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Ngukurr at the Millennium: A Baseline Profile for Social Impact Planning in South-East Arnhem Land

J. Taylor, J. Bern, and K.A. Senior

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Foreword

This monograph has its genesis in approaches made by Paul Wand, Vice President, Aboriginal and Community Relations, Rio Tinto Ltd to Professor John Bern of the University of Wollongong and to the Centre for Aboriginal Economic Policy Research (CAEPR) at the Australian National University for expressions of interest in conducting long-term social and economic research in south-east Arnhem Land, given the prospect of mining development following exploration in the region. Subsequent discussions between these parties led to the establishment of two discrete, but related, research projects. The first was a three-year partnership between the Ngukurr community, Rio Tinto Ltd, and the University of Wollongong which established the South East Arnhem Land Collaborative Research Project (SEALCP) within its Institute of Social Change and Critical Inquiry. Following on from this, and in order to provide initial impetus to SEALCP, Rio Tinto engaged Dr John Taylor of CAEPR in May 1999 to undertake a baseline socioeconomic profile of the Aboriginal population of south-east Arnhem Land.

This monograph combines the findings of Taylor's baseline analysis with select results of a household survey conducted at Ngukurr in November and December 1999 by Senior and Bern of SEALCP, along with other data collected by Senior and Taylor from agency and local sources in late 1999 and early 2000. Historical material in the report draws on research carried out by Bern at Ngukurr between 1970 and 1988.

The study reported here is a social statistical analysis of the remote Northern Territory town of Ngukurr. The baseline data presented represents the position at Ngukurr at the end of the twentieth century after a long period of settlement, including 60 years of church mission control and a generation of land rights and self management. References to an earlier comprehensive study of Ngukurr in the early 1970s, and to other more recent material, provide some comparisons with the current data and give some temporal depth to the work. Overall, the present study provides an important baseline for ongoing social impact planning research and serves as the basis for future comparisons.

This monograph is published in the CAEPR Research Monograph Series in part because it uses John Taylor's 1999 report to Rio Tinto and in part to utilise an established channel of publication. In our view it is important that this research is made widely available in a timely manner to demonstrate the usefulness of baseline information in situations where there is some probability of sudden development change. It also reflects the positive early outcome of a very fruitful collaboration between an Aboriginal community on one hand, and two university-based research centres, each bringing particular specialities to the collaboration.

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August 2000

Preface

The study reported here is a largely synchronic social statistical analysis of the remote Aboriginal town of Ngukurr in the Northern Territory based primarily on a report to Rio Tinto by Taylor (1999a). It comes after a generation of self management and land rights and immediately prior to the possibility of major introduced economic development based on mineral exploitation. As such, it presents a summary of the development effects of post-assimilation policy and the 'before' stage of a comparison-in-waiting to follow in the event of large-scale mining. In the meantime its purpose is to contribute to social impact planning by outlining contemporary social and economic conditions as vital input to the wider ongoing research conducted by the South East Arnhem Land Collaborative Research Project (SEALCP).

The central concerns of the partners to the SEALCP are to produce comprehensive historical and contemporary social, cultural, political and economic profiles of the region and to develop an understanding and appreciation of people's attitudes and aspirations, including their reception of external changes. Material and cultural issues in the development of mining and other ventures present potential social impacts with the attendant overriding issue of how these social circumstances may be managed by and with the communities affected.

As a collaborative venture, this study has drawn upon the goodwill and resources of numerous agencies and individuals, though it should be acknowledged that the Ngukurr community as a whole has facilitated the research process with its support and patience. Agency assistance has consisted largely of the provision of data and assistance with interpretation of these, but it has also extended to the facilitation of a field base in Ngukurr and cooperation in establishing meetings with key informants. In each of these areas, special thanks are due to the Yugul Mangi Community Government Council (YMCGC) while representatives of many other agencies, government departments and Aboriginal organisations have also greatly assisted. In alphabetic order these include the Aboriginal and Torres Strait Islander Commission (ATSIC, Canberra and Katherine), the Australian Bureau of Statistics (ABS, Darwin), Batchelor College (Batchelor), Centrelink (Katherine), Department of Employment, Workplace Relations and Small Business (DEWRSB, Canberra), Department of Education, Training and Youth Affairs (DETYA, Canberra), Department of Family and Community Services (Canberra), Indigenous Housing Authority of the Northern Territory (Darwin), Julalikari Association (Borroloola and Tennant Creek), Ngukurr Community Education Centre (Ngukurr), Northern Land Council (Ngukurr), Northern Territory Department of Education (Darwin), Northern Territory Department of Mines and Energy (Darwin), Northern Territory Department of Lands and Housing (Darwin and Katherine), Northern Territory Office of Aboriginal Development (Darwin), Rio Tinto Exploration Pty Ltd (Darwin and Melbourne), and Territory Health Services (Darwin, Katherine, and Ngukurr).

Particular thanks are due to the following individuals: Daphne Daniels, Miranda Rogers, and Keith Rogers of SEALCP for their significant contributions in testing and administering the Household Survey; Jon Altman, Robert Levitus, and Neil Westbury of CAEPR and

Paul Josif and Gay English of Paul Josif and Associates for their helpful comments on early drafts; Frances Morphy for her detailed editorial scrutiny and guidance; Hilary Bek of CAEPR, and Kim Oborn of SEALCP for editorial assistance; Ron Greaves and Tess Lea of the Northern Territory Department of Education for their assistance in the interpretation of education data; John Cook and Rosie O'Donnell of SEALCP for their contribution to the pilot survey; Lynn Mott, Town Clerk of YMCGC for logistical support and access to administrative data; Janet Fletcher and James Grabham of Ngukurr Clinic for their assistance with data and insights on local health issues; and, finally, to Paul Wand, Jeff Wilkie, and Bruce Harvey of Rio Tinto Ltd for their foresight in supporting the research venture and in subsidising the cost of converting a research report and a community-based field survey into this monograph.

JB
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KAS

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Abbreviations and acronyms

ABS	Australian Bureau of Statistics
AIATSIS	Australian Institute of Aboriginal and Torres Strait Islander Studies
AIAS	Australian Institute of Aboriginal Studies (now AIATSIS)
ALC	Aboriginal Land Commissioner
ANU	The Australian National University
ATSIC	Aboriginal and Torres Strait Islander Commission
BRACS	Broadcasting for Remote Aboriginal Communities Scheme
CAEPR	Centre for Aboriginal Economic Policy Research (ANU)
CD	Collection District (census)
CDEP	Community Development Employment Project(s)
CEC	Community Education Centre
CGC	Commonwealth Grants Commission
CHINS	Community Housing and Infrastructure Needs Survey (ATSIC)
CHIP	Community Housing and Infrastructure Program (ATSIC)
CIAS	Community Information Access System
CMS	Church Missionary Society
CRA	Conzinc Riotinto of Australia
DFACS	Department of Family and Community Services
DETYA	Department of Education, Training and Youth Affairs
DEWRSB	Department of Employment, Workplace Relations and Small Business
HIPP	Health Infrastructure Priority Projects (ATSIC)
IA	Indigenous Area
ICD9	International Classification of Diseases, 9th Revision (WHO)
IHANT	Indigenous Housing Authority of the Northern Territory
IL	Indigenous Location
JSSC	Junior Secondary Studies Certificate

KRSIS	Kakadu Region Social Impact Study
KRISISCAP	KRSIS Community Action Plan
MAP	Multilevel Assessment Program
NAHS	National Aboriginal Health Strategy
NARU	North Australia Research Unit (ANU)
NATSIS	National Aboriginal and Torres Strait Islander Survey
NCEC	Ngukurr Community Education Centre
NCEPH	National Centre for Epidemiology and Population Health
NHS	National Health Survey
NLC	Northern Land Council
NTDE	Northern Territory Department of Education
NTDME	Northern Territory Department of Mines and Energy
NTGC	Northern Territory Grants Commission
QOL	Quality of Life
RHIS	Rural Health Information System
SACE (NT)	South Australian Certificate of Education (Northern Territory)
SEALCP	South East Arnhem Land Collaborative Research Project
SIA	Social Impact Assessment
SIP	Social Impact Planning
SLA	Statistical Local Area
THS	Territory Health Services (NT)
WHO	World Health Organisation
YMCG(C)	Yugul Mangi Community Government (Council)

1. The scope and conduct of the analysis

Analytical framework

Rapid change arising from large-scale development projects potentially places severe strain on the physical infrastructure and social fabric of affected communities, as well as providing opportunities for betterment. In south-east Arnhem Land, mineral exploration activity currently instigated by Rio Tinto has the potential to generate such change. In line with both company and community wishes that any consequences of resource development should be managed and not arbitrary, this analysis of social and economic conditions in the Ngukurr community falls analytically within the realm of Social Impact Assessment (SIA). This type of assessment is relatively new in the Australian public policy scene and it is an inexact science. According to one review of the genre, SIA is essentially an area of systematic inquiry which seeks to investigate and understand the social (and economic) consequences of planned change and the processes involved in that change (Ross 1990).

Social impact assessment

In pursuing these goals, three main tasks are subsumed under SIA. The first of these is a predictive role, or anticipation of possible effects of proposed changes. The second is a monitoring role involved with the assessment of changes during or after they occur. Both of these roles rely on profiling, which in turn involves analysis and measurement of the social conditions of the population(s) likely to be affected. While these tasks seem clear enough, the manner in which they have been carried out in particular cases has varied considerably.

In many ways, evolution of SIA studies in the Kakadu region of the Northern Territory over the past 20 years provides a microcosm of the process in Australia as a whole. SIA commenced in 1977 with the Fox Inquiry into uranium mining in the Alligator Rivers region (Fox et al.1977). This inquiry was pathbreaking in certain ways, particularly in giving prominence to Aboriginal issues and making recommendations aimed at ameliorating predicted adverse impacts. However, it was in the mould of early SIAs in that the inquiry comprised a non-Aboriginal panel casting judgement on the basis of selected objective evidence.

While its compilers conducted little original research, a key recommendation of the Fox Inquiry was the need for a monitoring study of the social impact on Aborigines of uranium mining. This was subsequently established by the Australian Institute of Aboriginal Studies (AIAS 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 may only be described, in the absence of a clearly stated overarching methodology, 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' (AIAS 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. Thus, a key recommendation was that this database would be updated by a task force of experts in close consultation with 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 Kakadu Region Social Impact Study (KRSIS), formed in 1996 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 (KRSIS 1997). 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 the Kakadu Region Social Impact Study Community Action Plan (KRSISCAP) to address the impacts associated with these developments (KRSISCAP 1997). While also in the mould of a community development model of SIA, the study was more holistic in approach than the AIAS study, with room for both quantitative and qualitative methods.

On the back of this potted history, a basic question to address for the present context is: what has been, what ought to be, and what could be the role of statistical profiling in SIA? It would appear that the emerging trend was in favour of de-emphasising earlier technocratic approaches, with their focus on measuring outcomes, and moving towards 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 AIAS study's failure to provide statistical data for the regional population in a form that would allow the ongoing monitoring that was mooted (Kesteven 1986). The bottom line was that despite two major previous SIAs in the Kakadu region, when faced with the task of profiling the employment, income, education, housing, and health status of the Aboriginal population in 1996, and acquiring some sense of how these might have changed over the previous twenty years, the KRSIS had no readily available and comprehensive information. In terms of providing for community empowerment and participation as key elements of SIA processes (Howitt 1993, 1996: 83–92; Josif and Associates 1995a, 1995b, 1995c) and as a basis for assisting negotiations between communities and mining interests (O'Faircheallaigh 1995), such access to baseline statistical information is vital.

Social impact planning

In the current political economy of remote Australia, both policy and attitudinal shifts suggest a growing expectation that Indigenous communities will more fully avail themselves of opportunities provided by mining and exploration agreements (Altman 1998; O'Faircheallaigh 1995). For one thing, government policy is increasingly looking to reduce the fiscal burden of Indigenous underdevelopment, especially in those

rare situations where economic opportunities exist. Also, Indigenous communities are increasingly anxious to improve their material circumstances beyond the limits set by welfare dependence supplemented by informal economic activity.

Mineral resource exploitation is acknowledged to provide one of the few available options for economic development. However, while economic benefits can clearly flow from negotiated mining agreements in the form of employment, royalty payments, and infrastructural developments (Altman 1983, 1996a, 1996b; Altman and Smith 1999; Dillon 1990; Howitt 1995; O'Faircheallaigh 1995), such benefits can be highly variable (O'Faircheallaigh 1995). Moreover, little quantitative evidence exists to indicate that such benefits fundamentally improve the low socioeconomic status of Aboriginal communities or substantially alter their relations of dependence with the state, although establishment of the true economic effects of resource development on Aboriginal land is a contested field (Altman 1996a; Reeves 1998; Taylor 1999b).

In the south-east Arnhem Land region, there are indications that Aboriginal community leaders are development-oriented and want to ensure that benefits flow to the regional population from any mining-related developments that may occur on Aboriginal-owned lands. An embodiment of this sentiment is found in the 1995 Walgundu Agreement, which established exploration rights for Conzinc Rio Tinto of Australia (CRA) Exploration Pty Ltd (which became Rio Tinto Exploration in 1997) over 6600 square kilometres of land on St Vidgeons station south of the Roper River. This marked the first successful negotiated agreement in Australia regarding an area of land subject to native title claim.

As reported by Altman (1996b), the Walgundu Agreement was officially signed in November 1995 by native title claimants to the St Vidgeons pastoral lease adjacent to Ngukurr on the south bank of the Roper River, and mining transnational CRA. This agreement, while outside the *Native Title Act 1993* framework, nevertheless used potential native title as leverage: it largely came about after the Northern Territory government refused to follow normal future act procedures (notification and right to negotiate for native title claimants) because the threshold issue of whether pastoral leasehold (with reservation) had extinguished native title had not been resolved by the courts. While the Northern Territory Department of Mines and Energy (NTDME) was willing to issue CRA an exploration licence, the company was not willing to exercise its rights under the licence until an agreement was reached with native title claimants. The agreement is comprehensive and confidential, but the following significant features are in the public domain (Altman 1996b):

- it provides for sacred site protection and employment for Aboriginal people, even at the exploration stage;
- it guarantees compensation payable at the rate of 5 per cent of exploration expenses per annum (the benchmark achieved under the *Aboriginal Land Rights (Northern Territory) Act 1976*);
- it covers the present exploration licence held by Rio Tinto Exploration and any other exploration licence that might be granted to Rio Tinto Exploration to the claimed area in the next 25 years;

- it commits the parties to enter into negotiations if mining occurs in the future as a result of exploration, referring to confidential criteria to be included in the mining agreement and an arbitration clause in case of disagreement; and
- it will be valid irrespective of whether the applicants succeed in their native title claims: the claimants undertake not to litigate against Rio Tinto Exploration because of potential invalidity due to the failure of the Northern Territory government to follow appropriate future act procedures, and Rio Tinto Exploration guarantees not to oppose the native title claim.

With regard to assessing the effectiveness of this and any subsequent agreements in terms of fulfilling community aspirations, it is worth noting the failure of previous assessments of the impact of mining on Aboriginal communities to provide adequate baseline data against which to measure either improvement or deterioration in social and economic conditions (Kesteven 1986). Accordingly, the aim here is to establish a baseline social and economic profile of the Ngukurr community at a point in time well in advance of any potential major resource development in the region.

This approach to profiling in anticipation of mining-led development presents an added dimension to impact assessment by introducing a capacity for social impact planning (SIP). To date, impact assessment approaches have attempted to establish post-facto measurement of social and economic change generated by an external 'shock' (AIAS 1984; Coombs et al. 1989; KRSIS 1997). By reordering research inputs, the impact planning approach seeks to manage and influence the course of any change in accordance with Aboriginal community aspirations, and to do so with the benefit of baseline data collected prior to any external shocks (Altman 1998: 3).

Methods

The primary aim here is to profile statistically the contemporary socioeconomic status of the Aboriginal population of the Ngukurr region. Because of this specific focus on generating statistical information, reference to literature that describes aspects of social and economic life in this region is limited to instances where this provides a key source of statistical data or assists in its interpretation. For example, a number of previous studies (Aboriginal Land Commissioner (ALC) 1982, 1985; Bern 1977, 1989; Biernoff 1979; Cole 1969, 1982; Merlan 1978; Morphy and Morphy 1984; Thiele 1980; Young 1981) provide historical, geographic and other contextual data that are helpful in constructing socioeconomic time series and in delimiting the regional population.

A two-pronged approach to profiling is adopted. First, a range of social indicators are constructed from a variety of published and unpublished sources, including the Census of Population and Housing and administrative data sets held by the Aboriginal and Torres Strait Islander Commission (ATSIC), Commonwealth and Northern Territory government departments, the Yugul Mangi Community Government Council (YMCGC) and other locally-based Aboriginal organisations. This process was assisted by consultations with key informants both within the community and in relevant agencies in Darwin, Katherine, and Canberra. As a device to represent local circumstances, this form of 'rapid appraisal' can be rightly criticised as lacking in community participation and certainly as being

limited in its capacity for ground-truthing (Birckhead 1999). Thus, a complementary methodology was employed involving the establishment of a project steering committee comprised largely of community leaders from Ngukurr to oversee the research, the formation of a locally-recruited team of research assistants, and the conduct of a household survey augmented by direct participant observation and involvement in community life. These aspects of the research strategy fall within the ambit of the South East Arnhem Land Collaborative Research Project (SEALCP) which was established at the University of Wollongong in 1999 with funding from Rio Tinto Ltd. With the agreement of the Ngukurr community, a field base in the community was also established.

Social indicator analysis

Social indicators may be described as aggregated summary statistics that portray the social condition or quality of life of a society or social subgroup. They are typically employed in evaluation research and reflect more a research purpose than a research method. That purpose is to evaluate the impact of social interventions, that is actions taken within a social context for the purpose of producing some intended result.

In Indigenous affairs generally, social indicator analysis is increasingly used to quantify the degree of relative disadvantage and to monitor the effects of government policy and economic development in general. In a fundamental sense, planning for social and economic change is determined by the size, growth, and socioeconomic composition of populations. Accordingly, an understanding of these factors is essential for a proper assessment of the need for, access to, and distribution of resources. There is also a growing awareness of a need to better understand the dynamics of change in the size and composition of the Indigenous population, so as to formulate policies that are based not solely on current or historic assessment of government obligations, but also on some estimation of anticipated requirements. In this context, it is worth noting the current brief of the Commonwealth Grants Commission (CGC) to inquire into and establish measures of the relative needs of different groups of Indigenous people. This study of Ngukurr forms an evaluation of the range and quality of data that are available at the community level (at least in the Northern Territory) and that may form the basis for a 'bottom-up' assessment of relative needs.

The scope of the profile is limited to aspects of several key areas that form the basis of policy interest and intervention. These include the demographic structure and residence patterns of the regional population, labour force status, education and training, income, welfare, housing, and health status. For each of these categories, the aim is to identify and describe the main characteristics of the population and highlight outstanding features in the data. As far as possible, time series are also compiled to establish the trajectory of recent socioeconomic change. Also, where appropriate, comment is made on the adequacy of coverage and robustness of available data, while comparison is drawn at times with Aboriginal people in the wider region as well as within the Northern Territory as a whole.

All sources of social indicator data have drawbacks in terms of providing a meaningful representation of the social and economic status of Aboriginal people in the region. With census data, for example, there are concerns about the cultural relevance of information obtained from an instrument which is principally designed to establish the

characteristics of mainstream Australian life (Smith 1991). Economic status, for example, which is generally measured for mainstream society by indicators such as cash income and levels and ownership of assets, is measured in quite different ways among many Aboriginal groups. For example, as pointed out by Altman (2000: 3–4), in some tradition-oriented communities (such as Ngukurr) a person's status can be largely determined by access to ritual or religious knowledge rather than to material resources. Similarly, social status can be accrued by controlling the distribution of material resources rather than being an accumulator (or owner) of resources (Altman 2000: 3). In short, materialistic considerations may be of less importance among sections of the Aboriginal population, where the emphasis is rather on reciprocity in economic relations (Schwab 1995).

Equally significantly, while social indicators report on observable population characteristics, they reveal nothing about more behavioural population attributes such as individual and community priorities and aspirations for enhancing quality of life—indeed the whole question of what this might mean and how it might be measured in an Aboriginal domain is only just beginning to be addressed (Senior 1999b). Accordingly, an important part of the methodology employed was the supplementation and proofing of social indicator data with household-level information and individual-level attitudinal data derived from a survey instrument.

Household survey

The household survey of the Ngukurr community was carried out over two weeks in late November and early December 1999, at the onset of a particularly heavy wet season during which time population mobility was severely curtailed and residence in Ngukurr was maximised. An attempt was made to administer the survey at each of 94 identified Aboriginal dwellings in the community. Three dwellings were uninhabited during the survey period, and the occupants of one dwelling refused to participate.

Households were defined according to Australian Bureau of Statistics (ABS) practice as a group of two or more related or unrelated people who usually reside in the same dwelling, who regard themselves as a household, and who make common provision for food and other essentials for living (ABS 1996a: 172). Thus, in order to expedite data collection, the complexities of Aboriginal household distribution observed elsewhere (Finlayson and Auld 1999; Martin and Taylor 1996; Smith 1991) that may lead to the displacement of household members across several dwellings, were set aside. In this survey, dwellings and households were regarded as coterminous. Accordingly, survey coverage was very high (96% of dwellings).

Key aspects of the survey methodology included the recruitment of local Aboriginal research assistants and the implementation of a pilot phase leading to some refinement of the survey instrument. In the latter context, community acceptance was an important consideration and posters explaining the role and conduct of the pilot survey were displayed in English and Kriol in prominent places such as the community store. Aboriginal research assistants were also used to raise community awareness. However, one of the findings of the pilot phase was that broad community discussion of the results formed the most effective way of publicising the main survey. The results were discussed

informally in families, and a formal presentation was also made to prominent members of the community in their capacity as members of the SEALCP reference group. As a consequence, people saw that the results could be used as a tool to argue for improvements in the community and were thus encouraged to participate in the main survey.

At each dwelling, a key respondent was sought to report on behalf of themselves and all other household members. Once again, following ABS practice, this equates with the Household Reference Person (ABS 1996a: 175). The administration of the questionnaire required the informed consent of these respondents. To facilitate this, a statement was prepared which explained the survey and made clear that individuals were not obliged to participate, that all results were confidential, that they were free to terminate the interview at any point and to ask any questions regarding the purpose of the survey and its content. The research assistants made a significant contribution to producing this in an easily understood format, and two versions (English and Kriol) of a consent form were included on the front page of the questionnaire.

Defining the population

A key issue for social impact planning, and one which may be incapable of resolution, is the question of precisely which population might be impacted upon by developments in south-east Arnhem Land. Contestation over such a question is more than just academic and has arisen more than once around the Northern Territory, for example in deliberations over the receipt of mining moneys pursuant to the provisions in section 35(2)(b) of the *Aboriginal Land Rights (Northern Territory) Act 1976* which refer to 'people residing in or traditional owners of, areas affected' (Altman 1983, 1996a, 1997; Altman and Smith 1994; KRSIS 1997).

Because of the need to clearly define a population for the purposes of the present analysis, a purely functional approach to regional definition was adopted. In the first instance, this was based on the boundaries of the YMCGC Area. However, this is a spatially disconnected area and incorporates communities at some distance from Arnhem Land, such as Miniyeri, which has its own organisational and service delivery arrangements. While people from such wider areas may well be considered as part of the population likely to be affected by any mining development in south-east Arnhem Land, for the purposes of establishing the present baseline profile only those at Ngukurr and associated outstations have been included.

In restricting the profile in this way, there is still need to be mindful of a pool of prospective residents as opposed to a smaller set of actual (or usual) residents of the region as delimited. For example, one possible impact of economic development in the region might be net in-migration from such a pool as occurred, for example, in Kakadu National Park (Taylor 1999c). This could include non-resident traditional owners of country within the region, those who are related kin, others who have long-standing historic associations with the region, and those who would essentially be newcomers, for the most part from distant places. As a result, the criteria for inclusion or otherwise in a statistical profile of the region, or any of its constituent parts, is not always clear. As noted earlier, a related difficulty is that databases compiled by service providers use different conceptions and definitions of usual residence in the region which may, or may not, include elements of the aforesaid

population subgroups. 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 because most official and administrative data are available only at an aggregate level and only for clearly specified geographic units.

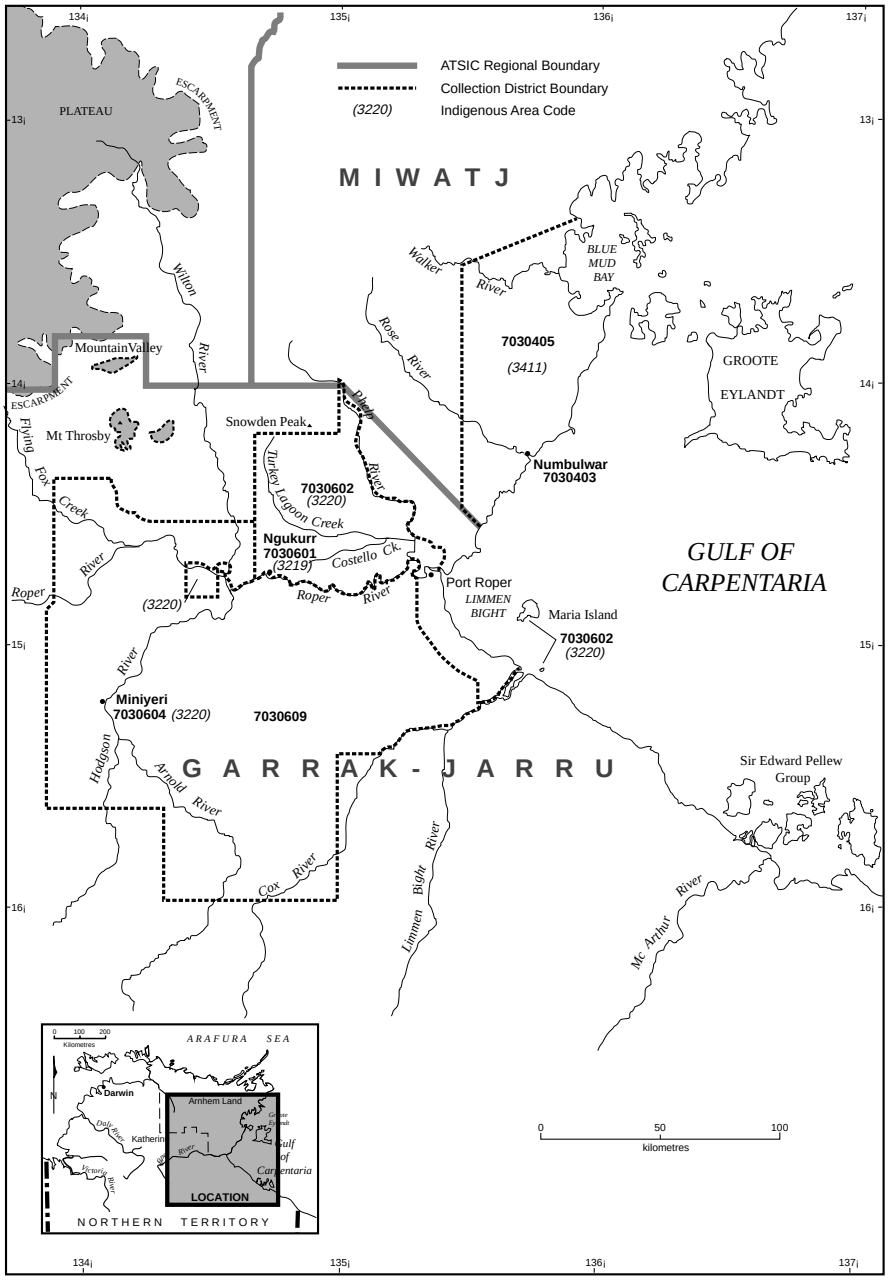
It should also be noted that both the census and administrative data and the household survey data refer only to a point in time, whereas a prominent feature of the regional population is its dynamism. The social reality is one of interconnectedness between Ngukurr and adjacent lands and this is manifest in the frequent movement of people to and from areas as far north as Numbulwar, Groote Eylandt, and the country beyond the Walker River; along the Wilton River towards Bulman; as far south as Borroloola and along the Hodgson River; and west to the upper reaches of the Roper Valley and Katherine. Movement beyond this also occurs to Darwin and the rest of Australia.

Related to this issue is the fact that the census characteristics presented are based on de facto counts of the population. 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 is that the second figure excludes persons whose usual residence is elsewhere, and includes those who normally live in the region but were absent at census time. This distinction is more than just academic as a number of usual residents may be away from the region at any one time for a host of reasons. For example, a number of Aboriginal residents of south-east Arnhem Land would typically be absent because of incarceration in Darwin, although it is very difficult to establish precise figures on this owing to ambiguity about people's usual place of residence in the Northern Territory Correctional Service's database. Also, data from Territory Health Services (THS) indicate that on average 146 individuals from the south-east Arnhem Land region are admitted each year to hospital in Katherine, Gove, or Darwin. Temporary absences, mostly in these same towns, also occur for more social reasons (such as visiting kin) as well as for the purposes of employment, education, and training.

Most working definitions of the regional population applied by service providers, such as THS for example, employ a de jure estimate based on intimate knowledge of length of residence of people and their movement patterns. Unfortunately, census-based usual residence data are available only down to the Statistical Local Area (SLA) level. At this spatial level, the YMCGC Area forms only a small part of the Gulf SLA which covers a much wider area extending beyond Borroloola to the south as far as the Queensland border.

A further issue relates to the statistical units for which census data are available. In 1996, the ABS introduced a new Indigenous statistical geography based on Indigenous Locations (ILs) and Indigenous Areas (IAs) (ABS 1998a). There are two IAs incorporating the relevant population and these enable separate identification of Ngukurr and its outstations, although the latter are combined with the population of Miniyeri. To identify Ngukurr outstations separately as a group (though not individually) reference has to be made to

Fig. 1.1 Census geography of the south-east Arnhem Land region



Collection District (CD) data (Fig. 1.1). While theoretically, then, the major components of the regional settlement structure can be isolated statistically, it should be noted that the ABS acknowledges major deficiencies with census counts for Ngukurr outstations (ABS 1995a: 13; Ross 1999: 62–3).

Historical context

The Roper River community which developed into the town of Ngukurr started life as a mission settlement founded by the Church Missionary Society (CMS) in 1908. There were two basic reasons for the CMS presence in the Roper Valley and these persisted up to the 1960s: to pursue conversion to Christianity and to radically alter lifestyles in the direction of 'sober and responsible mainstream Australian norms'. On Roper Mission these goals were pursued by controlling the greatest possible part of the lives of the Indigenous residents. Children were separated from their parents, placed in sex-segregated, missionary supervised dormitories, and educated in English by missionary teachers. Infant betrothal, polygyny, and ritual were discouraged, and acceptance into the congregation was dependent on abandonment of these practices. Industriousness and cleanliness were two values upon which the mission placed great emphasis (Cole 1969: 5–6, 18–19, 22–3; Smith 1936: 44–49).

In terms of its stated aims the mission's most successful period was from the late 1930s to the late 1950s. Prior to this, it lacked the stability and the resources to carry them out adequately. By the late 1930s, however, a small number of middle-aged adults, converts to Christianity, had been associated with the mission for a generation. A growing number of young adults (and by the mid 1950s middle-aged adults as well) had been born and socialised at the mission. The Northern Territory Aboriginal Ordinances of 1933 and 1937 tightened control on the movement and employment of Aborigines and gave the mission greater authority to supervise their lives (Rowley 1971: 280, 285). Aboriginal people were generally vulnerable to this manoeuver, for though they had not lost the techniques of traditional subsistence they were unable to operate freely on that basis.

Change to institutional arrangements occurred gradually throughout the 1950s and with increasing pace in the 1960s, following the declaration of assimilation as official policy for mission and government settlements. At Roper Mission, Aboriginal residents were granted representation on the Station Council in 1962. By this time they were receiving cash wages for employment and had a store to spend it in. Following the Northern Territory Social Welfare Ordinance of 1964 a number of legal restrictions on Aborigines were removed, and the mission dismantled part of its restrictive framework. Aborigines also gained the right to vote and to consume alcohol.

The cusp of change—1970

A generation ago, the Aboriginal population at Ngukurr was in a period of institutional change which took them from the paternal authoritarianism of Native Welfare policies to the politics of self management. The extra wages due to Aboriginal workers and the loss of the social service monies placed severe financial strain on the mission, which decided to end its secular control and hand Roper Mission over to the Australian Government (Cole 1969: 26). The transfer occurred, after lengthy negotiations, in October 1968. The Roper River Mission became the government settlement of Ngukurr.

Under this arrangement, administration of the settlement was, from 1968 to the mid 1970s, the responsibility of government. Formulation of policy, major administrative decisions, and finances were controlled directly by the head office of the Northern Territory Welfare

Branch in Darwin and by the Department of Interior in Canberra. An important consequence of this arrangement for the organisation of the settlement was a bifurcation of the population into two categories—outside staff and the local community—in which the first had a monopoly of the positions of authority. The economy of Ngukurr reflected this structure.

Only four out of approximately 85 persons employed in mid 1970 were not directly employed by the Welfare Branch. Two of these were shop assistants working for the Roper River Citizens Club, and two were part time domestics for staff families. There was also one independent economic venture operating during 1970—a small fishing boat run by four men, of whom three were age pensioners. Most employees, then, were externally recruited public servants engaged by the Welfare Branch of the Northern Territory Administration (from 1973 the Northern Territory Division of the Department of Aboriginal Affairs). The largest group were school teachers, ten in 1970. The other Government employees were the Area Adviser (a position with functions which varied from Settlement Superintendent to Town Clerk through the 1970s), mechanic, carpenter, hygiene supervisor, clerk, and cattle project manager. The other staff were a chaplain and two nursing sisters employed by the CMS, and a shop manager engaged by the Citizens Club—an incorporated social club with membership open to all residents of the settlement. Until 1974, Aboriginal workers at Ngukurr were still paid a training allowance (averaging a third of the basic wage in 1970), while others were supported by social service payments made direct to recipients.

Institutional change

Since the mid 1970s, two locally managed administrative and representative structures have been in place at Ngukurr, marking a period of self-management: the Ngukurr Township Association from the mid 1970s, and the YMCGC since 1988. Despite this shift, the main feature of institutional arrangements in recent years has been continuity. For example, administrative control has been consistently in the hands of a non-local having the title of either Town Clerk or Bookkeeper. While this position has been subject to Council authority, the Council has in turn often been heavily dependent on the Town Clerk's expertise and accordingly has afforded the position a large measure of independent control of Council's budget and priorities. Also, the representative Council has been all male, with representation heavily weighted in favour of the leading families. Furthermore, it has been characterised by strong and continuous competition for leadership between the leading men of the two main families. While these men have tended to alternate in the position of Council President there has been a certain balance of policy because of multi-layered relations of dependency which have kept the political structure afloat.

A key political event for Ngukurr in recent times was the incorporation of the town as the administrative centre of the YMCGC scheme in May 1988. This took place in the midst of a heated internal debate on the merits of accepting the scheme. The main lines of argument within the town related to a fear of excessive concentration of power in the hands of Council and the loss of autonomy by other organisations such as the Resource Centre for outstations (also called Yugul Mangi), adult education, health, and education.

Various sections of the population felt that their interests were inadequately represented on Council. For example, residents of satellite communities were not directly represented. Also, the group claiming traditional ownership of the town site under the Land Rights Act considered that their interests were not given sufficient weight. There was also strong objection by the women to their exclusion from representation in Council.

The electorate for the YMCGC was, until the late 1990s, divided into seven 'tribal' constituencies (tribe is a locally used term and broadly equates with language group). Eligibility for membership of the electorate is dependent on membership of an appropriate tribe, being at least 18 years of age, and being resident in the local government area for at least two years. While the seven tribes are not artificial constructs there were some difficulties which could lead to manipulation of both membership and elections. Many residents of the Yugul Mangi area and particularly Ngukurr had, through extensive intermarriage and adoption, claims to be members of two or more of these tribes.

This 'tribal' electoral structure placed considerable weight on traditionally-based notions of authority which gave to the 'tribal elders' a crucial role in the electoral process and led specifically to the exclusion of women from office. The seven nominated tribes within the Community Government Scheme operated to restrict the range of choice that was open for membership of the Community Government Council. While this seven-tribe division had its origins in the history of the development of Ngukurr over the past 70 years, the name 'Yugul Mangi' was deliberately chosen to signify that the Ngukurr people were a single people. Yugul is said to be the name of a group of people who occupied the lower reaches of the Roper River around Ngukurr in earlier times. Adopting the name for all the people carries with it the implication that their unity overrides their differences, including those based on 'tribe' or language.

The Council was reorganised in 1997: the seven 'tribes' were replaced by 20 clans, which now form the basis of representation. The term 'clan' in this context is applied by the Council, not in the ethnographic sense of groups defined through patrilineal descent, but merely as a descriptive term as part of a conscious effort to establish lines of alliance within family groups to facilitate cooperative working arrangements. With 'clan' sizes roughly similar, it is also part of an attempt to distribute more equitably access to work and community assets. The rationale for this change was to give voice to a broader range of interests in the community and to devolve responsibility for the provision of services to each of the 'clan' groups. The practical and financial means to this reorganisation was found through a restructuring of the all-pervasive Yugul Mangi Community Development Employment Project (CDEP) scheme and its various employment projects, which are now administered along clan lines. Thus, as the Ngukurr community considers the possibility of large-scale private sector investment in its region, both the politics and the economy of self-management remain largely reliant on public resourcing. It is the outcomes of this subvention across key facets of social and economic life that form the basis for quantification and assessment in subsequent chapters.

2. The demography of south-east Arnhem Land

In common with other parts of the Northern Territory, indeed with the rest of Australia, the Aboriginal peoples of south-east Arnhem Land have experienced major demographic upheaval since contact with European explorers and settlers. At the same time, the first numeric assessments of the size and distribution of the population derive from the written record. Primary among these is the journal of Ludwig Leichhardt whose party briefly traversed the south-western corner of the region at Roper Bar in 1845, noting evidence of Aboriginal habitation along the way. Subsequent accounts detail a history of regional population decline through violence, disease, and population dispersal (Bauer 1964; Costello 1930; Searcy 1909), then of regrouping under the influence of pastoralists, traders, missionaries and government agents, and finally of demographic revival following integration into the provisions of the modern welfare state and subsequent moves to restore Aboriginal self determination and governance (ALC 1982; Bern 1974, 1976, 1977, 1989; Cole 1969, 1982; Merlan 1978; Morphy and Morphy 1984; Thiele 1980).

Briefly, European expansion into the region advanced with construction of the Overland Telegraph in the early 1870s. The Roper Valley was used as a transport corridor and a supply depot was established at Leichardt's Bar. This opened the region to commercial interests engaged in the overlanding of cattle from Bourketown in Queensland and consequent establishment of pastoral properties to the north and south of the Roper Valley. The social history of this early commercial period is one of widespread displacement and decimation of the Aboriginal population. This reached its zenith in the early part of this century under the auspices of the Eastern and African Cold Storage Co. Ltd, which acquired the leases of Elsey and Hodgson Downs as well as access to almost the whole of east Arnhem Land and engaged in systematic extermination of the Aboriginal population (Bauer 1964: 157; Cole 1982: 14; Merlan 1978: 87). By around 1910 many of the original inhabitants of the Roper Valley had either been killed, had retreated into the Arnhem Land Reserve or had taken up residence as scattered remnants on surrounding pastoral stations (Morphy and Morphy 1984). However, in the north of the south-east Arnhem Land region, less population disruption appears to have occurred: Donald Thomson was able to report viable traditional Nunggubuyu camps on the shores of Bennet Bay and at the Roper River estuary as late as 1935 (Thomson 1936: 8–9 (cited in Burbank 1980: 5), 1948: 153).

The establishment of the CMS mission at Milinywarrwarr on the Roper River in 1908 marked the initial stage of a new and more humanitarian phase in contact history—one that has had demographic repercussions to the present. First, according to Bern (1989: 168), it provided a focal point for the regrouping of survivors of groups drawn from a wide area stretching from the south-eastern section of the Arnhem Land escarpment across to the Walker River in the north, then south and east along the Gulf coast to Rosie Creek and west to Nutwood Downs and Roper Valley stations. Second, it signalled the commencement of official efforts to sedentarise the regional population at the mission-controlled settlements of Ngukurr and, later, Numbulwar. Third, it heralded the provision of basic social services in the region that, over the post-war period, have expanded in scope and

coverage and contributed progressively to supporting a revival in regional population growth.

The current phase in this demographic recovery is born of legal access to traditional lands and full integration into the provisions of the welfare state. This has consolidated growth in population and enabled the formation of new focal points for permanent or temporary residence at outstations and on pastoral leases with newly acquired title. It has also provided legal and moral leverage in negotiations for benefits resulting from access to, and exploitation of, Aboriginal lands.

From the point of view of social impact planning, the overriding demographic characteristic of the region today is sustained rapid population growth and a youthful age profile. While natural increase contributes the primary share of this growth, a related underlying factor is the relative lack of net out-migration. Despite an expanding diaspora over the years, and notwithstanding frequent population mobility beyond the region, for the most part individuals born within south-east Arnhem Land conduct their affairs and pass through life in situ. This demographic stability reflects, in part, the strength of cultural continuity and a capacity (at least in present circumstances) to sustain chosen lifestyles. But an untested and important question is the extent to which this perceived stability may also reflect an inability to engage wider social and economic structures, for want of adequate human capital. Such issues are likely to loom larger as the pressures to provide sustenance and life chances for a growing population increase in the years ahead.

Population growth

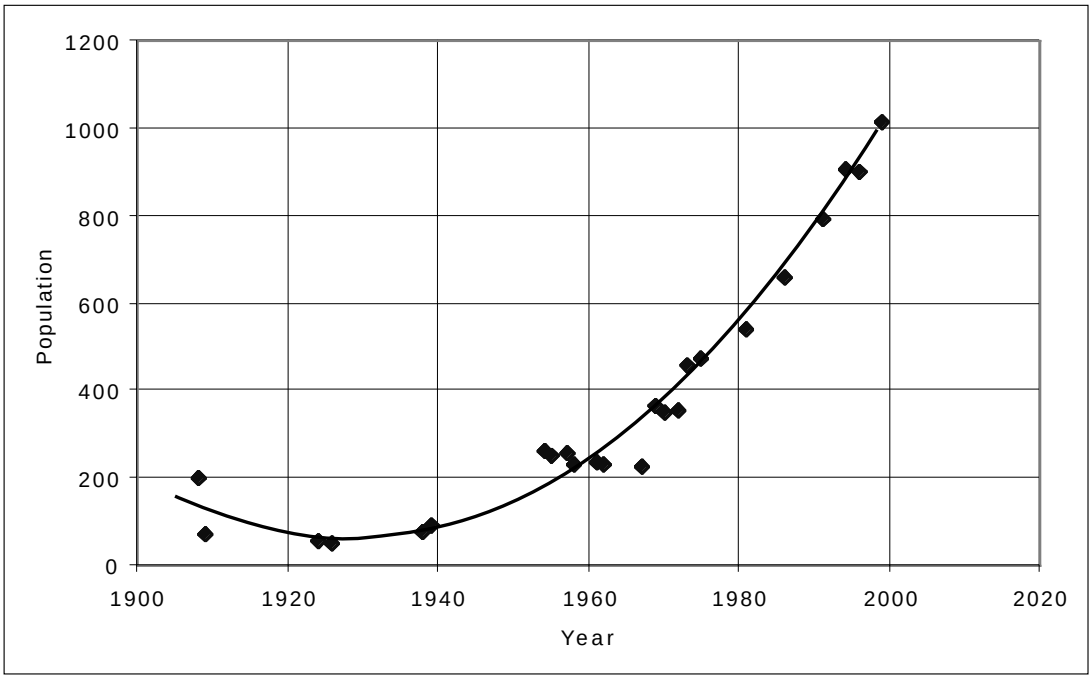
It is possible to establish a fairly clear trend of sustained population growth in the south-east Arnhem Land region over much of the post-war period, and certainly in contemporary times. As an indication of this, Fig. 2.1 shows the general trend in Ngukurr population counts from the time of its establishment as a mission station in 1908. These data exclude residents of outstations in the region, as historic data for these are difficult to compile.

Although some 200 Aboriginal people were recorded as settling around the fledgling Roper River Mission, this was a floating population which frequently dispersed to bush camps (Bern 1974: 80). Consequently, the population of the mission varied markedly on both a seasonal and a year-to-year basis. In 1909, the CMS reported that the number of Aboriginal residents fluctuated from 70 to 200. In 1939, only 93 Aboriginal residents were recorded (Thiele 1980: 137). Over all, the average number resident at the mission until it was destroyed by flood in 1940 was around 70 (Cole 1969: 6, 18). However, an important sociological feature of this sedentarisation process was the emergence of a small group of people who were permanently settled at the mission and who worked closely with, and were strongly influenced by, the CMS (Bern 1974: 103–6; Thiele 1980: 137). By the time the mission site was relocated, the population was relatively stable as attested by the fact that two-thirds of the 1970 population of 350 were either on the mission in 1939 or were their descendants.

Construction of a new mission at the present site of Ngukurr in 1940 was soon followed by a significant shift in both mission and government policy towards the assimilation of Aboriginal people into mainstream social and economic life. This is reflected in the greater provision of infrastructure and social services through the 1950s and 1960s and an increased sedentarisation of the population drawn from a wide surrounding area. The extent of the mission catchment area during the welfare years is reflected in the seven main language groups currently represented in the settlement—Marra, Ngandi, Alawa, Nunggubuyu, Ritharrngu, Wandarang and Ngalakan.

In 1970 Ngukurr was, as it still is, the largest population centre on the Roper River, with an average population of about 360. Collectively, the Roper Bar Police Station and the seven adjacent cattle stations had a similar Aboriginal population, but the numbers varied widely from a total of five at St Vidgeons to over 100 at Roper Valley. Welfare Branch census figures for the centres outside Ngukurr in 1967 and 1968 indicate a population of 62 at Elsey Station, 27 at Moroak, 93 at Roper Valley, 41 at Hodgson Downs, 40 at Nutwood Downs, 18 at Roper Bar Police Station, 18 at Urapunga, and none at St Vidgeons. Aboriginal people at each of these centres had and still have kinship and ritual ties with the people of Ngukurr and there has always been regular contact between individuals in these various localities. Typically, the population of Ngukurr would increase during the wet season (in 1969–70 from about 340 to 450), when much of the additional population was made up of station residents holidaying during their layoff period.

Fig. 2.1 Population counts for Ngukurr, 1908–98



What had been a gradual expansion of the population resident in the settlement through the mission years became almost exponential under self-management as funding was made increasingly available for housing, infrastructure, and the provision of social services. Ironically, part of this public spending has also gone to divert population growth away from Ngukurr towards more permanent residence at outstations.

In terms of the demographic components of this growth, data are available from Ngukurr clinic on the annual number of births and deaths among Aboriginal residents of the settlement from 1991 onwards. This can be used with caution to make a crude assessment of the contribution of natural increase to intercensal population change. According to this information, total deaths of Ngukurr residents between the 1991 and 1996 censuses amounted to 44. Over the same period there were 193 births. This suggests a net natural increase of 149, whereas the population enumerated at Ngukurr increased by only 103 (from 757 in 1991 to 860 in 1996). Thus, even accounting for enumeration error and any lack of compatability between the census and clinic data, it seems likely that natural increase accounted for all the population growth over this period with no net in-migration. Indeed, if these data (clinic- and census-derived) are compatible then it appears that net out-migration from Ngukurr may in fact have occurred (presumably mostly to outstations, but also beyond).

This net increase in population represents a very high rate compared to natural increase among the Northern Territory Aboriginal population as a whole, at least as far as can be estimated. By dividing the net increase by the average intercensal population, a crude rate of natural increase for Ngukurr of 185 per 1000 can be derived. A similar calculation for the Northern Territory Aboriginal population produces a much lower figure of 123 per 1000 (ABS 1996b: 22, 1997a: 50, 1997b: 57). Using births data, the crude birth rate is calculated as 239 per 1000 for Ngukurr compared to 173 per 1000 for the Aboriginal population of the Northern Territory as a whole. This relatively high birth rate and rate of natural increase in Ngukurr is manifest in substantial numbers of infants and young children in the population.

Population size

At the 1996 Census, the total number of people counted at Ngukurr was 900 persons, 40 of whom were non-Indigenous. By manipulating ABS geography (Fig. 1.1), a collective population count of Ngukurr outstations together with Urapunga and Badawarrka can be derived (IA 3220, excluding CD 7030604 which comprises Miniyeri). At the same census, a total of 72 Indigenous persons were counted at Ngukurr outstations as so defined with 36 non-Indigenous persons. In all, then, this source suggests a total Aboriginal population for the Ngukurr region of around 1000 individuals.

To compare this census figure with administrative data which tend to be based on the YMCGC Area is not straightforward, if indeed it is possible at all. The YMCGC Area (which covers 12,269 square kilometres) is a composite of spatially disconnected areas and localities including the following: Ngukurr township and the adjacent portion of Arnhem Land to the north and east, the Marra Land Trust along the Limmen Bight, the Yapungala community within the Urapunga pastoral lease, the Yutpundji-Djindiwrritj (Roper Bar) Land Trust south of the Urapunga pastoral lease, Bringung community at Roper Valley, Miniyeri community at Hodgson Downs, Wunoorill near the southern boundary of Hodgson River lease, and Alawa Land Trust on the Cox River. Of these portions, only Ngukurr and associated Arnhem Land outstations, and the communities at Urapunga and Miniyeri can be separately identified using census geography, although this is not considered too much of a problem as they account for the vast majority of the Yugul Mangi population anyway. The community at Bringung is regarded as out of scope for the current profile due to its largely separate servicing arrangements.

Aside from the difficulties represented by census boundaries, the ABS also acknowledges problems with the actual enumeration, something that is widely observed in remote regions (Martin and Taylor 1996). For example, IL 3220 (Yugul Mangi Balance—essentially Ngukurr outstations including Urapunga) is one of several in Australia for which population characteristics are not released owing to the poor quality of the census count (Ross 1999: 62–3). Also, it should be remembered that the 1996 Census figures represent numbers actually counted in the region on census night. This may be, and invariably is, a different figure from those that are usually resident in the region.

While census-based usual residence counts are not available for Ngukurr, various estimates of the usually resident population of Yugul Mangi are available, both from the ABS and from other government agencies and service providers. For example, in 1995 the ABS published a series of experimental population estimates for Community Government Council Areas in the Northern Territory (ABS 1995a). These were derived by adjusting census counts for usual residents recorded away from home and then matching subsequent increase to growth in the corresponding SLA (in the case of Yugul Mangi this was the Gulf SLA). Further adjustments were made if data from other sources justified this. Other estimates are made by the Northern Territory Grants Commission (NTGC) in support of their formula for the allocation of General Purpose Grants. In addition, the Northern Territory Department of Housing and Local Government maintains records of Aboriginal population and housing based on information supplied by field officers. This is entered into the Community Information Access System (CIAS). Finally, THS patient records provide a source of age and sex data which are coded to place of usual residence. Population estimates from a combination of these sources are presented in Table 2.1 for the YMCGC Area between 1994 and 1998.

Table 2.1 Population estimates for the YMCGC Area, 1994–98

Source of estimate	1994	1995	1996	1997	1998
NTGC	1320	1271	1239	1434	1489
CIAS					1597
ABS	1241	1267	1264[a]	No estimate available	No estimate available
Ngukurr Clinic					1256

Note: a. 1996 Census count.

Sources: NTGC 1998: 26–7, 1999: 33; CIAS, NT Department of Local Government; ABS 1995a: 3; THS, Ngukurr, unpublished.

It is important to note that estimates for Yugul Mangi are invariably inclusive of Miniyeri. This is not always clearly stated in administrative records, leading to some confusion in the interpretation of population levels. One way of overcoming this and focusing specifically on the south-east Arnhem Land region is to extract the 1996 Census count for Miniyeri (247) from the YMCGC population. This produces a figure of 1017 for 1996 in respect of Ngukurr and its outstations, which is very close to the 1996 census count and not inconsistent with the 1994 population figure of 906 for the same area derived by the Ngukurr community itself when compiling the Yugul Mangi Housing Action Plan (Josif and Associates 1995a: 9).

It should be noted that the outstation component of the 1996 Census count is acknowledged by ABS to be deficient. A discrepancy occurs between the census count of 72 persons for Northern Territory CD 7030602 (which incorporates Ngukurr outstations and Urapunga) and population estimates for Ngukurr outstations of 172 and 238 recorded by service providers for similar times of the year in 1992 and 1998 respectively. Thus, using service provider data, around 130 outstation residents are estimated to have been missed from the census count. By restoring this number to the population, a figure more in line with the Ngukurr clinic catchment population of 1256 reported for 1998 (which also represents Ngukurr and its outstations) can be derived. In this context, by excluding Miniyeri, the 1998 CIAS figure of 1597 for Yugul Mangi also appears reasonable. Further confirmation of the veracity of this estimate is provided by the 1999 ATSIC Community Housing and Infrastructure Needs Survey (CHINS) which reported a usual resident population for Ngukurr and its outstations of 1192 (ATSIC 1999). Interestingly, this is very close to the projected estimate of the 1999 population of 1100 made by Josif and Associates (1995a: 9) on the basis of trends evident since 1981.

Thus, against a background of some uncertainty regarding the size of the Ngukurr regional population, the most useful source of demographic data for social impact planning is that derived from THS patient records. One of the data fields recorded for individuals as they engage the health system is community of residence. From a list of those who indicate Ngukurr or one of its related outstations as their usual residence, Ngukurr-based health

workers routinely delete those known to have died, those known to be resident elsewhere, and those born since the list was compiled. At Ngukurr clinic, a population of 1256 persons was derived in this way for 1998, representing what is arguably the best available estimate of the catchment or service population of Ngukurr (ABS 1996c). Given that this population is also identified by single-year age and sex distribution, the clinic-based estimate is the most suited as a denominator for the purposes of calculating rates of events, at least in those cases where numerator data are considered sufficiently compatible with this population, for example for CDEP scheme participation, school participation, and hospitalisation.

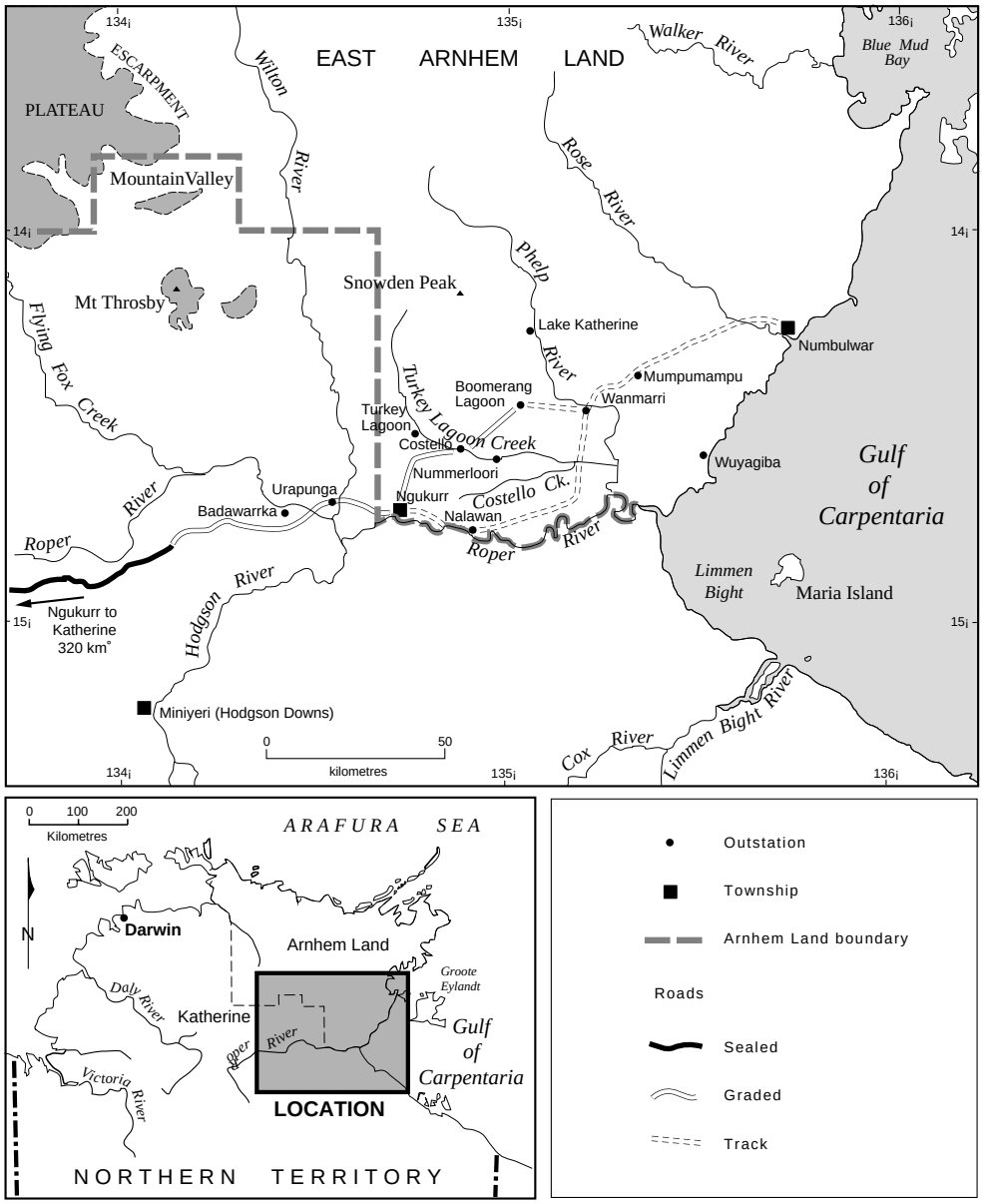
Spatial distribution of population

While the settlement pattern has long been dominated by a congregation of people into Ngukurr, some dispersal of population, at least on a seasonal basis, has been increasingly apparent in the modern era since funding for elementary housing and infrastructure at outstations commenced in the 1970s. This dispersal is maximised during the dry season. Fig. 2.2 illustrates the potential distribution of the regional population at this time, although it should be noted that residence at outstations is highly variable, with some localities rarely occupied.

Before too much credence is attached to population figures for individual localities, a few cautionary notes are in order. Prior to the 1971 Census, little attempt was made to enumerate Aboriginal people resident in isolated localities and while various census and survey measures have gradually been devised to achieve systematic and comprehensive coverage of remote area populations, it is still the case that no single authoritative set of population data exists. As a consequence, service delivery agencies, such as outstation resource centres, community councils, and government departments tend each to have a separate statistical notion of their remote client base. No centralised mechanism for collating such data exists and the discrepancies that occur between data sets remain unexamined.

This variability in data collection is well illustrated by the wide range of population estimates available over recent years for localities in the region (Table 2.2). Although not indicated, it is assumed that these data represent the maximum numbers likely to be found at each place in each of the designated years. The first point to note is the diversity of sources. These include the former Northern Territory Department of Community Development, the Department of Aboriginal Affairs and the Aboriginal Development Commission, ATSIC (actually the ABS on ATSIC's behalf), the Northern Territory Department of Housing and Local Government, and Outstation Resource Centres. A further point, not tabulated, is that estimates are invariably derived for different times of each year, though they are generally made during the drier months when physical accessibility throughout the region is greatest. For example, outstations on the eastern side of the Wilton River become isolated during monsoonal weather and their occupants generally move back into Ngukurr, although those at Nalawan are able to maintain access to Ngukurr by boat and so are more permanent. Also of significance is the fact that different methodologies have been applied, ranging from actual counts of people in situ to information gleaned from key informants at Ngukurr.

Fig. 2.2 Distribution of Ngukurr outstations, 1999



Within these constraints, the main conclusion to be drawn from these data is that the population presence at outstations is highly variable and that the 1996 Census count of 72 persons at outstations was clearly incomplete. It also appears that some confusion exists as to which localities are to be included in a list of settled places: only four Ngukurr outstations (Badawarrka, Lake Katherine, Nalawan and Mumpumampu) are recognised as meeting Indigenous Housing Authority of the Northern Territory (IHANT) guidelines for permanent housing by virtue of their more residentially stable populations and access to year-round potable water. All other localities are occupied intermittently and have only basic or no infrastructure, although Limmen Bight and Rose River Hill were also considered by respondents to the SEALCP survey to be permanently occupied localities.

Table 2.2 Population estimates for Ngukurr outstations, 1986–99

Locality	1986	1987	1992	1993	1998	1999a	1999b
Awumbunyji					1	0	0
Badawarrka	40		25	13	13	16	15
Bonathan						0	0
Boomerang Lagoon	0	7		25	25	5	4
Bullock Hole						0	0
Costello	50	37	10	24	24	15	3
Lake Katherine				27	12	0	10
Larrpayanji					1	0	0
Limmen Bight	26						20
Mumpumampu	0			12	12	0	1
Nalawan	0		40	35	35	39	30
Nummerloori	35	40	10	34	34	0	0
Rose River Hill						0	15
Ruined City	0				1	0	0
Turkey Lagoon	30	29	2	16	16	0	1
Urapunga	60		85	67	50	102	60
Wanmarri	13	5		14	14	0	0
Total	254	118	172	267	238	177	158

Sources: 1986—Northern Territory Department of Community Development Aboriginal Communities 1986 Database; 1987—Department of Aboriginal Affairs)/Aboriginal Development Commission 1987 Housing Survey; 1992—ATSIC (1993); 1993—Kympen Pty Ltd (1993); 1998—NT Department of Housing and Local Government 1998 CIAS Database; 1999a—ATSIC (1999); 1999b—SEALCP 1999 Household Survey.

Clearly, the variability shown in Table 2.2 does not ease the task of establishing a credible population level or trend for the region. For example, the 1999 SEALCP Household Survey produced one of the lowest estimates of the outstation population (158), although the National Aboriginal Health Strategy (NAHS) environmental health field survey of 1999 estimated the population at 130 and the 1999 CHINS was only slightly higher at 177 with a large number of these at Urapunga. It is also interesting to consider these various estimates in light of the numbers counted by the SEALCP household survey conducted in November 1999—a time of year when residence in Ngukurr was maximised. This recorded 453 adults in Ngukurr and 394 children (under 18 years), yielding a total population of 847 Aboriginal people (with the exception of 4 households which did not participate). Assuming that these missing households were equivalent to the average size (9.4 persons per household), an extra 37 people can be added to the count, producing a total of 884 people. Of these, 61 individuals were visitors from elsewhere. This figure for Ngukurr included some 30 individuals who in the dry season had been resident at outstations and who are thus also included in the outstation estimate. Overall, then, a population of 1012 for the region is obtained which appears to set a lower limit against other contemporary estimates of the regional population as seen in Table 2.1.

The more interesting point about this relatively low survey-based figure for the Ngukurr region in 1999, is that it is essentially unchanged from the 1996 Census count (adjusted for underenumeration at outstations). From this, it might be concluded that the population of the Ngukurr region has stabilised in the late 1990s. Leaving aside the untested potential for survey error, the other option is that more people reside at outstations than is generally appreciated. One difficulty here, though, is that it is not always clear whether numbers at outstations rise and fall in tandem with numbers resident in Ngukurr, although 25 per cent of Ngukurr households in the SEALCP survey did indicate that they spent some time during the year at outstations as well as at other places such as Numbulwar, Miniyeri, Bringung, and places further afield such as Katherine and Darwin. Much of the confusion, then, over population levels seems to stem from the frequent movement of people and the variation that this can produce between actual counts as opposed to estimations of usual residence.

Population mobility

Aggregate population numbers for the south-east Arnhem Land region and its constituent parts have to be interpreted in the context of high rates of population mobility. The frequent movement of people can substantially alter population levels over time while also posing a problem for any clear definition of a usually resident group. Aside from permanent (long-term) movements of individuals in and out of the region, those resident within the region 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 urban centres such as Katherine and Darwin. 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, education, hospital care, and the need to access other social services such as employment services.

There is often a substantial gap 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 south-east Arnhem Land, yet high mobility is a feature of ethnographic accounts (Taylor and Bell 1996). A basic problem derives from the inability of fixed-period migration measures (as used in the census) to capture the mobility generated by the daily, periodic, and seasonal round of activities associated with Aboriginal social and economic life. Indeed, this very movement of people between localities and households complicates the application of ABS usual place of residence criteria, with some consequences for social impact planning to the extent that it complicates the definition of regional residence.

While the occurrence of frequent population movement is widely acknowledged, there are no data available to indicate the frequency, extent, and pattern of movement, either within the region or to and from other regions. Though some sense of the spatial scope of inter-regional social links is available, largely through the land claims process, and while it is readily observed and acknowledged that population levels in each community fluctuate considerably over short periods of time, none of these phenomena are adequately quantified for the purposes of social impact planning. Some measure of this variability is reflected in Tables 2.1 and 2.2, although the key dynamic, which is not represented by these data, is seasonal. Many outstations are unoccupied throughout the wet season when population numbers in Ngukurr are maximised. According to the 1999 ATSIC CHINS, which was not a true survey but conducted via interviews with key Council informants, it was estimated that the Ngukurr population can swell by between 100 and 200 persons during the wet season (ATSIC 1999).

Although many individuals are sedentary, evidence from elsewhere in Arnhem Land suggests a chronological round of social and economic activity which results in the dispersal and re-grouping of individuals and households according to observable temporal patterns. The sequence and pattern of this movement is subject to a number of influences. For example, seasonal factors impact on the availability of subsistence resources, the need for shelter, and the ease with which people can travel. As a consequence, the population located at outstations rises through the dry season and recedes in the wet. So, in reverse, does the population at Ngukurr. One measure and effect of this mobility is a notable decline in school attendance rates at Ngukurr and Urapunga schools over the second, drier half of the calendar year (see Table 5.2). Population movement is probably also influenced by the dictates of a fortnightly cycle associated with social security payments and the acquisition of essential supplies, although this needs to be properly established by household survey. Less predictable are movements to participate in ceremonies and social events, or to access specialised services. One interesting question that may bear on the frequency and extent of population mobility is whether or not this is impeded by requirements to work in CDEP scheme activities.

From a servicing point of view, the fact of frequent population shifts means that the ratio of de jure to de facto regional population is invariably greater than one, especially in remote rural communities as in south-east Arnhem Land from which short-term net population loss to urban centres is common (Taylor 1998). 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 (ABS 1996c). As noted above, it is suggested that the population derived from THS records provides one approximation of this and, in effect, represents a population 'pool' that has links with the region and is variously resident there, with important consequences for planning adequate service delivery.

Where possible, this notion of a population pool should be applied. 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 use the dwelling from time to time. In terms of education requirements, aggregate statistics reveal the number of Aboriginal children enrolled and attending schools at Ngukurr and Urapunga at particular points in time, but it is not certain that these figures refer consistently to the same individuals. Children often accompany adults in their movements across, into, and out of the region, and so 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? 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?

There are no data describing the regional pattern of mobility for the population of south-east Arnhem Land, although some idea of the spatial extent of social interaction is provided by the ethnographic record, and is available indirectly from administrative data. For example, it is known that elements of the original population of the region were dispersed to adjacent areas following initial contact with Europeans, and that over time individuals from a wide area were drawn into the main settlement at Ngukurr. Connections between Ngukurr and Numbulwar were consolidated with the northward extension of CMS activities in 1952, which involved the transfer of 70 Nunggubuyu from the Roper River mission to the newly established mission station at Rose River (Cole 1982). Interaction with peoples from across the Top End has also occurred, and this is reflected in the diversity of the Ngukurr population.

One indication of the size and extent of social linkages is provided by information gathered by the SEALCP household survey on the range of languages spoken in Ngukurr. Household respondents were asked to list all languages they could speak. While use of English and Kriol was universal, almost half (44) of respondents also spoke one or more Aboriginal languages. These are listed in Table 2.3. Nunggubuyu is the most commonly spoken Aboriginal language (13 speakers) followed by Ritharrngu (10 speakers). Importantly, Nunggubuyu, Ritharrngu, Marra, Ngandi, Alawa, and Ngalakan are six of the seven languages spoken by the clans that form the core social structure of the Ngukurr

Table 2.3. Aboriginal languages spoken in Ngukurr

Language	Origin of Language	No. of speakers
Nunggubuyu	north-east of Ngukurr	13
Ritharrngu	north-east Arnhem Land	10
Marra	south-east of Ngukurr	9
Ngandi	north of Ngukurr	6
Alawa	south-west of Ngukurr	4
Ngalakan	Ngukurr and west	3
Rembarrnga	Beswick	4
Anandiliaqwa	Groote Eylandt	3
Yanyuwa	Borroloola	2
Kunwinjku	Oenpelli	2
Wägilag	north-east Arnhem Land	2
Djambarrpuyngu	north-east Arnhem Land	1
Garrawa	Borrooloola	1
Maung	Goulburn Island	1
Tiwi	Tiwi Islands	1
Warlpiri	Tennant Creek	1
Wadiri	south-west of Ngukurr	1
Barrara	Maningrida	1
Alyawarra	north-east of Alice Springs	1

community. The seventh language (Wandarang) has very few, if any current speakers, although it is closely related to Nunggubuyu.

A further sense of the relative size of social groupings is provided by the Yugul Mangi Housing Plan 1994–1999 which involved the community in counting the population of the 20 clan groups that make up the Yugul Mangi population (Josif and Associates 1995a). From Table 2.4 it is clear that the population is fairly evenly distributed across these clan groups which in part reflects the intention of the YMCGC in seeking to broaden representation throughout the community. In terms of sheer numbers the Numurididi, Nunggargalu and Ganiyarrang clans stand out, and account for one-quarter of the population. At the other extreme, there are several clans that are relatively small, including the Bringung, Wanmurri, Warrjatjarr, Badawarrka and Nunggayinbala clans. Interestingly, these groups are primarily located at outstations.

Table 2.4 Yugul Mangi clan populations, 1994

Clan	No. of individuals	% of total population
Numurididi	89	9.8
Nunggargalu	68	7.5
Ganiyarrang	63	7.0
Marawulwul	58	6.4
Wilagarra	58	6.4
Yapangala	56	6.2
Milyiwarapra	53	5.8
Nalawan	52	5.7
Mara	48	5.3
Namawurrili	45	5.0
Yuminlintji	45	5.0
Bonathan	43	4.7
Awinbungi	40	4.4
Bunnanda	36	4.0
Yothu Marathongu	34	3.8
Badawarrka	27	3.0
Nunggayinbala	27	3.0
Bringung	24	2.6
Warrjatjarr	24	2.6
Wanmurri	16	1.8
Total	906	100.0

Source: Josif and Associates (1995a: 45–64).

With regard to the spatial range of social origins, some indication is provided by information generated via the land claims process. For example, the Cox River Land Claim refers to Alawa speakers living in the region of Nutwood Downs, Elsey, Hodgson Downs and Ngukurr; also to Ngandi speakers living at Nutwood Downs, Hodgson Downs, Hodgson River, Elsey, Moroak, Bulman, Ngukurr, and Elliot (ALC 1985: 40). All told, some 1400 individuals were identified with connections to this claim. Likewise, the 1982 Roper Bar Land Claim identifies traditional Ngalakan country as extending from the headwaters of the Jalboi River to the west of Roper Bar, east to Ngukurr, north up the Wilton River towards Bulman and south as far as the Hodgson River. In connection with this claim, some 1250 individuals were identified throughout the above region along with others at Elsey and as far afield as Katherine and Darwin (ALC 1982: 21–3). Elsewhere in the region,

along the coast of the Gulf of Carpentaria, the Limmen Bight Land Claim identified claimants resident in Numbulwar, Ngukurr, Borroloola, Hodgson Downs, St Vidgeons, and Mataranka (Bern, Larbalestier and McLaughlin 1980).

Age and sex composition

A basic knowledge of the age and sex structure of the population is vital in establishing rates for social indicators as well as in discussing health, housing, education, employment, and training needs. The most recent official data on the age and sex of Aboriginal residents of the region are available from the 1996 Census. Unfortunately, apart from being dated from the point of view of establishing a baseline profile, these data do not provide reliable coverage for the region. At best, they approximate the age and sex distribution of the population at Ngukurr only. As indicated earlier, the ABS advises that census information for the IL of Yugul Mangi Balance (essentially Urapunga and Ngukurr outstations) was of insufficient quality for publication (Ross 1999: 62).

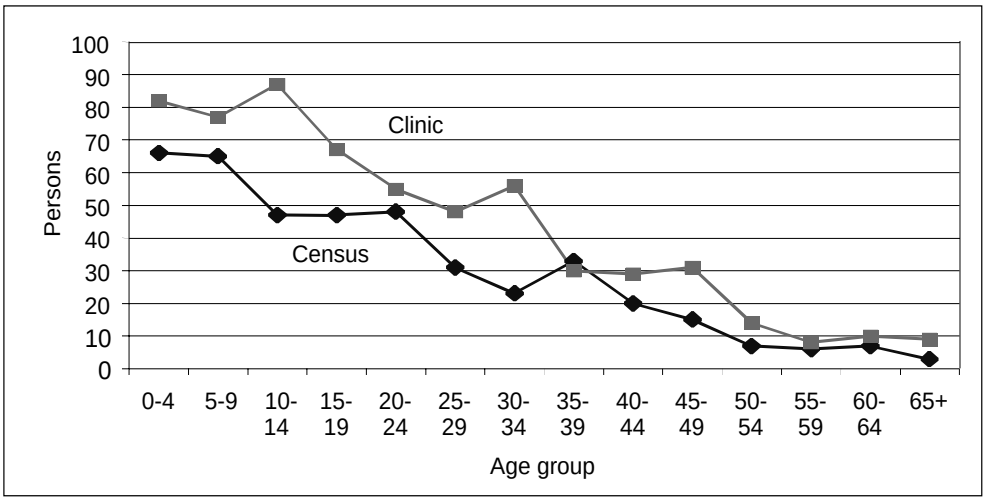
Despite considerable reliance on census age distribution data, age and sex data are also available from the administrative records of THS. From these, a single year age-sex profile was derived as of December 1998 based on date of birth information for the clientele of Ngukurr clinic. Using these data as a benchmark, an assessment can be made of the extent to which census count data may have understated the usually resident population (see Fig. 2.3 and Table 2.5).

A visual comparison between the census-based and clinic-based age distributions is provided in Figure 2.3, while numeric differences are presented in Table 2.5. In considering these, it should be remembered that they refer literally to different populations insofar as the census figures relate to a count of Ngukurr in August 1996, while the clinic figures refer to those usually resident in Ngukurr and at related outstations in 1998. Despite this, the purpose of comparison is to draw attention to components of the population that census data may have overlooked because of enumeration error and an inability to define usual residents.

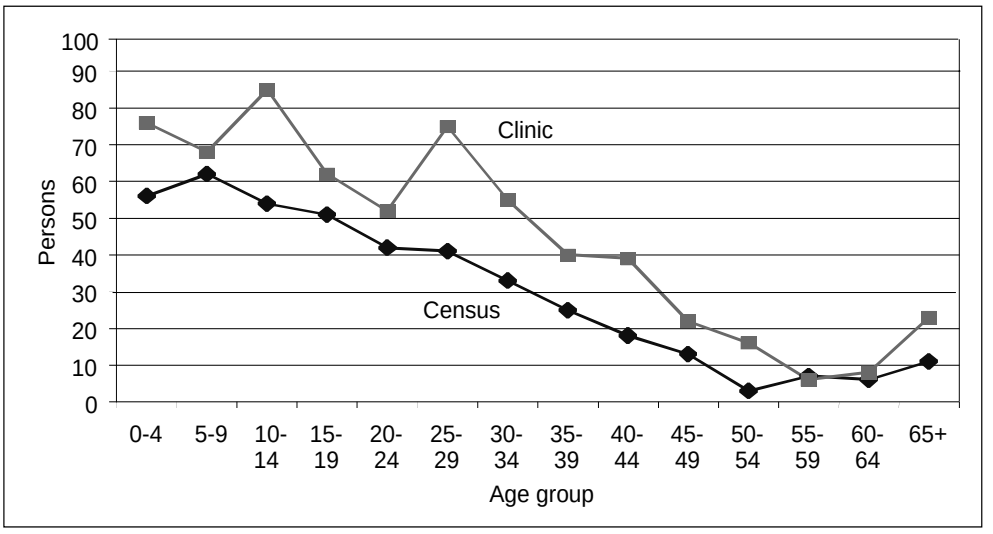
The first point to note is that the clinic population is higher at all ages for both males and females, although the gap in numbers recedes in older age groups. The main feature, though, is the existence in the clinic data of peaks in the 10–19 and 25–34 age groups, the latter of which is most evident among females. This leads to substantial discrepancies with census figures at these ages which is exacerbated by a falling off in census numbers at these ages among males. These peaks in the clinic data appear anomalous and may reflect reporting error, the nature of which is unknown. At the same time, it is possible that the relatively high figures in teenage years are associated with attendance at Ngukurr school as well as the availability of CDEP work for school leavers (92 CDEP participants, or 24% of the total in 1998, were aged between 16 and 20 years). The fact that the outstation population was poorly enumerated may account for the early falling off in census counts as a large number of school-age children may have been at outstations at census time—indicated by the drop-off in school attendance rates around the middle of the school year (see Table 5.2). Finally, clinic records produce a noticeably higher count of children under five years of age, especially infants less than one year old. This is not surprising as the household enumeration method employed by the ABS in remote communities has been found deficient in adequately capturing this general age group, due to difficulty in assigning them to a particular household (Martin and Taylor 1996).

Fig. 2.3 Comparison of census-based and clinic-based Aboriginal age distributions in Ngukurr: (a) Males (b) Females

(a) Males



(b) Females



Source: 1996 Census of Population and Housing; Territory Health Services, Ngukurr, December 1998.

Table 2.5 Distribution of Aboriginal males and females by five-year age groups: Census and clinic-based data, Ngukurr

	Males		Females		Males	Females
Age group	Census (1)	Clinic (2)	Census (1)	Clinic (2)	Difference (2-1)	Difference (2-1)
0–4	66	82	56	76	16	20
5–9	65	77	62	68	12	6
10–14	47	87	54	85	40	31
15–19	47	67	51	62	20	11
20–24	48	55	42	52	7	10
25–29	31	48	41	75	17	34
30–34	23	56	33	55	33	22
35–39	33	30	25	40	3	15
40–44	20	29	18	39	9	21
45–49	15	31	13	22	16	9
50–54	7	14	3	16	7	13
55–59	6	8	7	6	2	–1
60–64	7	10	6	8	3	2
65+	3	9	11	23	6	12
Total	418	603	422	627	185	205

Source: Census of Population and Housing 1996; THS, Ngukurr, December 1998.

Table 2.6 Distribution of the census-based Aboriginal population by broad age group in Ngukurr and the Northern Territory, 1996

	Ngukurr		Northern Territory
Age group	Number	%	%
0–4	122	14.5	12.5
5–14	228	27.1	25.1
25–44	224	26.7	28.0
45–64	64	7.6	10.6
65+	14	1.7	2.7
Total	840	100.0	100.0

Source: Census of Population and Housing 1996, unadjusted census counts.

Using census data, the age structure of the Aboriginal population counted in Ngukurr appears to be relatively youthful, with 41.6 per cent of the population under the age of 15 years. This is somewhat above the figure of 37.6 per cent recorded for the Northern Territory as a whole (Table 2.6). By comparison, the Northern Territory has a higher proportion of young adults in the 15–24 age range and of those in the prime working age group of 25–44, while the proportion of older people over 45 years, and especially over 65 years, is relatively low in Ngukurr.

At 99 males per 100 females, the census-recorded sex ratio for Ngukurr was slightly above the ratio of 0.97 recorded for the Northern Territory in 1996 (although the post-census adjusted estimate for the Northern Territory is also 0.99). It is interesting to compare these ratios with that derived from Ngukurr clinic data, since census counts of the Aboriginal population typically undercount young adult males (ABS 1998b: 28). Despite this, the clinic data reveal an even lower sex ratio at 0.96. This is due to the greater preponderance of females at older ages, most likely as a consequence of sex differences in mortality. This differential is suggested in Table 2.7 which shows the proportional distribution of Aboriginal males and females by 5-y ear age groups. Clearly, males are more evident at younger ages in the pre- and primary school age groups, while a greater share of the female population is found in middle and old age groups. One notable variation is the relative lack of males in the 25–29 age group. This typically reflects out-migration, although no evidence is available to support the hypothesis, in this case.

Table 2.7 Percentage distribution of Aboriginal males and females by five-year age group in Ngukurr

Age group	Males	Females
0–4	13.6	12.1
5–9	12.8	10.8
10–14	14.4	13.6
15–19	11.1	9.9
20–24	9.1	8.3
25–29	8.0	12.0
30–34	9.3	8.8
35–39	5.0	6.4
40–44	4.8	6.2
45–49	5.1	3.5
50–54	2.3	2.6
55–59	1.3	1.0
60–64	1.7	1.3
65+	1.5	3.7
Total	100.0	100.0

Source: THS, Ngukurr, December 1998.

Dependency ratios

Measures of the potential economic implications of a given age structure are provided by a range of dependency ratios. These are shown in Table 2.8 for the Aboriginal population of Ngukurr in 1996, with comparison drawn from the Northern Territory as a whole. 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). Obviously, a ratio of 1.0 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 1.0 indicates more than one child to each person of working age, and less than 1.0 indicates less than one child to each person of working age. Obviously, this only provides an indication of potential economic providers to dependents as it takes no account of the economically inactive.

In Ngukurr, the childhood dependency ratio was 0.73 which is somewhat higher than among Aboriginal people in the Northern Territory as a whole (0.64) and this provides another measure of the relatively youthful character of the Ngukurr population. However, if clinic data are used for this calculation then the dependency ratio is somewhat lower at 0.66, closer to the figure for the Northern Territory.

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 1.0 indicates parity. According to census data, there were 1.6 children to each employed adult in Ngukurr if all those engaged by the CDEP scheme are considered to be in employment. If, however, this calculation is based on those employed only in non-CDEP work, then the ratio is much higher at 19.4. This is substantially above the equivalent ratio for the Northern Territory, underlining the relative lack of work in Ngukurr outside of the CDEP scheme.

Another measure is provided by the *dependency ratio* which represents the ratio of children and economically inactive adults to the labour force (those employed plus those receiving unemployment benefits). On this score, Ngukurr appears slightly better off than the Northern Territory average of three dependants per economically active person, although if CDEP scheme participation were discounted the dependency ratio would be much higher.

Table 2.8 Dependency ratios for the Aboriginal populations of the YMCGC Area and the Northern Territory, 1996

Dependency ratio	Ngukurr	Northern Territory
Childhood dependency	0.73	0.64
Childhood burden	1.6	2.0
Childhood burden (excl. CDEP)	19.4	3.4
Dependency ratio	2.1	3.0
Economic burden	2.8	3.8

Source: Census of Population and Housing 1996.

Finally, the *economic burden* is a ratio of the number of children and economically inactive persons (including here those unemployed) to employed persons. This shows that in Ngukurr for each employed Aboriginal person (including those in the CDEP scheme) there are 2.8 other Aboriginal people not employed. However, if those in CDEP are excluded the economic burden would rise to 45.6. To this extent, Ngukurr is little different from many remote communities in the Northern Territory which rely heavily for their semblance of economic activity on the CDEP scheme.

From a social planning perspective, then, a burgeoning youthful age profile is the key demographic feature, itself a function of rapid population growth in recent times. The extent to which this exerts pressure on the adequate provision of services and economic opportunities is the focus of the remaining analysis.

3. Labour force status

Like many, if not all, remote Aboriginal communities in the Northern Territory, Ngukurr was established primarily as a means of administering Aboriginal welfare policies. It required no modern economic base, nor has it subsequently acquired one, at least not in a manner that is sustainable beyond the provisions of the welfare state. However, there are indications that Aboriginal leaders are development-oriented and have aspirations to exploit any available economic opportunities. They are negotiating to ensure that the regional population benefits from any mining-related developments that may occur. This much is embodied in the current agreements with Rio Tinto Exploration to establish mineral exploration in the region. It is also reflected in the many economic development projects that have existed in the region, or are extant, ranging from management of the community store, transport and maintenance, fish farming, arts and craft manufacture, tourism, and the Yugul Cattle Company.

Possibilities for expanding the range of more formal employment opportunities in the region exist either through export generation or import substitution activities (Altman 1990; Taylor 1995). Export activities potentially include mining, pastoralism, tourism, fishing, and the manufacture of arts and crafts, but a key question concerns their employment-generating potential. An increasingly important factor in creating work opportunities with an economic stakehold for Indigenous people has been the negotiation rights based on the leverage acquired via the *Aboriginal Land Rights (Northern Territory) Act 1976* and more recently the *Native Title Act 1993*. These can provide for exploration and mining agreements which include commitments to employ and train local Indigenous people in a range of occupations. However, the employment impact of such agreements has rarely matched expectations, due to a variety of demand and supply-side factors.

Taking the experience of mining developments as an example, supply-side factors are generally controlled by the proximity of mines to local labour pools and whether these populations have the capacity or inclination to participate in the jobs on offer. On the demand side, mines that are technologically complex, capital-intensive and require a skilled workforce provide far less scope for substantial involvement of rural-based Indigenous people, with their characteristically low educational status and skill levels. Likewise, there may be pressing cultural and social obligations that prevail against participation in work and training. These issues of labour demand and supply are crucial, and need to be understood and articulated in the context of potential mining development in south-east Arnhem Land. They have been canvassed in regard to other resource development projects in the Northern Territory (Altman and Smith 1990).

Import substitution activities embrace a potentially wide range of industries and occupations in areas such as council administration, housing construction and maintenance, health, education, stores, airlines, media, roads, power and water supply, land restoration and management, recreation, and horticulture. To date, such activities have provided the main basis for employment generation in the region, but the key issue from the point of view of sustainability and economic self-management has been a high

degree of dependence on public funding. In Ngukurr, this is epitomised by widespread participation in the CDEP scheme. While greater provision of training and skills development would go some way towards enhancing the status of CDEP work, this still leaves a problem of exit options from the scheme, particularly in communities such as Ngukurr where only a limited number of mainstream employment options are available even for those who may be adequately trained.

For example, the SEALCP Household Survey found that out of 44 respondents who had received post-secondary training, most commonly in the areas of teaching, health work, and office skills, only 11 were currently working in the area in which they had been trained, although 29 had worked in that particular area at some time in the past. However, there is anecdotal evidence that some individuals have moved from Ngukurr to apply their skills in Katherine. One issue for ongoing consideration is whether such movement out of Ngukurr will be further encouraged by providing financial incentives to CDEP schemes to move workers into more mainstream employment, as envisaged by the Commonwealth's Indigenous Employment Policy. A tightening of mutual obligation requirements for job seekers registered with Centrelink may also provide an added stimulus to migration.

The arrangements for the delivery of employment services in the region deserve scrutiny. Under the Job Network system, intensive (Flex 3) assistance is theoretically available to job seekers who encounter the greatest employment placement difficulty, through being referred to a network provider by Centrelink. Recipients of Newstart allowance in Ngukurr who are considered to be in a position to benefit from employment assistance are referred by Centrelink's Katherine office to the network provider responsible for south-east Arnhem Land—the Julalikari Association's office in Borroloola. By May 1999, only ten individuals from Ngukurr had been referred in this way. Aside from the restricted coverage of the region, network providers operate on a quota allocation of referrals and Julalikari can readily find adequate numbers from closer to home in Borroloola. Despite plans for an additional Julalikari office to be opened in Katherine, access to employment services in south-east Arnhem Land can be described as inadequate.

Aboriginal and non-Aboriginal labour force status, 1996

Whatever the possibilities for enhancing employment opportunities may be, the crucial issue from the point of view of social impact planning is to establish the extent to which Aboriginal people in the region currently participate in the labour market. The distribution of Aboriginal and non-Aboriginal residents of the region by labour force status is shown in Table 3.1, using census data. As with all other population characteristics for the region, these data are only available for the population counted at Ngukurr and exclude those resident at outstations.

Table 3.1 Aboriginal and non-Aboriginal labour force status in Ngukurr, 1996

Labour Force Status	Aboriginal	Non-Aboriginal	Total
Employed (CDEP)	202	0	202
Employed (other)	18	25	43
Unemployed	18	0	18
Not in labour force	244	6	250
Not stated	9	9	18
Total 15+	491	40	531

Source: Census of Population and Housing 1996.

In Table 3.2 these data are converted into rates. Three standard indicators of labour force status are examined:

- the *employment to population ratio*, representing the percentage of persons aged 15 years and over who indicated in the census that they were in employment during the week prior to enumeration;
- the *unemployment rate*, expressing those who indicated that they were not in employment but had actively looked for work during the four weeks prior to enumeration, as a percentage of those in the labour force (those employed plus those unemployed); and
- the *labour force participation rate*, representing persons in the labour force as a percentage of those of working age.

The first point to note is that Aboriginal employment in the region is dominated by the CDEP scheme. Out of a total employment of 220, only 18 jobs (8%) were independent of the CDEP scheme. Actually, dependence on CDEP was even greater than suggested here, since not all those participating in the scheme end up being recorded as employed by the census. The census question asks about work in the last week, whereas CDEP work can often be intermittent and is generally part-time only (although with recent moves to recognise CDEP more as an employment program, more regular work practices are developing). In 1996, a total of 347 adults were registered with the Yugul Mangi CDEP scheme. This widespread participation in CDEP produces a relatively high employment/population ratio of 45.6. This is considerably above the figure of 33 per cent recorded for Northern Territory Aboriginal people as a whole. However, if reference is made only to those employed outside of CDEP in Ngukurr then the employment/population ratio is negligible at 3.7 per cent.

A striking feature of census labour force data was the failure to adequately record Aboriginal unemployment levels. According to the census, there were only 18 unemployed Aboriginal people in Ngukurr. This result almost certainly stems from enumeration error, since unemployment benefits are regularly paid to a substantial number of residents. For example, data for June 1999 provided by Centrelink in Katherine indicate a total of 81 recipients of Newstart allowances in Ngukurr. Likewise, the SEALCP household survey uncovered a total of 97 individuals on Newstart allowances. Assuming that these numbers had not drastically changed since 1996, and that all those registered as unemployed were resident in the main settlements and not at outstations, then the 1996 Census-recorded unemployment rate in Ngukurr should have been 24 per cent for males and 32 per cent for females. As a consequence, the labour force participation rate should also have been much higher than reported in the census—78 per cent for males and 45 per cent for females.

Table 3.2 Aboriginal employment, unemployment, and labour force participation rates in Ngukurr and the Northern Territory, 1996

Labour force status	Ngukurr	Northern Territory
Employment rate	45.6	33.0
Unemployment rate	7.6	17.8
Labour force participation rate	49.3	40.1

Note: Excludes persons who did not state their labour force status.
Source: Census of Population and Housing 1996.

Labour force status, 1999

Since 1996, a number of economic developments with consequences for the level and nature of Aboriginal employment have occurred in Ngukurr. Foremost among these has been the upgrading of housing stock under the IHANT-sponsored health hardware upgrades program, along with the construction of new houses, and extensions and repairs under the NAHS program. Other environmental health activities, notably a dust mitigation project initiated by Greening Australia and sponsored by Rio Tinto, have also generated work while the CDEP scheme has continued to develop its project base. Government funding for labour market and training programs has been restructured, and access to formal adult training courses has been extended into Ngukurr by Batchelor College. The SEALCP survey revealed that, notwithstanding these program interventions, as many as 10 per cent of Ngukurr households had no adult members in work or in training.

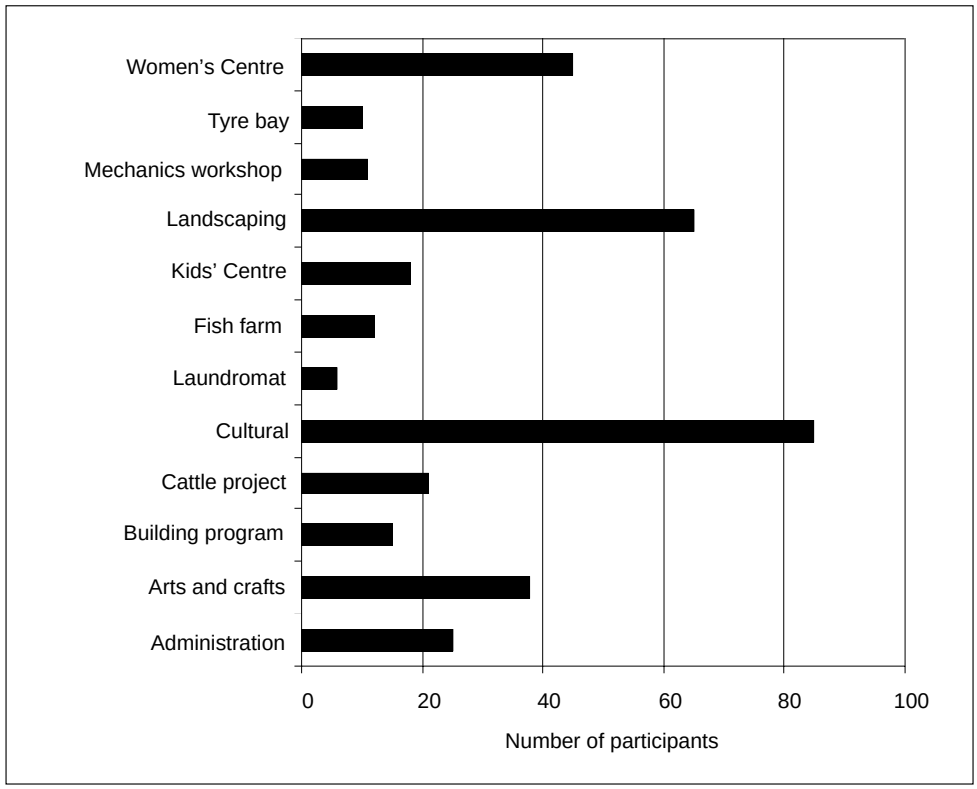
CDEP employment

The Yugul Mangi CDEP scheme remains by far the largest employer in Ngukurr. According to administrative data, at the end of March 1998 there were 331 participants

in the scheme (7 of whom were non-Indigenous). Using the clinic-based population as the base, this 1998 figure of 324 Aboriginal participants accounted for 45 per cent of the Aboriginal population aged 15–64 years. However, according to the 1996 Census, only 202 Ngukurr residents were actually employed in the CDEP scheme during the week before the census and it is interesting to note that an almost equivalent figure was recorded by the SEALCP household survey in 1999. This consistent gap between participation and employment highlights the part-time and intermittent nature of work provided by the scheme.

Following suspension of the scheme for six months in 1992 for maladministration, work groups and lines of responsibility within the scheme were restructured to align with the Yugul Mangi Clan Management System. Managers for each of the clans, supported by their own bookkeepers, assume responsibility for developing and coordinating work projects and for administering associated funds. In this way, CDEP activities evolve from clan-based decisions about work priorities.

Fig. 3.1 Yugul Mangi CDEP Scheme participants by activity type, 1999



Source: Yugul Mangi Community Government Council, 1999.

Fig. 3.1 shows the distribution of CDEP participants by activity type in 1999. The main features of each of these is discussed in turn.

- Clearly, cultural activities occupy the largest number of participants. Information on precisely what this comprises is scarce but it includes training for men and women from all clan groups in traditional pursuits and custom, including ceremonial participation. At times this requires travel away from Ngukurr. The fact that such activities, indeterminate as they are, comprise the largest single component of a scheme which is increasingly recognised (by government) as an employment scheme, raises interesting questions about the nature and meaning of 'work' in an Aboriginal domain.
- The next main activity is landscaping, with 65 participants. This is closely tied to environmental health goals as specified in the Yugul Mangi Environmental Health Action Plan 1995–99 (Josif and Associates 1995c) and involves tree planting for dust control, greening and maintenance of parks, control of vegetation in yards, and fence construction around house lots.
- The Women's Centre provides a base for a diverse range of activities for some 45 women. These include art and craft manufacture, sewing curtains and clothing, the operation of a second-hand clothes shop, cooking and catering, development of home management skills, driver training, and assistance in dealing with domestic violence. There has also been support from THS for a nutrition program which until recently was allied to the 'Strong Women Strong Babies' program. The Women's Centre is also used as a venue for large meetings, either for community-based groups or with outside bodies such as the Northern Land Council.
- The arts and crafts program supports nearly 40 individuals, many of whom are established artists whose products sell outside the community and overseas. Activities include painting, basketwork, carving, manufacture of garments, and of leather straps and belts for horses. This program also supports traditional cultural activities and assists in the intergenerational transfer of skills.
- Administration of the CDEP scheme as well as clerical assistance to the Community Government Council provides an important area of activity. This includes the payment of wages according to the clan-based system as well as hands-on administration in functional areas such as social security claims, library, the Broadcasting for Remote Aboriginal Communities Scheme (BRACS) program, correctional services, environmental health, and the housing office.
- The cattle project is a vestige of the long-standing ties of Ngukurr people to the pastoral industry through their involvement on one of the many European-owned properties in the region or with the Aboriginal-owned Yugul Cattle Company which operated in the 1970s. Some 20 men are employed in fencing and mustering.
- The Kid's Centre was established to assist mothers in taking up work projects by providing care for infants. It also generates employment itself for 18 women, and delivers a nutrition program.

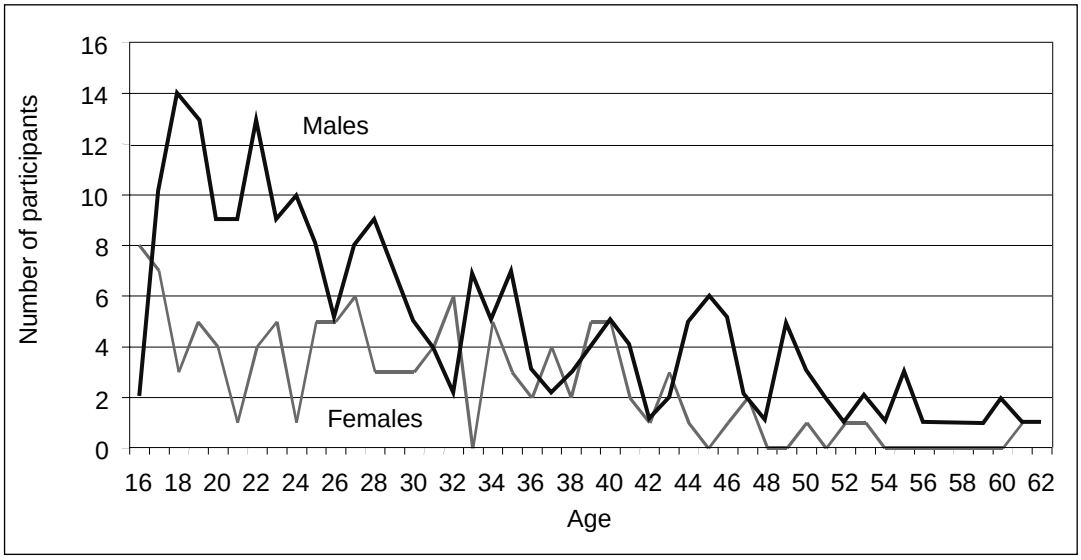
- The building program supports the activities of the Council Housing Office which was established to manage the community housing stock. In 1999, 15 men were involved in repair and maintenance work on buildings and houses in Ngukurr and at outstations. Activities in this program have also been supported in recent years by spending on the Health Hardware Upgrades Program, and on major recreational projects in Ngukurr in the form of the swimming pool complex and gymnasium.
- The fish farm project employs 12 people and is still in the developmental phase. Activities to date have mostly involved the construction of tanks and water reticulation, and further works will include dam construction.
- Some 20 men are employed at the mechanics' workshop and tyre bay which services all CDEP vehicles as well as heavy equipment. Some work for outside agencies is also undertaken.
- Finally, the laundromat and video hire are examples of a small enterprise development involving six to eight workers.

An important feature of these CDEP activities is the extent to which they support business enterprise within the community, albeit at a very small scale of operation. Overall, the SEALCP survey found that one-fifth of households had at least one household member employed in a local enterprise supported through a particular clan group via the CDEP scheme. Among those not included in the listing above were a TV and video rental business, a mobile tuck shop and a second-hand clothing outlet. Avenues for additional enterprise development were also canvassed by the survey. The few identified were either in personal service activities including hairdressing, second-hand furniture and a rental facility for sports equipment, or in import substitution activities such as a bakery and abattoir. Options for some form of tourism development were also mentioned but this has been touted in the context of Ngukurr's economic development for many years.

CDEP scheme work remains a largely male preserve, with twice as many male participants as female (220 and 111 respectively). The age distribution of participants also varies between males and females, as illustrated in Fig. 3.2. The number of male participants rises rapidly after school leaving age and remains high up to the late twenties, whereas there are relatively fewer female participants at most ages, especially among young adults.

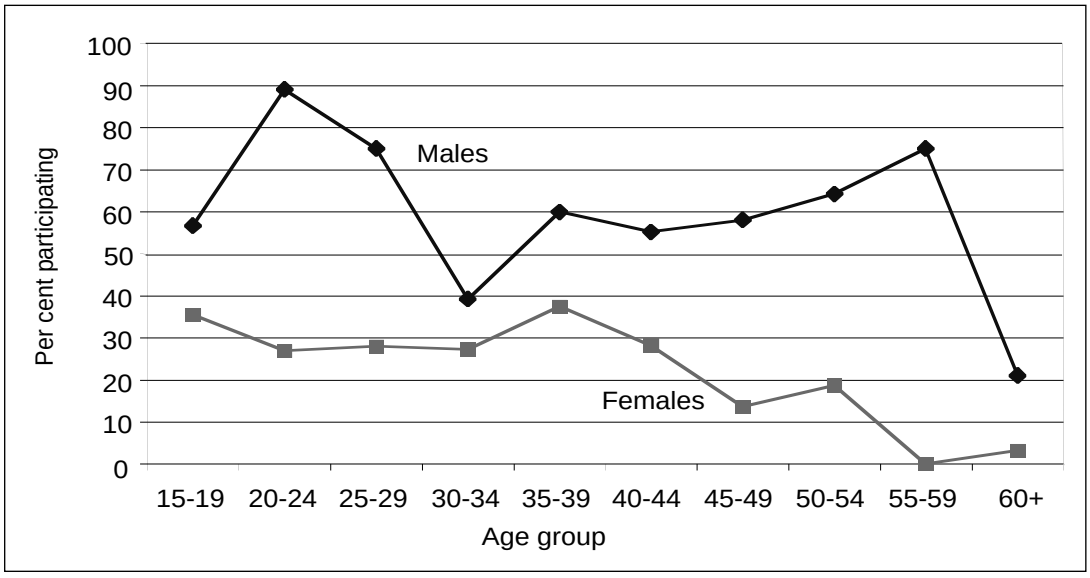
This gender effect is also reflected in age- and sex-specific CDEP participation rates (Fig. 3.3). These can be calculated using age and sex data from Ngukurr clinic as the base population. While the resulting rates are imprecise, owing to uncertainty regarding the true base population, they nonetheless provide some indication of the impact of CDEP in terms of engaging the population in economic activity. Fig. 3.3 shows that CDEP work involves a very high proportion of males (up to 90%) in the 20–29 age group and more than 50 per cent of youths aged 16–19 years. The majority (around 60%) of older adult males over 35 years are also engaged in CDEP, with participation levels high up to the late fifties. Among females, participation rates are relatively constant and much lower at around 30 per cent up to 45 years and declining steadily thereafter. At one level, these data provide a measure of the desire (and capacity) of Ngukurr residents to be economically active (albeit on a part-time basis). At the same time, they may simply reflect one means of maximising resource flows to the community under an income support regime.

Fig. 3.2 Male and female CDEP participants by single year of age, 1998



Source: Yugul Mangi Community Government Council, December 1998.

Fig. 3.3 Age and sex-specific CDEP participation rates, 1998



Source: Yugul Mangi Community Government Council, December 1998.

One difficulty in establishing the impact on labour force status is the high degree of job mobility that occurs. Many positions are occupied on a casual, almost day-labour basis, while even people in relatively permanent occupations may 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 not possible to establish precise labour market indicators.

Non-CDEP employment

Definitive data on the levels and type of employment acquired outside of the CDEP scheme are not readily available and, in any case, are difficult to establish because of blurred boundaries between jobs that are part-funded by CDEP as well as from other sources. According to the 1996 Census, there were a total of 40 non-CDEP jobs in Ngukurr in 1996, though only 19 of these were held by Aboriginal people. To establish a more recent estimate of this latter figure, the main employer groups in Ngukurr were surveyed by the SEALCP team over the period of May–August 1999 to establish non-CDEP sources of Aboriginal employment. The results are shown in Table 3.3.

A total of 32 Aboriginal people were recorded in jobs supported by non-CDEP funding sources, although in as many as 22 cases the individuals were also CDEP scheme participants and part-funding was provided from that source. Once again, the community-services focus of work is evident, with the bulk of employment provided either directly or indirectly by Northern Territory government departments and activities linked to the YMCGC. Despite some apparent growth in recent years in the level of employment attached to non-CDEP funding, this is clearly still very limited and very much dependent upon program spending.

Table 3.3 Non-CDEP sources of Aboriginal employment in Ngukurr, 1999

Employer	Full-time	Part-time	Total
YMCGC	2	0	2
Housing	2	0	2
Northern Land Council	1	1	2
NT Police	1	0	1
Corrective services	1	0	1
Environmental health	2	0	2
Community store	4	0	4
Recreation officer	1	0	1
NT Education	3	4	7
THS	6	1	7
University of Wollongong	0	3	3
Total	23	9	32

Source: SEALCP field data.

While some doubt still remains about the precise funding base for employment, CDEP administrative data for March 2000 regarding the range of programs supported by CDEP funds suggest that only the full-time jobs with THS, Northern Territory Education, and the Northern Land Council appear to be unequivocally independent of the scheme (*Ngukurr News*, No. 2: 4). If this is so, then virtually all Aboriginal employment in Ngukurr is underwritten to some degree by CDEP funding. While this emphasises the importance of the CDEP scheme in generating and sustaining economic activity within Ngukurr, it also raises a long-standing question in policy debates about the degree to which jobs that fall traditionally within Local and Territory government lines of responsibility—for example in road maintenance, transport, clerical work, education, policing, house maintenance, and landscaping—have been substituted by CDEP-derived funding (Altman and Sanders 1991).

Industry sector and hours worked

Census data provide an indication of the number of hours worked in the week prior to the census. From this, it is possible to characterise employment as full-time or part-time, although whether the hours worked indicated at census time persist throughout the year is unknown. Full-time work is defined as 35 hours or more per week while part-time work is anything less than this.

One issue of concern frequently raised in regard to Aboriginal employment is that too many individuals are engaged in part-time work only and that this has negative consequences for earning capacity. While this may be so, full-time work is increasingly less prevalent in the Australian workforce as a whole, and in many remote communities, as in south-east Arnhem Land, full-time positions are limited and highly circumscribed in terms of necessary qualifications.

In addition to this, it has been recognised for some time that not all Aboriginal people view the acquisition of full-time mainstream employment as their primary goal in life. In this context it is worth revisiting a key finding of 1985 Review of Aboriginal Employment and Training Programs:

> The option [of salaried employment] is not … open to them [many Aboriginal people] and … many of them reject it. In the more remote areas which were not colonised to the extent of others and where Aboriginal custom and law remain strong, people have removed themselves from the enforced change of life-style encompassed by a western-style economy … and have chosen to maintain a life-style compatible with their traditional culture using a mix of components from their own traditional hunter-gatherer subsistence economy together with components of the wider market-based economy … Not all Aboriginal people have the same concept of the mix of traditional Aboriginal and non-Aboriginal components in their life-style. Many of them who have chosen, or have felt compelled to live in an urban context, accept the employment for wage or salary basis for their livelihood to a greater extent than those who have remained in an isolated rural environment (Miller 1985: 5–6).

At the same time, in reference to Ngukurr, both Bern (1977: 120) and Thiele (1980: 142) have noted that a commitment to full-time work has been viewed in the past by Ngukurr residents as a normal expectation. Whatever the cultural and structural impediments to longer working hours may or may not be currently, census data point to a far higher level of full-time work in Ngukurr than might be expected. In the Northern Territory as a whole, only 43 per cent of Aboriginal people in work were employed full-time in 1996. By contrast, 68 per cent of males in Ngukurr reported being in full-time employment (all in CDEP) along with 67 per cent of females (Table 3.4). In effect, this suggests that almost two-thirds of CDEP scheme employees are engaged full-time. This level of employment intensity seems improbable for two reasons.

Table 3.4 Full-time/part-time employment by sex and industry sector in Ngukurr, 1996

Industry sector	Part-time		Full-time	
	Males	Females	Males	Females
Northern Territory government	0	0	0	4
Local government	0	0	0	3
CDEP	42	22	91	38
Total	42	22	91	45

Note: Excludes persons who did not state their labour force status.
Source: Census of Population and Housing 1996.

First, the remote average per participant CDEP wage rate provides for only limited hours of work per week at award rates of pay. In Ngukurr, the CDEP base rate translates into 20 hours per week at $8.60 per hour. Clearly, there is some opportunity for combining CDEP with other sources of funding to extend weekly working hours, but, in the absence of any major enterprise or alternate source of funding for employment in Ngukurr, this would appear to be limited to the few Territory and Local government-type functions. There is certainly not sufficient intensity of work available to support the level of full-time employment suggested by the census. The second reason to doubt the census data is that the SEALCP Household Survey recorded the majority of workers in Ngukurr as part-time, with as few as 22 people in full-time employment. This tallies with the figure in Table 3.3 obtained from the earlier SEALCP survey of major employers.

Industry of employment

One key measure of the economic structure of south-east Arnhem Land is provided by the distribution of employment according to industry type. For one thing, this reveals the range of economic activities in the region as well as the extent to which employment is focused on any of these. From Tables 3.5 and 3.6, it appears that very little industrial diversity exists in the region: employment in Ngukurr is overwhelmingly concentrated

in government administration. The only other areas of employment, for a few Aboriginal people, were agriculture, education, and health and community services. Beyond this, a handful of non-Aboriginal residents of Ngukurr were also engaged in the retail trade, and in transport and personal services.

One drawback of these industry profiles is the absence of data about the involvement of Indigenous people in economic activities that census methodology is ill-equipped to record. One example of this, clearly evident in Table 3.5, derives from the practise in census enumeration of coding participants in CDEP schemes as employed in government administration. This reflects the convention of classifying industry of employment according to the *main* economic activity undertaken by the employer, rather than by the employee (ABS 1985). Thus, if an individual indicates that they work for a community council, then their industry of employment will be coded as local government or community services despite the fact that they may actually be engaged in building work or in screenprinting and, therefore, in essence, be part of the construction or manufacturing industries. The likelihood of a community organisation appearing on census forms as the employer would appear to be greater among the Indigenous population, given the relatively simple and dependent economic structure of many Indigenous localities with most work establishments owned and operated by community organisations.

It would appear, then, that official data have some potential to mask industrial diversity. This is especially so in the case of Ngukurr. The data on CDEP scheme activities shown in Figure 3.1 reveal a wide range of economic activities with less than half of participants (44%) employed in activities that unequivocally relate to the provision of community services. The remainder were engaged in activities more closely associated with other industries, particularly construction, agriculture, aquaculture, transport and recreation, and personal service industries. The issue here is that Indigenous workers appear to be engaged in a wider range of industrial tasks than is readily apparent from the census.

If, in fact, a broader spectrum of industrial activity is being created in Ngukurr then this may have repercussions for establishing accredited skills training via the CDEP scheme. It also raises question about what, if any, links might be established with allied mainstream industry training and employment, especially in the context of any future resource development in the region. Such a requirement for skills acquisition is increasingly likely given recent moves by government to place the emphasis on CDEP as an employment program with incentives to move people off the scheme and into mainstream work. In south-east Arnhem Land, though, part of the problem in terms of generating alternative work opportunities is structural and to do with the small scale and dispersed nature of rural settlement. The corollary is quite simply the fact that most mainstream opportunities, and those projected for the foreseeable future, are likely to remain in urban centres of the Northern Territory.

Table 3.5 Industry of employment: Aboriginal and non-Aboriginal residents of Ngukurr, 1996

	Aboriginal		Non-Aboriginal
Industry division	Males	Females	Total
Agriculture, forestry, and fishing	3	0	0
Mining	0	0	0
Manufacturing	0	0	0
Electricity, water, and gas	0	0	0
Construction	0	0	0
Wholesale trade	0	0	0
Retail trade	0	0	6
Accommodation, cafes, and restaurants	0	0	0
Transport and storage	0	0	3
Communication services	0	0	0
Finance and insurance	0	0	0
Property and business services	0	0	0
Government administration and defence	130	67	11
Education	4	3	3
Health and community services	4	0	3
Cultural and recreational services	0	0	0
Personal and other services	0	0	3
Total	141	70	29

Note: Excludes persons who did not state their labour force status.
Source: Census of Population and Housing 1996.

Table 3.6 Aboriginal and non-Aboriginal occupational distribution in Ngukurr, 1996

	Aboriginal		Non-Aboriginal
Occupation	Males	Females	Total
Managers and administrators	0	0	3
Professionals	4	3	4
Associate professionals	0	3	3
Tradespersons	0	0	3
Advanced clerical and service workers	0	4	3
Intermediate clerical, sales, and service workers	0	0	3
Intermediate production and transport workers	18	0	6
Elementary clerical, sales, and service workers	8	6	0
Labourers and related workers	103	56	0
Inadequately described	4	0	0
Not stated	4	5	0
Total	141	77	25

Note: Excludes persons who did not state their labour force status.
Source: Census of Population and Housing 1996.

Occupational distribution

While industrial diversity may be greater than revealed by the census, occupational diversity is far less so. The majority of Aboriginal workers in Ngukurr are engaged in low-skill jobs, mostly as labourers, largely because of their lack of qualifications and the nature of work available via the CDEP scheme. Table 3.6 reveals that labouring jobs account for more than three-quarters (77%) of employed males and females. By contrast, almost all of the jobs occupied by non-Aboriginal people in the region were in advanced clerical, trades, professional, or managerial positions. One notable observation, in the context of social impact planning, is the lack of any Aboriginal tradespersons. In the Northern Territory as a whole, 6 per cent of the Aboriginal workforce are employed as tradespersons (ABS 1998c: 36), but in Ngukurr there are none. Also, the 5 per cent of the workforce employed as associate professional or professional workers is much lower than the equivalent proportion of the Northern Territory Aboriginal workforce, which stands at 18 per cent. As is the case generally in Australia (Taylor and Liu 1996), a gender-based division of labour is evident, with males more likely to be intermediate production and transport workers and females prominent as intermediate clerical, sales, and service workers.

4. Income status and welfare

Aboriginal people in south-east Arnhem Land have a number of potential sources of cash income. These range from wage labour in CDEP or in other more mainstream forms of work, unemployment benefit and other payments from Centrelink, royalty equivalents and other payments to traditional land owners, and private income from the sale of art works, crafts and other products. There are also routine deductions from income. For example, house rent of $10 per head per week is deducted from CDEP wages in Ngukurr, as is a $5 levy for funeral money, the Kids' Centre, and sports area. Vouchers issued for power usage also entail a deduction from wages.

Data issues

A realistic assessment of net income status in the region would ideally attempt to impute non-cash income from subsistence activities. However, quantitative data with which to assess the significance of such activities simply do not exist. Given that research elsewhere in the Top End of Australia (Altman 1987; Altman and Peterson 1988; Meehan 1982; Povinelli 1993) demonstrates the vitality of hunting and gathering in contemporary Aboriginal life, an important component of social impact planning in advance of any potential mining development would be to establish the nature of such activity and the role that it plays, and could continue to play, in the regional culture and economy.

Payments for access to and use of Aboriginal title land and areas under claim as well as for disturbance of areas of spiritual significance are also a significant potential source of income for Ngukurr people. Within south-east Arnhem Land five types of external activity have contributed to this income over the last decade. These include rent from commercial enterprises at Ngukurr such as the local store; the government-sponsored brucellosis eradication campaign; mining exploration licences; compensation for damage to sites of spiritual significance; and payment for excisions of land for infrastructure projects such as the Telstra coaxial cable.

Accurate data on overall levels of income, and employment and non-employment sources of income for 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 to individuals and households within the region is often intermittent. Census data, for example, 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 Aboriginal 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 royalty payments. 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 job mobility with individuals often employed on a casual or part-time basis and moving into and out of longer-term jobs. Cash payments from royalties are also made to a proportion of the regional population and this adds further complexity to the pattern of income distribution. In the event of mining in the region, the evidence from other parts of Arnhem Land suggest that such complexity is likely to be heightened (Altman and Smith 1994). As for the circulation of cash between individuals and households, information on this is non-existent for south-east Arnhem Land. Also lacking are data on expenditure, although a common pattern reported from elsewhere is that of cash feast and famine (Beck 1985: 89; Rowse 1988).

The most comprehensive source of income data for the region based on a consistent methodology is available from the census. It should be noted, however, that census data report income in categories, with the highest category left open-ended. Consequently, actual incomes have to be derived. In estimating total and mean incomes, the mid-point for each income category is used on the assumption that individuals are evenly distributed around this mid-point. The open-ended highest category is problematic, but 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 (Treadgold 1988). Clearly, estimates of mean incomes vary according to the upper level adopted.

Also, the gross income reported in the census is intended to include family allowances, pensions, unemployment benefits, student allowances, maintenance, superannuation, wages, salary, dividends, rents received, interest received, business or farm income, and worker's compensation received. Whether all such sources are reported is unknown. One final cautionary note concerns coverage. Because of the limitations presented by census geography and enumeration error, income data are only available for the populations counted within Ngukurr and not for those at outstations. One distinct advantage of census data, however, is that it provides a means by which an estimate of dependence on income from welfare can be derived. This is done by cross-tabulating data on income with labour force status as a basis for distinguishing employment income from non-employment income, the latter being a proxy measure of welfare dependence. Of course, whether welfare payments achieve their intended purpose in terms of measurable social outcomes is something that can only be established by long-term community-based survey work (Finlayson and Auld 1999).

Personal income

Personal income distribution based on census data for adult residents of Ngukurr is shown in Table 4.1 by income category. 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 which 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 south-east Arnhem Land, however, subsidised arrangements exist to offset these costs and, in any case, people do not have the option to build assets through home ownership. It is impossible to fully establish disposable income without a detailed individual or household survey of income and expenditure.

At the same time, the income levels reported in the census provide at least a base measure of material worth and point to a relatively high degree of poverty in the region. Converting these data to median incomes provides a summary measure of the difference between males and females as well as between Ngukurr and the wider region. Although Table 4.1 shows that median individual income for females was slightly higher than for males, overall the picture is one of almost universally low income, with individual incomes typically within the range set for welfare recipients. Very few adults (only 13) have incomes in the range close to the median of $24,128 that was recorded for non-Aboriginal people in the Northern Territory. Many more (120) have incomes that are lower than the already low median reported for Ngukurr.

Table 4.1 Distribution of individual annual gross income: Aboriginal males and females in Ngukurr, 1996

	Males		Females	
Income category	No.	%	No.	%
Nil income	19	8.4	28	11.9
$1–6239	40	17.7	33	14.1
$6240–10,399	141	62.4	141	60.2
$10,400–20,799	16	7.1	29	12.4
$20,800–31,199	10	4.4	3	1.3
Over $31,200	0	0.0	0	0.0
Total	226	100.0	234	100.0
Median	$7280		$7748	

Source: Census of Population and Housing 1996.

For a further sense of relativities, it is useful to place these results in the wider regional context of the Garrak-Jarru ATSIC Regional Council area where the median annual income for Aboriginal males in 1996 was $8632, and for females $8944. Clearly, Ngukurr fares poorly even within the overall regional context of low Aboriginal income status. This is further emphasised by the fact that the median income for non-Aboriginal residents of south-east Arnhem Land was $29,692, although the income gap that this implies is to be expected given that the majority of non-Aboriginal people reside in the region for reasons of mainstream employment.

Family and household income

Whatever the level of personal income, the more important unit for assessing relative poverty and income generating capacity is the family and household level. This is the level at which collective economic decisions are made, especially in the context of means testing for welfare eligibility. In census terms, a family is defined as two or more persons, (one of whom is aged over 15 years) who are related biologically, by marriage (registered or de facto), adoption, step or fostering, and who are usually resident in the same dwelling. Visiting families to the household are not included. In this schema, there are invariably more families than households: the latter is defined as a group of two or more related or unrelated people who usually reside in the same dwelling, who regard themselves as a household and who make common provision for food or other essentials for living. The coding of 'family types' is derived from the relationships that exist between a single family reference person and each other member of the family (ABS 1996a: 168). In the material developed by the ABS to assist remote area census collectors, there is the implicit assumption that families can be mapped onto households and, moreover, that family structures are similar to, or in essence variants of, the mainstream nuclear family (ABS 1991: 6).

According to Martin and Taylor (1996), ethnographic evidence suggests that these are highly problematic definitions when applied to Aboriginal households, particularly those in remote areas. While there is certainly utility in confining the notion of a household to residents in a physical dwelling or location, Aboriginal households typically are highly fluid in composition, often with a more or less stable core and a variable periphery of transient residents drawn from the same regional population pool. In such circumstances, it is clear that co-residence (even in the limited sense of who sleeps where), commensality, family groupings, and domestic economic units are not necessarily coterminous—for instance, people who live together may not eat together. Commonly too, the basic economic and social units of Aboriginal societies are comprised of linked households rather than single ones (Altman 1987; Finlayson 1991; Martin 1993; Smith 1991, 1992), and what Aboriginal people themselves refer to as 'families' are typically dispersed across a number of households. It is such clusters of households, rather than individual households, which commonly form the basic units of consumption in remote Aboriginal communities.

With the above caveats in mind, the 1996 Census identified 77 Aboriginal households in Ngukurr containing 155 families. Not all of these social units provided income data, and so information is only available for 58 households and 133 families. However, given the generally low level of personal income, dependency on income support from welfare is obviously high. As a consequence, there is a real sense in which family and household income levels are directly related to the size of families and households, because of the manner in which welfare payments are designed to provide a minimum standard of living for all members of a family, not just the recipients of government payments. Unfortunately, this relationship cannot be adequately demonstrated using census data because of the small number of observations. In any event, income relativities are best established in the context of other family and household characteristics, such as employment status, and these connections are more appropriately acquired via household survey.

As with personal income, families generally in the south-east Arnhem Land region have very low incomes, with 62 per cent of those in Ngukurr receiving less than $20,000 per annum (Table 4.2). Furthermore, relative income levels in Ngukurr appear low: the median family income of $17,678 was notably less than the figure of $19,929 reported for the Garrak-Jarru ATSIC Region as a whole.

Table 4.2 Distribution of annual gross family income: Aboriginal residents of Ngukurr and Garrak-Jarru ATSIC Region, 1996

	Ngukurr		Garrak-Jarru
Income category	No.	%	%
Nil income	6	4.5	0.0
$1–10,399	26	19.5	19.2
$10,400–20,799	50	37.6	36.0
$20,800–41,599	37	27.8	32.0
Over $41,600	14	10.5	12.8
Total	133	100.0	100.0
Median		$17,678	$19,929

Source: Census of Population and Housing 1996.

Table 4.3 Distribution of annual gross household income: Aboriginal residents of Ngukurr and Garrak-Jarru ATSIC Region, 1996

	Ngukurr		Garrak-Jarru
Income category	No.	%	%
$1–20,799	6	11.5	21.0
$20,800–41,599	21	40.4	38.1
$41,600–62,399	21	40.4	31.6
$62,400–77,999	6	11.5	9.2
Over $78,000	4	7.7	0.0
Total	58	100.0	100.0
Median		$31,200	$29,557

Source: Census of Population and Housing 1996.

As to be expected, household incomes are substantially higher than family incomes with a median of $31,200 reported in Ngukurr (Table 4.3), although this has to be interpreted in the knowledge that there are an average of 9.4 persons in each household. While comparison of household incomes with ATSIC Regional data becomes more difficult owing to increased variability in household size and composition, it is interesting to note that the median household income for Ngukurr of $31,200 is relatively high compared to the figure of $29,557 reported for Garrak-Jarru ATSIC Region.

Employment and non-employment income

The relative contribution made to total income from employment as opposed to from other sources is an important factor in the regional economy. Approximate parity between net incomes derived from social security and those derived from employment (after tax) is likely, unless there is access to well-paying jobs. It is argued generally for Aboriginal people that the gap between welfare and earned income is sufficiently low as to discourage job seeking (Hunter and Daly 1998). In south-east Arnhem Land, clearly the issue is just as much about creating sufficient employment in the first place.

The simple fact is, the few jobs that provide a net income sufficiently in excess of the welfare range are generally occupied by non-Aboriginal workers, mostly by virtue of the occupational skills required. Thus, in Ngukurr, only three Aboriginal people occupied higher paying mainstream jobs (non-CDEP) and these were in the income range $15,600–20,800. Ironically, the few individuals (9 altogether) in the highest paying positions were in the CDEP scheme, but these were still in the relatively low income range of $20,800–$26,000.

Welfare income

The actual contribution to regional income from employment and non-employment (welfare) sources is shown in Table 4.4, using census data. According to these calculations, almost half of the total annual income in Ngukurr of $3.4 million is derived from welfare payments (46.6%). However, wages paid to CDEP scheme participants account for almost all of the remaining income in Ngukurr (48.9%) and it could be forcefully argued that this also constitutes welfare income, given the notional link between CDEP earnings and unemployment benefits. The telling statistic in Table 4.4 is the fact that only 4.5 per cent of total income in Ngukurr is generated by mainstream employment. Among Aboriginal people in the Northern Territory as a whole, the equivalent proportion is considerably greater at 41.4 per cent. In other words, reliance on welfare spending in remote communities such as Ngukurr is excessively high, and accounts for almost all personal income.

Table 4.4 Distribution of annual income from employment and non-employment sources: Aboriginal residents of Ngukurr and the Northern Territory, 1996

	Ngukurr		Northern Territory	
Labour Force Status	Income ($)	% of total	Income ($m)	% of total
Employed (CDEP)	1,681,680	48.9	38.0	14.0
Employed (Other)	156,520	4.5	113.1	41.4
Unemployed	159,640	4.6	16.1	5.9
Not in the labour force	1,446,120	42.0	105.5	38.6
Total	3,443,960	100.0	273.4	100.0

Source: Census of Population and Housing 1996.

In order to gain a clearer picture of the composition of welfare income, information was obtained from Centrelink on the number, type, and amount of benefit payments for a single fortnight at the end of 1999 to Aboriginal claimants registered at Ngukurr and Urapunga. Some were also registered at Roper Bar Store but these were excluded as the store figures included some residents of Miniyeri. An annualised figure of outlays for 1999 was then derived on the assumption that the fortnightly payments remained constant through the year. This produces an estimate of welfare payments to Ngukurr of $1.7m in 1999. Of this amount, 20 per cent ($365,989) was for pensions, 31 per cent ($516,706) was for Newstart Allowance and 49 per cent ($815,963) was for Family Allowances, Parenting Payments and other sundry payments such as Youth Allowance. This amount is remarkably close to the 1996 Census-based estimate of welfare payments at Ngukurr of $1.6m, calculated as the sum of incomes due to those unemployed and not in the labour force (see Table 4.4). Given the big discrepancy between the large number in receipt of Newstart Allowances and those classified as unemployed by the census, this similarity in estimates suggests that many unemployed persons were classified by the census as not in the labour force.

Of course, it is not easy to directly compare estimates made from census data with those made from administrative records. For one thing, because of mobility within the region, it is not clear that the populations are the same. If a slightly wider net is cast to reflect this dynamic by incorporating Centrelink payments data for Urapunga, then the estimate of annual welfare outlay rises to $2.6m, with pension payments rising to almost 40 per cent of the total and payments to the unemployed falling to 20 per cent.

Another income benchmark can be established by comparing the amount of CDEP related income declared in the 1996 Census ($1.6m) with the YMCGC's CDEP wages estimate of almost twice that amount at $2.87m for 1999/2000. This latter estimate is built around a CDEP base-rate of 20 hours per week at $8.60 per hour for 300 participants. Thus, one reason for the discrepancy is that the census figure is based only on the 202 individuals who were recorded as employed by the CDEP scheme in the week prior to the census. Also worthy of note is the fact that census data yield an average CDEP income of $8325 which is somewhat lower than the average of $9515 derived from Council figure. While this may reflect inflationary effects, the overall conclusion from these data is that the dependence of the Ngukurr population on income from welfare and from CDEP is probably greater than suggested by census data.

The distribution of payments by type to male and female Centrelink clients in Ngukurr is shown in Table 4.5 for the fortnight at the end of June 1999. It should be noted that not all allowance and pension payments are mutually exclusive. For example, it is possible for someone to receive family allowance and parenting payments, and other combinations are also possible depending on the circumstances of each claimant. Moreover, the SEALCP household survey identified 83 pension recipients, whereas Centrelink identified 30. If anything, this simply indicates that confusion exists regarding the distinction between pensions and allowances. The range of basic rates that apply to each payment as well as the criteria for eligibility provide some indication of the income status of recipients.

It is clear from these data that family and parenting-type payments are targeted mostly at females. The first point to note, however, is that the total of 137 family allowance payments is very similar to the 1996 Census count of 133 families in Ngukurr (Table 4.2) which provides an independent verification of the accuracy of census data. It also suggests that all families in Ngukurr are in receipt of family allowance. This is not surprising given that eligibility for these payments is subject to income and asset tests which are set well above the income distribution evident in Ngukurr. However, the amount of family allowance payments varies according to number and age of dependants, with a minimum rate per child of $23.70 per fortnight and a maximum of $128.8. A large family supplement of $7.80 is also payable for the fourth and each subsequent child.

As for parenting payments, the data indicate a total of 34 sole parents, almost all of whom are female. There are also 40 females and three males receiving payments as partnered parents. These payments are made to provide financial assistance to low income families with dependent children, while additional assistance is provided to families with only one main source of income, including sole parents, with a dependent child aged under five years. This support is also intended to provide increased choice for parents in balancing work and family responsibilities. Given their low reported incomes, recipients in Ngukurr are likely to be on maximum rates for this payment and in receipt of up to $361 per fortnight if they are sole parents and $293 if they are partnered.

Table 4.5 Centrelink payments by type of payment and age of client: Aboriginal residents of Ngukurr, 1999

	Age	DSP	PPS	PPP	FA	NSA	YAL	Other
Males								
14–19							3	
20–24				1	1	8		
25–29					9			
30–34			1		9			
35–39			1		1	4		
40–44		2	1		2	7		
45–49		1		1	1	6		
50–54		2			1			
55–59		2			1	3		
60+	5							
Total	5	7	2	3	7	46	3	
Females								
14–19			4	6	11		1	
20–24			8	9	24	5		
25–29		2	9	12	39	6		
30–34			2	8	23	6		
35–39			1	5	10	4		
40–44		1	4		13	4		1
45–49			1		4	7		1
50–54		2	2		5	2		1
55–59		2	1		1	1		
60+	11							
Total	11	7	32	40	130	35	1	3

Key: Age = Age Pension; DSP = Disability Support Pension; PPS = Parenting Payment Single; PPP = Parenting Payment Partnered; FA = Family Allowance; NSA = Newstart Allowance; YAL = Youth Allowance; Other = Wife Pension, Widow Allowance, Carer Pension, Partner Allowance.

Source: Centrelink, Katherine.

The other major welfare payment (Newstart Allowance) is for unemployed persons eligible by virtue of being over 21 years, being registered with Centrelink and in compliance with the terms of an activity test based on proven job search, or vocational training, or rehabilitation, or some other agreed activity such as voluntary work. This compliance effectively indicates that an individual is actively seeking paid work and is willing to undertake suitable paid work. In Ngukurr and elsewhere in south-east Arnhem Land, available work is insufficient to meet the demand from those seeking employment. Thus, the 46 males and 35 females in receipt of Newstart Allowance indicates a far greater level of unemployment than that recorded by the census. On these figures, the unemployment rate in Ngukurr is more in the region of 27 per cent compared to the 8 per cent recorded in 1996. Payments for Newstart Allowance amount to $325 per fortnight for single people with no children, $352 for single people with children, and $293 each for partners.

From a Centrelink perspective, disability payments are for those who by virtue of a physical, intellectual, or psychiatric impairment are deemed unable to work or to undertake educational or vocational training which would equip them for work—who lack independence in their everyday lives. According to the payments data, it appears that there are relatively few such individuals in Ngukurr (14), although these numbers need to be properly assessed against the availability of disability services including rehabilitation, community and recreational access, respite, meals, home help, independent living and life skills training, personal care assistance, employment support, and education support.

5. Education: Participation and outcomes

At the time of study, the whole question of educational provision for Aboriginal people in the Northern Territory, and the nature and purpose of such provision, was subject to major review (NTDE 1999). In many ways, this context proved timely: Aboriginal education, especially in remote schools, had reached a crossroads in terms of the expectations of government, the aspirations of parents and community leaders, and the capacity of the system to deliver. Put simply, there are two broad (though overlapping) perspectives against which the purpose and performance of education in the region may be assessed.

The first is culturally-grounded and considers what Aboriginal people want from education. According to one analyst, with reference to Maningrida Community Education Centre (CEC) in north-central Arnhem Land, Aboriginal people selectively procure aspects of Western education and ignore others that do not suit their needs and aspirations (Schwab 1998). Consequently, what is desired from education in general and from schools in particular can be very different to what these Western institutions expect. These desires have been conceptualised in terms of the acquisition of core competencies to deal with the non-Aboriginal world, the capacity for cultural maintenance, and access to material and social resources (Schwab 1998: 15). The second perspective derives from an economic development model and stresses a need to acquire human capital skills in order to participate in the mainstream economy. From this perspective, educational outcomes are measured in terms of participation rates, grade progression, and skill achievement.

'Blekbala way'

In line with community aspirations to influence curriculum activities at the Ngukurr CEC, a community-led process of Aboriginalisation of staff has been underway since 1979. By 1998, all but four of the 14 teaching staff were Batchelor College-trained Aboriginal teachers. In addition, a Language Program has existed since 1993 (Munro 1998). However, since 1998, both of these developments have been in abeyance due to the almost wholesale loss of fully qualified Aboriginal teaching staff from the school (including the Aboriginal principal) while the teaching of traditional languages has been wound back.

Community interest in the running of Ngukurr school has always been intense, with events leading at one time to school closure followed by a re-opening in line with community aspirations. In 1991, the school was incorporated under the Education Act and a school council with strong community representation was established. With its qualified Aboriginal staff it was possible to extend the curriculum of the school to incorporate cultural studies. This largely centered around the 'Blekbala Kalja' Project, which included bringing elders in to teach the children within the school as well as during excursions to the bush. A language program was also introduced in 1993, which focused on the traditional languages: Marra, Ritharrngu, Ngandi and Alawa (in conjunction with Miniyeri school) (Munro 1998). It also involved an inquiry into the possible establishment of a bilingual program in Kriol and English, though none was instituted. Despite the strong

levels of involvement and commitment that community members exhibited through the 1980s and early 1990s, the numbers of local people employed as teachers began to decline.

The turnaround in the school staffing profile has complex origins, but partly reflects natural attrition of long-serving permanent Aboriginal staff and the difficulty of finding replacements—even though six former full-time Aboriginal teachers were still resident in Ngukurr in 1999, two had found alternative employment with the council and three others were employed part-time in CDEP projects. The long hours and sustained commitment required of qualified teaching staff leaves little time for family commitments, and the training entails several years of effort in fulfilling residency and course requirements at Batchelor College. The continuity of teaching staff is now broken, and the frequent turnover of personnel—including in the position of principal since 1998—has led to the loss of the stable environment of known and trusted people which might encourage local people to seek appointments. Presently, only one Aboriginal person remains on the full-time staff (Senior 1999a: 4–6).

On the material and social resources front, the school is valued by the community because it provides daily care and organised activities for the children, a food outlet through the tuck shop and nutrition programs, and also a means of structured interaction with clinic-based health programs. Until the departure of most Aboriginal teaching staff from the school, it was also a locally important source of salaried employment.

The Language Program aside (Munro 1998), there appears to have been no formal evaluation of achievement in these non-mainstream school roles, or of the activities associated with them in terms of whether they match up to community aspirations. What the administrative data show clearly, however, in terms of the acquisition of core competencies for dealing with the non-Aboriginal world, is that many children do not progress beyond basic levels of literacy and numeracy. There is also a continuing lack of progression through grade levels (certainly through to higher levels), and relatively low rates of class attendance.

In his landmark study of educational failure and success in a remote Arnhem Land community, Schwab (1998) has argued that four cultural themes provide the necessary background for interpreting the daily engagement of Aboriginal people with the Western educational system. These themes—autonomy, shame, sharing, and care-taking—provide the filter through which Aboriginal notions about the nature and purpose of education are structured and enacted.

Schwab points out that Western education is based on the assumption that children will, indeed must, attend school, whereas the reality is that Aboriginal children in Arnhem Land ultimately decide if and when they will attend and, with rare exceptions, their choice is supported by the community (Schwab 1998: 8). The acceptance of children's autonomy in Ngukurr is reflected in a broad lack of interest and understanding of school activities. The SEALCP survey found that many parents regarded the Ngukurr CEC as a remote institution with which they had little connection. This is due in part to its geographical location at the edge of the town in a predominantly European area. Many of the teachers' houses are also situated across the road from the school, so that there are few opportunities

for casual interaction between teachers and the rest of the community. Furthermore, the children of European staff obtain their education through School of the Air, adding to a perception that the staff do not wish to integrate into the community and that the school offers a substandard product.

People were asked in the household survey if they thought they knew enough about the activities and purpose of the school. One quarter of respondents were satisfied with their understanding of these matters and their level of participation in furthering the education of their children. This group included those who had a strong relationship with the school, through being a past or present teacher, but it also included others who had little interest in the activities of the school. The largest grouping (70%) comprised individuals who felt that they were insufficiently informed about the school's activities and would like to be more involved. Thus, while lack of interest partly explains parental ambivalence to the school, poor communication (for example in the form of unclear performance reporting), was identified as the more common constraint.

In the context of Aboriginal societies, the concept of shame incorporates notions of embarrassment, shyness, and as a cultural theme it explains a good deal about Aboriginal comfort, or lack thereof, with schools. According to Schwab (1998: 9), for some children and their parents school is a foreign and often uncomfortable place, with unfamiliar structures of time and place. A related issue, which is suggested as a deterrent for school attendance, is fear of teasing. The SEALCP survey sought information on reasons for non-attendance: in the few responses that were forthcoming, the prevalence of teasing at the school was the most commonly mentioned reason. This is supported by teachers at the school who suggest that large class size (around 25 students per class) make teasing in class difficult to control. Consequently, as the year progresses some children drop out, and average class size falls to a level which no longer warrants extra teaching staff. Also reported to the survey was fear of embarrassment on the part of parents if children have sores or head lice. In such cases parents often prefer to keep children away from school. As Schwab (1998: 10) points out, school is a place where one can be easily shamed, and Aboriginal people are very careful when structuring their interactions in that setting.

Participation in schooling

From the standpoint of Western notions of economic development, educational achievement is considered vital in the acquisition of human capital, a point demonstrated empirically for Aboriginal people as a whole using data from the census and the 1994 National Aboriginal and Torres Strait Islander Survey (NATSIS) (ABS/CAEPR 1996; Daly 1995; Hunter 1996). While such studies reveal a clear positive relationship between economic status and level of educational achievement (as measured by standard indicators such as school leaving age, highest level of school completed, and post-school qualifications), an important failing is their lack of measurement of the 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. The majority of Aboriginal students

across the Territory perform substantially below their age and grade levels (Legislative Assembly of the Northern Territory 1996; NTDE 1999). Thus, while data on participation in the education system provide an important indication of access and utilisation, it should be noted that they reveal nothing about outcomes in terms of demonstrated ability, no matter from what perspective this might be measured.

The NTDE routinely collects data on Aboriginal school enrolments by age, sex, and grade level and these were obtained for the schools at Ngukurr and Urapunga for the period 1991–98 together with school attendance data which are collected eight times each year. Also available are data regarding the level of educational attainment in the form of Multilevel Assessment Program (MAP) test results for students. These provide a measure of numeracy and literacy skills. For the few individuals who study in secondary and tertiary institutions outside of the region, some information regarding current enrolments has been acquired from ABSTUDY administrative records. Finally, information on post-secondary qualifications acquired by residents of the region is available from the 1996 Census.

In March 1999, a total of 208 Aboriginal students were recorded as being enrolled in Ngukurr school. However, enrolment levels vary throughout the year and it is more meaningful to refer to an annual average enrolment. In 1998, this totalled 195 at Ngukurr and 26 at Urapunga. Ngukurr school also assumes responsibility for approximately ten students at Nalawan outstation 23 kilometres east of Ngukurr. The Ngukurr school enrolment was evenly distributed between males and females while at Urapunga school there tend to be more males. The Ngukurr Clinic-based demographic profile can be used as the denominator for calculating approximate age-specific participation rates, in order to determine what proportion of the school-age population (age 4–16 years) this combined enrolment represented (Table 5.1).

Obviously, any conclusions drawn from this attempt to establish rates are only as good as the match between enrolment data and the clinic data. At some ages, enrolments appear greater than the number of usual residents. This suggests a degree of mismatch, but its extent remains unknown. The most prominent feature is an apparently very low enrolment rate. In the compulsory school age range, it appears than less than two-thirds (58%) of children in Ngukurr are enrolled. Whether this means that around 40 per cent of children simply do not attend school, or whether this share of the Ngukurr population attends school elsewhere is not known, all other things being equal. This seeming lack of enrolment at Ngukurr school is not prevalent at all ages. The highest enrolment rates (of between 75 and 100%) are evident between the ages of 7 and 12 years. However, at either side of this age range, enrolment rates are relatively low. This is particularly so at extreme ends of the distribution at ages 4, 15, and 16 years. Effectively, participation in education appears to be concentrated in the middle years of compulsory schooling, with much of the population enrolling late and leaving prematurely.

Table 5.1 Aboriginal school enrolments in the Ngukurr region by sex and proportion of single-year age group, 1998

Age	Males		Females		Total	
	No.	% of age group	No.	% of age group	No.	% of age group
4	3	13.0	8	53.3	11	28.9
5	4	44.4	8	57.1	12	52.2
6	13	72.2	4	40.0	17	60.7
7	7	50.0	16	100.0	23	76.7
8	13	86.7	7	58.3	20	74.0
9	10	58.8	19	158.3	29	100.0
10	15	107.1	9	50.0	24	75.0
11	20	83.3	16	76.2	36	80.0
12	15	125.0	8	61.5	23	92.0
13	3	16.7	7	77.7	10	37.1
14	7	43.7	11	55.0	18	50.0
15	4	40.0	3	18.7	7	26.9
16	0	0.0	1	6.6	1	3.4
Total	114	55.9	117	61.2	231	58.4

Source: NT Department of Education, Darwin.

It should also be noted that age at leaving school is does not necessarily relate to the level of education achieved. For example, it is not uncommon for students to achieve only a Year 8 level of education, even after spending several years at the secondary level (NTDE 1999). This is because students are streamed into bridging courses (Intensive English, Foundations Studies and General Studies), before they can graduate into Year 8. Currently, the Ngukurr school only teaches up to Year 8 level, although there were students enrolled who were 15 and 16 years old. Also, secondary classes at Ngukurr school are organised like primary classes, with one teacher teaching all subjects. This often leaves students poorly prepared for progression into other secondary schools.

Attendance

Apparently low levels of school enrolment are compounded by low school attendance. A register of daily classroom attendance is averaged out for eight months of the year,

providing a measure over time of the proportion of those enrolled who actually appear in class (Table 5.2). In Ngukurr, attendance rates are high at the commencement of the school year (around 80%) and this persists through to the onset of the dry season (June), at which point attendance falls to around half of all enrolments and remains only slightly above this level for the remainder of the school year. At Urapunga school the reverse pattern is evident, with attendance rates peaking towards the end of the year, although it is difficult to read too much into this given the small number of enrolments. Overall, barely three-quarters of students enrolled in the region's schools appear to be in regular attendance.

Table 5.2 Monthly attendance rates at Ngukurr and Urapunga schools, 1998

	% of those enrolled in attendance								
School	Feb	Mar	May	June	Aug	Sep	Nov	Dec	Mean
Ngukurr	80.3	81.1	84.3	76.1	51.9	64.3	63.9	62.0	70.5
Urapunga	65.6	77.4	70.3	65.8	79.2	84.6	86.2	87.1	77.0

Source: Northern Territory Department of Education, Darwin.

As an adjunct to the SEALCP household survey, information was acquired from Ngukurr school records on the number of students absent during a particular week, selected on the basis that extenuating circumstances that invariably lead to absences (such as funerals, for example) did not occur. During the nominated week, 26 out of 33 (78%) of preschool students, 64 out of 152 (42%) of primary-age students and 15 out of 42 (35%) secondary-age students were absent on one or more days. The school was also asked to record the number of students that attended for five, four, three, two, one, and no days during the nominated week. Only 46 children attended the school for the full five days (20%), 80 students (40%) attended for three or more days and 25 students (11%) did not attend school at all during the nominated week. Such high levels of non-attendance are not uncommon for remote schools in the Northern Territory. The Collins review of Indigenous education in the Northern Territory found that for a child to receive any benefit from schooling they should be attending for an average minimum of four days per week (NTDE 1999: 142).

One interesting perspective on attendance is provided by monthly returns viewed sequentially over a period of years. Table 5.3 indicates attendance rates at each of the periodic school censuses, for each year from 1995 to the beginning of 2000, together with the annual average for each year. Clearly, overall average annual attendance peaked in 1997, and appears to have fallen considerably since then. The point of recent drop-off in attendance appears to have been in August 1998, since when monthly returns have indicated only between one-half and two-thirds of those enrolled in attendance. In previous years, these figures would have ranged from three-quarters to almost 100 per cent. Reasons for this apparent decline are unclear: it may simply reflect variable recording procedures. However, it is difficult to ignore the coincidence in timing between the trend observed here and the attrition of qualified Aboriginal teaching staff.

Table 5.3 Monthly attendance rates at Ngukurr school, 1995–2000

	Feb	Mar	May	June	Aug	Sep	Nov	Dec	Average
1995	69.5	70.9	74.5	70	84.8	71.5	68.9	68.2	72.3
1996	85.0	83.5	71.8	76.1	88.0	84.0	88.2	66.5	80.4
1997	93.7	82.1	80.0	83.8	89.2	85.5	95.1	95.1	88.1
1998	80.3	81.1	84.3	76.1	51.9	64.3	63.9	62.0	70.5
1999	65.9	66.8	61.2	54.9	57.4	57.4	58.2	54.6	59.5
2000	67.2	60.0							63.9

Source: NTDE, Darwin.

Retention

As a CEC, Ngukurr school offers progression from pre-school through to secondary level. Intensive English, Foundation Studies, and General Studies programs are provided: the aim is to avoid sending secondary-age students away, although three students from Ngukurr were enrolled at Kormilda College in 1998 and one at St John's College in Darwin. In the past, high school students, supported by ABSTUDY, have travelled as far as Yirrarra College in Alice Springs, Wangetti school in Cairns and Slade school at Warwick, in south-east Queensland.

During the 1990s, average annual enrolments fluctuated considerably, although the trend was towards a gradual increase, at least until 1997 (Table 5.4). Reasons for the variations between grade enrolments each year are not clear, although the overall drop-off in numbers in recent years appears to be a consequence of far fewer secondary grade students.

The overall distribution by school grades varies from year to year, according to natural change in the school-age population; it reflects grade progression through the system over time. Thus, the data on enrolments by grade level (Table 5.5) can be used to calculate apparent retention rates in successive grades. Because of the lack of grade level data for the secondary years Table 5.5 shows only the primary school grades and only covers the years between 1994 and 1998. 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 roughly equivalent to the grade below of the previous year, all other things being equal. Reading diagonally, 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 Ngukurr. The retention rates show considerable fluctuation, with cohorts both losing and gaining relatively substantial numbers in successive years. For example, the number enrolled in Year 2 in 1996 was less than half (0.45) of the Year 1 students of the previous year. In turn, the size of this cohort was almost retained in 1997 in Year 3 (0.92), and increased more than three-fold (3.33) when it moved into Year 4 in 1998.

Table 5.4 Aboriginal enrolments by grade level: Ngukurr school, 1990–98

Grade	1990	1991	1992	1993	1994	1995	1996	1997	1998
Preschool	16	26	0	35	29	23	26	31	19
Transition	26	22	13	29	13	19	20	12	16
Yr 1	16	28	32	13	15	29	33	33	37
Yr 2	21	19	27	13	21	16	13	13	9
Yr 3	24	25	23	31	16	24	18	12	13
Yr 4	15	21	16	18	27	24	23	30	40
Yr 5	14	13	17	17	16	25	33	17	23
Yr 6	17	13	13	17	22	18	8	21	18
Yr 7	17	13	11	11	11	0	n/a	n/a	n/a
Yr 8	27	9	21	10	10	27	n/a	n/a	n/a
Yr 9	0	0	0	6	7	17	n/a	n/a	n/a
Yr 10	0	0	0	4	1	8	n/a	n/a	n/a
Sec. age	n/a	n/a	n/a	n/a	n/a	n/a	60	44	33
Total	193	189	173	200	187	222	234	213	208

Source: NTDE, Darwin.

Table 5.5 Apparent retention rates by primary level grade progression: Ngukurr school, 1994–98

	% retained				
Grade progression	1994	1995	1996	1997	1998
Yr 1–2	1.62	1.06	0.45	0.39	0.27
Yr 2–3	1.23	1.14	1.12	0.92	1.00
Yr 3–4	0.87	1.50	0.96	1.66	3.33
Yr 5–6	0.89	0.93	1.38	0.74	0.76
Yr 6–7	1.29	1.13	0.32	0.64	1.06

Source: NTDE, Darwin.

Obviously, this variability in enrolment figures occurs partly as a consequence of shifting age distributions as cohorts of variable size advance through the school grades. At the same time, in such a small population the pattern of progression can be heavily influenced by population mobility. Also influential are variable attendance patterns: individuals may be deleted from the enrolment list if they are not in regular attendance. While the dynamics of this process are of interest, of more concern for further investigation are the possible consequences of such variation in terms of school curriculum planning and peer support at each grade level from year to year.

All these official data and estimates regarding school access and participation are based on averages. What they do not show, and what would be more important to reveal, are the day-to-day levels of individual attendance at school. Given the variability in attendance and high level of population mobility it can not be assumed that aggregate data refer consistently to the same individuals. Since children often accompany adults in their movements across, into, and out of the region it seems likely that some mobile children may be overlooked as part of the regular school population. Moreover, the attendance register at school is taken each morning. No record exists, therefore, of student participation beyond the morning session. Nor is it known to what extent school attendance is tied to events in individual households or to characteristics of individual students. One way to begin to address such issues would be to track individual attendance from daily school roll book entries, though this may be impracticable for reasons of confidentiality.

Mainstream outcome measures

Outcomes from education are measured here using benchmarks devised by the NTDE in line with the National Aboriginal Education Policy. Outcomes refer to academic outcomes attained by Aboriginal students in comparison to the academic attainment of non-Aboriginal students within the Northern Territory education system. Information on educational outcomes is available for schools through MAP, the Junior Secondary Studies Certificate (JSSC) and the South Australian Certificate of Education (Northern Territory), known as SACE (NT). The JSSC signifies completion of the Northern Territory Board of Studies approved curriculum for junior secondary schooling during Years 8, 9 and 10, while the SACE (NT) is a certificate for Years 11 and 12. Schools in the south-east Arnhem Land region do not make provision for students proceeding to JSSC and SACE levels, and data on students from the region who have acquired such certification away from home are difficult to acquire, although there may be scope to achieve this by interrogating the records of individual urban high schools.

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 NT Board of Studies approved curriculum. This strategy 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. As such, the rate of participation (or non-participation) in the testing process provides one measure of the level of educational attainment. The results of those who are tested are available at the discretion of school principals, although these were not acquired in the course of the study.

At Ngukurr school in 1998, five students were tested at Year 3 level for maths, representing an exemption rate of 72 per cent. For the Year 3 level English test, no students were tested and so the exemption rate was 100 per cent. Similarly low attainment levels are indicated by the Year 5 level testing. For maths, the exemption rate was 71 per cent while for English it was 95 per cent. What these figures effectively mean is that the vast majority of the eight- and ten-year-old cohorts in 1998 were considered unable to perform against standard measures of ability in numeracy and literacy.

The main source of data on post-secondary qualifications for Aboriginal residents of south-east Arnhem Land remains the five-yearly census. In 1996, only 13 out of 487 Aboriginal adults in Ngukurr (2.7%) reported having some form of post-school qualification (3 undergraduate diplomas, 7 associate diplomas and 3 with qualification level unspecified). It should be noted, however, that 92 people (19% of adults) did not respond to the census question on qualifications. Most of the qualifications reported (8) were in education, the remainder were in health.

This general lack of qualifications among the adult Aboriginal population is typical of the situation found generally in the Northern Territory, although in 1996 the south-east Arnhem Land region had a slightly lower rate of qualification than in the Garrak-Jarru ATSIC Regional Council area, where 3.4 per cent of Aboriginal adults reported having a qualification. In the Northern Territory as a whole, the proportion of Aboriginal adults with a qualification was 4.6 per cent.

A further perspective on skill levels can be obtained from data on participation in tertiary-level courses by recipients of ABSTUDY payments. It should be noted, however, that these data refer only to enrolments and do not necessarily reflect course completion or receipt of certification. Between 1991 and 1998, a total of 24 adults from Ngukurr enrolled in tertiary courses, mostly at institutions elsewhere in the Northern Territory but in two instances at interstate institutions. Table 5.6 provides an indication of the distribution of enrolments for males and females from Ngukurr by subject area. The fairly low level of tertiary course participation over the eight-year period tends to confirm census results on qualification levels. The vast majority of course enrolments were at Batchelor College.

Batchelor College also supports a lecturer based in Ngukurr to provide a general education course for adults. This is essentially an enabling course for individuals hoping to progress to further education. It is based at the Ngukurr Study Centre (with a two-week residential block at Batchelor), and includes training in study skills, how to be a student, use of information technology, English language, literacy, numeracy, and maths. In 1999, 14 local students aged between 18 and 30 years were enrolled and ten of these were full time. Apart from developing basic literacy skills their aims were to progress to the Batchelor-based teacher education and health worker courses.

Table 5.6 Subject area of enrolment in tertiary courses: ABSTUDY recipients from Ngukurr, 1991–98

Course subject	Males	Females
Aboriginal culture/heritage	1	0
Arts (humanities)	3	0
Business/administration	1	1
General studies/literacy	1	1
Health	1	3
Languages	0	3
Medicine/dentistry	0	1
Natural/applied sciences	3	0
Teacher education	0	5
Total	10	14

Source: Department of Employment, Training and Youth Affairs, Canberra.

One issue explored by the SEALCP survey was whether individuals who were trained in a particular skill area were subsequently employed in a related occupation. Almost half of all respondents (49%) had participated in some form of training, though as census data indicate, very few of these actually acquired formal qualification. Of those with some training experience, the majority were in education and health work followed by secretarial and office skills, mechanics, policing, carpentry, linguistics, music, Bible studies, broadcasting, and military training. However, of all of those with training experience, only 11 were currently working in the area in which they were trained, although 29 of these people had initially worked in an occupation for which they had received training.

These data indicate considerable employment and occupational turnover, even for those with formal qualifications. Local Aboriginal people with educational qualifications provide an extreme example. At the time of the survey, two former school principals were CDEP coordinators, another was unemployed and actively seeking work, one former teacher was employed part-time at the Language Centre, while another was employed in unspecified activities under the CDEP scheme.

6. Housing and infrastructure

In the 1970s, the Ngukurr community inherited from the CMS a substantial backlog of need in the provision of adequate housing and infrastructure. At the time that control was handed over, there were 42 dwellings in Ngukurr, consisting of 36 more or less permanent structures, three tents, and three humpies. The six best houses, built in the mid 1960s, were of fibre and iron, with electric light, fuel stoves, and septic systems. Two of the houses had two bedrooms and four had three bedrooms, but none was of a standard close to urban housing in the towns of the Northern Territory. At the opposite extreme were the three humpies made of discarded materials, mainly canvas, iron, and timber. Most dwellings were classified between these two extremes. Typically they were iron shacks of one to four rooms some of which had electric lighting and fuel stoves. Aside from the six best houses there were two others with their own outside toilet pans. The rest of the community shared three blocks of communal ablution facilities. Not surprisingly, Ngukurr suffered from chronic overcrowding. In June 1970, the number of occupants per dwelling ranged from two to 20, with an average of eight (during the wet season influx this average increased to 10).

Over the past 30 years of self-management, the difficulties of overcoming this backlog have been compounded. The population has not only grown rapidly in size but has also become increasingly dispersed, at least seasonally. Not surprisingly, in 1991, a normative measure of housing need based largely on indices of overcrowding and the prevalence of improvised dwellings found that the Garrak-Jarru ATSIC Regional Council area (which incorporates Yugul Mangi) had the fourth highest level of family 'homelessness' (defined for statistical purposes as families in improvised homes, or sharing overcrowded dwellings) and overall housing need out of the 36 ATSIC regions nationwide (Jones 1994: 61–4). A number of surveys of housing needs conducted around the same time confirmed that these findings were consistent with conditions in the south-east Arnhem Land region (ATSIC 1993; Josif and Associates 1995a; Kympen 1993). The Josif and Associates study was an innovative and comprehensive survey involving direct community involvement in the acquisition and analysis of housing and population data. As such, it provides the essential benchmark against which change might be measured.

The major government response to such continuing inadequacies developed out of the NAHS in 1990. This recognised an essential link between the provision of housing and infrastructure to acceptable minimum standards and improved health outcomes. Accordingly, funding allocations in the initial years of the NAHS primary health and environmental health programs included amounts directed at housing and infrastructure services within ATSIC's Community Housing and Infrastructure Program (CHIP). However, a review of CHIP in 1994 identified a range of problems, including a failure to address housing and infrastructure needs in a holistic way. Because of the short-term nature of the program-based approach to funding, communities were being required to structure housing needs to the CHIP program rather than the other way around (ATSIC 1994).

A key response to these criticisms was the establishment in 1994 of the Health Infrastructure Priority Projects (HIPP) program to pilot new delivery arrangements for the construction of Aboriginal community housing and infrastructure. Having developed a Yugul Mangi Housing Action Plan for 1994/95–1998/99 (Josif and Associates 1995a), Ngukurr and its outstations were well placed to become one of 58 communities nationwide that were selected for a HIPP. Subsequent spending of some $3.2 million via this project, and of a further $1.7 million from IHANT on new housing and upgrading and maintenance for existing stock, has had a major impact on the physical fabric of the settlement (Commonwealth of Australia 1999a).

The situation in 1994

In 1993, leaders of the YMCGC outlined the basis of a community development plan, with housing and infrastructure identified as key elements. The Council formulated the Yugul Mangi Housing Action Plan, which was funded from the Aboriginal Rental Housing Program of the Commonwealth State Housing Agreement and managed by the Northern Territory Department of Housing and Local Government. This plan was developed by a planning consultant under the direction of a local steering group consisting of clan managers. Indeed, a vital and innovative component of the planning exercise was the involvement of a wide range of Yugul Mangi people both as active participants and as problem solvers (Josif and Associates 1995a: 4).

In 1994, the resident population of Yugul Mangi, as established by a community-based survey, was 906. The population was accommodated in 73 community houses and five basic shelters in Ngukurr and seven community houses and 42 basic shelters at outstations, although only 11 of the shelters were considered accessible and worthy of upgrade—the remaining 31 were assessed as being beyond economic repair (Josif and Associates 1995a: 6). Of the 80 community houses, 25 were technically assessed as presenting serious environmental health problems, with four requiring demolition. Of the 42 basic shelters at outstations, 31 were assessed as being beyond economic repair (Kympen 1993), while the remainder were considered habitable but in poor condition and in need of upgrading.

Because of the close involvement of clan groups in the collection of housing and population data, a micro-view of need within the community was provided by the Yugul Mangi Housing Plan. For example, in terms of a basic measure of overcrowding based on the number of people per available and usable bedroom, most clans were close to the average of 3.7 persons. However, one clan (Nunggayinbala) was notably below this mark with only two persons per available and usable bedroom. At the other extreme the Bunnanda clan stood out as excessively overcrowded with as many as 18 persons per available and usable bedroom. This was followed by the Bonathan clan with seven persons (Josif and Associates 1995a: 66).

The Action Plan identified four major housing needs (Josif and Associates 1995b: 4–6), listed as follows.

- Health hardware upgrades were designed to enable people to pursue the first four (of 9) healthy living practices—washing people, washing clothes and bedding, removing waste, and improving nutrition. The aim was to provide access to 80 sustainably healthy and safe houses.
- Building upgrades were designed to complement the health hardware upgrades. By improving the design and structural durability of existing houses, they addressed the last five (of 9) healthy living practices—reducing crowding, separation of dogs and children, controlling dust, temperature control, and reducing trauma. The aim was to provide access to 82 more functional and less crowded dwellings.
- New houses. A need for a total of 77 new community houses was identified across the Yugul Mangi area, mostly at outstations. However, prioritisation of outstation housing was viewed as impracticable because of the lack of, and inability to provide, necessary support services and infrastructure. Accordingly, the plan earmarked 28 new community houses and a 12 room singles' quarter for Ngukurr, and seven community houses for permanently occupied outstations (Badawarrka, Lake Katherine, Nalawan and Mumpumampu). In addition, a proposal was made to the Northern Territory government to provide an additional ten houses for locally recruited full-time Northern Territory Government employees. An equivalent level of housing need was estimated for Yugul Mangi Council staff.
- Housing Support Services. The ongoing successful implementation of the Housing Plan was seen to depend on the development of an effective housing administration and technical support system as well as on the availability of serviced land and secured long-term funding.

The cumulative aim was to make available 108 more functional, less crowded, safer, and healthier houses for an estimated population of 1100 by 1999. Establishing whether this goal had been achieved by 1999 proved difficult because the various data sources available for this purpose apply different methodologies for the measurement of housing need. Ideally, for an accurate assessment of progress, the same methods and criteria employed in the Housing Plan to establish need would be reapplied.

Census data on housing in Ngukurr

The five-yearly census is an enumeration of population *and housing*. It provides a range of details regarding the number and structure of dwellings and it is possible to classify these according to Aboriginal or non-Aboriginal occupancy and other housing-related variables. For example, it is clear from the census that all dwellings in Ngukurr are rented: none are privately owned or being purchased. Table 6.1 characterises the housing stock recorded in Ngukurr in 1996 and also indicates the number of residents per dwelling. It should be noted that this latter figure excludes group, visitor only, and other non-classifiable households, but does include persons who were temporarily absent on census night.

Table 6.1 Structure of dwellings and occupancy rates: Ngukurr, 1996

Dwelling type	Aboriginal dwellings			Non-Aboriginal dwellings		
	Dwellings	Persons	Occupancy rate	Dwellings	Persons	Occupancy rate
Separate house	62	703	11.3	8	22	2.7
Caravan, cabin	3	3	1.0	3	3	1.0
Improvised home, camping	16	128	8.0	0	0	0.0
Not stated	3	13	4.3	3	6	2.0
Total	84	847	10.1	14	34	2.4

Source: Census of Population and Housing 1996.

A total of 84 Aboriginal dwellings were recorded, six more than the 1994 housing survey. Of these, however, only 62 were classified as separate houses, with a total of 128 persons counted in improvised homes. Consequently, the occupancy rate for conventional housing was high at 11.3 persons per dwelling. As a benchmark, it is interesting to compare this rate with the average of 5.9 persons per Aboriginal dwelling recorded for the Northern Territory as a whole in 1996. By contrast, the non-Aboriginal occupancy rate of 2.4 in Ngukurr was in line with the equivalent figure for the Northern Territory of 2.7 persons per dwelling. By 1999, it seems that the level of overcrowding had receded somewhat (as might be expected following HIPP expenditure on new housing and renovations): the SEALCP survey recorded an average of 9.4 persons per dwelling.

The idea that community housing should be designed, constructed and maintained to support healthy living practices is now firmly embedded in infrastructure policy following the pioneering work of Pholeros, Rainow, and Torzillo (1993) in the Pitjantjatjara Lands. A total of nine such practices are identified, in descending order of priority in terms of impact on health outcomes: capacity to wash people, wash clothes and bedding, remove waste safely, improve nutrition, reduce crowding, separate people from animals, reduce dust, control temperature, and reduce trauma. Each of these refer to different aspects of the functionality of dwellings and their related infrastructure. For example, if the focus is on improving nutritional standards and practices, then 'healthy home hardware' refers to the provision of adequate facilities to store, prepare, and cook food. It also extends to water quality and quantity as a lack of these may lead individuals to purchase bottled water or other beverages, thereby adding to expenditure and increasing reliance on soft drinks and cordials.

The National Indigenous Housing Guide (Commonwealth of Australia 1999b) includes a range of detailed design and functionality guidelines to address each of the nine healthy living practices. The key functional area with most guidelines is that involving the supply, usage, and removal of water: six of the nine healthy living practices are dependent on these. However, even seemingly obscure health-related housing functions include a wide

range of design, maintenance, and infrastructural features that require attention (Commonwealth of Australia 1999b: 49–57). For example, guidelines for improved nutrition include consideration of the following factors.

- Different ways of cooking. Given often crowded dwellings and failure of cooking equipment, it is common for many different age groups to share the cooking facilities of a house. At the same time, each group may have a different preference for cooking. For example, younger people may use a microwave oven; middle aged people may use a stove or drum oven and barbecue, older people may prefer the ground and a fire for cooking. To this extent, there is a need to consider how many 'kitchens' each house may need.
- Electric cooking: stoves and hotplates. Electric hotplate cooking is one of the major sources of energy use in a house. To control costs, stove timer switches can be installed to cut off power after a set period. It has also been found that solid hotplates are more robust than coil elements.
- Operational fridges. Poorly performing fridges can lead to food spoiling and food poisoning as well as to high energy costs. A number of simple directives can be applied to assist in overcoming these problems, for example ensuring that the fridge is located in a thermally efficient area and that door seals are regularly maintained. However, one problem with fridges in overcrowded households is frequent use, and the only solution here is to provide either more fridges or lower density housing.
- Kitchen cleaning and maintenance. The design and detailed specification of the kitchen area, joinery, and appliances can make cleaning easier by reducing cleaning effort and access for insects and vermin.
- Food storage. Low shelves and cupboards are easily accessed by dogs and children, or are unused or used to store non-food items. Consideration should be given to providing high shelves and cupboards and lock-up pantries that are insect-proof and well ventilated.

According to the SEALCP survey, all dwellings had some deficiency against these sort of criteria in the functioning of one or more fixtures. The most common problem, cited by 89 of respondents, was a lack of cupboards and storage space. This was followed in almost half of all dwellings (47%) by problems with ovens that worked only partially or not at all. In one-fifth of dwellings plumbing defects were reported as well as the need for replacement of fly screens. Leaking roofs and broken ceiling fans were the least reported problem, cited in only 16 and 13 per cent of dwellings respectively.

A more formal assessment of housing maintenance and repair requirements is provided for most communities in the Northern Territory by an annual Environmental Health Survey conducted by officers of the Northern Territory Department of Housing and Local Government. In Ngukurr this assessment was being made by the Yugul Mangi housing program at the time of writing. Some sense of the scale of requirements can be gleaned from the amount of $158,000 set aside in 1999 for plumbing, electrical, and building maintenance. This repair bill is partially offset by the deduction of rental income

from CDEP wages. Clearly, from the SEALCP data, there is a need for ongoing allocation of funds for repair and maintenance in order to sustain an environment for healthy living, even in circumstances where large investments have been made in housing upgrades via HIPP spending. This is particularly the case at outstations with permanent residents—a point emphasised in the Yugul Mangi Housing Plan and its subsequent evaluation (Josif and Associates 1995a: 79, 1997). Indeed, the provision of physical access and sound health hardware at Ngukurr outstations was expressed in the Housing Plan as one factor that probably restricts greater residence at outstations. This was still the case in 1997 (Josif and Associates 1997).

Current estimates of housing need

In 1999, the Northern Territory Department of Housing and Local Government field staff in Katherine recorded a total of 96 houses in Ngukurr. These included 16 two-bedroom houses; 43 three-bedroom houses; 30 four-bedroom houses and seven five-bedroom houses. In addition, there was a twelve-room singles' quarters. Altogether, this amounted to a total of 328 bedrooms which, in the absence of information to suggest otherwise, were all assumed to be useable and accessible. For the purposes of calibrating the adequacy of housing provision, it can be assumed that occupancy of Ngukurr housing stock is drawn from the population of the town plus that of outstations (at least for periods of the year), in which case the clinic-based population can be used to derive an occupancy rate of 3.8 persons per useable and accessible bedroom. Measured against the IHANT benchmark of a maximum of 3 persons per bedroom, this suggests that an estimated total of 90 additional bedrooms are still required in Ngukurr. Thus, despite the provision of additional housing in recent years together with extensive upgrading and renovation to pre-existing stock via HIPP funding, there appears to have been no impact on the 1994 per bedroom occupancy rate. This conclusion was also drawn from a 1997 evaluation of progress in the Yugul Mangi Housing Plan (Josif and Associates 1997: 10), although this exercise also uncovered significant reductions in overcrowding among some clan groups, notably among the Bunnanda (Josif and Associates 1997: 59).

There remains a critical shortage of staff housing in Ngukurr for non-local employees of government instrumentalities. For example, because the school was until recently staffed almost exclusively by local Aboriginal residents, dedicated school housing was not considered a requirement. However, since 1998 almost all teachers have been non-local people who require housing. At present, five houses are allocated to school staff including rented accommodation at the Ngukurr Church. This leaves a need for three houses. In response to this Ngukurr has been designated a high priority within the Katherine region for teacher housing, but plans to date to construct a duplex have been delayed for want of a suitable serviced site.

Housing needs elsewhere in the region are estimated by IHANT on the basis of estimated population size in each locality against available bedrooms. The results are reported in the CIAS database, although information available from this source at the time of writing was

dated to varying degrees. Nonetheless, for baseline purposes, the situation in the late 1990s at Ngukurr outstations is as reported in Table 6.2.

The level of housing infrastructure available for population groups at Ngukurr outstations differs considerably between localities and is reflected in the highly variable occupancy rate. From these data, it appears that the greatest need for housing (against the simple measure of persons per bedroom) is at Nummerloori, Nalawan and Boomerang Lagoon. These data indicate that a total of 81 additional bedrooms are required to reduce the current overall per bedroom occupancy rate from 4.8 to 3.0 persons. This represents a stock of housing 1.6 times greater than currently exists at an estimated total cost of almost $4m.

Table 6.2 Estimate of housing needs at Ngukurr outstations, 1999

Locality	Population	Bedrooms	Occupancy rate	New bedrooms required	Total cost ($1000s)
Awumbunyji	1	0	0	1	25
Badawarrka	13	10	1.3	6 (replacement)	300
Boomerang Lagoon	25	3	8.3	10	475
Costello	24	6	4.0	6	300
Lake Katherine	12	0	0.0	6	300
Larrpayanji	1	0	0.0	1	25
Mumpumampu	12	6	2.0	0	0
Nalawan	35	0	0.0	18	875
Nummerloori	34	3	11.3	14	700
Ruined City	1	0	0.0	1	25
Turkey Lagoon	16	3	5.3	5	250
Urapunga	50	15	3.3	10	500
Wanmarri	14	4	3.5	3	150
Total	238	50	4.8	81	3,925

Source: CIAS, April 1999.

Conventional housing is available at only four locations—Urapunga, Costello, Badawarka, and Nalawan. All other housing is in the form of shelters and other improvised dwellings which is the same as reported in 1994 (Josif and Associates 1995a: 79). Of the 26 conventional houses, only 12 (46%) were assessed in good or fair condition by the ATSIC NAHS environmental health field survey in 1999, six were considered to require major renovations and eight were deemed due for demolition. Overall, the estimate from this survey was that around 40 bedrooms were available for some 130 people with an average of ten persons per functional three-bedroom dwelling.

Community Housing and Infrastructure Needs Survey 1999

The ATSIC-sponsored Community Housing and Infrastructure Needs Survey (CHINS) was conducted in August 1999 and involved consultation with YMCGC for the completion of three questionnaire schedules. A range of valuable baseline information is available from this source, although only that relating to housing stock and its state of repair is considered here. Table 6.3 shows the distribution of permanent dwellings in Ngukurr and some of its outstations by bedroom size.

Table 6.3 Distribution of permanent dwellings in Ngukurr and outstations by bedroom size, 1999

	Size of dwelling			
Location	1 bedroom	2 bedroom	3 bedroom	4 bedroom
Ngukurr	1	5	15	75
Urapunga	0	0	6	0
Badawarka	0	3	0	0
Boomerang Lagoon	0	2	0	0
Nalawan	0	2	0	1
Awumbunyi	0	1	0	0
Costello	0	2	0	0
Total	1	15	21	76

Source: ATSIC 1999.

There is a lack of correspondence with CIAS data held by the Northern Territory Department of Housing and Local Government. For example, the latter indicate the existence of housing infrastructure at Mumpumampu, Nummerloori, Turkey Lagoon and Wanmarri outstations, whereas CHINS data do not. This is because these outstations and their eight dwellings are considered by Yugul Mangi Council to be abandoned, at least in terms of housing and infrastructure needs. In Ngukurr, CHINS data reveal a total of 356 bedrooms. This is a higher figure than that derived from CIAS and it produces an occupancy rate of 2.8 persons per bedroom, using the CHINS estimate of 1015 for the Ngukurr resident population. However, the argument has been made above that given seasonal and irregular mobility between outstations and Ngukurr, the wider regional population is probably the most appropriate denominator for assessing housing adequacy. Application of this estimate produces a somewhat higher occupancy rate of 3.5 persons per bedroom. Either way, though, occupancy levels in Ngukurr appear to approximate the IHANT standard for maximum crowding. The same cannot be said for Urapunga, where the occupancy rate considerably exceeds this standard at 5.7 persons per bedroom.

One interesting feature of CHINS data, that no doubt reflects recent NAHS and HIPP spending on housing upgrades, is the apparent absence of dwellings requiring either minor

repairs, major repairs or replacement. While this conflicts somewhat with the findings of the SEALCP survey, it does point to the fact that following almost three decades of Aboriginal self-management (and particularly following implementation of the Yugul Mangi Housing Plan 1994–1999) the housing stock in Ngukurr is broadly approaching required program standards. Certainly, this can be claimed in terms of occupancy rates per functional dwelling, although this still does not seem to apply to housing at outstations, as also observed in the 1997 evaluation of progress in the implementation of the Yugul Mangi Housing Plan (Josif and Associates 1997). However, aside from the constant need to ensure that maintenance funds are available and sufficient to ensure minimum environmental health standards, the main challenge for the future management of housing stock now seems to be to ensure that adequate and planned expansion occurs to accommodate new household formation in a growing population.

Environmental health infrastructure

An important part of the Yugul Mangi community planning exercise initiated in the mid 1990s was the creation of an Environmental Health Plan covering the period 1995–99 (Josif and Associates 1995c). Following community-based workshops, five main areas of environmental health action were identified. These included essential services (water supply and sewerage); rubbish (collection, dump management, and recycling); 'looking after country' (drainage, dust control, healthy rivers and billabongs, bush food); insects and pests; and animal health. While it is true that many of these areas of concern fall within the responsibility of the YMCGC, an important element of the Environmental Health Plan was to elicit community-wide views on the most pressing needs and to seek ways of involving community involvement in their resolution. To a large extent this involvement has been achieved via the various work parties organised under the auspices of the CDEP scheme.

As with the measurement of housing need, the status of environmental health infrastructure requires a detailed assessment of functionality and adequacy set against agreed normative criteria. However, at the time of writing no secondary source of data was readily available with which to adequately establish progress in implementation of the 1995 Environmental Health Plan nor to establish, in a comprehensive way, the existing status of environmental health infrastructure. The main source of accessible data was from ATSIC's 1999 CHINS, and while this included information on such issues as water supply, sewerage, drainage, and solid waste disposal, this was more in the form of simply noting the existence or otherwise of infrastructure rather than for the purpose of assessing its functionality and adequacy. Likewise, CHINS data do not allow for the proper assessment of activities related to such issues as dust control, animal health, and quality of waterways. For example, with regard to dust control, all that is available from the CHINS is the fact that 99 permanent dwellings in Ngukurr were on sealed roads and ten on unsealed roads, while all dwellings at outstations were on unsealed roads. Thus, while this provides some indication of the likely extent of dust mitigation as an issue, it is far from adequate as an indicator of progress. Ideally, then, a full technical and community-informed assessment of environmental health infrastructure would form an essential ongoing component of the activities of the SEALCP.

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 region. However, several factors combine to cast serious doubt over the quality of available data, both in terms of the extent to which illness is reported and the accuracy with which this can be assigned to a specified population. At a system-wide level, these deficiencies arise partly because of the variable application of information technology as well as the uneven spread of health personnel and programs. More fundamentally, many episodes of illness are not recognised at the individual or household level and for that reason may not be presented for clinical assessment. Finally, there is a general lack of systematic population health screening, except among infants and school-age children.

The scope, content, and quality of community-level health information available for the Aboriginal population of the Northern Territory has recently been evaluated as part of the THS contribution to the HIPP and NAHS evaluation process. This exercise found that two broad categories of data are available: those from centralised records relating to medical evacuations, hospital morbidity, child growth data and community infrastructure; and those that, in theory at least, are retrievable from health centre day-books.

Presently, the most comprehensive set of data regarding Aboriginal morbidity is that provided by hospital separations. This is coded and available for all Aboriginal communities in the Northern Territory. From this source it is possible to compile detailed statistics of major morbidity for individuals who indicate Ngukurr or Urapunga as their usual place of residence. Importantly, these data can be used to generate age-specific rates of hospitalisation, provided that clinic-based demographic data and hospital admissions data are sufficiently compatible for the former to be employed as a meaningful denominator. These rates provide a basis for monitoring change in the health profile over time. The other sources of data mentioned above are more variable in coverage and currently no systematic means of data collation exists, with the exception of information from school screenings.

Community care information systems are currently in a phase of major upgrading and improvement across the Northern Territory with significant consequences for the future management of clinical and public health strategies (Taylor and Westbury 2000). The key to this is an upgrade in computer hardware, the adoption of standard customised clinical software, and record linkage by means of a common client indicator that incorporates aliases and links to related kin. For remote communities, the Rural Health Information System (RHIS) is under development with the aim of extending the benefits of information technology upgrades throughout the health system by the end of 2001. The software product supporting this system is designed to enhance information access in providing for the case management of individual clients and in building capacity to implement population-based interventions, such as nutrition strategies. These are viewed as complementary processes: the provision of timely and accurate information on patterns

of illness and health service activities are considered central to increased community participation in the management and delivery of health services (THS 1997: 7).

The most recent published source of information that provides some standard measure of the health status of people in south-east Arnhem Land remains the 1994 NATSIS (published as ABS 1996d). However, data from this are only available at the ATSIC regional level, and are subject to high sampling error. For what it is worth, NATSIS indicates that 29 per cent of the population of Garrak-Jarru ATSIC Regional Council had a long-term illness with the most common conditions, in descending order, being high blood pressure, ear or hearing problems, kidney problems, diabetes, and heart problems (ABS 1996d: 18). Sketchy as they are, these survey data remain the sole published indicator of health status for Aboriginal people in the region. At the time of writing there was no routine comprehensive measure available of the health status of communities in south-east Arnhem Land, and it is not possible to comment with any degree of statistical accuracy on the day to day health problems facing the population of the region.

Estimation of mortality

One proxy measure of health status is provided by the level of mortality. While the usual residence of Aboriginal people is recorded in death statistics held by the ABS these are coded only to the SLA level. In the case of Ngukurr, the Gulf SLA is the relevant unit for which data are available. As this covers a large area extending as far south as Borroloola it is inappropriate for estimating mortality at Ngukurr. An alternative source of mortality statistics is the Ngukurr clinic which records deaths among the clinic service population. In 1998, a total of 12 deaths were recorded.

From this figure, it is possible to estimate a standardised death rate for the Ngukurr clinic using the indirect method of calculation which is suited to small populations (ABS 1997a: 77). This is calculated by applying published age- and sex-specific death rates for the total Australian population (ABS 1997a: 35) to the Ngukurr clinic age/sex distribution. The actual number of deaths for Ngukurr (12) is then compared to the expected number (2.7) derived from the application of the standard age-specific death rates. Thus, there are 4.5 times more deaths in Ngukurr than would be expected if the mortality profile observed for the total Australian population applied. In terms of an indirect standardised rate for Ngukurr, this translates into 19.3 per 1000 which is slightly higher than the equivalent rate of 18.6 deaths per 1000 calculated for Indigenous people in the Northern Territory as a whole (ABS 1997a: 48).

However, there remains considerable uncertainty regarding concordance between the numerator (deaths) and denominator (clinic-based age distribution). The most plausible interpretation is that the indirect rate for Ngukurr is a minimum estimate given the likelihood that deaths of Ngukurr residents also occur away from the settlement, for example in places like Numbulwar, Groote Eylandt or Darwin, and are unrecorded by the Ngukurr clinic. Furthermore, the Ngukurr clinic population may be a high estimate in

relation to recorded deaths, as is the tendency with service population estimates. The simple fact is, there is no accurate statistical basis for establishing a mortality rate for Ngukurr. However, it is clear that mortality in the community is substantially higher than for the population generally in the Northern Territory, as indicated by the indirect standardised death rate of 5.1 per 1000 for non-Indigenous Territory residents.

Hospital separations

Information is available from THS on major causes of morbidity for Aboriginal residents of the region. These are in the form of hospital separations data derived from in-patient admission and discharge records. From this source, data for the Aboriginal population of Ngukurr were obtained for the years 1991 to 1998. Also obtained were reasons for hospitalisation, coded using the World Health Organisation (WHO) method of disease classification which follows the 9th Revision, International Classification of Diseases (ICD9). Briefly, this consists of 17 primary categories of disease plus two supplementary classifications dealing with external causes of injury and poisoning, and contact with health workers. THS also have available case-mix data classified according to Major Diagnostic Categories and Diagnosis Related Groups of the Australian National Diagnosis Related Groups Version 2.0, although these are not analysed here.

The ICD9 data, provided at unit record level, form the basis for compiling a statistical profile of the health status of the regional population. However, because the focus is inevitably on diagnoses of major morbidity (i.e. conditions serious enough to warrant hospitalisation), these data do not provide a full measure of how much ill health and injury there is in the community. There is need, then, in the context of social impact planning to ensure that clinic presentations data are also available for analysis and ideally these should be capable of interpretation in the context of household dynamics. This may be seen as a longer-term objective tied to the successful implementation of the RHIS.

Over the eight years from July 1991 to December 1998, a total of 1671 admissions to Northern Territory hospitals were recorded on behalf of Aboriginal residents of Ngukurr and its outstations. Almost two-thirds of these admissions (63%) were recorded at Katherine hospital, and 35 per cent at Royal Darwin hospital. A handful also went to Gove or Alice Springs.

Before considering hospitalisation data in detail, it is important to note that the number of admissions far exceeds the number of individuals admitted. This is obviously because many people are admitted more than once. Table 7.1 sets out the basic facts for male and female admissions (separations) from Ngukurr (inclusive of Urapunga). Between 1991 and 1998 a total of 689 individuals from Ngukurr were admitted to Northern Territory hospitals, representing an average of 2.4 admissions per patient. This translates into an annual average of 86 individual admissions from Ngukurr. The admission rate for females is notably higher than for males, as might be expected given that female admissions include confinements.

Table 7.1 Ratio of Ngukurr hospital separations to patients: 1991–98

	Separations (1)	Patients (2)	Ratio (1/2)
Males	618	308	2.0
Females	1053	381	2.8
Total	1671	689	2.4

Source: THS, Darwin.

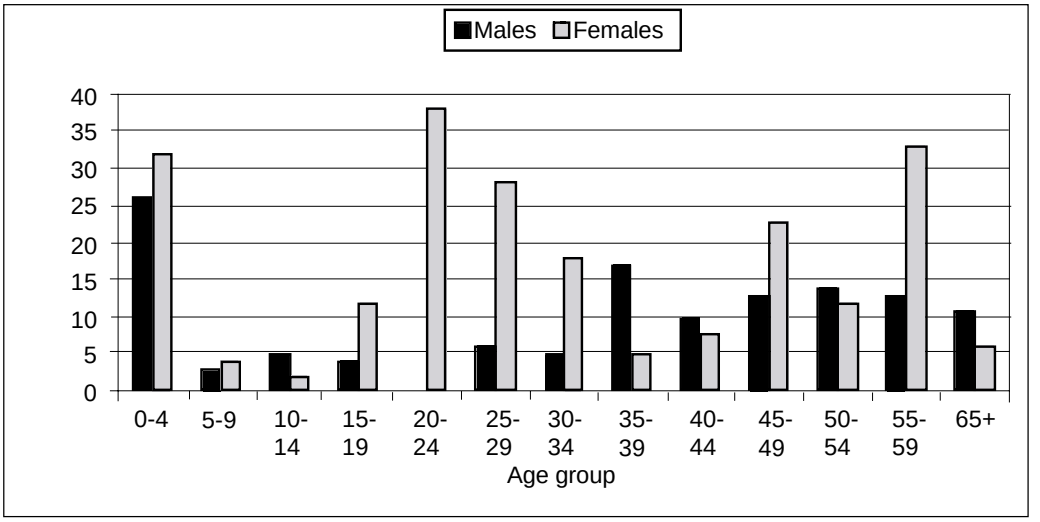
While data for the past several years are of interest in capturing the range and variety of major health problems, in order to calculate rates there is a need to reduce the analysis to a single year against a base population that has claims to some credibility. For this purpose, the 1998 Ngukurr clinic population is utilised as the population base against which separations data for the period June 30 1997 to June 30 1998 are examined. During this time, there were 208 separations for residents of Ngukurr on behalf of 158 individuals. Using the figure for individuals this represents a separation rate for Ngukurr residents of 12.6 per cent with an average of 1.3 separations per person.

This ratio is much lower than the average for the 1990s of 2.4 admissions shown in Table 7.1, but it is not clear whether this indicates a reduction over recent time in repeat separations. Nor is it clear whether the 12.6 per cent separation rate is high, low, or average in Northern Territory terms as comparable statistics for the Territory do not exist. It is interesting to note, however, that this rate is above the 9.2 per cent of individuals in Garrak-Jarru ATSIC region who reported going away for the treatment of a health problem in the 12 months prior to the 1994 NATSIS (ABS 1996d: 18). Also, THS do publish a crude rate of separations using all separations as the numerator (excluding those for renal dialysis). On this basis the crude separation rate for Aboriginal people in the THS Northern Region in 1997 was 264.6 per 1000 population (Moo et al. 1998: Attachment A). The equivalent figure for Ngukurr was considerably lower at 167.2 per 1000.

An indication of the age pattern of major morbidity at Ngukurr is provided in Fig. 7.1, which shows the hospital separation rate for males and females by five-year age group over the 12 months from June 30 1997 to June 30 1998. Several stages of morbidity are apparent based on prevailing rates at different ages. First, very high rates of hospitalisation are evident among both male and female infants aged 0–4 years. On average in 1997–98, almost one-third of all infants in Ngukurr (29%) were hospitalised, although within this age range it should be noted that the distribution was heavily skewed towards the 0–1 year age group and includes post-natal care.

The second stage of morbidity, with relatively low rates, at below 5 per cent, occurs among children of primary and junior secondary age and extends into the mid 20s among males. Among females, hospitalisation rates rise in the late teens and peak in the early 20s at over 35 per cent. Female rates remain relatively high through to the mid 30s but also decline

Fig. 7.1 **Age and sex-specific hospital separation rates among Aboriginal residents of Ngukurr, 1997–98**



Source: THS, Darwin.

steadily to dip below 5 per cent by age 39. This pattern among females is associated largely with confinements and childbirth and neo- and post-natal care.

A final broad stage in morbidity is evident beyond the age of 35 years for males and 40 years for females. This heralds the onset of relatively high rates of hospitalisation, especially among females, and a tendency for rates to increase with advancing age, although the fall-off in the oldest age group is somewhat surprising and requires further community-based investigation.

Causes of hospitalisation

In profiling the nature of morbidity as defined by the disease causes of hospitalisation, data for all separations (including repeat separations) are utilised. This is because individuals can be, and often are, admitted to hospital more than once, but for quite different reasons. Table 7.2 shows the distribution of separations by ICD primary category between 1991 and 1998 for males and females in Ngukurr. Presentation of the data in this way allows for comparison between the sexes and between locations. Category 18 refers to the ICD9 Supplementary classification of factors influencing health status and contact with health services. This is the ICD V code which refers to individuals who are not currently sick but who are required to use hospital services for treatment of an ongoing condition, for check-ups, or for screening and immunisation.

Table 7.2 Hospital admissions among Aboriginal residents of Ngukurr and outstations by ICD9 primary category, 1991–98

	Females		Males	
ICD category	No.	%	No.	%
1	43	4.2	41	6.3
2	11	1.1	15	2.3
3	15	1.5	17	2.6
4	2	0.2	19	2.9
5	3	0.3	13	2.0
6	40	3.9	34	5.2
7	33	3.3	32	4.9
8	62	6.1	92	14.2
9	25	2.5	29	4.5
10	48	4.7	48	7.4
11	280	27.6	0	0.0
12	26	2.6	32	4.9
13	20	2.0	14	2.2
14	3	0.3	12	1.8
15	20	2.0	20	3.1
16	50	4.9	46	7.1
17	107	10.5	92	14.2
18	227	22.4	94	14.5
Total	1015	100.0	650	100.0

Key: ICD primary categories: 1. Infectious and parasitic diseases; 2. Neoplasms; 3. Endocrine, nutritional and metabolic disease and immunity disorders; 4. Diseases of the blood and blood-forming organs; 5. Mental disorders; 6. Diseases of the nervous system and sense organs; 7. Diseases of the circulatory system; 8. Diseases of the respiratory system; 9. Diseases of the Digestive system; 10. Diseases of the genitourinary system; 11. Complications of pregnancy and childbirth; 12. Diseases of the skin; 13. Diseases of the musculoskeletal system; 14. Congenital anomalies; 15. Conditions originating in the perinatal period; 16. Symptoms, signs and ill-defined conditions; 17. Injury and poisoning; 18. Supplementary classification of factors influencing health status and contact with health services.

Source: THS, Darwin

The first point to note is the quite distinct difference between male and female causes of hospitalisation. More than one-quarter of separations among females were classified as complications of pregnancy and childbirth. Air evacuation to regional hospitals for childbirth has been standard practice in remote Territory communities since the 1970s, although the Ngukurr clinic has a birthing facility and a small proportion of births do take place there. Despite the ICD9 classification, almost one-third of hospital-based confinements involved normal delivery, with 68 per cent involving some complication.

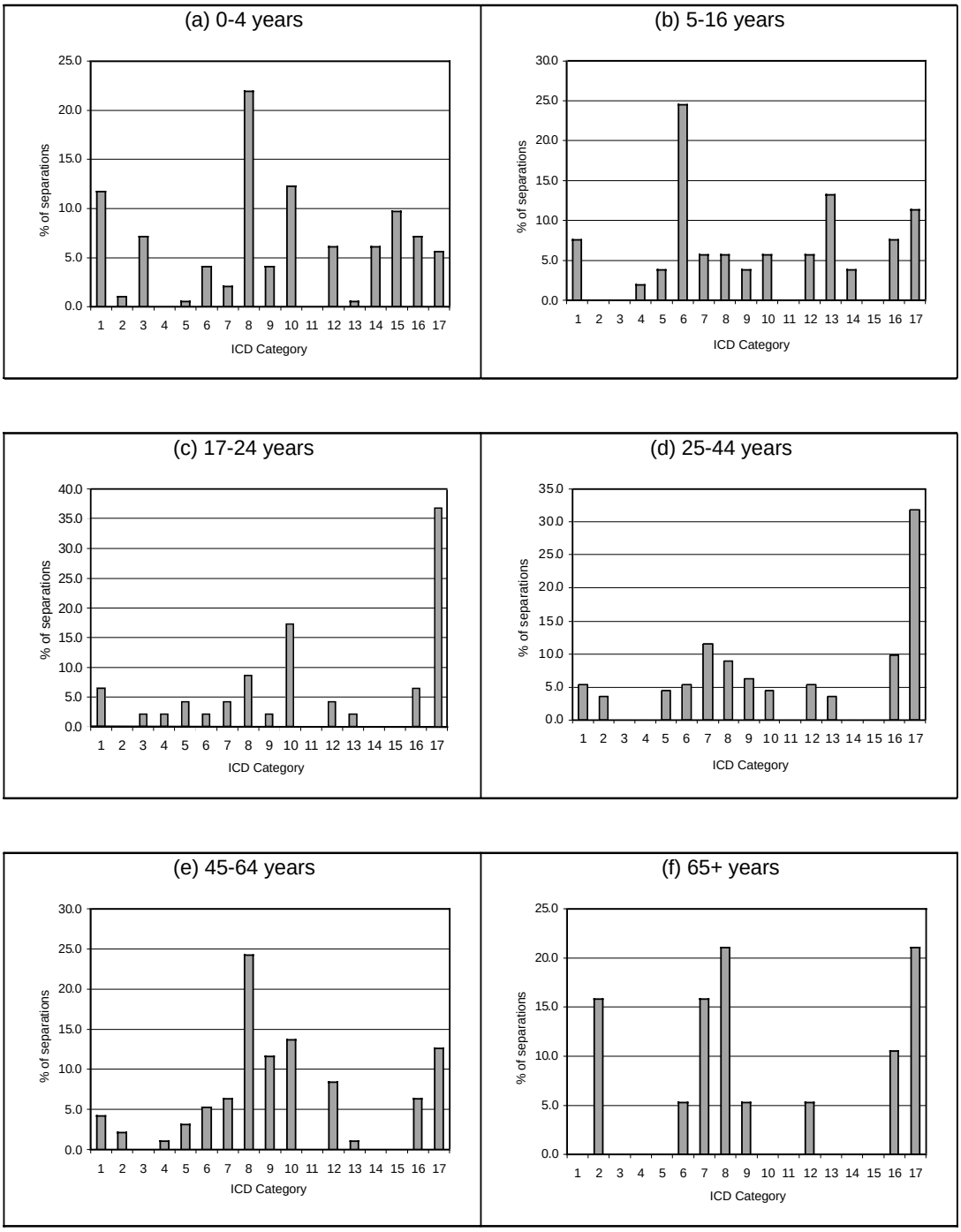
Also noticeable among females is a relatively high proportion of separations under category 18 due to factors influencing contact with health services. This again is largely related to neo- and post-natal care but also includes continuing treatment for a known disease requiring access to hospital facilities, such as dialysis for renal disease, chemotherapy, or cast changes. The other major cause of hospitalisation that was relatively high among females was injury and poisoning (category 17). This accounted for 10.5 per cent of all cases over the eight-year period. Major causes in this category included treatment for fractures, dislocations, sprains, contusions, and open wounds. Leaving aside uniquely female reasons for hospitalisation (category 11), the main difference from males is their lower rate and incidence of separations for diseases of the respiratory system. Such diseases appear to be relatively prominent among males, with major causes including acute bronchitis and pneumonia. For both sexes, however, infectious diseases and conditions originating in the perinatal period stand out as relatively prominent causes of hospitalisation.

Stages of morbidity

Using data on the causes of hospitalisation at different ages, it is possible to characterise broad stages of major morbidity through significant stages of the life cycle, at least as viewed from the perspective of those delivering services. This is done in a series of charts which show the percentage of hospital admissions due to each ICD9 category for customised age groups. These include the infant and pre-school age group (0–4 years), the years of compulsory schooling age group (5–16 years), the years of school to work transition age group (17–24 years), the years of family formation and employment age group (25–44 years), the years of family dissolution age group (45–64 years), and an aged category of those over 65 years, which arguably in an Aboriginal context could be set at a much earlier cut-off point.

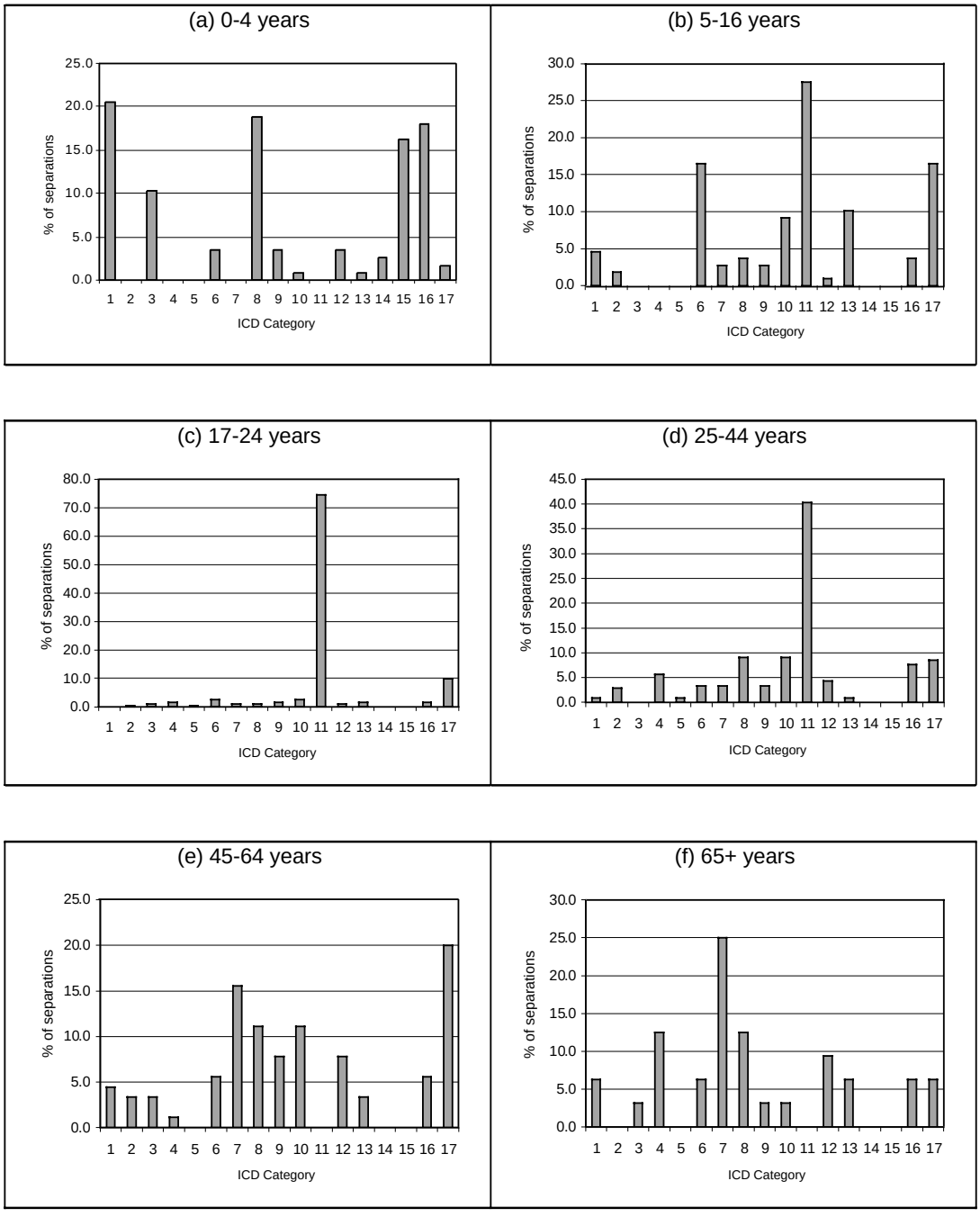
Figs. 7.2 and 7.3 reveal quite different reasons for hospitalisation at different stages in the life cycle for males and females. Among infants, morbidity is due largely to respiratory diseases, infectious diseases, and conditions originating in the perinatal period. For infant males, diseases of the genitourinary system also appear prominent. It also appears that infectious diseases account for a greater share of separations among females compared to males. One thing that the graphs do not indicate is that a high proportion of infant admissions fall under the ICD9 supplementary V code classification, indicating that return visits for follow-up treatment are also common.

Fig. 7.2 Stages of morbidity by ICD9 primary category: Aboriginal males in Ngukurr, 1991–98[a]



Note: a. For key to ICD9 categories, see key to Table 7.2.
Source: Territory Health Services, Darwin.

Fig. 7.3 Stages of morbidity by ICD9 primary category: Aboriginal females in Ngukurr, 1991–98[a]



Note: a. For key to ICD9 categories, see key to Table 7.2.
Source: Territory Health Services, Darwin.

Through the primary and junior secondary years, the pattern of morbidity changes. There is less emphasis on infectious disease and far more on diseases of the digestive system and of the nervous system and sense organs. Among females, normal confinements as well as complications in pregnancy and childbirth also start to dominate. Both males and females appear prone to diseases of the nervous system and sense organs. In the late teens to young adult age range, childbirth is the predominant cause of hospitalisation for females, whereas for males injury and poisoning dominates, followed by diseases of the genitourinary system. This pattern more or less persists into middle age, although circulatory and respiratory diseases also start to emerge.

Beyond the age of 45, the disease pattern for both males and females displays significant change. Among middle-age females circulatory disease is prevalent, followed by diseases of the digestive and genitourinary systems, although the injury and poisoning category stands out as the main cause of female hospitalisation. For middle-age males, respiratory diseases emerge as the major cause along with diseases of the digestive system, skin diseases, and diseases of the genitourinary system. A further characteristic of morbidity in middle age is the greater spread, though at low rates, across the range of disease categories. In the oldest age group, male and female causes of hospitalisation are quite different. For males, diseases of the respiratory system and neoplasms emerge as prominent contributors, along with injury and poisoning. For females, a greater spread of causes is evident, but diseases of the circulatory system dominate.

Infant and child growth assessment

Since 1987, information has been gathered by Aboriginal health workers and clinic-based nurses in Ngukurr on the weights and heights of children under 5 years of age. These data have been compiled as a 'Ten Year Growth Story' for the period 1987 to 1997. The indication is that babies grow well on average until the age of 5 months after which time most have problems with growth, typically for the next four years. This coincides with the period of weaning from breast milk to solid foods. Apart from this finding, it is difficult to establish trends in the available data as not all children were measured each year while the numbers involved in screening varied from a high of 182 in 1988 to a low of 97 in 1997. Indeed, there appears to have been a steady decline in numbers measured over this period. Another (by now familiar) problem stems from the fact that the data do not reflect true cohort flows as the individuals counted may well have differed from year to year.

Table 7.3 shows the per cent of those measured in each year who were considered to be below average height (stunted) for their age and underweight for their height (wasting). These measures of weight and height gain are a standard public health measure of poor nutrition and also yield estimates of children who are underweight (for age) and those not growing well (below average weight for age).

Superficially, it appears that the number of children who are stunted has declined proportionally over time while all other indicators suggest no change, with the numbers of those who are underweight or not growing well remaining proportionally very high.

Table 7.3 Ten Year Growth Story for children under 5 years old: Ngukurr, 1987–97

	% of those measured who were:			
Year	stunted	wasting	underweight	not growing well
1987	28	6	22	40
1988	35	10	32	58
1989	31	5	27	49
1990	no data	no data	no data	no data
1991	34	11	36	50
1992	28	16	36	52
1993	25	12	33	43
1994	20	17	29	42
1995	20	11	25	39
1996	20	22	35	51
1997	17	no data	28	40

Source: THS, Katherine.

However the limitations in the data, indicated above, allow no such conclusions to be drawn. What does seem clear, though, is that nutritional status has remained generally low. For example, on the most recent estimate, around one-fifth of children are stunted in growth. This is 1.5 times greater than among children generally in the Katherine Health District and as much as 14 times higher than among children in Australia as a whole. Likewise, the level of wasting among Ngukurr children is 1.4 times above the level reported for Katherine District and 5.5 times higher than in Australia as a whole. Similarly, the average of results from each year for those not growing well (46%) is notably above the average for Katherine District using similar results (35%), and substantially in excess of the proportion recorded for all children in Australia (around 3%). Measurement difficulties notwithstanding, these statistics provide a stark indication of nutritional problems in the community.

In addition to these standard anthropometric measurements, testing for haemaglobin levels is also conducted on all children under 5 years of age. In October 1998, 50 per cent of infants were found to have mild anaemia and 3 per cent had severe anaemia. The onset of anaemia was also found to coincide with weaning. Hookworm is one source of anaemia and this is treated by de-worming while iron supplements are also administered. As other studies have shown (Fraser 1996; Kruske et al. 1999), this sort of intervention can assist in improving haematological status. However, the main source of anaemia—and the focus of any long-term solution as opposed to short-term band-aid intervention—is to be found in poor nutrition and its antecedents.

In terms of aetiology, it has long been recognised that poor diet and nutritional status are strongly associated (along with other risk factors) with a variety of chronic, preventable, and non-communicable diseases that are highly prevalent in Aboriginal communities. Primary among these in later life are cardiovascular disease and diabetes, but malnutrition also forms part of the general complex of reduced resistance to infectious and other disease and may engender its own morbidity profile. Not surprisingly, public health programs, especially those targeted at improving health outcomes among Aboriginal people, increasingly identify improved nutrition as an essential intervention. A prerequisite to successful intervention, however, is the identification of structural impediments to improved nutrition, many of which are behavioural and economic in nature including patterns of household expenditure, store management, and food prices (Taylor and Westbury 2000).

Health-related quality of life assessment

The extent to which policy interventions are perceived by individuals to effect an improvement in their quality of life is an emergent concern of health policy in Australia, including in regard to Aboriginal people (Brady 1995; Senior 1999b). This concern with measures of health that go beyond objective indicators such as morbidity and mortality is based on the recognition that a full assessment of health status should include physical, mental, social, and spiritual dimensions (Brady 1995).

A more practical reason is the need for timely assessment of health interventions which may take a long time to translate into changes in conventional indicators of health status, especially at the whole-of-population level. Furthermore, it appears that many health treatments, while effective from a biomedical point of view, may actually compromise quality of life. An example is the treatment of end-stage renal disease, which requires the relocation of rural-based patients into towns for dialysis. In the Ngukurr context, this involves moving far from home (to Katherine or Darwin) with attendant difficulties in sustaining the comfort and care provided by family members. Individuals also have to adjust to living in an unfamiliar and institutional environment and financial hardships can be incurred, especially in terms of the wider caring responsibilities of family groups. All these factors can make treatment costly in terms of loss of quality of life, and may make non-compliance (and associated shortened life expectancy) preferable to adherence (Willis 1995).

In an attempt to discover individuals' perceptions of their own health-related quality of life (QOL) in a routine way which can be repeated over time to monitor changes in condition, and produce results that are comparable with other groups, a number of standard instruments have been developed. These attempt to cover a number of QOL-related aspects of health, such as physical functioning, emotional wellbeing and support from family. Some of these instruments, such as the Medical Outcomes Trust Short Form 36 and its companion question on self-assessed health status within the main sample of National Health Survey (NHS), are regularly used in Australia and are considered to be reliable, valid, and responsive to changes in clinical condition. While the same conclusion has been drawn for Indigenous people in urban settings, this cannot be claimed from data for remote communities where conceptions of QOL and links to health status are indeterminate and poorly understood (ABS/NCEPH 1997). In any event, the cross-cultural application of such instruments has been drawn into question (Scott et al. 1999).

Self-rated health status

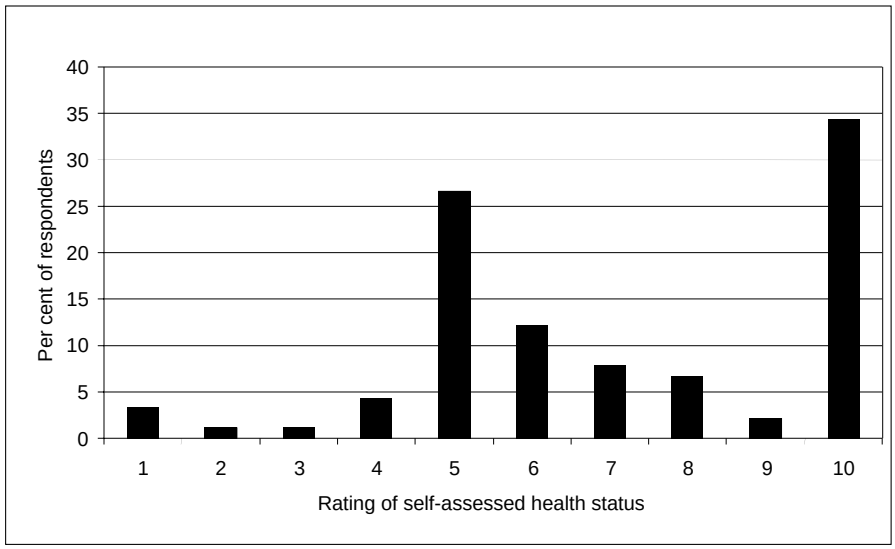
Little is known about the subjective assessment of health by Aboriginal people. Such population-based knowledge as does exist derives from the application of self-assessed health status questions, first in the 1994 NATSIS and subsequently as part of the 1995 NHS. These were standard global questions asking, 'In general, would you say that your health is excellent, very good, good, fair or poor?' Answers to this question in both surveys appear somewhat counter-intuitive, especially for populations in remote communities. For example, although 50 per cent of respondents in the Garrak-Jarru ATSIC Region reported an illness in the two weeks prior to the NATSIS, 74 per cent considered themselves to be in very good or excellent health, while less than 1 per cent described their health as being poor (ABS 1996d: 17–19). Likewise, 73 per cent of Indigenous people in the NHS reported their health as good to excellent while at the same time 76 per cent reported a recent or long-term illness (ABS 1995b: 4–5).

The question arises, why do people rate their health as good or excellent when the statistics show it to be otherwise? Various explanations have been suggested to account for this inconsistency. Indigenous people may have low expectations of health and it is possible that some illnesses may be so common and expected in a community that they do not cause any alarm (Reid 1983). In this context, a peer effect has also been suggested; if everyone else in the community has poor health, then you only have these people to rate yourself against. It could also be that Aboriginal people have different expectations of health. It is argued, for example, that people in Western societies are so well informed about health that they maintain a high expectation of health (Kelner and Wellman 1997). One corollary of this is that greater access to health care and information increases awareness of health status. Finally, it could be that survey questions are interpreted differently due to culturally different perceptions of what is considered to be important for good health.

With these issues in mind, an effort was made in the SEALCP household survey to establish a wider measure of health status by including questions about individuals' perceptions of their own health. The first of these asked household respondents to assess their own health status against the question, 'how healthy do you feel?' In an attempt to avoid bias in the responses by offering only a limited range of responses as in the NATSIS and NHS schedules, answers to this question were designed on a continuum ranging from 'not healthy at all' (score of 0) to 'completely healthy' (score of 10). A second question asked individuals about their level of satisfaction with their health with responses ranging from 'completely unhappy' (score of 0) to 'completely happy' (score of 10).

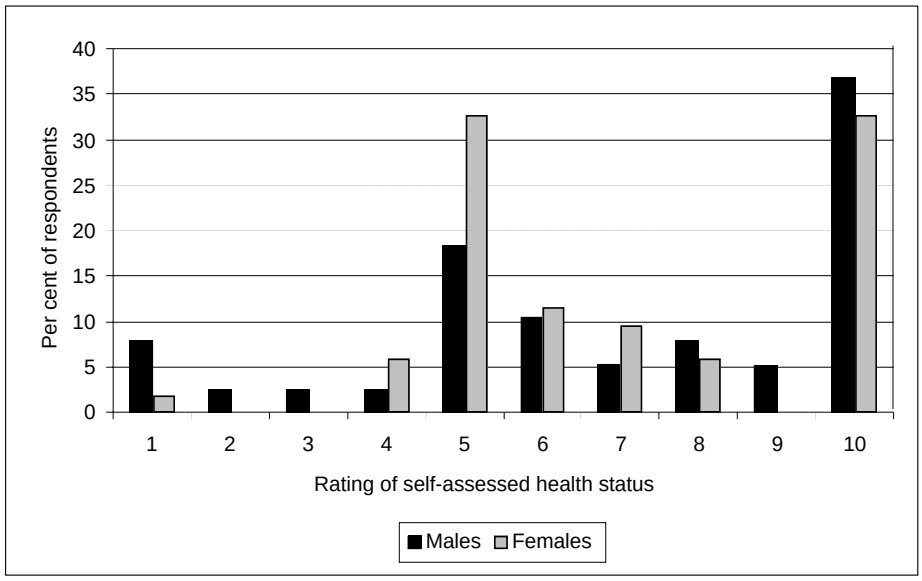
With regard to the first question, the vast majority of respondents (90%) rated their health as being 5 and over on the scale, although the distribution of responses is best described as bi-modal, with 34 per cent of individuals rating themselves as completely healthy (score of 10) and 48 per cent displaying some ambivalence (scores of 4, 5 or 6). Only 3 per cent of people described themselves as being completely unhealthy. This distribution of responses is similar to that recorded by the 1994 NATSIS in the Garrak-Jarru ATSIC region (ABS 1996d: 17–19), although the use of ten response categories in the SEALCP survey appears to have yielded a greater polarity of response between the top and the mid-point of the scale.

Fig. 7.4 Self-assessment of health status in Ngukurr, 1999



Note: Rating is on a scale of 1 (low) to 10 (high).
Source: SEALCP household survey.

Fig. 7.5 Self-assessment of health status in Ngukurr: Males and females, 1999



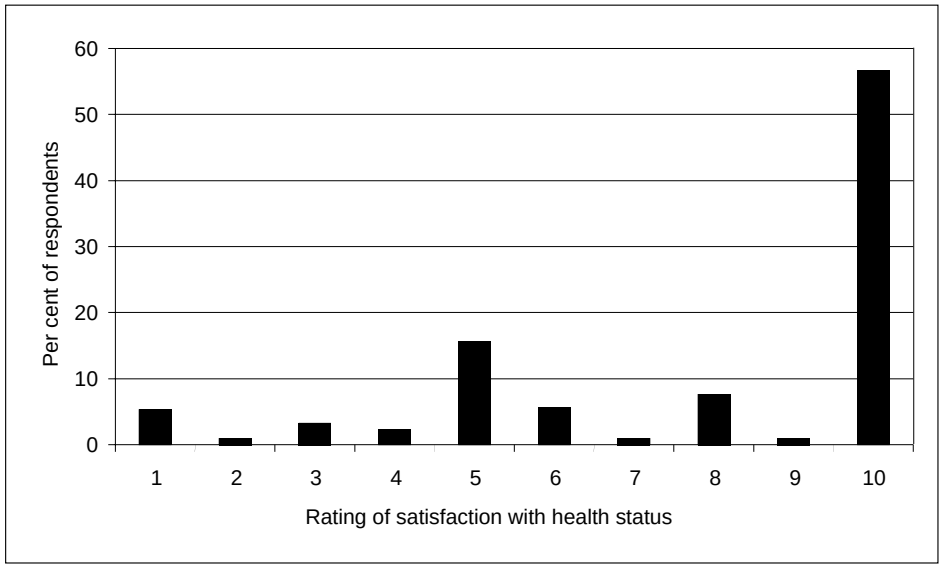
Note: Rating is on a scale of 1 (low) to 10 (high).
Source: SEALCP household survey.

While this different scale complicates comparison with other surveys, it is worth noting that around 52 per cent of respondents to the SEALCP survey classified their health as 7 or above on the scale which is roughly equivalent to the 55 per cent of non-Indigenous Australians nationally who considered their health to be very good or excellent in the 1995 NHS (ABS 1999: 15). Such agreement in perceptions of health status between two populations with vastly different morbidity and mortality profiles presents a difficulty for the development of broader measures of health status. It also demands explanation.

One likelihood is that the assessment of health may vary according to gender. Females generally are accredited with greater interest in health matters, are more likely to present for diagnosis and treatment of illness and, consequently, are likely to assess their own health more negatively (ABS 1998d: 55). From the SEALCP survey data, this seems to be borne out: men were slightly more likely to rate themselves as completely healthy than women (37% compared with 33%), but displayed a greater tendency than women to rate their health as under 5 on the scale than women (16% compared to 7%). The consequence is that women were far more likely than men to rate their health as midway on the scale (33% compared to 18%).

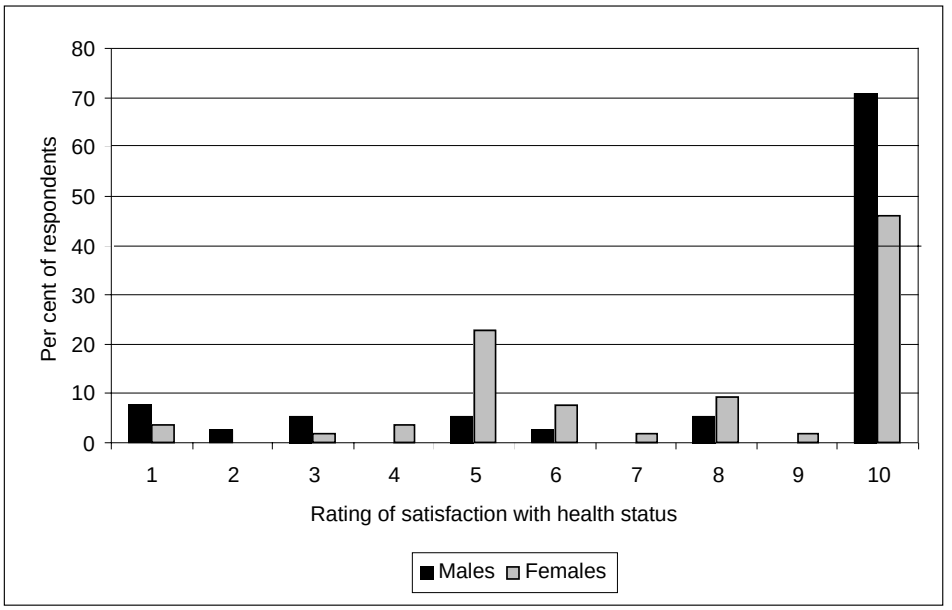
On the allied question regarding satisfaction with health, an even more extreme clustering at the top of the scale is evident: 57 per cent of respondents describe themselves as completely happy with their health (Fig. 7.6). The main statistical effect of this is to reduce the proportion of responses in the mid-point on the scale compared to the distribution of responses to the assessment of health status.

Fig. 7.6 Satisfaction with health status in Ngukurr, 1999



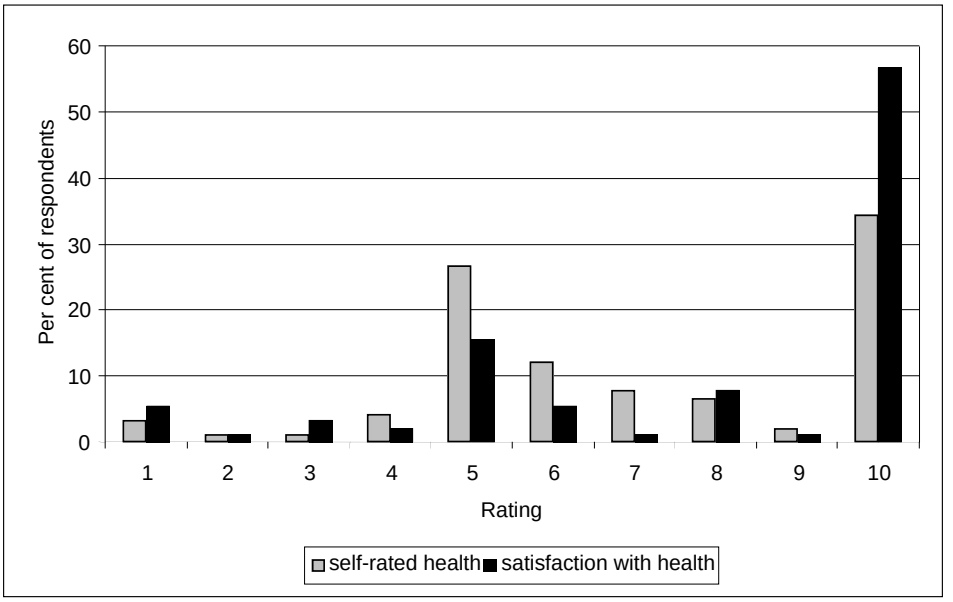
Note: Rating is on a scale of 1 (low) to 10 (high).
Source: SEALCP household survey.

Fig. 7.7 Satisfaction with health status in Ngukurr: Males and females, 1999



Note: Rating is on a scale of 1 (low) to 10 (high).
Source: SEALCP household survey.

Fig. 7.8 Self-assessed health status and satisfaction with health status in Ngukurr, 1999



Note: Rating is on a scale of 1 (low) to 10 (high).
Source: SEALCP household survey.

Once again, a substantial gender difference is evident (Fig. 7.7) with men far more likely to report satisfaction with their health than women (71% compared to 46%) and women far more likely to rate satisfaction with their health at the mid-point on the scale (23% compared to 5%). Overall, there appears to be some discrepancy between individual assessments of health status and levels of satisfaction with health status, with the latter more favourably viewed (Fig. 7.8). However, this seems to result from greater ambivalence among females about how to rate their health as indicated by a lower correlation between their ratings of health status and satisfaction with health (correlation coefficient $R^2 = 0.57$) compared to that recorded for males (correlation coefficient $R^2 = 0.73$). It is interesting to note that such variation between males and females is not evident from morbidity statistics, which point to a more even distribution in the prevalence of ill-health across the population. Thus, from a public health perspective female assessments of personal health status correlate more closely with objective indicators than assessments made by males. This suggests that efforts to encourage health promoting behaviour and engagement with the health care system is likely to be more difficult among males.

Disregard for chronic illness despite cognisance of poor health status has long been observed in Aboriginal communities (Reid 1983) and the findings in Ngukurr are not unique. Various reasons have been suggested for this seeming contradiction, ranging from an acceptance of symptoms as an inevitable part of daily life (Reid 1983; Honeyman and Jacobs 1996) to stoicism whereby apprehension about a health condition is triggered less by pain and more by an inability to function physically or socially (Spark et al. 1991). This basically passive attitude towards health means that people may not recognise symptoms as being important early enough for treatments to be successful. This issue was raised by Aboriginal health workers at Ngukurr clinic who suggested that their inability to cure conditions when they reached an advanced stage reinforced a widespread idea within the community that the clinic was incapable of adequately addressing their health problems.

In light of observed discrepancy between subjective and objective indicators of health status, the SEALCP survey sought to establish from respondents whether they felt there were practical steps that could be taken to promote better health and, if so, what these might be. All respondents felt that intervention was potentially beneficial but they focused very much on initiatives to be conducted by a non-defined group from within or without the community, rather than on what individuals themselves might do to improve their health. For example, the vast majority of responses revolved around the following themes: provision of more fresh fruit, vegetables and meat at the store, better disposal of rubbish in the community, provision of more housing to reduce overcrowding, more services for the aged (such as meals on wheels), and a greater focus on general health education. Of the few responses that focused on personal initiatives, most referred to keeping houses clean and keeping children clean.

While deficiencies clearly exist in the provision of health infrastructure and services, this focus on health solutions at the community rather than the individual level is worth noting. Public health approaches often place emphasis on individuals modifying their own behaviour to achieve better health. One example would be public education campaigns

to reduce smoking. Only three respondents suggested that education about smoking may be beneficial to health despite the prominence of smoking-related illness in the community. From hospitalisation data, respiratory diseases are the second highest cause of hospitalisation for men (14% of all separations) and (excluding pregnancy), the third highest cause for women (6% of separations).

Health and quality of life

Studies conducted in non-Aboriginal settings frequently emphasise the importance of good health in a person's overall assessment of their quality of life (Hickey et al. 1996; Browne et al. 1994; Wearing and Headey 1998: 180). In Ngukurr, however, QOL ratings display no association with assessments of health status. Little, if anything, is known about how Aboriginal people rate their quality of life. In order to establish an initial benchmark, the SEALCP survey asked respondents how content they were with their life overall, in line with similar assessments of other Australians (Cummins 1997). Against this question, the majority of respondents (66%) rated their QOL as high on a scale of 1 to 10, although far more males than females produced a rating of 10 out of 10 (84% as opposed to 46%) with females much more likely to nominate the middle of the scale (38% as opposed to 5%). Notwithstanding this gender difference, no relationship is evident for either sex between assessments of health status and assessments of QOL (correlation coefficient for males $R^2 = 0.26$; for females $R^2 = 0.23$). Statistically, this lack of linkage between health and QOL assessments reflects the consistency of response to the latter, especially among males, which suggests that a more sophisticated instrument for measuring QOL is required. At the same time, it may be that health simply does not loom large in the local calculus of life quality when set against other considerations.

It is a truism to state that Aboriginal health and quality of life have been profoundly affected by the impact of non-Aboriginal settlement of Australia. The experience of dispossession, colonialism, and continuing social inequities are argued to be the fundamental causes of stress and related ill-health in Aboriginal communities (Khoury 1998; Reid and Trompf 1991). Furthermore, the sense of powerlessness and lack of control that these conditions produce, may reduce the motivation of communities and individuals to adopt health-promoting behaviours (Syme 1998; Wallerstein 1992). Such issues, however, are rarely addressed in existing generic QOL measures.

One potential source of stress is the extent to which people feel unsafe in the community due to circumstances beyond their control. This issue was explored in the SEALCP survey which asked respondents to consider factors that may compromise their sense of safety in daily life. While just over one-third of respondents felt in control of their lives, perceiving no external threats, the majority reported a range of factors that were considered detrimental to their quality of life. Among these, 'Blackfella business', which was how people described sorcery and cursing, was the most commonly mentioned cause of people feeling unsafe. It was reported by as much as one-quarter of all respondents. Other major contributors to unease reported by 10–20 per cent of respondents included drinking and drunkenness, petrol sniffing and other drug abuse, as well as outbreaks of

fighting and arguing. Domestic violence was mentioned in only six cases, although it may be difficult to distinguish this from some of the above.

Certainly, Aboriginal perceptions of health in remote communities are at variance with those established among the non-Aboriginal population for whom QOL instruments were originally developed. In the Aboriginal domain, concepts of health are less discrete and are inevitably intertwined with ideas of maintaining social harmony, conforming to social and spiritual norms of behaviour and a person's connection with traditional lands (Meehan 1981; Mobbs 1991; Reid 1983; Scott et al. 1999; Willis 1995). At the same time, it is unwise to generalise, as even a brief examination of the literature reveals a range of theories of health and illness causation (Taylor 1977; Webber et al. 1975; Wiminydji and Peile 1978). At the very least, however, for an appropriate Aboriginal-focused QOL measure, it would seem necessary to move away from a biomedical focus in any survey instrument to one more informed by holistic notions of health status as embodied in the WHO definition (Brady 1995). It is also likely that the instrument would have to cover issues such as the extent to which people feel they have control over their social, cultural, and economic life.

8. Implications for social impact planning

Fundamental uncertainties remain about the future pattern and direction of social and economic development in south-east Arnhem Land. Settlements such as Ngukurr have now matured into small but growing towns, with service functions providing for a sizeable hinterland, but they continue to exist on this narrow economic base and are sustained financially almost solely by employment in community services and the provision of citizen entitlements. In the event of future resource development in the region, with the related prospect of a broadening and expansion in the economic base via private sector investment, a range of issues for social impact planning arise out of contemporary social and economic circumstances, concerning the regional population's capacity to benefit.

Demography

Social impact planning begins with the basic facts of demography. In a fundamental sense, it is the size, growth, composition, and location of population that provide the basis for a quantitative assessment of needs arising from regional aspirations. However, despite the relatively small size of the population in Ngukurr and its region, there are difficulties in producing exact demographic data. These difficulties are reflected in varied population counts and estimates, each based on a different methodology and yielding results of varying quantity and quality. At the same time, the existence of several estimates enables a population range to be established and it can be confidently claimed that around 1200 individuals focus their usual residence on Ngukurr and its immediate sattelite settlements.

It is evident that this population has grown substantially in recent years and continues to expand at a high rate, consistent with the trend generally among Aboriginal communities in the Northern Territory. Contributory here is a relatively high birth rate and the possibility of net migration gain. The overwhelming demographic characteristic of the regional population, which has consequences for future social and economic development planning, is sustained population growth and a burgeoning youthful age profile. From the fragmentary evidence available, this has emerged out of a century of population decline, dispersal, and now reconstitution. Almost suddenly, communities such as Ngukurr find themselves facing the task of providing for more schooling, more training, more jobs, and more housing. Precisely how much more remains contentious due to imprecision in defining the resident population. However, if the numbers were to continue growing for the next 20 years at a compound rate equivalent to that currently recorded for the Aboriginal population of the Northern Territory as a whole (2% per annum), and if net migration were to remain in balance, then it would not be unreasonable (indeed maybe conservative) to expect a population in Ngukurr and its satellite settlements of around 2000 persons by 2020.

Part of the difficulty in establishing precise numbers stems from high levels of intra- and inter-regional population mobility. It is well known, but poorly attested, that many Ngukurr residents have cause to spend periods of time elsewhere—at outstations, at other communities or in towns. One issue that this profile has referred to, but not attempted to

resolve, is precisely what constitutes the spatial realm of individuals and families who claim a residential base in Ngukurr. Evidence from the household survey on language composition points to a solid core of origins from an area surrounding the lower reaches of the Roper River. Also revealed are social links to more distant places throughout the Top End, through the Gulf country and, in part, to Central Australia.

One means of incorporating the effects of mobility in developing a meaningful demographic profile is to use clinic records as a proxy for the usually resident population. Because of universal access to the health system, the collective records of individual clients provide a basis for establishing the demographic features of what may be described as the regional service population. This population has been identified for Ngukurr and its outstations, and the resulting information provides a tentative basis for the calculation of rates for such vital social indicators as employment, education participation, and hospitalisation. In the immediate future, an important challenge for health services in the Northern Territory is to extend the benefits of information technology to the task of improving rural health information systems. One spin-off from this should be the provision of more consistent estimation of service populations given the capacity of associated databases (as demonstrated from Coordinated Care Trials), to track individuals via a client master index. Development along these lines at Ngukurr will require IT training among health staff, although the same requirement is emerging across administrative systems, for example in running the CDEP scheme.

Employment

The economic structure of Ngukurr is typical of that found in most remote parts of the Northern Territory, with a very narrow base focused largely on providing a range of services to the regional population. Thus, to the extent that a mainstream labour market exists, formal employment is available only via the disbursement of Territory and Local government spending in education, health, government administration and public works. That said, funding from ATSIC for the CDEP scheme creates a considerable overlap in the construction of economic activity. CDEP provides the main source of regional employment, with participation levels consistently high and limited only by the current system of allocating places to communities within the ATSIC Regional Council area on a quota basis. Outside of reallocated quotas, growth is restricted to natural increase from school leavers. In essence, and even in the event of potential restructuring of the regional economic landscape via resource development, the employment prospects of youth in Ngukurr seem destined to be channelled through CDEP-type arrangements. From the perspective of community aspirations (and, it has to be said, from the perspective of government), the challenge is whether this can lead on to employment opportunities that are entirely independent of government subvention.

In terms of measuring progress and benchmarking potential impacts, the CDEP scheme presents a dilemma. For example, if scheme participants are classified as unemployed on account of the notional link with Newstart Allowance, then unemployment rates in

Ngukurr are very high and employment rates accordingly low, even by Northern Territory standards. However, against International Labour Organisation standards, CDEP work is real work and certainly one consequence of the scheme has been the generation of a much wider range of employment experiences in Ngukurr than would otherwise have existed. At the same time, private sector jobs, whether for Aboriginal or non-Aboriginal people, remain virtually non-existent, with almost total reliance on government spending for the continuance of economic activity. Against this background of a limited and highly vulnerable formal economy, it is not surprising to find that the proportion of adults who are not in the labour force, especially women, remains high.

Assuming that economic opportunities can be expanded, an important issue for social impact planning is the capacity (in the sense of demonstrated ability) and desire (in the sense of cultural preparedness) of the regional population to participate in formal employment, either full-time or part-time. It will also be important to identify the mechanisms by which any desires to engage an expanding labour market may be fulfilled. These are essentially issues of labour demand and supply and suggest, at some stage, the need for a skills and work-experience audit of the adult population, and a review of available training programs, including consideration of the potential role of the Job Network and whether network provider services should be extended to Ngukurr (presently these are accessible only in Katherine or Borroloola). Set against this, of course, would be an estimation of likely future demand for labour by occupational type, informed by an assessment of aspirations for future work on the part of the regional population. Some assessment of current emphases within social policy on mutual obligation would need to be factored into this, especially among job seekers, and also of whether existing waivers on the part of Centrelink to potential breaches of regulations will persist (Sanders 1999).

While it is clear that the labour force status of individuals in Ngukurr reflects a lack of a mainstream labour market that is in line with similar communities elsewhere in remote regions, it is important to consider the extent to which this situation is also independent of location and simply reflects lifestyle choices made by Aboriginal people. This is not just a point about the importance of culture in affecting labour supply, not least because social, cultural and economic factors are difficult to separate. It is also because there is a very real sense in which contemporary economic activity in Aboriginal communities may be stimulated by traditional practices enabled by continuing rights to land, but in ways that are not amenable to measurement by mainstream social indicators. Examples of this abound in the literature and include subsistence activities (hunting, fishing and gathering), art and craft manufacture, land management and ceremonial business (Altman 1987, 1989; Altman and Allen 1992; Altman et al. 1996; Altman and Taylor 1989; Bomford and Caughley 1996). To underline the potential economic importance of this informal activity one study has estimated that, by Australian standards, Aboriginal people on some Aboriginal lands may be fully employed in this informal sector (Altman and Allen 1992: 142).

Income

Given the general lack of a mainstream labour market in south-east Arnhem Land and the overwhelming reliance for employment creation on the CDEP scheme, it is not surprising to find that average incomes are recorded within the range set for welfare recipients. Consequently, by Australian standards, the vast majority of households probably exist below the poverty line. This last observation is deliberately hesitant because information on the full range of costs and expenditures are not available, nor were they gathered. Also lacking is any measure of income outside of formal employment and receipt of Centrelink payments, for example from the sale of arts and crafts or from agreement monies.

A realistic assessment of the net income status of residents of south-east Arnhem Land would ideally consider this within the context of linked households. It is clusters of households, rather than individual households in isolation, that typically form the basic units of consumption in remote Aboriginal communities (Altman 1987; Musharbash 2000). Related to these dynamics of household economies, and vital to their understanding, are cultural practices of demand sharing and reciprocity (Martin 1995; Peterson 1993; Schwab 1995). A full balance sheet of income would also take into account imputed non-cash income from subsistence activities as well as from other intermittent sources of income, for example from royalties and the sale of arts and crafts. An important component of social impact planning in advance of any potential mining development would be to establish the nature of such activities and the role that they play, and could continue to play, in the regional culture and economy.

At first glance, the level of welfare dependency does not appear as high as might be expected because income from CDEP is recorded as salaried earnings. However, if these earnings are viewed as welfare income, on account of their notional link to Newstart Allowance or special program spending, then welfare dependence in the region is almost absolute. Given this fact, there is a need to identify the main features of what may be described as a culture of dependency and the manner in which Centrelink payments articulate with and shape the regional society and economy. In terms of reducing this dependence, one factor worthy of more critical examination is the issue of incentive. In an economic context the fact that only few jobs provide a net income substantially beyond that available from welfare payments is significant if attempts are to be made to attract people away from reliance on welfare. In any event, well-paid jobs are generally occupied by non-Aboriginal people by virtue of their occupational skills and the full-time employment commitment required. As far as the cultural context of work is concerned, there may be opposing forces at play: the pressures of demand-sharing on the one hand, and the influence that might be gained, on the other hand, from having economic resources to distribute.

Education

Perhaps more than any other point of contact between Aboriginal people and Western institutions, the issue of appropriate schooling is most strained: it revolves around the acquisition of life skills, the point being—life skills for what? If the purpose of schooling

is to build individual human capital in order to successfully negotiate the mainstream labour market then, for the most part, education in south-east Arnhem Land can be declared a failure, as indeed it is against this criterion for Aboriginal people in much of the Northern Territory (Northern Territory Department of Education 1999). The evidence presented in support of this includes low enrolment rates, even lower school attendance, erratic grade progression, shortened school careers, and levels of numeracy and literacy that are overwhelmingly below age average.

On the other hand, if the purpose of schooling is to prepare individuals for life in an Aboriginal domain with skills more attuned to local cultural priorities (as indeed community support in the area of language teaching in Ngukurr would suggest) then only a limited measure of performance is available and outcomes in this area are difficult to establish. Consequently, the priorities for research in this area are concerned with the establishment of assessment techniques for determining learning outcomes and the language ability of students (Munro 1998: 31). Whether Ngukurr, or any other school in the region, fulfils any other culturally-focused aspirations is simply unknown, although the survey of parents suggests a general sense of apathy, or at least detachment, from school activities as presently constituted.

The reality is that, as in most remote schools in the Northern Territory, aspirations for both sets of educational outcomes have been expressed in Ngukurr. This duality presents a challenge for both the delivery of educational services and for the measurement of performance. In Ngukurr, for example, the SEALCP survey found that half of all parents regarded teaching of English language and mathematics as essential in the school, while one-third were also concerned to ensure that Aboriginal culture and language, and two-way teaching were provided.

From the standpoint of social impact planning, it is the specific nature of educational outcomes in terms of demonstrated abilities that assumes importance. For example, in the event that more formal mainstream economic opportunities are created as a consequence of mining and other developments in the region, and that local Aboriginal people seek to take full economic advantage of these through participation in employment or related business opportunities, then clearly consideration will need to be given to adequately equipping future generations with the means to achieve this. The focus here would inevitably be on raising numeracy and literacy levels to a competitive standard. Such a task could not just depend on the school, but would require the level of community and family involvement and commitment that has been demonstrated in the past with regard to the Aboriginalisation of school pedagogy in Ngukurr.

At the same time, to the extent that schooling is viewed as a means of strengthening core traditional values and institutions in the face of further encroachment of Western influence, then consideration needs to be given as to how well curricula and staff are currently equipped to accomplish this and what modus operandi would be most appropriate in terms of balancing the demands of often opposing expectations. Somewhat related to this is a need to better understand the role of education in empowering individuals and communities to successfully engage and articulate with

outside bodies, in a manner that gives them enhanced control over developments through processes of informed decision making.

One of the key points of emphasis in the Collins Review of Aboriginal education in the Northern Territory (NTDE 1999) was the fundamental need for children to be exposed to education and the materials of education such as books, pens, pencils and paper as early as possible, since the education system operates under the assumption that children have prior knowledge of these things before enroling in school (NTDE 1999: 96). The main resource within Ngukurr providing such early exposure is the Kids' Centre. However, in line with general observations made in the Collins Review, the SEALCP Household Survey found that of the 83 households that had children of appropriate age, only 35 (42%) utilised the Kids' Centre, with actual usage of the facility ranging from every day to very occasional. Set against a concentration of school attendance in the middle primary years, and almost total attrition of enrolment by age 16, this highlights the shortened educational career of many children in Ngukurr and raises significant questions about their subsequent capacity to exercise life choices.

Housing and infrastructure

Such has been the backlog in housing and infrastructure provision in south-east Arnhem Land that despite considerable upgrading and construction in recent years at Ngukurr, much remains to be done. Part of the dynamic here, from a social impact planning perspective, is rapid population growth. Because this ensures a youthful age profile, the rate of new household formation and consequent demand for housing is likely to remain high for years ahead. The significant impact of NAHS and HIPP expenditure on the availability of accessible and functional dwellings and reductions in occupancy rates, demonstrates that this regressive effect can be overcome, although there is a sense in which this activity has simply involved catch-up (Josif and Associates 1997). Ongoing depreciation of housing stock is also potentially regressive. With bedroom and dwelling occupancy rates remaining high, the economic life of dwellings is inevitably shortened: there remains a need to measure and monitor the useable lifespan of housing and the factors that contribute to it in order to ensure sufficient programs of maintenance as well as the planned provision of additional housing.

At the same time, all the currently available measures of housing need remain largely statistical constructs. The more functional aspects of housing assessment emerge less clearly from the currently available data. These range from environmental health performance (in terms of measuring direct links between health outcomes and disfunctional housing), to the more cultural interpretations of appropriate shelter provision, including the variable distribution of individuals within families and households across different dwellings both within Ngukurr and at outstations. This combination of the functional and the cultural in the interpretation of need was a feature of the Yugul Mangi Housing Plan, and any assessment of existing and ongoing conditions would need to apply the same methodology.

Aside from these issues, a major unresolved problem is the question of housing needs at outstations and how these are best assessed and catered for. At one level, this goes to the

lack of precise information on patterns of intra-regional mobility and the balance of time that groups and individuals spend in the main settlement as opposed to out bush. Ultimately, of course, it is also about regional politics and the various means by which social groups access scarce resources (Gerritsen 1982: 22). Such issues require an ethnographic focus and fall squarely within the terms of reference for the ongoing SEALCP.

Health

The health profile of Aboriginal people in Ngukurr is typical of that reported for Aboriginal people generally in the Northern Territory at the end of the twentieth century: there is a high level of interaction with health services, born of chronic morbidity commencing early in life and peaking in middle age. An indication of the disease profile is provided by hospital separations data and is found to consist mainly of infectious and parasitic disease in early years, but with diseases of the circulatory system (notably rheumatic and ischaemic heart disease) assuming increasing prominence with advancing years, as do respiratory diseases (mostly acute bronchitis and pneumonia), diseases of the genitourinary system (especially renal disease), as well as injury and poisoning.

Routine information on illnesses and conditions that do not result in hospitalisation are difficult to extract from the current paper-based records of clinic day-books. However, poor environmental health conditions are reflected in widespread scabies and outbreaks of gastro-enteritic infection, while data on infant and child growth point to substantial malnutrition among children. More generalised poor nutrition is suggested by the relatively high share of hospital separations that result from diet-related diseases.

From the perspective of social impact planning, the relatively high prevalence of illness and premature mortality places a constraint on human resource and community development. To take just one example, assuming that life expectancies in the region are in line with the national average for Aboriginal people of 57 years for males and 62 years for females (ABS 1999: 134), then the physical limitations that are imposed on prolonged and full participation in the workforce become all too apparent. If we add to this the associated debilitating effects of excess adult morbidity, then a pattern emerges of relatively severe physical constraints on the ability of people to engage in productive social and economic activity.

It is also likely that the negative economic effects of poor health status commence long before individuals are eligible to join the workforce, given the links that have been established elsewhere between the poor health status of Aboriginal children in the Northern Territory and below average school performance (NTDE 1999). The most prominent intervention to improve health outcomes in recent times has been the comprehensive upgrading of housing stock and related infrastructure in Ngukurr as part of the NAHS and HIPP initiatives. Also of significance has been the dust mitigation program sponsored by Rio Tinto and Greening Australia. However, the anticipated health benefits of such exercises are only likely to emerge with time, while any direct causation is difficult to establish especially in the absence of comprehensive community health information systems.

It also appears from the gap between individual assessments of quality of life and actual health outcomes that conventional interventions based on changes in personal behaviour require much more understanding of how a healthy lifestyle is locally interpreted. Increasingly, the findings of research suggest a need to place social experiences more directly into the investigation of causes of disease and disability. Several developments within epidemiology have led to this conclusion, including work on stress and physiologic responses to stressful experiences, work on psychosomatic conditions, and analyses which have examined variations in disease incidence among people differentially placed in the social structure (Berkman and Kawachi 2000). Specific advances in the latter context have focused on the links between health outcomes and powerlessness due to discrimination and poverty (Kawachi, Kennedy and Wilkinson 1999; Krieger 2000).

Summation

In effect, elucidation in each of the social and economic arenas profiled requires a whole-of-population approach. In this regard, when viewed overall, the baseline data for Ngukurr demonstrate the scope for analysis in remote Aboriginal communities. They also demonstrate that low socioeconomic status within such communities is intergenerational in nature, structural in origin, and multiple in causation. Future engagement with resource developers should not just seek out single benefits such as employment quotas or royalties, but should also consider the scope for positive spin-off in areas such as health services, education, housing, and infrastructure, notwithstanding that these remain functional responsibilities of government.

At the same time, the fact that Ngukurr residents rate their quality of life so highly, despite experiencing so many statistically-indicated disadvantages, cannot be ignored. This no doubt says something about the nature of Western survey methodology, but it may also signal that Aboriginal people are content with their present capacity to control encroaching social, political, and economic pressures for change. However, experience from elsewhere demonstrates that this situation can rapidly and radically alter in the event of major resource development. The challenge for social impact planning is to ensure, should such development occur, that social indicators improve from the baseline without entailing a deterioration in people's quality of life.

References

Aboriginal Land Commissioner 1982. *Yutpundji–Djindiwirritj (Roper Bar) Land Claim,* Report by the Aboriginal Land Commissioner, Mr Justice Toohey, to the Minister for Aboriginal Affairs and to the Administrator of the Northern Territory, AGPS, Canberra.

Aboriginal Land Commissioner 1985. *Cox River (Alawa/Ngandi) Land Claim*, Report by the Aboriginal Land Commissioner, Mr Justice Kearney, to the Minister for Aboriginal Affairs and to the Administrator of the Northern Territory, AGPS, Canberra.

Aboriginal and Torres Strait Islander Commission (ATSIC) 1993. *1992 Community Housing and Infrastructure Needs Survey*, ATSIC, Canberra.

Aboriginal and Torres Strait Islander Commission 1999. *1999 Community Housing and Infrastructure Needs Survey: Community Profile Preliminary Results*, ATSIC, Canberra.

Aboriginal and Torres Strait Islander Commission 1994. *The National Aboriginal Health Strategy: An Evaluation*, ATSIC, Canberra.

Altman, J.C. 1983. *Aborigines and Mining Royalties in the Northern Territory*, AIAS, Canberra.

Altman, J.C. 1987. *Hunter-Gatherers Today: An Aboriginal Economy in North Australia*, AIAS, Canberra.

Altman, J.C. (Chairman) 1989. *The Aboriginal Arts and Crafts Industry*, Report of the Review Committee, AGPS, Canberra.

Altman, J.C. 1996a. 'Aboriginal economic development and land rights in the Northern Territory: Past performance, current issues and strategic options', *CAEPR Discussion Paper No. 126,* CAEPR, ANU, Canberra.

Altman, J.C. 1996b. 'Reforming financial aspects of the *Native Title Act 1993*: An economic perspective', *CAEPR Discussion Paper No. 105,* CAEPR, ANU, Canberra.

Altman, J.C. 1997. 'Fighting over mining moneys: The Ranger Uranium Mine and the Gagudju Association', in D.E. Smith and J. Finlayson (eds), *Fighting Over Country: Anthropological Perspectives*, CAEPR Research Monograph No. 12, CAEPR, ANU, Canberra.

Altman, J.C. 1998. The Articulation Between Rio Tinto and Remote Indigenous Communities in a Resource Development Context: A Scoping of Possible Social Impact Planning, Unpublished manuscript, CAEPR, ANU, Canberra.

Altman, J.C. 2000. 'The economic status of Indigenous Australians', *CAEPR Discussion Paper No. 193,* CAEPR, ANU, Canberra.

Altman, J.C. and Allen, L.M. 1992. 'Indigenous participation in the informal economy: Statistical and policy implications', in J.C. Altman (ed.), *A National Survey of Indigenous Australians: Options and Implications*, CAEPR Research Monograph No. 3, CAEPR, ANU, Canberra.

Altman, J.C., Bek, H., and Roach, L. 1996. 'Use of wildlife by Indigenous Australians: Economic and policy perspectives', in M. Bomford and J. Caughey (eds), *Sustainable Use of Wildlife by Aboriginal Peoples and Torres Strait Islanders*, AGPS, Canberra.

Altman, J.C. and Peterson, N. 1988. 'Rights to game and rights to cash among contemporary Australian hunter-gatherers', in T. Ingold, D. Riches, and J. Woodburn (eds), *Hunters and Gatherers: Property, Power and Ideology*, Berg, Oxford.

Altman, J.C. and Sanders, W. 1991. 'The CDEP Scheme: Administrative and policy issues', *Australian Journal of Public Administration*, 50 (4): 515–25.

Altman, J.C. and Smith, D.E. 1990. *The Possible Economic Impacts of Mining and Tourism in the Kakadu Conservation Zone on Aboriginal People*, Resource Assessment Commission Kakadu Conservation Zone Inquiry, Consultancy Series, AGPS, Canberra.

Altman, J.C. and Smith, D.E. 1994. 'The economic impact of mining moneys: The Nabarlek case, Western Arnhem Land', *CAEPR Discussion Paper No. 63*, CAEPR, ANU, Canberra.

Altman, J.C. and Smith, D.E. 1999. 'The Ngurratjuta Aboriginal Corporation: A model for understanding Northern Territory royalty associations', *CAEPR Discussion Paper No. 185*, CAEPR, ANU, Canberra.

Altman, J.C. and Taylor, L. 1989. *The Economic Viability of Aboriginal Outstations and Homelands*, AGPS, Canberra.

Australian Bureau of Statistics (ABS) 1985. *Australian Standard Industrial Classification,* Vol. 1, *The Classification*, Cat no. 1201.0, ABS, Canberra.

Australian Bureau of Statistics 1991. *Working for the Census*, ABS, Canberra.

Australian Bureau of Statistics 1995a. *Experimental Estimated Resident Population: Community Government Councils and Incorporated Associations Northern Territory*, Cat. no. 3233.7, ABS, Canberra.

Australian Bureau of Statistics 1995b. *National Health Survey Aboriginal and Torres Strait Islander Results: Australia*, Cat. no. 4806.0, ABS, Canberra.

Australian Bureau of Statistics 1996a. *The 1996 Census Dictionary*, Cat. no. 2901.0, ABS, Canberra.

Australian Bureau of Statistics 1996b. *Experimental Projections of the Aboriginal and Torres Strait Islander Population June 1991–June 2001*, Cat. no. 3231.0, ABS, Canberra.

Australian Bureau of Statistics 1996c. 'When ERPs aren't enough: A discussion of issues associated with service population estimation', *Demography Working Paper 96/4*, ABS, Canberra.

Australian Bureau of Statistics 1996d. *1994 National Aboriginal and Torres Strait Islander Survey Katherine ATSIC Region*, Cat. no. 4196.0.00.034, ABS, Canberra.

Australian Bureau of Statistics 1997a. *Deaths*, Cat. no. 3302.0, ABS, Canberra.

Australian Bureau of Statistics 1997b. *Births*, Cat. no. 3301.0, ABS, Canberra.

Australian Bureau of Statistics 1998a. *Australian Indigenous Geographical Classification 1996*, Cat. no. 4706.0.30.001, ABS, Canberra.

Australian Bureau of Statistics 1998b. *Experimental Estimates of the Aboriginal and Torres Strait Islander Population*, Cat. no. 3230.0, ABS, Canberra.

Australian Bureau of Statistics 1998c. *Census of Population and Housing: Aboriginal and Torres Strait Islander People Northern Territory*, Cat. no. 2034.7, ABS, Canberra.

Australian Bureau of Statistics 1998d. *Australian Social Trends 1998*, Cat. no. 4102.0, ABS, Canberra.

Australian Bureau of Statistics 1999. *The Health and Welfare of Australia's Aboriginal and Torres Strait Islander Peoples*, Cat. no. 4704.0, ABS, Canberra.

Australian Bureau of Statistics and Centre for Aboriginal Economic Policy Research (ABS/CAEPR) 1996. *1994 National Aboriginal and Torres Strait Islander Survey: Employment Outcomes for Indigenous Australians*, Cat. no. 4199.0, ABS, Canberra.

Australian Bureau of Statistics and National Centre for Epidemiology and Population Health (ABS/NCEPH) 1997. *Occasional Paper: Self Assessed Health Status, Indigenous Australians 1994*, Cat. no. 4199.0, ABS, Canberra.

Australian Institute of Aboriginal Studies (AIAS) 1984. *Aborigines and Uranium*, AGPS, Canberra.

Bauer, F.H. 1964. *Historical Geography of White Settlement in Part of the Northern Territory*, Part 2, *The Katherine–Darwin region*. CSIRO Report no. 64/1, CSIRO, Canberra.

Beck, E.J. 1985. *The Enigma of Aboriginal Health*, AIAS, Canberra.

Berkman, L.F and Kawachi, I. 2000 'A historical framework for social epidemiology', in L.F. Berkman and I. Kawachi (eds), *Social Epidemiology*, Oxford University Press, Oxford.

Bern, J. 1974. Blackfella Business Whitefella Law: Political Struggle and Competition in a South East Arnhem Land Aboriginal Community, PhD thesis, Macquarie University, Sydney.

Bern, J. 1976. 'Reaction to attrition: The Ngukurr strike of 1970', *Mankind*, 10: 213–24.

Bern, J. 1977. 'The village meeting in a dependent Aboriginal community', *North Australia Research Bulletin, No. 1*, September 1977.

Bern, J. 1989. 'The politics of a small Northern Territory town: A history of managing dependence', in P. Loveday and A. Webb (eds), *Small Towns in Northern Australia*, NARU, ANU, Darwin.

Bern, J., Larbalestier, J., and McLaughlin, D. 1980. *Limmen Bight Land Claim*, NLC, Darwin.

Biernoff, D. 1979. 'Traditional and contemporary structures and settlement in eastern Arnhem Land with particular reference to the Nunggubuyu', in M. Heppell (ed.), *A Black Reality: Aboriginal Camps and Housing*, AIAS, Canberra.

Birckhead, J. 1999. 'Brief encounters: Doing rapid ethnography in Aboriginal Australia', in S. Toussaint and J. Taylor (eds), *Applied Anthropology in Australasia*, University of Western Australia Press, Nedlands.

Bomford, M. and Caughley, J. (eds) 1996. *Sustainable Use of Wildlife by Aboriginal Peoples and Torres Strait Islanders*, AGPS, Canberra.

Brady, M. 1995. 'WHO defines health? Implications of differing definitions of discourse and practise in Aboriginal health', in G. Robinson (ed.), *Aboriginal Health: Social and Cultural Transitions*, Proceedings of a conference at the Northern Territory University, 29–31 September 1999, Darwin.

Browne, J.P., O'Boyle, C.A., McGee, H.M., Joyce C.R.B., McDonald, N.J., O'Malley, K.O., and Hiltbrunner, B. 1994. 'Individual quality of life in the healthy elderly', *Quality of Life Research*, 3: 235–44.

Burbank, V.K. 1980. Some of the History, Custom and Law of the People of Numbulwar, Unpublished report for the Numbulwar community, Rutgers University, New Brunswick, NJ.

Cole, E.K. 1969. *A Short History of the C.M.S. Roper River Mission, 1908–1969*, Church Missionary Historical Publications Trust, Melbourne.

Cole, E.K. 1982. *A History of Numbulwar: The Story of an Aboriginal Community in Eastern Arnhem Land, 1952–1982*, Keith Cole Publications, Bendigo.

Commonwealth of Australia 1999a. *National Aboriginal Health Strategy: Delivery of Housing and Infrastructure to Aboriginal and Torres Strait Islander Communities*, Audit Report No. 39 1998–99, Australian National Audit Office, Canberra.

Commonwealth of Australia 1999b. *The National Indigenous Housing Guide: Improving the Living Environment for Safety, Health and Sustainability*, Commonwealth, State and Territory Housing Ministers' Working Group on Indigenous Housing, Canberra.

Coombs, H.C., McCann, H., Ross, H., and Williams, N.M. (eds) 1989. *Land of Promises: Aborigines and Development in the East Kimberley*, Aboriginal Studies Press, Canberra.

Costello, M. 1930. *Life of John Costello*, Dymocks, Sydney.

Cox, E. 1998. 'Measuring social capital as part of progress and well-being', in R. Eckersley (ed.), *Measuring Progress: Is Life Getting Better?* CSIRO, Canberra.

Cummins, R.A. 1997. *Comprehensive Quality of Life Scale: Adult*, 5th edn, School of Psychology, Deakin University, Burwood.

Daly, A.E. 1995. *Aboriginal and Torres Strait Islander People in the Australian Labour Market 1986 and 1991*, Cat. no. 6253.0, ABS, Canberra.

Dillon, M. 1990. 'Social impact at Argyle: Genesis of a public policy', in R.A. Dixon and M.C. Dillon (eds), *Aborigines and Diamond Mining: The Politics of Resource Development in the East Kimberley Western Australia*, University of Western Australia Press, Nedlands.

Finlayson, J.D. 1991. Don't Depend on Me: Autonomy and Dependence in an Aboriginal Community in North Queensland, PhD thesis, ANU, Canberra.

Finlayson, J. and Auld, A.J. 1999. 'Shoe or stew? Balancing wants and needs in Indigenous households: A study of appropriate income support payments and policies for families', *CAEPR Discussion Paper No. 182*, CAEPR, ANU, Canberra.

Fox, R.W., Kelleher, G.G., and Kerr, C.B. 1977. *Ranger Uranium Environmental Inquiry, Second Report*, AGPS, Canberra.

Fraser, J. 1996. 'Evaluation of a child health program to prevent and treat anaemia in Arnhem Land', *Australian Journal of Rural Health*, 4 (1): 11–17.

Gerritsen, R. 1982. 'Blackfellas and whitefellas: The politics of service delivery to remote Aboriginal communities in the Katherine region', in P. Loveday (ed.), *Service Delivery to Remote Communities*, NARU, ANU, Darwin.

Hickey, A., Bury, G., O'Boyle, C., O'Kelly, F.O., and Shannon, W. 1996, 'A new short form individual quality of life measure (SEIQOL–DW) application in a cohort of individuals with HIV/AIDS', *British Medical Journal*, 313: 29–33.

Honeyman, J.A. and Jacobs, E.A. 1996. 'Effects of culture on back pain in Australian Aboriginals', *Spine*, 21 (7): 841–3.

Howitt, R. 1993. 'Social Impact Assessment as applied peoples' geography', *Australian Geographical Studies*, 31 (2): 127–40.

Howitt, R. 1995. 'Aborigines and gold mining in Central Australia', in J. Connell and R. Howitt (eds), *Mining and Indigenous Peoples in Australia*, Sydney University Press, Sydney.

Howitt, R. 1996. Aboriginal Social Impact Issues in the Kakadu Region: A Preliminary Review of Relevant Literature, Report to the Kakadu Region Social Impact Study and the Northern Land Council.

Hunter, B. 1996. 'The determinants of Indigenous employment outcomes: The importance of education and training', *CAEPR Discussion Paper No. 115*, CAEPR, ANU, Canberra.

Hunter, B. and Daly, A.E. 1998. 'Labour market incentives among Indigenous Australians: The cost of job loss versus the gains from employment', *CAEPR Discussion Paper No. 159*, CAEPR, ANU, Canberra.

Jones, R. 1994. *The Housing Need of Indigenous Australians, 1991*, CAEPR Research Monograph No. 8, CAEPR, ANU, Canberra.

Josif, P. and Associates 1995a. *Yugul Mangi Housing Action Plan 1994/95–1998/9*, Part 2, NT Department of Lands, Housing, and Local Government, Darwin.

Josif, P. and Associates 1995b. *Yugul Mangi Housing Action Plan 1994/95–1998/99,* Part 1, NT Department of Lands, Housing, and Local Government, Darwin.

Josif, P. and Associates 1995c. *The Yugul Mangi Environmental Health Action Plan 1994/95–1998/9*, Yugul Mangi Community Government Council, Ngukurr.

Josif, P. and Associates 1997. *Evaluation and Update of the Yugul Mangi Housing Action Plan 1994/95–1998/9*, NT Department of Lands, Housing, and Local Government, Darwin.

Kakadu Region Social Impact Study (KRSIS) 1997. *Report of the Aboriginal Project Committee*, Office of the Supervising Scientist, Canberra.

Kakadu Region Social Impact Study Community Action Plan (KRISISCAP) 1997. *Report of the Study Advisory Group*, Office of the Supervising Scientist, Canberra.

Kawachi, I., Kennedy, B.P., and Wilkinson, R.C. 1999. *The Society and Population Health Reader: Income Inequality and Health,* New Press, New York.

Kelner, M. and Wellman, B. 1997. 'Health care and consumer choice: Medical and alternative therapies', *Social Science and Medicine*, 45 (2): 203–12.

Kesteven, S. 1986. 'The project to monitor the social impact of uranium mining on Aboriginal communities in the Northern Territory', *Australian Aboriginal Studies*, 1: 43–5.

Khoury, P, 1998. 'Aboriginal health as a social product', in J. Germov (ed.), *Second Opinion: An Introduction to Health Sociology*, Oxford University Press, Oxford.

Krieger, N. 2000. 'Discrimination and health', in L.F. Berkman and I. Kawachi (eds), *Social Epidemiology*, Oxford University Press, Oxford.

Kruske, S.G., Ruben, A.R., and Brewster, D.R. 1999. 'An iron treatment trial in an Aboriginal community: Improving non-adherence', *Journal of Paediatrics and Child Health*, 35 (2): 153–8.

Kympen Pty Ltd 1993. *Community Profile for Outstations Administered by Yugul Mangi Community Government Council Clan Management*, NT Department of Lands, Housing, and Local Government, Darwin.

Legislative Assembly of the Northern Territory 1996. *Report on the Provision of School Education Services For Remote Aboriginal Communities in the Northern Territory*, Public Accounts Committee Report No. 27, August 1996, Darwin.

Martin, D.F. 1993. Autonomy and Relatedness: An Ethnography of Wik people of Aurukun, Western Cape York Peninsula, PhD thesis, ANU, Canberra.

Martin, D.F. 1995. 'Money, business and culture: Issues for Aboriginal economic policy', *CAEPR Discussion Paper No. 101*, CAEPR, ANU, Canberra.

Martin, D.F. and Taylor, J. 1996. 'Ethnographic perspectives on the enumeration of Aboriginal people in remote Australia', *Journal of the Australian Population Association*, 13 (1): 17–33.

Meehan, B. 1981. 'Ten fish for one man: Some Anbarra attitudes towards food and health', in J. Reid (ed.), *Body, Land and Spirit: Health and Healing in Aboriginal Society*, University of Queensland Press, St Lucia.

Meehan, B. 1982. *Shell Bed to Shell Midden*, AIAS, Canberra.

Merlan, F. 1978. '"Making people quiet" in the pastoral north: Reminiscences of Elsey station', *Aboriginal History*, 2: 70–106.

Miller, M. (Chairman) 1985. *Report of the Committee of Review of Aboriginal Employment and Training Programs*, AGPS, Canberra.

Mobbs, R. 1991. 'In sickness and health: The sociocultural context of Aboriginal well-being, illness and healing', in J. Reid and P. Trompf (eds), *The Health of Aboriginal Australia,* Harcourt Brace Jovanovich, Sydney.

Moo, S., Searle, J., and Condon, J. 1998. *NT Hospital Utilisation in Perspective: The Impact of Population and Disease Trends*, Management Reporting Unit Business Information Management, THS, Darwin.

Morphy, H. and Morphy, F. 1984. 'The "myths" of Ngalakan history: Ideology and images of the past in Northern Australia', *Man* (n.s.), 19: 459–78.

Munro, J. 1998. *A Struggle for Survival: A Report on the Ngukurr CEC Language Program*, Diwurruwurru-jaru Aboriginal Corporation, Katherine.

Musharbash, Y. 2000. 'The Yuendumu community case study', in D.E. Smith (ed.) *Indigenous Families and the Welfare System: Two Community Case Studies*, CAEPR Research Monograph No. 17, CAEPR, ANU, Canberra.

Northern Territory Department of Education (NTDE) 1999. *Learning Lessons: An Independent Review of Indigenous Education in the Northern Territory*, NTDE, Darwin.

Northern Territory Grants Commission (NTGC) 1998. *Annual Report 1997/98*, NT Department of Local Government, Darwin.

Northern Territory Grants Commission (NTGC) 1999. *Annual Report 1998/99*, NT Department of Local Government, Darwin.

O'Faircheallaigh, C. 1995. 'Negotiations between mining companies and Aboriginal communities: Process and structure', *CAEPR Discussion Paper No. 86*, CAEPR, ANU, Canberra.

Peterson, N. 1993. 'Demand sharing: Reciprocity and the pressure for generosity among foragers', *American Anthropologist*, 95 (4): 860–74.

Povinelli, E.A. 1993. *Labor's Lot: The Power, History and Culture of Aboriginal Action*, University of Chicago Press, Chicago.

Pholeros, P., Rainow, S., and Torzillo, P. 1993. *Housing for Health: Towards a Healthy Living Environment for Aboriginal Australia*, Health Habitat, Newport Beach.

Reeves, J. 1998. *Building on Land Rights for the Next Generation: Report of the Review of the Aboriginal Land Rights (Northern Territory) Act 1976*, Vol. 2, AGPS, Canberra.

Reid, J. 1983. *Sorcerers and Healing Spirits: Continuity and Change in an Aboriginal Medical System*, ANU Press, Canberra.

Reid, J. and Trompf, P. (eds) 1991. *The Health of Aboriginal Australia,* Harcourt Brace Jovanovich, Sydney.

Ross, H. 1990. 'Progress and prospects in Aboriginal social impact assessment', *Australian Aboriginal Studies*, 1: 11–17.

Ross, K. 1999. *Occasional Paper: Population Issues, Indigenous Australians*, Cat. no. 4708.0, ABS, Canberra.

Rowley, C.D. 1971. *The Remote Aborigines*, ANU Press, Canberra.

Rowse, T. 1988. 'From houses to households? The Aboriginal Development Commission and economic adaptation by Alice Springs town campers', *Social Analysis*, 24 (4): 50–66.

Sanders, W. 1999. *Unemployment Payments, the Activity Test and Indigenous Australians: Understanding Breach Rates*, CAEPR Research Monograph No. 15, CAEPR, ANU, Canberra.

Schwab, R.G. 1995. 'The calculus of reciprocity: Principles and implications of Aboriginal sharing', *CAEPR Discussion Paper No. 100*, CAEPR, ANU, Canberra.

Schwab, R.G. 1998. 'Educational "failure" and educational "success" in an Aboriginal community', *CAEPR Discussion Paper No. 161*, CAEPR, ANU, Canberra.

Scott, K., Sarfati, D., Tobias, M.I., and Haslett, S.J. 1999. 'A challenge to the cross-cultural validity of the SF-36: A comparative factor analysis in Maori, Pacific and New Zealand European ethnic groups', paper presented to the Australian Health Outcomes Collaboration Conference, July 1999, Canberra.

Searcy, A. 1909. *In Australian Tropics*, Robertson, London.

Senior, K.A. 1999a. 'Managing education in an Aboriginal domain: The case of Ngukurr school', in South East Arnhem Land Collaborative Research Project (SEALCP), Unpublished report to Rio Tinto Services Ltd. on first Period of the Project, University of Wollongong, Wollongong.

Senior, K.A. 1999b. 'Cross-cultural issues in measuring health and community care outcomes', in J. Sansoni, K. Senior, S. Rubenach, and S. Nancarrow (eds), *Health Outcomes and Community Care Centre for Health Service Development*, The University of Wollongong, Wollongong.

Smith, D.E. 1991. 'Toward an Aboriginal household expenditure survey: Conceptual, methodological and cultural considerations', *CAEPR Discussion Paper No. 10*, CAEPR, ANU, Canberra.

Smith, D.E. 1992. 'The cultural appropriateness of existing survey questions and concepts', in J.C. Altman (ed.), *A National Survey of Indigenous Australians: Options and Implications*, CAEPR Research Monograph No. 3, CAEPR, ANU, Canberra.

Smith, K.L. 1936. *Sky Pilot's Last Flight*, Angus and Robertson, Sydney.

Spark, R., Donovan, J., and Howat, P. 1991. 'Promoting health and preventing injury in remote Aboriginal communities: A case study', *Health Promotion Journal of Australia*, 1 (2): 10–16.

Syme, S.L. 1998, 'Social and economic disparities in health: Thoughts about intervention', *Milbank Quarterly*, 76 (3): 493–505.

Taylor, J. 1995. 'Indigenous employment and job segregation in the Northern Territory labour market', *CAEPR Discussion Paper No. 83*, CAEPR, ANU, Canberra.

Taylor, J. 1998. 'Measuring short-term population mobility among Indigenous Australians: Options and implications', *Australian Geographer*, 29 (1): 125–37.

Taylor, J. 1999a. The Aboriginal Population of South East Arnhem Land: A Baseline Profile for Social Impact Planning, Unpublished report to Rio Tinto Ltd, CAEPR, ANU, Canberra.

Taylor, J. 1999b. 'The social, cultural and economic costs and benefits of land rights: An assessment of the Reeves analysis', in J.C. Altman, F. Morphy, and T. Rowse (eds), *Land Rights at Risk? Evaluations of the Reeves Report*, CAEPR Research Monograph No. 14, CAEPR, ANU, Canberra.

Taylor, J. 1999c. 'Aboriginal people in the Kakadu region: Social indicators for impact assessment', *CAEPR Working Paper No. 4*, CAEPR, ANU, Canberra.

Taylor, J. and Bell, M. 1996. 'Mobility among Indigenous Australians', in P.W. Newton and M. Bell (eds), *Population Shift: Mobility and Change in Australia*, AGPS, Canberra.

Taylor, J. and Liu, J. 1996. 'Change in the relative occupational status of Indigenous workers, 1986–91', *CAEPR Discussion Paper No. 104*, CAEPR, ANU, Canberra.

Taylor, J. and Roach, L. 1998. 'The relative economic status of Indigenous people in the Northern Territory, 1991–96', *CAEPR Discussion Paper No. 156*, CAEPR, ANU, Canberra.

Taylor, J. and Westbury, N. 2000. *Aboriginal Nutrition and the Nyirranggulung Health Strategy in Jawoyn Country*, CAEPR Research Monograph No. 19, CAEPR, ANU, Canberra.

Taylor, J.C. 1977. 'A pre-contact medical system on Cape York Peninsula', *Journal of Human Evolution*, 6: 419–32.

Territory Health Services (THS) 1997. Territory Health Services CCTIS: An Introduction to the Design and Use of the Coordinated Care Trials Information System, Unpublished ms., 30 October 1997, THS, Darwin.

Thiele, S.J. 1980. Remote Aborigines in Australian Society: A Case Study of an Aboriginal-Owned Enterprise, the Yugul Cattle Company, MSc thesis in Agriculture, University of New England, Armidale.

Thomson, D.F. 1948. 'Arnhem Land: Explorations among an unknown people', *Geographical Journal*, 112: 2–20.

Treadgold, M.L. 1988. 'Intercensal change in Aboriginal incomes, 1976–1986', *Australian Bulletin of Labour*, 14 (4): 592–609.

Wallerstein, N. 1992. 'Powerlessness, empowerment, and health: Implications for health promotion programs', *American Journal of Health Promotion*, 6 (3): 197–205.

Wearing, A.J. and Headey, B. 1998. 'Who enjoys life and why: Measuring subjective well-being', in R. Eckersly (ed.), *Measuring Progress: Is Life Getting Better?* CSIRO, Canberra.

Webber, D.L., Reid, L.E., and Lalara, N. 1975. 'Health and the Groote Eylandter', *The Medical Journal of Australia*, 5: 17–20.

Willis, J. 1995. 'Fatal attraction: Do high technology treatments for end stage renal disease benefit Aboriginal people in Central Australia?' *Australian and New Zealand Journal of Public Health*, 19 (6): 603–9.

Wiminydji and Peile, A.R. 1978. 'A desert Aborigine's view of health and nutrition', *Journal of Anthropological Research*, 34: 497–523.

Young, E.A. 1981. *Tribal Communities in Rural Areas*, Development Studies Centre, ANU, Canberra.

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Rapid change arising from large-scale development projects can place severe strain on the physical infrastructure and social fabric of affected communities, as well as providing opportunities for betterment. The remote Aboriginal town of Ngukurr, together with its satellite outstations in the south-east Arnhem Land region of the Northern Territory, faces the prospect of such change as a result of mineral exploration activity currently underway, instigated by Rio Tinto.

This study, which is comprehensive in its scope, provides a synchronistic baseline statistical analysis of social and economic conditions in Ngukurr. It emphasises several key areas of policy interest and intervention, including the demographic structure and residence patterns of the regional population, and their labour force status, education and training, income, welfare, housing, and health status.

The result is an appraisal of Ngukurr's social and economic life after a generation of self management and land rights, immediatly prior to a possible period of major introduced economic development based on mineral exploitation. Thus it presents both a summary of the development effects of post-assimiliation policy and the 'before' stage of a comparison-in-waiting. It forms a basis for social impact planning by establishing planning benchmarks across a range of key policy areas, and demonstrates the capacity that exists for rapid appraisal of remote Aboriginal communities.

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