

DESERT KNOWLEDGE CRC

The Working Paper Series

Socioeconomic, demographic and
resource flows profile
for Alice Springs

Dean Carson
Andrew Taylor
Suzanne Campbell

Working Paper

63

2010

Socioeconomic, demographic and
resource flows profile
for Alice Springs

Dean Carson

Andrew Taylor

Suzanne Campbell

Contributing author information

Andrew Taylor is a demographic researcher with the Population and Tourism Studies group at Charles Darwin University. His particular interests are Indigenous demography and population projections in the remote context.

Dean Carson is the Head of Population and Tourism Studies at Charles Darwin University. He examines how the movement of people from one place to another effects economic development in remote Australia.

Suzanne Campbell is a Luritja-Aranda woman from Central Australia who works with the Population and Tourism Studies group at Charles Darwin University.

Desert Knowledge CRC Working Paper #63

Information contained in this publication may be copied or reproduced for study, research, information or educational purposes, subject to inclusion of an acknowledgement of the source.

ISBN: 978 1 74158 153 2 (Web copy)

ISSN: 1833-7309 (Web copy)

Citation

Carson D, Taylor A and Campbell S. 2010. *Socioeconomic, demographic and resource flows profile for Alice Springs*, DKCRC Working Paper 63, Desert Knowledge CRC, Alice Springs.

The Desert Knowledge Cooperative Research Centre is an unincorporated joint venture with 28 partners whose mission is to develop and disseminate an understanding of sustainable living in remote desert environments, deliver enduring regional economies and livelihoods based on Desert Knowledge, and create the networks to market this knowledge in other desert lands.

Acknowledgements

The Desert Knowledge CRC receives funding through the Australian Government Cooperative Research Centres Program. The views expressed herein do not necessarily represent the views of Desert Knowledge CRC or its Participants.

For additional information please contact

Desert Knowledge CRC

Publications Officer

PO Box 3971

Alice Springs NT 0871

Australia

Telephone +61 8 8959 6000

Fax +61 8 8959 6048

www.desertknowledgecrc.com.au

Contents

1.1 Scope of the project.....	1
1.2 Managing change in small communities	2
1.3 <i>Moving Alice Ahead</i>	4
1.4 Demographic change.....	5
1.5 Alice Springs as a service centre.....	10
1.6 Economic development	12
1.7 Energy, waste, water and transport	13
1.8 A focus on anti-social behaviour.....	14
1.9 Government and community services	14
1.10 Young people, physical and mental health.....	17
1.11 Conclusions	18
1.12 Annotated bibliography of Alice Springs reports.....	19
1.13 References	21

List of tables

Table 1: Structures supporting systemic innovation	2
Table 2: Data indicators against <i>Moving Alice Ahead</i> themes	9
Table 3: Matrix of service provision to Alice Springs and surrounds.....	16

List of figures

Figure 1: Reference guide to the Sustainable Desert Settlements project.....	1
Figure 2: Cohort change, Alice Springs and Australia, 2001–2006.....	6
Figure 3: Net interstate migration	7
Figure 4: Net intra-Territory migration.....	8
Figure 5: Population pyramids, Alice Springs and Australia, 2006	10

1.1 Scope of the project

The purpose of this report is to identify key issues in the sustainability of Alice Springs as a desert settlement that services its own and surrounding populations. It necessarily takes the assumption, therefore, that the sustainability of Alice Springs is at risk. The approach required the documentation of resource flows and their supporting systems of social organisation (Figure1).

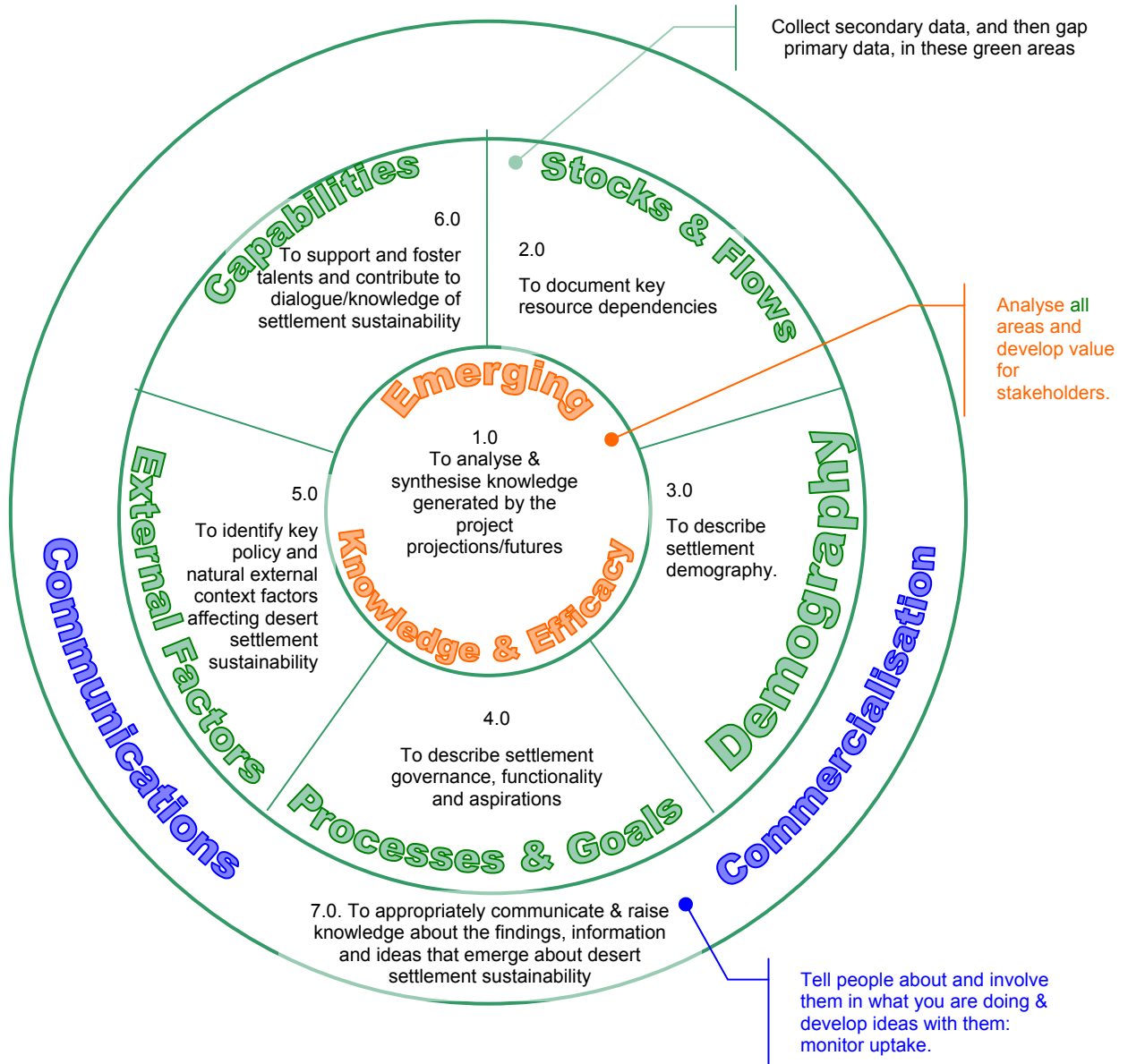


Figure 1: Reference guide to the Sustainable Desert Settlements project

The resource flows research has considered a range of ‘resources’, including financial, human, and physical. This research has focused on human and physical resources, including demographic mobility and economic transactions. A separate project is being scoped that will examine financial resource flows in the form of an input–output model for the region.

The research has been desk-based, and has used two methods. Firstly, past and existing reports relating to Alice Springs resource flows have been collated and analysed. Secondly, demographic data from the 2001 and 2006 Census of Population and Housing has been analysed to identify changes in human resource flows in recent times. It would be possible, with additional funding, to extend this longitudinal analysis to include previous Census collections (to 1971).

The formal geographic boundaries of Alice Springs differ depending on which resource is being considered: health, criminal justice, tourism, education, employment, and so on. Alice Springs is a relatively large centre within a sparsely populated region, and the resource interactions between Alice Springs and the region are often difficult to untangle. In this research we have not adopted any single geographic definition, but have allowed the various reports and statistical data sets to bring their own definition. Inconsistencies in quantification of resources are therefore likely to occur, but this itself is illuminating when trying to understand supporting human systems.

The research documents a number of similar reports and investigations and a range of initiatives arising from these whose aims are very similar to the DKCRC's ambition to identify 'tool kits' that can help enhance community sustainability. In particular, we draw attention to the *Moving Alice Ahead* program implemented by the Northern Territory Government in 2007 and following the *Alice in Ten* initiative from the early 2000s.

1.2 Managing change in small communities

It is not the role of this report to specifically identify the barriers to managing change (innovation) in Alice Springs, but there is some value in reflecting on the literature relating to regional systems of innovation and drawing a broad picture of the issues that face towns such as Alice Springs. In general, small regional centres are subject to similar challenges in harnessing resources as those that face urban centres and larger-scale economies. However, the magnitude of these challenges is intensified in the regional context, and the impacts of institutional infrastructure (public/private sector interactions) and social, political and cultural capital are likely to be more keenly felt. The table below (Table 1) summarises the structures identified in the systems of innovation literature as supporting innovation, and makes some comments about the general strengths and weaknesses of small regional centres in relation to these structures.

Table 1: Structures supporting systemic innovation

System structure	Potential strengths of regional centres	Potential weaknesses of regional centres
<p>Economic competence: Describes the capacity to effectively manage financial resources (Carlsson & Stankiewicz 1991, Breschi & Malerba 1997, Saxenian 1996).</p>	<ul style="list-style-type: none"> • Regional and remote areas often provide incentives for public and private sector investment not provided elsewhere • Small investments can have comparatively large impacts on the system 	<ul style="list-style-type: none"> • Limited experience in managing large projects • Depressed economies • Lack of skills resulting from poor access to education and training

System structure	Potential strengths of regional centres	Potential weaknesses of regional centres
<p>Resource clustering: Describes the physical closeness of businesses, facilitating the sharing of tacit knowledge and increasing the speed of technology diffusion. Clusters include producers, regulators and consumers (Porter 1998, Cooke & Morgan 1998, Cooke et.al. 1997).</p>	<ul style="list-style-type: none"> Regional centres often have well defined commercial, technological, retail and manufacturing precincts Shared infrastructure is more common in regional areas 	<ul style="list-style-type: none"> Highly dispersed activity Large distances between producers and consumers Few effective models for virtual clustering
<p>Networks: Describes functioning relationships between organisations in a system (Nelson 1992, Malmberg & Maskell 1997).</p>	<ul style="list-style-type: none"> Few businesses are excluded from the opportunity to participate in collaborative ventures Social and ad hoc interactions are common 	<ul style="list-style-type: none"> Lack of coordination, especially with organisations located outside the region Distrust in sharing information Lack of awareness of which organisations should engage in the system
<p>Entrepreneurship: Describes leadership that is able to articulate vision and take risks (Carlsson & Stankiewicz 1991).</p>	<ul style="list-style-type: none"> It is relatively easy to get a hearing for new ideas The cost of investing in new ideas (shop rent, etc) are often lower 	<ul style="list-style-type: none"> Poor leadership skills Limited exposure to alternative ways of doing things Lack of lead users
<p>Critical mass: Describes the capacity to absorb failure and to experiment in niche markets.</p>	<ul style="list-style-type: none"> There is often greater diversity of products and services within individual businesses Viable business models can be based on relatively low financial turnover 	<ul style="list-style-type: none"> Individual business failure has relatively high impact on the system Small local user base means over-reliance on export markets Lack of room for competition
<p>Development Blocs: Describes complementary resources that can serve as a focus for entrepreneurial activity (Carlsson & Henriksson 1991).</p>	<ul style="list-style-type: none"> There is often greater knowledge about resources and their potential complementarities It is relatively easy to attract attention to specific developments 	<ul style="list-style-type: none"> Small number of resources attract increasing environmental and cultural pressure and are quickly exploited Lack of diversity of resource uses exposes developments to greater risk of failure
<p>Public/private sector interactions: Describes the institutional arrangements that govern the system and the way in which the public sector becomes a technology user and producer (Cooke & Morgan 1998, Carlsson & Stankiewicz 1991).</p>	<ul style="list-style-type: none"> (Local) government and business are in close and regular contact Government often implements 'buy local' policies 	<ul style="list-style-type: none"> Distance from many public sector agencies Lack of coordination of functions across levels of government High levels of public sector (regulated) involvement in key activities
<p>Production and distribution of knowledge: Describes the capture and dissemination of existing knowledge, but also the production of new knowledge and ideas (Breschi & Malerba 1997, Edquist 1997).</p>	<ul style="list-style-type: none"> Incremental knowledge building is assisted through regular interaction and high levels of shared customers Knowledge is readily disseminated in many forms 	<ul style="list-style-type: none"> Lack of access to and expertise in using ICT Poor quality of market intelligence High staff turnover results in lost tacit knowledge

System structure	Potential strengths of regional centres	Potential weaknesses of regional centres
<p>Social, cultural and political capital: Describes the social 'will' for change and how this will is managed (Putnam 2000, Macbeth et al. 2005).</p>	<ul style="list-style-type: none"> • Shared membership of key community organisations makes it easier to harness collaboration • There is a culture of mobilising community resources to assist in development initiatives and fundraising 	<ul style="list-style-type: none"> • Trend toward outmigration of young and skilled people • History of partial and failed initiatives stifles will to change • Lack of diversity in membership of community organisations and lobby groups

Source: adapted from Carson et al. 2004

The table shows that the strengths of small and regional centres – high levels of interactions between people, high levels of shared resources, large impact of small change – can also be weaknesses. Continuing failure to innovate, which may be reflected in the ongoing investigate-review-report-restructure process in Alice Springs suggests weaknesses in these structural elements.

1.3 Moving Alice Ahead

This initiative provides an umbrella for a suite of projects designed specifically to ensure that Alice Springs (continues to be) 'a great place to live, work and raise a family'. The suite of projects provides insight into the key issues as identified by the Northern Territory Government (NTG 2007a):

- Lifestyle – streetscaping, urban design
- Red Centre Way – tourism, transport links with surrounding communities
- Standardising town camps – short-term (Aboriginal) mobility, housing, social behaviour
- International charter airport – tourism, economic development
- Alcohol management – social behaviour
- Regional service centre – short-term (Aboriginal) mobility, economic development
- Workforce development – education and training, economic development, employment, youth services
- Desert knowledge – education and training, economic development
- Indigenous arts and culture – economic development, tourism, employment
- Tanami Road – tourism, transport links, economic development
- Land – housing, economic development

The following research needs are identified:

- Infrastructure/tourism needs research (Red Centre Way)
- Housing needs assessment (standardising town camps)
- Alcohol management program evaluations (alcohol management)
- 'research supplier information by spend and product for the selected industries' (regional service centre)
- 'research with industry leaders to determine regional supply gaps' (regional service centre)
- 'school to work' issues assessment (workforce development)
- Researching good practice in youth employment and employment program evaluation (workforce development)
- 'examine the historical demand for land for various purposes' (land)
- 'forecast demand into the future based on likely growth' (land)

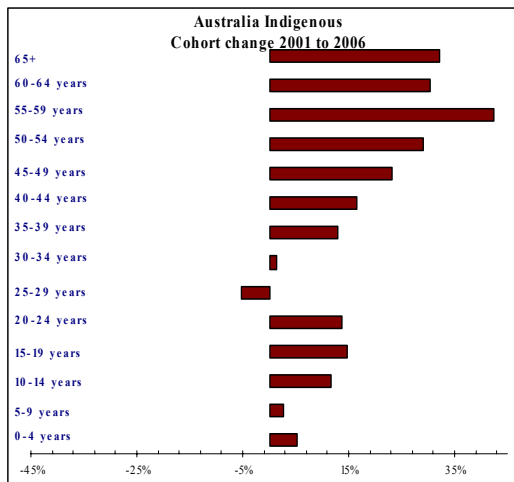
While *Moving Alice Ahead* obviously focuses on public/private sector interactions and social, political and cultural capital, it also includes other elements of the systems of innovation framework. The Red Centre Way project can be seen as an attempt to generate a development bloc – investing in a resource that, similarly for the Tanami Road project, can be put to multiple uses in tourism, transport, mining and pastoralism. The Indigenous arts and culture project promotes clusters and networks. The Regional service centre and the Desert knowledge project are at least in part about the production and distribution of knowledge.

Rather than replicate the issues identification process conducted in association with *Moving Alice Ahead*, this project can provide some further insights into those issues, and perhaps identify some underlying structural impediments that could be addressed through additional initiatives attached to the *Moving Alice Ahead* program.

1.4 Demographic change

Analysis of Census of Population and Housing data from 2001 and 2006 reveals a transition in the structure of the Alice Springs population. The transition links directly to the priority issues identified in *Moving Alice Ahead*. A summary of the data suggests that the Alice Springs population is aging, but that this is a result of increasing out-migration of younger people rather than of natural population aging. Because the region continues to experience relatively high fertility rates, population pyramids reveal a gap in the 15–35 year age group, with bulges at either end. The data suggest that the proportion of Aboriginal people in the Alice Springs population is increasing, but again the majority of this increase can be explained by out-migration of (particularly younger) non-Aboriginal people. These trends are observable in the following set of graphs. They illustrate the changes in population structures between the 2001 and 2006 Census, showing the percentage of change in population in each age group. Patterns of Aboriginal population change have been relatively similar for Alice Springs and Australia as a whole; however, there has been much greater decline in the non-Aboriginal population at lower age groups in Alice Springs than in Australia as a whole.

Australia



Alice Springs

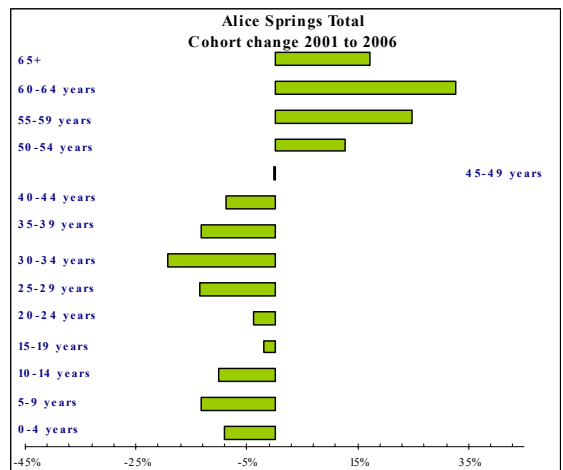
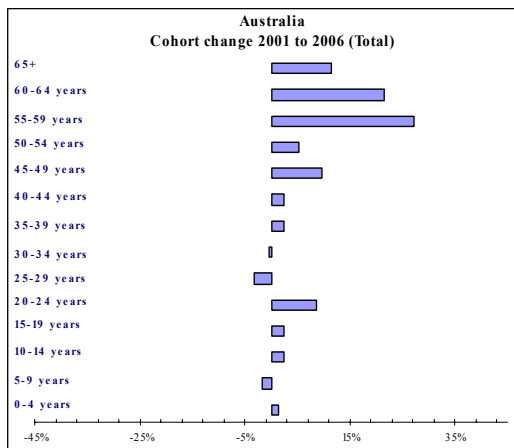
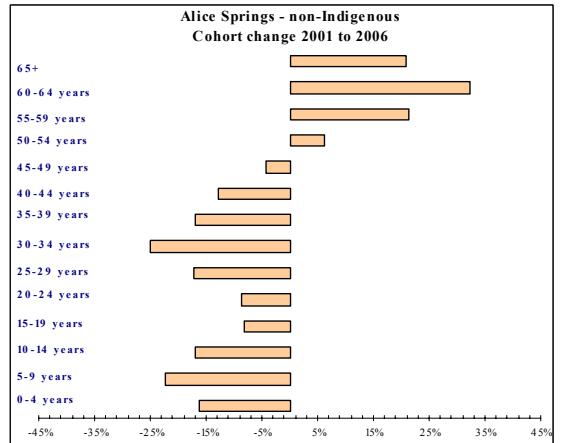
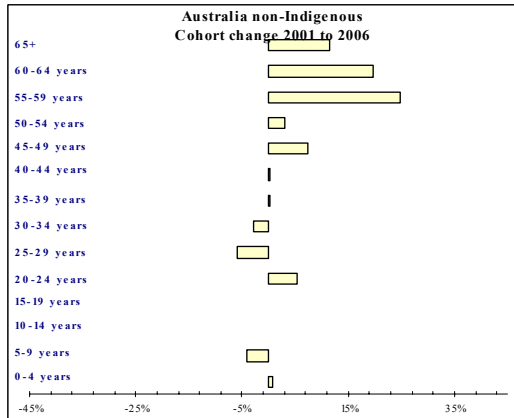
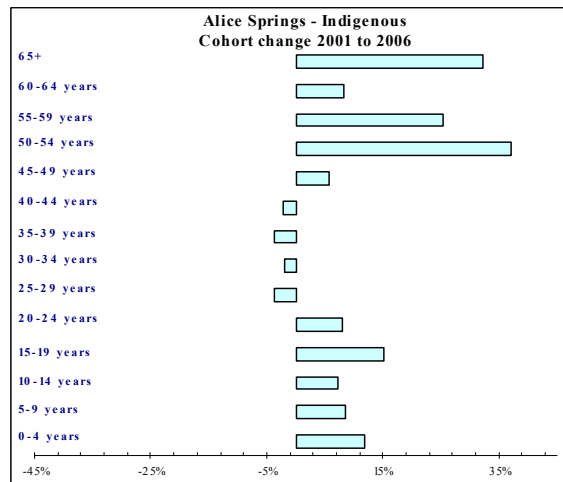


Figure 2: Cohort change, Alice Springs and Australia, 2001–2006

Source: ABS 2002, 2007a

The changing age and racial composition of the population is also linked to the population experiencing declining socioeconomic status. There is evidence of the population dividing into those who are provided with services and those who provide these services. The former includes the very young, those requiring support to enter and stay in the labour force, as well as the elderly. The latter includes government agencies at various levels, targeted service providers such as Aboriginal health service delivery agencies, and volunteer organisations. There is a corresponding marginalisation of private sector employment, particularly in areas such as

manufacturing and retail (especially small firms). This calls into question the capacity of the population to come up with innovative solutions across the system as a whole, and suggests a focus on resolving social ills rather than addressing sustainability more broadly. This issue is explored further later in the report.

A significant observation is that the overall population of Alice Springs is declining, again as a result of high levels of out-migration. The following maps show firstly (Figure 3) the net exchange of population between Alice Springs and the rest of Australia (outside of the Northern Territory). Blue lines show a net influx of people to Alice Springs and red lines show a net outflow. Thicker lines represent more people. There have been some gains from regional areas in Western Australia, Queensland and South Australia, and losses to the south and east (South Australia, Victoria, Queensland in particular). Losses tend to be to larger population centres in these states. The second map (Figure 4) shows intra-Territory migration. Alice Springs has picked up population from smaller towns (Tennant Creek and Katherine), rural and remote areas, but lost population to Darwin.

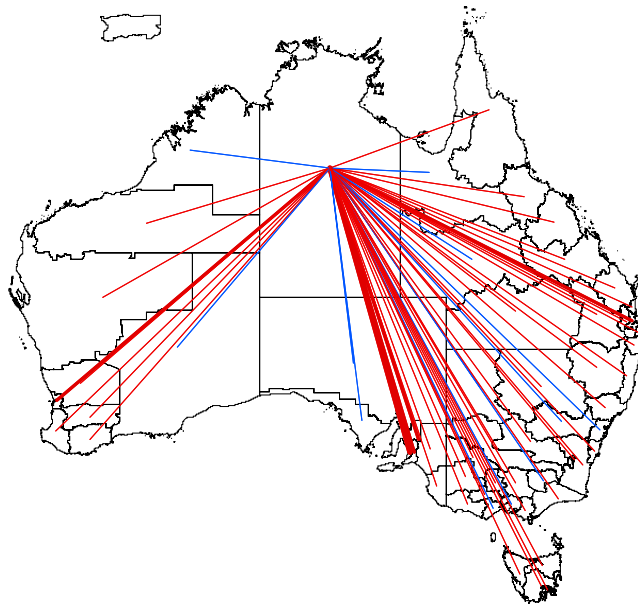


Figure 3: Net interstate migration

Source: ABS 2007a

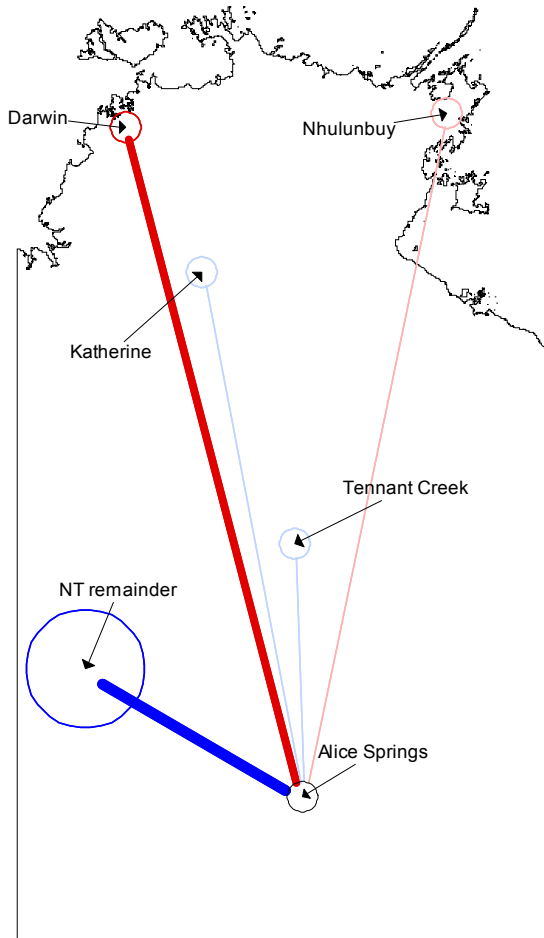


Figure 4: Net intra-Territory migration

Source: ABS 2007a

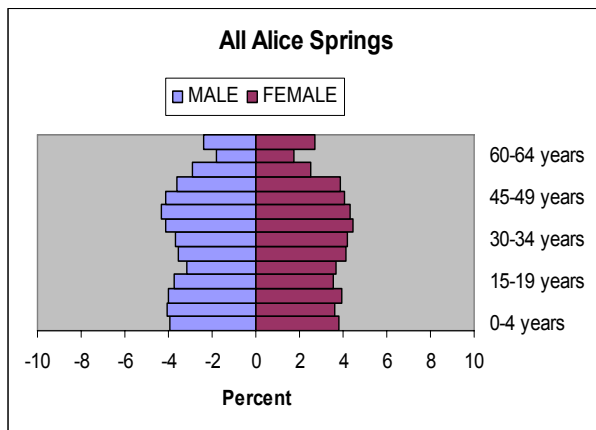
The demography of the region warrants more detailed investigation than that undertaken in this report, but the table below (Table 2) provides some indicators against the issues identified in *Moving Alice Ahead*. Once again, comparisons are made between Alice Springs and Australia as a whole.

Table 2: Data indicators against *Moving Alice Ahead* themes

<i>Moving Alice Ahead</i> issue	Demographic observations
Economic development	<ul style="list-style-type: none"> • Alice Springs had 11% more of the adult population in lower income brackets (\$150–\$400 per week) and 6% less with income over \$1000 per week • Alice Springs had 10% more families in lower combined income brackets (\$350–\$650) and 7% less with income over \$2000 per week • Alice Springs had 7% more households in lower combined income brackets (\$250–\$500) and 5% less with income over \$2000 per week
Education and training	<ul style="list-style-type: none"> • Alice Springs had 5% fewer eligible people at TAFE or university • Alice Springs had similar proportion of adults with post-graduate qualifications, but 3% fewer with undergraduate degrees, and 6% fewer who had finished high school • Alice Springs had 3% more graduates with degrees in health and education but fewer (4%) in commerce and management
Employment	<ul style="list-style-type: none"> • 12% fewer adults were in the labour force • Alice Springs had 12% more people in the labour force who were in full-time employment • Alice Springs had 9% more of its workforce employed in public administration and safety, 4% more in education and health, 2% more in accommodation, 7% less in manufacturing and 3% less in agriculture • Alice Springs had 5% more of its workforce working as community and personal services workers, with 2% fewer managers, 2% fewer sales staff, 2% fewer labourers and 2% fewer machinery operators
Housing	<ul style="list-style-type: none"> • While Alice Springs had an average household size of about 2.5–3 people, which is very similar to the national average, there were 4% fewer 2-person households and 1% more households with 6 or more people • Alice Springs had 6% less of its population living in stand-alone houses and 6% more in townhouses. 2% more people lived in 'other' dwellings • Alice Springs had 13% fewer dwellings that were owned or being purchased. 12% more were being rented • Alice Springs had 6% fewer people paying relatively low (<\$750) monthly home loans and fewer (7%) paying relatively high amounts (>\$2000) • Alice Springs had more (12%) people paying relatively low rent (less than \$50 per week)
Mobility (esp. Aboriginal mobility)	<ul style="list-style-type: none"> • Alice Springs had 19% of its population identify as Aboriginal compared with 2% nationally • 33% of Alice Springs residents compared with 22% for Australia were in a different address to one year ago; 1% of the population was in a different address in Alice Springs, 10% had moved intra-territory, and the remainder of the movers had moved interstate • Alice Springs had 59% of its population who had a different residential address in 2006 compared with 2001. The national rate was 47% • Immigration rate (excludes international) for Alice Springs was 22.5% • Emigration rate (excludes international emigration) for Alice Springs was 23.9% • Net migration rate (excludes international) for Alice Springs was -1.4% • Population turnover rate (excludes overseas) for Alice Springs was 41.4% from 2001 to 2006. • 82% of departures from Alice Springs between 2001 and 2006 were to interstate destinations
Tourism	<ul style="list-style-type: none"> • 10% more visitors were enumerated in Alice Springs (14% of all people enumerated were visitors). 1% of visitors were from other parts of Alice Springs, 5% were from elsewhere in the Northern Territory and 8% were from interstate. These include visitors from communities and town camps
Youth services	<ul style="list-style-type: none"> • 12% of the Alice Springs population was aged less than 15 years old, compared with 9% nationally (Comparisons are represented in population pyramids in Figure 5 below)

Source: ABS 2007b, 2007c

Alice Springs Population Pyramid



Australia Population Pyramid

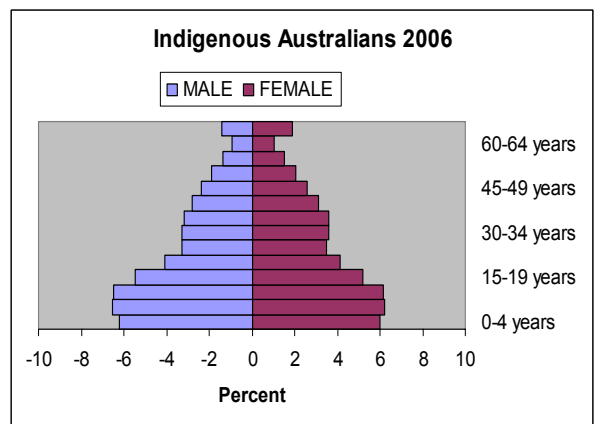
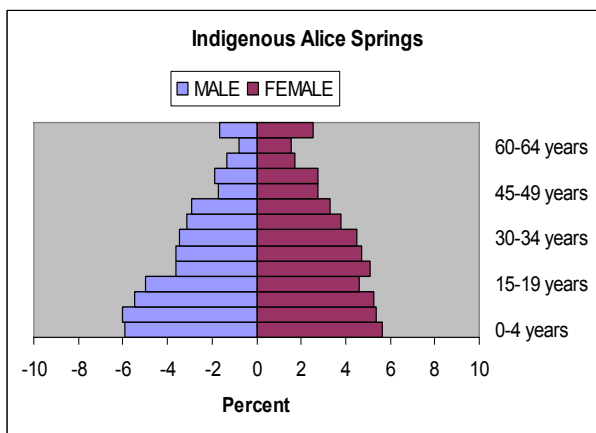
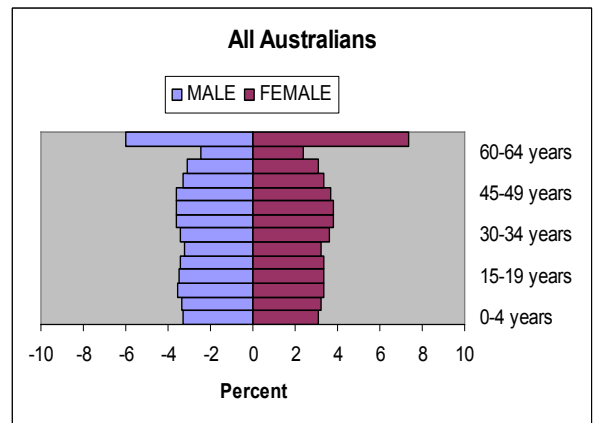


Figure 5: Population pyramids, Alice Springs and Australia, 2006

Source: ABS 2007b, 2007c

1.5 Alice Springs as a service centre

The previous section described demographic statistics relating to the ‘resident’ population of Alice Springs, that is, the people who claim to normally live there. Most planning and resource decisions are made based on the characteristics of the resident population. Other populations may be important, however. ‘Service populations’ include those people who are in Alice Springs but do not claim to normally live there. There are a range of people occupying accommodation designed for tourists – they include leisure visitors, short-term business visitors and short-term visitors for education, health and other purposes. Other non-residents may stay with friends and family, in accommodation provided by employers, or in forms of temporary accommodation. The largest of these groups in Alice Springs appears to be Aboriginal visitors staying in town camps.

The 2006 Census of Population and Housing recorded nearly 3000 non-residents as having been in Alice Springs on 8 August that year. Demographic statistics are available for this group, but there has not been time in the course of this project to access those. However, some observations can be made based on knowledge of the tourism sector and previous research by the DKCRC on town camps.

Tourism statistics for Alice Springs are very poor. Representation of visitors to Alice Springs in the two national tourism data collections (the National Visitor Survey and the International Visitor Survey) is too low to make reasonable estimates of the total number of visitors to Alice Springs (or indeed the region or the Northern Territory as a whole). ‘Official’ estimates provided by government agencies range between 350 000 visitors per year and 800 000 visitors per year. Differences in estimates may be due to misunderstanding the statistics, which may refer to visitors, visitor nights or trips. Alice Springs data is often combined with data for the Macdonnell tourism region (which includes Uluru–Kata Tjuta National Park). Reasonable estimates suggest an average daily tourism population of around 2500 people. The peak tourism season extends from May to October, where occupancy rates at commercial establishments reach 80–85% (compared with an annual average of less than 60%). Three and a half or four thousand non-residents in Alice Springs in early August may be attributed to the tourism population.

The DKCRC report on the populations of town camps in Alice Springs estimated that about 20% of all people in town camps could be considered non-residents (Foster et al. 2005). The data was collected between May and August 2005. It may be, therefore, that 300 or 400 non-residents at that time of the year are visitors to town camps. In this way, the tourism and town camp visitor populations appear to account well for the number of non-residents recorded in Alice Springs in the 2006 Census.

Understanding the dynamics of the non-resident populations of Alice Springs is difficult due to the poor data sources. There is no evidence that the tourism population has increased since 1998, and there is some evidence that it has decreased. However, much of the decrease is attributable to declines in backpacker (generally young, international) travellers and coach tourists (generally older domestic travellers), while there may have been some increases in independent self-drive visitors (domestic middle-aged couples) and short-stay international visitors on fly–bus tour packages. Visitors tend to stay about three or four nights in the region, and are likely to visit just once in their lifetimes. Alice Springs has become less important as a centre for tourism in the region due to increasing direct flights to Yulara (Uluru is by far the most visited attraction in the region) and declining visitor numbers to outback Australia generally.

There are even less data about visitors to town camps. There are poor data on the age–sex distribution of visitors, how long they stay, and how often they visit. This lack of data presents a substantial challenge to incorporating service populations in planning decisions in Alice Springs. However, a number of communities have offices in Alice Springs. They offer services such as banking, housing information and health referrals to the members of communities when they are visiting Alice Springs. Communities and their services include:

- Ampilatwatja Health Centre
- Apatula Community Health Service
- Ntaria Health Clinic
- Pintubi Health Service
- Ngaangyatjarra Health Services
- Nganampa Health Council
- Urapuntja Health Service
- Central Australian Aboriginal Congress Inc (CAAC)
- Congress Alukura

While it is somewhat difficult to get information about service population movements in to Alice Springs, it is even more difficult to get information about the extent to which Alice Springs residents access services elsewhere. Certainly there are limited medical (particularly acute care) services in Alice Springs, but there may also be outflows for retail shopping, purchasing of vehicles, building materials and industrial goods and services.

1.6 Economic development

There is limited information about the economic flows relating to Alice Springs. Broad employment data from the 2006 Census of Population and Housing reported earlier indicate a large public service sector and a large community service sector, with comparatively small manufacturing and retail sectors. There were also some hints in that data about the significance of tourism. The Alice Springs Economic Development Committee and the Northern Territory Department of Business, Economic and Regional Development have commenced the production of an Alice Springs economic profile in 2007 (NTG 2008).

As part of the economic profiling exercise, the committee has identified six economic sectors as 'Alice Springs investment opportunities'. They were:

- Primary industries: pastoralism, horticulture, native bush food, weed and environmental management, live transport, camels
- Defence support
- Tourism
- Mining
- Construction
- Education and services

By and large, these are the historically important industries for Alice Springs. Non-Aboriginal settlement in the area was initially driven by communications services (specifically the development of the Overland Telegraph Line) and pastoralism. Mining in various forms has had a presence since the so-called 'ruby rush' of the late 1800s, and later in the oil and gas fields of the Mereenie district. World War Two brought a defence force presence to the region, and a more permanent presence arose from the development of the Pine Gap facility in the late 1960s (opening in 1970). Alice Springs hosted visitors from the time the telegraph station opened, as the town served then (as now) as a hub for communications and provisioning. The declaration of Uluru (Ayers Rock) as a national park in 1950 signalled the start of the modern tourism era, although attention has since shifted away from Alice Springs with the resort (1984) and airport at Yulara providing more direct access to the park.

The small population size and harsh environmental conditions around Alice Springs have led to a relatively unstable economic history, with failed initiatives in pastoralism and mining in particular. Its strategic and cultural significance, however, has inspired government to become a leading economic actor. They have invested, and continue to invest, in 'large projects' such as the telegraph line to the Red Centre Way, and have provided government services, including a large economic impact of the current Australian Government 'emergency response'.

The Alice Springs economic profile provides no real indication about potential economic activity, apart from some consideration of bush foods (an embryonic industry) and camel production. Even taking a historical perspective, there is the obvious omission of the telecommunications sector. There may also be opportunities in energy, waste and water, as discussed in the next section.

Further analysis is required to drill down into key economic issues, but they are likely to include lack of private sector investment, downturn in historically important sectors, high turnover of key staff in public and private sector operations, and declining access to domestic and international markets for a range of locally produced goods.

1.7 Energy, waste, water and transport

Remoteness, isolation, lack of rainfall and the high costs of importing essential services have meant a strong focus on basic infrastructure such as energy, waste, water and transport throughout the development of Alice Springs. Providing these services has presented challenges that have sometimes led to the failure of other initiatives, but it has also provided a focus for innovation. It is possible to make some comparisons around the price of consumption of these services, but data are less readily available on the price of supply. It is clear, however, that the cost of some of these services, and access to them, may be limiting factors in terms of the growth potential and sustainability of Alice Springs.

Solutions to difficulties in providing essential services may include imposing limits on growth in the consumer base, imposing limits on consumption (even if the consumer base increases) and implementing innovations that decrease the reliance on relatively distant and expensive sources. Alice Springs appears to be employing a mix of these strategies. The demographic analysis shows limited population growth (and this extends back some twenty years), which has resulted in limited increases in residential demands, although industrial demands continue to grow. A particular focus on water has resulted in initiatives to reduce consumption. Alice Springs water is sourced from the Amadeus Basin, and there are concerns about the environmental impacts of continuing to exploit the Basin in this way. The *Alice Springs Water Resource Strategy* (NTG 2007b) provides a series of initiatives to manage water consumption. However, there are no current water use restrictions in Alice Springs, and there are none foreseen by the Department of Primary Industries.

In terms of energy, Alice Springs is one of Australia's five nominated 'solar cities', which means an investment in solar technology that is likely to reduce dependency on the national electricity grid. Currently, the bulk of the city's energy requirements is produced by generators run on natural gas drawn from the Mereenie gas fields, some 200 kilometre west of town. This natural gas is piped to the Ron Goodin Power Station and the Brewer Estate Power Station. Between these two facilities, generation capacity is around 70 Megawatts, or 70 000 000 watts (Cool Mob 2007). Despite not being connected to the national power grid, there is a price equalisation policy for electricity in place across the Northern Territory, meaning that costs in Alice Springs are consistent with costs elsewhere in the Territory.

Alice Springs is a transport hub for the region, but particularly for the north–south flow. The Stuart Highway and the Ghan Railway link Adelaide and Darwin. The Alice Springs airport is serviced by direct flights from all Australian capital cities, excluding Canberra and Hobart; however, about one-third of all flights connect Alice Springs to either Darwin or Adelaide. Services east–west for all forms of transport are less well developed. The Gunbarrel or Great Central Highway (actually a collection of roads and tracks) leads west via Yulara, but is largely unsealed between Yulara and Kalgoorlie. The Plenty Highway leads east into Queensland, but is largely unsealed through to Boulia. There is no rail service east–west. There are plans to seal the east–west highway (OHDC n.d.) to connect Laverton, in Western Australia, with Winton, in Queensland. This report has previously mentioned initiatives to improve transport infrastructure along the Red Centre Way (Mereenie Loop) and the Tanami Road. Interestingly, the advertised justifications for these investments prominently feature tourism, although there is very little evidence that long-haul road-based tourism is likely to grow in central Australia (or indeed in Australia generally). Complementary research for the Desert Knowledge CRC *On Track* program (DKCRC 2009) is examining this issue.

1.8 A focus on anti-social behaviour

Managing social behaviour, and particularly addressing issues of anti-social behaviour, is a focus of a large number of investigations and reports about Alice Springs, at least in recent times. It is not the role of this report to examine the various theories behind why this may be the case. However, a Foucauldian (Foucault 1977) view would suggest that Alice Springs has been a centre for surveillance, particularly of the region's Aboriginal populations, since the first non-Aboriginal settlement. Substantial economies have been built up around this surveillance, from early missions to the 2007 Australian Government intervention.

Moving Alice Ahead (NTG 2007a) identified alcohol management and standardising town camps as necessary responses to anti-social behaviour. *Strengthening the Position of Alice Springs* (Tourism NT 2006) concluded that 'social issues' were one of the major impediments to a sustainable tourism industry in the region. The *Population and Mobility in the Town Camps of Alice Springs* report (Foster et al. 2005) highlighted the role of visitors in poor social behaviour, and identified alcoholism and violence as critical issues in managing camps. *Sitting Down Good in Alice Springs* (Mommott 1993) is an initiative of the Tangentyere Council to encourage 'healthy social behaviour'. The initiative is particularly concerned with alcohol and drug related violence, sexual assault, neglect of commitments to family, work and culture, and personal and property crime. The DKCRC report on *Indigenous Populations and Resource Flows in Central Australia* (Mitchell et al. 2005) included a substantial section on criminal justice.

According to the Northern Territory Department of Justice (DoJ 2007), the most common crimes in central Australia are assaults, including sexual assault. Additionally, one in twenty Alice Springs residents can expect to be subject to theft or property damage in any given three-month period. There is some evidence, however, that much of the crime occurs within well-defined social and cultural groups, rather than being pervasive across the population (Mitchell et al. 2005).

The following section of this report provides some insights into the nature of response to anti-social behaviour in terms of government and non-government services and programs.

1.9 Government and community services

In previous chapters we have emphasised the importance of public sector investment to the economic development of Alice Springs and surrounding areas. The share of public sector employment in 2006 was significantly higher in Alice Springs (12%) compared with elsewhere in Australia, indicating a continuation of past trends. Previous chapters have suggested that attention to a range of social and community issues, especially in relation to youth and elderly people, have pre-occupied reports about the town in recent times. Government responses to such issues may manifest in many forms, with the most obvious being either the direct provision of government-run services or initiatives to address identified issues, or through programs that are funded either partly or wholly by government and delivered through the private sector companies or quasi-government agencies.

The existence of targeted services or programs can be indicative of negative or detractive issues (such as anti-social behaviour) but equally can indicate positive intervention to grow the human or financial capacity of communities (for example, through educational investment) or to avoid the emergence of detractive issues that have been observed previously or observed elsewhere. For these reasons, it is worthwhile to document and assess the range of services and program initiatives provided by governments at all levels in Alice Springs. In ideal circumstances, such information would be readily available from consistently recorded documentation, and this would facilitate comparisons over time so that observations on the types and extent of services

provided by government could be made. In reality this is not the case, and instead the authors have undertaken an Internet-based search for information on the provision of services (other than the 'hard' services such as power, water, refuse collection and so on) provided to the Alice Springs or surrounding communities.

The matrix of services presented below (Table 3) is an attempt to summarise the findings of the Internet search. A technique called snowballing Internet-mediated research (IMR) was used to ensure that all available information on services for Alice Springs and surrounds was captured. Snowballing (IMR) entails following links or information from one document, web page or other content to capture further information and, if present, further links or information. References discovered at one source are entered into search engines to obtain the actual content if there are no direct links available between the two sources.

Notations are made in the matrix on the name of the service provider and the service itself. Indications about levels of services that the provider is engaged in (i.e. as a direct provider, a funder of the service, or as an advisor or information provider) are also provided. A record is made of any target ethnic or cultural groups and, for housing services, the groups are separately identified (transient, emergency or medical). Hence, interpretation of the symbols shows that the Australian Department of Health and Aging provides health services directly to Alice Springs people and also funds services (top left cell).

While the matrix does only provide meta-level indicators of the range of government service operatives and their activities, some general observations can be made. Firstly, community groups seemingly play an important role as advisory service providers, particularly to the young and to women. They are active in housing services, chiefly for those in need of transient and emergency accommodation. Services targeted at or run by Aboriginal people and organisations also feature prominently, and this is perhaps not surprising given the emphasis in most recent reports on the needs of Aboriginal people in the region.

This analysis would strongly benefit from comparisons of government service delivery in remote towns of similar size to Alice Springs elsewhere in Australia. Despite this information gap, it appears that governments at various levels are attempting to address the broad service needs of the community, such as health, sporting and recreational services, which is generally expected, as well as community needs for services that address negative social issues and the needs of those who are marginalised and with lower socio-economic status.

What is not inherently clear from the information gleaned to date is whether there is scope to consolidate services between organisations or to umbrella specific types of services under one organisation. Either of these moves might facilitate improved effectiveness, reduced costs and more positive social outcomes; however, without detailed analysis of individual services it is not plausible to assume this will be the case in all circumstances.

Table 3: Matrix of service provision to Alice Springs and surrounds

	Health	Health: Women's	Health: Alcohol and other drugs	Health: Aged disability services	Health: Youth services/ childhood services	Health: Mental health	Youth services/ childhood services	Housing/ Accommodation	Education	Employment advice/training	Emergency services	Sport and recreation/ cultural activities
Australian Government												
Dept. of Health & Aging	• □	□	□	• □	□	• □						
Centrelink							•			•		
Aboriginal Hostels Limited			•	• ③			•	• □ ① ② ③				
Dept. of Families, Housing, Community Services and Indigenous Affairs	□ *		□ *	□ *		□ *	□ *	□ *				
NT Government												
Dept. of the Chief Minister		□					□		□			
Dept. of Local Government, Housing and Sport							□	• □ ②				• □
Dept. of Employment, Education and Training					• □		□		• □	• □		
Dept. of Health and Community Services	• □	□	□ *	• □	• □		□	□			• □	
Local Government												
Alice Springs Town Council ⁴	*	*	*	*	*	*	*	*	*	*	*	*
Aboriginal Councils/Corporations												
Central Australian Aboriginal Congress (CAAC) ¹	• *	• *	• *	• *	• *	*	• *	*	• *	*		
Tangentyere Council ¹			• *				□	• □		• □		
Gap Youth Centre ¹			*		□		• □		• □	□		• □
Community Groups												
Multicultural Community Services of Central Australia ³	*	*		*	*			*	*	*		
Church groups ⁴			*				*	• ① ③				
Mental Health Association of Central Australia ⁴	*					*				*		
Red Cross ⁴				•				• ①				
Alice Springs Women's Shelter ⁴		• *			•			• ① ②				
Alice Springs Youth Accommodation & Support Services ⁴	*	*	*		*		• *	• * ① ②	*			
Community Government Councils / Health	• *	• *	• *	• *	• *	• *	• *	• *	• *	• *	• *	• *

Level of service
 • Provides the service
 □ Funds a service
 * Advisory/Information

Ethnicity groups
¹ Aboriginal
² Non-Aboriginal
³ Overseas migrants
⁴ Non-specific

Housing/accommodation type
 ① Transient
 ② Emergency
 ③ Medical

1.10 Young people, physical and mental health

The demographic data show an unusual distribution of the population in terms of educational attainment, with high rates of post-graduate accomplishments, and low rates of completion of fundamental schooling. The *Alice Springs Indigenous Education Strategy* was released by the Northern Territory Department of Education in 2007 (NTG 2007c). Its objective is 'All Indigenous children and young people living in or visiting Alice Springs go to school regularly and stay on until they have completed their school education'.

There is a relatively rich education infrastructure in Alice Springs for a town of its size. There are ten primary schools, comprising seven government and three private schools. There are three government and two private secondary schools. Tertiary education is provided by Charles Darwin University, the Batchelor Institute of Indigenous Tertiary Education and the Centre for Appropriate Technology. The Desert Knowledge Precinct will bring these latter two together in a single campus. Alice Springs also has a campus of the Flinders University Centre for Remote Health.

Education issues identified by the Northern Territory Department of Education include managing Aboriginal education, managing students from non-English speaking backgrounds, managing a dispersed and remote student population, providing opportunities for girls, and encouraging school attendance. From a supply perspective, there are acknowledged difficulties in attracting and retaining qualified teaching and administrative staff across all levels of education.

Alice Springs is also well served by sports and recreation facilities. The Alice Springs Town Council administers twelve sporting facilities, including a multi-sport facility at Traeger Park, which has a basketball stadium, tennis centre, and swimming centre. The region has succeeded in attracting substantial funding for the development of sports facilities and recreation programs. Alice Springs plays host to regular large sporting events, such as the biennial Masters Games, and has hosted a range of Northern Territory and Australian age and open championships in various sports.

The management of health services in Alice Springs mirrors the approach to education. There is a strong physical infrastructure for health services, including a base hospital, an Aboriginal health centre and five general practice surgeries. The analysis of government and community services in the previous section of this report highlighted a range of health strategies proposed for or implemented in Alice Springs. Health strategies, such as the *Early Childhood in Alice Springs* (CAAC 2004) focus on the young and Aboriginal population. Recruitment and retention of qualified health professionals is identified as an ongoing issue.

1.11 Conclusions

The research has revealed a large number of reports, investigations, and initiatives focusing on Alice Springs and the sorts of issues that concern the DKCRC Sustainable Desert Settlements program. Alice Springs attracts more attention than is usual for a town its size. Before designing another sustainability tool, it is worth reflecting on how this situation might have come about. Alice Springs has a romantic position in the Australian cultural consciousness. It is the second largest population centre in the Northern Territory and has associated political power. It is seen as a landscape of Aboriginal significance, drawing attention to its Aboriginal 'issues'. The outcome of these and other processes is substantial investment and re-investment in the management of Alice Springs as a community and as an idea.

Aboriginal people make up about one-fifth of the population of Alice Springs, but they are overwhelmingly the focus of sustainability initiatives. Initiatives position Aboriginal people as the perpetrators of crime and social deviance (with both Aboriginal and non-Aboriginal people as the victims), the sufferers of alcoholism and disease, and, in summary, the 'neederers' of services. Few initiatives appear to address the Alice Springs community in any way other than as this dualistic population.

In conclusion, it is difficult to argue that more sustainability issues need to be identified in Alice Springs. What seems to be missing is the capacity to make a difference. It may be that the structural weaknesses identified at the start of this report (see Table 1) have been too great to address. It may also be that Alice Springs has not had the chance to develop as a community due to the intense scrutiny it suffers from government and community agencies.

It is common for reports like this to conclude with statements about the data gaps (and here we might identify data about visitors, residents, service use and economy) and recommend additional effort be put in to filling those gaps. Certainly we would welcome more comprehensive social and economic data, but no information system is likely ever to be complete, and it may be that continuing to invest in revealing information deficiencies and making partial attempts to fill gaps, like continuing processes of 'issues' identification, is of limited value to a place whose attributes have been so regularly scrutinised. Energy may well be better spent on addressing impediments to innovation and entrepreneurship. This might commence through recasting the relationship between Aboriginal (currently the serviced) and non-Aboriginal (the servicing) populations. This separation frames how resource flows are seen in Alice Springs, and it inherently limits the potential for Aboriginal leadership, for transfer of capabilities between populations and for diversification of the economy.

1.12 Annotated bibliography of Alice Springs reports

Desert Knowledge CRC (December 2007) – Central Australian Tourism Futures Project (<http://www.desertknowledgecrc.com.au/publications/downloads/DKCRC-Working-Paper-29-Central-Australian-Tourism-Futures.pdf>). This short report summarises a research project initiated by CSIRO Sustainable Ecosystems, Northern Territory Tourist Commission (NTTC) and Alice Springs Town Council, which aimed to ‘help ensure a prosperous and resilient future for the tourism industry’ in the Alice Springs region. (Friedel & Chewings 2008)

Tourism NT (September 2007) – Regional Tourism Profile Alice Springs & MacDonnell
This two-page report is a summary of the characteristics of domestic and overseas visitors travelling to the Alice Springs and MacDonnell regions. The data is taken from the International and National Visitor Surveys (IVS and NVS). The report indicates that 33% of all visitors to the Northern Territory visit these regions and 38% of all visitors were international. (Tourism NT nd)

Tourism NT and Central Australian Tourism Industry Association (July 2007) - Strengthening the Position of Alice Springs Tourism. Action Plan – The report was commissioned by Tourism NT to assist with strengthening the position of Alice Springs as a destination. It noted that positioning needed to be determined and agreed upon by all stakeholders. The report noted ‘social issues’ as a reason why tourism is failing in Alice Springs and argues that separation in terms of identity is important for tourism success. (Tourism NT 2007)

Northern Territory Government, Department of the Chief Minister (launched April 2007) – Moving Alice Ahead – An online summary of eleven individual project initiatives which are already underway as part of Moving Alice Ahead (<http://www.aliceahead.nt.gov.au>). They address key economic, social and community issues that are affecting Alice Springs now and into the future. The projects identify opportunities for future development in partnership with local business, industry and the wider community. (NTG 2007a)

Northern Territory Department of Employment, Education and Training (2007) Alice Springs Indigenous Education Strategy – The Strategy aims to provide quality education for all Aboriginal students. The project objective is to ‘have all Indigenous students and young people and visitors to Alice Springs attend school regularly and stay on until they have completed their education’. It notes a particular concern about girls’ attendance. (NTG 2007c)

Alice Springs Economic Development Committee and Northern Territory Department of Economic and Resource Development (2007) - Alice Springs Economic Profile – The research began in 2007 with a business survey; there are no results as yet. The profile is to be developed in three stages and was expected to be released at the end of the first quarter of 2008 (NTG 2008). The following paper arose from the work: Raut M. 2009. Inventive economic modelling – the Alice Springs case study. *Global Business and Economics Review*. 11 (3–4). 251:263.

Institute for Sustainable Futures, UTS, Sydney (2007) - Alice Springs - Water Efficiency Study Stage 3 – The three volumes of this report determine how much water is being used, how much would be needed in the future, how to improve efficiency in water usage and manage effluent and develop infrastructure. The report’s main purpose is to recommend a program and a strategy for addressing water usage in the central Australia region. (UTS 2007)

Northern Territory Department of Employment, Education (2007) - Annual Report 2006/2007 – The report identifies issues of young population, Indigenous population, dispersed population and remote/regional populations. It identifies that education costs are significantly

higher in the region than elsewhere. The report notes that the Alice Springs Indigenous Education Strategy was released in 2007. (NTG 2007d)

Northern Territory Department of Local Government, Housing and Sport (2007) – Territory Housing Annual Report 2006/07 – This report provides an overview of Territory Housing performance from July 2006 to June 2007. It notes that high priorities are Aboriginal housing, affordable housing, emergency housing, security in public housing and reducing overcrowding in public housing are high priorities. It addresses the issue of anti-social behaviour in public housing areas. (NTG 2007e)

Tourism NT (April 2006) – Tourism Infrastructure Framework – The report recognises that tourism is a key economic driver for Alice Springs, and that tourists rely heavily on services and facilities provided within the town, in particular the central business district. It notes the existence of previous urban enhancement and infrastructure plans that have been carried out, and notes that they highlight the role of the central business district and the town in relation to a thriving tourism industry and local community. (Tourism NT 2006)

Tangentyere Council and DKCRC – Population and Mobility in the Town Camps of Alice Springs – This report was commissioned to see if a more accurate count of the population of Alice Springs town camps could be produced. The report identifies the issue of undercount of Aboriginal communities by the ABS, and says that using the official population affects the level of services for the people in the town camps. The research undertaken involved three surveys of town camp residents. (Foster et al. 2005)

Centre for Remote Health and DKCRC - Indigenous Populations and Resource Flows in Central Australia: A Social and Economic Baseline Profile

(<http://www.desertknowledgecrc.com.au/publications/downloads/DKCRC-Report-5-Indigenous-Population-Resource-Flows.pdf>) – The report's purpose is to establish the 'social and economic status of the Indigenous population' and a profile of 'the social and economic conditions of the region and map the levels of government funding for services to Indigenous communities in Central Australia'. The research was done in consultation with other partners ATSI, CLC, ANU and NTG. (Mitchell et al. 2005)

Access Economics (1999) - Final Report: Economic and Budgetary Impacts of the Alice Springs–Darwin Railway Project - Commissioned by the Northern Territory Department of Transport and Works, the report is an impact assessment of the (then) proposed Alice Springs to Darwin railway extension. (Access Economics 1999)

Tangentyere Council and Paul Memmott - Mwerre Anetyeke Mparntwele (sitting down good in Alice Springs): Published in: *Aboriginal justice issues*: proceedings of a conference held 23–25 June 1992 Ed. Sandra McKillop, Australian Institute of Criminology, 1993 (AIC Conference Proceedings; no. 21) – The authors provide a description of the project and the proposed methods. The project aims to encourage better 'social behaviour'; the project focuses on town camps. Issues addressed include alcohol-related violence, sexual assault, neglect of familial commitment and commitments to work and ceremony, and damage to property. (Memmott 1993)

1.13 References

- ABS (Australian Bureau of Statistics). 2002. *2001 Census of Population and Housing*. ABS. Canberra.
- ABS (Australian Bureau of Statistics). 2007a. *2006 Census of Population and Housing*. ABS. Canberra.
- ABS (Australian Bureau of Statistics). 2007b. *2006 Census Community Profile Series: 0870 (Postal Area)*. ABS. Canberra.
- ABS (Australian Bureau of Statistics). 2007c. *2006 Census Community Profile Series: Australia*. ABS. Canberra.
- Access Economics. 1999. Economic and Budgetary Impacts of the Alice Springs–Darwin Railway Project. Available from http://www.nt.gov.au/aarc/info/factsheets/access_report.pdf
- Breschi S and Malerba F. 1997. Sectoral innovation systems: technological regimes, Schumpeterian dynamics, and spatial boundaries. In Edquist C. (Ed.) *Systems of Innovation: Technologies, Institutions and Organisations*. Pinter, London. 130–56.
- CAAC (Central Australian Aboriginal Congress). 2004. Early Childhood in Alice Springs: Report on the child and maternal health mapping project. CAAC, Alice Springs.
- Carlsson B and Henriksson RGH. (Eds). 1991. *Development Blocks and Industrial Transformation - The Dahménian Approach to Economic Development*. IUI (Research Institute of Industrial Economics). Stockholm.
- Carlsson B and Stankiewicz R. 1991. On the nature, function and composition of technological systems. *Journal of Evolutionary Economics* 1(2) 93–118.
- Carson D, Richards F and Rose S. 2004. A Framework for Assessing the Innovation Potential of Australia's Regional Tourism Systems. *CAUTHE Conference*, Brisbane, February 2004.
- Cooke P and Morgan K. 1998. *The Associational Economy: Firms, Regions and Innovation*: Oxford University Press, Oxford.
- Cooke P, Uranga MG and Etxebarria G. 1997. Regional innovation systems: institutional and organisational dimensions. *Research Policy* 26(4–5) 475–91.
- Cool Mob. 2007. *Climate Change*. Accessed online at <http://www.dkacoolmob.org/climateChange.html>, December 2007.
- DKCRC. 2009. *On Track™: 4WD Tourism*. Available from <http://www.desertknowledgecrc.com.au/research/4wdtourism.html>.
- DoJ (Department of Justice, Northern Territory Government). 2007. Quarterly crime and justice statistics up to September 2007. *Research and statistics unit* page, Northern Territory Government Department of Justice website. Available from <http://www.nt.gov.au/justice/policycoord/researchstats/index.shtml>.

- Edquist C. 1997. Systems of innovation approaches – their emergence and characteristics. In Edquist C. (Ed.) *Systems of Innovation: Technologies, Institutions and Organisations*. Pinter, London 1:35.
- Foster D, Mitchell J, Ulrik J and Williams R. 2005. *Population and Mobility in the Town Camps of Alice Springs*, Tangentyere Council Research Unit, DKCRC Report 09, Desert Knowledge CRC, Alice Springs. Available from <
<http://www.desertknowledgecrc.com.au/publications/downloads/DKCRC-Report-9-Population-and-Mobility-in-the-town-camps-of-Alice-Springs.pdf>>
- Foucault M. 1977. *Discipline and Punish: the birth of the prison*. Vintage, New York.
- Friedel M and Chewings V. 2008. *Central Australian Tourism Futures: Refining regional development strategies, using a systems approach*, Central Australian Tourism Futures Stage 2. DKCRC Working Paper 29, Desert Knowledge CRC, Alice Springs.
- Macbeth J, Carson D and Northcote J. 2005. Social capital, tourism and regional development: SPCC as a basis for innovation and sustainability. *Current Issues in Tourism*, 7(6), 502–522.
- Malmberg A and Maskell P. 1997. Towards an explanation of regional specialization and industry agglomeration. *European Planning Studies* 5(1) 25–41.
- Memmott P. 1993. *Mwerre Anetyeke Mparntwele* (Sitting Down Good in Alice Springs). In McKillop S (Ed) *Aboriginal Justice Issues*. Proceedings of a conference held 23–25 June 1992. Australian Institute of Criminology, Canberra. 47–58.
- Mitchell J, Pearce R, Stephens M, Taylor J and Warchivker I. 2005. *Indigenous Populations and Resource Flows in Central Australia: A Social and Economic Baseline Profile*, DKCRC Research Report 05, Desert Knowledge CRC, Alice Springs.
- Nelson RR. 1992. National innovation systems: a retrospective on a study. *Industrial and Corporate Change* 1(2) 347–374.
- NTG (Northern Territory Government). 2007a. *Moving Alice Ahead*. Available from <
<http://www.aliceahead.nt.gov.au/>>
- NTG (Northern Territory Government). 2007b. *Alice Springs Water Resource Strategy 2006–2015*. Available from <
http://www.nt.gov.au/nreta/water/aswrs/pdf/aswr_strategy_vol1.pdf> and <
http://www.nt.gov.au/nreta/water/aswrs/pdf/aswr_strategy_vol2.pdf>
- NTG (Northern Territory Government). 2007c. *Alice Springs Indigenous Education Strategy*. Available from <
http://www.det.nt.gov.au/_data/assets/pdf_file/0011/5123/alice_springs_indigenous_education_strategy.pdf>
- NTG (Northern Territory Government). 2007d. *Department of Employment, Education and Training, Annual Report 2006/2007*. Available from <
http://www.det.nt.gov.au/_data/assets/pdf_file/0016/4651/deet_annual_report_2006_07.pdf>
- NTG (Northern Territory Government). 2007e. Department of Local Government, Housing and Sports, Annual Report 2006/2007. Available from <
http://www.dlgh.nt.gov.au/_data/assets/pdf_file/0016/25432/dlghs_ar_web.pdf>

- NTG (Northern Territory Government). 2008. *Alice Springs Economic Profile*. Available from <<http://www.nt.gov.au/d/regional/index.cfm?Header=Economic%20Profile%20-%20Alice%20Springs>>
- OHDC (Outback Highway Development Council). nd. *Australia's Longest Shortcut*. Available from <<http://www.outbackway.org.au/>>.
- Porter ME. 1998. Clusters and the new economics of competition. *Harvard Business Review* November–December 77–90.
- Putnam R. 2000. *Bowling Alone: The Collapse and Revival of American Community*. Simon and Schuster, New York.
- Saxenian A. 1996. Inside-out: regional networks and industrial adaptation in Silicon Valley and Route 128. *Cityscape: A Journal of Policy Development and Research* 2(2) 41–60.
- Tourism NT. nd. *In Focus: Regional tourism profile Alice Springs & MacDonnell*. Available from <http://www.tourismnt.com.au/nt/system/galleries/download/NTTC_Research/ASP_x_MacD_YE_Dec06-08.pdf>.
- Tourism NT. 2006. *Tourism Infrastructure Framework. April 2006. Strengthening the Position of Alice Springs Tourism*. Available from <http://www.dlgh.nt.gov.au/_data/assets/pdf_file/0016/25432/dlghs_ar_web.pdf>
- Tourism NT. 2007. *Strengthening the position of Alice Springs Tourism: Action Plan July 2007*. Available from <http://www.tourismnt.com.au/nt/system/galleries/download/Industry/action_plan_alice_springs_2007.pdf>
- UTS (University of Technology Sydney). 2007. *Alice Springs Water Efficiency Study Stage III*. Available from <http://www.nt.gov.au/nreta/water/wise/pdf/as_wes_execstage3.pdf>

DKCRC Partners

