Aboriginal people in the Kakadu region: social indicators for impact assessment

J. Taylor

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Dr John Taylor is Deputy Director and Senior Fellow at the Centre for Aboriginal Economic Policy Research, The Australian National University.

Foreword

In 1996, the Kakadu Region Social Impact Study (KRSIS) was established by a range of parties, including the Commonwealth and Northern Territory Governments, to determine the social impact of development on Aboriginal communities in the Kakadu region. This study was deliberately structured (via an Aboriginal Project Committee) to ensure Aboriginal control of key aspects of the research process and to maximise involvement of the Aboriginal community. The overall study aimed to provide a clear statement of Aboriginal experiences, values and aspirations in relation to mining, tourism and other developments in the region. It also aimed to develop an Action Plan to address any negative impacts associated with these developments. However, despite two major previous social impact studies in the region (the Fox Inquiry, completed in 1977, and the Social Impact of Uranium Mining study, 1984) when faced with the task of profiling the employment, income, education, housing and health status of the Kakadu Aboriginal population in 1996 and of providing some analysis of how these might have changed over the previous 20 years, the KRSIS quickly found an absence of readily available and comprehensive information.

Hence in June 1996, as the project began, the Northern Land Council approached Dr John Taylor to provide the Aboriginal Project Committee of KRSIS with a statistical profile of the Aboriginal population of the region with a view to reviewing all existing information to establish trends in social and economic status. This report was completed and submitted to the KRSIS in October 1996 and has formed the basis of much subsequent deliberation both by the Aboriginal Project Committee and by the Study Advisory Group, of which I was a member.

There are four important reasons for publishing this report in the CAEPR Working Paper series. First, while copies of Dr Taylor's original report are available on request 'in writing' from the Environmental Research Institute of the Supervising Scientist in Jabiru, this is a cumbersome and sub-optimal mode of dissemination of important benchmark data. Also, it is not clear if this service will always be available. Second, as already noted, a major criticism of previous studies was their failure to generate a comprehensive and publicly accessible database. This potential problem is addressed here by providing free Internet access to the report as a CAEPR Working Paper. Third, the original report was completed well before the release of 1996 Census data. As there are major deficiencies in these data for the Kakadu region, an analysis has been made of these and included here for the record. Finally, the issue of the socioeconomic status of Aboriginal people in Kakadu remains of political, economic, cultural and policy relevance, as demonstrated, for example, by the UNESCO Kakadu Mission a year ago. The sort of quantitative and impartial research reported by Dr Taylor might facilitate informed debate on important development issues in this high profile region.

Professor Jon Altman
Director, CAEPR
November 1999

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Abbreviations

AEDP	Aboriginal Employment Development Policy
ABS	Australian Bureau of Statistics
ALRA	Aboriginal Land Rights Act
ANCA	Australian Nature Conservation Agency
ANPWS	Australian National parks and Wildlife Service
ASSPA	Aboriginal Student Support and Parent Awareness (committee)
ATSIC	Aboriginal and Torres Strait Islander Commission
CAEPR	Centre for Aboriginal Economic Policy Research
CD	Collection District
CDEP	Community Development Employment Projects (scheme)
CEPANCRM	Contract Employment Program for Aborigines in Natural and Cultural Resource Management
DEETYA	Department of Employment, Education, Training and Youth Affairs
DEMED	DEMED Association
DSS	Department of Social Security
ERA	Energy Resources of Australia
HCINS	Housing and Community Infrastructure Needs Survey
ICD	International Classification of Diseases
JSSC	Junior Secondary School Certificate
KRSIS	Kakadu Region Social Impact Study
MAP	Multi-level Assessment Program
NATSIS	National Aboriginal and Torres Strait Islander Survey
NLC	Northern Land Council
NT	Northern Territory
NTETA	Northern Territory Employment and Training Authority
RUM	Ranger Uranium Mine
SACE	South Australian Certificate of Education
SIA	Social Impact Assessment
SLA	Statistical Local Area

Acknowledgments

A number of key interviews were undertaken (either separately or jointly) as part of this consultancy with representatives of the following government departments, agencies and Aboriginal organisations who held statistical data relevant to the study or assisted in its acquisition. These included, in alphabetical order:

Aboriginal and Torres Strait Islander Commission (ATSIC), Darwin
Australian Nature Conservation Agency (ANCA), Kakadu National Park
Australian Bureau of Statistics (ABS), Darwin
Batchelor College, Batchelor
Department of Correctional Services, Darwin
Department of Employment, Education, Training and Youth Affairs (DEETYA), Darwin
Department of Social Security (DSS), Canberra
Djabulukgu Association, Jabiru
Energy Resources of Australia (ERA), Jabiru
Environmental Research Institute of the Supervising Scientist, Jabiru
Gagudju Association, Darwin and Jabiru
Gagudju Health, Jabiru
Jabiru Area School, Jabiru
Jabiru Town Council, Jabiru
Northern Land Council (NLC), Jabiru
Northern Territory Department of Education, Darwin
Northern Territory Department of Lands and Housing, Darwin
Northern Territory Department of Mines and Energy, Darwin
Northern Territory University (NTU), Darwin and Jabiru
Territory Health Services, Darwin

1. Scope and conduct of the analysis

Terms of reference

This research report is the product of a consultancy commissioned by the Northern Land Council (NLC) as part of the preliminary input into the Kakadu Region Social Impact Study (KRSIS) established in 1996 under the auspices of the NLC, the Commonwealth Government, the Northern Territory Government and Energy Resources Australia (ERA). The terms of reference were to provide a statistical profile of the contemporary socioeconomic status of the Aboriginal population of the Kakadu region (defined spatially for the KRSIS as Stages 1 and 2 of Kakadu National Park). Because of the specific focus on generating statistical information, limited reference is made to the literature on the Kakadu region, except where this either provides a source of data or assists in the interpretation of data. For example, a number of key references (Keen 1980a; Altman 1983, 1988; O'Faircheallaigh 1986; Levitus 1991, 1995; Altman and Smith 1990) provide a valuable source of historical data useful in constructing time series.

Bearing in mind the fact that a number of other studies relating to social and economic conditions in the region had been commissioned on behalf of the Kakadu/West Arnhem Gunbang (Alcohol) Action Group (d'Abbs and Jones 1996) and the Kakadu/West Arnhem Employment, Education and Training Group, and also taking into consideration the need to access available data and report within a relatively short timeframe, the scope of the statistical profile was limited to aspects of several key areas of interest. These include, demography, labour force status, education, training, income, welfare, housing, infrastructure and health. For each of these categories, select summary statistics are presented in tabular and graphic format with accompanying text. The aim is to identify and describe the main characteristics of the population and highlight outstanding features in the data. Where possible, and appropriate, comment is also made on the adequacy of coverage and the robustness of available data and comparison is drawn with select control groups of Northern Territory (NT) Aboriginal people as well as with non-Aboriginal Park residents.

Analytical framework

Social Impact Assessment (SIA) and social indicators

In many ways, the experience of SIA in the Kakadu region over the past 20 years provides a microcosm of the evolution of SIA processes involving Aboriginal people in Australia. The process began with the Fox Inquiry which reported in 1977 (Fox, Kelleher and Kerr 1977) and was pathbreaking in certain ways, particularly by giving prominence to Aboriginal issues and focusing on recommendations aimed at ameliorating predicted adverse impacts. However, it was in the mould of early SIAs in comprising a non-Aboriginal panel casting judgement on the basis of selected objective evidence.

While it conducted little original research, a key recommendation of the Fox Inquiry was the establishment of a five-year monitoring study of the social impact of uranium mining on Aborigines by the Australian Institute of Aboriginal Studies (Australian Institute of Aboriginal Studies 1984). This study openly eschewed what it referred to as the 'technocratic tradition' and the hard-edged statistical approach of

the policy sciences. Instead it favoured what, in the absence of a clearly stated overarching methodology, may only be described as a discursive, ethnographic and participatory approach. Adverse social impacts were taken as a given and the aim was to act as mitigators and ameliorators of a harmful situation (Australian Institute of Aboriginal Studies 1984: 15).

Nonetheless, another stated aim was to generate as much baseline data as possible against which to measure adverse social change. This was to be developed as a computer-based store of relevant information that could answer numerous questions for Aboriginal communities, government agencies, mining companies and researchers, and be functional for decades to come. A key recommendation, then, was that this database would be updated by a task force of experts closely involving Aboriginal people to continually monitor social change. This was all in line with a movement towards what has been described as a 'political' or 'community development' model of SIA (Ross 1990: 12).

Building on this approach, the formation in 1996 of the KRSIS to determine the social impact of development on Aboriginal communities in the Kakadu region was deliberately structured (via an Aboriginal Project Committee) to seek Aboriginal control of the key aspects of the study and to maximise involvement of the Aboriginal community. The study aimed to provide a clear statement of Aboriginal experiences, values and aspirations in relation to developments in the region. It also aimed to develop an Action Plan to address the impacts associated with these developments.

While also in the mould of a community development model of SIA, a basic question for the KRSIS was the extent to which statistical profiling should form part of SIA. It would appear that the emerging trend was to overhaul earlier technocratic approaches with their focus on measuring outcomes and to foster greater concern for process and interpretation. Why then did the KRSIS call for a statistical profile and a re-emphasis on the use of quantitative measures? The answer no doubt partly lay in the failure of the Institute's study to provide adequate quality data for the regional population, even as a baseline let alone in the form of ongoing monitoring, that was mooted (Kesteven 1986). The bottom line was that despite two major previous SIAs in the region, when faced with the task of profiling the employment, income, education, housing and health status of the Kakadu Aboriginal population in 1996 and acquiring some sense of how these might have changed over the previous 20 years, the KRSIS had no readily available and comprehensive information.

Rapid change arising from large-scale development projects has the potential to place severe strain on the physical infrastructure and social fabric of affected communities as well as provide opportunities for the improvement of social and economic conditions. As a consequence, it is generally accepted that assessment of the impact of any project should include a comprehensive account and forecast of population-related development effects. In Aboriginal affairs generally, social indicator analysis has been used increasingly to establish the degree of Aboriginal disadvantage and to monitor the effects of government policy and economic development. In a fundamental sense, both planning and policy formulation can be viewed as influenced by the size, growth and socioeconomic characteristics of populations. These factors also provide the basis for assessment of social justice issues: the recognition of need, access and equity, and fair and equitable distribution of resources.

The primary purpose of this study, then, is to draw together and analyse a range of social indicators for the Aboriginal population of Kakadu National Park. To this end, a number of published and unpublished sources of data are utilised including the five-yearly Census of Population and Housing, the 1992 Aboriginal and Torres Strait Islander Commission (ATSIC) Housing and Community Infrastructure

Needs Survey (HCINS) and various administrative data sets maintained by Commonwealth and Northern Territory government departments and Aboriginal organisations operating within the region, notably the Gagudju and Djabulukgu Associations.

All of these data sources have their drawbacks in terms of providing a meaningful representation of the social and economic status of Aboriginal people in the Park. With census data, for example, there are concerns about the cultural relevance of information obtained from an instrument that is designed to establish the characteristics of mainstream Australian life. Such data also provide only a snapshot view of conditions at five-yearly intervals, whereas a prominent feature of the regional population is its dynamism. Of particular significance here, though, is the fact that the 1996 Census count of Aboriginal people in the region was substantially below the levels reported from administrative data. Consequently, 1991 Census data are utilised as a basis for establishing population characteristics.

As for administrative data, this is beset with problems of comparability across institutional boundaries with both coverage and definitions likely to vary. There may also be difficulties with data retrieval as systems are inevitably designed to suit administrative needs rather than the questions posed by researchers. Ideally, for an ethnographically focused study such as the KRSIS, socioeconomic data are best acquired on the ground through direct community-based participation. In this context, the social indicators provided in this report are best regarded as a reference point or scoping exercise for identifying likely areas of concern that may warrant further, more detailed, investigation and primary data collection.

Defining the regional population

A key issue for SIA, and one which has remained largely unresolved in the political economy of the Kakadu region for the past 20 years, is the question of precisely which population is being impacted upon. Disputation over this matter has its origins in the original deliberations in the 1970s over the receipt of mining moneys from the Ranger mine and the provisions in s.35(3)(b) of the *Aboriginal Land Rights (Northern Territory) Act 1976* (ALRA) which refer to 'areas affected'. Responding to this, Kakadu Land Trust No. 2 identified the beneficiaries as 'the traditional owners of the Kakadu region' (Levitus 1991: 156). While this region was not precisely defined, it was conceived as approximating Stage 1 of Kakadu National Park and the Ranger Inquiry land claim identified 107 people as the traditional owners in that area (Levitus 1991: 157). However, in creating an Association to hold dealings with traditional owners, the NLC adopted a much more inclusive approach to compiling Association membership. As a consequence, by 1979 membership of the emergent Gagudju Association was much larger and comprised individuals, 'connected with the Ranger country, either through blood ties, intermarriage, clan relationships or some shared dreamings' (Levitus 1991: 157).

Amendments to s.35(2)(b) in 1987 provided for greater alignment between Association practise and the ALRA by incorporating within the terms of the ALRA those Association members who claimed some form of traditional attachment to the Kakadu region but lived outside it. The new clause referred to people who 'live in or are the traditional Aboriginal owners of the area affected by' the mining operations. In terms of circumscribing a definitive geographic area for the assessment of social impacts, however, this further complicates matters. As Levitus (1991: 161) has pointed out, the application of this clause has been uncertain in three respects: the boundaries of the area affected, the limits of traditional ownership, and the recognition of residence. It is interesting to note that similar problems have arisen with regard to membership of the neighbouring Kunwinjku Association which had 1,400 members scattered across West Arnhem Land (Altman and Smith 1994: 11).

In the original constitution of the Gagudju Association the 'region' is defined as:

> The area of land within the catchments of the East, West and South Alligator Rivers and adjacent vacant crown land in the Wildman River catchment and Field and Barrow Islands, which area of land is generally referred to as 'the Region' in the Ranger Uranium Environmental Inquiry, Second Report dated 17th May 1977 (quoted in Altman 1983: 121).

This region included the northern part of what is now Kakadu National Park and extended into western Arnhem Land. However, the present spatial distribution of Association members, and of others who may claim residence within the Park or spend periods of time there, is much wider than this. The clearest indication of the extent of this wider region is provided by data on the location of those Gagudju members who reside outside of the Park at Gunbalunya, Gunbalunya outstations, Goulburn Island, Croker Island, Elcho Island, Pine Creek, Katherine, Barunga, Humpty Doo, Darwin and Berrimah. In Altman (1983: 121–2), Annaburroo, Mary River and Dorisvale pastoral stations are also listed.

In referring to the Kakadu regional population, then, one may identify a 'pool' of prospective residents as opposed to a smaller set of actual (or usual) residents. One of the most prominent impacts to date of economic development in the region has been net in-migration from this pool, including those who are traditional owners of country within the Park, those who are related kin, others who have long-standing historic associations with the region and those who are essentially newcomers, for the most part, from distant places.

The problem that this creates is that some Park residents also have a residential base in adjacent locations, most notably in western Arnhem Land and Jawoyn country, and the basis for their inclusion or otherwise in a statistical profile of Kakadu is not always clear. A further difficulty is that different databases are inevitably compiled by service providers using different conceptions and definitions of usual residence in the region.

The simple fact is, if there was ever an intention to construct social indicators from secondary sources for a population defined on the basis of cultural criteria, this is not possible given the availability of most official and administrative data at an aggregate level only and for clearly specified geographic units. For the most part, data of relevance to this study are available for the area bounded by Kakadu National Park only and the social and economic information presented refers to the usual residents of this region as variously defined in official collections. The greatest level of detail for which data are available enables separate identification of the suburbs of Jabiru, Jabiru town camp and individual Park outstations. At the level of greatest aggregation, some data are only available for the Jabiru postcode area, although this is more or less synonymous with Kakadu National Park. Any attempt to include in the profile individuals from outside the Kakadu region, even if this were desired on the grounds that they comprised a wider culturally-defined population, would be thwarted by the geography of statistical and administrative boundaries.

Caveats

Some reference has already been made to the difficulties involved in presenting up-to-date and internally consistent quantitative data on the social and economic characteristics of the regional population. Any variability between different social and economic aspects of the population is largely a consequence of the availability of data. Trade-offs between the coverage of data, in terms of the timeframe and

geographic area for which it is available and the range and detail of information, are inevitable and not uncommon in Aboriginal statistics.

A good example of this is provided by data from the 1992 ATSIC HCINS (Australian Construction Services 1993) which yielded detailed information of variable quality on a range of housing and infrastructure issues for each individual outstation. However, this is now four years old and requires up-dating. Likewise, census data are comprehensive in their reporting of demographic, employment, education and income data but Collection District (CD)-level results from the 1996 Census, which are required for an analysis of this region, will not be available until late in 1997. As a consequence, the only census statistics available to the KRSIS will be from the 1991 Census. In any event, to provide complete coverage of the regional population, census data unavoidably involve a mix of population counts.

From the Australian census, two types of population count are available—a *de facto* count which refers to the places where individuals were actually enumerated on census night; and a *de jure* count which refers to the places where they are usually resident (usual residence is defined as that place where a person has lived, or intends to live, for more than six months during the census year). An important difference between these counts for the Kakadu region is that the *de jure* figure excludes persons whose usual residence is elsewhere and includes those who normally live in the Park but were absent at census time. This distinction is more than just academic as a number of Kakadu residents may be away from the region at any one time for a host of reasons. For example, according to data supplied by Northern Territory Correctional Services, a total of 14 Aboriginal residents of Kakadu were imprisoned in Darwin at some time over the two-year period between 1994 and 1996. Also, data from Territory Health Services indicate that averages of 80 people were admitted to Royal Darwin Hospital for a period each year from 1991 to 1995. Absences also occur for more social reasons.

Most survey counts of the Kakadu population conducted by service providers in the region, such as Gagudju Health, for example, employ a *de jure* definition of the regional population based on intimate knowledge of length of residence and movement patterns. Unfortunately, official census-based usual residence data are available only down to the Statistical Local Area (SLA) level, which means that they can be retrieved for Jabiru but not for the rest of the Park. However, in the latter case, the number of usual residents can be estimated from data on the numbers of people counted at home as opposed to those visiting the area from another SLA. This adjustment has been made to produce estimated Aboriginal and non-Aboriginal usual residence figures for this CD. Combined with the Jabiru SLA usual residence count, this provides the closest approximation of usual resident numbers for the whole of Kakadu National Park in 1991.[1]

For the purposes of assessing the non-Aboriginal presence in the region it could be argued that place of enumeration data are to be preferred. This is because usual residence data exclude tourists and other visitors to the Park. Given that a more or less continual tourist presence is a key demographic characteristic of the region, and one which looms large in any SIA, there is a very good argument for advocating the use of place of enumeration data, at least in measuring the overall level of demand on regional infrastructure. However, for comparisons of the social and economic characteristics of Aboriginal and non-Aboriginal populations, usual residence data in a tourist destination such as Kakadu are essential. In contrast with official government statistics, organisations such as ERA, the Gagudju Association, Djabulukgu Association and the Australian Nature Conservation Agency (ANCA (previously Australian National Parks and Wildlife Service (ANPWS), now Environment Australia)) can provide detailed current information at the individual unit record level, but the range of data available from these sources often varies and, in any case, presents varying degrees of compatibility for purposes of aggregation.

2. A demographic profile of Aboriginal people in the Kakadu region

Details of the demographic history of the Kakadu region up to the commencement of mining and other recent economic developments are available in the work of Levitus (1991, 1995) and Keen (1980a). Briefly, the original population of the Alligator Rivers region of around 2,000 experienced a rapid and severe decline in numbers from the late 19th Century to the first decades of this century. Dispersal of the population was also encouraged by the actions of government and mission officials as well as by large-scale military activities across the Top End in World War II. By the 1970s, the number of people who could claim traditional attachment to the area of northern Kakadu and areas west was around 80 (Keen 1980b: 36–7) while the 1976 Census counted only 44 Aboriginal residents of the Park area (Altman 1983: 120). According to Keen (1980a: 171) the population at this time in the Alligator Rivers region and areas west was only around 3 per cent of the level at the time of contact.

From the point of view of SIA, the overriding demographic characteristic of the Kakadu region that is coincident with Park-based economic developments in mining and tourism since the 1970s, is a substantial growth in resident population numbers. While natural increase has contributed an increasing share of this growth, the key underlying dynamic over the past 20 years has been net in-migration. This contemporary Park population is far more heterogeneous than in the past, being comprised of people of full Aboriginal descent and mixed descent; of people who are traditional owners of parts of Kakadu National Park and those who are not; and people who have some residential rights according to Aboriginal custom and those who are recent arrivals from out of the region, principally in connection with work at the Ranger Uranium Mine (RUM) (Wellings 1987; Altman 1988: 185). This mix of individuals and families with social and kinship ties both within the Park and with adjacent regions and beyond, produces a demographic composite made up of long-term residents, recent arrivals and what may be described as a highly mobile 'floating' population which spends intermittent periods of time resident in the Park.

Population size

In 1991, the total number of people counted in the Park on census night was 3,059. Of these, 1,731 (57 per cent) were located in Jabiru and the remainder, 1,328 (43 per cent), were outside of the town in tourist accommodation, ANCA accommodation and Aboriginal outstations. Overall, 443 Aboriginal people were counted representing 14.5 per cent of the population enumerated in the region at census time. In Jabiru, this figure was 132 (7.6 per cent of the town population), while elsewhere in the Park it was much higher at 311 (23.4 per cent of the rural total).

Leaving aside the difficulties inherent in applying the Australian Bureau of Statistics (ABS) census's usual residence definition to the Aboriginal population, similar calculations can be made for the population that is usually resident in the region. This effectively excludes all visitors and puts back usual residents counted elsewhere. Overall, the 1991 usual resident population of the region is estimated at 1,822, with Aboriginal people accounting for 412 (23 per cent) of these. The bulk of this regional population (1,347 or 74 per cent) was located in Jabiru where the number of Aboriginal usual residents was 102. This means that the Aboriginal proportion of the usual resident population in Jabiru in 1991 was the same as with the place of enumeration count (7.6 per cent).

For the area of Kakadu outside of Jabiru in 1991 the usual residence count has to be estimated and the best approximation is provided by a cross-tabulation of those whose usual residence was in South Alligator SLA against those counted at home in NT CD 031402. This produces an estimated total of 475 usual residents in the Park area outside of Jabiru, 310 of whom were Aboriginal. Thus, the Aboriginal proportion of the usual resident population in the rural part of the Park group was much higher at almost two-thirds (65 per cent).

Since 1991, the number of visitors to Kakadu National Park has increased from 210,715 to 235,391 in 1995, although visitor numbers for the census month of August had increased only slightly by 1996 (from 28,896 in 1991 to 29,792 in 1996).[2] Also, since 1991, employment at RUM has fallen by around 35 per cent (see Chapter 3) with the result that overall growth in the usual resident population of Jabiru during the 1990s has been sluggish, reaching only 1,370 in 1995 (ABS 1996a). Given continued growth in the number of Aboriginal usual residents in the meantime, the Aboriginal proportion of the *de jure* population of Jabiru has increased to 13 per cent. Assuming that the Aboriginal proportion of the total Park population outside of Jabiru had not changed since 1991, then it is estimated that Aboriginal people comprised 28 per cent of the regional *de jure* population of 1,914 in 1995. However, this proportion would no doubt decrease again with any further expansion of mining activity and associated non-Aboriginal population growth as proposed in the Jabiluka Draft Environmental Impact Statement (ERA 1996).

Population growth

Aside from the five-yearly census counts, information on the Aboriginal population of Kakadu has been collected at fairly regular intervals since 1981 in the form of special surveys conducted by, or on behalf of, service providers and by academic researchers. Viewed in sequence, these data reveal that the main Aboriginal demographic impact has been one of re-population commencing with the initial period of mining and tourism development in the late 1970s to the early 1980s and continuing on to the present.

In 1976, for example, the census recorded only 44 Aboriginal people resident in the region, and in December 1978 the Department of Aboriginal Affairs estimated that only 45 people were resident at outstation communities with 20 of these at Mudginberri alone (Pancontinental Mining Ltd 1979: 6, 139). By the time of the 1981 Census, however, the Aboriginal population of the region had risen to 194, a figure corroborated by a special survey conducted in the same year by Stanley (1981: 41) who counted 217 Aboriginal residents. Just over one year later, in November 1982, the population was found to have risen to 273 (Altman 1988: 186), a level which was sustained until 1986. Thus, within the first few years of mining at Ranger and the establishment of Stages 1 and 2 of Kakadu National Park, the population was substantially augmented by significant in-migration. In the following ten-year period from 1986–96, and particularly during the 1990s, the population continued to steadily increase, but at a relatively slower rate of growth and with natural increase playing an increasingly greater role.

Of course, developments in mining and tourism, in Park management and in urban growth have also stimulated in-migration of non-Aboriginal people over the same period. At any one time, a proportion of these are usual residents of the region (in 1991, 56 per cent of the non-Aboriginal people counted in the Park were usual residents) while others were visitors from elsewhere. At the 1991 Census, a total of 3,059 persons were counted in the Kakadu region, 1,731 of these in Jabiru and 1,328 at various localities around the Park outside of Jabiru. Because of this influx, Aboriginal people comprised only 14.4 per cent of the population actually present in

Kakadu National Park in 1991, although this was higher than in 1981 when it was as low as 6.7 per cent.

An average of the actual numbers of people present in the Park at any given time can be estimated from a combination of data on the number of visitors each year and their average length of stay combined with usual residence estimates. According to ANCA (personal communication), the number of visitors to Kakadu National Park in 1995 was estimated to be 235,361. Assuming an average stay in the Park of three nights (Wellings 1995: 254), these visitor numbers convert to 706,083 person nights which, in turn, averages to 1,934 overnight visitors. If these are added to the 1,914 persons estimated to be usual residents of the Park in 1995, then the average daily Park population amounts to 3,848. Aboriginal people comprised 13.8 per cent of this number.

Population change by location

Three broad categories of residential location exist within the Park classified according to servicing arrangements, population size and urban/rural status. These include outstation communities and Park Ranger stations, Jabiru town camp (Manaburduma) and conventional housing within the Jabiru town suburbs. Communities in the first of these categories are generally small and the outstations are serviced by the Gagudju Association, while ANCA provides accommodation at Park Ranger stations. Servicing of the Manaburduma town camp is the responsibility of Jabiru Town Council, while housing in Jabiru suburbs is accessible via employment with one of the region's main employer groups. This mostly refers to RUM, but also includes Commonwealth and Northern Territory government agencies, the NLC, the Gagudju Association and the Djabulukgu Association.

Aboriginal population counts from a range of sources between 1991 and 1995 are shown in Table 2.1 for each of these three residential categories together with population estimates for each individual Park community.

Clearly the greatest share of the regional population has consistently been in one of the many small communities dotted around the Park away from Jabiru town. In 1991, almost three-quarters (74 per cent) of the region's Aboriginal population were located in such places. By the end of 1995, this proportion had fallen quite markedly to 66 per cent. At the same time the proportion of the regional Aboriginal population resident in Jabiru had grown, initially due to an increase in the numbers at Manaburduma, and subsequently there appears to have been a marked increase in the numbers resident in Jabiru town suburbs. Because of this, the Aboriginal proportion of the usual resident Jabiru town population has almost doubled from 7.6 per cent in 1991 to 13.1 per cent in 1995.[3]

Using 1991 Census usual residence data as a base, the Aboriginal population of Kakadu is estimated to have grown at an annual rate of 8.3 per cent during the 1990s. This was almost four times higher than the rate of Aboriginal population growth recorded for the NT as a whole (Table 2.2).

In terms of the demographic components of this growth, data supplied by the ABS on the number of births and deaths among Aboriginal usual residents of the Park are available for the period 1991–94 only. These data suggest that the main cause of population growth has been net in-migration rather than natural increase. Between 1991 and 1994 a total of 50 births to Aboriginal women from the region were recorded by the Registrar-General compared to 18 deaths among usual residents. This produces a net natural increase of 32 persons out of a total net increase for this period of 98, which means that net migration contributed 66 persons, or two-thirds of the net growth. The continuation of population growth into 1995 is also suggestive of a sustained level of net in-migration to the region.

Table 2.1. Aboriginal population counts and estimates: Kakadu National Park communities, 1991–95

	1991 Census[a]	1992 HCINS[b]	1994 Gagudju[c]	1995 Gagudju[d]
Cannon Hill/East Alligator	41	20	57	56
Cooinda	na	na	38	41
Deaf Adder	3	9	18	17
Giinda	na	3	na	na
Gulungul Creek	9	na	na	na
Hunter's Camp	na	4	na	na
Jim Jim	4	16	na[e]	na
Mamukala	23	17	21	21
Mudginberri	62	60	129	135
Nourlangie	6	7	7	12
Paradise Farm	10	8	na[e]	na
Patonga	42	72	53	55
Spring Peak	9	9	na[f]	na
009	20	24	20	20
Park communities	(310)[g]	249	343	354
Manaburduma	na	42	72	76
Jabiru Town	102[h]	na	83	103
Total	(412)[i]	na	498	533

Note: na = not available.

a. Unofficial unpublished pre-census estimates derived from Census Field Officer reports.

b. ATSIC HCINS.

c. Estimates of usual resident population from Gagudju Health visits, November.

d. Estimates of usual resident population from Gagudju Health visits, December.

e. Included in Cooinda estimate.

f. Included in Cooinda estimate.

g. Figure in brackets is the 1991 Census count for NT CD 031402 and not the sum of outstation pre-census estimates. This corresponds with the boundaries of Kakadu National Park (excluding Jabiru).

g. Combined 1991 Aboriginal usual residence count for Jabiru town and Manaburduma.

i. Figure in brackets is the sum of the 1991 Census usual residence count for Jabiru SLA and the place of enumeration count for NT CD 031402.

Table 2.2. Apparent population growth rates for Aboriginal communities in Kakadu National Park and Jabiru, 1991–95

	Net change	Per cent change	Annual rate of growth
Cannon Hill/East Alligator	15	36.6	9.1
Cooinda/Spring Pk/Paradise Farm	19	115.8	28.9
Deaf Adder	14	466.6	116.6
Mamukala	-2	-8.7	-2.9
Mudginberri	62	117.7	29.4
Nourlangie	6	100.0	25.0
Patonga	13	30.9	7.7
009	0	0	0
Sub-total Park communities	56[a]	18.8	4.7
Manaburduma	34[b]	80.9	20.2
Jabiru Town	20[c]	24.1	24.1
Regional total	133	33.2	8.3
NT	2,934[d]	6.7	2.2

Note: a. Using the 1991 Census count for CD 031402 as the base.

b. Using the 1992 HCINS estimate as the base.

c. Using the 1994 Gagudju Health estimate as the base.

d. Based on medium series projections (ABS 1996b).

As for growth rates in individual communities, these are also shown in Table 2.2 but care must be taken when interpreting the results because community-level population figures are estimates only and are based on variable criteria for determining usual residence. For example, growth rates for Park communities as a whole use the *de facto* census count for NT CD 031402 as the figure for the base year. In the calculations for Manuburduma and Jabiru town, *de jure* estimates from the 1992 HCINS and 1994 Gagudju Health Survey have been used as the base years.

Variable population size is also reflected in the different growth rates. For example, the highest growth appears to have occurred at Deaf Adder but this represents an increase to 17 people from a base of only three in 1991. In broad terms, all outstation communities, with the exception of Mumakala, 009 and perhaps Nourlangie, appear to have experienced locally significant increases in population in recent years. This is particularly so in Mudginberri, and to a lesser extent in Manuburduma, given their already relatively large numbers. The relatively high rate of growth in Jabiru town suburbs should also be noted.

The 1996 Census count

The 1996 Census count of Aboriginal people in the Kakadu region was not available at the time of compiling the report to the Aboriginal Project Committee of the KRSIS. However, it is important to reflect on the results of the 1996 Census, not just for their intrinsic value in representing the most recently available official data, but also because they reveal population numbers that are substantially at odds with those reported in the initial KRSIS report. Basically, the 1996 Census results indicate a substantial decline since the 1991 Census both in the number of people counted in the Kakadu region as their place of enumeration and in the number of those whose usual residence was in the region.

Table 2.3. Aboriginal population by place of enumeration in the Kakadu region, 1991 and 1996

Collection district	1991	1996	Change	
			Net	Per cent
Jabiru				
NT CD 013801	54	75	21	38.9
NT CD 013802	16	27	11	68.7
NT CD 103803	62	3	-59	-95.2
Total	132	105	-27	-20.4
Park outstations				
NT CD 031402	311	205	-106	-34.1
Total Kakadu	443	310	-133	-30.0

Source: 1996 Census of Population and Housing.

This is demonstrated in Table 2.3 which shows the number of Aboriginal people counted in the Kakadu region in 1991 and 1996. According to these figures the population fell by 30 per cent, from 443 to 310, representing a shift back towards the population levels of the early 1980s. Geographically, the decline was across the region with a population loss in Jabiru (of 20 per cent) and at outstations in Kakadu National Park (of 34 per cent). The reason for the decline in Jabiru was the almost complete loss of population from NT CD 103803 which is the CD within Jabiru that contains Manuburduma town camp.

Of course, the more appropriate population count for the region is that of usual residents and one reason for the lower place of enumeration count could be that usual residents of the region were away from the region in another census area

on census night. To assess the possible affect of such an occurrence, Table 2.4 compares the 1991 and 1996 usual resident populations of the region.

Table 2.4. Aboriginal population by place of usual residence in the Kakadu region, 1991 and 1996

SLA	1991	1996	Change	
			Net	Per cent
Jabiru SLA	102	106	4	3.9
South Alligator SLA	305	221	-84	-27.5
Total	407	327	-80	-19.6

Source: 1996 Census of Population and Housing.

As noted earlier, the smallest geographic unit for place of usual residence data is the SLA level which presents a slight problem for analysis as the South Alligator SLA covers an area beyond the Kakadu region. Of the two collection districts within the SLA (NT CD 031401 and NT CD 031402), only the latter falls within Kakadu. However, in 1991 there were no Aboriginal people counted in NT CD 031401 and in 1996 only 15. On this basis, it is assumed that the usual residence figures for the South Alligator SLA can be safely used as a proxy count for the Kakadu region.

Even with usual residence figures, the overall trend in population change is downwards with around 20 per cent fewer Aboriginal people indicated as usual residents of the Kakadu region. However, this decline was entirely due to a reduction in the population count at outstations since the population counted at Jabiru remained the same. The usual residence figure for Jabiru (106) is interesting because it is almost identical to the place of enumeration figure (105). This suggests that if the residents of Manuburduma were absent from Jabiru at census time then they were not picked up in any other census district either, at least not as usual residents of Jabiru. This raises two possibilities: either town camp residents were not counted at all or they indicated a change in their usual place of residence to somewhere outside of the Kakadu region. The latter prospect is suggested by the fact that the usual resident population at Kakadu outstations declined markedly.

With regard to the apparent fall in outstation residents, it may be significant that a total of 221 usual residents of this area did not answer the census question on Aboriginal origin (compared to only three in 1991). Since Aboriginal people comprise approximately half of the usual residents of Kakadu National Park it does seem likely that the decline in their numbers may have been due to this census error. At the 1991 Census, the question on Aboriginal origin was pre-ticked in the affirmative on remote area census forms but this was not the case in 1996. Whether this change in census method had any bearing on the increase in 'not stateds' is unknown but it is advanced here as a plausible explanation.

The indication from census data of a substantial decline in usual resident numbers is surprising in the face of the estimates of population growth presented in Tables 2.1 and 2.2. While some variation between these figures and census figures is to be expected given the different methodologies used, both the lower level of the census usual resident count and the counter trend towards fewer numbers, appear anomalous. In this context, it should be noted that discrepancies of this type between ABS and other counts of remote Aboriginal populations have been recorded elsewhere (Martin and Taylor 1996).

In summary, results from the 1996 Census count of Aboriginal people in the Kakadu region appear questionable. At the very least they raise an issue, identified by the ABS itself, regarding the utility of usual residence data for planning purposes compared to estimates of service populations (ABS 1996c). In a region such as Kakadu, with its highly mobile population, there is potential for pressure on

resources and infrastructure to be understated if an enumeration fails to adequately represent reality. In such a situation, it is advisable not to rely solely on one source of population data but to be guided by the indications of many.

Age and sex composition

Data on the age and sex of Aboriginal residents of Kakadu are available from the 1991 Census and from the population survey conducted by the Gagudju Health team in 1995 which obtained date of birth information for each individual. While census data identify these characteristics separately for the population counted at Manaburduma and in Jabiru town suburbs, they do not do this for usual residents nor do they identify individual outstations. However, the Gagudju Health Survey data do enable age and sex characteristics to be explored for each individual community. Such knowledge of the demographic structure of the population is vital in establishing rates for social indicators as well as in assessing health, housing, education, employment and training needs.

Table 2.5. Distribution of Aboriginal population by broad age group: Kakadu region, 1995 and Jabiru ATSIC Regional Council area and NT, 1991

Age group	Kakadu Region	Jabiru Regional Council area	NT
0–14	33.9	38.6	37.9
15–29	35.1	32.0	31.0
30–49	21.4	20.7	21.9
50+	9.6	8.7	9.2
Total	100.0	100.0	100.0

Source: 1995 Gagudju Health Survey; 1991 Census of Population and Housing.

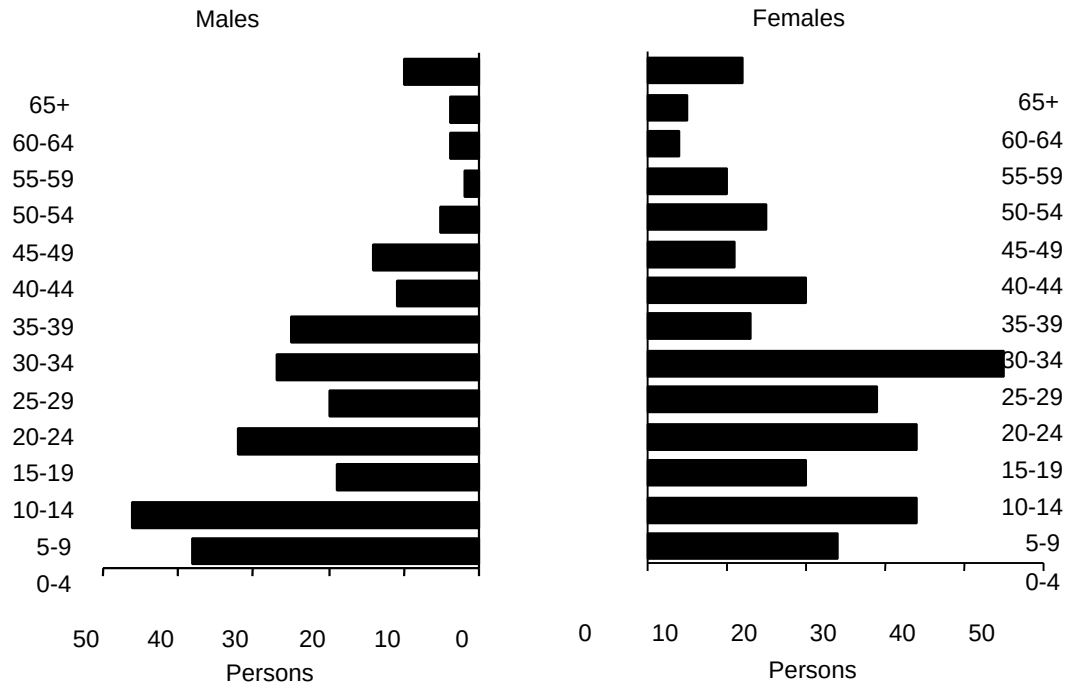
Overall, the age structure of the Aboriginal population is youthful with 33.9 per cent of the population under the age of 15 years, although this is somewhat less than the proportion of children in the Aboriginal populations of Jabiru Regional Council Area and the NT as a whole (Table 2.5). By comparison, the Kakadu region has a slightly higher proportion of young adults in the 15–29 age range, and to a lesser extent in the 30–49 age range, which might reflect the concentration of potential job opportunities in the region. As for older people aged 50 years and over, the Kakadu region has a slightly higher proportion (9.6 per cent) than its surrounding region but is very similar to the NT average.

At 93 males per 100 females, the sex ratio in Kakadu is somewhat lower than in the surrounding ATSIC region (100.0) as well as compared to the Aboriginal population of the NT as a whole (96.0). In demographic terms, the reason for this is suggested in Figure 2.1 which shows the distribution of Aboriginal males and females by five-year age groups. Clearly males predominate in the younger ages at pre- and primary school age, but thereafter, and particularly in middle and old ages, females are more prominent.

The likelihood that this pattern reflects differential mortality is difficult to establish from official mortality data supplied by the ABS. Information regarding the number of deaths among Aboriginal usual residents of Jabiru SLA are available for the period 1981–94, whereas for the rest of the Kakadu region these data are only available from 1991 to 1994. This is because prior to 1991, data for the population of Kakadu National Park was included in the much larger Alligator Balance SLA. Leaving aside any deficiencies in the system of recording usual residence in the certification of death, a complete picture of mortality for the whole of the regional population is therefore only possible for the period 1991–94. According to this information there were a total of 19 Aboriginal deaths, eight of these were males and

11 were females. Another source of mortality data is from key informants at the Gagudju Health team and this suggests a slightly higher overall mortality rate and much higher male mortality. Of the usual residents identified in the Gagudju population survey of November 1994, 14 had died over the 21-month period to August 1996 and all but two of these were males.

Figure 2.1. Age/sex pyramid of the Kakadu regional population, 1995



Source: Gagudju Health Survey, December 1995.

Dependency ratios

Measures of the potential economic implications of a given age structure are provided by a range of dependency ratios and these are shown in Table 2.6 for the Aboriginal population of Kakadu in 1996 and for the NT and Jabiru Regional Council area in 1991. The childhood dependency ratio is the simplest of these measures and expresses the number of children in the population (aged 0–14 years) as a ratio of the working-age population (aged 15–64) multiplied by 100. Obviously a ratio of 100 would indicate that the size of the two age groups is the same and that there is one person of working age for every child. A figure greater than 100 indicates more than one child to each person of working age, and less than 100 indicates less than one child to each person of working age. This provides an indication only of potential economic providers to dependants as it takes no account of the economically inactive. In Kakadu, the childhood dependency ratio was 55. This was much lower than the figure of 71 recorded for the Jabiru Regional Council Area in 1991 and is also below the NT average of 67. This means that the proportion of working-age adults to children is relatively high in Kakadu.

More refined measures of dependency incorporate some indication of the ability of working-age adults to support others. The childhood burden, for example, is defined as the ratio of the number of children to the number of employed persons. Once again, a figure of 100 indicates parity and the results show that in Kakadu

there are 3.4 children to each employed adult which is higher than in the Jabiru ATSIC Regional Council area and the NT as a whole.

Table 2.6. Aboriginal dependency ratios for Kakadu, Jabiru Regional Council Area and NT[a]

Dependency ratio	Kakadu 1996	Jabiru Regional Council Area 1991	NT 1991
Childhood dependency	55	71	67
Childhood burden	342	272	226
Dependency ratio	306	392	312
Economic burden	760	571	475

Note: a. Calculated on the assumption that all Aboriginal children are economic dependents of Aboriginal adults.

Another measure is provided by the dependency ratio which represents the ratio of children and economically inactive persons to the labour force (those employed plus those receiving unemployment benefits). On this score, Kakadu is similar to the NT average of three dependents per economically active person. Finally, the economic burden is a ratio of the number of children and economically inactive persons (including here the unemployed) to employed persons. This shows that in Kakadu for each employed Aboriginal person there are 7.6 other Aboriginal people not employed. This is far higher than in the surrounding region and close to double the NT average.

Population mobility

Aggregate population numbers for the Kakadu region have to be interpreted in the context of high rates of population mobility. This is due to the variable affect that mobility can have on population levels and the underlying problem that such movement poses for any clear definition of a usually resident group. Aside from permanent (long-term) movements of individuals in and out of the region, those who spend periods of time resident in the Park are also frequently mobile over the short term. As with remote Aboriginal communities across Australia generally, a considerable spatial range of movement exists extending from frequent inter-household shifts within the same community to intra-regional movement between communities and longer-range inter-regional movement, often to an urban centre (Taylor 1998). In each case, the extent of this mobility is defined spatially by a mix of social and economic factors with influences ranging from deaths in a community, the location of kinfolk, ceremonial activities, traditional utilisation of land resources, employment opportunities and the need to access services. In recent times, significant short-term redistribution of people also occurred (mostly to Park Ranger stations and Manuburduma) following the introduction of a $50 service fee for outstation residents by the Gagudju Association.

An important point to note is that a substantial gap often exists between the depiction of mobility by service providers and that recorded by standard census measures. Striking examples of this are found across much of remote Australia where very low rates of mobility are recorded by the census in areas such as Kakadu (Taylor and Bell 1996). This is despite the fact that survey data and the practical experience of service providers attest to the importance of frequent mobility in the daily, periodic and seasonal round of activities associated with Aboriginal social and economic life. While the 1991 Census identifies 96 Aboriginal people aged five years and over who were resident in Kakadu in 1991 but lived outside of the larger area of Alligator Balance SLA in 1986, a basic problem derives from the inability of such a fixed-period migration measure to capture the short-term and often circular

movement of many Aboriginal people. Indeed, this very movement of people between localities and households complicates the application of ABS usual place of residence criteria and does raise a question for SIA about who precisely is to be regarded as a Park resident.

While the occurrence of frequent population movement is widely acknowledged, few published data are available regarding the extent and patterns of movement among the Kakadu population. Some indirect indication of the level of mobility is available from surveys of the Park population conducted by Altman (1988) in the early to mid 1980s. By comparing lists of individuals in each community compiled in 1982 against similar community lists for June 1986, a degree of compatibility was established for Park outstations such as Cannon Hill, Patonga, Deaf Adder, Spring Peak and Mudginberri, but for Jabiru East, Manaburduma and Jabiru town suburbs very little correspondence was found (Altman 1988: 185). This distinction between apparent greater continuity of residence in the Park outstation communities and higher population turnover in the more urban communities appears to have persisted to the present with most changes to the Gagudju Health population lists of 1994 and 1995 occurring in Manuburduma and Jabiru town.

Table 2.7. Variability in population levels: Kakadu Aboriginal communities, 1981–86 and 1992–95

Community	Population range	
	1981–86[a]	1992–95[b]
Cannon Hill	14–19	20–56
East Alligator Ranger Station	7–17	na
Mudginberri	37–58	60–135
ANCA headquarters	2–7	na
Jabiru East	19–39	na
Nourlangie	15–37	7–12
Patonga	4–12	72–55
Patonga airstrip	9–30	na
Jim Jim Ranger Station	2–12	na
Spring Peak	5–13	na
Deaf Adder	6–18	9–17
Cooinda	3–17	na
Mamukala	0–13	17–21
Manaburduma	26–46	42–76
Jabiru town	11–45	na

Note: a. From Park surveys listed in Wellings 1987.

b. From 1992 ATSIC HCINS and Gagudju Health Survey 1995.

One consequence of mobility is that population levels in each community may fluctuate considerably over short periods of time to the extent that a *de facto* count in one month may not necessarily tally with a similar count in a following month. Once again, some indication of the degree to which population levels may vary in each community is available from data collected by various surveys in the 1980s (Wellings 1987) and by the 1992 ATSIC HCINS and Gagudju Health estimates of 1995. These are shown in Table 2.7.

From a servicing point of view, the fact of frequent population shifts means that the ratio of clients to *de facto* regional population is invariably greater than one. This produces what may be euphemistically referred to as a 'service population' which is inevitably higher than the population counted in the region at any given time. While this population can be shown to exist at a theoretical level, its actual size and composition in the Kakadu region remains indeterminate. Nonetheless, the notion of a population 'pool' that has links with the region and is variously resident

there has important consequences for planning adequate service delivery (Taylor 1996). Some scope for estimating the size and composition of this service population would be available by summarising basic demographic information from the numerous health records of non-usual resident Aboriginal clients held at Jabiru Health Centre.

For example, in assessing housing adequacy, overcrowding measures may need to consider not just those counted in a dwelling by a survey but also other usual residents who may be absent for a period of time as well as others who may utilise the dwelling from time to time. In terms of education requirements, aggregate statistics reveal the number of Aboriginal children enrolled and attending school at particular points in time, but it is not certain that these refer consistently to the same individuals. Given that children often accompany adults in their movements across, into and out of the region, the question arises as to which population school statistics refer. It seems likely that some mobile children may be overlooked as part of the regular school population. In this event who has responsibility for their education? In this context, it is interesting to note that the Gagudju Health team currently identifies a regular service population of some 530 individuals resident in the Park, and yet their patient records include many more than this in the category of intermittent visitors to the Health Centre. Under such circumstances, what constitutes the appropriate planning population? When calculating employment and unemployment rates for the region, which adults are to be considered as the pool of eligible job seekers? In this context, it is interesting to note that both the recent report to the Gunbang Action Group (d'Abbs and Jones 1996) and the Kakadu/West Arnhem Employment, Education and Training Group refer to the population of Kakadu and western Arnhem Land.

Regional pattern of mobility

Some idea of the spatial extent of social interaction involving the Kakadu region is provided by the ethnographic record and is available indirectly from administrative data. At the ethnographic level, it is known that elements of the original population of the region were gradually dispersed to adjacent areas following initial contact with Europeans and as a consequence of the pressures and attractions of economic development and the influence of government and mission officials (Keen 1980a; Levitus 1995).

The extent of this diaspora with social and traditional links with the Kakadu region is partly indicated by the current spatial distribution of the Gagudju Association membership which shows that 52 per cent are located outside the Park, mostly at nearby Gunbalunya (Oenpelli). This represents a reversal of a trend established by Altman (1983: 121, 1988: 187–8) who calculated that between 50 and 60 per cent of the Aboriginal population in Kakadu were members of the Association in 1982 and that this had declined to only 35 per cent by 1986.

Another partial indication of the extra-regional spread of affiliated population is provided by cross-checking the residential location of adults on the Gagudju Health list of Park residents in October 1994 with the electoral roll published for the NT election in May of the same year. Both of these lists were constructed on the basis of usual place of residence criteria. Of the 280 adults of voting age on the Gagudju Health list, all but 82 were present on rolls for the Top End electorates of Goyder, Arafura or Arnhem.[4] Of the 198 adults on both lists, only half (51 per cent) were recorded at the same location within the Park. A few (11 per cent) were still recorded within the Park but at a different location, while more than one-third (38 per cent) were recorded at a location outside of the Park. Of this latter group, 41 per cent were in localities to the east of the Park, mostly at Gunbulunya and its outstations; 28 per cent were in localities to the south of the Park, mostly at Kybrook

Farm and to a lesser extent Barunga and Eva Valley; and the remainder were in assorted locations such as Cobourg Peninsula and Warruwi, Humpty Doo and the Tiwi Islands. This pattern of distribution is consistent with the distribution of the Gagudju membership.

3. Labour force status

Provisions for the employment and training of Aboriginal people within Kakadu National Park are specified in agreements between the NLC and the ANPWS, and the NLC and the Commonwealth in 1978. Also available to Aboriginal people over the past two decades have been the full range of both mainstream and Aboriginal-specific labour market and training programs offered Department of Employment, Education, Training and Youth Affairs (DEETYA),[5] as well as opportunities developed by Aboriginal and non-Aboriginal private sector interests.

The first of the agreements mentioned above was signed between the NLC and the Director of ANPWS and set out terms and conditions for the lease of Aboriginal land in Kakadu Stage 1. Of particular interest are the provisions for employment and training of local Aboriginal people. Paragraph 4(a) guaranteed to set up a program for training reasonable numbers of local Aborigines in skills necessary to enable them to assist in the management and control of the Park. Paragraph 4(b) undertook to engage as many of the traditional owners as practicable to provide services to the Director and in relation to the Park. Paragraph 4(c) stated that all practicable steps would be undertaken to adjust working hours and conditions to the needs and culture of Aboriginal people employed in the Park.

The second agreement was entered into pursuant to s.s.44(2) of ANL. This set out terms and conditions under which mining at Ranger could proceed. Paragraph 12.1(a) required RUM to ensure that as many Aboriginal people as practicable were employed where those Aboriginal people were capable of carrying out in a satisfactory manner the particular work required. RUM was also required to establish an 'operator training scheme' and to adjust working hours and conditions to suit the needs and culture of Aboriginal employees.

Apart from the focus on employment in quite different economic sectors, the main variation between these two agreements was that the former referred to traditional Aboriginal owners of land and provided for renegotiation after ten years, while the latter referred only to Aboriginal people and was valid for the life of the mine.

Since the commencement of mining, the construction of Jabiru and the creation of a national park with associated tourist developments, the Kakadu region has become relatively well endowed in job opportunities compared to most other remote regions of the NT. While overall employment levels have fluctuated somewhat in line with the fortunes of RUM, the level and range of economic activity is such that opportunities for employment within the region have remained buoyant. However, the crucial issue from the point of view of SIA is the extent to which Aboriginal people, and particularly local Aboriginal people, have gained access to this expanding labour market.

Aboriginal/non-Aboriginal labour force status 1991

The distribution of Aboriginal and non-Aboriginal residents of the region by labour force status is shown in Table 3.1 using 1991 Census data. In Table 3.2, these data are converted into rates.

Table 3.1. Aboriginal and non-Aboriginal labour force status: Kakadu region, 1991

Labour force status	Outstations[a]	Jabiru[b]	Kakadu region
Aboriginal			
Employed	33	35	68
Unemployed	0	0	0
Not in the labour force	152	12	164
Not stated	20	10	30
Total 15+	205	57	262
Non-Aboriginal			
Employed	109	730	839
Unemployed	3	22	25
Not in the labour force	35	89	124
Not stated	10	39	49
Total 15+	157	880	1,037

Note: Cells in Table have been randomly adjusted to avoid the release of confidential information.

a. Counted at home in NT CD 031402.

b. Usual residents.

The first point to note is that employment in the Kakadu region is dominated by non-Aboriginal people. Out of a total regional employment of 907 in 1991, only 68 jobs (7.5 per cent) were held by Aboriginal workers. This produced an overall Aboriginal employment/population ratio of 29.3 which was identical to the rate for Aboriginal people generally in the NT but somewhat higher than that for the Jabiru ATSIC Regional Council area (24 per cent). However, this relatively favourable outcome was due to the concentration of jobs in Jabiru (excluding Manuburduma) as the employment/population ratio at Kakadu National Park outstations (18 per cent) was substantially lower than in the Jabiru ATSIC Regional Council area.

The second striking feature of census labour force data, was the failure to record Aboriginal unemployment levels. According to the census, there were no unemployed Aboriginal people in the Kakadu region in 1991. This result almost certainly stems from enumeration error since unemployment benefits are regularly paid to a substantial number of Aboriginal residents. Unfortunately, it also means that the census-based labour force participation rate for Aboriginal people is overestimated to an unknown degree and cannot be relied upon.

Table 3.2. Aboriginal and non-Aboriginal employment, unemployment and labour force participation rates: Kakadu region, 1991

Labour force status[c]	Outstations[a]	Jabiru[b]	Kakadu region
Aboriginal			
Employment/population ratio	17.8	74.4	29.3
Unemployment rate	0.0	0.0	0.0
Labour force participation rate	17.8	74.4	29.3
Non-Aboriginal			
Employment/population ratio	74.1	86.8	80.9
Unemployment rate	2.6	2.9	2.9
Labour force participation rate	76.2	89.4	83.3

Note: Cells in Table have been randomly adjusted to avoid the release of confidential information.

a. Counted at home in NT CD 031402.

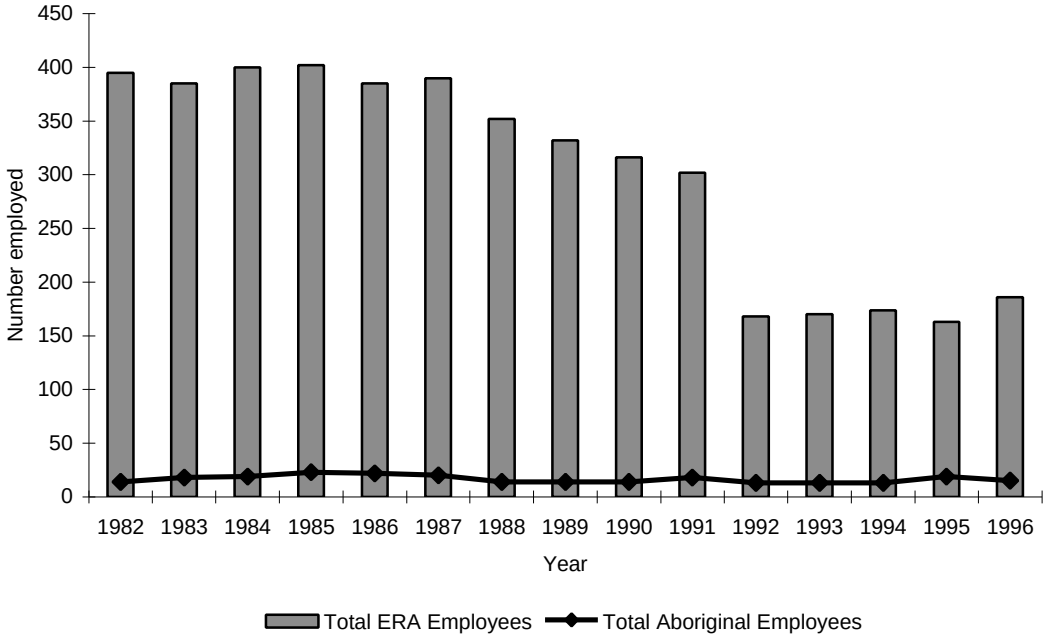
b. Usual residents.

c. Excluding labour force status not stated.

Current Aboriginal labour force status

Since 1991, a number of developments have occurred in the region with potential consequences for the level of Aboriginal employment. Foremost among these has been the downsizing in the workforce at RUM as shown in Figure 3.1. Also, of significance has been further business investment and service activity in the region on the part of Aboriginal organisations. Added to this, government funding for labour market and training programs targeted at Aboriginal people has risen under the Aboriginal Employment Development Policy, at least until recently, and in Jabiru the provision of formal training courses has been expanded by the involvement of the Northern Territory University.

Figure 3.1. Employment at RUM, 1982–96[a]



Note: a. As at 30 June.

Source: ERA.

Employment profile

Comprehensive data on the effects of these and other developments on the overall labour force status of Aboriginal people are not readily available and the first detailed indication of contemporary employment outcomes will be contained in the findings of the Kakadu/West Arnhem Employment Education and Training Group due to report early in 1997. What is presented here is a summary of Aboriginal employment with the major regional employer groups in October 1996. Collectively these should approximate to total employment in the region at this time, but in the absence of a full labour force census this is only advanced as a reasonable assumption.

A fundamental problem here is the high degree of job mobility that occurs. Many positions are occupied on a casual, and often day-labour basis, while even those in relatively permanent occupations frequently move in and out of employment. Without fixing those in and out of work to a specific time frame, as in the monthly Labour Force Survey, it is difficult to establish precise labour market

indicators. For the most part, employment data were obtained from major employer groups variously for the months of June to October and these are shown in Table 3.3.

Table 3.3. Aboriginal employment in Kakadu National Park, 1996[a]

Employer	Full-time	Part-time	Casual	Total
ANCA	22	0	2	24
RUM	9	1	4	14
Gagudju Association	19	1	6	26
Djabulukgu Association	4	0	20	24
Northern Land Council	3	0	0	0
Other	3	0	7	10
Total	60	2	32	98

Note: a. September quarter.

Source: Fieldwork.

Table 3.4. Aboriginal employment, unemployment and labour force participation rates: Kakadu region, 1991 and 1996

Labour force status	1991	1996
Employment/population ratio	29.3	19.6
Unemployment rate	0.0	52.3
Labour force participation rate	29.3	41.1

To equate these data with census-based labour force status, employment is defined as full-time and part-time work only, as casuals are often recipients of unemployment and other benefits. On this basis, the total numbers employed have barely changed since 1991 (from 68 to 62) yet the population of working age has increased from 262 to 316 with the result that the employment/population ratio has fallen markedly from 29.3 to 19.6 (Table 3.4). This is no different than it was in 1981 when Stanley (1981: 41) recorded an employment/population ratio of 19.4 per cent. The lack of improvement in the proportion of working-age people employed is a microcosm of the mainstream labour market situation reported for Aboriginal people in Australia as a whole during the 1990s (ABS/CAEPR 1996), and is a difficulty that has only been alleviated by participation in the Community Development Employment Projects (CDEP) scheme (Taylor and Roach 1998).

This effect of the CDEP scheme in buoying up labour force statistics is well illustrated by comparison with labour force status in the Jabiru ATSIC Regional Council area reported by the 1994 National Aboriginal and Torres Strait Islander Survey (NATSIS) (ABS 1996d: 45). Here the employment/population ratio was higher than in the Kakadu region, at 26.8. However, much of this employment was in the CDEP scheme. If this is taken out of the calculation and the focus is placed on mainstream employment only, then the employment/population ratio falls to 15.6 which is lower than in Kakadu. The message, in terms of mainstream labour market outcomes, is that Aboriginal people in Kakadu fare only slightly better than others in the region around them although performance generally is steadily declining due to growth in the number of job seekers. The main factor that helps absorb this expanding labour supply in areas such as the Top End is the CDEP scheme.

Unemployment rate

Data on unemployment levels were not available from the 1991 Census but information supplied by the Gagudju Association and the West Arnhem/Kakadu Employment, Education and Training Group indicate a total of 68 unemployment benefit recipients in the region in 1996. This produces an unemployment rate of 52.3 which is very close to the figure of 53.7 recorded for the Jabiru ATSIC Regional Council area in 1994 (ABS 1996d: 45). Both of these figures are substantially above the unemployment rate of 36.6 per cent recorded for Aboriginal people in the Northern Territory as a whole in the same year (ABS 1994: 49).

Further, more current information on unemployment is available in the form of unemployment benefits data from the DEETYA Jobseeker database (Table 3.5). This shows the number of Aboriginal males and females in the Jabiru postcode area by duration of unemployment at the end of September 1996. Also available for comparative purposes are the same data for postcode area NT 0822 which represents an area very similar to the balance of the Jabiru ATSIC Regional Council area, though including the Tiwi Islands. Among those unemployed, the majority in both Kakadu and postcode area NT 0822 were long-term unemployed and overall the prevalence of long-term unemployment among job seekers was greater than the figure of 63 per cent recorded for the Jabiru ATSIC Regional Council area in 1994 (ABS 1996d: 48).

Table 3.5. Aboriginal clients on Job Search Allowance/Newstart Allowance/Youth Training Allowance by age, sex and duration of unemployment: postcode areas NT 0886 and NT 0882, 1996[a]

Duration of unemployment	Postcode NT 0886	Postcode NT 0822
Males		
0–3 months	5.1	7.7
3–6 months	5.1	9.8
6–12 months	15.3	12.5
>12 months	74.3	69.9
Total per cent	100.0	100.0
Total number	39	998
Females		
0–3 months	11.1	6.8
3–6 months	5.5	7.8
6–12 months	22.2	14.9
>12 months	61.1	70.3
Total per cent	100.0	100.0
Total number	18	597

Note: a. As at 30 September 1996.

Source: DEETYA, Darwin.

At face value, the data suggest that unemployed males in Kakadu were more likely to be long-term unemployed than their counterparts in much of the rest of the Top End outside of Darwin, while for females the opposite was the case. Given the considerable difference in population sizes, however, it may be more prudent to simply conclude that long-term unemployment was just as prevalent as in most rural parts of the Top End. Using this data together with the employment data for Kakadu, the rate of long-term unemployment in September 1996 can be calculated at 33.6 per cent, which is almost identical to the long-term unemployment rate of 34 per cent recorded for the Jabiru ATSIC Regional Council area in 1994 (ABS 1996d).

Employment at RUM

Since its commencement in 1982, the region's main employer, RUM, has provided jobs for a total of 187 individual Aboriginal people with 32 of these employed on more than one occasion. Over this period, the number of Aboriginal employees has fluctuated from month to month and year to year but only on one occasion has it exceeded 11 per cent of the total mine workforce (in June 1995), hovering more generally between 4 and 8 per cent. As noted earlier, a point of interest from a social impact perspective, is the degree to which this employment has involved local Aboriginal people as opposed to others from out of the region. Despite the fact that the Ranger agreement contained provisions for the employment of Aboriginal people generally, the company has maintained records on jobs held by traditional owners of Kakadu National Park as well as those held by Kakadu/West Arnhem residents, long-term residents of Kakadu and other Aboriginal people from elsewhere (Table 3.6).

Table 3.6. Aboriginal employment at RUM, 1982–96[a]

	Employment status			Residence status		
	Total employment	Full-time	Casual	Traditional owners	Kakadu/ W. Arnhem	Non-local
1982	14	4	10	2	5	7
1983	18	9	9	1	3	14
1984	19	11	8	2	6	11
1985	23	17	6	3	3	11
1986	22	14	8	1	7	14
1987	20	9	11	1	5	14
1988	14	8	6	1	2	11
1989	14	6	8	3	2	9
1990	14	7	7	1	3	10
1991	18	7	11	6	3	9
1992	13	4	9	3	5	5
1993	13	3	10	1	2	10
1994	13	4	9	3	3	7
1995	19	6	13	2	6	11
1996	15	9	6	0	6	9
Average	17	8	9	2	4	10

Note: a. As at 30 June.

Source: ERA.

In total, 34 traditional owners have been employed at Ranger over the life of the mine with 14 of these returning for one or more additional contract periods. Depending upon how one defines the term 'local', the data can be used to variously conclude that only 18 per cent of the individual Aboriginal people who have worked at the mine have been locals (using traditional owners only) or that 29 per cent have been locals (adding long-term residents of the Park and people from West Arnhem) or 39 per cent (adding relatives of traditional owners). At the very least, therefore, 61 per cent of the Aboriginal workforce may be said to have originated from another region entirely, often from inter-State. If a definition of local is restricted to traditional owners only, as in the agreement for the establishment of Kakadu National Park, then 82 per cent of the mine's Aboriginal workforce may be said to have originated from elsewhere.

On average, over the life of the mine, a total of 17 Aboriginal people have been employed at any one time with a moderate range around this total from 13 to 23. Broadly speaking, employment levels appear to have been highest in the early 1980s, falling away to the current levels since 1988 which precedes the decline in the overall mine workforce in 1991/92. As for the employment status of mine workers,

on average these have been evenly divided between full-time and casual positions, with roughly eight of each engaged at any one time. If anything, however, the ratio of full-time to casual employment was higher in the early 1980s since which time casual employment has become more prominent. The residential status of employees shows clearly that comments made by O'Faircheallaigh (1986) regarding the general lack of employment for locally-based people in the early years of the mine, have held for subsequent years with traditional owners, in particular, barely represented.

Table 3.7. Percentage distribution of Aboriginal and all employees by job grade: RUM, 1996[a]

Job grade and salary ($)[b]	Aboriginal	Total
1. (24,300–29,700)	10.0	2.0
2. (26,100–31,900)	20.0	0.0
3. (29,160–35,640)	20.0	6.0
4. (31,950–39,050)	0.0	9.0
5. (35,100–42,900)	40.0	16.0
6. (38,520–47,080)	10.0	12.0
7. (42,120–51,480)	0.0	4.0
8. (46,440–56,760)	0.0	29.0
9. (51,120–71,940)	0.0	6.0
10. (not available)	0.0	4.0
11. (not available)	0.0	8.0
12. (not available)	0.0	1.0
13. (not available)	0.0	0.0
14. (not available)	0.0	2.0
15. (not available)	0.0	1.0
Total	100.0	100.0

Note: a. As at October.

b. Add site allowance of 10 per cent to these figures for 'bottom line' salary.

Source: ERA.

Data are also available on the duration of employment of each employee at Ranger. These show that, overall, Aboriginal employees at the mine worked for an average contract period of ten months. Those from out of region worked on average for longer periods than this (12.2 months) while traditional owners worked for far less (6.5 months). Long-term local residents and people from West Arnhem fell between these two extremes with an average employment period of 8.5 months. It should be noted that a considerable range of employment periods exists around these averages. For example, many traditional owners work for one or two months only, although a few have been employed for two to five years. Similarly, while there are some workers from out of region who work for only one month and then depart, many have been employed for several years with one employee engaged almost over the full term of the mine.

The nature of Aboriginal employment in terms of job status within the mine is highly skewed towards the lower end of the occupational scale. While precise information on individual jobs was not obtained, a surrogate measure of occupational status is provided by job grades and their equivalent salary levels. These are shown in Table 3.7 for current Aboriginal employees compared to the distribution for the total mine workforce. All Aboriginal employees are engaged at job grade level 6 or below whereas 55 per cent of the mine workforce is engaged at levels above this. Furthermore, 50 per cent of Aboriginal employees are in the lowest three job grades, and paid at the base rate of between $24,300 and $35,640 per annum, compared to only 8 per cent of the workforce in general.

Employment with ANCA

Aboriginal employment with ANCA has been guaranteed under the agreement between traditional owners and the Commonwealth for the lease of Kakadu National Park. From the outset, the ANPWS has instituted training and employment programs in park management for Aboriginal people and the results of this involvement are evident in employment outcomes. Table 3.8 shows the current pattern and level of employment for Aboriginal people within ANCA. Out of a total full-time staff establishment of 65 staff, 22 (34 per cent) are Aboriginal employees. Of these, half are traditional owners, just over one-third are local Aboriginal people and the rest (14 per cent) are non-local.

Most Aboriginal people are employed as Park Rangers at the ASO2 and ASO3 levels and receive a range of annual salaries from $27,091 to $33,304. These are rostered staff working on a ten days on/four days off basis and they receive a 23 per cent loading on base salary. Rangers also receive an annual allowance of $1,000. Only three Aboriginal people are employed in administration on a Monday to Friday basis. All staff receive an annual district allowance of $3,190 for single people and $5,150 for those with dependents as well as annual leave fares amounting to $2,597 per adult and $1,298 per child.

Table 3.8. Full-time Aboriginal employment with ANCA by occupational status, 1996[a]

	Traditional owners		Local Aboriginal		Non-local Aboriginal		Non-Aboriginal	
	Male	Female	Male	Female	Male	Female	Male	Female
Trainee ASO1	1	1	1	0	0	0	0	0
Admin. ASO2	0	0	0	1	0	0	1	2
Admin. ASO3	0	0	0	0	0	0	0	2
Admin. ASO4	0	0	0	0	0	0	1	3
Admin. ASO6	0	1	0	0	0	0	3	2
Manager SOGC	0	0	0	0	0	0	2	1
Manager SOGA	0	0	0	0	0	0	1	0
Ranger ASO2	5	0	2	1	2	0	2	3
Ranger ASO3	0	1	2	0	1	0	7	2
Ranger ASO4	0	0	1	0	0	0	6	0
Cultural adviser ASO4	2	0	0	0	0	0	0	0
District Supervisor ASO5	0	0	0	0	0	0	5	0
Total	8	3	6	2	3	0	28	15

Note: a. As at October.

Source: ANCA, Kakadu National Park.

In contrast with the pattern of employment at RUM, most Aboriginal people working at ANCA, including traditional owners, have been employed for relatively

lengthy periods with almost two-thirds (64 per cent) employed for more than two years. However, like at the mine, the workforce is dominated by male employees who account for 77 per cent of Aboriginal workers and 65 per cent of non-Aboriginal workers.

In addition to these full-time positions, ANCA also generates employment through the use of day labour to work on a variety of short-term tasks mostly to do with natural and cultural resource management and visitor services. Over the 13 week period between 1 July 1996 and 1 October 1996 a total of 832 person hours of Aboriginal day labour was engaged and 396 person hours of non-Aboriginal labour. For Aboriginal workers, this translates into 104 person days of work over the 13 week period which is roughly the equivalent of full-time work for two persons. In fact, a total of 26 individuals were engaged over this period which converts to an average of four days of work each. These individuals were mostly usual residents of the Park in communities from Mary River Ranger Station to Cannon Hill, a few were from Jabiru while others were from as far afield as Barunga, Pine Creek and Darwin. Over the financial year 1995/96, a total of 2,144 person hours of employment were provided for Aboriginal workers compared to 2,582 hours for non-Aboriginal workers.

Employment with the Gagudju Association

The Gagudju Association is an Aboriginal incorporated organisation, with about 300 members, established in 1980 to receive moneys with respect to RUM. The Association has received significant resources in the past 15 years and has invested heavily in the regional economy as well as operating as a service delivery agency. The Association's commercial activities include investments in the Cooinda Lodge, Yellow Waters boat tours and the retail outlet at Warradjan Cultural Centre; the Crocodile Hotel and kiosk at the Bowali Visitor Centre; the Border Store; Daluk Daluk Screen Printing and Mobil Jabiru. The non-commercial activities are made up primarily of services provided to Association members and outstations. These services include provision of outstation housing, provision of medical services, maintenance of vehicles, power generation, water reticulation, garbage disposal, a 'tucker run' and school bus service. Non-commercial operations also include a buffalo farm. All these activities provide scope for the employment and training of Aboriginal people.

The largest single source of employment generated by the Association is at the Gagudju workshop in connection with its role in servicing outstation communities. This provides six full-time positions for a mechanic, electrician, labourers and refuse workers. In addition, four casual labourers are currently employed at the workshop. Other jobs are varied and include work at the Warradjan Cultural Centre, the Buffalo Farm, health work, clerical duties at the Association's Jabiru office, shop assistance, rock art maintenance, and housekeeping at the Gagudju Crocodile Hotel.

Employment with the Djabulukgu Association

The Djabulukgu Association was established in 1982 to receive mining royalties from the Jabiluka Pancontinental Gold and Uranium project (Altman 1983: 132). To date, this project has not commenced, but in 1992 members of the Association decided not to wait for mining to start but to use some of the moneys invested and mine lease payments received to develop income-generating businesses, provide services to outstations and employment and training for Aboriginal people.

In this year grant moneys were received from ANCA under Contract Employment Program for Aborigines in Natural and Cultural Resource Management

(CEPANCRM). These were used to set up four projects in weed management, cultural collation, rehabilitation/revegetation and Magela Cultural and Heritage Tours. Openings for Aboriginal employment were also created by the purchase of a retail outlet, now known as the Marrawuddi Gallery, at Kakadu National Park Headquarters Visitor Information Centre (Bowali). These developments, and others, have created the basis for a range of employment-generating activities with a total of 23 Aboriginal employees currently on the Association's payroll, although only four of these are full time.

At the present time the largest of Djabulukgu's single employment projects is based at Mudginberri, where seven casual workers are engaged in renovating and building houses. All of these are male trainees under Northern Territory Employment and Training Authority (NTETA) and DEETYA funding. Four of the men are members of the Djabulukgu Association and two are members of Gagudju. Although they are employed full time, they are only paid for the hours actually worked. In the last week of October this amounted to an average net weekly salary of $136.

CEPANCRM funds have also been used to coordinate the gathering of culturally significant stories from traditional elders in the region. A total of eight Aboriginal people were employed on this project for various periods during the 1995/96 financial year and currently six women, all members or affiliated to members of the Gagudju Association, are employed irregularly on a casual basis. Somewhat more stable, but still casual, employment is provided for three Aboriginal people to serve as Public Contact Officers in an arrangement with ANCA at the Kakadu Park Headquarters Visitors Information Centre. The Marruwuddi Gallery at the Visitors Centre also provides jobs for two casual Aboriginal staff and one full-time Aboriginal manager. Over the years, the CEPANCRM nursery and rehabilitation/revegetation project has employed between 40 and 60 local men and women on a casual basis for between two-week and six-month periods. The supervisor's position in this project is full-time and staffed by an Aboriginal person while a NTETA/DEETYA traineeship currently provides another full-time job. A further full-time position is provided by Magela Cultural and Heritage Tours in conjunction with Kakadu Air.

Many of these employment opportunities are ephemeral and based on grants and short-term arrangements. More strategic moves are under way, however, to lock in longer-term resources for extending employment opportunities. This is well illustrated by the Association's most significant employment strategy to date, manifest in its support of an application to extend the DEMED CDEP scheme based at Gunbalunya to incorporate residents of Kakadu National Park.

4. Income status and welfare

Aboriginal people in Kakadu have a number of potential sources of cash income ranging from employment, unemployment benefit and other payments from the Department of Social Security (DSS), royalty and rental payments from a variety of Associations and for a variety of reasons, and private income from the sale of arts and crafts. A realistic assessment of the income status of residents of Kakadu would also consider potentially significant imputed non-cash income from subsistence activities in resource-rich Kakadu National Park. However, quantitative data for assessing the economic significance of subsistence activities in Kakadu National Park are grossly insufficient and such information that does exist is increasingly out of date (Altman 1988: 196–7).

Accurate data on overall levels of income and employment and non-employment sources of income for Kakadu residents are notoriously difficult to obtain due to a variety of conceptual problems. For one thing, most measures of income refer to a period of time, such as annual or weekly income, whereas the flow of income is often intermittent. For example, census data are collected for all sources of income in respect of a 'usual week' and then rounded up to annual income. What might constitute 'usual weekly' income in many Kakadu households is difficult to determine. On the credit side, there is the likelihood of intermittent employment and windfall gains from sources such as gambling, cash loans and not least from royalty and rental payments. For example, in the case of the latter, royalty distributions to Gagudju Association members amount to $2,000 per annum each while 80 traditional owners receive around $6,000 per annum from Park rentals (Altman 1996: 10–11). This sort of income combines with debits, for example due to loss of employment and cash transfers to others, to create a highly complex picture even over a short space of time and one that census methods of data gathering are likely to misrepresent (Smith 1991).

Even if adequate questions were asked regarding income, high levels of population mobility would make it difficult to establish a consistent set of income recipients over a period of time. This is further complicated by a high degree of job mobility with individuals often employed on a casual or part-time basis and moving into and out of longer-term jobs. Perhaps the only really stable part of the workforce are full-time employees at ANCA. Regular cash payments from royalties and rentals that are made to a proportion of the regional population only, also add complexity to the pattern of income distribution.

As for the circulation of cash between individuals and households throughout the region, information on this is non-existent. This is particularly so in regard to gambling which is a common local activity. Also lacking are data on expenditure, although among many local Aboriginal people a pattern of cash feast and famine tends to follow the cycles of benefit and royalty payments (Alan Perrin pers. comm.).

The most comprehensive source of income data using a consistent methodology is the census. By cross-tabulating census data on labour force status and income a basis for distinguishing employment from non-employment income is provided. At the present time, however, this is only available for 1991 and it is not possible to identify detailed sources of employment and non-employment income.

With the above caveats in mind, census data provide some basis for establishing relativities in income status between Aboriginal residents of Jabiru and those in outstation communities as well as between the Kakadu region as a whole and the broader Jabiru ATSIC Regional Council area. In an attempt to provide more current income data, as well as some idea of different sources of income, information

was also gathered during fieldwork on salaries for those in jobs as well as on DSS payments by type of payment.

Personal income

Personal income distribution based on census data for adult residents of Kakadu National Park outside of Jabiru, those in Jabiru, and for the region as a whole are shown in Table 4.1.[6] Ideally, income levels for residents of Manuburduma would be identified separately from those of other Jabiru residents but for official confidentiality reasons these are combined. According to these results, a wide discrepancy exists between the income status of outstation residents and those in town, as might be expected given that residence in town is linked to formal employment (except at Manuburduma). In 1991, approximately 80 per cent of outstation residents had a personal annual income that was below the NT average for Aboriginal people of $9,700. In almost direct contrast, 74 per cent of those resident in Jabiru had personal incomes above this average. It is also clear that a highly polarised income distribution exists in Jabiru and this is likely to reflect the gap between residents of Manaburduma and those in the suburbs.

It needs to be emphasised that these data refer to gross income only and do not adequately reflect the circumstances of individuals in terms of disposable income or assets. This is a crucial issue in determining true economic status, but unfortunately one that is poorly informed by available data. To take just one example, housing and associated costs generally comprise a major expense in individual and household budgets in Australia. In the Kakadu region, however, a wide variety of subsidised arrangements exist to offset these costs. Also, members of the Gagudju Association are all co-owners of two hotels and other assets in the region. While acknowledging this, it would be impossible to fully factor these in to any calculation of disposable income using census data.

Table 4.1. Distribution of individual annual gross income: Aboriginal residents of Kakadu outstations and Jabiru, 1991

Income category ($)	Outstations[a]	Jabiru[b]	Kakadu region
<3,001	3	5	8
3,001–5,000	31	0	31
5,001–8,000	91	3	94
8,001–12,000	26	7	33
12,001–16,000	4	4	8
16,001–20,000	12	7	19
20,001–25,000	3	10	13
25,001–30,000	0	7	7
30,001–40,000	3	4	7
>40,000	0	0	0
Not stated	18	10	28
Total	191	57	248
Average	$8,364	$18,074	$10,196

Note: Cells in Table have been randomly adjusted to avoid the release of confidential information.

a. NT CD 031402.

b. Usual residents.

Source: 1991 Census of Population and Housing.

Converting these data to average incomes provides a summary measure of the difference between town and outstation income status. Average incomes at outstations amounted to $8,364 which was less than half (43 per cent) of the figure of $18,074 recorded for town residents. If residents of Manuburduma were excluded

from the Jabiru figure, this would no doubt increase the urban/rural gap further. Overall, the average annual income in the Kakadu region amounted to $10,196. For a further sense of relativities, it is interesting to place these results in the wider regional context of the Jabiru ATSIC Regional Council area where the average Aboriginal annual income of $8,332 was very close to the amount for Kakadu outstations. All these figures, however, were far below the average income for non-Aboriginal usual residents of Kakadu that amounted to $18,947.

Household income

As with personal income, discrepancies are also evident between town and outstation residents in terms of household income (Table 4.2), although the gap was not as wide as with personal incomes owing to the larger average size of households at outstations.

Table 4.2. Distribution of annual gross household income: Aboriginal residents of Kakadu outstations and Jabiru, 1991

Income category ($)	Outstations[a]	Jabiru[b]	Kakadu region
<3,001	0	0	0
3,001–5,000	0	0	0
5,001–8,000	3	0	3
8,001–12,000	0	0	0
12,001–16,000	5	0	5
16,001–20,000	4	0	4
20,001–25,000	9	5	14
25,001–30,000	0	4	4
30,001–40,000	12	3	15
40,001–50,000	5	5	10
50,001–60,000	5	0	5
60,001–70,000	3	3	6
>70,000	0	0	0
Not stated	0	0	0
Total	46	20	66
Average per household	$31,934	$37,750	$33,735

Note: Cells in Table have been randomly adjusted to avoid the release of confidential information.

a. NT CD 031402.

b. Usual resident households.

Source: 1991 Census of Population and Housing.

On average, gross household incomes at outstations amounted to almost $32,000 compared to $37,750 in Jabiru. For the region as a whole this balanced out at $33,375. The lower average at outstations was due to a greater number of households with aggregate incomes in relatively low income categories below $25,000 per annum. At the same time, it should be noted that the range of household incomes at outstations was quite high with several households receiving more than $40,000 per annum.

As with most official data, such figures provide only a partial indicator of the economic status of Aboriginal households in the region. For one thing, they are premised on the notion that the household, as defined by the census, is the basic economic unit whereas extra-household networks are more significant determinants of income-capacity than intra-household economic organisation (Smith 1992: 73).

Employment and non-employment income

An important regional issue concerns the relative contribution to total income of employment versus other sources. According to Perrin (1996), net household incomes derived from social security and other payments are often similar to those derived from employment. To achieve this approximate parity between households, however, earnings from employment need to be at much higher gross levels before tax and this necessitates access to well-paying jobs. It is argued that the existence of such high income replacement ratios serves to discourage job seeking activity, as suggested for Aboriginal people more generally (Daly 1991).

The distribution of total income from employment and non-employment sources is shown in Table 4.3 for Aboriginal outstation residents and those in Jabiru. At Kakadu outstations, the bulk of income (71 per cent) is from non-employment sources, whereas in Jabiru the reverse occurs with 91 per cent of income derived from employment. In the Kakadu region as a whole, this difference between town and country balances out and only 51 per cent of total income is derived from employment, which is very similar to the figure of 49 per cent recorded by the 1991 Census for Aboriginal people in the NT as a whole (Taylor 1994: 17) but less than the figure of 54 per cent recorded in 1981 (Stanley 1981: 43). It is also lower than the 68 per cent of total income from employment sources estimated for the Kakadu region in 1986 (Altman 1988: 193). At the same time, the contribution of employment to regional income is much higher than the average for the Jabiru ATSIC Regional Council area where, according to the 1994 NATSIS, only 26 per cent of income was from employment (including CDEP scheme employment). To make this more closely comparable to the situation in the Kakadu region, which as yet has no CDEP scheme, the employment share of total income in the Jabiru Regional Council figure was as low as 15 per cent if income from CDEP is classified as non-employment income.

Table 4.3. Distribution of annual income from employment and non-employment sources: Aboriginal residents of Kakadu outstations and Jabiru, 1991

	Outstations[a]		Jabiru[b]		Kakadu region	
Employment status	Income ($)	Per cent	Income ($)	Per cent	Income ($)	Per cent
Employed	422,500	28.8	749,500	91.5	1,172,000	51.3
Not employed	1,045,500	71.2	70,000	8.5	1,115,500	48.7
Total	1,468,000	100.0	819,500	100.0	2,287,500	100.0

Note: a. NT CD 031402.

b. Usual resident households.

Source: 1991 Census of Population and Housing.

Average income from employment at outstations was $15,089, whereas in Jabiru it was $21,414. In contrast, average non-employment income was somewhat higher at outstations at $6,878 compared to only $5,833 in Jabiru. While this may reflect differences in the average number of family dependants, it should also be noted that half of those who were not employed in Jabiru did not provide information on their income and the resulting calculation may be unreliable.

Welfare income

In order to obtain a clearer picture of the composition of welfare income, information was obtained from the DSS on the number and type of benefit payments to Aboriginal clients in the Jabiru postcode area (NT 0886) which roughly

corresponds to the South Alligator SLA. This is a different basis for defining the regional population than that used for most of the data presented and it should also be noted that it is also based on the voluntary declaration of Aboriginal identity on claimant forms.

It should be noted that DSS data cannot be used to provide a cross-check of non-employment income levels derived from the census. This is because the dollar amount of benefit payments is available only at State level and not for relatively small regions, such as Kakadu. It is not even possible to establish an average payment amount and then apply this across the board because the amount of individual payments will vary considerably according to individual, household and family circumstances. It should also be noted that not all allowances and pensions are mutually exclusive. For example, it is possible for someone to receive Sole Parent Allowance and Child Disability Allowance while other combinations are possible depending on the circumstances of each claimant. Only the Disadvantaged Persons Allowance and Partner Allowance are independent of other payments. This overlap further complicates the calculation of any regional average or cumulative total.

Table 4.4. Social Security payments by type of payment and age of client: Aboriginal residents of Jabiru postcode area, 1996[a]

	<18	18–29	30–39	40–49	50–64	65+	Total
Pensions and allowances							
Age Pension	0	0	0	0	3	19	22
Child Disability	2	0	0	0	0	0	2
Disability Support	0	0	3	4	4	0	11
Disadvantaged Person	3	0	0	0	0	0	3
Parenting Allowance	1	21	14	3	0	0	39
Partner Allowance	0	0	0	3	0	0	3
Sickness Allowance	0	1	0	0	0	0	1
Sole Parent Allowance	0	16	9	5	1	0	31
Widow Allowance	0	0	0	0	1	0	1
Widow Pension	0	0	0	0	1	0	1
Wives Pension	0	0	1	1	1	0	3
Family allowances							
Basic	85	0	0	0	0	0	85
Additional	65	0	0	0	0	0	65
Unemployment Benefits							
Job Search	0	18	8	2	1	0	29
Newstart	0	21	8	9	7	0	45
Youth Training Allowance	7	0	0	0	0	0	7

Note: a. As at 29th March 1996.

Source: DSS, Canberra.

Pensions and allowances are predominantly of three types with 22 persons receiving an Age Pension, 31 persons on Sole Parent Allowance and 39 receiving Parenting Allowance. Young to middle-aged adults in the 18–39 year age group are the main recipients of the latter two payments. One useful guide to regional income status is provided by the distinction between Basic and Additional Family Allowance payments. Almost half of all families (43 per cent) receive Additional Family Allowance which indicates that their annual family income is less than $26,593, for those receiving part payments, and $21,700 for those receiving full payments.

As for Unemployment Benefits, the figure of 74 recipients of Job Search and Newstart allowances provides independent confirmation of the magnitude of unemployed numbers derived from the Gagudju Association and the West Arnhem/Kakadu Employment, Education and Training Group. Those on Job Search have been unemployed for less than 12 months (39 per cent) while the Newstart

recipients have been unemployed for longer than 12 months (61 per cent). No age variation in duration of unemployment is evident from this with the majority of all those on Unemployment Benefits in the 18–29 years age range. Added to this are seven individuals on Youth Training Allowance. These are all aged 16 but less than 18 years, unemployed and undertaking approved education, training, job search or other employment preparation activity. For this they receive a basic rate ranging from $62 to $222 per fortnight depending on whether they live at home and are with or without dependents.

5. Education: participation and outcomes

The importance of educational achievement as a prerequisite for successful labour market outcomes has been demonstrated empirically for Aboriginal people as a whole using data from the census and the 1994 NATSIS (Daly 1995; ABS/CAEPR 1996; Hunter 1996). These studies reveal a clear positive relationship between level of educational achievement as measured by age left school, highest level of school completed and post-school qualifications, and whether an individual has a job in the mainstream labour market or not. However, one criticism of these standard indicators of educational achievement is their lack of measurement of quality of education outcomes. For example, age at leaving school does not necessarily equate with school leaving grade level achievement. In fact, for many Aboriginal students in remote areas, age or grade level is a poor indicator of achievement, as underlined in a recent report on the provision of school education services for remote Aboriginal communities in the NT (Legislative Assembly of the Northern Territory 1996). Thus, while data on participation in the education system are important measures of access, they reveal nothing about outcomes in terms of demonstrated ability.

The Northern Territory Department of Education routinely collects data on Aboriginal school enrolments by age, sex and grade level. These have been obtained for Jabiru Area school for the period 1990–96. Currently, this is the only school located in Kakadu National Park, although in the past there have been schools at Cannon Hill, Mudginberri and Patonga. Also available from this source are school attendance data that are collected eight times each year. All important data regarding the quality of educational outcomes are available from Jabiru school itself. These include the Multilevel Assessment Program (MAP) test results for Aboriginal students that provide a measure of numeracy and literacy skills. As for the few students from Kakadu who study in secondary and tertiary institutions outside of the region, some information has been obtained regarding current enrolments. Finally, information on any post-secondary qualifications acquired by Kakadu residents is available from the 1991 Census.

School participation

In August 1996, 112 Aboriginal students were recorded as enrolled in Jabiru Area school. Just over half of these (55 per cent) were males and 45 per cent were females. Due to the lack of demographic data for 1996, it is not possible to say what proportion this enrolment represented of the current regional population in the age range 4–16 years. However, both enrolment and regional age/sex data from the Gagudju Health Survey are available for 1995 and these are used in Table 5.1 to show the proportion of Aboriginal males and females in each single-year age group who were enrolled in that year. Total enrolment in 1995 stood at 84. On the assumption that those enrolled were all usual residents of Kakadu National Park (no data exist to determine this one way or another), this represented only just over half (52 per cent) of the regional population in the 4–16 years age range. According to these data, the female enrolment rate was higher than for males.

Overall, in the secondary school age range of 12–16 years, a total of 16 Aboriginal students were enrolled out of a total population in this cohort of 52 persons. This represented an enrolment rate of only 36 per cent. In the primary school age range of 4–11 years, a total of 66 students were enrolled out of 115, which represented 57 per cent of the cohort.

Table 5.1. Aboriginal enrolments by sex and proportion of single-year age group: Jabiru Area School, 1995

Age	Males		Females		Total	
	Number	Per cent of age group	Number	Per cent of age group	Number	Per cent of age group
4	4	33.3	5	100.0	9	52.9
5	5	125.0	5	71.4	10	90.9
6	7	77.7	4	57.1	11	68.7
7	8	61.5	4	57.1	12	60.0
8	2	14.2	6	120.0	8	42.1
9	5	83.3	4	50.0	9	64.2
10	4	66.6	1	25.0	5	50.0
11	0	0.0	2	50.0	2	25.0
12	2	33.3	5	250.0	7	87.5
13	1	50.0	5	100.0	6	85.7
14	1	100.0	2	40.0	3	50.0
15	0	0.0	0	0.0	0	0.0
16	1	16.6	0	0.0	0	0.0
Total	40	45.4	44	61.9	84	52.8

Source: Northern Territory Department of Education, Darwin.

Obviously, any conclusions drawn from this exercise are only as good as the match between enrolment data and the Gagudju data. The fact that, at some ages, enrolments appear greater than the number of usual residents does suggest a degree of mismatch, but to what extent remains unknown. At the same time, the very low apparent enrolment rate is the prominent feature and needs to be explained. It may be, for example, due to the presence in the Gagudju data of children who are only temporarily resident in the region and therefore not registered at the school. However, this begs the question of whether they are registered with any school as their inclusion on the Gagudju Health list is based on an assessment of their status as usual residents of the Kakadu region. These results suggest that a fair proportion of Aboriginal children may be slipping through the education net, particularly those of secondary school age as found in the NT generally (Legislative Assembly of the Northern Territory 1996: 21). Another possible reason for low apparent enrolment could be that children who have enrolled are subsequently struck from the register due to poor attendance.

Table 5.2. Aboriginal enrolments by grade level: Jabiru Area School, 1990–96

Grade	1990	1991	1992	1993	1994	1995	1996
Pre-school	3	6	4	7	10	9	4
Transition	5	9	7	7	15	16	23
1	3	5	6	10	9	10	16
2	7	2	10	6	11	9	11
3	4	15	3	6	6	9	12
4	6	6	8	3	6	8	13
5	11	9	5	6	3	4	6
6	9	11	7	3	7	2	8
7	5	6	12	5	4	6	1
8	14	10	3	7	2	6	6
9	6	10	4	1	5	2	5
10	3	3	4	2	4	1	3
Ungraded	2	5	4	4	4	2	4
Total	78	97	77	67	86	84	112

Source: Northern Territory Department of Education, Darwin.

As an Area School, Jabiru offers progression from pre-school through to secondary education up to Year 10, although three students from the region are currently enrolled at Kormilda College. In Table 5.2 Aboriginal enrolments in each grade level between 1990 and 1996 are indicated. During the 1990s, total enrolments have fluctuated considerably from as low as 67 in 1993 to 112 in 1996. Perhaps the most notable shift has been the increase in numbers in the current year with enrolment in 1996 as much as one-third higher than in the previous year. As far as the distribution by school grades is concerned, little variation is evident over the years and the bulk of current students (84 per cent) are enrolled in Year 7 or below. According to the school principal, the 14 students currently in Years 8, 9 and 10 are mostly engaged in modified course work with a 'life skills' element emphasising manual tasks, work experience and health. A few of these students, with a very good history of attendance, participate in normal secondary courses.

Table 5.3. Apparent Aboriginal retention rates by grade progression: Jabiru Area School, 1990–96

Grade progression	1991	1992	1993	1994	1995	1996
	Per cent retained					
Year 1–2	66.6	50.0	100.0	91.0	100.0	91.0
Year 2–3	214.2	150.0	60.0	100.0	81.8	133.3
Year 3–4	150.0	53.3	100.0	100.0	133.3	144.4
Year 4–5	150.0	83.3	75.0	100.0	66.6	75.0
Year 5–6	100.0	77.7	60.0	116.6	66.6	75.0
Year 6–7	66.6	109.1	71.4	133.3	85.7	50.0
Year 7–8	200.0	50.0	58.3	40.0	150.0	100.0
Year 8–9	71.4	40.0	33.3	71.4	100.0	83.3
Year 9–10	50.0	40.0	50.0	400.0	20.0	150.0

Source: Northern Territory Department of Education, Darwin.

These data on enrolments by grade level can be used to calculate apparent retention rates in successive grades and this has been done in Table 5.3 for Years 1 to 10 between 1990 and 1996. On the assumption that cohorts of students remain at the school and progress upward with the passage of each year from one grade to the next, then the grade numbers in each successive year should be equivalent to the grade below of the previous year, all other things being equal. Such a situation would be indicated by a retention rate in each cell of 100 per cent. Clearly, this has rarely been the case among Aboriginal students at Jabiru as the retention rates show considerable fluctuation with cohorts both losing and gaining numbers in successive years. Even the standard pattern of increasingly lower retention beyond Year 6 is difficult to establish, except perhaps for 1992 and 1993, and the results probably reveal more about mobility in a small population and the changing composition of enrolment than any profile of progression through the educational system.

The Aboriginal proportion of total enrolments in the school and in each of these grades is shown in Table 5.4. The first point to note is that while the Aboriginal proportion of total school enrolments has been fairly steady during the 1990s, at between 24 and 33 per cent, the proportion in each school grade has fluctuated considerably both between years and within years. For example, in the current year almost half of all students in some grades (mostly between transition and Year 4) are registered in official enrolment statistics as Aboriginal. In other grades, however, such as Year 7 and Year 10, they represent only a small proportion of official enrolments. The proportions also vary from year to year. For example, in Year 7 in 1996 only 6 per cent of the current enrolment is comprised of Aboriginal children, yet in 1995 the proportion was 40 per cent and in 1994 it was 22 per cent.

Table 5.4. Aboriginal enrolments as a percentage of total enrolments by grade level: Jabiru Area School, 1990–96

Grade	1990	1991	1992	1993	1994	1995	1996
Pre-school	8	17	12	32	26	33	13
Transition	18	26	30	21	47	38	45
1	9	18	24	40	30	38	48
2	22	7	30	21	36	32	42
3	19	42	13	26	21	35	33
4	15	27	33	14	22	26	43
5	42	24	25	31	16	16	27
6	28	44	23	16	43	9	31
7	19	24	52	18	22	40	6
8	100	34	20	43	12	28	43
9	30	62	25	10	31	10	24
10	20	20	57	18	33	12	16
All grades	24	29	28	26	30	28	33

Source: Northern Territory Department of Education, Darwin.

Obviously, this variability in enrolment figures occurs due to the shifting age distribution of Aboriginal and non-Aboriginal students as cohorts advance through the years. At the same time, in such a small population, the pattern of this progression can be heavily influenced by population mobility as individuals move in and out of the area. Variable school attendance may also be influential as those with irregular attendance may be struck from the enrolment register. While the dynamics of this process are of interest, of more concern are the possible consequences of such variation in terms of school curriculum planning and peer support at each grade level from year to year.

School attendance

Perhaps more important than enrolment in terms of school participation is school attendance. According to data provided by the Northern Territory Department of Education, very low attendance rates are a general feature of schooling in remote Aboriginal communities. Throughout the 1990s this has officially averaged 73 per cent at remote schools compared to 91 per cent in NT urban schools. At Jabiru school, the official attendance rate has tended to fall half way between these two extremes and currently averages 80 per cent for 1996. Unfortunately, Jabiru school does not distinguish between Aboriginal and non-Aboriginal students in its official attendance data. However, anecdotal evidence suggests that non-attendance is much higher among Aboriginal students than for others and would certainly be below the school average of 80 per cent. This would not be surprising given that those at outstations and Manuburduma where most school age children live, share many of the same social, economic and cultural characteristics of Aboriginal students in remote schools whose attendance rate, as already shown above, is relatively low.

Using an argument advanced by NT legislators concerning the greater likelihood of a 'schooling culture' in non-Aboriginal households (Legislative Assembly of the Northern Territory 1996: 29), it would not be unreasonable to assume that non-Aboriginal students at Jabiru school display the same attendance rate (91 per cent) as found in urban schools. If this is so, then the lower attendance rate recorded for Jabiru school (80 per cent) would be due to absenteeism among Aboriginal students. In 1996, the average enrolment at Jabiru school has been 337. By applying to this the urban school attendance rate of 91 per cent, an average attendance for the year of 306 students is obtained. However, the actual attendance rate for Jabiru was only 80 per cent which produces only 270 students in

attendance. The assumption here is that the difference between these two attendance figures is attributable to 36 Aboriginal absentees. If this is so, then the average Aboriginal attendance rate at Jabiru in 1996 is only 68 per cent—lower than the average for remote community schools.

All these official data and estimates regarding school access and participation are indicative only. What they don't show, and what would be more important to reveal, are the day to day levels of attendance at school. For example, it is suggested by some observers locally that school attendance is very poor following royalty and pension payment days. Also, the attendance register at school is taken at 10am each morning. No record exists, therefore, of student participation beyond the morning session. Once again, local anecdote suggests that apart from a select group of mostly non-local Aboriginal children from Jabiru town, attendance among many local children is at best intermittent. The only way to establish the extent of this, however, would be from a sample of school roll book entries, which may be impracticable for reasons of confidentiality.

In line with observations made for NT remote schools in general (Legislative Assembly of the Northern Territory 1996: 3), some of the reasons for such poor attendance suggested by the Jabiru school principal include population mobility, lack of home follow-up and substance abuse (Barry Griffin, pers. comm.). At present, Jabiru school employs an Aboriginal person from Western Australia half time as a Home Liaison Officer and the Gagudju Association is contracted to provide transport to and from school for children from outstations as well as to provide school lunches. Apart from these resources, extra provision is made for Aboriginal students in the form of one full-time English as a Second Language teacher and in the current financial year a special Country Area Program grant of $20,000 for part-time instructors in literacy.

Education outcomes

Outcomes from education are measured here using benchmarks devised by the Northern Territory Department of Education in line with the National Aboriginal Education Policy. Outcomes refer to academic outcomes attained by Aboriginal students in comparison with the academic attainment of non-Aboriginal students within the NT education system. Information on educational outcomes is available for schools through the MAP, the Junior Secondary Studies Certificate (JSSC) and the South Australian Certificate of Education [NT], known as SACE [NT] which is a Years 11 and 12 certificate. According to the Northern Territory Department of Education, very few (less than five) Aboriginal students from the Jabiru region have achieved JSSC level since 1990 and none have passed with SACE.

The MAP consists of system-wide writing moderation and tests of reading comprehension and mathematics. In non-urban schools, students are tested each year using multi-stage tests with each test spanning several stages of the Northern Territory Board of Studies approved curriculum. This is designed to provide for the wide range of performance levels found in target populations. To date, teachers have been able to exempt students from these tests if it was felt that they were likely to score zero. Students who complete Year 10 studies at an approved secondary school (such as Jabiru Area School) may qualify to receive the JSSC. The JSSC signifies completion of the Northern Territory Board of Studies approved curriculum for junior secondary schooling during Years 8, 9 and 10.

Participation rates in MAP testing in 1995 are shown in Table 5.5 for Aboriginal students from aged 11 to 16 years of age at Jabiru school and for students in system-wide non-urban schools. To interpret these data it should be

noted that students are presented with questions that are graded from Year 2 to Year 5 level. Thus, at Jabiru school, a total of 20 Aboriginal students in the age range 11–16 years were enrolled in 1995 and of these 12 (60 per cent) were tested for numeracy and literacy skills. For mathematics, eight students (40 per cent) were exempt from testing while seven (35 per cent) were exempt from literacy testing. One student was absent for the reading test. These rates of exemption were notably higher than the system-wide non-urban school rates of 8 per cent for maths and 25 per cent for reading.

Table 5.5. MAP participation rates in mathematics and reading: Aboriginal students at Jabiru Area school compared with NT system-wide non-urban schools, 1995

	Per cent tested at each Year level						
	Year 2	Year 3	Year 4	Year 5	Year 6	Total tested	Total 11–16 yrs
Literacy							
Jabiru	98.0	75.0	67.0	33.0	8.0	12	20
NT System	58.0	74.0	42.0	35.0	19.0	712	951
Numeracy							
Jabiru	0.0	100.0	100.0	92.0	na	12	20
NT System	90.0	95.0	83.0	57.0	na	1,056	1,148

Source: Jabiru Area School.

Of the 12 Aboriginal students at Jabiru who were tested, participation in each stage of the mathematics test was at a much higher rate compared to the system average with 100 per cent tested at Year 3 and 4 levels and 92 per cent tested at Year 5 level. In non-urban schools generally, participation in the test was high up to Year 3 level, but only 83 per cent attempted Year 4 level with just over half (57 per cent) at Year 5 level. Overall participation levels in the reading test were much lower for both groups. Just over half of the Jabiru students (58 per cent) participated in the Year 2 level testing while more than two-thirds attempted Year 3 and 4 level questions. At the Year 5 and 6 levels, however, participation was very low in line with the system average for non-urban schools.

It should be noted that in the tests at all levels, Jabiru students answered a higher proportion of questions correctly compared to their counterparts in non-urban schools. In the mathematics tests, for example, an average of 73 per cent of questions were correctly answered by Jabiru students compared to 52 per cent system-wide, while in the reading tests 68 per cent of questions were answered correctly compared to 38 per cent.

A key outcome measure from these tests is the achievement estimates. The average achievement score provides a summary statistic of the multi-level tests which can be used to assign an average Year-level attainment. For example, in 1995 the average attainment level achieved in remote Aboriginal schools in the NT for students aged 11–16 years was Year 3 (Legislative Assembly of the Northern Territory 1996: 13). This same level was achieved by eight year-olds in urban primary schools. For those 11–16 year-old Jabiru students who completed the MAP test, their average attainment was at the Year 5 level. Of course, for the 40 per cent of this age group who were exempt a quite different picture of attainment is presented and one which is consistent with concerns about low achievement expressed by the Jabiru School Aboriginal Student Support and Parent Awareness (ASSPA) committee (ERA 1996: 7–20). This group of very low achievers is likely to be comprised of local Aboriginal students from one of the many Park communities.

Qualifications

The main source of secondary data on post-secondary qualifications for Aboriginal residents of Kakadu is the five-yearly census. In 1991, only 24 out of 283 Aboriginal adults in the region (9 per cent) reported having some form of post-school qualification. Three of these were at the undergraduate diploma level, six were skilled vocational and three basic vocational qualifications. The level of the remaining 12 records was not stated. This general lack of qualifications among the adult Aboriginal population is typical of the situation found generally in Australia, although in 1991 the Kakadu region had a much lower rate of qualifications than among Aboriginal adults in the Jabiru Regional Council area (14 per cent) and the NT as a whole (19 per cent).

In 1996, five students from Kakadu were enrolled in courses at Batchelor College. Two of these were studying for Associate Diplomas in Health Science, one for a Certificate in Health, one for an Associate Diploma in Art, and one for an Associate Diploma in Applied Sciences (Natural, Cultural and Resource Management).

6. Housing and infrastructure

One of the consequences of a rapidly growing population and a somewhat uncoordinated approach to meeting regional service requirements, has been a consistent backlog of need in the provision of adequate housing and infrastructure in Aboriginal communities. Using a normative measure of housing need based largely on indices of overcrowding and the prevalence of improvised dwellings, Jones (1994: 61–4) found that the Jabiru ATSIC Regional Council area had the highest level of family homelessness (defined as families in improvised homes or sharing overcrowded dwellings) and overall housing need out of the 36 ATSIC Regions nationwide. A number of surveys over the past 15 years of population and housing in the Kakadu region suggest that such findings are consistent with conditions on the ground.

Housing and infrastructure at outstations

Stanley's (1981) survey of Kakadu outstations found that of a total of 52 dwelling units, two-thirds (65 per cent) were caravans or shelters and only 18 were huts or houses. These were distributed among a population of 203 individuals producing an average of four persons per dwelling unit or, more appropriately, 11.3 per house. Of course, this is indicative of the situation in Kakadu following the early years of sudden in-migration and it points to a considerable gap between housing requirements and the ability of service organisations to respond to the needs of clients.

In subsequent years, the provision of housing and infrastructure to outstations has been formalised as one of the key activities performed by the Gagudju Association and more recently the Djabulukgu Association, while ANCA provides accommodation for Aboriginal staff at its Park Ranger stations and other locations and in Jabiru the town camp at Manuburduma is the responsibility of Jabiru Town Council. Among the improvements made in Aboriginal living areas over the years, principally by the Gagudju Association, have been the provision of water and power supplies, house construction and maintenance, ablution facilities and upgrading and maintenance of road access. An important issue for SIA is whether this provision and consolidation of servicing arrangements has been successful in overcoming the backlog in housing and infrastructure needs in the context of a rapidly increasing regional population.

The first major opportunity to address such a question using comprehensive data was provided by the 1992 ATSIC HCINS. In the NT, this was conducted by the Darwin office of ABS working in conjunction with service organisations. For the Kakadu region, the survey form containing 104 questions was completed in respect of each Aboriginal community and the results of this survey are presented here to serve as a benchmark for identifying subsequent change.

One observation to be made from this data is the inclusion, for the first time, of some (though limited) qualitative assessment of the adequacy and condition of housing and infrastructure alongside the more usual quantitative information on numbers and types of dwelling. For example, Table 6.1 presents data on the number of dwellings needing no repairs, minor repairs, major repairs or replacement in each locality.

Table 6.1. Condition of housing stock: Aboriginal communities in Kakadu National Park, 1992

	Minor repairs required	Major repairs required	Replacement required	Total stock
Cannon Hill	1	1	0	2
Deaf Adder	1	0	0	4
Mamukala	1	2	0	3
Mudginberri	0	2	1	3
Nourlangie	0	0	0	1
Paradise Farm	1	0	0	2
Patonga airstrip	1	1	0	2
Spring Peak	0	0	0	3
Manaburduma	0	0	0	5
Total	5	6	1	22

Source: HCINS database, ABS, Darwin.

According to this data, a total of 22 houses existed at the Kakadu outstations surveyed, although no indication of house size was provided. Of these dwellings, 23 per cent required minor repair work, 27 per cent needed major repairs and one house was recommended for replacement. Particularly poor conditions were reported at Mudginberri where the housing stock was in need of either major repair or replacement. These 22 houses were provided for a total population of 230 which means that the average number of persons per house was 10.5. However, this was not the total stock of dwellings available, as 22 shelters were also counted. If these are added to the equation then the average number of persons per dwelling is reduced to 5.5 with three-quarters of the population living in either a shelter or a house in need of repair. Whichever way these data are manipulated, it appears that in terms of housing adequacy little had altered from the situation described for Kakadu communities 11 years earlier in 1981.

What then of the present? Has knowledge of this identified need brought about significant change? Table 6.2 shows the distribution of housing stock in Kakadu National Park in October 1996.

Table 6.2. Housing stock at Aboriginal communities, Kakadu National Park, 1996

	Type of dwelling			
	House	Shelter or caravan	Persons per house	Persons per dwelling
Mudginberri	5	7	27.0	11.2
Cooinda/Paradise Fm/Spring Pk.	7	2	5.8	4.5
Patonga homestead	2	1	4.0	2.6
Patonga airstrip	6	1	7.8	6.7
Mamukala	3	2	7.0	4.2
Manuburduma	3	6	25.3	8.4
Deaf Adder	3	1	5.6	4.2
Hunters outstation	1	1	4.0	2.0
Nourlangie	1	1	12.0	6.0
Cannon Hill/East Alligator	4	0	14.0	14.0
Jim Jim Ranger Station	4	0	4.0	4.0
Total	39	22	9.1	5.8

Source: Gagudju Association and ANCA.

Compilation of a true picture of available housing stock is complicated by the provision of ANCA housing. A total of 45 ANCA houses are distributed around the

Park and are theoretically available to Aboriginal tenants via employment with the Agency. However, only a few of these are presently occupied by Aboriginal people and these have been included in Table 6.2. On this basis a total of 61 dwellings were available to Aboriginal households in 1996, two-thirds of which (39) were houses and the remainder (22) were shelters and caravans. This represents a considerable expansion in the available stock of housing since 1981 when only 23 houses were recorded (Stanley 1981: 42). However, the population has also grown since that time and the average number of persons per dwelling has increased slightly from four to almost six. If shelters and caravans are discarded from this calculation, then the average number of persons per house unit has remained more or less constant at 9.4 in 1981 and 9.1 in 1996.

Three communities—Mudginberri, Manuburduma and Cannon Hill/East Alligator—clearly stand out as having substantial overcrowding as measured by the average numbers of persons per dwelling, but especially by the average number of persons per house. While this level of overcrowding is no doubt due partly to the inclusion of 'visitors' as usual residents, itinerant household members do add to the pressures on accommodation and the service population is rightly to be regarded as the true population for considering housing need, as argued for the NT generally (Taylor 1996). These results are also consistent with sentiments expressed during the 1994 NATSIS concerning the level of satisfaction with housing in the Jabiru ATSIC Regional Council area. Almost three-quarters (72 per cent) of households expressed dissatisfaction with their housing with a lack of bedrooms and insufficient living space high among the reasons given (ABS 1996d: 29).

It should be noted, of course, that none of the above data provide an indication of housing quality, although a number of reports based on environmental health surveys of Kakadu outstations do provide a partial indication of this. For example, a 1994 survey of 11 randomly selected dwellings at Patonga, Mamukala and Mudginberri by the Northern Territory Department of Health and Community Services (Environmental Health Officer report on Jabiru outstations, 14 November 1994) found that overcrowding remained a key health concern with consequences for the spread of scabies, respiratory and enteritic diseases. A total of 97 people were usually resident in the 11 dwellings, discounting approximately 30 visitors, leading to an average population in each dwelling of 9–11 persons. No hot water was available at these outstations, except at a new ATSIC-funded house at Mudginberri, while more than half of the dwellings had leaking taps inside and out leading to the formation of stagnant pools. Other health hazards stemmed from the ad hoc collection of rubbish, faulty electrical wiring and dust from unsealed roads.

One response to the persistence of housing and infrastructure shortfalls at Park outstations has been the formation of the Kakadu Accommodation and Infrastructure Group which represents an informal coalition of service organisations including the Gagudju Association, Djabulukgu Association and Jabiru Town Council. In November 1995, an assessment of housing need by this group, based on a goal set by outstation residents of an average of six persons per house, estimated that a total of 16 new houses were urgently required to meet demand at Mudginberri, Patonga Airstrip, Mamukala, Spring Peak and Cannon Hill. Furthermore, it was determined that both Patonga and Mudginberri also suffered from grossly inadequate sewerage disposal systems and that immediate action was needed to rectify this (summary findings of the Kakadu Accomodation and Infrastructure Group meeting, 9 November 1995).

Despite this development, a further environmental survey of all Kakadu outstations in mid 1996 found little change in the almost universal distribution of health risks associated with housing and infrastructure (Northern Territory Department of Health, Environmental Health Officer report on Kakadu outstations, 25 September 1996). These included continued gross overcrowding; inadequate

sewerage disposal, particularly in regard to waste water from common shower blocks; noise and vibration pollution from uninsulated power generators located close to housing; dust from unsealed roads; stagnant pools of water from poor drainage; and lack of chlorination, filtering and routine quality testing of water supplies as carried out elsewhere by the Power and Water Authority. Also mentioned by the Gagudju Health team was a need for reorientation of local administration and planning of housing and infrastructure in a way that would place the emphasis on improving environmental health outcomes.

ANCA housing

As part of the terms of employment, permanent staff working for ANCA are entitled to accommodation under Australian Public Service conditions. In 1996, ANCA had a total of 65 houses located in various parts of the Park including Jabiru. Table 6.3 shows the distribution of these houses according to bedroom size and Aboriginal occupancy.

Just over a quarter of the ANCA housing stock (27 per cent) was occupied by Aboriginal staff while four houses (at Cannon Hill and Nourlangie) were occupied by non-staff. Most Aboriginal residents (77 per cent) were in three-bedroom houses with the remainder in two-bedroom houses. In addition to these units, three Aboriginal staff of ANCA were resident in non-ANCA (leased or owned) housing in Jabiru while another staff member was resident at Paradise Farm.

Housing in Jabiru

Accommodation for Aboriginal people in Jabiru is available in two distinct locations with different arrangements for servicing and access: in conventional housing in Jabiru suburbs or in Manuburduma town camp. Under the lease arrangements from the Director of ANPWS, Jabiru town is 'closed' and residence in the suburbs is contingent on employment with accommodation supplied via employer groups under a variety of rental arrangements. In 1996, a total of 457 accommodation units were available in Jabiru suburbs, and RUM held the tenancy of 61 per cent of these (ERA 1996: 7). The next largest tenancy was held by the Northern Territory Housing Commission (20 per cent) and Environmental Research Institute of the Supervising Scientist (11 per cent). Other significant tenants included ANCA, Jabiru Town Council and Telstra.

With the growth of Aboriginal service organisations and businesses in the region, the issue of access to housing stock for staff in Jabiru has become an issue. At present, a number of dwellings are made available to the Gagudju Association and ANCA while organisations also rent from other tenants such as the Housing Commission and ERA. Aboriginal people working directly to employers, such as RUM, also access housing independently.

Housing and services at Manuburduma are managed by Jabiru Town Council under the Council's Aboriginal Services program. This includes the maintenance of houses and ablution facilities and collection of garbage. It also involves administering the Jabiru Town Development (Aboriginal Camping areas) bylaws. At present there are six shelters and three houses at Manuburduma. One of these houses was recently completed using a grant of $120,000 from the Northern Territory Department of Lands, Housing and Local Government (Jabiru Town Council 1995: 34).

Table 6.3. Location of ANCA housing stock by Aboriginal occupancy, 1996

Location	Number of units[a]			
	One bedroom	Two bedroom	Three bedroom	Four bedroom
Jabiru (ANCA owned)	3 (0)	4 (0)	8 (3)	1 (0)
Jabiru (leased from NTHC/ ERA)		1 (0)	3 (2)	
Park Headquarters		3 (1)	7 (1)	
East Alligator Ranger Station		4 (1)	4 (1)	
Cannon Hill		2 (2)		
South Alligator Ranger Station			6 (2)	
Jim Jim Ranger Station		4 (2)	4 (2)	
Mary River Ranger Station			6 (2)	
Nourlangie camp		2 (2)	2 (0)	
Kapalga			1 (1)	

Note: a. Figure in brackets indicates Aboriginal occupant.

Source: ANCA, Kakadu National Park.

With a usual resident population estimated in 1995 at 76, housing provision at Manuburduma remains inadequate, particularly in regard to the six shelters. The problem has been that while provision was made for an Aboriginal living space within the town, little else has followed. This means that overcrowding remains a problem with an average of more than eight persons per dwelling including shelters. However, this situation can be exacerbated substantially at times by the influx of visitors, mostly from the West Arnhem region but also from places in the Park like Mumakala and Mudginberri. One proposal suggested by the Kakadu/West Arnhem Housing and Infrastructure Group to help to overcome this is the provision of an Aboriginal hostel in Jabiru to cater for the needs of short-term visitors.

7. Health status

Information on the health status of Aboriginal people is collected as a matter of course in the day-to-day operation of the health care system in the Kakadu region. However, as is the case throughout the NT, the type of data collected is variable and, in any case, it is not collated in any systematic way for compilation into a ongoing publicly available database. The Territory Health Services department is currently seeking to improve this situation under the Aboriginal Communities Health Information Project. The aim is to develop a standard means of acquiring community health profiles by creating a database on access to the health system, prevalent health problems and chronic diseases. Early trialing of this system is currently underway and has involved a sample of Health Centres (including Jabiru) in compiling a detailed day book of patient presentations over a one-month period. At the time of preparing the KRSIS Report, information from this exercise was not available.

Poor health has been identified as a major regional problem. For example, the NATSIS recorded 22 per cent of the population of Jabiru ATSIC Regional Council area as having a long-term illness with the most common conditions in descending order being asthma, chest problems, skin problems, high blood pressure, ear or hearing problems and diabetes (ABS 1996d: 18). Likewise, the report to the Gunbang Action Committee noted the harmful effects associated with chronic high levels of alcohol consumption (d'Abbs and Jones 1996: 45). Aside from injuries due to violence, the primary affects identified were kidney failure, liver damage, brain damage and hypertension. Also highlighted for comment was the lack of any regular monitoring of the prevalence of alcohol-related problems (d'Abbs and Jones 1996: 45). Unfortunately, the same can be said of health problems in general. The fact is, there are no statistics currently available from Territory Health Services regarding the day-to-day morbidity of the Kakadu regional population. Consequently, it is not possible to report on frequency and medical reasons for presentations at Jabiru Health Centre.

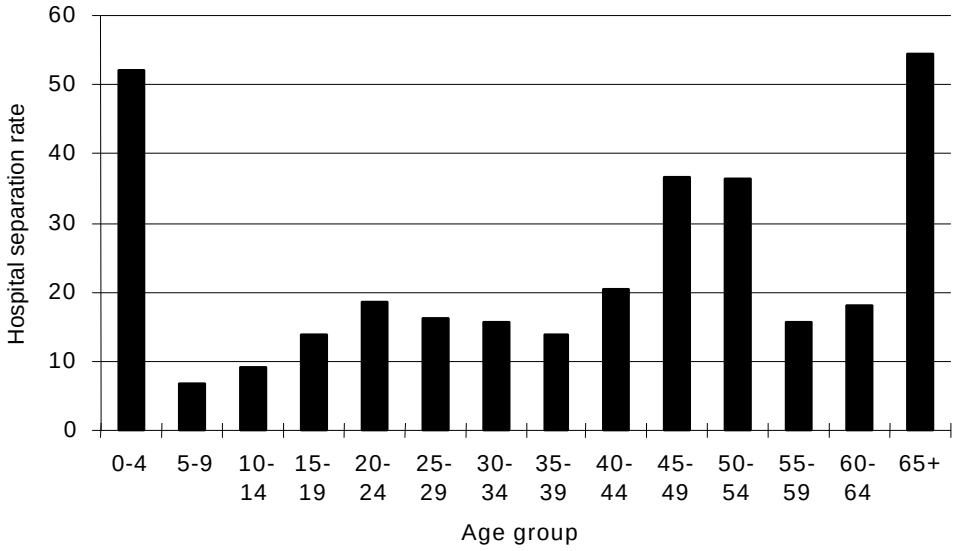
Hospital separations

Data are available from Territory Health Services on major causes of morbidity for Aboriginal residents of the Kakadu region. These are in the form of hospital separation data derived from in-patient admission/discharge records. Data for the Aboriginal population of Kakadu National Park have been obtained by five-year age group for the years 1991 to 1995. Also provided are reasons for hospitalisation coded using the World Health Organisation method of disease classification that follows the 9th Revision, International Classification of Diseases (ICD9). Briefly, this consists of 17 primary categories of disease and morbidity, plus two supplemental classifications dealing with injury and poisoning and contact with health workers. In the absence of any further information, *ipso facto*, these form the basis of the statistical profile of health problems in the region.

Over the five years from 1991 to 1995, a total of 404 admissions to Royal Darwin Hospital were recorded on behalf of Aboriginal residents of Kakadu National Park. This corresponds to an average of 80 admissions per annum. During the 1990s, the rate of hospitalisation appears to have remained constant. In 1991, for example, a total of 90 admissions were recorded representing 21.8 per cent of the regional population. In 1995, 109 admissions were recorded representing 20.4 per cent of the population. This is only slightly below the rate of 23.7 per cent recorded

for Aboriginal people in the NT as a whole between 1977 and 1982 (ABS 1990: 48). It is also consistent with data from the 1994 NATSIS which show that in the Jabiru ATSIC Regional Council area 22 per cent of the population reported one or more long-term illness conditions and that 14 per cent had been admitted to a hospital in the two weeks prior to the survey (ABS 1996d: 17–18). An indication of the age pattern of major morbidity is provided in Figure 7.1 which shows the average hospitalisation rate for each five-year age group over the period 1992–95.

Figure 7.1. Average age-specific hospital separation rates among Aboriginal residents of Kakadu National Park, 1992–95



Source: Territory Health Services.

Several stages of morbidity are apparent based on prevailing rates at different ages. First, very high rates of hospitalisation are evident among young children aged 0–4 years. On average during the 1990s, more than half of all infants in Kakadu (52 per cent) were hospitalised, which is very similar to the rate recorded among Aboriginal infants generally in the NT between 1977 and 1982 (ABS 1990: 48). Within this age range, it should be noted that the distribution is likely to be heavily skewed towards the 0–1 year age group.

The second stage of morbidity, with the lowest rates below 10 per cent, occurs among children of primary and junior secondary age. From the late teens to the early 40s age range, rates of admission to hospital are fairly constant between 15 and 20 per cent. Among females, much of this is likely to be associated with confinements and neo- and post-natal care. The years of late middle age between the ages of 45 and 55 are clearly a period of high morbidity among Kakadu residents with rates of hospitalisation almost doubling to around 38 per cent. However, this rate falls back again in the early years of old age only to rise, not unexpectedly, to over 50 per cent in very old age over 65 years.

Almost one-third (31.5 per cent) of all admissions to hospital were related in some way to childbirth (category 11) or to continuing treatment for a known disease requiring access to hospital facilities, such as dialysis for renal disease, chemotherapy or cast changes (category 18). The other major cause of hospitalisation that stands out from the data is injury and poisoning (category 17). This accounted for 14.6 per cent of all cases and involved 59 individuals over the five-year period. Among other causes, this category includes motor vehicle accidents,

poisoning by drugs and injury inflicted by other persons. The final group of disease factors largely responsible for hospitalisation included infectious diseases (category 1) and diseases of the circulatory and respiratory systems (categories 7 and 8). These accounted for 19.8 per cent of admissions.

Table 7.1. Hospital admissions among Aboriginal residents of Kakadu National Park by primary ICD9[a] category, 1991–95

ICD primary category	Number of admissions	Per cent of admissions
1. Infectious and parasitic diseases	29	7.2
2. Neoplasms	6	1.5
3. Endocrine, nutritional and metabolic diseases and immunity disorders	7	1.7
4. Diseases of the blood and blood-forming organs	3	0.7
5. Mental disorders	6	1.5
6. Diseases of the nervous system and sense organs	10	2.5
7. Diseases of the circulatory system	17	4.2
8. Diseases of the respiratory system	34	8.4
9. Diseases of the Digestive system	12	3.0
10. Diseases of the Genitourinary system	23	5.7
11. Complications of pregnancy and childbirth	52	12.9
12. Diseases of the skin	15	3.7
13. Diseases of the musculoskeletal system	9	2.2
14. Congenital anomalies	1	0.2
15. Conditions originating in the perinatal period	30	7.4
16. Symptoms, signs and ill-defined conditions	15	3.7
17. Injury and poisoning	59	14.6
18. Supplementary classification of factors influencing health status and contact with health services	75	18.6
Total	403	100.0

Note: a. ICD, ninth revision.

Source: Territory Health Services.

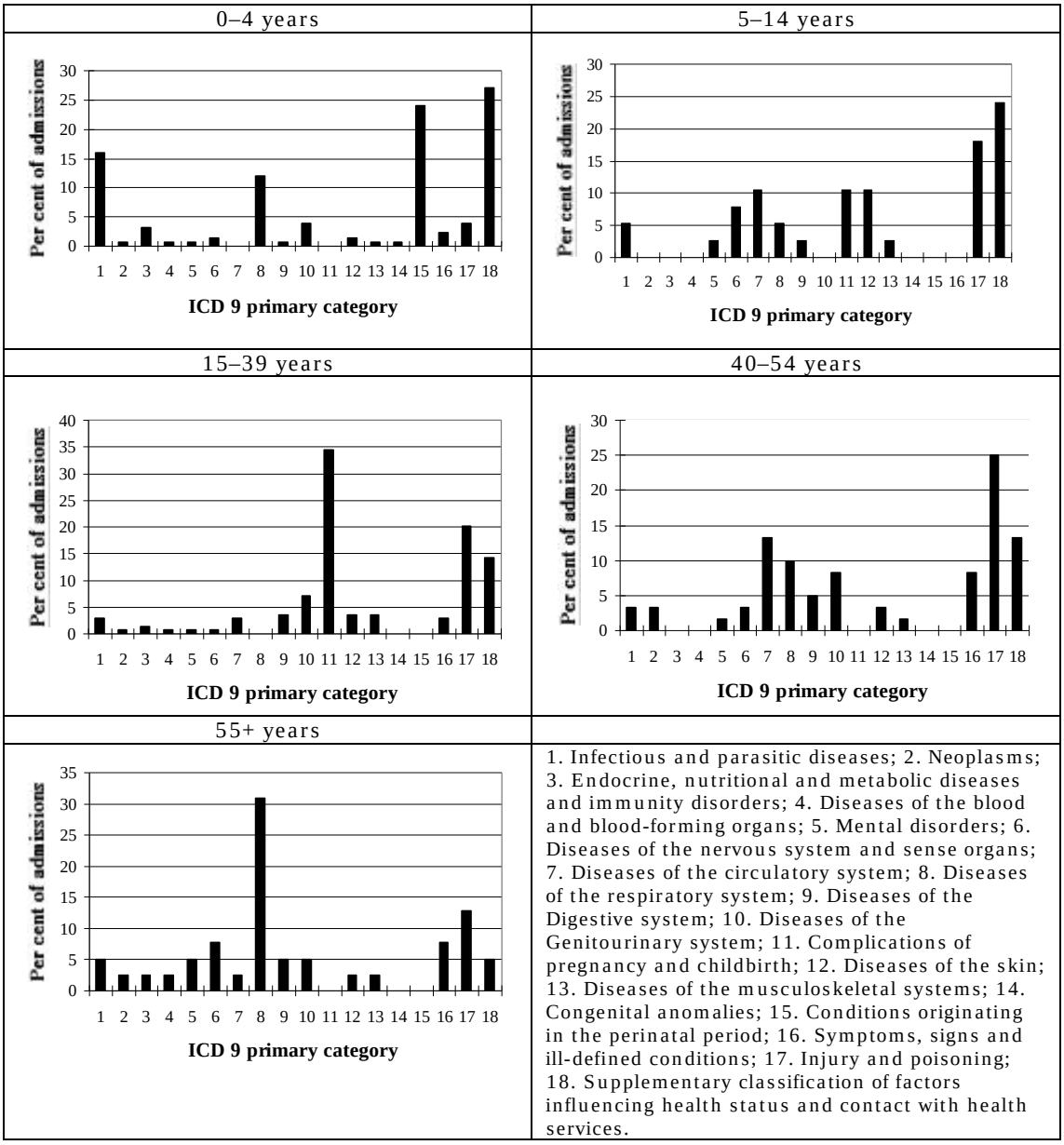
Stages of morbidity

Using data on the causes of hospitalisation at different ages, it is possible to characterise broad stages of major morbidity as identified in Figure 7.1. This is done in a series of charts which show the percentage of hospital admissions due to each ICD category for the 0–4 years age group, the 5–14 years age group, the 15–39 years age group and those in the over 55 years category (Figure 7.2).

These reveal quite different reasons for hospitalisation at different stages in the life cycle. Among infants, morbidity is due largely to conditions originating in the perinatal period as well as to infectious diseases and diseases of the respiratory system. Given the high proportion of infants who also require hospital admission under ICD9 category 18, this suggests that return visits for follow-up treatment are also common. Through the primary and junior secondary years, the pattern of morbidity changes with less emphasis on infectious disease and far more on injury and poisoning as well as diseases of the circulatory system and skin diseases. Childbirth also features as a cause of hospitalisation in this age group although at the ICD9 primary category level it is not revealed to what extent this involves complications of pregnancy and childbirth. Once again, follow-up treatment accounts for a large share of hospitalisation cases. In the young adult to middle age range, childbirth is the predominant cause of hospitalisation followed by a fairly high rate due to injury and poisoning. In middle age between 40 and 55 years, the

primary cause of hospitalisation is injury and poisoning followed by diseases of the circulatory and respiratory systems and follow-up treatment. In old age, by far the most prominent cause of major morbidity are diseases of the respiratory system followed, once again, by injury and poisoning. A further characteristic of morbidity in old age is the greater spread, though at low rates, across the full range of disease categories.

Figure 7.2. Stages of morbidity by ICD9 primary category: Aboriginal residents of Kakadu National Park, 1991–95



Source: Territory Health Services.

8. Conclusion

For much of the past 20 years, statistical information pertaining to a wide range of social and economic characteristics has been routinely gathered from Aboriginal people resident in the Kakadu region by the ABS, and Commonwealth and Northern Territory government departments and agencies, local service providers, local employers and various academic researchers. However, no coordinated approach to the gathering of this information exists, nor has it done at any time over the period since mining was established in the region. Such adhockery has produced a mosaic of data sources of varying quality, detail and coverage over both time and space. At best, this is merely an irritant to the researcher in pursuit of consistent sets of data. At worst, it prevents the analysis of particular aspects of local society and economy. On balance, however, the evidence of this report reveals a store of statistical information that has sufficient internal consistency and integrity to derive meaningful indicators of social and economic conditions. From this, a number of key conclusions may be drawn.

- Perhaps the most pertinent conclusion relates to change in social indicators over time. Despite an increase: in numbers employed, in the number of houses constructed, in the levels of income received and in enrolments at school, the key indicators of employment and unemployment rates, levels of welfare dependence, degree of overcrowding and educational achievement have displayed no overall signs of improvement since the 1980s. A fundamental dynamic underlying some of this lack of change is population growth, particularly in the working-age group.
- The main demographic impact of developments over the past 20 years has been population growth due to net in-migration and natural increase. Regional rates of Aboriginal population growth are above the NT average and show no sign of abatement. Part of this growth has been due to the return migration of traditional owners, part is due to an influx of people from adjacent populations with links to the region, and part stems from the arrival of newcomers from distant places. In a collective sense, the ethnographic consequence has been the emergence of a polyglot regional Aboriginal community.
- Another significant finding relates to the social and economic status of Aboriginal people in the Kakadu region relative to that of their neighbours. Notwithstanding the quite different nature of recent economic developments in the region, the overall social and economic profile of the Aboriginal population is very similar to that of surrounding populations in other parts of the Top End.
- The main employers of Aboriginal labour remain ANCA and Aboriginal Royalty Associations. RUM has provided employment for relatively few Aboriginal people over the years with the majority of these originating from outside of the region. This has had little to do with the overall size of the Ranger workforce with no discernible decline in Aboriginal employees following downsizing in 1991.
- Much employment for Aboriginal people is ephemeral and tied to training programs and short-term funding arrangements. This is partly due to supply-side constraints in the local labour market which stem from poor education participation and outcomes. The available data merely provide a pointer to this issue and do not allow more detailed analysis. For example, no indication of local skills is available from secondary data sources. A skills register would provide a useful input to the proposed extension of DEMED CDEP scheme. There is also a need to review the role of education and training in the region in terms of skilling with the basic questions concerning skilling for what, and with what mode of delivery.

- Local anecdote and the concerns of the Jabiru School ASSPA regarding a lack of school attendance and poor educational achievement are borne out by official data, even though this only provides for a superficial analysis. Both enrolment and attendance data suffer from being cross-sectional. What is needed is a longitudinal analysis to show the pattern and extent of individual student participation over time. However, the data are clear on one point. Despite having access to an Area school in an urban context, the majority of Aboriginal children in the region display schooling characteristics that are typical of remote NT school populations.
- While the regional housing stock has expanded over the past 15 years, problems of overcrowding persist and many dwellings remain sub-standard. Community infrastructural shortfalls and the physical condition of many dwellings continue to create environmental health concerns. This situation is variable between localities with some places, notably Mudginberri and Manuburduma, seemingly worst off. Greater attention also needs to be paid to comprehensive measurement of environmental health conditions. This is not simply a case of waiting for the 1999 ATSIC HCINS to report; for such a small population, more detailed action oriented data gathering could, and should, be carried out.
- At the time of reporting to the KRSIS, information regarding the health status of the population was woefully inadequate. Only major causes of morbidity were identified and then only at the broadest level of classification. This precluded analysis of specific morbidity indicators and no data concerning chronic or episodic morbidity existed. Notwithstanding this, the health profile that emerged was typical of remote Aboriginal communities with problems in the perinatal period, infectious disease, respiratory and circulatory problems, and injury and poisoning looming large. The rate of hospital admissions for all causes was also high, although slightly below the average for Aboriginal people in the NT.
- The small size of the population means that data for the region are sometimes subsumed in large spatial units, mostly by postcode area, which means that distinctions between residents of Jabiru and the rest of the region are not always possible. Even if this were possible, issues of confidentiality of data can be encountered when disaggregating population characteristics. This can either prevent access to information or limit its usefulness due to randomisation. Use of official data sources also has limitations in regard to usual residents of the region as usual residence counts are only available for Jabiru and South Alligator SLAs. However, this is not considered to be a major problem.
- Part of the difficulty involved in developing a statistical profile relates to the need for precision in regard to the population under study. This also reflects on high levels of population mobility that needs to be better documented, particularly in regard to the consequences for net inter-regional migration as well as the added pressures that this can place on regional infrastructure.
- A major drawback of available data on income is an inability to adequately identify sources of income and the lack of knowledge about the circulation of cash, household budgets and household expenditure. While it is clear at the aggregate level that large amounts of cash have been injected into households over the years via royalty and rental payments, it is difficult to establish from secondary sources what role this may have played in raising economic status at the personal and household levels.
- This raises the issue of income replacement ratios and the apparent failure of employment as a rational alternative to dependence on welfare and other transfer payments. Better data are required to establish these relativities. This would also involve information on imputed subsistence income.

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Notes

1. For the non-Aboriginal count, this excludes an unknown number of usual residents (if any) who may have been counted in another SLA.
2. Visitor numbers are estimates supplied by ANCA and derived from the infrared counter on the way past the visitor centre at Park Headquarters outside Jabiru.
3. This is based on Gagudju Health estimates of Aboriginal people resident in Manaburduma and Jabiru town suburbs in 1994, and the ABS's 1994 estimates of the resident population of Jabiru from ABS (1996).
4. Darwin electorates were excluded from this exercise given the difficulty of sifting through numerous entries. Whether those absent from the roll were present under a different name to that used on the Gagudju Health list is not clear.
5. At the time of writing, information from DEETYA regarding the participation of Aboriginal residents of the Kakadu region in labour market and training programs were not available owing to programming difficulties in merging data from different administrative databases. This is a problem experienced generally when dealing with DEETYA data on Aboriginal clients (see Taylor and Hunter 1996).
6. In estimating mean incomes, the mid-point for each income category has been used on the assumption that individuals are evenly distributed around this mid-point. The open-ended highest category is problematic: by following Treadgold (1988) it is arbitrarily assumed that the average income received by individuals in this category was one-and-a-half times the lower limit of the category. Clearly, estimates of mean incomes will vary according to the upper level adopted.