

## Adaptation and First Australians: lessons and challenges

**This Brief addresses the challenges of adapting to climate change for Indigenous communities and associated agencies.**

### Key Points

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There is an ‘adaptation policy deficit’<sup>1</sup> amongst some First Australian communities, especially in remote locations, and amongst the authorities responsible for provision of services to these communities. Overcoming this deficit is a necessary but not sufficient step in responding to climate change.

There are many potential ‘win-win’ policies and actions that will contribute to adaptive capacity and meet the challenge of climate change while at the same time building community well-being and prosperity.

Every remote First Australian community is different, and there are no ‘one size fits all’ policies for adaptation. Successful policies will have a firm foundation on meaningful consultation, which reaches into the wider community to identify solutions that are sensitive to Aboriginal and Torres Strait Islander cultures and societies. Co-operation between service providers will avoid duplication, minimise gaps and avoid wasteful expenditure.

It should be recognised that there may be limits to adaptation in remote First Australian communities. Causes include the inability to sustain comfortable and affordable living conditions when summer maximum daytime temperatures in excess of 45°C become commonplace, a greater frequency of extreme events challenging the capacity for disaster management and, in coastal locations, sea-level rise.

<sup>1</sup> Failure of policy to support adequate community adaptation to existing climate risks.



NCCARF's evidence-based Policy Guidance Briefs address key challenges to effectively adapting Australia to a variable and changing climate. Guidance Briefs provide a firm foundation for decision making in the private and public sector.

According to the 2011 Census, Aboriginal and Islander people are estimated to account for 2.5% of the Australian population. Box 1 shows key demographic, social and economic characteristics from the Australian Bureau of Statistics.

Many First Australian communities, especially those in remote<sup>2</sup> locations, live with inadequate health and education services, deficient infrastructure and housing stock and limited employment opportunities. Such social disadvantage may reduce or limit the capacity of individuals; households, communities and institutions to adapt to climate change.

In contrast, First Australian peoples' traditional knowledge, connection to country, and proven adaptability and land management skills under Australia's extreme climate variability, may support resilience, and contain lessons for the non-Indigenous Australian population in how to adapt to future climate change.



### Box 1: The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples (Australian Bureau of Statistics, 2011)

- The Aboriginal and Torres Strait Islander population comprises around 2.5% of the Australian population and is relatively young, with a median age of 21 years in 2006 compared to 37 years for the non-Indigenous population.
- Aboriginal and Torres Strait Islander Australians have lower life expectancy than non-Indigenous Australians; at the national level for 2005–2007, the gap in life expectancy was 11.5 years for males and 9.7 years for females

At 30 June 2006:

- 32% (165,800 people) of Indigenous Australians lived in major cities;
- 21% (110,600 people) lived in inner regional areas;
- 22% (113,300 people) lived in outer regional areas;
- 9% (47,900 people) lived in remote areas; and,
- 15% (79,500 people) lived in very remote areas.

Twenty-four percent of First Australians lived in remote and very remote locations, compared with 2.3% of all Australians (see Figure 1).

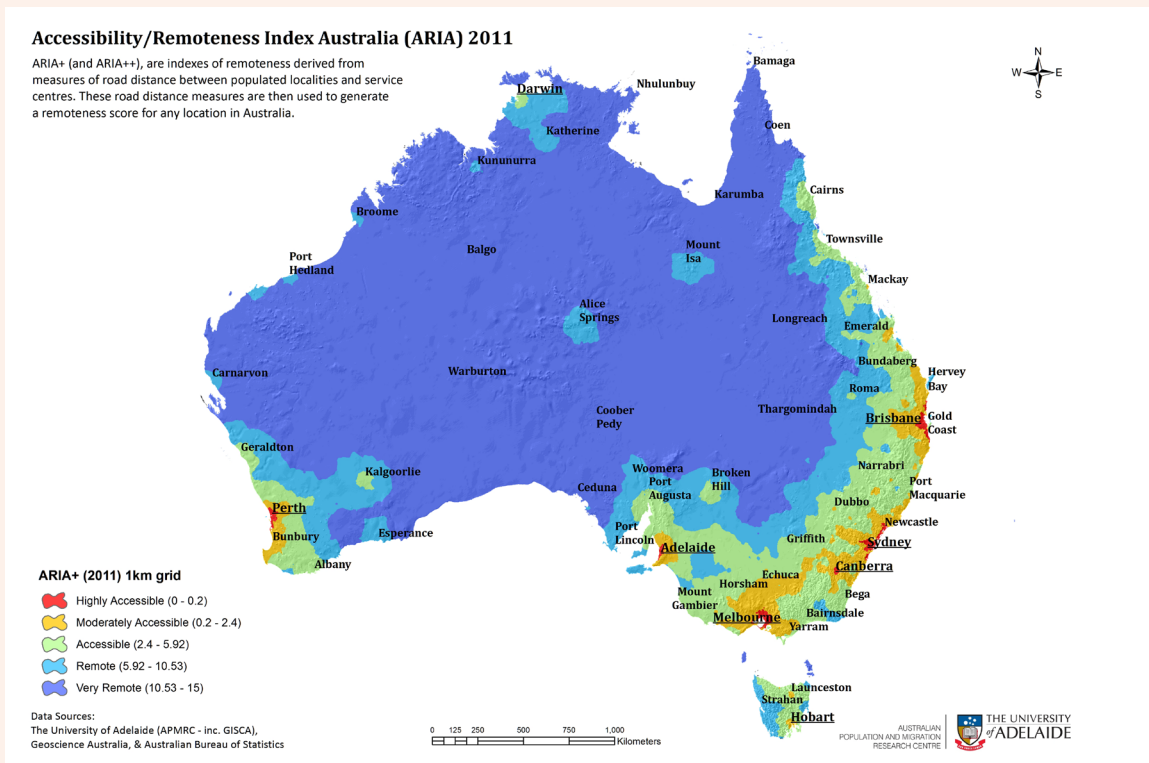


Figure 1: Remoteness in Australia Source: University of Adelaide

<sup>2</sup>In this Policy Brief, we merge the ABS categories of 'remote' and 'very remote' into one, which we describe as 'remote'.

## The climate context

The summer of 2012-13 was the hottest on record in Australia, and this was reflected in northern and central Australian communities where many Aboriginal people live. Alice Springs recorded a record 13 consecutive days above 40°C and 11 above 42°C. This sign of things to come exposes the need for adaptation – to provide liveable communities with well-adapted housing that delivers comfort without the need to always resort to air conditioning, and comfortable spaces for people to gather – public swimming pools and shaded communal areas.

The climate risks posed to Aboriginal and Torres Strait Islander people are not uniform even within Australia, and vary between locations and socio-economic status; Indigenous communities are situated throughout Australia and will face a diverse range of climate change challenges depending on their geographic location. Projected changes include (Whetton, 2011):

- Annual average warming by 2030 (above 1990 temperatures) of approximately 1.0°C across Australia, with warming of 0.7 to 0.9°C in coastal areas and 1 to 1.2°C inland.
- Drying in southern areas of Australia, especially in winter, and in southern and eastern areas in spring. Changes in summer tropical rainfall in northern Australia remain highly uncertain.
- More extreme intense rainfall events in most locations, driven by a warmer, wetter atmosphere. Drying plus increased evaporation mean soil moisture is likely to decline over much of southern Australia. An increase in fire-weather risk is likely.

Sea levels are already rising. The global average increase since 1880 is around 210mm. Around Australia, the greatest increases have been along the northern coastline, exceeding 11mm/year in places (CSIRO and BoM, 2012). Recent model estimates of future global sea level (Church et al., 2011) estimate a rise of 80 cm by 2100 compared to 1990.

These changes pose significant risks, particularly for those living in coastal and remote locations, and/or those working in natural resource-dependent activities and industries.

## Current effects, impacts and issues

In isolated and remote communities, First Australians can be impacted by the variability of the present-day climate to a much greater extent than in major city and regional locations. Factors that lower resilience and adaptive capacity and increase vulnerability in remote locations include:

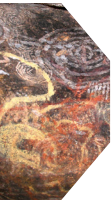
- Inadequate access to education and health services and poor quality housing and infrastructure, translating into lower educational attainment and poorer health outcomes.
- Costs of transport and supply monopolies give rise to high prices which, when coupled with few jobs, create poverty and welfare dependence and affect nutrition and health.
- Absence of planning regulation in remote Indigenous communities, so that these communities may be poorly developed with respect to the present-day climate, let alone future climates.
- Inaccessibility by road due to widespread flooding in the wet season (December to March) limits mobility and access to fresh food and essential goods.

During tropical cyclones in northern Australia, logistical difficulties hamper and sometimes prevent delivery of disaster relief to remote communities. A further issue is that disaster relief when delivered may be culturally insensitive (see Box 2).

## Future effects, impacts and issues

**Social and human health impacts** – Climate change is likely to compound existing poverty and disadvantage among First Australians, especially but not exclusively in remote communities. Factors such as poor quality housing, housing which is poorly designed to manage extremes of heat (and cold) without expensive air conditioning systems, and overcrowding mean that First Australians in lower socio-economic groups in urban areas are likely to be disproportionately affected by increased incidence of heat stress in heatwave episodes, water- and food-borne illnesses and air pollution episodes when compared to the general population. These impacts will also affect rural and remote communities together with, in the Torres Strait Islands and Top End, vector-borne infectious diseases moving south.

**Settlements and infrastructure** – Risks to major infrastructure are likely to increase due to climate change. Housing and electricity, telecommunications and water supply services are likely to be affected in all areas - urban, regional and remote. Extreme events, including heatwaves, are likely to pose the greatest threat in terms of rendering houses uninhabitable, causing failure of electricity, telecommunications and water supply and blocking transport routes (Green et al., 2009). All of Australia faces these risks, but in First Australian communities these risks may compound existing stresses or increase the failure rates of already overloaded utilities and services.



## Future effects, impacts and issues ... continued

**Water security** – Changes in the quality and availability of water supplies in Aboriginal and Torres Strait Islander communities pose risks to human health and development. Water supplies in remote locations are generally pumped from aquifers. In coastal and arid environments, groundwater is at risk from contamination by saltwater intrusion as a result of a drying climate and sea-level rise. Shallow aquifers in particular may be exhausted if there is less rainfall as a consequence of climate change.

**Ecosystem services** – Many remote and rural First Australian communities depend on marine, terrestrial and freshwater resources as a contribution to livelihood and nutrition. For coastal and island communities, collection of fish, shellfish, turtles and dugong is important for subsistence, social, cultural and economic purposes. Changes in the availability of resources and in the distribution of species due to climate change can, as a result, have impacts on health, cultural wellbeing and economic viability of these communities.

**Living spaces and cultural heritage** – Sea-level rise, coupled with king tides and storm surges, poses increasing risk in both material and non-material ways. In addition to the risks to human habitation and infrastructure, coastal flooding threatens to damage or destroy coastal cultural and heritage sites and limit access to country and traditional lands. First Australian rock art often has very significant spiritual, cultural and economic (e.g. tourism) value. Exposure to weathering can damage or destroy rock art and climate change may accelerate this process.

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## Adaptation: what this means for managing the sector

**The adaptation policy deficit** – There exists an 'adaptation policy deficit' amongst some of the authorities responsible for provision of services to Indigenous communities, especially in remote locations. Reasons for this include:

- the high cost of service provision to remote and very remote communities,
- public housing is poorly designed to provide comfortable living conditions in heatwaves, and inadequately maintained,
- individuals and communities feel disempowered,
- agencies working with First Australian communities often fail to communicate with one another, so that people are subjected to a barrage of attention which does not necessarily translate into useful outcomes,
- infrastructure falters and sometimes fails during extreme events,
- emergency management is challenged by isolation, distance and poor transport networks,
- public information campaigns directed at Indigenous communities are poorly co-ordinated and directed. Mainstream and general education campaigns usually do not reach remote communities.

In this situation, improving life chances and well-being and building community resilience to climate variability and change can and should go hand in hand – there is a host of potential win-win actions that contribute to adaptive capacity and meet the challenge of climate change by building community well-being and prosperity. However, efforts to improve the lot of First Australian communities should not be maladaptive with respect to climate change, for example, widespread installation of air conditioners to reduce heat stress during heatwaves will be maladaptive if they displace rather than complement existing cooling practices that do not require energy purchase.

**Adaptation needs now** – Probably the initial challenges that remote communities will face from climate change will be more frequent and more severe disasters (inland floods and coastal inundation, in particular) and more frequent and severe heatwaves. The first actions are therefore likely to be:

- Improvements to housing stock to ensure heatwave readiness, especially the capacity for good natural ventilation, insulation and shading, whilst ensuring that protection against winter-time cold nights is not sacrificed. In the NCCARF Research Program, the project on 'Living Change: Adaptive housing responses to climate change in the town camps of Alice Springs' (Horne, 2013) looks at housing for Aboriginal families in central Australia.
- Improvements in existing community spaces (community centres, shaded areas, pools) that provide a healthy environment during heatwave events to supplement individual household readiness.
- Improvements in emergency management to ensure that service delivery is not over-compromised by the challenges of remoteness and is culturally sensitive. Training local people to undertake these services is essential.
- Improvements in nutrition, health and educational attainment in Aboriginal and Torres Strait Island communities by ensuring access to good quality food, schools, hospitals and primary health care.

Public education campaigns around water and energy efficiency can be win-win – delivering cost savings to consumers as well as resilience to climate change. To succeed, campaigns must be locally and culturally adapted. As an example of how this could be achieved, tenancy staff and support services could run through household technology and managing air conditioning for cost savings when new tenants move into a property.

The high cost of efficient white goods can be prohibitive. There is a need for bigger, tougher and cheaper white goods that deliver efficiency gains to people living in remote communities, where low water quality may affect the longevity of household appliances and community infrastructure.

# Adaptation: what this means for managing the sector

**Limits to adaptation** – It is increasingly recognised that we may be unable to avoid 'dangerous' climate change, generally recognised as global warming in excess of 2°C. Under these higher-end scenarios of climate change, there may be limits to adaptation amongst First Australian communities in remote and, especially, very remote locations. When summer maximum daytime temperatures in excess of 45°C become commonplace, it may very likely become impossible to sustain comfortable and affordable living conditions in remote locations. A greater frequency of extreme events is likely to challenge the capacity of the authorities to provide timely and adequate disaster relief in remote locations.

We will not reach these limits to adaptation for many decades; nevertheless, there are people already alive who will have to face this challenge. As with so many issues that face First Australians, successful solutions will come only through processes that are based on meaningful community engagement. It is the community that will have to fully understand the scope and scale of the challenge, will have to weigh in the balance possible solutions and work hand in hand with government to map out and implement a way forward. The alternative of an imposed solution from government will fail, if only by adding to the existing burden of disadvantage. A well-educated and healthy community will be better placed to engage effectively in consultation, returning us to the conclusion that overcoming the adaptation deficit in remote First Australian communities and their service providers is a necessary (although not sufficient) first step.

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### Policy implications

The characteristics of Aboriginal and Torres Strait Island people, in particular their mobility, needs to be recognised and incorporated in policy formulation for climate change. Statistics on demographic and socio-economic characteristics will be inaccurate where there is failure to recognise mobility, for example water consumption per capita requires different approaches to measurement when the number of people in a household is fluctuating.

Policy measures for adaptation will only succeed where there is meaningful consultation with the target community. Engaging in depth with the wider community will be challenging, time-consuming and resource intensive, but is essential to achieve the community buy-in which is a prerequisite for successful adaptation. Every remote First Australian community is different, and there is no 'one size fits all'. Communities are overloaded by demands on their time for educational and consultation activities, very few of which return visible benefits. Therefore, consultation may achieve more if it is accompanied by action, for example by going hand in hand with agreed maintenance programs to address inadequate housing.

Across-the-board consultation should take place between service providers, and between service providers and local communities; to avoid duplication, minimise gaps and avoid wasteful expenditure. Key organisations and employment providers such as mining companies and land ranger programs can usefully be engaged as providers of regional information and, in emergencies, resources. New initiatives should take climate change into account, for example, the infrastructure and layout of Northern Territory 'growth towns' should be adapted to present and future climate change.

Adaptation solutions must be sensitive to Aboriginal and Torres Strait Islander cultures and societies. Temporary relocation as a response to disasters such as flood events may quite thoughtlessly take communities to unfamiliar, sometimes hostile, environments that threaten their long-term wellbeing (see Box 2). Permanent relocation as a response to sea-level rise is not acceptable as an adaptation strategy to First Australian communities. Therefore, if permanent relocation becomes the solution of last resort, this should be regarded as failure. There is a need now to identify areas at future risk from sea-level rise, and to work with communities in those areas to identify acceptable solutions.

#### **Box 2: Adapting to flooding: the case of the Kiwirrkurra community**

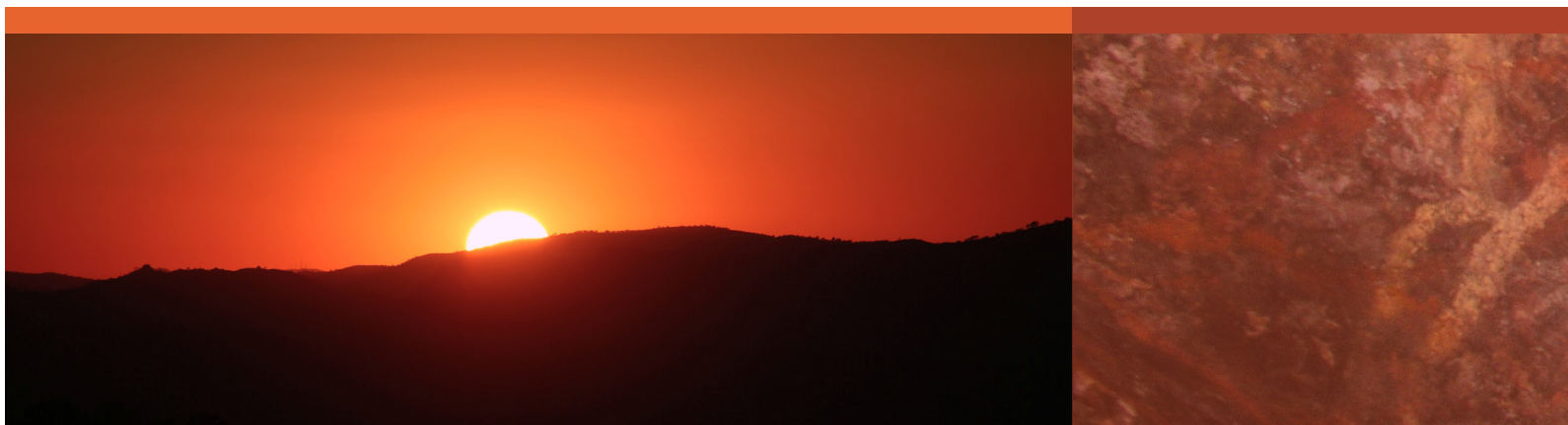
Kiwirrkurra, in the Western Desert, has been described as the most remote community in Australia. Unusually heavy rainfall throughout March 2001 led to flooding and evacuation of the entire community of some 170 people, first to Kintore, then to the Norforce Army Base at Alice Springs, and then to Morapoi Station in the WA Goldfields region. The time at Morapoi led to severe social disruption, with access to alcohol for this normally dry community leading to drunkenness and violence. The community made a decision to move closer to home. They raised money by selling paintings to buy cars, and separated to make their way home, staying in various communities and townships along the way. Only by August 2002 was it possible to return home.

The Kiwirrkurra flood demonstrates clearly the negative effects of inappropriate evacuation on Aboriginal communities, and also the resilience and resourcefulness of these communities. The Fire and Emergency Services Authority of WA has identified six lessons to be learned from this event: around the need for:

- building trusted relationships;
- understanding and respecting country and culture;
- good communication channels and working within community decision-making structures;
- education and training for the community and emergency managers;
- self reliance, preparation and planning; and
- working together in the recovery process.



The policy guidance provided in this brief was developed at a workshop held in Alice Springs in February 2013. The workshop was attended by policy makers, managers and Indigenous community liaison personnel from the Northern Territory government, the Australian Government Department of Families, Housing, Community Services and Indigenous Affairs, Northern Territory Power and Water Corporation, the Torres Strait Regional Authority, the Central Land Council, the Kimberley Land Council, Tangentyere Council, the Central Australian Affordable Housing Company, Tangentyere Design, Alice Solar City, the Centre for Appropriate Technology, the North Australian Indigenous Land and Sea Management Alliance Ltd. I-Tracker Program, Nawamba House, researchers Melissa Nursey-Bray (University of Adelaide) and Andrew Martel (RMIT) and NCCARF staff.



The NCCARF National Climate Change Adaptation Research Plan for Indigenous Communities contains a number of case studies on impacts of and adaptation to climate change, including on the Kiwirrkurra floods (*available from: [www.nccarf.edu.au/content/narp-indigenous-communities](http://www.nccarf.edu.au/content/narp-indigenous-communities)*). In preparing this brief, we also used factsheets prepared by Emergency Management Australia and available from: [www.em.gov.au/Documents](http://www.em.gov.au/Documents)

NCCARF is producing a portfolio of twelve Policy Guidance Briefs in 2012–13 on critical climate change adaptation topics. For a complete list of available Policy Guidance Briefs, please go to: [www.nccarf.edu.au/publications/policy-guidance-briefs](http://www.nccarf.edu.au/publications/policy-guidance-briefs)

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