction industry in the technical and economical impact of fire protection systems.

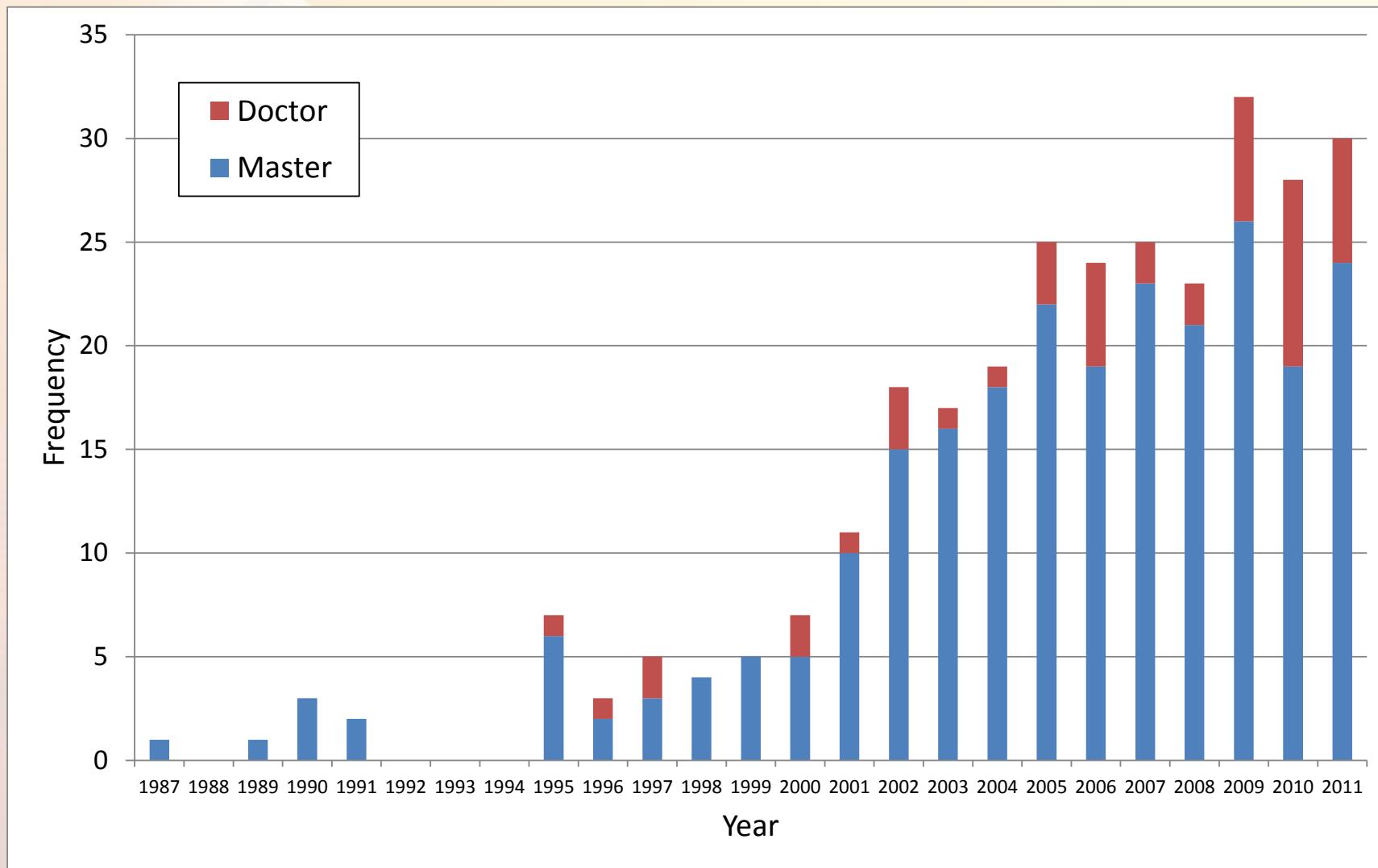
Fire safety is not yet a compulsory discipline in undergraduate courses.

- Most of the building construction professionals graduates with little or no knowledge and understanding of their responsibility on assuring fire safety by design and building construction or maintenance.

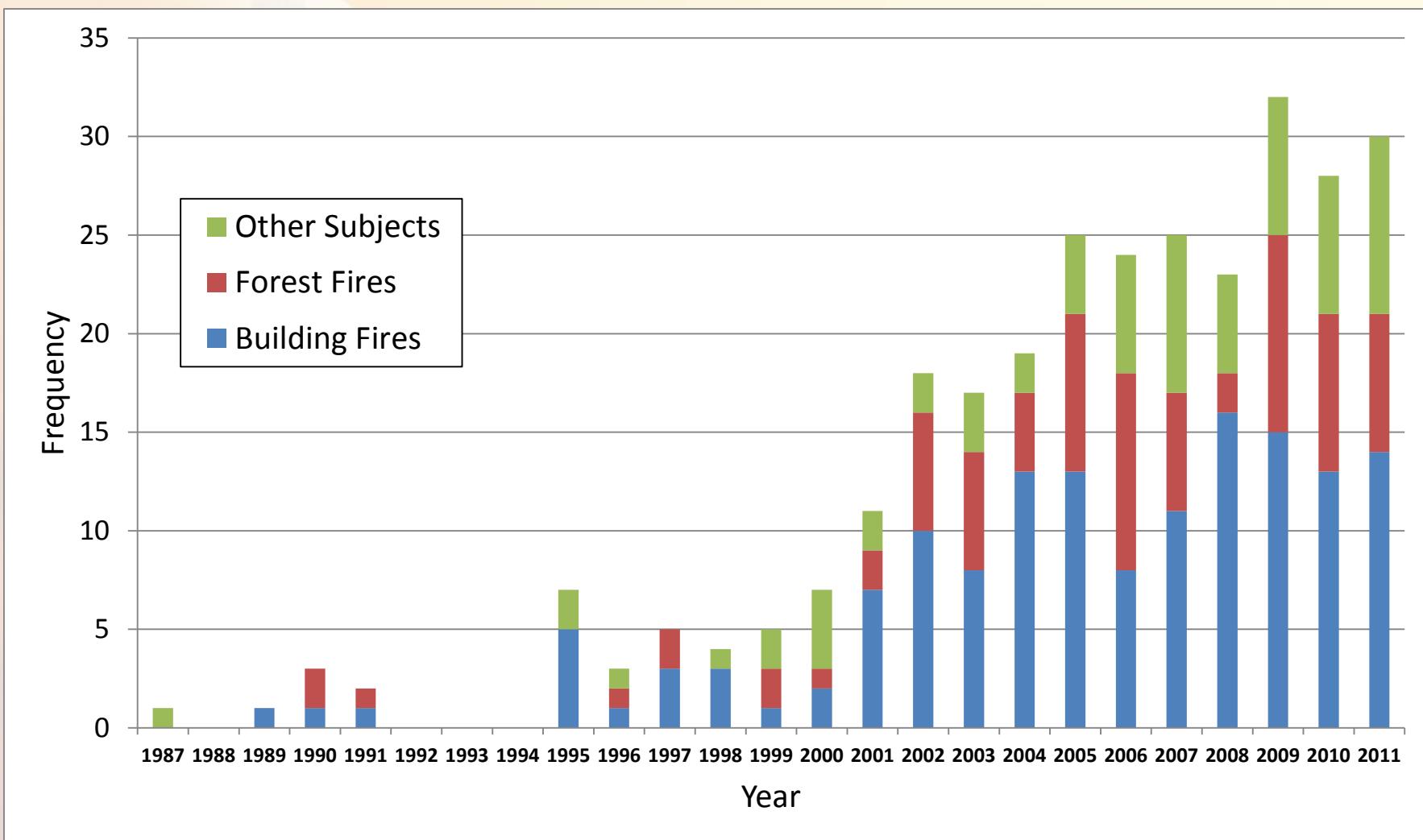
In order to improve the qualification of fire safety professionals:

- Graduate courses have been developed in the past decade in two categories at some universities.
 - Specialization (*latu sensu*);
 - Master / Doctor degree (*strictu sensu*).

Master and doctor degrees in subjects related to fire safety



Master and doctor degrees by fire related subjects



Fire Safety Education in Brazil

Registered Fire Research Groups in Brazil

2005

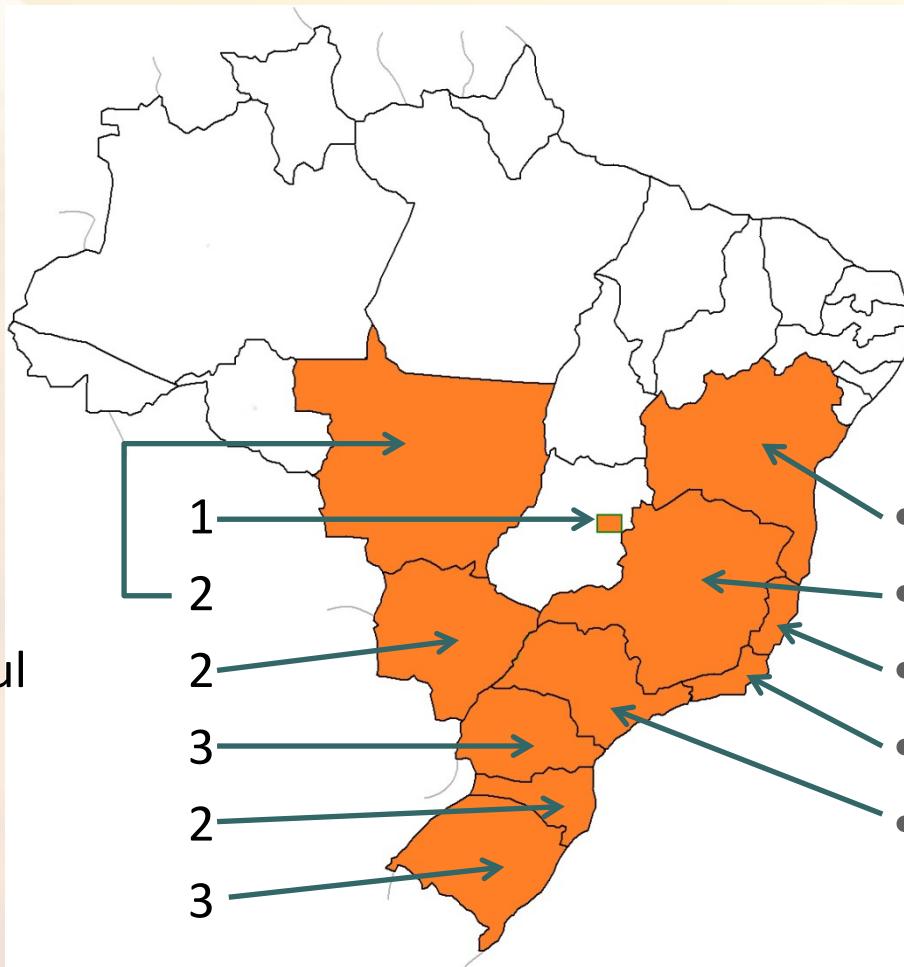
- 26 research groups distributed in 12 universities and 3 research centers.
 - 10 groups: forest fires;
 - 8 groups: behavior of structure, mainly on steel and wood;
 - 5 groups: general matters of the fire safety in buildings;
 - 3 groups: fire modeling.

2013

- 32 research groups distributed in 18 universities and 3 research centers.
 - 10 groups: forest fires;
 - 11 groups: behavior of structure, mainly on steel and wood;
 - 8 groups: general matters of the fire safety in buildings;
 - 3 groups: fire modeling.

Research Group per State

- Distrito Federal
- Mato Grosso
- Mato Grosso do Sul
- Paraná
- Santa Catarina
- Rio Grande do Sul



International Exchange

- Limited to few people for several years;
- Now, it is expanded due to increasing demand for international agreements between universities;
- ALBRASCI (Portuguese-Brazilian Association for Fire Safety) established in 2010;
 - 1st Iberian-Latin-American Congress on Fire Safety (CILASCI), 2011, Natal, Brazil;
 - 2nd CILASCI, May 2013, Coimbra, Portugal.

2005: First Federal Government-supported Survey - Objectives

- The situation of fire safety related organizations and their structure;
- The available technology on fire protection systems;
- The available fire data to understand fire occurrences;
- The available human resources and perspective of their development;
- The evaluation of fire related regulations and building codes.

2005: First Federal Government-supported Survey - Demands and recommendations

- National Fire Safety Agency;
- National Fire Incident Information System;
- Standardization of fire regulation and wide-spread use of improved technical standards;
- Improvements on Fire Services and its distribution throughout the country;
- **Better technical qualification of professionals;**
- Better communication to the public.

Fire Safety Education in Brazil

- Fire safety is not officially recognized as an engineering field in Brazil;
- The demand for Fire safety Engineers is very low through the design and construction process;
- Fire research field is mostly concentrated in forest fires and fire resistance of building structures (steel, concrete and wood) at the universities;
- There is no development or research on fire protection systems.

Another Catastrophic Fire

Kiss Nightclub - January 27th, 2013 (239 deaths – Feb. 11th)



Fire Safety Education in Brazil

- Future Trends (Hope & Needs):
 - A National Fire Safety Code (Model Code);
 - A consistent national fire safety policy:
 - Fire prevention campaigns;
 - Fire drills and fire education in schools;
 - **Professional qualification:**
 - Fire safety introduced as a discipline for engineers and architects (graduate, professional courses);
 - Fire Safety Engineering Courses (undergraduate and graduate).

Gracias por su atención
Thanks for your attention



Rosaria Ono
Associate Professor
University of São Paulo

Organizadores / Organizers



Madrid, 20 – 22 de Febrero de 2013
Centro de Convenciones Mapfre