

Section 5

Thriving in Northern Climates

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Climatic conditions are widely viewed as having negative implications for the development of Northern Australia. Against a backdrop of predictions of major climate changes, the chapters in this section consider the climate of the region and its implications for human living and working conditions and the future economic development of Northern Australia. All authors identify adaptive strategies to reduce the impacts and mitigate the negative effects of climatic extremes to facilitate people living and working healthily in Northern Australia. Since Northern Australia encompasses almost half of the Australian landmass, the climatic variation is considerable; however, it is broadly characterised by extremes of temperature and (in coastal areas) of humidity and a marked hazardscape that includes cyclones, droughts, bushfires and flooding, which are likely to intensify with climate change. Ambitious plans for industrial and agricultural development and population growth will need to be cognisant of the adaptations needed due to climate and the environment to allow people to live and work happily and productively in Northern Australia.

Each of these papers takes a different perspective on northern climates. Chapter 17 (O'Brien et al.) focuses on the high degree of variability in rainfall in Northern Australia and shows that while advocates for development in Northern Australia claim that water is plentiful and rainfall reliable for intensive agricultural development, the rainfall record indicates otherwise. There is a high degree of variability in the timing of rainfall annually and over decadal and longer time periods. Reflecting rainfall patterns, stream and river flows are also extremely variable and heavily influenced by land use patterns, including diversion for agricultural production. The policy implications of climate variability for Northern Australia need to distinguish between climate variability, climate change and extreme weather events. They also suggest that large-scale changes to

land and water use such as for intensive agriculture or to house growing populations is likely to have significant additional impacts on river flows and water quality.

Chapter 18 (Buergelt et al.) focuses on how to build viable and resilient communities in Northern Australia in the context of its extreme hazardscapes. They suggest that the unique social and environmental conditions in Northern Australia are ideal for utilising natural hazards to facilitate the sustained development of adaptive, competent and thriving communities. By focusing on developing community capacity to capitalise on social and environmental amenities, the emphasis is on community development, with risk management being explicitly included as part of social and environmental capital building. They suggest that social capital development activities organised around planning for disaster risk reduction, recovery and rebuilding based on community strength and integrating risk management, community and economic development and poverty alleviation can 'kill two birds with one stone'. Building community capital will not only create more disaster-resilient communities but build community connectedness that facilitates attracting and retaining residents in Northern Australia.

To understand Indigenous adaptation to climatic conditions and climate change, Chapter 19 (Zander et al.) reports research with four different Indigenous communities across Northern Australia regarding their observations about changing climate and living conditions, the impact that this might have on their lives and potential adjustments. They suggest that Indigenous communities who are living traditional lifestyles and those in towns are aware of the likely impacts of climate change on their food sources, livelihoods, health and wellbeing. They suggest that the cultural and social capital of Indigenous communities needs to be understood and valued in terms of their adaptability and adaptive strategies to climatic variation. One key to dealing with the climatic extremes and variations is to learn from the Indigenous inhabitants (and the inhabitants of other tropical zones to Australia's immediate north and worldwide) who have adapted to and thrived over millennia in climates comparable to those in Northern Australia.

The high heat and humidity and hazardscape characteristic of Northern Australia and the need to design and build more socially and ecologically sustainable communities create challenges for urban form and housing design. More environmentally appropriate designs must be considered if

the expectations of population growth are realised in Northern Australia. Chapter 20 (Law et al.) identifies that urban design and housing standards that have been developed in more temperate climates need to be reimagined for Northern Australia to break the current pattern of reliance on high energy use in the form of car travel and use of air conditioning to create comfortable living environments. They conclude that 'current building rating systems assume that air conditioning is essential in tropical conditions and, thus, favour buildings designed to ensure that air conditioners work efficiently'. The authors suggest that buildings and precincts should rather be designed to minimise the use of air conditioning through 'maximising ventilation, shading and green space'.

Imposing national standards, measurements and cultural attitudes towards work practices, urban and housing design and community and social relationships that have evolved in and for temperate climates and for Western industrial societies can exacerbate the difficulties of building viable economies and societies across Northern Australia due to its different climatic, environmental and cultural contexts.

The chapters in this section present a starting point for providing regionally specific analyses of climate to support appropriate measures to enable populations to thrive in Northern Australia.

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