Learning from disasters?: Aotearoa since 1900

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Outline

- Ideas on learning from the past
- Aim
- Methods: Sample & data collection
- Results
  - Evidence of learning from disasters, or not
    - Building fires
    - Mining
    - Volcanic activity
    - Earthquakes
- Discussion

Some background literature

Institutional/cultural frameworks are key factors for societal resilience, rather than just technology and wealth **Van Bavel 2016, Sen 1988**

The literature on societal learning from inquiries

Critiques of public inquiries include:

The process/scope; underlying aims; and impartiality/bias

- conflicting ‘knowledge’, uncertainties, uneven contest between officials, corporates, experts and publics
- even when public inquiries capture relevant knowledge, lack of changed behaviour/rules

Elliott, McGuiness 2002

Which inquiries to examine?

- Mass fatality events shock – so can draw public and official attention to causes and prevention
- The resulting investigations can be studied to help find the extent and consequences of one stage of effective learning – formal inquiries

Aim

To investigate the extent to which:

- Sudden mass fatalities (non-war) in NZ (1900-2019) have resulted in official and other investigations
- Such inquiries contribute to institutional learning about the causes and consequences of harm

Methods

Sample

- ‘Sudden mass fatality events’ were those causing 10+ fatalities, with most deaths occurring within 24 hours
- Events from official lists of disasters, with additional searches

Methods

Data collection

We used official lists of disasters:

- The Emergency Events Database (EM-DAT)
- *NZ History's* disaster timeline

Plus online searches to:

- validate and add to this list
- identify official and other inquiries

Methods

Data collection: Investigations & inquiries

We searched for relevant:

- Inquests
- Commissions, Courts of Inquiry, other public and government inquiries
- Transport Accident Investigation Commission and Maritime NZ inquiry reports

Results

Wilson, Thomson *NZMJ* 2019; Wilson et al *ANZJPH* 2017

Of 53 *non-war* disasters 1900 - 2019:

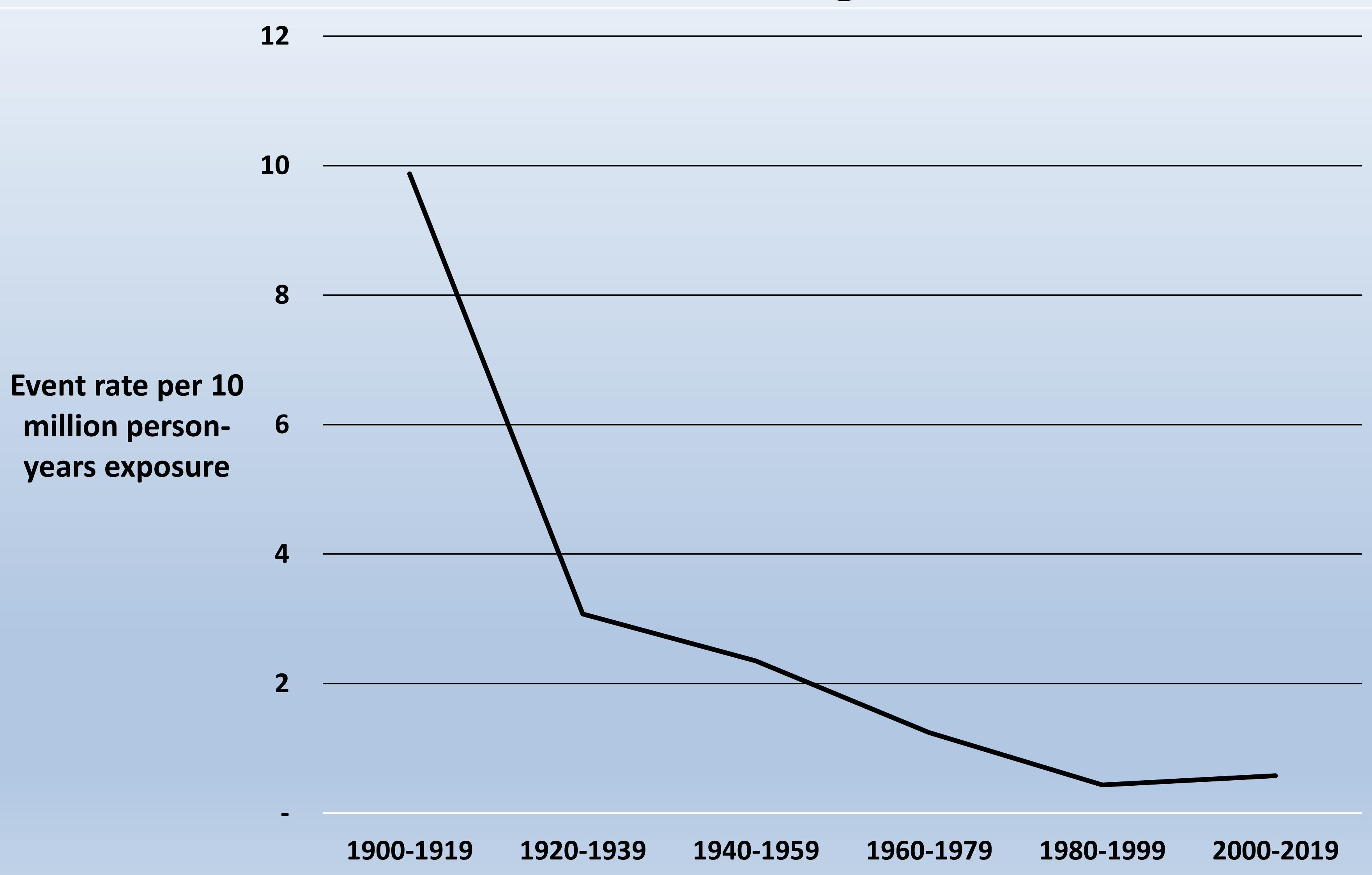
- Official inquiries were held after 79% (42/53)
- Inquiries were held for all such disasters after 1936

Results

Some evidence of learning from 10+ disasters in:

- **Shipping and air travel**
  - 18 of 27 sinking's before 1919, zero since 1975
  - Aircraft crashes 1948, 1963, 1979, 1989: 0 since 1989
- **Fires in large buildings**
  - Seacliff 1943
  - Ballantyne's 1947
  - No 10+ deaths since 1947

Rates of Sudden Mass Fatality Events – NZ 1900 to 2019 (n=53, excluding war-related)



Results: Large building fires

Ward 5, Seacliff Mental Hospital, 1942: 37 dead

- No operating fire alarm
- Wooden with no internal fire prevention
- Rooms were locked from the outside

1943 Commission Inquiry

‘recommended *future institutional* buildings be constructed of fire-proof materials, with emergency exits, automatic monitored fire alarms and sprinkler systems’ : no resulting law

Ballantyne's store

Christchurch, 1947: 41 dead

Results: Ballantyne's Fire – Royal Commission 1948

It found:

- 'Factories Act and its regulations inadequate'
- 'Fire Board Fire Escapes By-law is defective'
- 'New Zealand Standard Code of Building Bylaws, Part VII (Means of Egress), should be made compulsory to all buildings in NZ'

'*resulted in a general overhaul of statutory safeguards in fire control*' **Encyclopaedia of New Zealand, 1966**

[***But*** see following slides]

Results: 1943 Inquiry & 1948 Commission results

Little effect for older buildings: **So 1969 Sprott House** nursing home fire (Wellington) with 7 dead (and another inquiry):

- Results of *that* 1969 inquiry included:
  - Fire Safety (Evacuation of Buildings) Regulations 1970: *Required* sprinklers, auto alarms and evacuation schemes for institutions with 20+ people
  - Fire safety focus in the Fire Service Act 1975

Results: *Even after* Sprott House inquiry and resulting laws

- **Terwindle Rest Home fire**, Auckland 1989: 7 dead
  - *Then:* 1992: Building Code (Building Act 1991) sprinklers mandatory in many types of buildings
- ***But still:*** **1996-2006:** 5 fires in aged-care residential facilities, 8 deaths

Results: Learning and forgetting

A number of repeated events related to mining, volcanic events and earthquakes

Mining:

- 1914: Ralph's Mine explosion – 41 dead
- 1939: Glen Afton Mine – 11 dead
- 1967: Strongman mine explosion – 14 dead
- 2010: Pike River Mine explosions – 29 dead
  - 25 to 43 year gaps between 10+ deaths events

Results

Volcanic-related events

- **1914**: 10 sulphur miners killed by Whakaari lahar
- **1953**: Tangiwai rail crash – lahar-caused: 151 dead
- **2019**: 22 killed by Whakaari eruption (105 yr ‘gap’ since 1914)

Results: Whakaari/White Island

Context: 1885 – 2019

- **Mining** 1885 - 1914
  - Mining restarted during 1923-33
- **Eruptions** 1933, 1947,1962, 1966, 1968,1971
  - *Then continually* December 1975- September 2000
- **White Island Tours** from 1992, incl. for schools
  - Seven life-threatening events 2006-18
  - 10,000 tourists+ / year visited to 2019

Results: Whakaari 'inquiries' from 2019

1. Minister Michael Wood asked MBIE to review '*adventure activities regulatory regime*' (ongoing)

2. November 2020: WorkSafe prosecuting 13 parties

3. December 2020: MBIE commissioned 'Laurenson QC' review of:

   'WorkSafe New Zealand's performance of its regulatory functions in relation to activities on Whakaari White Island' 2014-2019

4. October 2021: Laurenson report

No overall government commission/inquiry

Results: Earthquakes

- 1929: Murchison earthquake – 17 dead
- 1931: Hawke’s Bay earthquake – 256 dead
- 2011: Canterbury earthquake – 185 dead

Results: Earthquakes and buildings

Hawke's Bay earthquake:

- Parliaments *Buildings Regulations Committee* inquiry:
  - Local authorities given extra building regulation powers, and 1935 model building code
  - *Building Construction Bill* 1931 opposed on cost grounds
  - **No nationally required *Building Code* until 1965**

Results: The politics of inquiries: Forced admissions

Extract from Erebus crash Waikumete memorial information board

Initially pilot error was blamed for the crash but public outcry led to a Commission of Inquiry by Justice Peter Mahon. He concluded that the accident was caused by a change in flight coordinates that was not communicated to the crew. Instead of being directed down McMurdo Sound, the flight was re-routed into the path of Mt Erebus.

Discussion: Main findings

- Some limited evidence of learning for:
  - Fire safety for large buildings
  - Shipping, aircraft safety
- But, from our data on volcanic and mining disasters, there was little effective learning:
  - Limited depth to inquiries
  - Insufficient legislation
  - Insufficient implementation and enforcement

Discussion: Effective learning processes

- Investigations are only one small part of effective learning from harm events
- Other parts may include:
  - The *communication* of investigation results
  - Changing laws and organisational processes
  - Changing organisational ideologies and cultures (institutions in the wider sense) to prioritise longer term views and greater investment in societal futures

Discussion: Resistance to learning

- A problem can be:
  - *not* lack of preparation; *not* the difficulty of the project or the state of the marketplace or the resources available
- But:
  - excuses, alibis, justifications why we can’t/ shouldn’t/ won’t do what we know we need to do
- Solutions include:
  - More ‘dreamers’ whose collective imagination can open organisations to preventive change

Braun, Baker 2020

Discussion: Policies and policymaking

Efforts to move harm prevention agendas face calls that change is too costly:

> '… although the cascading costs of repeated disasters – both single incident and slow-burn ones like growing disease, poverty and hunger – will eventually demonstrate that the cost of doing little or nothing was far greater'

Quilan 2020

The politics of inquiries

Governments have mixed motives for investigations:

- Responding to ‘community demands’
- Helping ‘recovery’
- Presenting the government role in the disaster

Nicholls 2006

Conclusions

- New laws and safety improvements contributed to the declines in some of these events? (transport sinkings, crashes; building fires etc)

- **But our case studies suggest gaps in embedding prevention** eg, repeated mass death from: mining disasters, earthquakes, volcanic eruptions

- **Lessons from the past to prevent future disasters?**
  - *Much* more than just inquiries are needed
  - To help society-wide preventive responses
    - **Changes in valuing the future**
      - Greater investment in societal futures
    - **Prioritising longer-term views**