Subject: Submission to Extreme Weather Inquiry

I am an ecological architect. As a member of the Australian Institute of Architects (AIA) National Sustainability Committee, I contributed to the drafting of the AIA Sustainability and Climate Change Policies. I am also a Climate Reality Climate Leader and currently undertaking doctoral studies in ecological urbanism at the University of Western Australia.

The sandy Perth Region coastal plain will be highly susceptible to erosion from sea level rise, which is being reported at three time the global average, suggesting that the four degrees four metres scenario now considered likely (see Four Degrees and Beyond, Oxford University), could result in seas here being eleven to twelve metres above present Australian Height Datum (AHD).

Increasing temperatures and decreasing rainfall will severely impact urbanism here, indeed effects are already impacting Perth. Runoff to dams is below one third of historic levels - hence the need for desalination plants. Aquifer recharge is also less. Meanwhile our urban heat island intensifies increasing heat stresses on buildings, their systems and occupants.

These factors increase the challenges of architectural design for climate and low/efficient energy use and sustainable materiality. To reduce impacts of building on our environments, we must move from disposable buildings with fifty year life expectancies to quality, enduring built environments designed for adaptability, that can stand for many centuries. The house where my father was born was built in 1525 and still stands and functions well. Long life reduces life cycle impacts and costs.

However, we may need to move the city up hill, even onto the Darling Scarp over time, so new forms of climate change adapted buildings and urbanism must be developed and quickly because change is already upon us. It would have been less costly to our economy of radical early action has been intimated to reduce greenhouse gas emissions. Adapting and rebuilding cities is expensive, time consuming and, due to embodied energy and environmental impacts, also contributes to climate change.

We could ask what kinds of culture and urbanism we aspire to for future generations... If we could escape our temporal and economic myopia.

My practice is based in a 1920s house. Our cooling costs have risen as our summer weather has warmed, while increasing summer rains raise humidity discomfort and reduce effectiveness of lower energy evaporative cooling. Retrofitting existing building stock for climate performance is critical. The insulation scheme was a worthy idea let down by poor state building industry regulations, especially of personnel who were generally un or under-qualified and ignorant of the situations in which they were working. In OH&S, ignorance can be fatal, as shown by the Queensland experience.

Architectural technologies exist to deal with the changing climate and to help mitigate climate change, as the Australian Sustainable Built Environment Council's Second Plank Report clearly outlines. Improving buildings alone can reduce Australia's emissions by 14% and SAVE the economy $38 Billion annually! In the long run, ecological sustainability will prove both better/more liveable and cheaper for our communities and economy. If only we had the courage to follow wisdom instead of short term fiscal expediency.

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