

Principal points

1. The National Climate Change Adaptation Research Facility (NCCARF) congratulates the Productivity Commission on its draft report on *Natural Disaster Funding*. NCCARF finds this to combine a comprehensive and insightful overview of disaster funding with detailed planning for change.

2. Nevertheless, NCCARF finds the report to be superficial in its treatment of climate change. Although there are a number of mentions of climate change in the supplement volume (Volume 2), this does not carry through to consideration of possible implications of climate change for disaster funding in the main volume (Volume 1).

There are a number of places within the report draft recommendations where mention of climate change would bring the report more into line with international thinking on this issue – in particular the recognition of the risks presented by future climate change and sea-level rise. Most obviously, there is scope for identification of the importance of climate change research under Information 4.1 (page 41), and for recognition of the risks posed to the built environment in the coastal zone from sea-level rise under Regulating the Built Environment 4.4 – 4.10 (pages 42-43).

3. In its consideration of observed extremes and their impacts, the report only explores trends in the data, citing the work of Risk Frontiers (McAneney and Crompton (2013, p. 8):

... no trend is evident in the normalised losses ... implying that socio-economic factors are sufficient to explain the increase in the cost of insurance sector losses ... In other words, it is not possible to detect an anthropogenic climate change signal once losses are normalised.

The report does not make any mention of the extensive emerging literature on detection and attribution of individual extreme events, pioneered by scientists such as Peter Stott. There are an increasing number of studies appearing which demonstrate the high probability that individual events contain a climate change component, i.e., they would have been unlikely to occur in the absence of global warming. The fact that these events can be attributed in part to climate change suggests that (a) the signal of climate change is beginning to emerge from the noise and (b) there will be impacts on the occurrence of extremes that may have implications for disaster funding.

Consideration by the report of climate change

Apart from references to the earlier Productivity Commission report *Barriers to Climate Change Adaptation*, and to the National Climate Change Adaptation Research Facility, a search on 'climate change' produced only two references in volume 1. One is in a quote from the earlier report *Barriers to Climate Change Adaptation* about building regulations, and the other reads:

“projections suggest that climate change could increase the frequency and intensity of some extreme weather events and potentially natural disasters” vol 1 page 46

Volume 2, which is the supplementary volume, contains more references climate change, but unfortunately these do not carry through to the main report. They fall into two main categories. The first is around climate change and uncertainty. A typical quote reads:

“It is difficult to predict accurately how many natural disasters will occur in the future. This difficulty is further compounded by climate change and its uncertain impact on the frequency and intensity of extreme weather events.... Nevertheless, projections

generally indicate that the frequency and intensity of several extreme weather events are likely to increase, resulting in potentially more frequent natural disasters in the future.” Vol 2 p 234-5

The second category is examples of good practice and experience in recognizing and communicating the risks of climate change in other countries (UK, New Zealand, US etc.) and (rarely) in Australia (Townsville). Examples are:

“In many countries, national governments have a high level of involvement in researching the impacts of climate change (often through government agencies) and disseminating their findings (PC 2012).” Vol 2 p. 501

“Further, some governments have developed specific tools and websites to support their citizens to adapt to the impacts of climate change.” Vol 2 p. 503

“Some jurisdictions around the world have explicitly sought to manage climate change risks to built environments.” (box 9.10).” Vol 2 p.506

Detecting the signal of climate change

As noted, the report places emphasis on the trend analyses of the Risk Frontiers group as follows:

“Some recent studies have reported that once the socioeconomic factors discussed above are taken into account, there is no strong evidence that climate change has played a significant role in rising disaster costs to date (for example, Barthel and Neumayer 2012; Bouwer 2011; McAneney and Crompton 2013; Risk Frontiers 2011). McAneney and Crompton (2013, p. 8) reported that:

... no trend is evident in the normalised losses ... implying that socio-economic factors are sufficient to explain the increase in the cost of insurance sector losses ... In other words, it is not possible to detect an anthropogenic climate change signal once losses are normalised. We note that despite record high 2012/13 summer air temperatures across Australia, industry losses for the most recent financial year — 1 July 2012 to 30 June 2013 — are very close to the long-term average normalised loss of AUD 1.1 billion.

However, climate change is a gradual phenomenon, and it is not surprising that the above study detected no discernible impact over the relatively short period considered.” Vol 2 p. 246

There are other sources of information that tell a different story. For example, the record of severe fire risk days in Australia shows an upward trend over time (Clarke et al. 2013), and the emerging literature on detection and attribution reveals a greenhouse gas signal in single extreme events (BAMS Report 2013; Lewis and Karoly 2013). The report needs to take into account all sources of information in its evaluation of the role of climate change in the record of observed disasters.

References

Clarke, H., Lucas, C., Smith, P. (2013) Changes in Australian fire weather between 1973 and 2010. *International Journal of Climatology* 33, 931-944.

Lewis, S.C., Karoly, D.J. (2013) Anthropogenic contributions to Australia's record summer temperatures of 2013. *Geophysical Research Letters* 40, 3705-3709.

Peterson, T.C., Alexander, L.V., Allen, M.R. and others (2013) Explaining extreme events of 2012 from a climate perspective. *Bulletin of the American Meteorological Society* 94, S1-S74.