

The real costs of bushfires

John Handmer
&
Beth Proudley
RMIT University

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This presentation

- The questions
- An estimate of bushfire loss
- Components of the loss
- Using economics
- Developing a framework for loss estimation



Two basic questions

- 1) What's the total cost of bushfires?
- 2) What's the value of mitigation?



The problem

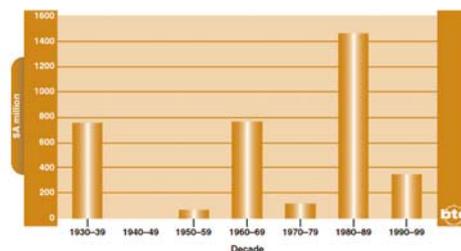
- **Comparisons** between hazards, locations and mitigation strategies are often difficult.
- In many cases loss **assessments are not based on economics**.
- Underlying these problems is a **lack of consistency** in loss assessment across Australia, within states, and between types of hazards and public investments, and different risk treatments.



Estimating cost

- The cost depends on what our purpose is, how we measure loss, and what resources are available.
- Are we interested in the impact on the economy? Or the immediate impact on local enterprises?
- Comparisons or precision?

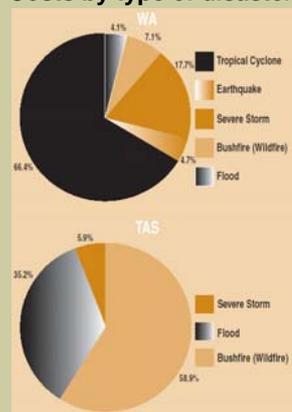
FIGURE 3.26 TOTAL COST OF BUSHFIRES BY DECADE, 1930-1999



Note: Estimates are in 1998 dollars.
Source: BTE analysis of Emergency Management Australia (EMA Track) database (unpublished).

Source: Bureau of Transport & Regional Economics 2001, *Economic Costs of Natural Disasters in Australia*, 103, Bureau of Transport Economics, Canberra, Australia.

Costs by type of disaster 1967-1999



Source:
Bureau of Transport & Regional Economics 2001, *Economic Costs of Natural Disasters in Australia*, 103, Bureau of Transport Economics, Canberra, Australia.

- National estimates of losses from bushfires may be helpful, but do not tell us the costs of specific fires, or the benefits of specific mitigation measures.



Net economic loss

- Net economic loss – ie the losses minus the benefits from disaster – is one measure of the regional impact of disaster.
- For example, the US GAO examined the Sept 11 attacks in New York. The loss was about US\$83 billion, offset by US\$67b of economic benefits for New York, for a net loss of about \$16b.

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We aim to answer the two questions by...

...providing a comprehensive approach for assessing bushfire losses; and for assessing the value of mitigation strategies in terms of economics.

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Draw on 60 years of research on flood and wildfire loss assessment:

1. An economic as opposed to a financial approach;
2. Include all costs and benefits;
3. Develop assessment methods for ignored areas of loss;
4. Consider a range of assessment methods;
5. Ensure that the approach is user friendly.

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1. An approach based on economics:

Economic analysis is concerned with the impact of an event on the economy of a specified area.

- All members of a defined society or economy, not individual firms;
- Changes to economic activity in the defined economy, not components within it;
- Market rather than replacement values;
- Counting all impacts on the economy, both positive and negative.

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2. Include all losses and benefits:

Including:

intangibles, indirects, arson, “inefficiency/waste”, impact of error and uncertainties, longitudinal factors, carbon accounting, additional impacts of mega events, cost of volunteers.

Economic versus the financial approach – in summary

- An **economic** analysis is concerned with the impact of an event on the economy of the area selected for analysis.
- A **financial** analysis is usually undertaken to assess the loss from the perspective of a commercial enterprise (or groups of enterprises).
- **Economics** is defined to include intangible losses, such as social or environmental items.
- **Insurance** assessments are usually higher for household tangible losses than those prepared using economic principles.

Aerial firefighting



- **Media, politicians and people love it.**
- **It's expensive – what's it really worth?**

Aerial firefighting

“The Rural Fire Service recognises that aircraft are an expensive resource and that they do not suppress fires on their own. Aircraft are a tool that may be used to support ground based firefighting operations and may not necessarily be required on all occasions.”

Source: Briefing Paper 5/2002 Stewart Smith, Parliament of NSW website <http://203.202.1.182/prod/parliament/publications.nsf/0/87CF62366063879DCA256ECF00077084>

“By putting up the money to have one of those [Erickson Air-Crane] helitankers based in Queensland, the outbreak of any bushfires this summer could be quickly controlled and reduce the risk of lives and property.”

Source: Ted Malone - MP Shadow Minister for Emergency Services Shadow Minister for Employment and Training Member for Mirani - 25 September, 2003 <http://150.101.164.62/document.php?documentID=901>



Memorabilia

The loss of personal memorabilia can be more devastating than the loss of a dwelling or vehicle.




Memorabilia and loss assessment

Loss of personal intangibles, such as photo albums and other memorabilia, is difficult to assess but may be the loss with the greatest impact.

'My family have all gone and I'm the last of the line and I had all the years of collecting memorabilia, from photos of all the kids I've worked with, the skaters I've worked with, other artists and things like that which I just loved, films, programs of all the shows that I'd ever been in, just everything. And so that's your roots. But it's all gone and I think this is one of the hardest things.'

Reg Park on the 2003 Canberra Fires
After the Fires – ABC TV – Broadcast 31/03/2003




Other specific areas of assessment

- **Carbon accounting**
- **Value of/cost of volunteers**
- **Implications of errors and uncertainties** - Every part of the disaster loss assessment process contains inherent uncertainties.




Limitations of economic loss assessment

- Loss estimates cannot be exact - they can only be estimated;
- The assessment process involves judgement;
- Training will increase expertise in economics, but will not eliminate uncertainty.
- Intangible losses may be the largest part of the loss but are frequently ignored.
- Variations in the funds, expertise and time available will affect assessments.





Some principles for the loss assessment model/framework – it should:

- deal with the whole process of loss assessment through step by step procedures;
- Be user friendly;
- be based on economic principles;
- cover all types of loss, including intangibles;
- be applicable to regional areas; and
- Be for loss assessment after an actual event, as well as for loss assessment through disaster scenarios.

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An additional framework/model feature:

- an emphasis on **comparability** across space and different mitigation strategies, rather than simply focusing on precision for one specific circumstance.

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Next steps

- **Develop the model through: working closely with specialists in bushfire economics from North America and Europe;**
- **Identify gaps in existing approaches, develop methods for these; and**
- **undertake case studies to fill the data gaps and to help operationalise the approaches.**
- **In parallel examine the cost effectiveness of aerial firefighting**

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