



Queensland  
Government  
Department of  
Emergency Services



Queensland Fire  
and Rescue  
Service





Queensland  
Government  
Department of  
Emergency Services

# Total Cost of Fire in Australia

“How Much? Who Pays?  
who Cares?”



Queensland Fire  
and Rescue  
Service

Graeme D Thom. QFRS



Queensland  
Government  
Department of  
Emergency Services

## A Daily Superpill for men over 50

- The UK Department of Health's national director for heart disease said "All men over 50 should take a polypill to cut heart attacks and strokes". It would contain cholesterol-busting statin, aspirin and other drugs to cut blood pressure.
- it would transform the nations' health and relieve pressure on the national health scheme.
- While mass prescription of a polypill would cost \$15 billion a year, heart disease and strokes claim more than 200,000 lives a year and cost the health service \$35 billion a year to treat.
- Should the UK spend the 15 billion per year to save the 35 billion per year ? Can the UK afford to be proactive about good health?
- Would the UK still need a health system – yes.



Queensland Fire  
and Rescue  
Service



Queensland  
Government  
Department of  
Emergency Services

## All High Risk to life Buildings in Australia fitted with Sprinkler systems by 2020

Can Australia afford to be proactive about Fire  
Prevention and Fire Protection ?

Can we afford not to be pro-active about Fire  
Prevention and Fire Protection ?

Would Australia still need it's Fire Services ?

YES !!!

But what's the Balance ? And how do we  
know when we get it right?



Queensland Fire  
and Rescue  
Service



Queensland  
Government  
Department of  
Emergency Services

# WHAT IS THE TOTAL COST OF FIRE IN AUSTRALIA



Queensland Fire  
and Rescue  
Service



Queensland  
Government  
Department of  
Emergency Services

# Current sources

## Australia

AFAC response to the Productivity  
Commission review.

*Review of the building regulatory reform  
process in Australia.*



Queensland Fire  
and Rescue  
Service



Queensland  
Government  
Department of  
Emergency Services

## Fire Services are legislated to:

*Protect:- life, property & the Environment.  
Fire & Other emergencies*

Survey - What does the Building Code of Australia (BCA) cover?

*Life protection only?*

*Property protection only?*

*Life & property protection?*

*Life, Property & environmental protection?*

*fire fighter safety?*

*Only life protection and fire fighter safety!*



Queensland Fire  
and Rescue  
Service



Queensland  
Government  
Department of  
Emergency Services



Queensland Fire  
and Rescue  
Service

# In reality !!!!!

*Bldg applications cover life  
Protection Only*

*Fight hard for fire fighter safety!*

*Fire services also proposed property  
protection should be included in building  
construction*



## Current sources (cont)

- AFAC response to the Productivity Commission review (2004).
- Draft ABCB research study (2005) “The Cost of Fire in Australia - \$ + \$ + \$ = \$\$\$
- Total Cost of Managing Risk of fire in NZ – NZFS & Business & Economic Research Ltd (Berl)
- “Up in Smoke” – The Economic cost of fire in Queensland (2005)-QFRS & Allen Consulting
- AIRS Data analysis AFAC/CRC/VU Smoke Alarm Report (draft)
- AIRS Data analysis AFAC / ARUP Statistical Assessment Report (draft)
- Fire & security System Services in Australia 2007 – IBIS World Industry Report.
- Report on Govt services (ROGs)
- Brian Ashe (ABCB) – PHD – TCF Australia





Queensland  
Government  
Department of  
Emergency Services

# International sources

- Total Cost of Managing Risk of fire in NZ – NZFS & Business & Economic Research Ltd (Berl) & Other associated research papers.
- The Economic and Social Cost of Fire – Office of the Deputy Prime Minister (UK) - 2004
- The Total Cost of Fire in the United States – NFPA 2002
- World Statistics Centre – Geneva (comparative statistics for past 27 years)



Queensland Fire  
and Rescue  
Service



Queensland  
Government  
Department of  
Emergency Services

# Cost Categories

- Anticipation ?
- Response ?
- Consequences ?



Queensland Fire  
and Rescue  
Service

Total

\$ 100%

# Total cost of fire – Australia

(Draft ABCB Paper)

- Anticipation ?

Incidents averted or minimized,

therefore losses averted or minimized ?

- Response ?

Incidents minimized and property loss prevented ?

- Consequences ?

Total \$ 100%





Queensland  
Government  
Department of  
Emergency Services

- Anticipatory costs – predominantly protection and prevention measures to prevent or mitigate the damage caused by fire and other emergencies. **borne by a range of building owners/occupiers and society;**
- Responsive costs –extinguishing and clearing up after fire and other emergencies. **Society bears the majority of these costs;**



- Consequential costs –costs incurred as a result of fire and other emergencies. **The cost is borne by a range of victims including individuals, private firms and society.**



Queensland Fire  
and Rescue  
Service

# Total cost of fire – Australia

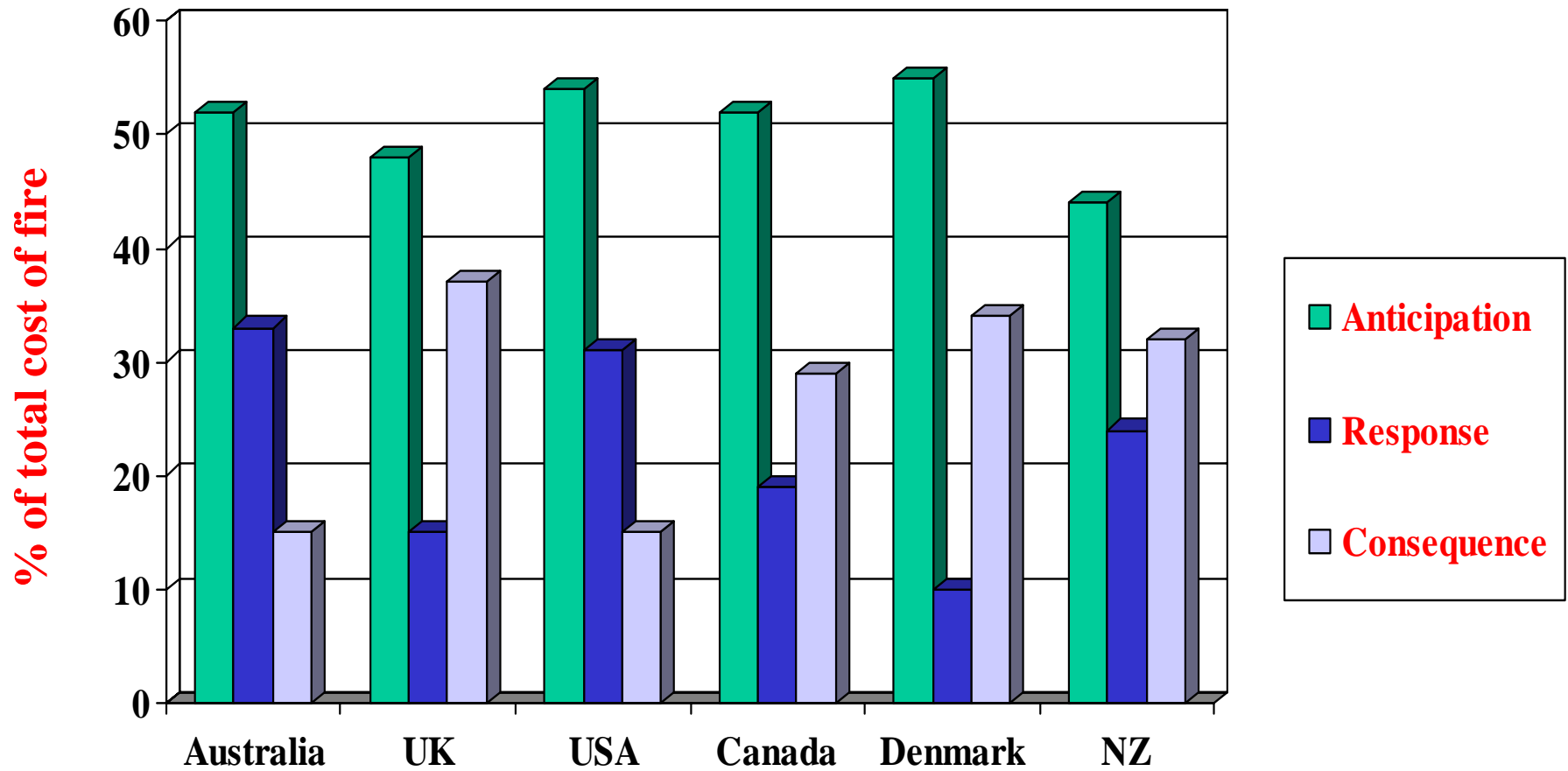
(Draft ABCB Paper)

● Anticipation	\$4.7 billion ( 55%)
● Response	\$2.5 billion ( 30%)
<b>Managing Risk</b>	<b>\$7.2 billion ( 85%)</b>
● Consequences	\$1.2 billion (15%)
<b><u>Total</u></b>	<b><u>\$8.4 billion 100%</u></b>

1.1 % GDP - \$420 per capita



## International Comparison



# Anticipation

Cost component	(\$ billion)	
Fire safety measures in buildings	1.0	(1000)
Fire safety measures in infrastructure	1.2	(1250)
Fire safety education and training	.01	(10)
Insurance administration	.33	(325)
Fire safety of consumer items	1.6	(1600)
Fire safety research	.01	(10)
Maintenance of measures	.5	(500)
<b><u>TOTAL</u></b>	<b><u>4.7Billion</u></b>	





# Response costs

Cost component	\$Billions	
<b>Fire service response costs</b>	<b>1.28</b>	<b>(1,280)</b>
<b>Volunteer fire service</b>	<b>1.20</b>	<b>(1,200)</b>
Private fire brigade responses	0.01	(10)
Criminal Justice costs and investigation of arson fires	0.05	(50)
<b><u>TOTAL</u></b>	<b><u>2.54</u></b>	<b><u>(2,540)</u></b>



# Consequences of fire [summary]

Cost component	Mean annual cost estimate (\$ billion)
Fatalities and injuries	.19 (194)
Healthcare	.11 (113)
Property losses	.54 (540) (7% of total)
Loss of business / output	.10 (98)
Environmental	.17 (172)
Heritage / cultural losses	.02 (20)
Wider economic distortions	.05 (50)
<b><u>TOTAL</u></b>	<b><u>\$1.2 Billion</u></b>



# Consequences of fire in Australia

- 100 fatalities per annum
- 3,000 injuries per annum
- International comparison (100,000 population)

Australia 0.50

● N Z 1.08

● UK 1.11

● USA 1.55

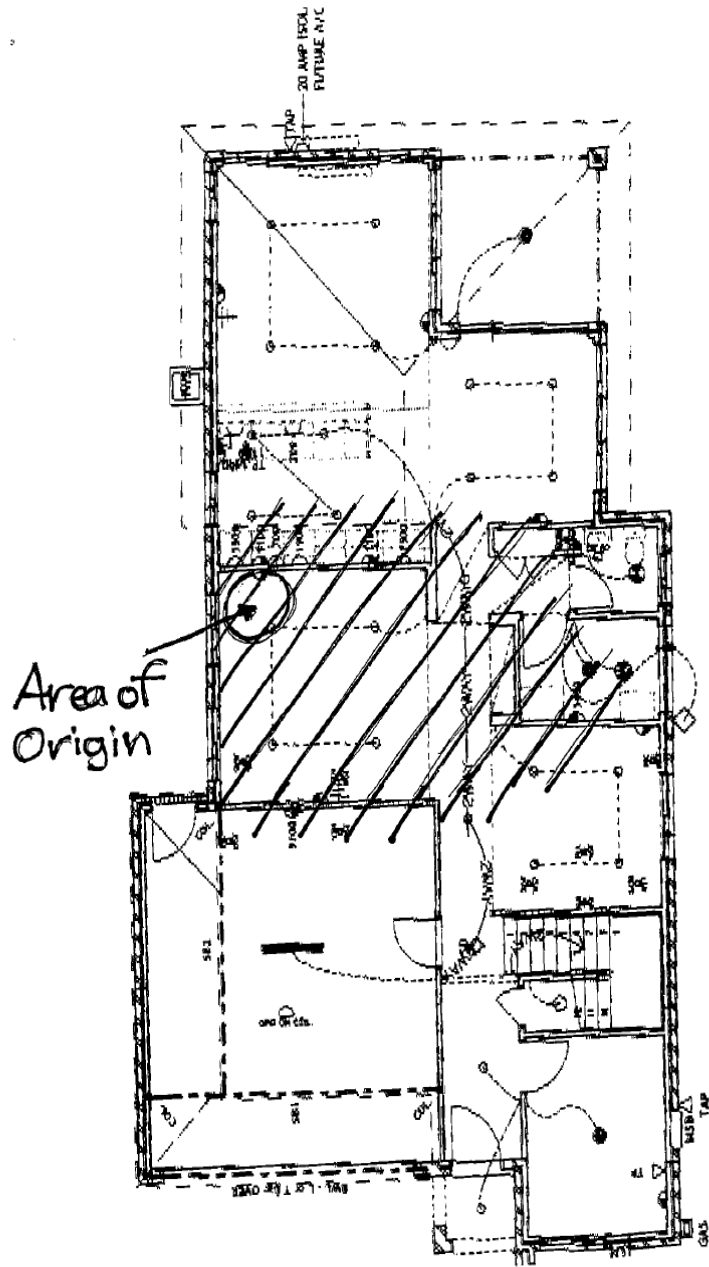




**Table 1.2 The composition of fire costs in New Zealand**

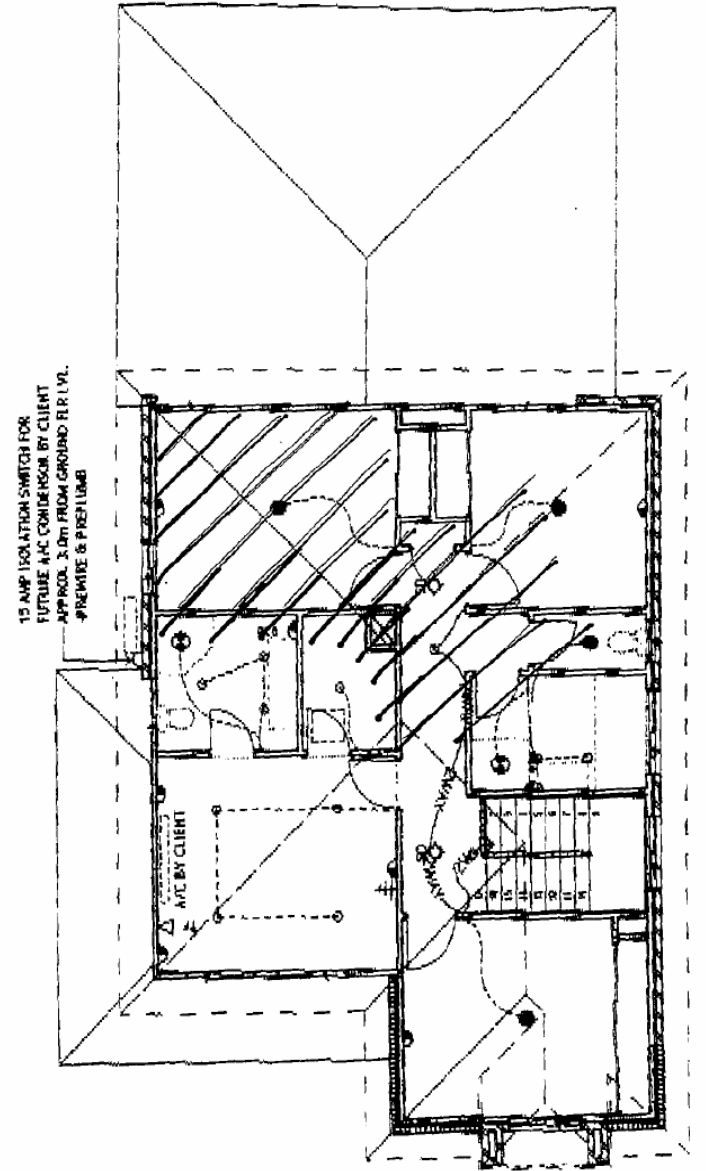
	Household	Commercial	Public	All sectors
<b>Risk reduction</b>				
\$ million	\$77	\$297	\$72	\$446
% of total	8%	29%	7%	44%
<b>Readiness and response</b>				
\$ million	\$0	\$14	\$232	\$246
% of total	0%	1%	23%	24%
<b>Recovery and consequence</b>				
\$ million	\$248	\$60	\$16	\$325
% of total	24%	6%	2%	32%
<b>All economic costs</b>				
\$ million	\$325	\$372	\$320	\$1,017
% of total	32%	37%	31%	100%

Source: BERL



▨ I Beams destroyed

Ground Floor Plan



▨ Floor Unstable for firefighting

Upper Level Plan



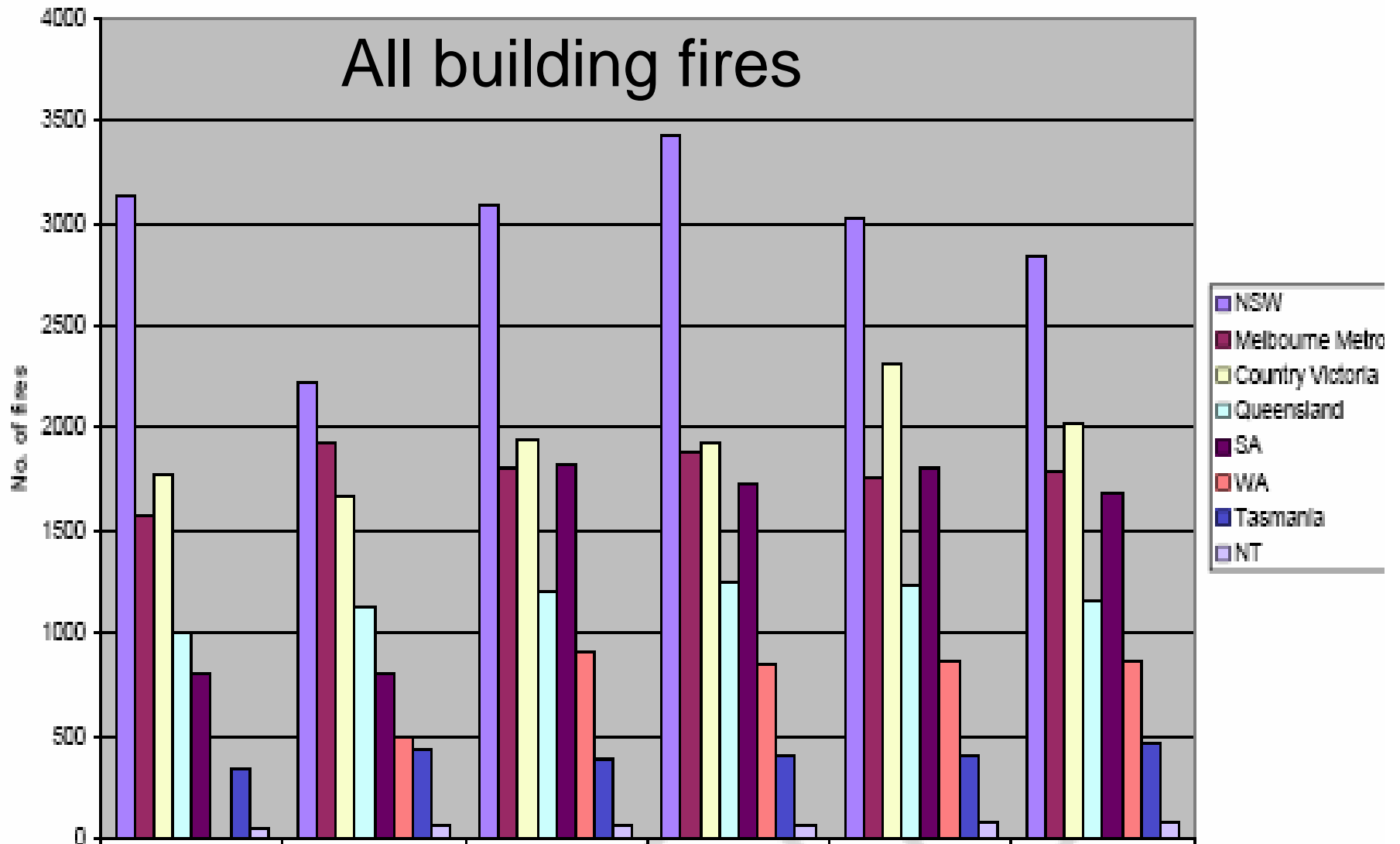
Queensland  
Government  
Department of  
Emergency Services



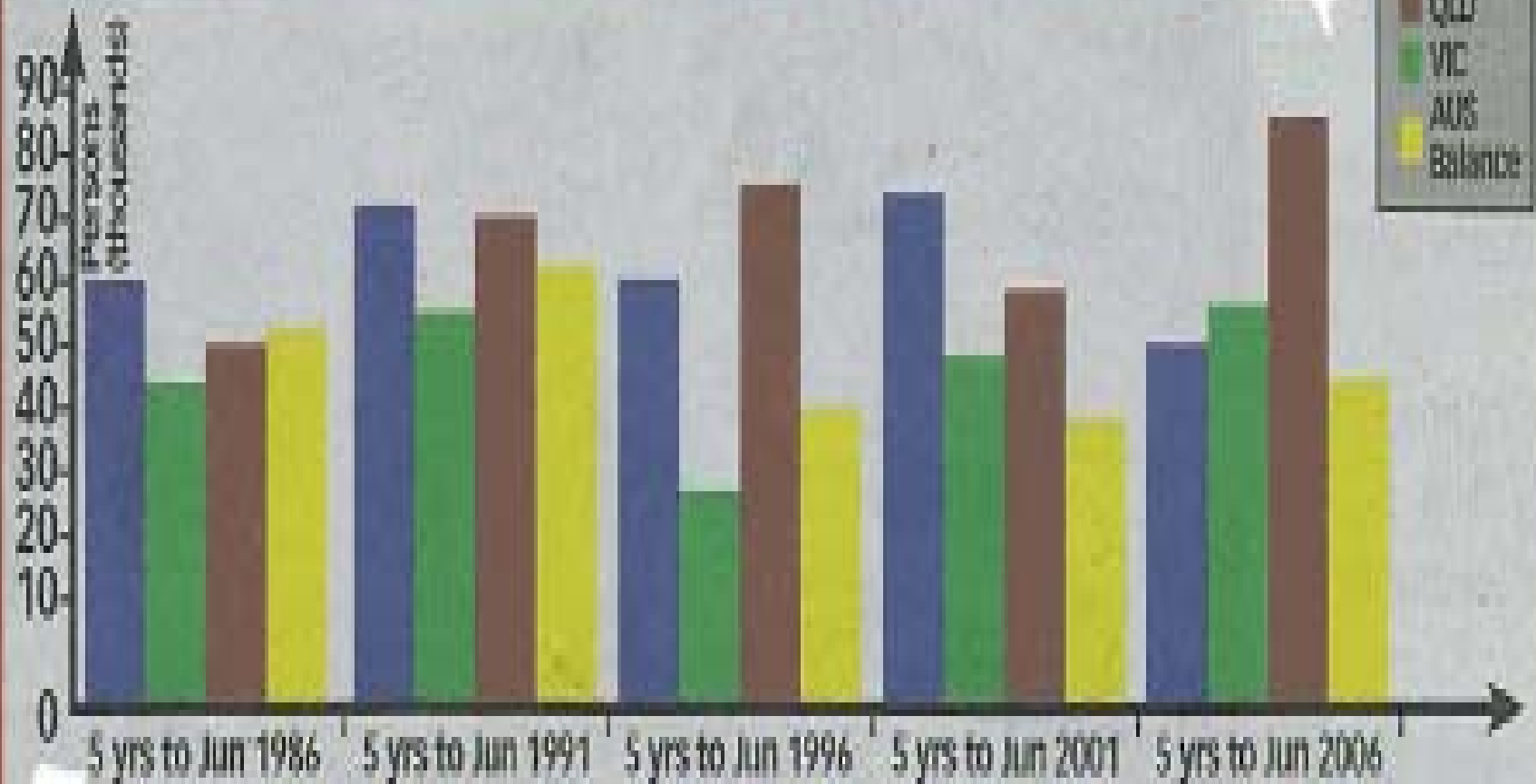
Queensland  
Fire and Rescue  
Service



**AIRS data – 62,583 fires excluding 1 & 2 family dwellings, apartments, units and flats (fin 1998 – 04, 6yrs) .**



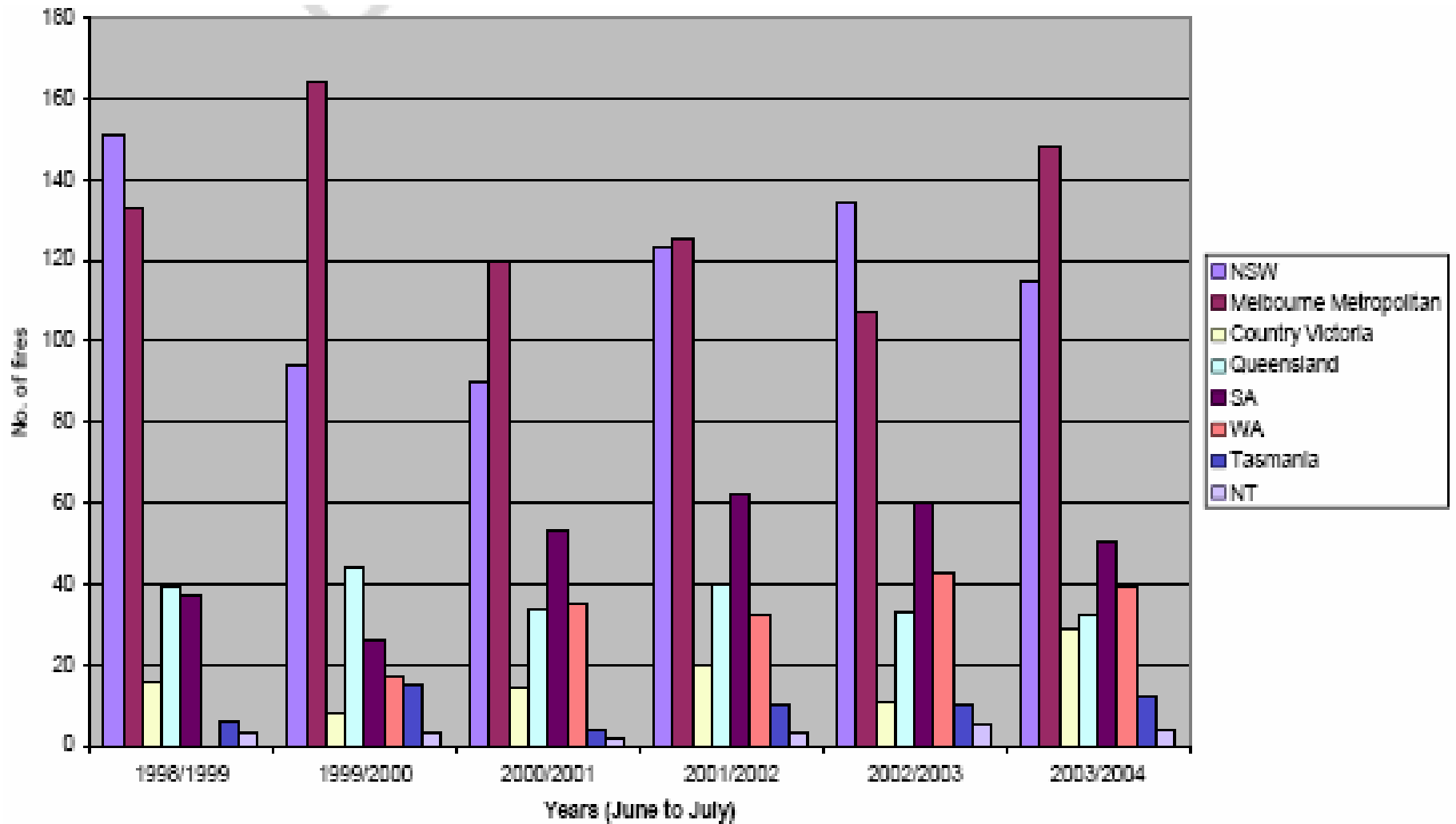
## AVERAGE ANNUAL POPULATION GROWTH BY STATES AND TERRITORIES



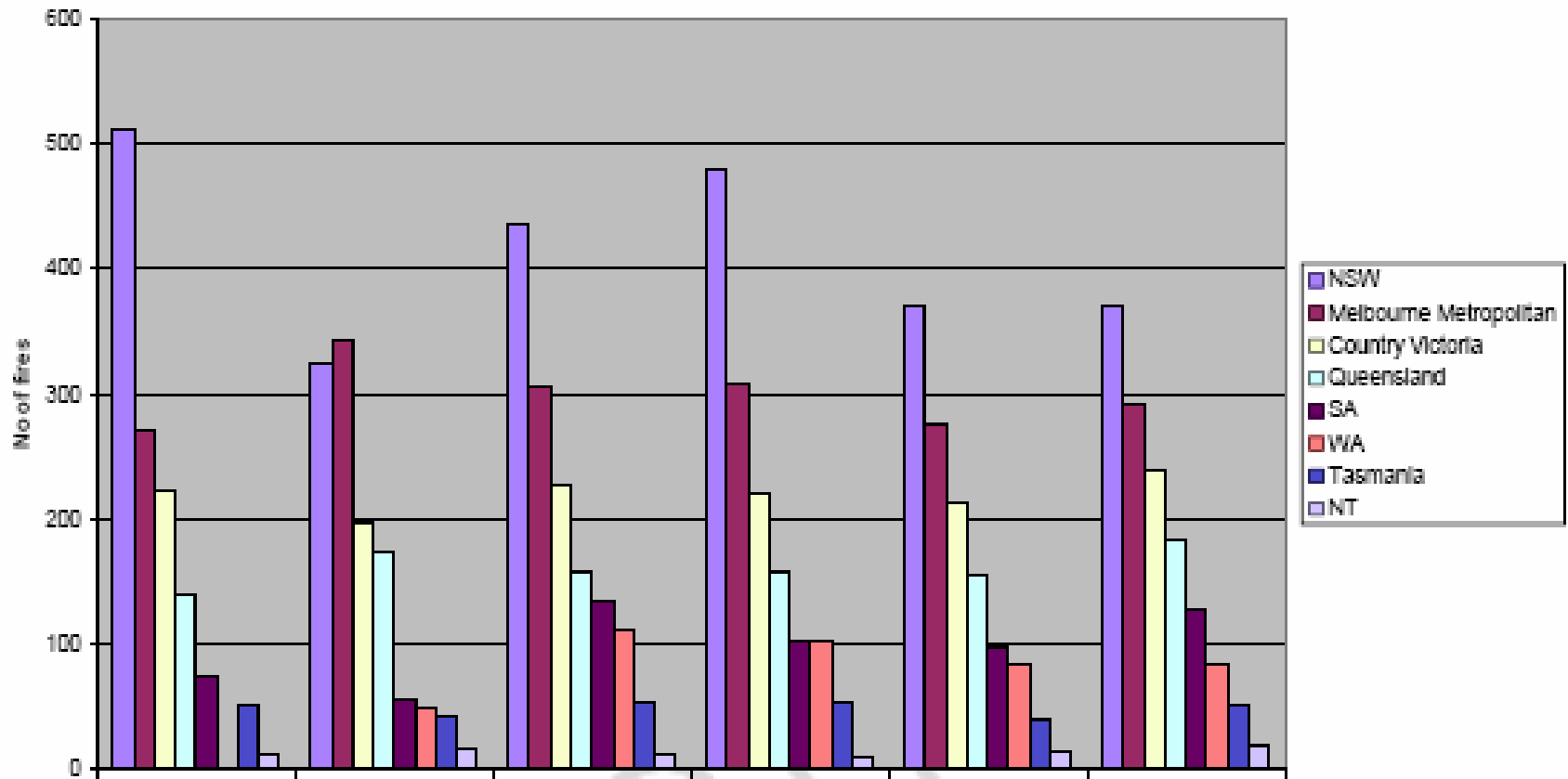
SOURCE: AUSTRALIAN BUREAU OF STATISTICS



# Office fires



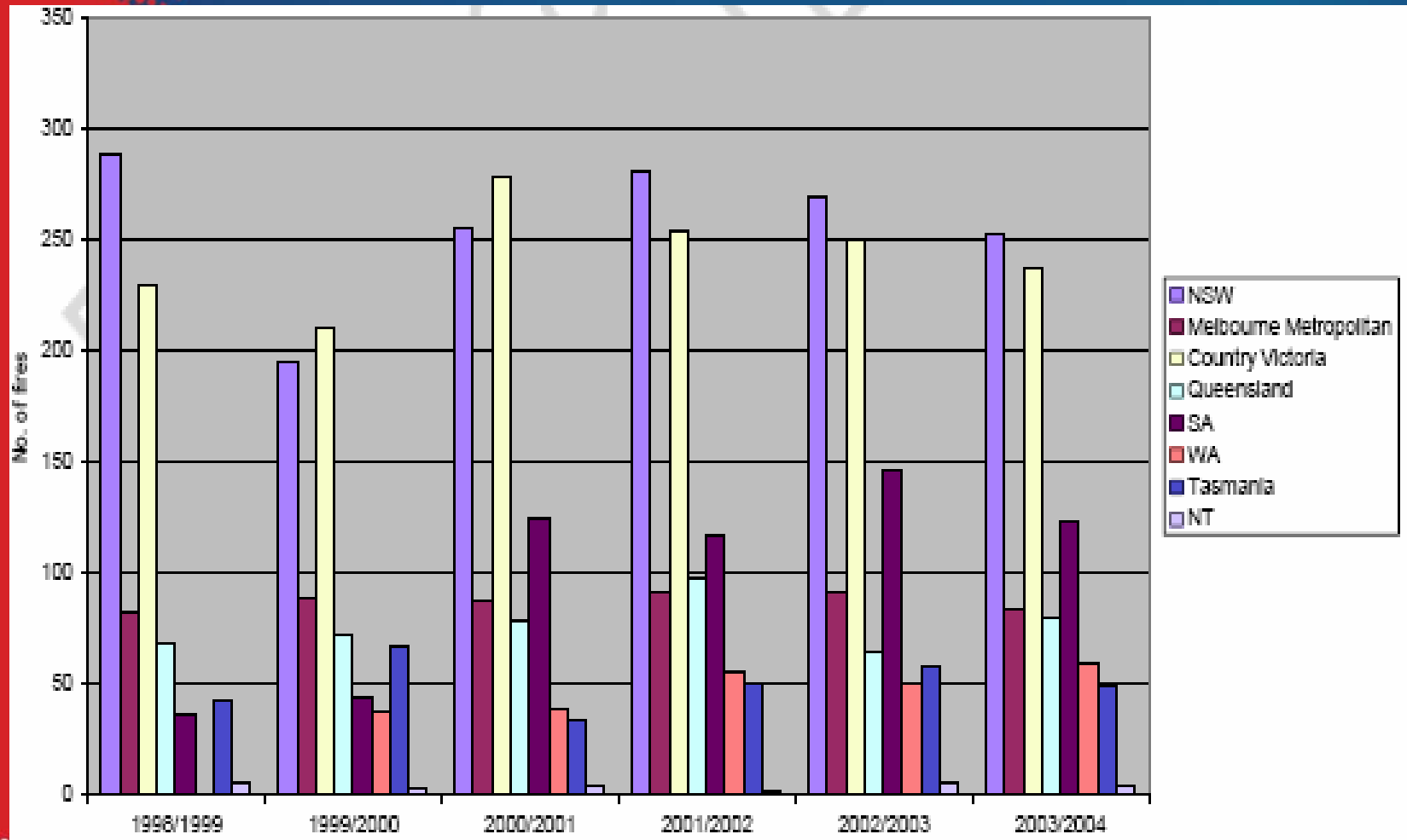
# Retail Property fires





Queensland  
Government  
Department of  
Emergency Services

# Storage Property Fires



Queensland Fire  
and Rescue  
Service

# Fire Service Organisations

## Performance Indicators for Fire Events (Outcomes)

- Fire Death Rate
- Fire Injury Rate
- Medium \$ losses from structure fire ???
- Total Property losses from structure fires ???





Queensland  
Government  
Department of  
Emergency Services

# What are good measures?

Good measures have attributes that can be summarised as:

- Meaningful;
- Repeatable;
- Easy;
- Simple;
- Owned; and
- Actionable



Queensland Fire  
and Rescue  
Service

# Future Work – True Cost F & E



Queensland  
Government  
Department of  
Emergency Services

	Structural fires (domestic, commercial, public)	Road/rail incidents	Chemical fires	Tech rescue	Bushfires (CRC)
Antipation (Benefits)					
Response (Benefits)					
Csequence opportities					
<u>Total</u>					?



Queensland Fire  
and Rescue  
Service

# True Cost (F & E) Each State & Territory



Queensland  
Government  
Department of  
Emergency Services

	Structural fires (domestic, commercial, public)	Road/rail incidents	Chemical fires	Tech rescue	Bushfires (CRC)
Antipation (Benefits)					
Response (Benefits)					
Csequence opportities					
<u>Total</u>					?



Queensland Fire  
and Rescue  
Service

# Emergency Services Emerging Future

## Research: Global Foresight Network

Four fundamental ideas - rhythms of our times

- Uncertainty and turbulence,
- Truly socially revolutionary effects of digital technologies
- The exponential rate of change,
- **The confronting choices we are asked to make.**

We have the choice to either create our own future, or allow ourselves to drift into a position where choices are made for us.







Queensland  
Government  
Department of  
Emergency Services

## Total Cost of Fire – Australia ????????

**"Who pays, how much, who cares".**

- The lid of Pandora's Box has been opened and the light shining in is illuminating some interesting issues, some of which we may not like. However, we cannot and must not try to close the lid or lessen the light. Our capacity to continue as effective emergency services will depend on our courage and our ability to unpack the box, examine the contents and adequately address the issues.
- If we don't - others will !



Queensland Fire  
and Rescue  
Service



Queensland  
Government  
Department of  
Emergency Services



Queensland Fire  
and Rescue  
Service

# Thank You

# Fire Service Organisations

## Performance Indicators for Fire Events

### Prevention/Mitigation

- Level of safe fire practices in the Community

### Preparedness

- Proportion of residential structures with smoke alarms
- Proportion of Commercial structures with Sprinklers

### Response

- 50<sup>th</sup> percentile response times to structure fires
- 90<sup>th</sup> percentile response times to structure fires
- Containment to room of origin

### Recovery – further development

- Expenditure per person

