Demographic Trends and Likely Futures for Australia's Tropical Rivers

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Executive Summary

This report profiles the changing nature of the resident and visitor populations in Australia's tropical river catchment areas (collectively the 'TRaCK region'). Demographic changes are examined in terms of mobility and temporariness, age, gender and Indigeneity and whether trends observed in the past ten or fifteen years are likely to be carried forward in the next ten or fifteen years, and how this might influence the population makeup well into the 21st century. From tourism perspective numbers and types of visitors are profiled along with the nature of the trips common to the region. The supply side of tourism is assessed for its ability to meet the expectations of changing and evolving tourism markets. The application of this research is to inform assessments about and the planning for future human, economic and environmental scenarios for the region in conjunction with other research streams being conducted under the TRaCK banner to support river and estuary management in northern Australia (see www.track.gov.au).

The TRaCK region is home to just two percent of Australia's resident population (about 310,000 people), a quarter of who are Indigenous (around 110,000 people). The population mix in the region is unusual, as it includes 16 percent of Australia's Indigenous population, around half of Australia's Torres Strait Islander population of 30,000, is visited by more than 20 percent of international visitors to Australia, and host about six percent of travellers in Australia each year (about 4.5 million visits). Its population is relatively young with a median age of 33 years compared to 37 years for the rest of Australia. Its sex ratio indicates over representation of males in the population at 106 males per 100 females compared to 97 per hundred for the balance of Australia. The sex ratio for non-Indigenous people was higher still at 108 compared to 97 for the rest of Australia.

Population growth in the region has followed two distinct paths. The first is the rapid increase of Indigenous populations since the early 1980s. The second has been high rates of population turnover among non-Indigenous populations, including a trend to outmigration to other parts of Australia and population growth based largely on immigration from overseas. The two paths are linked by a trend towards urbanisation which has been observed for both the Indigenous and non-Indigenous populations. Meanwhile the age composition of growth during the past decade and projected in the results of this study raise significant concerns about the ability of the region to generate sustained economic outcomes based on distributed economic growth. This is because almost all population growth has been concentrated in the ages 45 years and over and these residents will either retire in the region, creating a large dependency burden, or move away, diminishing the economic and social capital. And if the declines in the 20 to 34 year age groups observed during the past decade continue the potential for the region to respond to development opportunities will diminish while the economic burden of dependency rises.

Tourism activity in the areas covered by the TRaCK region has been highly concentrated in and around Darwin, Broome, and Katherine in terms of visitor nights, while activity in the remaining areas has been comparatively sparse. International visitors account for around a third of the estimated 4.5 million visitors per annum and around five percent of all visitors to Australia visit the region, and almost all for leisure purposes. Around a half of all international visitors to the region travelled alone compared to around a third of domestic visitors.

While almost all international visitors said they came to the TRaCK region for leisure, many domestic visitors came to visit friends and relatives as well as for business purposes. International visitors are more likely to be on multiple destination trips with the mean number of overnight stops reflecting this at six compared to two for domestic visitors. Transport to the region by domestic visitors is shared equally and dominated by air transport and private vehicle. By contrast, international visitors also arrived by bus or scheduled coach services, many of whom are on packaged tours. Domestic visitors tend to stay at hotels and with friends and relatives, whereas international visitors utilise a wider variety of accommodation types including backpacker hostels and caravan parks. In terms of activities undertaken by tourists in the TRaCK region the most common one was eating out, followed by going to the beach and visiting national parks. Aboriginal tourism activities featured relatively little for domestic visitors but were more likely to be undertaken by international visitors.

The performance of tourism in the TRaCK region can be described at best as flat. During 2000 to 2007 the domestic tourism market in Australia experienced virtually no growth. Likewise, the market share of domestic visitors to tourism regions linked with the TRaCK region was static at around 4.5 percent. The TRaCK region's share of international visitors was also static between 2002 and 2007 at around 21 or 22 percent but this market has grown over the same period so that the number of visitors to the region may have increased. Consequently, the growth in the tourism market in the 2000s has been almost exclusively from the international visitor market, and the focus of this market on Cairns and Port Douglas may mean limited dispersal of visitors to the TRaCK catchments.

This study finds that the human geography of the region might best be described as peripheral since it is a long way away from core markets and suppliers (which are principally in the South-East of Australia). The region has its own internal cores and peripheries (per Borgatti and Everett, 1999), particularly in the Northern Territory and Queensland sections where rural and remote populations focus on Darwin and Cairns (which is adjacent to the region) for shopping, services, entertainment and the limited local markets for product distribution that are available. Patterns of population change appear to have been affected more by economic and socio-political factors than environmental, locational or historical factors. The far north of Australia has been developed, at least post-European settlement, largely on the basis of staples such as mining and agriculture. Staples economies are associated with particular patterns of human settlement (Watkins and Wolfe, 2006). They involve industries of extraction, in which a narrow range of jobs are located at the point of extraction.

The development path of the TRaCK region would appear to be well aligned with that of other staples economies. The results of this analysis show a distinctively 'split' population with three groups identifiable. The first is the growing Indigenous population who have relative permanence in the region. They have a high demand for health, welfare and education services (Jackson et al., 2008). The second is the ageing resident non-Indigenous population who reside outside of the larger urban centres and are engaged in the staples of agriculture and mining. The third group is the highly mobile urban residents who exhibit relatively short lengths of stay in the region. Characteristically, the economies of staples-based regions come to revolve around services provision (with the public sector being an unusually large employer) as much

as the extractive industries. High staff turnover in the public sector often results in overstaffing of public agencies to help avoid understaffing and to give the impression of capacity (Foelster and Henrekson, 1999). Non-Indigenous populations tend to be male dominated and concentrated in the working age groups, and particularly the young working age groups. Child populations are dominated by Indigenous people, and the Indigenous populations tend to low sex ratios as their males suffer from high rates of preventable disease and low life expectancies (Karim-Aly, 2001).

Given this there are a number of concerns in terms of the future development potential for the region. The immediate prospects for tourism growth right across the TRaCK region are limited given the declining share of visitors which the region is seemingly attracting. Meanwhile resident populations have become more urbanised, with Darwin and surrounds experiencing the most rapid population growth while growth in the remainder is either flat or declining. The modelling undertaken for this project anticipates continuing growth of resident populations, but that growth largely confined to more urban catchments. However, the key features of the population – highly volatile as a result of the staples based industries which dominate the economy, high mobility among the working population, and the impact of seasonality on population movements – are likely to persist and make the task of forecasting a difficult one. The dual population structure involving long term (mainly Indigenous) residents on the one hand and temporary residents and visitors on the other is likely to be a persistent feature throughout most of the region. The global financial crisis and downscaling of mining operations is likely to counterbalance agriculture related population increase, at least in the short to medium term. Nevertheless, an increasing preference from immigrants and Indigenous people to live in urban centres is a trend that is unlikely to be reversed in the short or medium term.

In summary, the human populations of the TRaCK region by the middle of the current century are likely to have grown in total (both residents and visitors) but become even more concentrated in larger centres. There will be a higher percentage of Indigenous people. The population will continue to age, but with ageing attributed equally to smaller cohorts of Indigenous infants and growth in the post working age groups. The current large cohort of young Indigenous people will move through the working age groups over the next ten or fifteen years, while the current large cohort of mid-career non-Indigenous people will retire. Many of both groups will move away, continuing the established pattern of high mobility and residential moves to more urbanised parts, which may further fuel mobility in the more remote areas. Isolated pockets of tourism development may occur, but the bulk of the infrastructure will remain in the established areas, and the current trend is toward decreased dispersal of tourists.

The picture painted here is of a future full of risk. There are also opportunities that arise from the abundant natural resources, proximity to growing markets in Asia, improving transport and telecommunications infrastructure, and improved access to education and training among other factors. But these opportunities can only be realised with full recognition of the risks and appropriate planning. Fundamental to realising opportunities is the planning of and for human populations. The structure of the paper from here is as follows – the data sources and methods of analysis are summarised; a description is provided of the emergence of demographic characteristics of the resident populations of catchments since 1996; projections of the resident population are made for the period 2006 - 2026; a description is provided of the emergence of characteristics of the tourist populations of catchments since 1999; and the potential future tourist populations are discussed in light of the history of tourism development. The conclusion reflects on the importance of projected population changes for managing the process of regional development.

1. Introduction

This report forms part of a suite of research undertaken by the Tropical Rivers and Coastal Knowledge consortium (TRaCK - see www.track.gov.au). The TRaCK research program aims to:

> "…provide the science and knowledge that governments, communities and industries need for the sustainable use and management of Australia's tropical rivers and estuaries."

The research area stretches from Broome in Western Australia to Cape York in Queensland (Figure 1). One of the aims of TRaCK is to develop methods for assessing the implications of future developments in northern Australia. Those seeking to understand what different futures (or scenarios) might look like need information about socio-economic systems and their relationships with the environment. This type of information is currently unavailable for northern Australia as a whole.

Figure 1.1: TRaCK consortium research area

The research is situated within the 'Classifying tropical rivers' theme of the broader TRaCK research program. Its main aim is to describe the human geography of the northern tropical rivers in order to identify and describe the differential paths of demographic change which have existed (between the 'TRaCK region' and the rest of Australia or across individual catchment areas in the region). Such knowledge can be used to better inform future scenarios and identify possible pathways for human settlement and economic development. The focus of the research in this study is threefold:

- To describe the changing demographic composition of the region(s) in terms of both the resident and visiting (tourism related) populations during the current and past decade;
- Provide population projections and indications about likely future scenarios for these populations; and,
- Discuss the implications of these for economic development, service provision, infrastructure, and planning in the region.

The areas represented in this study constitute around a quarter of the Australian land mass but contain just two percent of the population. Human settlements are therefore sparsely distributed and there exists a wide variety of settlement types. A mixed and rich history of settlement development can be plotted. More recently has paralleled the growth in markets for the products of mineral extraction and processing and these include natural gas and coal for energy. At the same time there now exists concentrations of significant populations within the region and these are located in and around Darwin in the Northern Territory, Broome in Western Australia, and Mount Isa in Queensland. In this respect there are peripheral areas within the TRaCK region. The task of describing the human and economic futures of the peripheral areas is important for considering the future of the region and its socio-economic systems as a whole.

The structure of the paper is as follows. The initial chapter contextualises the human geography of Australia's north according to existing literature on the historical, developmental, and demographic characteristics. Data sources and methods of analysis are summarised in the subsequent chapter. The Results chapter follows and this provides a description of the emergent demographic characteristics of the resident and visiting populations during the immediate past. These are presented in two forms. First, the results for the TRaCK region as a whole are provided in the body of this report with some discussion on the significant differences observed across the region and between individual catchment regions. Secondly, demographic profiles for each of the 39 catchment areas (which represent aggregations of coastal river catchments based on Census Collection Districts) are provided as appendices. The results of projections of the resident population made for the period 2006 – 2026 are then provided and this is followed by a description of the emergent characteristics of the tourist populations of catchments since 1999. The potential future tourist populations are also discussed in light of the history of tourism development. The conclusion reflects on the importance of observed and projected population changes for managing the process of regional development in the tropical rivers regions of the north of Australia.

2. The Human Geography of Australia's Tropical River Catchments

Australia's tropical river catchments are home to about two percent of Australia's resident population (about 310 000 people), and host about six percent of travellers in Australia each year (about 4.5 million visits). The population mix in the region is unusual, as it includes 16 percent of Australia's Indigenous population, and is visited by more than 20 percent of international visitors to Australia. The largest resident population nodes are around Darwin in the Northern Territory, Mt Isa in Queensland, and Broome in Western Australia. No other locality has more than 10 000 residents, and only Katherine and Nhulunbuy (both in the Northern Territory) approach 5000 residents. Similarly, the key nodes for tourism activity are around Darwin, Broome, Mt Isa and Katherine. Outside of these localities, populations (residents and visitors) are small and highly dispersed. The region as a whole has experienced comparatively rapid growth in resident populations throughout the late 1990s and into the 2000s, while tourist numbers have been fairly static. The purpose of this paper is to describe population dynamics throughout the first decade of the 21st century, and to suggest what patterns of change may occur over the next fifteen or twenty years. This is an important undertaking because changes to the economic, environmental and socio-cultural well-being of the region are largely human driven processes. An understanding of the fundamental human characteristics (age, sex, Indigenous status, and mobility) provides insights into the capacity for a region to manage change processes (Sutherland, 2006).

It is difficult to portray the TRaCK region as homogenous in a human sense. It comprises several regions under three State/ Territory and multiple local government jurisdictions. One unifying factor may be the peripherality of the region– it is a long way away from core markets and suppliers (which are principally in the south-east of Australia). However, the region has its own internal cores and peripheries (per Borgatti and Everett, 1999), particularly in the Northern Territory and Queensland sections where rural and remote populations focus on Darwin and Cairns (which is adjacent to the region) for shopping, services, entertainment and the limited local markets for product distribution that are available.

Population growth has followed two distinct paths. The first has been a rapid increase of Indigenous populations since the early 1980s (Memmott and Moran, 2001) through both natural increase and because of non-demographic factors. High rates of fertility compared to the non-Indigenous population continue to be observed for all States and Territories (Kinfu and Taylor, 2005) and have been accompanied by sustained improvements in the life expectancy of Indigenous people since the 1960s (Wilson et al, 2007). In the Northern Territory, for example, life expectancy for Indigenous males increased by around 8 years from the late 1960s to 2004 and by 14.2 years for Indigenous females over the same period. Other factors contributing to Indigenous population growth are difficult to model and their relative contribution to growth at regional levels of geography cannot be determined. They include a changing (thought to be growing in most areas) individual propensity to identify as Indigenous at the time of the Census (Taylor, 2005), growing rates of Indigenous births to non-Indigenous mothers (Kinfu and Taylor, 2005), and improved Census field procedures designed to minimise undercount (ABS, 2008b).

The second population growth path is derived from high rates of population turnover among non-Indigenous populations, including a trend to outmigration to other parts of Australia and population growth based largely on immigration from overseas

(Australian Bureau of Statistics, 2008). Net interstate migration for the non-Indigenous population of the Northern Territory, for example, has been negative for most years during the past decade, has been volatile, and very hard to forecast (see, for example, Carson, 2008, Wilson, 2007). Areas across the north of Australia have generally exhibited similar patterns and these are different to those experienced in the majority of the rest of Australia (Carson, 2008).

The two paths are linked by a trend towards urbanisation, despite a mythology that has emerged around Indigenous people and the populating of remote areas (Burgess et al., 2005). Hudson (1991) suggested that the 'north' be considered separately from the rural 'south' in Australia in part because their demographic trajectories throughout the 1970s and 1980s were quite different. Declines in the agricultural sector 'down south' were associated with population decline in many rural areas, whereas the north continued to grow as a result of investment in mining, government and tourism, and growth in the Indigenous population. In some respects this might be expected because these industries have been able to progress despite the seasonality of most of the river courses in the tropical north of Australia (Erskine et al. 2006)

Hudson (1991) recognised that economic and socio-political factors often determine patterns of population change in peripheral areas more so than environmental, locational or historical factors. The far north of Australia has been developed, at least post-European settlement, largely on the basis of staples such as mining and agriculture. Staples economies are associated with particular patterns of human settlement (Watkins and Wolfe, 2006). They involve industries of extraction, in which a narrow range of jobs are located at the point of extraction. Populations tend to 'split' such that there is one group who have relative permanence in the periphery (usually Indigenous populations) and exhibit (or are perceived to exhibit) a high demand for health, welfare and education services (Jackson et al., 2008). There is another group which is highly mobile, has short lengths of stay in the region, and accesses many of these services elsewhere. Characteristically, the economies of staples-based regions come to revolve around services provision (with the public sector being an unusually large employer) as much as the extractive industries. High staff turnover in the public sector often results in overstaffing of public agencies to help avoid understaffing and to give the impression of capacity (Foelster and Henrekson, 1999). Non-Indigenous populations tend to be male dominated and concentrated in the working age groups, and particularly the young working age groups. Child populations are dominated by Indigenous people, and the Indigenous populations tend to low sex ratios as their males suffer from high rates of preventable disease and low life expectancies (Karim-Aly, 2001).

Changing these patterns has proven very difficult in the comparable peripheries of Australia, Canada, the United States and Scandinavia. Recommended strategies for change include economic diversification and increasing attention to amenity migration rather than simply labour migration (Jackson, et al., 2008). Tourism has been proposed as one activity that can help both strategies (Brownsey and Howlett, 2008). However, more recent research in remote Australia suggests that tourism in peripheral areas can itself be considered a staple, with local activity largely around sightseeing and provision of accommodation, and value add and higher yield activities related to transport and product distribution located outside the region (Carson, 2007). Nonetheless, the emergence of tourism as a substantial contributor to human settlement in the tropical north over the past thirty years or more needs to be

considered both because of how it affects regional development and because tourists themselves are a large part of the human presence. As an indication, the effective population of the TRaCK region on any day during its peak tourist season (May to October) may double as a result of the presence of 300 000 visitors. This seasonality is an important consideration. More than 75 percent of visitors to Australia's far north arrive during the peak season (Prideaux and Falco-Mammone, 2007). Seasonality is not restricted to tourist populations. In northern Australia, the onset of the harsh summer season tends to inspire greater outmigration of those considered 'residents' (as does the onset of winter in the American and European far north) (Jauhiainen and Moenkkoenen, 2005). Mobility is therefore driven by the expectation of temporariness and seasonality, and the lines between visitors and residents become blurred.

The other remarkable feature of staples-based populations is their volatility. In part this is because they tend to remain comparatively small in size and so small changes to initial conditions can produce large effects. But they are also susceptible to rapid change because of their reliance on export conditions and the lack of embeddedness of labour force skills (Halseth, 1999). In good times, there is major international competition for staples industry labour, and in bad times those skills are readily converted to other sectors (such as construction). This results in high population mobility as investors ramp up, withdraw and transfer human capital on short notice. Infrastructure for the extractive activity and subsequently for community building is necessarily designed for this volatility – it caters largely to temporary use by any particular cohort of people. The planning focus is on how rapidly capacity can be increased or decreased to match short term conditions (Wellstead, 2008). Again it becomes apparent that populations who are less actively engaged in the staples economy (particularly Indigenous people, retired people, children, and women) and those with longer-term commitments to place find it difficult to thrive. This may in part explain the variability of patterns of population growth observed by Hudson (1991) in the north of Australia in the 1980s. Hudson's observations of general population growth across the north were tempered by acknowledgement of population decline in some specific areas in the northwest of Queensland and the northeast of the Northern Territory. These regions were, at the time, among the more dependent on extractive industries.

The changing nature of human populations over time affects the ability of regions to engage in certain forms of planning and community building. In staples economies, regional development is driven by the mobile, male labour force. Children, Indigenous people, the non-mobile, women, and people not in the labour force (particularly those past retirement age) are difficult to integrate into patterns of regional development. Fundamental planning objectives are around population growth and its relationship to housing, land use and external investment. Less attention has been paid to what population growth or decline might mean for demand for education, health, welfare, recreation and other services (Gray and Lawrence, 2001).

Just as the links between resident population (numbers) and capacity for economic development are complex, the existence of tourist populations do not *a priori* proclaim the development of tourism in an industrial sense. The tourism industry is well known to exploit many destinations in which it does not make substantial investments (Emerton, et al., 2006). The presence of tourists may have important implications for services and infrastructure, but it is the presence of tourism which

determines whether the investment in service and infrastructure is recouped from the businesses who use it for commercial advantage. Changes in tourism cannot simply be tracked through estimates of visitor numbers and their dispersal, but need to be assessed in light of the location and nature of tourism businesses and commercial investments. Tourism development plans and population policies are often similar in that they focus on the numbers of people rather than the types of people and their capacity to contribute to economic and social development (Gunn, 2004). Land tenure issues across the TRaCK region stand out as one constraint to industrial development. For example, more than 50 percent of the land area is under public or Aboriginal land tenure, making it difficult to negotiate investment in development activities.

Two of the key constraints to population change in the TRaCK region arise from local expectations and ambitions for regional development and global influences on these. Local ambitions often remain unrealised in peripheral areas, either because they are ill conceived or because the stability and leadership to drive them forward is lacking (see, for example, Blackstock, 2005). Global influences shape the availability of local capital. The TRaCK research hub hosts a project aimed at exploring scenarios for the future of the region. The project is focused largely on the aspirations of 'locals', but is clearly conducted in a context where local capacity to intervene is limited (see http://www.track.gov.au/documents/research-flyers/track_sevaluation_fs1_p1.1.pdf for a description of the project). The authors of this paper are not in a position to pre-empt the findings of the 'River Futures' project, but there are some observations that can be made even at this early stage.

'Local ambitions' are likely to reveal a tension between the pro-development forces that characterise the 'settlers' and the community building and resource conservation forces that characterise more recent 'romantic arrivals' and Indigenous interests (although not always Indigenous communities themselves) (Defilippis, et al., 2006). A feature of local ambitions is that they often reflect more optimistic views of what is possible than the governments or investors or markets that ultimately are required to fund programs (Bailey and De Ruyter, 2007). Failed initiatives and 'grand plans' are far more common than realised ambitions – a condition illustrated in the examination of the history of tourism development in the TRaCK region later in this paper. Ironically, failures appear to have been particularly dramatic in ventures where locals have convinced distant investors to adopt their optimism.

The major global forces for change in the far north of Australia include the changing economics of the resources sector and the tourism sector. 2008 has seen boom and bust in the sector, and illustrated the reliance on the global economy in making plans for the north. Mining and energy companies talked up planned investment in social and economic capital in the north as they experienced record profits in 2007 but have become increasingly wary as profits vanished by the end of 2008.

In their review of tourism trends in the Northern Territory, Carson, Middleton and Jacobsen (2006) identified limitations to market growth as including:

- The financial and time cost to visitors of accessing remote destinations;
- The lack of major entry and exit routes to remote destinations;
- The lack of a viable visiting friends and relatives market (VRF) due to small local populations;

- The lack of a viable business tourism market due to few large businesses being headquartered in remote areas;
- The declining number of long trips (greater than 3 nights) being taken by domestic holiday makers and the increasing preference for shorter trips by international markets;
- The lack of 'sun, sea and sand' resorts in tropical Australia;
- The increasing preference for overseas travel by Australians;
- The increasing preference for active and 'experience based' holidays rather than sightseeing tours;
- The increasing preference for air travel, reduced long-haul coach travel, and resultant limited dispersal from entry points (see Prideaux, 2000); and
- The substitutability of rural and scenic amenity from more accessible destinations (for example, a range of 'outback' tours for international visitors from Sydney go to the Blue Mountains).

There are some exceptions to these trends in the tourism sector. Darwin and Cairns have international airports which have some limited services particularly to Asian markets. Broome and Port Douglas are well known beach resorts. Darwin's growing population can stimulate increased VFR tourism. Nonetheless, the economics of tourism in the early 21st century presents challenges to regions in the far north as they seek to attract investment with multiplier effects which can ultimately stimulate visitor expenditure.

Climate change, or more accurately, perception of the impacts of climate change, is another key global force. In Australia, climate change has been linked to the immediate need for water in southern areas for agriculture and human use. The north is seen as having a secure supply of water, and a number of strategies have been proposed for sharing that resource. There seems to have been a move away from programs to transport water from the north to the south, and towards programs to transfer water users (farmers in particular) from the south to the north (Hart, 2004). The TRaCK region has already experienced this with the Ord River Development Scheme in Western Australia. That Scheme has had mixed successes from an economic and environmental perspective over its forty-five year life span (Doupe and Pettit, 2002). The population impacts on the immediate region have included the development of the town of Kununurra (population of nearly 4,000 people) which has become a centre for other economic activity and a service centre attracting 'urban drift' of surrounding Indigenous populations. More generally, climate change presents long term challenges to the region – sea level rises may inundate some catchments, salt water incursion reduce the arability of land, hotter and wetter summers discouraging settlement, increased risk of some diseases (human and crop), perhaps declines in the availability of fresh water from salt water incursion and higher evaporation rates (see www.climatechange.gov.au).

The picture painted here is of a future full of risk. There are also opportunities that arise from the abundant natural resources, proximity to growing markets in Asia, improving transport and telecommunications infrastructure, and improved access to education and training among other factors. But these opportunities can only be realised with full recognition of the risks and appropriate planning. Fundamental to realising opportunities is the planning of and for human populations. This paper contributes by examining the changing demographics of the TRaCK region in terms

of mobility and temporariness, age, gender and Indigeneity. It analyses whether trends observed in the past ten or fifteen years are likely to be carried forward in the next ten or fifteen years, and how this might influence the population makeup well into the 21st century.

3. Methods

Resident population data were drawn from the 1996, 2001 and 2006 Census of Population and Housing. Data items were – age, sex, Indigenous status, location of usual residence on Census night, location of usual residence one year prior to Census night, and place of usual residence five years prior to Census night. 'Usual residence' is defined as the place where the person has lived or intends to live for more than six months in the year of the Census. Individual responses to the Census are amalgamated geographically, with the smallest geographic entity being a 'collection district' (CD) which usually contains about 200 – 250 dwellings. In remote areas, CDs contain fewer dwellings and cover much larger areas. Confidentiality considerations means that some data is not released for some collection districts, and it is more common to use larger geographic entities such as Statistical Local Areas (which are mapped to suburbs or towns in more densely populated areas, but less 'local' in more remote regions), and Statistical Divisions and Sub-divisions. The larger the geographic entity, the less well boundaries conform to physical catchment boundaries, although this problem is largely one at the individual catchment level because the 'excess' regions tend to hold very little of the population of the total TRaCK region. Census data is also somewhat limited by the different methods of data collection that apply in remote regions – far more information about individuals is imputed by data collectors, heads of households or other intermediaries than happens in urban areas. Census undercount and non-response to individual question are much greater in remote areas than urban areas. Nonetheless, the Census remains the most comprehensive and detailed set of information about the population in TRaCK catchments.

In this research, the analysis of individual catchments and more localised change effects has been conducted using a custom geography created from combinations of CDs and provided by the Australian Bureau of Statistics outside the publically available data sets. The research also provides a top level analysis based on combinations of Statistical Sub-divisions (SSD) to allow us to exploit the additional detail available at this level (particularly with regards mobility data) and to allow other researchers who do not have access to the customised data to critique and extend the analysis. In practice, the difference in populations recorded at the 2006 Census for the TRaCK region as a whole, delineated by the custom geography and delineated by SSDs, was less than 7000 people (about two percent of the higher estimate).

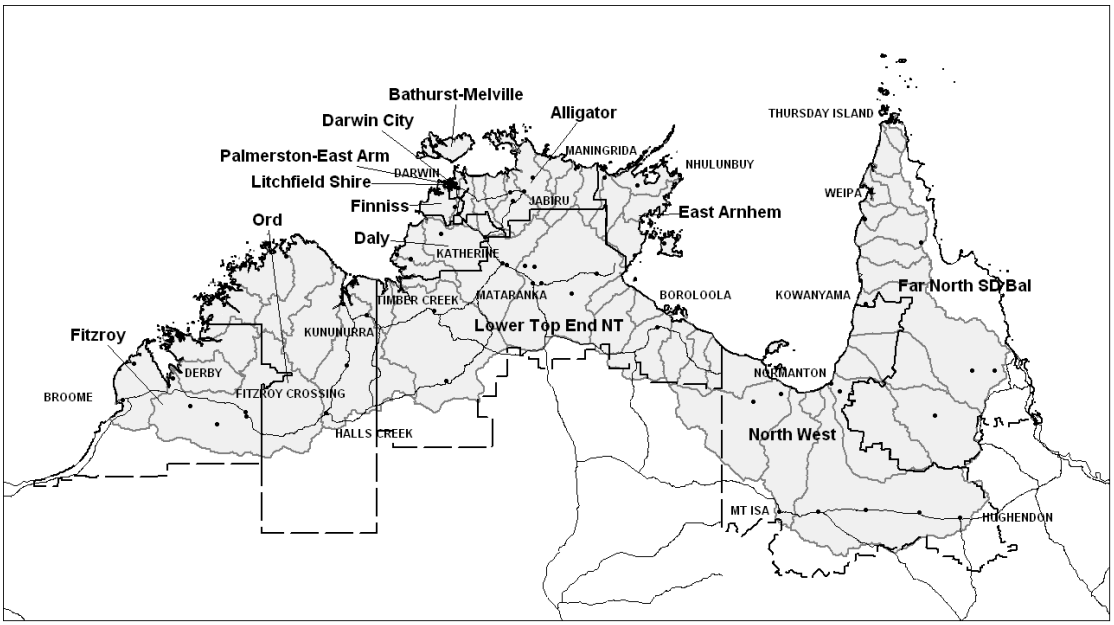

Figure 3.1: Statistical Sub-Divisions and TRaCK Catchment Boundaries

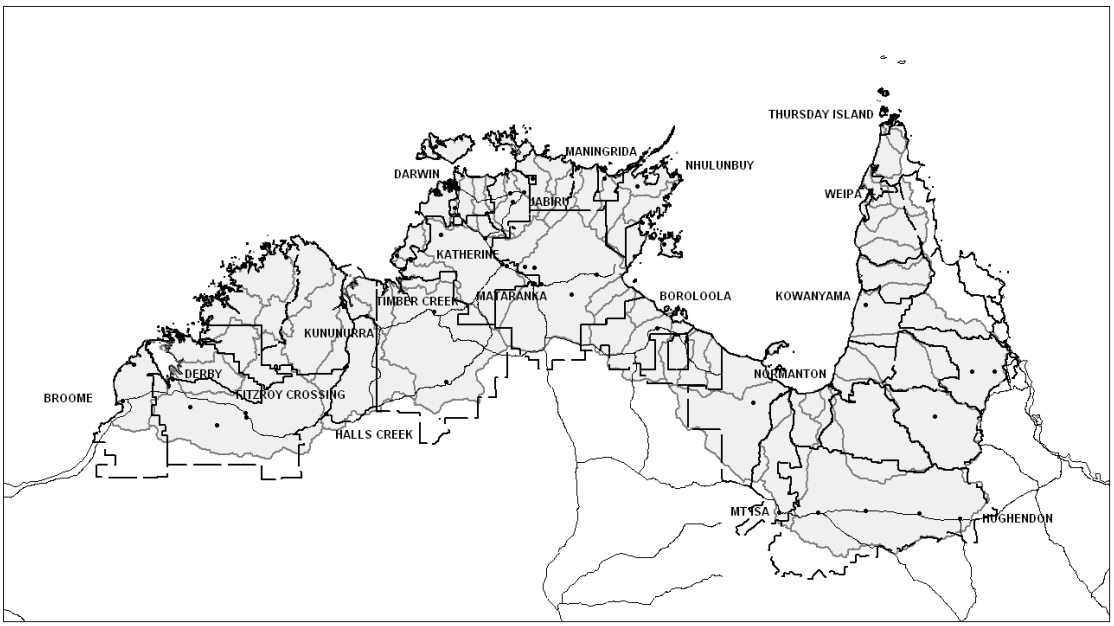

Figure 3.2: Custom Geography (Combined Collection Districts) and TRaCK Catchment Boundaries

The population projections reported in this paper are extrapolations of exponential growth rates for Statistical Local Areas located within customised versions of the TRaCK basins. These customised basins are comprised of aggregations of Census Collection Districts (CDs) and there are 39 in total. Jump off populations are dissagreagated at the basin level by age, sex and Indigenous status. Not stated responses to Indigenous status are imputed based on proportional representation by age and sex. Expenonetial growth rates from 1996 to 2006 by age, sex and Indigenous status were calculated based on Usual Resident data for those SLAs. Growth rates by age, sex and Indigenous status were then applied to individual TRaCK regions on the assumption that they would maintain their share of the growth experience for the region from 1996 to 2006. Projections were extrapolated for a 20 year horizon from the base year in 2006 to the year 2026.

There are many limitaions associated with the projections. First, the UR populations from which the exponential growth rates are derived are not adjusted for Census undercount and these are known to vary significantly between Censuses for particular areas. Second, changes in the geographic boundaries of the SLAs which comprise the TRACK region have occurred in successive Censuses, although these are mostly within the urban areas and their immediate fringes. Third, the extrapolation of exponential growth cannot account for varying rates of fertility, mortality or in and out migration to individual regions across State/Territory boundaries. Nevertheless, the methods here enable an analysis of future trends to be performed on the basis that these will largely be reflective of those observed in the recent past. In the absence of available, valid, and consistent data across the TRaCK region to facilitate a more structured modelling of projected populations this method provides a starting point for assessing future human geography.

There is no source of data about tourists comparable to the Census of residents. Tourism Research Australia administers the International Visitor Survey (IVS) and the National Visitor Survey (NVS) which interview thirty or forty thousand international visitors and Australian residents respectively each year. From these samples and immigration information (for international visitors), estimates of the number of visitors, their length of stay and expenditure are produced. Publicly available data reports these estimates (and some information about demographic and trip characteristics) at the national, State/ Territory and 'tourism region' levels. Tourism regions are administrative areas used by State Tourism Organisations for marketing and administration purposes. While there are eighty-eight tourism regions in Australia, only eight include TRaCK catchments (two in Queensland, one in Western Australia and five in the Northern Territory). In Queensland and Western Australia, the tourism regions that include TRaCK catchments also include many other locations (Figure 3.3).

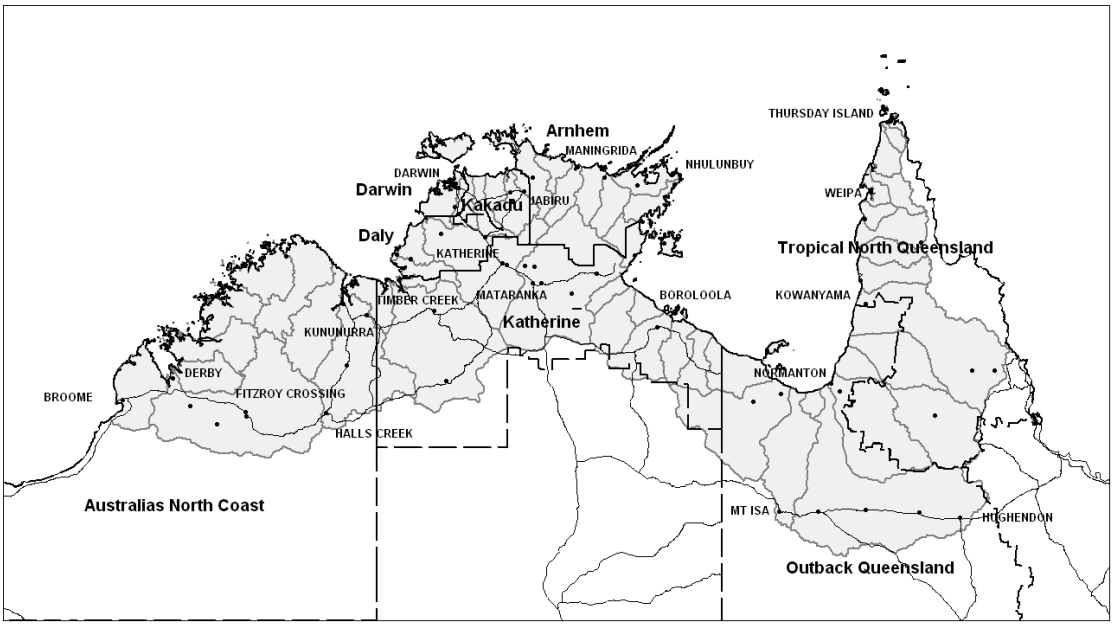

Figure 3.3: Tourism Regions and TRaCK Catchment Boundaries

The boundary issues are important in one sense because they preclude local level analysis of tourist numbers. However, the region is characterised by two types of

trips. The first is single destination, short length of stay trips which tend to take place to the urban centres surrounding commercial airports. The second is longer lengths of stay trips which involve visits to multiple destinations within a tourism region, and usually across tourism regions. In previous research conducted in Central Australia, for example, it was found that 96 percent of visitors at Uluru had visited, or were planning to visit Alice Springs in the same trip, and 75 percent of visitors to Alice Springs also visited Uluru. The mobility of tourists across particularly remote destinations (which are far more likely to be included in multiple destination itineraries) means that data at the tourism region level provides insights into various parts of the region so long as it can be established which are the core and peripheral destinations within the region. In this research, for example, while Cairns is outside the TRaCK region but inside the Tropical North Queensland tourism region, it is likely that most visitors to the TRaCK catchments in Queensland also visited Cairns.

The current IVS and NVS programs commenced in 1998, but data is rarely released about the 1998 collection of the NVS and the 1998-2001 collections of the IVS due to issues of data quality and time series comparability. Data was available up to the end of calendar year 2007 at the time of this research. The data items used in this research were estimated number of visitors to tourism regions which include TRaCK catchments, estimated number of nights spent in those regions, estimated expenditure in those regions and the purpose of visit (holiday/ leisure or other purposes such as business or education).

Unpublished IVS and NVS data does allow consideration of visits to specific locations (coded to Statistical Local Areas), and may be treated as a sample of tourist activity in these locations. Estimates of actual visitor numbers to these locations cannot be reliably made, but comparisons of lengths of stay and the relative distribution of sampled trips across the catchment region are possible. Because the data collections are rolling ones (data is being continually collected and the reporting cut-offs are a matter of convenience), it is possible to combine samples across multiple years to increase reliability of reporting on lengths of stay and locations of overnight stops. Tourism Research Australia provided unit record data from the 1998 – 2006 (but not for 2007) surveys which included the SLA of overnight stops and the number of nights spent in individual SLAs. Analysis of the quality of the data revealed high levels of missing or imputed length of stay variables for the period 1998 – 2003, but good data quality for 2004-2006. Consequently, the 2004-2006 sample was analysed to make some estimates of the distribution of overnight stops and lengths of stay in localities across the region.

Information about tourism is even scarcer than information about tourists. The main source of data is the Survey of Tourist Accommodation (STA) which collects capacity and occupancy information from accommodation businesses each month. Data is reported quarterly at the SLA and tourism region level. Data is suppressed when there are fewer than three accommodation businesses in the region or when multiple businesses in the region are owned by a single operator. In these cases, quarterly data (which are the basis of our reporting here) is imputed from what is known (which might be monthly data or annual data or summary data for the larger region).

STA data is publically available at SLA level from the March quarter of 2003 to the June quarter of 2008 (at the time of this research). Data from 2003 to 2005 only covered accommodation businesses which had more than fifteen rooms. This is the

information reported in the time series analysis. Data from 2006 to 2008 covers a much wider range of accommodation businesses (including caravan parks and backpacker hostels) and the 2008 data is used to describe current conditions.

Several attempts have been made to produce estimates of tourism activity that go beyond the accommodation sector. The Sustainable Tourism Cooperative Research Centre (STCRC) produces Tourism Satellite Accounts at the State and Territory level (derived from national Tourism Satellite Accounts produced by the Australian Bureau of Statistics), but not at the regional level. The STCRC has attempted to implement a cross-sectoral monthly data collection, but data has only been collected in a few regions, and where it has been collected (including the Northern Territory) it is not publicly available. The STCRC has also tried to derive estimates of the number and type of tourism businesses in specific locations from telephone directory listings, but the most recent data is from 2003 and is expensive to access.

This project used Internet Mediated Research (IMR) to identify the locations of tourism development across the TRaCK region. The particular focus was on developments occurring outside the larger tourism centres (where STA coverage was very good), and developments in the TRaCK focal catchments – Fitzroy River (Western Australia), Daly River (Northern Territory), Mitchell River (Queensland) and Flinders River (Queensland). We used a Google Maps interface to report on locations where tourism developments had been planned but never occurred, had occurred but ceased, and had occurred and were continuing. We also identified non-tourism specific developments which had been reported in the media or through other interests as having implications for tourism development. An example is the Cape York Space Port which was proposed in 1989 as a launching site for commercial Soviet payloads and optimistically flagged to commence operations in 1992 (Anderson, 1989). The Queensland Government supported the initiative with fervour, announcing it to be the '…single most important development in the history of Australia' (ibid.). But various consortiums fell into financial turmoil and this combined with legal challenges from local Aboriginal people ensured the venture never got off the ground. Despite this, there remain hopes for the development of such a facility on Cape York and current discussions are about a site nearby to Weipa on the west of the Cape. What these multiple methods present are a broad view of human settlement patterns across the TRaCK region. They consider both residents and visitors and the observed patterns are analysed in the context of the opportunities and risks for regional development into the future.

4. Results

Residents 2006

Approximately 310,000 people were recorded as having their usual residence in the TRaCK region at the 2006 Census. Nearly two-thirds of these lived in urban centres and localities which are population clusters usually of two hundred people or more (see Figure 4.1). By far the largest population centre was Darwin, with nearly 70 000 people. When Darwin is combined with the immediate surrounding areas of Palmerston and Litchfield (Greater Darwin) the recorded population was over 100 000, or one-third of the total TRaCK usual resident population recorded at the Census. Throughout the rest of the region only Mt Isa in Queensland (20,000 people) and Broome in Western Australia (12,000 people) had more than 10,000 residents.

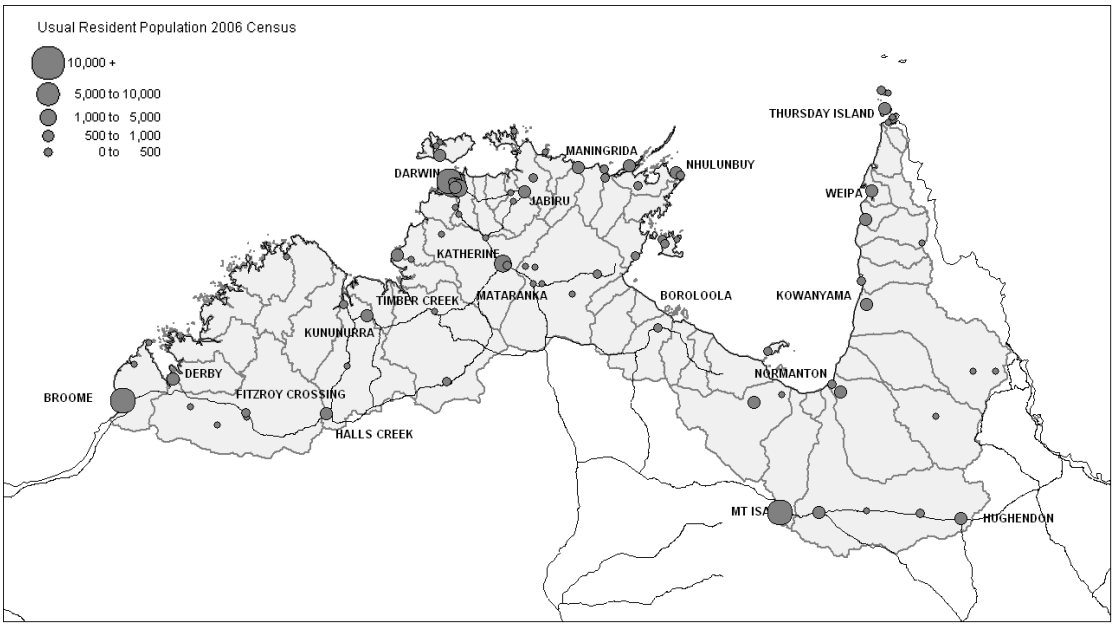

Figure 4.1: Populations of Urban Centres and Localities As Recorded at the 2006 Census

Source: Australian Bureau of Statistics, 2006 Census

The median age for the total region was 33 years, and there were 107 males recorded for every 100 females. This compared with a median age for Australia of 37 years and a sex ratio of 97. One quarter of usual residents in the TRaCK region were Indigenous, compared with just two percent nationally.

The age and sex profile of the TRaCK region was quite different to that for Australia as a whole. Sex ratios in the TRaCK region were consistently higher than for Australia as a whole in each age group. Ratios were highest in the young age groups (aged less than 25 years) and in the older age groups (aged 40 years or more). The age profile for the TRaCK region (see Figure 4.2) shows a concentration of people aged under 40 years, and far fewer people aged over 65 years than in Australia as a whole.

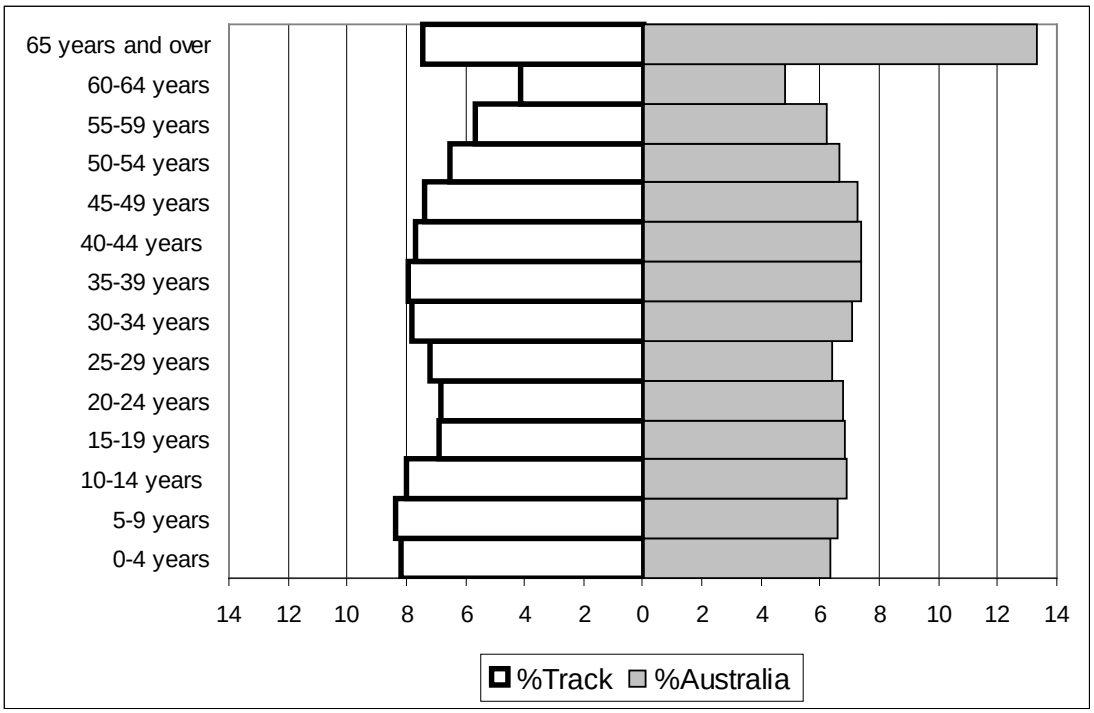

Figure 4.2: Age Distribution in the TRaCK Region and Australia as a Whole.
Source: Australian Bureau of Statistics, 2006 Census

The unusual age distribution may be explained in part by the high proportion of Indigenous people in the TRaCK region. The Indigenous population of Australia is much younger (median age of 22 years) than the population as a whole (median age 37 years). Figure 4.3 shows the markedly different age distributions for Indigenous and non-Indigenous residents of the TRaCK region.

Figure 4.3: Age Distributions of Indigenous and Non-Indigenous Populations of the TRaCK Region
Source: Australian Bureau of Statistics, 2006 Census

Sex ratios were also much lower among the Indigenous population. The overall sex ratio was 97 (compared with 109 for the non-Indigenous population) and sex ratios were fewer than 100 for each Indigenous age group above 20 years.

The rates of population turnover experienced in the TRaCK region between 2001 and 2006 were consistent with those reported across Australia as a whole. The median population turnover rate (number of people who moved into or out of the region expressed as a percentage of the population of the region) was 64 percent, which was also the national median. Emigration rates (people who moved out of the region) were slightly higher than the national median at 33 percent compared with 26 percent. There were nearly 2000 more people who moved out of the region between 2001 and 2006 than who moved in to the region.

Population turnover rates were not consistent across the region. Figure 4.4 shows pockets of very high population turnover in Darwin and the southern Gulf parts of Queensland (between the Flinders and Mitchell River catchments), and low levels of population turnover along the east coast of the Northern Territory and between the Embley and Coleman River catchments in Queensland. Areas in hatched grey experienced low population turnover rates. Areas in solid light grey experienced population turnover rates consistent with the national median, and areas in solid darker grey experienced high population turnover rates. The inset shows the Greater Darwin area.

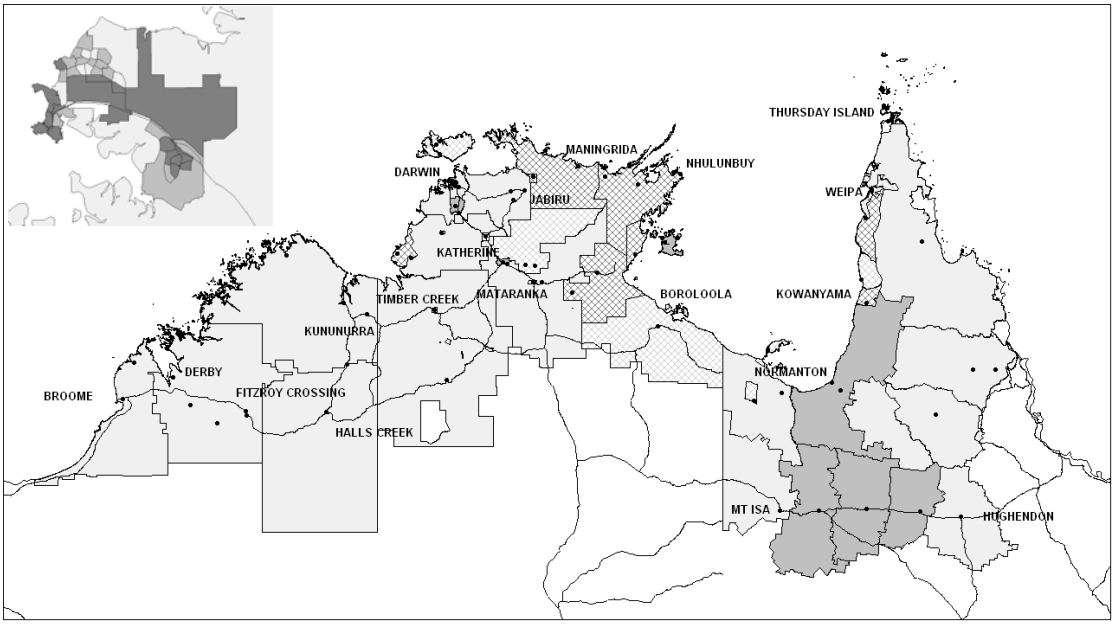

Figure 4.4: Population Turnover 2001-2006
Source: Australian Bureau of Statistics, 2006 Census

The highest population turnover rates were above 100 percent and were experienced in a number of Darwin suburbs, but also in the town of Jabiru in the East Alligator catchment and Nhulunbuy in the Buckingham River catchment. Weipa (94 percent) and Cloncurry (92 percent) experienced the highest population turnover rates of Queensland locations, and Broome (81 percent) and Wyndham (78 percent) experienced the highest rates in Western Australia. Rates under 20 percent were experienced in Aboriginal communities in the region including Angurugu and

Numbulwar in the Northern Territory, and Kowanyama and Aurukun in Queensland. The lowest turnover rates in Western Australia were 47 percent in Halls Creek and 56 percent in Derby. Overall, the Northern Territory part of the TRaCK region had the highest median population turnover rate at 74 percent (compared with around 52 percent for both Queensland and Western Australia). It is important to recognise, however, that most of the turnover in the Northern Territory occurred in Darwin. When Greater Darwin is excluded from the analysis, the population turnover rate for the Northern Territory part of the region was just 51 percent and comparable with the other two States.

Similarly, Greater Darwin had a major influence on State-specific age and sex profiles within the TRaCK region. In 2006, the median age for the Queensland part of the region was 35 years, and for Western Australia and the Northern Territory was 31 years. However, if Greater Darwin is excluded, the median age for the Northern Territory was just 28 years. The Greater Darwin median age was 33 years. The sex ratio for the Queensland and Western Australia parts was 106, and 108 for the Northern Territory. Excluding Greater Darwin, the Northern Territory ratio was 106. The Greater Darwin sex ratio was 109.

The Western Australian part of the region had the highest proportion of Indigenous residents at 42 percent (compared with 22 percent for Queensland and 24 percent for the Northern Territory). Again excluding Greater Darwin, the Indigenous population of the rest of the Northern Territory part was 61 percent (and ten percent in Greater Darwin).

The age distributions of the Indigenous populations of each State part were very similar. Around 35 percent of Indigenous people were aged less than 15 years. There were about 60 percent aged in the ‘working age group’ (15-64 years) and five percent aged 65 years or more. This suggests a total dependency ratio of 67 percent. The non-Indigenous distributions were less uniform (see Figure 4.5) with dependency ratios ranging from 30 percent in Western Australia (indicating a very high proportion of people of working age) to 48 percent in Queensland. Interestingly, the age distributions were not substantially different for Greater Darwin and the rest of the Northern Territory (dependency ratio of 35 percent for Greater Darwin and 36 percent for the Rest of the Northern Territory), indicating, when coupled with the higher median age in Darwin, an older workforce in the capital.

Figure 4.5: Age Distributions of the Non-Indigenous Population
Source: Australian Bureau of Statistics, 2006 Census

Changes in Resident Characteristics 1996-2006

According to Census data, the TRaCK region experienced substantial growth of about seven percent between 1996 and 2001. Almost all of this growth was in the older age groups (40 years and over), with some additional growth in the 10-20 year old Indigenous population. The younger (aged less than 40 years) non-Indigenous population actually declined by about five percent. The overall growth rates were eleven percent for Indigenous people and four percent for non-Indigenous people. The working age population increased by eight percent and the population aged 65 years or over increased by 20 percent while the population aged less than 15 years increased by just two percent. Western Australia grew the most (25 percent), with the Northern Territory growing by eight percent and Queensland by three percent.

The rate of growth was slower between 2001 and 2006. The population of the total region grew by two percent. There was a four percent increase in the Indigenous population, but a two percent decrease in the non-Indigenous population. The Indigenous population continued to grow in the older age groups, with a 12 percent increase in those aged 65 years and over, while there was very little growth in the population aged under 15 years. The non-Indigenous population also had large growth of the 65 years and over population (17 percent), but declines in both the under 15 years (down by nine percent) and working age (down by two percent) groups. Overall, the working age population grew by just two percent and growth in the population aged 65 years and over was offset by a decline in the population aged less than 15 years. There were substantial differences between the States, with the Northern Territory experiencing relatively higher growth (five percent), Queensland remaining at 2001 population levels, and Western Australia experiencing a six percent decline. Greater Darwin grew more (six percent) than the rest of the Northern Territory (four percent).

Between 1996 and 2006, the proportion of the population that was Indigenous grew from 24 percent to 25 percent. The median age increased from 30 years to 33 years, and the sex ratio declined from 109 to 107. Western Australia saw a decline in the percentage of the population identifying as Indigenous (46 percent in 1996 to 42 percent in 2006), but both Northern Territory (23 percent to 24 percent) and Queensland (20 percent to 22 percent) experienced increases. Ageing and declining sex ratios were consistent emergent characteristics in all three States.

The TRaCK region had 1,700 more people leave to live in other parts of Australia than arrived from other parts between 2001 and 2006. Queensland had the largest outmigration at 2,500 people (or 4 percent of the 2006 population) and Western Australia had an out migration equivalent to three percent of the 2006 population. In contrast, the Northern Territory gained population from interstate migration (nearly 2,000 people or one percent of the 2006 population). Population gain from interstate migration in the Northern Territory was entirely in the Greater Darwin region, with the rest of the Northern Territory having a net loss of about 500 people (equivalent to one percent of its 2006 population).

Demographic profiles

Individual demographic profiles for each of the CD defined regions (39 in total), one for the TRaCK region as a whole, and one for the balance of Australia are provided as an appendix to this report (Appendix 1). Each profile contains the same set of information for regions as follows:

- Resident populations in 2006 by age, sex and Indigenous status
- A summary table of demographic indicators including the percentage of the population which is Indigenous, sex ratios, dependency ratios, and population turnover rates
- Four population pyramids comparing: a) the age-sex structure of Indigenous people to the age-sex structure of non-Indigenous people in the region; b) the age-sex structure of the region to the overall structure of for the TRaCK; c) the age-sex structure of the region compared to the age-sex structure of the balance of Australia; and d) age specific rates of growth (or decline) for the region between 1996 and 2006.

An explanatory profile is also made available to assist readers to interpret the information provided in the profiles. This set of profiles is also available free of charge from the TRaCK web site (www.track.gov.au).

Population projections

Population Projections have been derived for the TRaCK Region as a whole and for combined regions at the State/Territory level. The results indicate that the population of the region might grow from around 310,000 in 2006 to around 450,000 by 2026 at an annual average growth rate of 1.83 percent (Table 4.1). The Indigenous population is expected to continue to grow at a faster rate (1.97 percent per annum) than the non-Indigenous population (1.78 percent per annum) and particularly in the Northern Territory regions where growth of more than 40 percent is projected over the 20 year period. Relatively low rates of growth are expected for the non-indigenous populations of the Queensland and Northern Territory regions whereas high growth

rates (2.13 per annum) are projected for the non-Indigenous population of the Western Australian regions.

	2006	2011	2016	2021	2026	Growth 2006 to 2026	Av. annual growth rate 2006 to 2026
	Indigenous						
TRaCK region	80,287	88,025	96,916	107,180	119,081	39.4%	1.97%
Northern Territory TRaCK area	38,498	42,846	47,684	53,069	59,063	42.8%	2.14%
Queensland TRaCK area	27,526	29,568	31,762	34,118	36,649	28.6%	1.43%
Western Australia TRaCK area	12,933	13,545	14,187	14,861	15,568	18.5%	0.93%
	Non-Indigenous						
TRaCK region	229,853	244,809	265,046	292,081	327,938	35.5%	1.78%
Northern Territory TRaCK area	111,089	116,614	122,416	128,509	134,906	19.4%	0.97%
Queensland TRaCK area	104,722	108,200	111,806	115,544	119,419	13.1%	0.66%
Western Australia TRaCK area	15,365	17,091	19,011	21,146	23,522	42.6%	2.13%
	Total persons						
TRaCK region	310,140	332,834	361,963	399,261	447,019	36.6%	1.83%
Northern Territory TRaCK area	149,587	159,460	170,101	181,578	193,968	26.0%	1.30%
Queensland TRaCK area	132,248	137,768	143,568	149,662	156,068	16.6%	0.83%
Western Australia TRaCK area	28,298	30,636	33,198	36,007	39,090	32.3%	1.62%

Table 4.1: Summary of population projection results, 2006 to 2026
Note: the imputation of Indigenous status 'not stated' at region level means that state level projections may not add up to projections for the TRaCK region as a whole.

As denoted above, the population of the TRaCK region is anticipated to grow by around 137,000 people from 2006 to 2026. Examining individual age groups shows that almost all of the expected future growth (in absolute terms) is likely to be contributed by those aged 40 years and above, and particularly by those aged 50 to 64 years (Figure 4.6). Meanwhile there is expected to be negative growth in the working age cohorts of 20 to 34 years and only minor growth in the infant cohort (birth to four years). These cohorts are projected to increase their share of the population significantly as the 40 years plus population for the TRaCK region as a whole grows from 38 percent to 56 percent. Significant variations to this projected overall pattern of ageing are likely across states and between regions. In the Northern Territory, for example, the 55 to 59 years group may increase its share by eleven percent (from five percent to 16 percent) from 2006 to 2026. The growth which is attributable to older cohorts in the Indigenous population is expected to exceed that of the older cohorts in the non-Indigenous population due to continued improvements in life expectancy and a continuation in the decline (albeit at a slowing rate) of Indigenous fertility rates observed since the late 1960s.

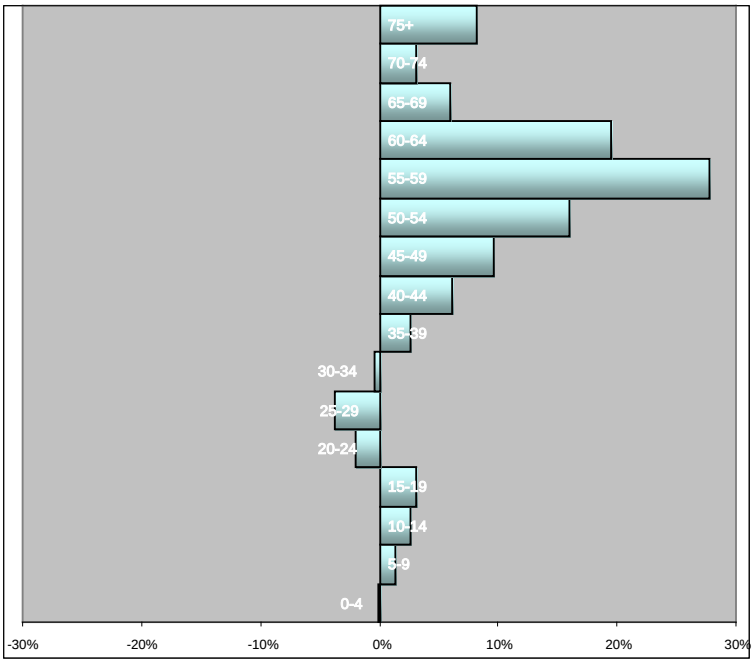

Figure 4.6: Projected age-specific contribution to growth for the TRaCK region, 2006 to 2026
Note: The sum of the contributions made by each age cohort is 100 percent

Tourists

It is important to recognise that estimates of visitor numbers to regional Australia are subject to very large standard errors (often in the order of ±30 percent). Visitors to Cairns and Port Douglas, which are not in the TRaCK region but are in the Tropical North Queensland Tourism Region, also tend to dominate the estimates. Nonetheless, these regional estimates represent the best available data and are useful if considered as illustrative of trends rather than representing exact numbers of visitors. In 2007, it was estimated that nearly 4.5 million visitors spent at least one night in a tourism region overlapping the TRaCK region. More than three quarters of these visitors were domestic visitors. Around 60 percent of the domestic visitors were travelling for leisure purposes, and about one quarter of these were visiting friends and relatives. International visitors were much more likely to be leisure visitors (90 percent). In total, the TRaCK region may have hosted 5.5 percent of all visitors travelling in Australia in 2007, including one fifth of all international visitors. However, these are likely to be generous estimates because many visitors went to more than one destination in the TRaCK region (but were only counted once in Australia as a whole) and many may have gone to Cairns or Port Douglas but not actually entered the TRaCK region. Nonetheless these figures provide some indication of market potential in 2007.

Information about average trip length (number of nights spent in the destination) and expenditure is only available for domestic visitors. TRaCK related tourism regions hosted over 21.5 million domestic visitor nights in 2007 (about 6 nights per trip on average), and attracted almost $3 500 million in domestic visitor expenditure (about $900 per trip on average). The most popular destination for international and domestic visitors was Tropical North Queensland, hosting over half of all visitors to TRaCK, including three quarters of all international visitors. Tropical North Queensland also

received over one third of domestic visitor nights and one half of domestic visitor expenditure. The next most popular destinations were Darwin and Kakadu (18 percent of visitors, 14 percent of international visitors).

Figure 4.7 shows the distribution of the sample cohort for 2004 through 2006 from the International Visitor Survey and the National Visitor Survey combined. The highest percentage of overnight stops were in Darwin (33 percent), Broome and Katherine (both less than ten percent). There was limited dispersal in the region immediately around Cairns and Port Douglas, which likely indicates that our estimates of visits to the total region are very generous. In all, the map shows ten or twelve main locations accounting for nearly all overnight stops, with the remainder of the region collectively hosting less than five percent of visitors.

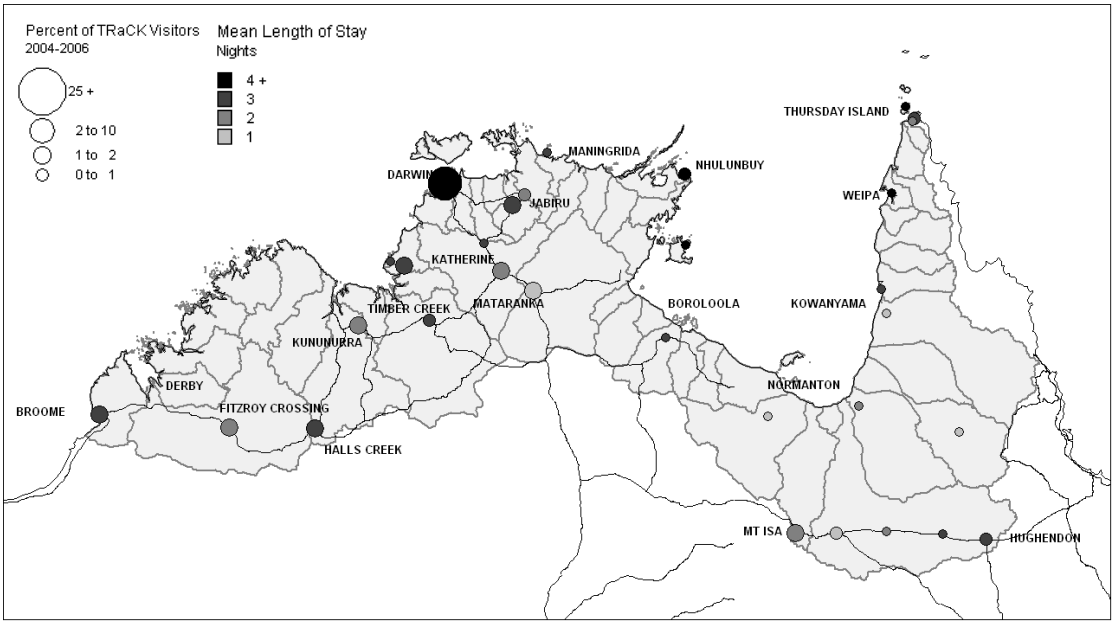

Figure 4.7: Percentage of TRaCK Visitors and Mean Length of Stay (Nights) by Location, 2004-2006
Source: Tourism Research Australia, International Visitor Survey and National Visitor Survey

Figure 4.7 includes the mean length of stay (in nights) in each of the TRaCK locations. The popular destinations of Broome and Darwin also had relatively long mean lengths of stay (3 or 4 nights), but so did some of the smaller and more remote destinations such as Borroloola, Nhulunbuy, Normanton and Weipa. Some more popular destinations in terms of visitors numbers such as Katherine and Kununurra had mean lengths of stay of just one or two nights.

The domestic tourism market in Australia experienced virtually no growth between 2000 and 2007. Likewise, the market share of domestic visitors to tourism regions linked with the TRaCK region was static at around 4.5 percent. The distribution of visitors among tourism regions also remained fairly constant, with some small decline in Outback Queensland (from 24 percent to 22 percent of TRaCK domestic visitors) and small increase in Australia's North West (from 13 percent to 15 percent of the market). However, this summary conceals some substantial fluctuations throughout the period (see Figure 4.8). For example, in 2003, Tropical North Queensland hosted

almost half the market, largely at the expense of Darwin, which had just 15 percent of the market in that year.

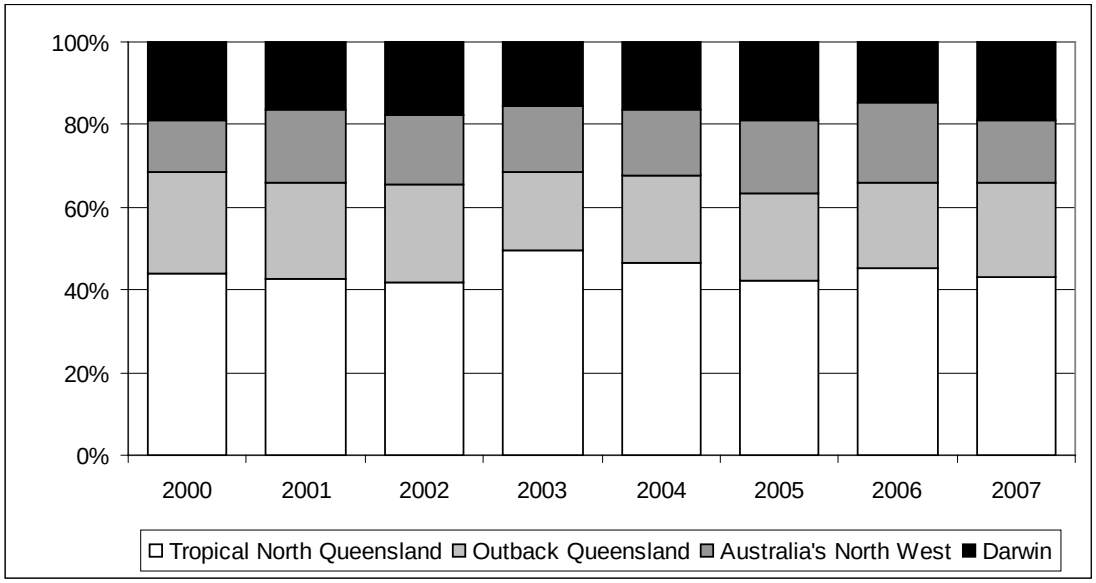

Figure 4.8: Share of TRaCK Visitors by Tourism Region, 2000-2007
Source: Tourism Research Australia, International Visitor Survey and National Visitor Survey

The TRaCK region's share of international visitors was also static between 2002 and 2007 at around 21 or 22 percent. Unlike domestic visitors, however, the market grew by about 16 percent overall, although trends are difficult to detect because of the volatility of the market from year to year. For example, the leisure tourist market declined by 20 percent between 2005 and 2006, but that loss was recouped in 2007. Within the TRaCK region, Darwin may have lost market share (from 15 percent to 14 percent) and Australia's North West may have gained market share (from four percent to six percent) although the estimates are subject to high standard errors. Tropical North Queensland had almost 80 percent of market share throughout the period, so again caution must be taken when interpreting this data as directly relevant to the TRaCK region. In summary, the growth in the tourism market in the 2000s has been almost exclusively from the international visitor market, and the focus of this market on Cairns and Port Douglas may mean limited dispersal of visitors to the TRaCK catchments.

TRACK Visitor Profile 2006

The most recent year for which data is available that can specifically identify visitors to the TRACK region (as distinguished from visitors to tourism regions which overlap with the TRACK region) was 2006. In that year, the National Visitor Survey (NVS) included 2,200 respondents (six percent of the total NVS sample) who spent at least one night in the TRACK region. The International Visitor Survey (IVS) included 3,500 respondents (nine percent of the total IVS sample) who had spent at least one night in the TRACK region. Domestic visitors came from all over Australia, with the most common areas of origin being regional Queensland (18 percent), Sydney (15 percent) and the Northern Territory (15 percent). The major international markets were the United Kingdom (15 percent), New Zealand (12 percent), Japan (12 percent), Germany (eight percent), and the United States of America (seven percent).

About one third of domestic visitors were travelling alone, and an additional third were travelling in a couple. The remainder was split between families and groups of friends or relatives travelling together. In contrast, more than half of all internationals were travelling alone, 25 percent in a couple, ten percent with friends and just eight percent in families. Domestic were likely to be under 40 years of age (55 percent) or 65 years or over (25 percent). Nearly two thirds of internationals were aged under 40 years, and just six percent aged 65 years or more.

The most common purpose of visit for domestic tourists was holidays (34 percent), followed by visiting friends and relatives (29 percent) and business (23 percent). In comparison, international visitors were in the region for holidays (56 percent), visiting friends and relatives (19 percent) and business (ten percent). Nearly 30 percent of domestic visitors were on multiple destination trips, compared with over 60 percent of international visitors. The mean number of overnight stops for domestic visitors was two, and for international visitors was six.

Domestic visitors were equally likely to access the region by air (48 percent) or by private vehicle. International visitors also came by air (40 percent) and self-drive (29 percent) but nearly 20 percent arrived by tour bus or scheduled coach service. Internationals were four times more likely (25 percent compared with six percent) to be on a package tour to the region. Over one third of domestic visitors stayed at the homes of friends and relatives, with most of the rest staying in hotels and motels. Just ten percent used caravan parks in the region. Accommodation was more diverse among international visitors with 41 percent in hotels, 24 percent in backpacker hostels, 14 percent staying with friends and relatives, and about eight percent in caravan parks.

The IVS and NVS recorded some leisure activities undertaken by visitors. The most common leisure activities for domestic visitors included eating out (55 percent), going to the beach (23 percent), and visiting national parks (13 percent). Just four percent engaged in Aboriginal tourism activities. International visitors also went to the beach (68 percent) and visited national parks (60 percent), but 20 percent engaged in Aboriginal tourism activities. The specific nature of leisure activities, and particularly whether they were commercial or non commercial activities, was not recorded in either survey. Other activities likely to be important in the TRaCK region (such as fishing, four wheel driving, fossicking, birdwatching and so on) were not recorded.

Tourism

The Survey of Tourist Accommodation (STA) data is better able to deal with the distorting effects of Cairns and Port Douglas in tourism estimates for that part of the TRaCK region included in the Tropical North Queensland tourism region because data can often be disaggregated to SLA level. Figure 4.9 shows the percentage of accommodation establishments surveyed in the STA in the June quarter, 2008 in each TRaCK SLA. There were concentrations of establishments around Darwin (more than 60 establishments across all the SLAs in Darwin), Mt Isa, Broome, Kununurra and the Cape York region.

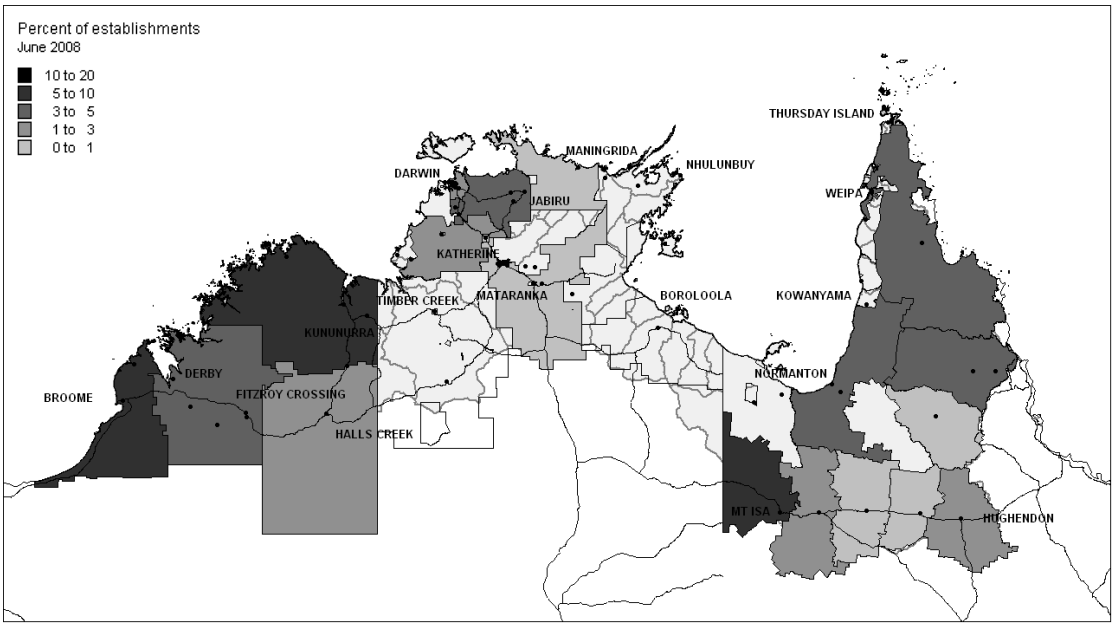

Figure 4.9: Distribution of Accommodation Establishments (percentage) by TRaCK SLA, 2008.
Source: Australian Bureau of Statistics, Survey of Tourist Accommodation

The establishments enumerated in Figure 4.9 include all hotels with 5 rooms or more, caravan parks, holiday flats and homes, and visitor hostels. There were 261 such establishments recorded as operating in the June quarter of 2008. Almost 60 percent of all establishments, and possibly as much as 70 percent of accommodation capacity, was accounted for by hotels with fifteen or more rooms. Caravan parks were the next most significant in terms of proportion of establishments (30 percent) and accommodation capacity (25 percent). Half of all establishments were in the Northern Territory (and half of these in Greater Darwin), 30 percent in Queensland and 20 percent in Western Australia. Occupancy rates for all types of establishments in all locations for the June quarter were consistently around 60 percent, with the exception of caravan parks in Katherine, Mareeba and Wyndham (each around 35 percent).

Historical data from the STA only includes hotels and motels with 15 or more rooms, but as these constitute a large percentage of the available accommodation stock, historical data is likely to be quite indicative of trends. The total stock of these hotels has remained very consistent at about 130 properties across the TRaCK region since 2003. The Northern Territory has consistently had about half of the total stock, Queensland 30 percent and Western Australia 20 percent. Within the Northern Territory, however, there is some evidence of a contraction of stock to the Greater Darwin region (an additional four properties there between 2003 and 2007). Occupancy rates have tended to be lower in Queensland than in Western Australia and the Northern Territory. Annualised occupancy rates have risen from about 55 percent in 2003 to 66 percent in 2007 (see Figure 4.10). Queensland has been consistently five percent lower than Western Australia and up to ten percent lower than Northern Territory.

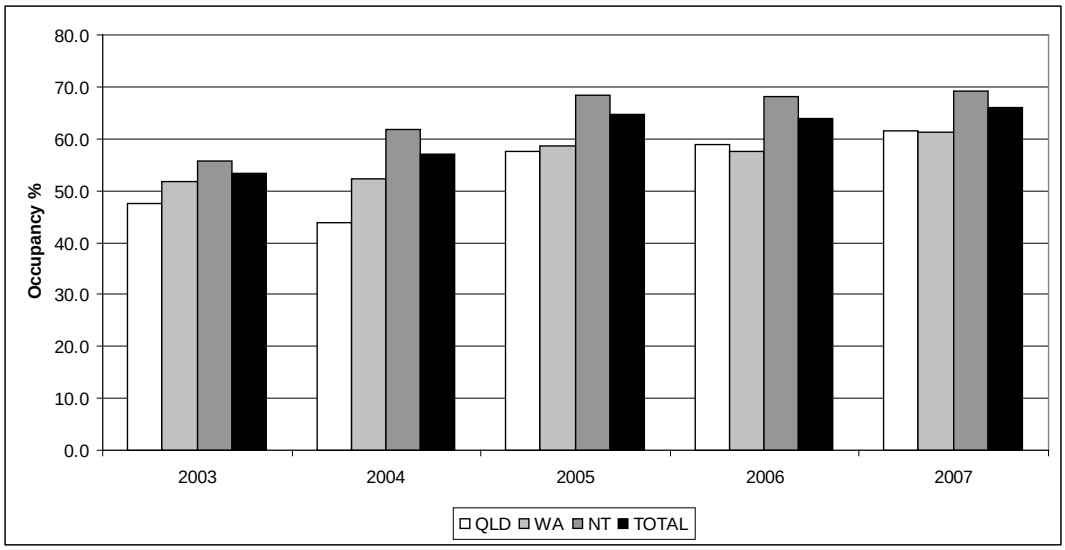

Figure 4.10: Annualised Occupancy Percentages for TRaCK Region, Hotels with 15+ Rooms, 2003-2007
Source: Australian Bureau of Statistics, Survey of Tourist Accommodation

The most distinctive feature of accommodation trends in the TRaCK region is seasonality. Occupancy rates have been typically as low as 25 percent or 30 percent across the region in March quarter and rising to over 65 percent in the June quarter and 75 percent in the September quarter. December quarters have been typically around 50 percent.

Conclusions

The resident and tourist population characteristics of the TRaCK region were quite different from those of Australia as a whole. Residents were younger, more likely to be Indigenous, and more likely to be male. Tourists were more likely to be from overseas, and more likely to be on multiple destination trips. There was great variety within the TRaCK region as well, most notably with respect to mobility. There were pockets around Darwin and the west of Queensland which had population turnover rates well in excess of the Australian average. Other pockets in the east of the Northern Territory and the northern Cape York had very low population turnover rates. Proportions of Indigenous people were much higher outside of the major urban centres, and the population of the Queensland sections was much older than that in the Northern Territory and Western Australia.

Population characteristics have changed even in the past ten or fifteen years. The population has been ageing, a mixed effect of smaller Indigenous infant cohorts and longer life expectancies, outmigration of early career aged people to other parts of Australia, and an ageing of the non-Indigenous labour force. Ageing is a critical issue because the effect is essentially bi-modal. A large group of Indigenous people is approaching or has just entered working age groups, suggesting an increased demand for higher and vocational education services. A large group of non-Indigenous people is approaching retirement age, and their retirement intentions (whether to stay in the region or move away) will be critical in determining demand for aged care services as well as in forecasting future population growth. The continued high mobility of early career workers (particularly non-Indigenous ones) and these ageing effects raise concerns about meeting labour force needs in the short and medium term future. Declines in the size of the working population (those aged between 15 and 64 years and engaged in the labour force) have already been noted.

The components of population growth have also changed in recent times. The TRaCK region as a whole has experienced substantial outflow of non-Indigenous people to other parts of Australia, and growth has been sustained through increasing overseas immigration and natural increase of the Indigenous population. This trend has implications both for meeting labour requirements (Indigenous people being much less likely to participate in the labour force), and for immigration related services such as refugee support and language services.

The historically high sex ratios within the region are diminishing as the Indigenous population becomes more prominent. There are positive implications in terms of social capital, but also concerns in terms of meeting labour requirements (females have lower labour force participation rates than males).

The resident and tourist populations of the TRaCK region have become more urbanised. Tourist dispersal has declined, and is likely to continue to do so as transport options change and tourism infrastructure becomes increasingly clustered around Darwin, Broome and Mt Isa. More remote areas will need to rely on small scale and highly targeted tourism developments. These are likely to be around fishing and eco-tourism rather than Aboriginal cultural tourism *per se*. However, an expanded Aboriginal cultural tourism sector, if combined with other forms of tourism, does offer potential for the region and particularly for the more accessible parts.

Resident populations have also become more urbanised, with Darwin and surrounds experiencing the most rapid population growth. Recently, the Northern Territory Government has announced a new town to be built on the fringes of the existing large population centres of Darwin and Palmerston. The plan is for the town the house 40,000 people. A proposed expansion of the Ord River Scheme in Western Australia may also lead to population increase in Kununurra. The global financial crisis and downscaling of mining operations is likely to counterbalance agriculture related population increase, at least in the short to medium term. Nevertheless, an increasing preference from immigrants and Indigenous people to live in urban centres is a trend that is unlikely to be reversed in the short or medium term.

The modelling undertaken for this project anticipates continuing growth of resident populations, but that growth largely confined to more urban catchments. However, the key features of the population – highly volatile as a result of the staples based industries which dominate the economy, high mobility among the working population, and the impact of seasonality on population movements – are likely to persist and make the task of forecasting a difficult one. The dual population structure involving long term (mainly Indigenous) residents on the one hand and temporary residents and visitors on the other is likely to be a persistent feature throughout most of the region.

At the individual region level distillation of these observations is possible to identify clusters within the overall region based on demographic similarities or differences. Regions such as Barron River, Finniss River, Leichhardt River, and Mossman River, for example, were comprised of a high proportion of non-Indigenous people in 2006 and all of these exhibited relatively high rates of population turnover. Likewise, most of the fastest growing regions appear to have a high proportion of Indigenous people in the population excepting the largely urban settlements of Finniss River and Mossman River. The notion of identifying clusters of regions in the TRaCK region is explored in Appendix 2 where a typology of regions based on demographic characteristics is developed.

Comparing the focal catchment areas of Fitzroy River and Daly River highlights just some of variations in the types of regions existing within the broader TRaCK region. In the Fitzroy River region, population growth was relatively strong (at 13 percent) during the decade from 1996 to 2006 and more than two thirds of the region was Indigenous in 2006. Meanwhile population turnover rates were relatively low over the same period. In the Daly River region, by contrast, the Indigenous share of the population was lower at a third, growth was negative from 1996 to 2006, and turnover rates were high at 118 percent. Interestingly both regions had the same sex ratio in 2006 (of 104 males per 100 females).

Demographic theory would predict that these relationships should exist given our knowledge of the dichotomous characteristics of Indigenous and non-Indigenous people in the north of Australia. Importantly, the apparent existence of broadly similar regions, including those across borders, supports the proposition being made in this study that, unless bifurcation away from recent demographic trends occurs, future population growth, and consequently economic development, are likely to be confined largely to the few urbanised pockets of the TRaCK region and to places where continued (for the moment) extraction of the staples prevails. In this respect the interconnectedness between population and economic systems becomes apparent.

The immediate prospects for tourism growth right across the TRaCK region are limited. The Tourism Forecasting Committee (Tourism Research Australia, 2008) projected declines in international visitor numbers and receipts in 2008 and 2009. While the Committee also forecasts strong recovery in 2010, it is not uncommon for the Committee to provide overly optimistic forecasts (Athanasopoulos and Hyndman, 2006). Even so, the recovery projected for 2010 does not compensate for market losses in 2008 and 2009. Domestic travel in Australia has shown no growth since the turn of the century, and the most optimistic forecast is that the flat trend will continue. The available evidence is that the TRaCK region experienced limited tourism growth between 2000 and 2007, and there is no evidence to suggest any radical change in this development path. To inform future assessments about tourism development paths for individual regions, a typology of regions has been developed and is detailed in Appendix 3.

In summary, the human populations of the TRaCK region by the middle of the current century are likely to have grown in total (both residents and visitors) but become even more concentrated in larger centres. There will be a higher percentage of Indigenous people. The population will continue to age, but with ageing attributed equally to smaller cohorts of Indigenous infants and growth in the post working age groups. The current large cohort of young Indigenous people will move through the working age groups over the next ten or fifteen years, while the current large cohort of mid-career non-Indigenous people will retire. Many of both groups will move away, continuing the established pattern of high mobility and residential moves to more urbanised parts, which may further fuel mobility in the more remote areas. Isolated pockets of tourism development may occur, but the bulk of the infrastructure will remain in the established areas, and the current trend is toward decreased dispersal of tourists.

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Appendix 2: Towards a Demographic Typology of TRaCK Regions

Introduction

The results of the demographic profiling for the 39 Collection District (CD) derived TRaCK regions have suggested that clusters of regions with similar characteristics may exist. For example, regions with a high proportion of Indigenous people in 2006 experienced relatively low rates of residential population turnover between 1996 and 2006. A suitable typology will assist in identifying regions where continuation of observed demographic trends might contribute to future negative (or positive) social, economic or environmental consequences. The immediate question is how we might construct a typology of regions given the available data. This document outlines some of the options in terms of a) suitable inputs for constructing a typology, and b) the means by which these inputs might be classified in order to derive a typology. It may also be a useful prism through which monitoring of changes can occur. We propose a typology founded on a matrix of population growth, the share of non-Indigenous people in the region, population turnover rates and the sex ratio. While this work is exploratory and subjective it can contribute to the depth of our understanding on the demographic characteristics of Australia's tropical north.

Data Inputs

The five-yearly Census of Population and Housing provides the only consistent source of region level demographic information. In the main study the regions for which demographic analysis was undertaken were comprised of aggregations of CDs. Due to the size of some CDs in remote areas, some individual regions have been combined reducing the number of regions to 39. To develop the typology the following data items are proposed:

> ***Percentage of non-Indigenous people*** – percentage of the region population which is non-Indigenous at 2006. This measure excludes those whose Indigenous status was not stated.
>
> ***Population turnover rate*** – in this study the population turnover rate is the total arrivals and departures to the region during the five year period leading up to the 2006 Census, divided by the population of the region in 2006.
>
> ***Population growth*** – exponential growth rates in the population from 1996 to 2006.
>
> ***Sex ratio*** – the number of males per hundred females at 2006

Results

Commencing with the four key demographic measures above provides a staring point for the construct of a typology. However, a number of further measures based around long term trends could be considered including rates of ageing, changes in dependency ratios, and trends for interregional migration. Table 1 shows the results for these variables for each TRaCK region, the TRaCK research area as a whole and for the balance of Australia. Each region is also ranked from 1 to 39 (1= highest) for each measure

	Non-Indigenous		Turnover		Growth		Sex ratio	
	Proportion	**Rank**	**Proportion**	**Rank**	**Proportion**	**Rank**	**Ratio**	**Rank**
Balance of Australia	0.980	2	0.755	18	0.112	17	97.311	37
Barron River	0.931	4	0.999	13	0.092	22	99.977	35
Bathurst & Melville Islands	0.086	37	0.147	36	0.052	27	105.507	23
Blyth River	0.073	39	0.136	39	0.249	6	102.658	30
Cape Leveque Coast	0.726	14	1.427	5	0.358	3	106.709	20
Coleman River	0.178	31	0.283	30	1.708	1	106.289	22
Daintree River	0.848	9	0.732	20	0.082	25	114.583	9
Daly River	0.670	16	1.178	10	-0.030	29	103.663	28
East Alligator, Goomadeer, & Liverpool Rivers	0.094	35	0.153	35	0.093	21	105.257	24
Embley, Watson, Archer, Holyrood & Wenlock Rivers	0.499	20	0.763	17	0.234	7	111.779	12
Finniss River	0.901	6	1.210	8	0.166	10	108.476	17
Fitzroy River	0.354	24	0.665	22	0.131	12	103.315	29
Flinders River	0.872	7	0.979	14	-0.059	31	112.562	10
Gilbert River	0.992	1	0.735	19	0.121	15	128.226	4
Groote Eylandt	0.390	22	0.475	25	-0.091	34	101.281	34
Isdell & Lennard Rivers	0.566	19	1.269	7	-0.096	35	188.095	1
Jardine River, Ducie River & Jacky Jacky Creek	0.122	34	0.232	32	0.118	16	93.986	39
Jeannie River, Normanby Rivers & Endeavour Creek	0.693	15	0.712	21	0.083	24	112.053	11
King Edward & Prince Regent Rivers	0.175	32	0.318	29	0.465	2	104.000	26
Leichhardt River	0.839	10	1.292	6	-0.087	33	111.198	13
Mary & Adelaide Rivers	0.864	8	1.015	12	0.351	4	126.339	5
McArthur River, Rosie & Limmen Bight Rivers	0.301	26	0.390	27	0.180	9	122.612	7
Mitchell River	0.779	11	0.498	24	-0.073	32	108.708	16
Morning Inlet	0.922	5	3.409	1	0.022	28	157.778	2
Mornington Island	0.093	36	0.137	38	n.a.	n.a.	102.140	31
Mossman River	0.951	3	1.432	3	0.205	8	101.363	32
Moyle & Fitzmaurice Rivers	0.075	38	1.432	3	0.106	18	98.033	36
Nicholson River & Settlement Creek (QLD part)	0.306	25	0.144	37	-0.180	36	121.633	8
Norman & Staaten Rivers	0.612	18	1.021	11	0.097	20	110.894	14
Ord River (WA part) & Keep River (WA part)	0.620	17	1.203	9	0.104	19	106.983	19
Pentecost & Drysdale Rivers	0.449	21	0.779	16	-0.184	37	125.676	6
Robinson River, Calvert River & Settlement Creek (WA part)	0.248	28	0.230	33	0.060	26	95.652	38
Roper River & Towns River	0.185	30	0.232	31	0.129	13	104.160	25
South Alligator & Wildman Rivers	0.763	13	1.713	2	-0.052	30	137.622	3
Stuart, Olive Pascoe & Lockhart Rivers	0.196	29	0.224	34	-0.351	38	101.286	33
Torres Strait Islands	0.165	33	0.345	28	0.142	11	103.711	27
TRACK region	0.763	12	0.951	15	0.125	14	106.342	21
Victoria River, & Ord & Keep Rivers (NT parts)	0.283	27	0.515	23	0.085	23	107.091	18
Walker, Goyde, Buckingham & Koolatong Rivers	0.387	23	0.453	26	0.277	5	109.277	15

Table 1: Key demographic measures and rankings for TRaCK regions

One way of organising the data for individual measures such as population growth is to examine where each region sits in terms of its distance from the mean. This is measured by the number of standard deviations it is away from the mean. Groupings of regions can then be undertaken based on quartiles. For example, we might classify 'high growth' regions as those above the third quartile away from the mean and 'low growth' regions as those in the first quartile away from the mean. Using this approach we classified each measure for each region as either high, mid range or low. The results are presented in Table 2.

	Non-Indigenous	**Turnover**	**Growth**	**Sex ratio**
Barron River	High	Mid range	Mid range	Low
Bathurst & Melville Islands	Low	Low	Mid range	Mid range
Blyth River	Low	Low	High	Low
Cape Leveque Coast	Mid range	High	High	Mid range
Coleman River	Low	Low	High	Mid range
Daintree River	High	Mid range	Mid range	High
Daly River	Mid range	High	Mid range	Mid range
East Alligator, Goomadeer, & Liverpool Rivers	Low	Low	Mid range	Mid range
Embley, Watson, Archer, Holyrood & Wenlock Rivers	Mid range	Mid range	High	Mid range
Finniss River	High	High	Mid range	Mid range
Fitzroy River	Mid range	Mid range	Mid range	Low
Flinders River	High	Mid range	Low	High
Gilbert River	High	Mid range	Mid range	High
Groote Eylandt	Mid range	Mid range	Low	Low
Isdell & Lennard Rivers	Mid range	High	Low	High
Jardine River, Ducie River & Jacky Jacky Creek	Low	Low	Mid range	Low
Jeannie River, Normanby Rivers & Endeavour Creek	Mid range	Mid range	Mid range	Mid range
King Edward & Prince Regent Rivers	Low	Mid range	High	Mid range
Leichhardt River	High	High	Low	Mid range
Mary & Adelaide Rivers	High	Mid range	High	High
McArthur River, Rosie & Limmen Bight Rivers	Mid range	Mid range	High	High
Mitchell River	High	Mid range	Low	Mid range
Morning Inlet	High	High	Mid range	High
Mornington Island	Low	Low	High	Low
Mossman River	High	High	High	Low
Moyle & Fitzmaurice Rivers	Low	High	Mid range	Low
Nicholson River & Settlement Creek (QLD part)	Mid range	Low	Low	High
Norman & Staaten Rivers	Mid range	Mid range	Mid range	Mid range
Ord River (WA part) & Keep River (WA part)	Mid range	High	Mid range	Mid range
Pentecost & Drysdale Rivers	Mid range	Mid range	Low	High
Robinson River, Calvert River & Settlement Creek (WA part)	Mid range	Low	Mid range	Low
Roper River & Towns River	Low	Low	Mid range	Mid range
South Alligator & Wildman Rivers	Mid range	High	Low	High
Stuart, Olive Pascoe & Lockhart Rivers	Mid range	Low	Low	Low
Torres Strait Islands	Low	Mid range	Mid range	Mid range
TRACK region	Mid range	Mid range	Mid range	Mid range
Victoria River, & Ord & Keep Rivers (NT parts)	Mid range	Mid range	Mid range	Mid range
Walker, Goyde, Buckingham & Koolatong Rivers	Mid range	Mid range	High	Mid range

Table 2: Classification of demographic measures for TRaCK regions

Cross Regional Relationships between Demographic Variables

The classification outlined above facilitates allows us to explore whether relationships exist between the various demographic measures for TRaCK regions. For example, a cursory examination of the table above shows that many of the regions with low proportions of non-Indigenous people have also been classified as regions of low turnover. Of particular interest to the study is whether high or low growth appears to be related to any of the other demographic measures in the TRaCK region. To explore some of these issues simple linear regression was conducted on a number of combinations of demographic measures.

The results were mixed with no significant relationships observed between growth and other measures with growth held as the independent variable. This is not unexpected since population growth is comprised of the net contribution of the components of change (natural increase and migration) and these are not directly represented in the data. However, a strong correlation (*F*=.059) between the proportion of the population that is non-Indigenous and population turnover (Diagram 1) was observed. Indeed a cluster of regions with very low proportions of non-indigenous people and very low turnover is noticeable (highlighted in the orange circle in Diagram 1). These regions include Bathurst & Melville Islands, Blyth River, Coleman River, East Alligator, Goomadeer, & Liverpool Rivers, Jardine River, Ducie River & Jacky Jacky Creek, Mornington Island, and Roper River & Towns River.

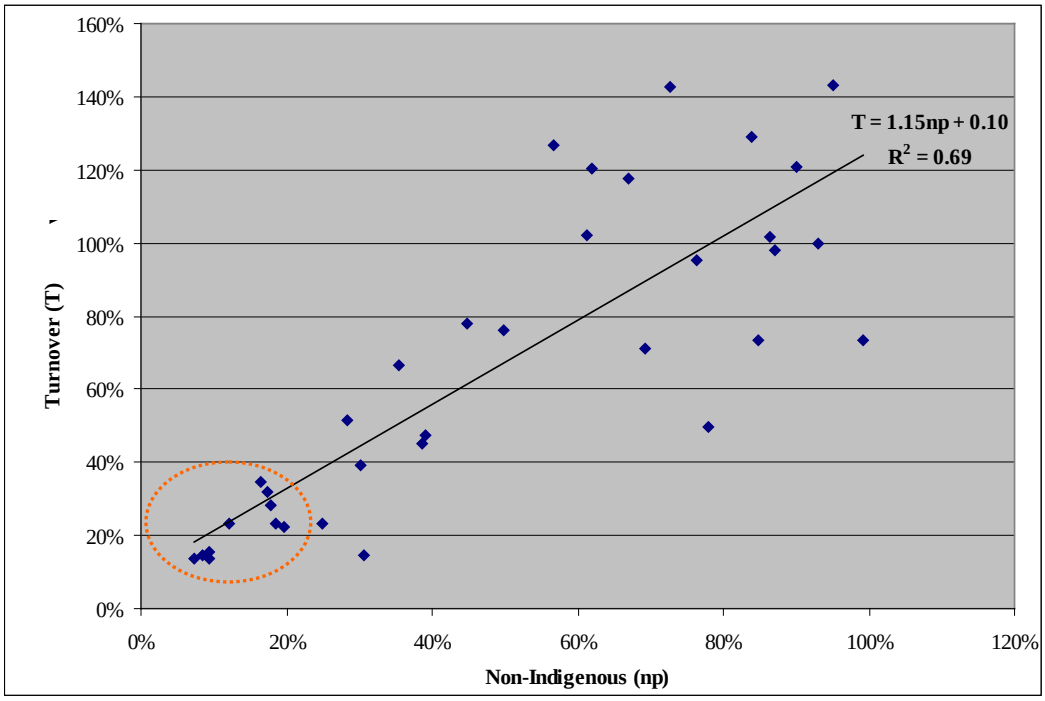

Diagram 1: Simple linear regression - Non-Indigenous population and population turnover

Summary

The ability to group like regions across the north of Australia based on demographic characteristics provides further insights into the variation and similarities across the TRaCK region. Classification of demographic measures is possible and this may be

useful for observing changes from a baseline into the future. Naturally, a broad classification hides the array of localised circumstances which can have major impacts on the human geography of the region. Nevertheless some patterns emerge and particularly in relation to population turnover and the proportion which is non-Indigenous in the region. This supports the study findings of an industrial base reliant on staples and emphasises the need for future economic diversity.

Appendix 3: TRaCK Tourism Catchment Typology

Introduction

The aim of this appendix is to describe a broad typology of 'tourism catchments' for the TRaCK region. The process is to identify the major conditions that determine tourism diversity across the region, and then to identify which catchments are similar to one another according to these conditions. This may assist in identifying catchments where similar issues may be confronted. However, the extent to which a typology is useful is limited because the nature of tourism is different in each catchment. Simple classifications are needed here due to the need to have a small number of types and because very little detailed data is available at the catchment level. They necessarily hide the detailed conditions. For example, some of the 'low development' and 'high leisure' destinations are fishing destinations (particularly in Queensland) attracting mainly domestic tourists who camp out for relatively long periods of time. Others are cruise boat destinations (particularly in the Kimberley) attracting international visitors who pass through using very little local infrastructure. Likewise, some destinations are dominated by business visitors (including fly-in fly-out workers) to mining sites, while others host researchers and government agents whose activities are very different.

Tourism Conditions

A number of conditions could be considered for classifying the catchments. The literature refers to –

- Lifecycle stage: there are a number of such classifications, usually drawn from standard product life cycle classifications and ranging from initiation to maturity to decline stages. We do not have a reliable algorithm to operationalise this concept.
- Volume of visitors: we have information about the relative volume of visitors in each catchment across the region.
- Level of industrial development: we have information about the location of many of the tourist accommodation establishments across the region.
- Type of visitors (business/ leisure): the survey data for this is poor, but observations can be made based on the type of development we noted in our review of proposals and initiatives. Generally speaking, smaller volume catchments that have some sort of human settlement (urban centre or locality in the Australian Bureau of Statistics definitions) are likely to attract a mix of leisure and business tourists. Exceptions are some Northern Territory communities where the permit system largely excludes leisure visitors, and some mining communities elsewhere. The type of visitors is important because they require different infrastructure.
- Position in the system (transit/ destination): generally speaking, smaller volume catchments that have a through road leading to larger volume catchments will be transit regions. There are also larger volume transit regions along the major east-west route. The distinction between destination and transit catchments is important because of the type of development that is likely to flow. Transit regions focus on short-term accommodation (motor

inns, caravan parks) and vehicle service facilities, while destinations include a wider range of accommodation along with attractions.

- Core markets (seniors/ backpackers/ families/ other): the survey data is insufficient to apply any market segmentation.
- Seasonality (high/ low): all the catchments have high seasonality, with the variation being purely in the shoulder season. Larger volume catchments tend to have slightly longer shoulder seasons (April and November).

The typology, then, first classifies catchments as having relatively high, medium, low, or very low development. This classification is a subjective consideration of the proportion of visitors identified as staying overnight in the catchment between 2004 and 2006, and the proportion of accommodation establishments recorded as being in the catchment. Within these classifications, catchments are identified as largely transit or destination, and then as largely catering for business or leisure tourists. These latter two classifications are continuums, and again, the consideration is relative across the region. Note that catchments with very low development attract very few visitors – perhaps a handful of fishermen and a handful of government workers.

Classifications

Name	Development	Type	Mix
Torres Strait Islands	Medium	Destination	Leisure
Mornington Island	Low	Destination	Mixed
Jardine River	Low	Destination	Mixed
Ducie River	V. Low	Transit	Mixed
Wenlock River	V. Low	Transit	Mixed
Embley River	Medium	Destination	Mixed
Watson River	V. Low	Transit	Mixed
Archer River	V. Low	Transit	Mixed
Holroyd River	V. Low	Transit	Mixed
Coleman River	V. Low	Transit	Mixed
Mitchell River	Low	Mixed	Mixed
Staaten River	V. Low	Transit	Mixed
Gilbert River	Low	Transit	Mixed
Norman River	Medium	Destination	Leisure
Flinders River	Medium	Transit	Leisure
Morning Inlet	V. Low	Destination	Mixed
Leichardt River	High	Mixed	Mixed
Nicholson River	Low	Transit	Mixed
Settlement Creek	V. Low	Destination	Mixed
Calvert River	V. Low	Destination	Mixed
Robinson River	V. Low	Mixed	Mixed
McArthur River	Low	Destination	Business
Rosie River	V. Low	Destination	Mixed
Limmen Bight River	V. Low	Transit	Mixed
Towns River	V. Low	Destination	Mixed
Roper River	Medium	Destination	Mixed
Walker River	Low	Destination	Business
Groote Eyelandt	Medium	Destination	Business
Koolatong River	V. Low	Destination	Mixed
Buckingham River	Medium	Destination	Business
Goyder River	Low	Destination	Mixed
Blythe River	V. Low	Destination	Mixed
Liverpool River	Low	Destination	Mixed
Goomadeer River	V. Low	Destination	Business
East Alligator River	Medium	Destination	Leisure
South Alligator River	Medium	Destination	Leisure
Wildman River	Low	Destination	Leisure
Mary River	Low	Destination	Leisure
Adelaide River	Low	Transit	Mixed
Finniss River	High	Destination	Mixed
Bathurst and Melville Islands	Medium	Destination	Mixed
Daly River	High	Mixed	Leisure
Moyle River	Low	Destination	Business
Fitzmaurice River	V. Low	Destination	Business
Victoria River	Low	Transit	Mixed
Ord River	Medium	Transit	Mixed
Pentecost River	V. Low	Destination	Leisure
Keep River	V. Low	Transit	Leisure
Drysdale River	V. Low	Destination	Leisure
King Edward River	V. Low	Destination	Leisure
Prince Regent River	V. Low	Destination	Leisure
Isdell River	V. Low	Destination	Leisure
Lennard River	V. Low	Destination	Leisure
Fitzroy River	Medium	Mixed	Mixed
Cape Leveque Coast	High	Mixed	Mixed

The Map

The shading of catchments on the map indicates the level of development. The other two classifications are not overtly described. However, catchments which have a through road leading to a higher development catchment are more likely to be transit catchments. There are also transit catchments in the Queensland Cape York Region between the major towns. Catchments which have one or more urban centres and localities (UCLS – the dots on the map) are more likely to have more business visitors, with the exception of towns in Kakadu.

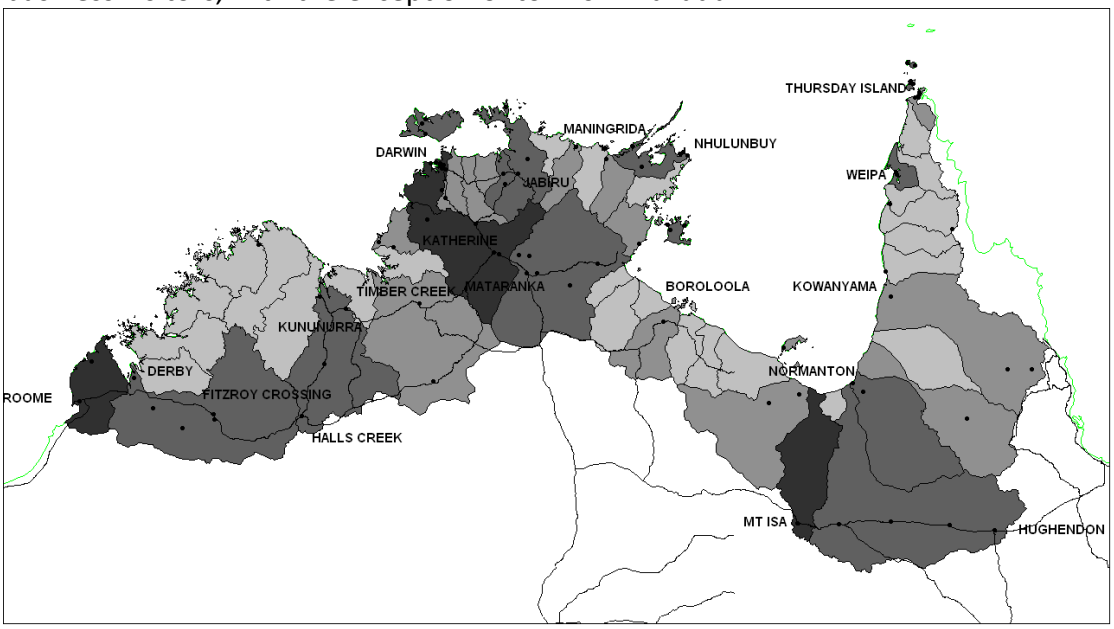

Figure App 3: Types of Tourism Catchments