

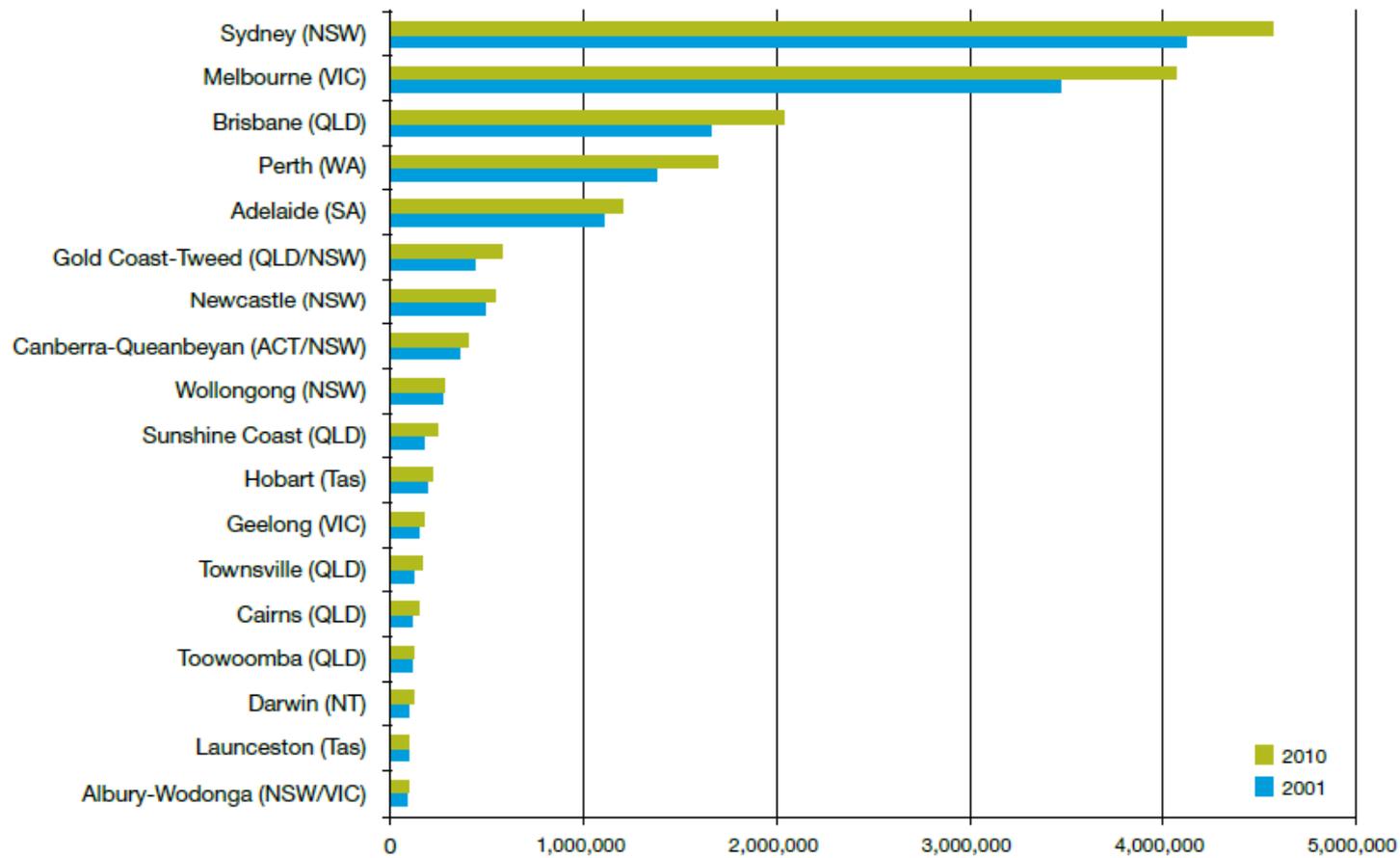
SUSTAINABILITY, VULNERABILITY, RESILIENCE AND CHANGE: THE EFFICACY OF COMPARATIVE URBAN METRICS FOR CITY DEVELOPMENT IN AUSTRALIA

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- ⦿ August, 2013 the Major Cities Unit produced their *4th State of Australian Cities Report*.
- ⦿ Australia's eighteen largest cities
 - ⦿ sixteen cities with a population in excess of 100 000
 - ⦿ plus Albury-Wodonga and Launceston
- ⦿ There is capacity, and need, to further modify this definition of “major cities”.

Figure 1. Australia's 18 Major Cities – Population change from 2001 to 2010



Source: ABS 2011 Cat No 3218.0 Statistical Divisions used for capital cities, Statistical Districts used for Canberra-Queanbeyan and other major cities

Source: Commonwealth of Australia (2011, 6)

- ⦿ Attempts to rank cities in terms of sustainability are a logical extension of sustainability indicator projects in individual cities and the attempts to compare various ecological footprints of individual cities.
- ⦿ Comparative urban sustainability projects develop a set of indicators that are deemed applicable to a number of different cities and are capable of being measured consistently for all cities in the study.

MERCER (2010) ECO-CITY

- Mercer's (2010) global scale approach measuring 221 cities with New York City as a baseline of 100.
- Used six non-weighted criteria
 - water availability
 - water potability
 - waste removal
 - sewage
 - air pollution
 - traffic congestion.

ACF (2010) SUSTAINABLE CITIES INDEX

- The 20 largest cities in Australia were ranked using 15 non-weighted criteria,
 - air quality
 - ecological footprint
 - green buildings
 - water
 - biodiversity
 - health
 - density
 - wellbeing
 - transport
 - employment
 - climate change readiness
 - education
 - food production
 - public participation
 - household debt.

Table One: Mercer Eco-Cities Rankings (2010) Compared with ACF's Sustainable City Index Rankings (2010)

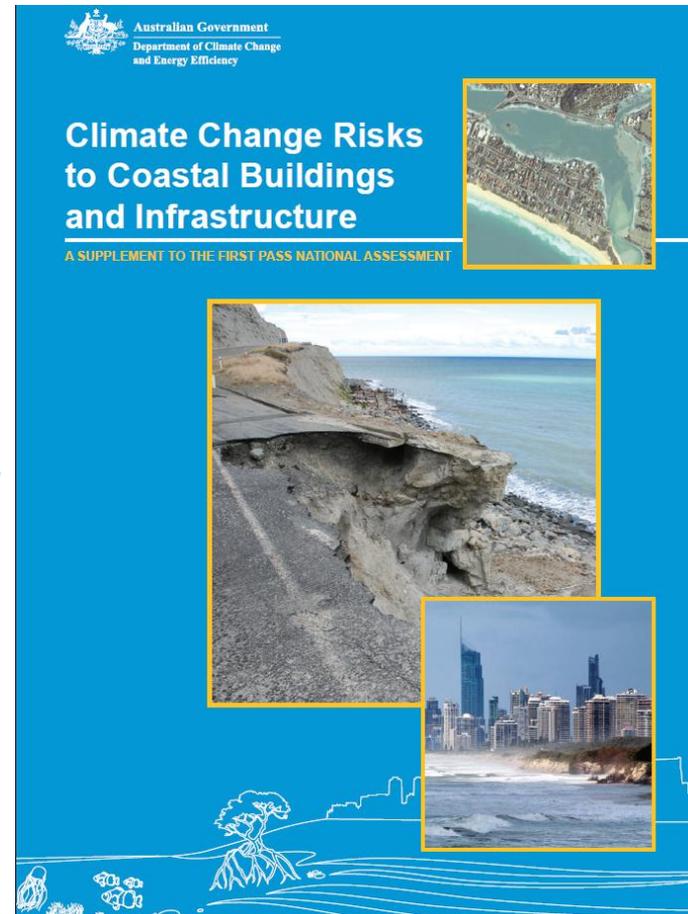
| City | Mercer Eco-City Ranking, 2010. Rank within Australia (World rank in brackets) | Mercer Eco-City Ranking, 2010. Eco-city score | City | ACF Sustainable Cities Index, 2010 Rank | ACF Sustainable Cities Index, 2010 Score |
|------------------|---|---|-----------|---|--|
| Calgary (Canada) | n/a (1) | 145.7 | Darwin | 1 | 119 |
| Adelaide | 1 (7) | 137.5 | Brisbane | 3 | 123 |
| Perth | 2 (12) | 135.3 | Canberra | 5 | 133 |
| Canberra | 3 (21) | 133.3 | Melbourne | 7 | 142 |
| Brisbane | 4 (23) | 131.6 | Sydney | 12 | 161 |
| Melbourne | 5 (25) | 131.5 | Adelaide | =14 | 165 |
| Sydney | 6 (46) | 125 | Perth | 19 | 183 |

Source: Mercer (2010) and ACF (2010). Note – The higher the Mercer Eco-City score, the more sustainable the city is said to be, whereas with the ACF score, a lower figure indicates greater sustainability.

Mitigation and adaptation

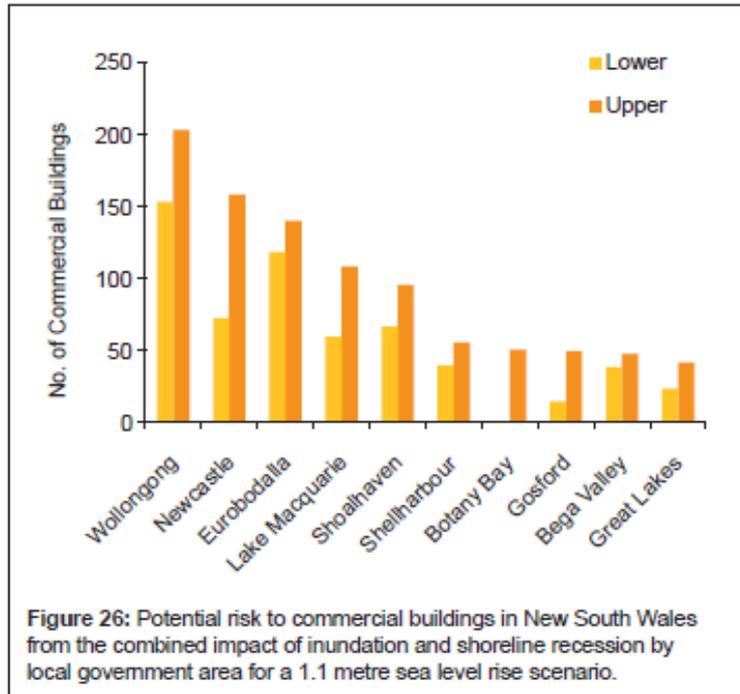
Planning processes have generally not taken climate change risks into adequate account and existing infrastructure has generally been designed, constructed and maintained based on historical climate data. There are significant areas of existing development at risk from sea level rise and storm surge. Similarly, the outward expansion of our cities has allowed new residential development into areas of increasing bushfire risk.

Our Cities, Our Future, 2011, p.49

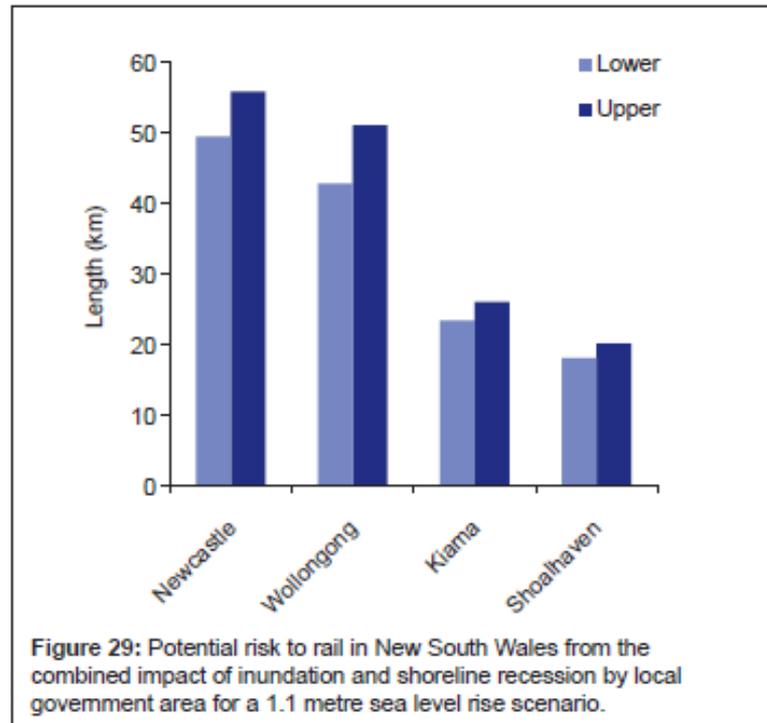


<http://www.climatechange.gov.au/publications/coastline/climate-change-risks-to-coastal.aspx>

Commercial Buildings



Rail



Australian Government, 2011, p.15

MANLY: SMH IN 2008



<http://www.smh.com.au/news/environment/global-warming/sealevel-rise-threat-to-coast/2008/10/28/1224956039688.html>

VARIOUS SUBURBS: SMH IN 2010



<http://www.smh.com.au/environment/climate-change/rising-sea-levels-will-swamp-parts-of-sydney-20101215-18yak.html>

“Sydney suburbs facing significant danger of inundation, even with limited rises, include **Caringbah, Kurnell, Cromer and Manly Vale**. Significant parts of **Newcastle** and the **central coast** are also potentially in harm's way. And the problems associated with rising sea levels are not limited to coastal areas. Flooding could occur along the **Parramatta River**, threatening homes and infrastructure around **Homebush Bay, Newington and Silverwater**.”

Tom Arup, Dec. 16, 2010

- Increasing resilience is not the same as increasing sustainability.
- NSW Government (2013) release of the *Draft Metropolitan Strategy for Sydney to 2031*
 - The term “sustainability” has been replaced by phrases such as “balanced growth” and a “healthy and resilient environment”.
 - The promotion of a “healthy and resilient environment” in the absence of any overt notion of sustainability results in a focus on adaptation to improve the environment in our cities.
 - Making our urban areas less vulnerable to the impacts of climate change does not require us to think as global citizens.
 - It does not encourage the mitigation of climate change and other negative environmental impacts.
 - It is a self-centred approach that requires greater adaptation in other urban areas, generally in less developed countries where there is less capacity to do so.

- ⦿ “sustainability indicators are distinguished from other indicators by their need to measure the ability of a system to adapt to change and to function over a long time span.” Milman and Short (2008, 759)
- ⦿ A “useful measure of sustainability should not only describe the state of the system but provide an early warning of problems” (Milman and Short, 2008, 759).
- ⦿ “sustainability indicators should be leading indicators that account for the resilience of the system” (Milman and Short, 2008, 759).

Figure 3 National Urban Policy goals, objectives and principles

| GOALS | | OBJECTIVES | | PRINCIPLES | |
|-----------------|--|------------|---|---------------|-----------------|
| | | NO. | DESCRIPTION | | |
| PRODUCTIVITY | | 1. | Improve labour and capital productivity | Efficiency | Value for money |
| | | 2. | Integrate land use and infrastructure | | |
| | | 3. | Improve the efficiency of urban infrastructure | | |
| SUSTAINABILITY | | 4. | Protect and sustain our natural and built environments | Innovation | Adaptability |
| | | 5. | Reduce greenhouse gas emissions and improve air quality | | |
| | | 6. | Manage our resources sustainably | | |
| | | 7. | Increase resilience to climate change, emergency events and natural hazards | | |
| LIVEABILITY | | 8. | Facilitate the supply of appropriate mixed income housing | Resilience | Equity |
| | | 9. | Support affordable living choices | | |
| | | 10. | Improve accessibility and reduce dependence on private vehicles | | |
| | | 11. | Support community wellbeing | | |
| GOOD GOVERNANCE | | 12. | Improve the planning and management of our cities | Affordability | Subsidiarity |
| | | 13. | Streamline administrative processes | | |
| | | 14. | Evaluate progress | | |
| | | | | | Integration |
| | | | | | Engagement |

Source: Commonwealth of Australia (2011, 18)

Table Two: Australia's 25 Largest Urban Localities by Location and Population Range

| Urban Locality | State(s) and/or Territory | Coastal or Inland | Population Range |
|--------------------------|---------------------------|-------------------|--------------------|
| Sydney | NSW | Coastal | 1 million or more |
| Melbourne | Victoria | Coastal | 1 million or more |
| Brisbane | Queensland | Coastal | 1 million or more |
| Perth | WA | Coastal | 1 million or more |
| Adelaide | SA | Coastal | 1 million or more |
| Canberra - Queanbeyan | NSW/ACT | Inland | 250,000 to 999,999 |
| Central Coast | NSW | Coastal | 250,000 to 999,999 |
| Gold Coast - Tweed Heads | Queensland/NSW | Coastal | 250,000 to 999,999 |
| Newcastle | NSW | Coastal | 250,000 to 999,999 |
| Hobart | Tasmania | Coastal | 100,000 to 249,999 |
| Darwin | Northern Territory | Coastal | 100,000 to 249,999 |
| Wollongong | NSW | Coastal | 100,000 to 249,999 |
| Geelong | Victoria | Coastal | 100,000 to 249,999 |
| Cairns | Queensland | Coastal | 100,000 to 249,999 |
| Sunshine Coast | Queensland | Coastal | 100,000 to 249,999 |
| Townsville | Queensland | Coastal | 100,000 to 249,999 |
| Albury - Wodonga | NSW/Victoria | Inland | 50,000 to 99,999 |
| Maitland | NSW | Inland near coast | 50,000 to 99,999 |
| Ballarat | Victoria | Inland | 50,000 to 99,999 |
| Bendigo | Victoria | Inland | 50,000 to 99,999 |
| Mackay | Queensland | Coastal | 50,000 to 99,999 |
| Rockhampton | Queensland | Coastal | 50,000 to 99,999 |
| Toowoomba | Queensland | Inland | 50,000 to 99,999 |
| Bunbury | WA | Coastal | 50,000 to 99,999 |
| Launceston | Tasmania | Inland near coast | 50,000 to 99,999 |

Source: ABS (2011)

FOUR STEPS TO INTEGRATE SUSTAINABILITY, RESILIENCE AND COMPARATIVE URBAN METRICS

- ◉ To accept the partnership of government and major non-governmental organisations to work together to develop comparative urban metrics for Australia's largest cities.
- ◉ To extend the definition of “major cities” in Australia.
- ◉ To generate indicators that promote localized action.
- ◉ To link future funding to performance in addressing the issues identified by the comparative indicator research.

CONCLUSION

- ◉ Comparative ranking is a means to an end - to reduce vulnerability and improve the resilience of Australia's largest cities.
- ◉ This work should not be conflated with sustainability, which is more encompassing than making Australian cities more resilient in the face of adversity.
- ◉ One step that builds on innovative work by environmental organisations, and by the Major Cities Unit, is the development of comparative urban sustainability metrics for Australian cities.
- ◉ These metrics will contribute to sustainable cities in Australia and can assist the contribution made by Australian cities to sustainable development.
- ◉ Comparative urban metrics, if done well, can be very efficacious in promoting resilience and enhancing sustainability.

THANK YOU.



'STEADY AS SHE GOES'

http://arwafreelance.files.wordpress.com/2011/06/polyp_cartoon_economic_growth_ecology.jpg