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**Enumerating the Aboriginal
population of remote Australia:
methodological and conceptual
issues**

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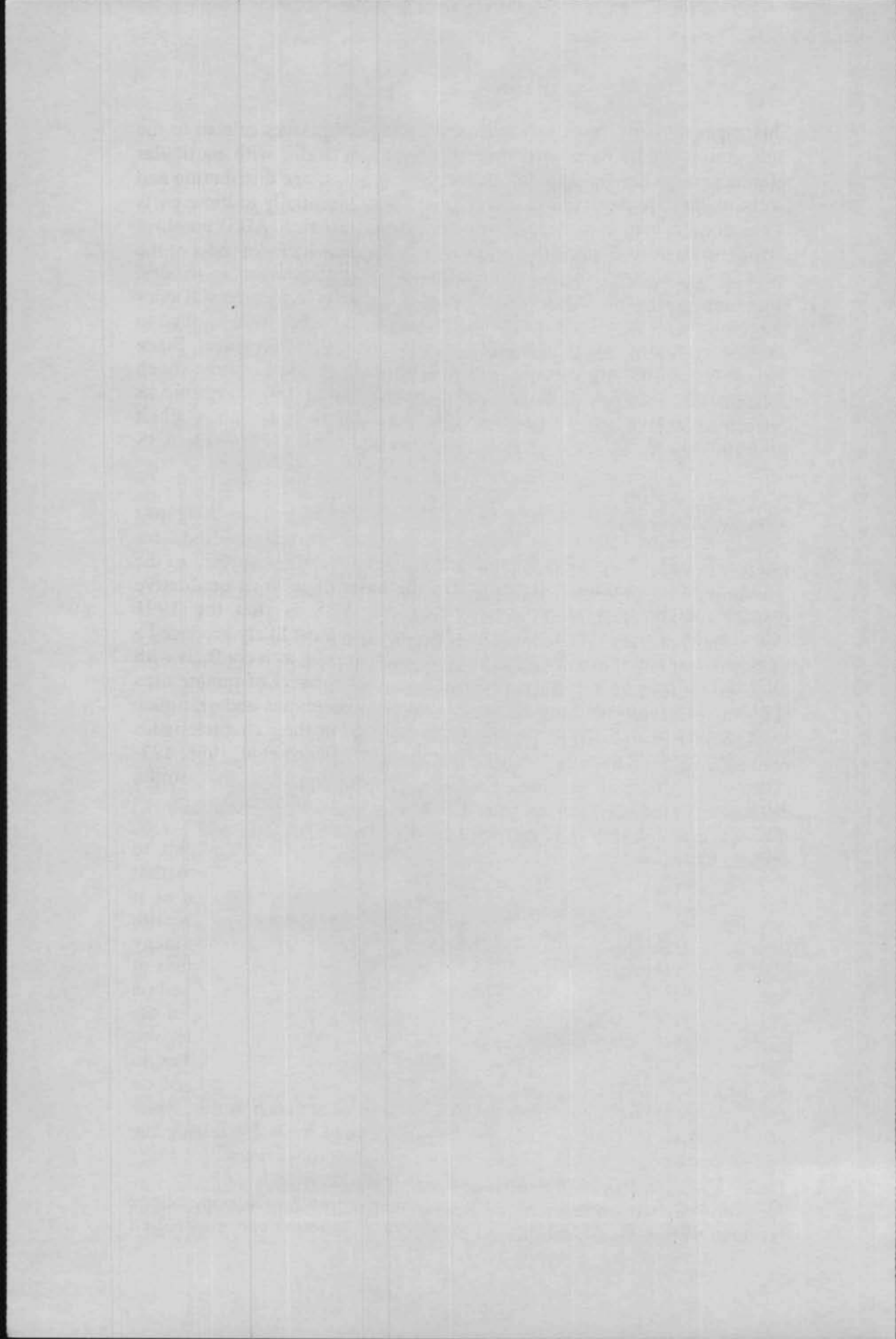
ABSTRACT

Despite claims of underenumeration of indigenous people, a basic problem in establishing the demography of remote indigenous populations remains the lack of well documented and adequately controlled independent checks against census data. This paper attempts to provide such verification by comparing population counts and age distributions from the last two ABS enumerations of the Aboriginal population of Aurukun, Cape York Peninsula, with the results of detailed ethnographic surveys of the same population. Significant undercount of young adults and children is noted. Consideration of the ethnographic realities of remote indigenous communities indicates methodological and conceptual deficiencies in the current ABS remote area enumeration strategy and a number of strategies for addressing these issues are proposed.

Acknowledgements

Impetus for this analysis came from work conducted by the Centre for Aboriginal Economic Policy Research (CAEPR) for the Cape York Land Council on Aboriginal population mobility in western Cape York Peninsula. This revealed a variation between official census-derived rates of movement and those obtained from ethnographic surveys. Some of the concepts in this paper were first subjected to public scrutiny at the Australian Bureau of Statistics and Office of Northern Development workshop, *North Australian Statistics*, held in Darwin in May 1995. Valuable discussions were also held with staff of the Census Program, Australian Bureau of Statistics, Canberra. Helpful comments on an early draft were gratefully received from Jon Altman and Martin Bell. Editorial assistance and layout was provided by Krystyna Szokalski and proof-reading by Hilary Bek.

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This paper explores some problems and outstanding issues related to the enumeration of indigenous people in remote Australia with particular reference to the determination of population numbers, age distribution and mobility. Remote Australia in this context refers essentially to those parts of the country where the Australian Bureau of Statistics (ABS) employs special methods to enumerate indigenous people. This includes most of the sparsely settled areas of the continent as well as particular urban locales, notably town camps, clearly designated as indigenous living areas (Taylor 1993a). Prior to the 1971 Census, relatively few resources were applied to the enumeration of indigenous people resident in isolated localities. Since that time, however, special census field procedures have been progressively devised, modified and extended by the ABS to ensure as comprehensive coverage of remote area populations as possible, albeit within the usual budgetary constraints (Choi and Gray 1985: 4-13; ABS 1989: 3-4, 1993).

One problem, however, remains the lack of an independent check against the accuracy of remote area census counts as normal methods for estimating this, using the post-enumeration survey, are not applied to the remote area indigenous population. On the basis of its own qualitative assessment, the considered opinion of the ABS is that the 1991 enumeration of remote area indigenous populations most likely produced a minor overcount (ABS 1993: 6). This view is interesting as it conflicts with the position held by a variety of analysts and other users of remote area census data who have asserted that official data sometimes underestimate the numbers of indigenous people and misrepresent their characteristics and patterns of social and economic organisation (Ellanna et al. 1988: 193-7; Young 1990; Jonas 1992; Smith 1992; Commonwealth of Australia 1992; Taylor 1993b)

However, the validity of such contrary claims has been difficult to establish in the absence of data that are directly comparable to that collected by the census. A particularly forceful example of this, as it derives from a joint initiative of the Queensland and Commonwealth governments in the form of the Cape York Peninsula Land Use Strategy (CYPLUS), is a recent claim of substantial census under-enumeration of indigenous people in Cape York Peninsula (King 1994). This is based on an invalid comparison between de facto 1991 ABS Census counts of the Cape York population and estimates of the 1994 de jure population derived from a variety of key informants in Cape York communities, as well as, to use the author's own assessment, from deductive guesswork based on questionable assumptions (King 1994: 27). Approaches such as this, while asserting under-enumeration, provide no statistical basis for testing the proposition and serve only to obfuscate the potential root causes.

Thus, a basic problem in the demography of remote area populations remains the lack of well documented and adequately controlled

independent checks against census data. In particular, no attempt has been made to critically evaluate the application of ABS census methodology by comparing counts of the same population enumerated at the same time but using different conceptual bases and procedures for enumeration. This is precisely what the present analysis seeks to achieve with reference to the enumeration of Aboriginal people in Aurukun, western Cape York Peninsula. The basis for this analysis derives from a fortunate correspondence between two simultaneous counts of the Aboriginal population. These were the ABS Census enumeration of June 1986 and a detailed ethnographic survey of the Wik people conducted in the same month reported in Martin (1993). Further basis for comparison is provided by the 1991 ABS Census count and an extrapolation to 1991 of trends from ethnographic census data.

This validation exercise is more than purely academic. In recognition of their uniquely disadvantaged status in health, housing, education and the labour market, indigenous people increasingly command public policy attention and this in turn requires the input of accurate information to represent indigenous interests (Altman 1992). Among the primary information requirements in remote Australia, particularly at the local level, is greater appreciation of the basic facts of demography. According to the Aboriginal and Torres Strait Islander Commission (ATSIC), for example, the broad parameters of ATSIC's charter are viewed as determined by the size, growth, composition and location of indigenous populations. These factors provide the basis for assessment of indigenous social justice issues: the recognition of need, access and equity, and fair and equitable distribution of resources (Altman 1992: 9-10; Menham 1992: 37). The importance of accurate population data in this policy context is further heightened by the application of formula-based/workload factor public funding, measured in dollars per capita.

From this policy perspective, two broad sets of questions emerge generating different data requirements. The first set derives from issues to do with the equitable, efficient and appropriate distribution of resources: what and how much should be given to whom, where and when? Answers to such questions require an indication of demand levels for services and special programs and this in turn implies an understanding of the size, composition, distribution and dynamics of the client population. The second set of questions follows on from the first and is concerned with the impact of resource allocations: do they produce the results that policy intends? This implies a monitoring and evaluation process which again is dependent on detailed knowledge of the client group. In terms of the data requirements to inform such questions, two categories suggest themselves: cross-sectional data which describe the client population at single points in time, and long-term data which establish the parameters of change in the population. In remote Australia, conditions for the collection of both these types of data are distinctive.

The paper begins by considering a range of structural factors which influence enumeration procedures and outcomes in remote Australia. The implications for the acquisition of data are then discussed by examining differences in the methodologies employed for counting the Aboriginal population of Aurukun. Although the discussion focuses on the experience of enumeration in only one community, the issues raised are considered to be broadly applicable throughout much of remote Australia.

Enumeration: the remote area context

Several factors combine in remote Australia to create a distinct environment for enumerating indigenous people. First, compared to the rest of the country, Aboriginal and Torres Strait Islander people comprise a far greater proportion of the regional population. While considerable intra-regional diversity of indigenous representation is evident, the demography of large tracts of remote Australia is effectively the demography of indigenous inhabitants. This makes the priorities of mainstream data gathering agencies synonymous with those of indigenous clients.

Secondly, population densities over much of remote Australia are the lowest in the country with concomitant low accessibility to and from urban centres (Holmes 1988). This is particularly so among the indigenous population. According to one calculation, almost half the indigenous population in remote Australia live in settlements of less than 1,000 persons compared to only 10 per cent of indigenous people elsewhere (Taylor 1992a). In the Northern Territory, for example, two-thirds of the indigenous population reside in one of approximately 650 rural settlements of less than 1,000 persons. Similar distributional diversity is also emerging in Cape York Peninsula as well as in the Kimberley region of Western Australia. The implications of this in terms of enumeration are manifest in the practical difficulties of locating individuals simultaneously at numerous, small and widely dispersed localities.

Thirdly, in response to the high rates of illiteracy observed in many parts of remote Australia, the ABS has since 1976 progressively established special procedures to enumerate indigenous people in remote areas and town camps (Loveday and Wade-Marshall 1985). This involves the collection of census data for discrete localities by interview, using mostly Aboriginal and Torres Strait Islander enumerators, rather than by the standard method of self-enumeration. This strategy was first applied in the Northern Territory in 1976, in Western Australia and South Australia in 1981 and in Queensland in 1991. At the last census, approximately 70 per cent of the indigenous population of the Northern Territory, around 30 per cent of those in Western Australia, some 20 per cent of those in South Australia and almost 25 per cent in Queensland were enumerated using these special

procedures, although clearly, for large areas of remote Australia, it represented the full enumeration. Given this scale of coverage, it is essential that the broad features of this remote area census enumeration are understood as a number of ethnographic reasons are advanced for questioning the reliability of the methodology employed.

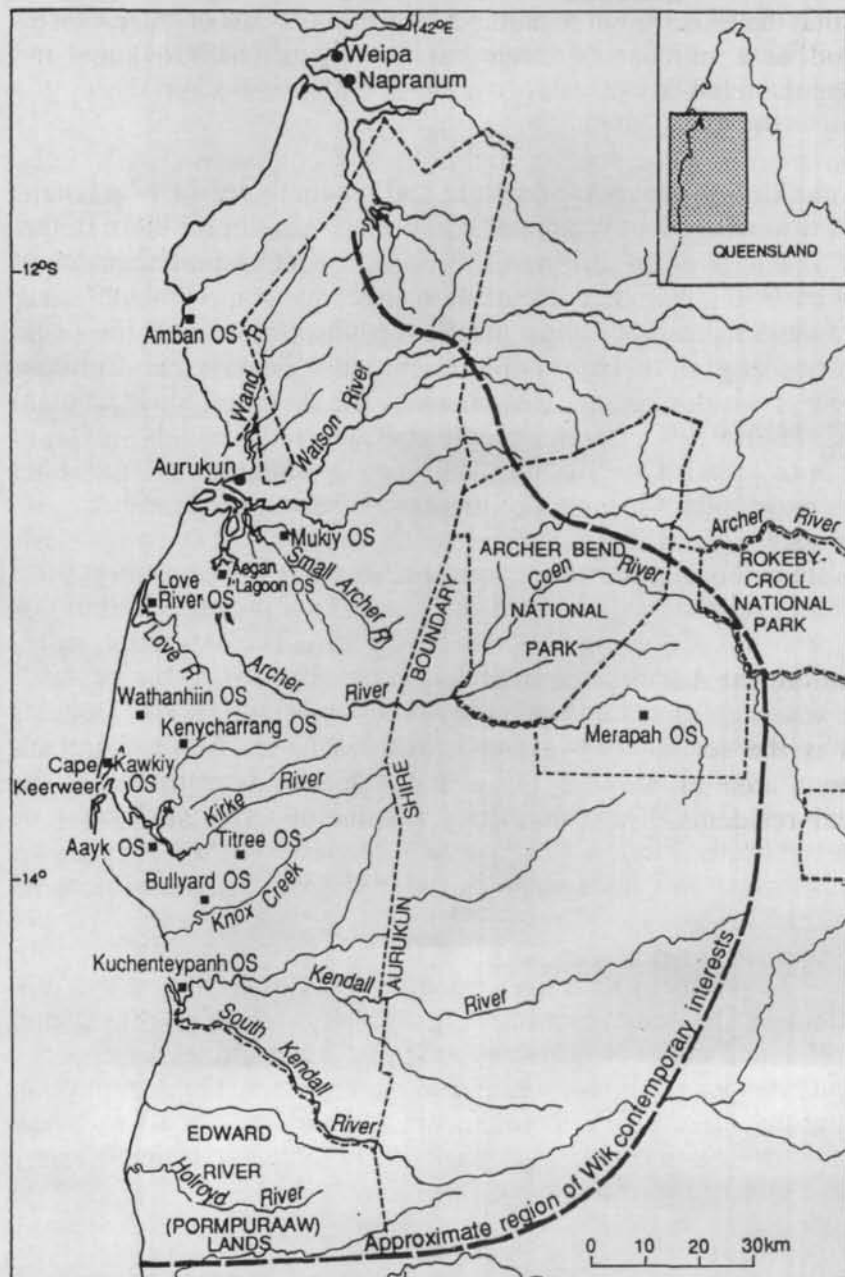
Finally, numerous case studies highlight the importance of frequent circular mobility in the daily, periodic and seasonal round of activities associated with indigenous social and economic life in remote Australia. At the same time, one of the distinguishing social characteristics of remote regions is their relatively low rate of indigenous population movement as measured by the census (Taylor and Bell 1994). This gap between the empirical observation of high mobility and low census-derived rates of movement is a measure of several incongruities. First, the inappropriateness of the census as a device for recording circular mobility. Second, the fact that indigenous people in remote Australia reside as much in an 'area' as a single place. As a consequence, the whole concept of 'usual place' of residence is likely to be problematic. Finally, this last point raises questions about the reliability of remote area enumeration procedures.

Enumeration: the Aurukun context

Aurukun is the service centre and township for an Aboriginal local government area in western Cape York Peninsula with some 900 Aboriginal residents. There is also a fluctuating population of non-Aboriginal staff, contractors, and others. The township is remote and relatively inaccessible, located some 500 kilometres north west of Cairns and 80 kilometres south of the bauxite mining town of Weipa. The region is subject to a marked seasonal cycle with heavy monsoonal rains, usually falling between January and March, and a protracted dry season. During the wet season and for several months following it, Aurukun is completely isolated apart from air and sea links.

Virtually all of Aurukun's Aboriginal population have traditional lands lying within the approximate region shown in Figure 1. While there is considerable local and regional differentiation, similarities of cultural form, together with marriage, ceremonial and political links, mean that this region can be considered a relatively homogeneous Aboriginal cultural domain. Anthropologists have for some time referred to the Aboriginal groups of this region as the 'Wik' peoples (Sutton 1978; von Sturmer 1978; Martin 1989, 1993). Roughly 70 per cent of the Wik population live in Aurukun and its outstations, 20 to 25 per cent live in Pormpuraaw, and there are smaller populations in Merapah station, Napranum and in Coen which is just off the map to the east.

Figure 1. The Aurukun region, west Cape York Peninsula.



Source: Martin 1993: xiv.

A few Wik people are also long-term residents of Aboriginal townships outside the region, such as Kowanyama and Mornington Island, but only a handful of Wik people have ever moved to other centres, such as Cairns, on more than a temporary basis. Transport links are mainly with Cairns to

the east; a regular air service linking Aurukun with Coen, Kowanyama, Pormpuraaw and Weipa was discontinued several years ago, and in recent years the only feasible option remaining for travel to most of these centres during significant periods of the year has been by air charter. Weipa and Napranum are however increasingly accessible from Aurukun during the dry season, as the road continues to be improved.

Aurukun was established as a Mission in 1904, initially by the Moravians. Until 1978, it continued to be administered by the Uniting Church. In that year, after a major national political controversy resulting from the attempt of the Queensland government to institute direct control, Aurukun (along with Mornington Island) became a local government area under the *Local Government (Aboriginal Lands) Act 1978*, with the original Aurukun reserve converted to a 50 year lease held by the Aurukun Shire Council (Tatz 1979; Martin 1990, 1993). Pormpuraaw and Napranum, however, in common with other Queensland Aboriginal communities, are now administered under the *Community Services (Aborigines) Act 1984*.

These Aboriginal local government areas are not treated as separate entities in ABS census tabulations, and their populations are included in those of the encompassing Cook Shire (Sanders 1995). The Aurukun shire, however, is treated as a separate Statistical Local Area (SLA) by the ABS. The Cape York Peninsula north of a line approximately from Port Douglas to Croydon is divided into five SLAs: Carpentaria, Cook, Weipa, Aurukun, and Torres. It should be noted that the Weipa SLA is restricted to the mining township of Weipa and does not include the settlement of Napranum which is located in Cook SLA. Likewise, the township of Pormpuraaw, which lies at the southern end of the Wik region, is included in Carpentaria SLA.

Thus, while the Aurukun SLA does not correspond precisely to the Wik cultural domain, the combination of geography, transport links, and administrative and political history, means that it constitutes a relatively discrete and bounded region for which data on Aboriginal demography can be meaningfully assessed. Furthermore, since there are only a very small number of Torres Strait Islander people resident, indigenous demography of the area is essentially Aboriginal demography.¹

Population counts: census methodology vs ethnographic techniques

By chance occurrence, a household and population census in Aurukun was conducted using ethnographic methods only a few days before the June 1986 ABS Census. This provides a unique opportunity for direct comparison of results and methodologies. Consideration is given first to the population counts derived from each census while a description of the methodologies used is provided as an explanation of variations observed.

Comparison of 1986 ABS and ethnographic census counts

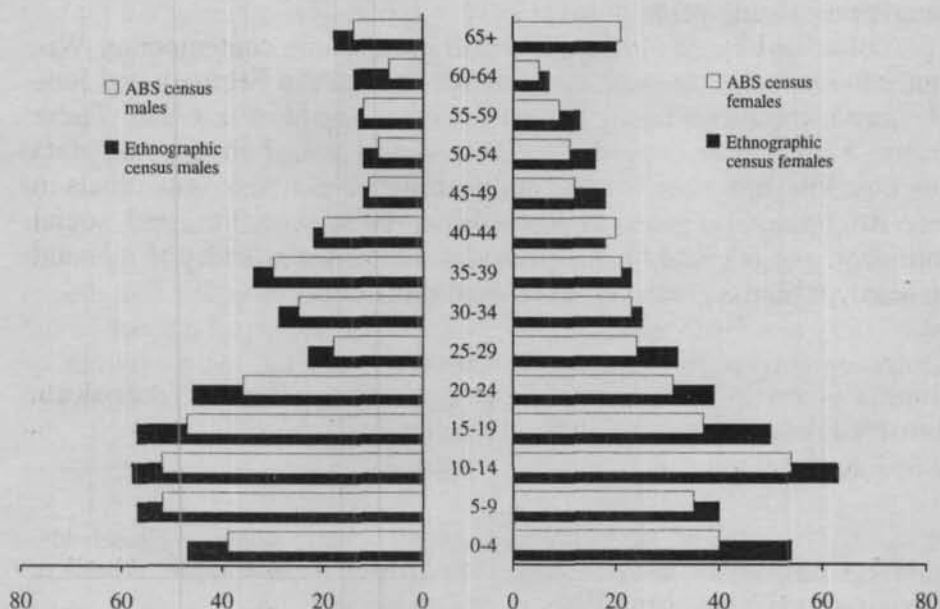
Significant differences were evident between the total counts of population as well as between the age distributions resulting from the ethnographic and ABS censuses. Table 1 shows the comparative numbers of males and females in five year age groups while Figure 2 shows the same data as a population pyramid. Overall, the census count of 715 Aboriginal persons fell short of the ethnographic count of 860 persons by 17 per cent, or 145 persons. Furthermore, a shortfall was evident in almost all age groups. Of particular note, however, was the relative absence from the census count of some 101 young adults and children below the age of 29 years. A higher shortfall was also evident among females than males contrary to the more commonly reported greater absence from census data of young indigenous males (Gray and Tesfaghiorghis 1993: 84). While the broad pattern of age distribution derived from the two censuses was similar, the magnitude of variation in the actual counts and the clear discrepancy in younger age groups suggests a need to closely examine any differences in the methodologies employed.

Table 1. Comparison of ABS and ethnographic census data: Aurukun Aboriginal residents, June 1986.

Age group	Ethnographic		ABS	
	Male	Female	Male	Female
0-4	47	54	39	40
5-9	57	40	52	35
10-14	58	63	52	54
15-19	57	50	47	37
20-24	46	39	36	31
25-29	23	32	18	24
30-34	29	25	25	23
35-39	34	23	30	21
40-44	22	18	20	20
45-49	12	18	11	12
50-54	12	16	9	11
55-59	13	13	12	9
60-64	14	7	7	5
65+	18	20	14	21
Totals	442	418	372	343

Sources: D.F. Martin household census, June 1986; 1986 Census of Population and Housing.

Figure 2. Comparison of ABS and ethnographic census data: Aurukun Aboriginal residents, June 1986.



Sources: D.F. Martin household census, June 1986; 1986 Census of Population and Housing.

1986 ABS Census methodology

The procedures employed for the 1986 ABS Census in remote indigenous communities in Queensland were the same as those of previous censuses and thus out of step with those used in other remote parts of the country. Throughout much of Western Australia, South Australia and the Northern Territory, for example, the 1986 enumeration of indigenous people in discrete communities was conducted by interview with households identified in advance of the count and the Aboriginal origin question on the personal census forms pre-ticked in the affirmative. In Queensland communities, the procedure was essentially the same as for all other Australians with household forms delivered to each dwelling and responsibility for supplying information regarding all of those present vested in the household head, albeit in the case of Aurukun and such places, with assistance from Census Field Officers (CFOs) where required.

One of the statistical outcomes from this standard census methodology was a level of non-response to the question on Aboriginal or Torres Strait Islander origin. Nationally, in 1986, this amounted to 1.7 per cent of the total population (ABS 1993: 7). In Aurukun, the proportion was higher at 12.6 per cent, or 118 persons. Thus, a large part of the discrepancy between the two population counts could conceivably be accounted for by assuming, not unreasonably, that all non-respondents were Aboriginal people. Pro-rating the non-responses in line with ABS practise would offer

an explanation for some of the discrepancy, although this would still leave some 55 persons unaccounted for (Benham and Howe 1994: 3).

Ethnographic census methodology

As part of a field-based analysis aimed at establishing contemporary Wik cultural forms, censuses were conducted in Aurukun in February and June 1986, in October 1987, and in September 1988 (Martin 1993). These censuses concentrated on the collection of basic demographic data including the age, sex, birthdates, and place of residence of individuals in the Wik domain, as well as a range of other economic and social information not relevant to the discussion here. A check list of relevant data items gathered at each census is shown in Table 2.

Table 2. Relevant ethnographic census data collected: Aurukun, February 1986-September 1988.

Census	Personal details (name, DOB ^a , sex, parents)	Status code ^b	Household ^c
February 1986	Yes	Yes	Yes
June 1986	Yes	Yes	Yes
October 1987	Yes	Yes	Yes
September 1988	Yes	Yes	No

a. Date of birth.

b. This field coded whether the individual was Wik, non-Wik Aboriginal, or non-Aboriginal, whether he or she was present at the time of the census in the Aurukun local government area or was in another specified centre (such as Napranum, Coen, Pormpuraaw, Kowanyama, or Cairns), whether they were absent from Aurukun to attend boarding school, and those who had died after February 1986.

c. This field coded the number of the particular household within the Aurukun local government area in which the individual resided at the time of the census.

A fundamental methodological difference between the ethnographic census and the ABS census was an initial step of developing a comprehensive list of basic data (name, date of birth, sex) on all Wik people whose families were Aurukun residents. Thus, while Wik people normally living in such centres as Pormpuraaw were not included in this list, those whose families were recognised as 'Aurukun people' but who lived elsewhere whether on a permanent basis or not, were included. The sources of these data included an incomplete list of adult residents compiled by the Aurukun Shire Council, Mission records in the form of a card index which inter alia contained genealogical and birthdate information up to the mid-1970s, existing genealogies of Aurukun families, and birthdates of younger children held by the local clinic. This information was then supplemented and cross-checked through detailed enquiries to produce as accurate and complete a list of Aurukun Wik people as possible. During the course of

field work the basic census data were continually updated to account for births and deaths.

This regional population list could be viewed as similar, in essence, to an electoral roll, which establishes all adults who are eligible to vote in a particular electorate. In this case, the 'eligibility' criteria comprised membership of a Wik family historically associated with residence in the Aurukun region, or long-term residence in the Wik domain. Thus, in terms of the arguments set out in this paper, a crucial precursor to the actual census data collection was the development of a master list of the *de jure* population of the Aurukun region - in effect, a regional population list which answered the question, who might conceivably be found in the Aurukun SLA at census time?

A second crucial precursor involved mapping the Aurukun township including all significant buildings and, in particular, all Aboriginal 'residential sites', whether they were formal houses (used or unused), self-built structures, or permanent or temporary camps. A 'residential site' was merely the space occupied by a household and this was not necessarily a physical dwelling. Each residential site was then allocated a number. Outstations were also represented by a number.² The map and its associated list of residential sites was an essential tool for the ethnographic censuses. Firstly, there was a fluctuating pool of empty houses within the township for a variety of reasons, such as closures because of ritual prohibitions after deaths, but more generally arising through the high mobility of the population between households and the consequent fluid dynamics of individual households. Secondly, since there were at this time no formal street names or house numbers in Aurukun, and since numbers of people were in any event not living in houses as such, a code was required for each residential site. Thirdly, the map proved invaluable in systematising the collection of data, for the ethnographer and also for the Aboriginal workers involved. Just as the regional population list comprised all individuals who could potentially reside in the Aurukun region at any given time, the map provided an indication of all possible residential sites where households might conceivably be found at census time.

The actual surveys were conducted over three days, using one form for each of the 120 or so households. Data were collected by field workers who included both the ethnographer and several Wik people engaged for the task. For each household, the names of those resident were collected, as well as the other social and economic data being sought in each census. Once the initial survey had been completed, the data were validated by checking names and household numbers against the regional population and residential site lists. After each initial survey this revealed errors of omission and commission, such that a significant number of individuals had not been listed as resident in any household, while a smaller number had been recorded as resident in more than one household. The relevant

information on these individuals was then collected, either by physically locating them or by obtaining proxy data from key informants, and the figures adjusted accordingly.

1991 Census remote area enumeration strategy

The strategy for conducting the 1991 ABS Census enumeration in Aurukun was essentially consistent with that applied in other remote indigenous communities across Australia. This bore a number of similarities to the approach adopted in the ethnographic census but key differences were also apparent. The ABS remote area strategy involves a multi-staged process aimed at maximising the count of indigenous people by employing local indigenous people to conduct the enumeration by interview. While a degree of flexibility in approach is provided for, a set of basic procedures are adhered to as outlined by Taylor (1993a).

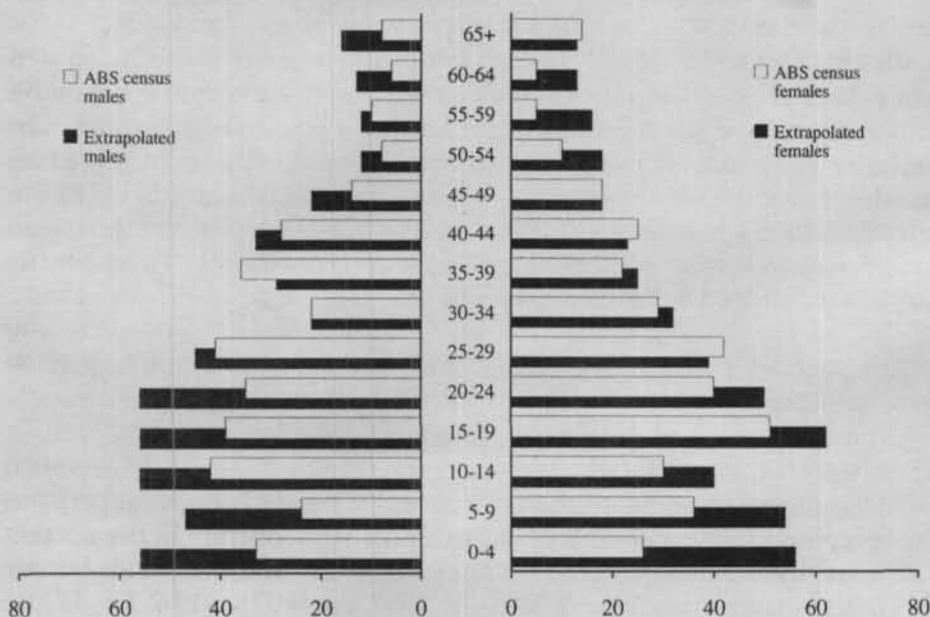
The first task of census teams recruited in each community (step 1), is to compile accurate lists (community lists) of all family groups currently (usually) resident in their census jurisdiction. This process commences as soon as CFOs can organise and train an appropriate community coordinator in each centre. With CFOs thin on the ground this invariably introduces a timelag between the compilation of community lists and the census date, with potential (and unknown) consequences for accuracy given high levels of intra-regional mobility. The actual method of compilation also varies but is generally done via council offices and other community networks. Once constructed, the community lists provide the basis for completing household forms, one for each family group (step 2). Finally, on census date, personal forms comprising the individual census details are completed (step 3) for each household member identified in step 2. In past censuses, the 'Aboriginal' response box to the origin question on the remote area personal census forms has been pre-ticked in an effort to maximise the count of indigenous people. In cases where Torres Strait Islander or non-indigenous origin was assumed, interviewers were instructed to elicit a response from individuals and override this pre-marked answer with an additional tick in the appropriate box. These double entries were later edited at the data processing stage.

On the face of it, this practise of moving from the identification of household and residential groups to the final interviewing of individuals within families appears similar to the ethnographic method employed in 1986. Accordingly, one might have expected results of the 1991 Census in Aurukun to have been more in line with expectations based on the 1986 ethnographic count. The use of pre-ticked forms also strengthens this likelihood by eradicating the previously high non-response rate to the Aboriginal origin question. Indeed, in 1991 the sole controlling factor governing the count of Aboriginal people in Aurukun would appear to have been the physical adequacy of census coverage. It is surprising to note, therefore, that the 1991 ABS population count was actually lower than that

recorded in 1986 (699 compared to 715), even without any allowance for the re-allocation of non-respondents to the Aboriginal origin question in the earlier census.

No ethnographic census was conducted in Aurukun in 1991, and directly comparable data are not available. However, trend data available from the February 1986, June 1986, October 1987 and September 1988 ethnographic surveys provide for reasonable extrapolation of an expected population of the Aurukun SLA in 1991, under certain assumptions. For example, birth records in the ethnographic database indicate that between July 1978 and June 1988, the crude birth rate for the Aboriginal population of Aurukun was of the order of 27 live births per 1,000, while the crude death rate between February 1986 and September 1987 was 9 per 1,000. At the same time, evidence from the 1991 Census indicates very low net inter-regional migration (a net gain to Aurukun of only 18 persons). Simple extrapolation from the September 1988 ethnographic survey, provides a reasonable estimate of the Aboriginal population in August 1991 in the region of 930 to 940 persons.³ Thus, notwithstanding the application of special remote area enumeration procedures in 1991, the gap between the census count and that expected from ethnographic data actually widened between 1986 and 1991.

Figure 3. Age distribution of Aurukun Aboriginal residents: 1991 ABS Census and extrapolated ethnographic data.



Sources: 1991 Census of Population and Housing; data extrapolated from D.F. Martin censuses 1986-88.

Methodological implications of enumeration discrepancies

While the extrapolated demographic profile in Figure 3 can only be taken as indicative, it clearly shows the likelihood of substantial discrepancies in 1991 in the enumeration of children and young adults under the age of 25 years. Part of the explanation for this is to be found in practical difficulties encountered in implementing the 1991 enumeration in Aurukun, reflecting local issues at the time. In particular, the failure to enumerate 100 or so individuals estimated to have been resident at outstations.⁴ While this would clearly have affected the overall count, it does not fully explain the gap between expected and observed numbers of young adults and children given the older age profile of individuals normally resident at Aurukun outstations.

Other factors thus appear to play a role and three, in particular, are advanced here as having the capacity to structurally compromise the accuracy of census counts based on the ABS remote area census methodology. The first of these concerns particular cultural factors which can lead to the omission of young, or more marginal people, from elicited lists of household residents. The second relates to the relatively high inter-household mobility of Aboriginal residents, particularly those aged under 25. The third concerns the inappropriateness of the ABS definition of households in the context of Aboriginal social organisation, and consequent flaws inherent in conceptualising the community lists as a simple aggregation of household residential groups.

The compilation of residential groupings

Factors in Aboriginal population surveys which underlie omissions and inconsistencies in the initial aggregation of individuals as a community listing, should not be seen as simply technical or procedural in nature. The elicitation of a seemingly unproblematic list of co-residents has to be placed against particular cultural considerations. Depending from whom the information is being sought, these could relate to such matters as an unwillingness to directly use the name of a co-resident with whom the person has a respect or avoidance relationship, or unwillingness, perhaps, to acknowledge co-residence because to do so could be akin to admitting publicly to relationships or conflicts which had led to their residing in the particular household at that time.

Furthermore, lists of people are typically ranked, according to factors such as the closeness or otherwise of kin relatedness, gender and generation asymmetry, and political hierarchy. Such principles operate in the context of eliciting those with rights in a particular tract of traditional lands but are also germane in household surveys (Sutton 1978: 154-5). While acknowledging the use of locally-recruited interviewers by the ABS, it is important to note that these principles are likely to operate whether the person seeking the information is indigenous or not. In the ethnographic

surveys conducted at Aurukun, it was common to find smaller children and the more politically marginal omitted from the initial survey. Only subsequent direct questioning yielded information on the current place of residence of these individuals. Such factors clearly have major implications for the conduct of ABS censuses in the light of the substantial under-enumeration of younger children in comparison with the ethnographic survey.

An additional factor which adds complexity to the elicitation of lists of household residents, is the high level of day-to-day inter-household visitation. This is just one manifestation of the importance placed on sociality in many indigenous societies. Commonly, for example, such visiting takes place within kin or clan groupings whose members are dispersed across many households. In conducting surveys, it is common to find that there are no individuals present at some houses, while at others there may be large gatherings comprising both residents and visitors. In such circumstances, the compilation of lists of household residents is clearly rendered problematic.

Intra-regional mobility

These factors are further compounded by the high mobility between households which is a characteristic of Wik social life. High mobility also implies that short-term residents, or 'floaters' who move frequently between residential groupings, may well not be identified in a survey of a particular household even if they are associated with it at the time (Sutton 1978).

In common with other regions, such as Arnhem Land, the composition of traditionally-oriented residence and resource exploitation groups in western Cape York Aboriginal societies varies according to such factors as the distribution and availability of food resources, seasonal accessibility of the country, ritual and other restrictions, and participation in ceremonies (Sutton 1978; Altman 1987: 22-7, 100-7). In addition to this, before sedentarisation, one of the key factors underlying the constant fission and reforming of Wik residential and other groupings, and consequent mobility of individuals and groups across the region, had been the levels of interpersonal and intergroup conflict and violence (Sutton 1978: 91; Martin 1988: 12, 17; Martin 1993: 167). As a consequence of these factors, no single residence unit could be identified for all occasions and all seasons (Thomson 1939; Sutton 1978: 88-91, 97-101).

A high degree of fluidity and contingency in the composition of residential, economic, social and other groupings continues to characterise the Wik domain. In particular, significant short-term mobility of Wik people within the region, and consequent fluid domestic and residence group composition, is a notable feature of the contemporary situation (Martin 1993). The outstation population as a whole and the composition of outstation residential groupings fluctuates according to factors such as the

time of year (with outstation populations peaking during the dry season), ritual restrictions arising from deaths both in town and out bush, levels of conflict in the Aurukun township, and the effectiveness or otherwise of outstation logistic support in areas such as health care delivery, communications and transport.

Within the Aurukun township itself, seasonal factors as such are of less consequence in short-term mobility and group composition and structure. However, the availability of food and money within households (in part determined by the regular cycle of welfare and Community Development Employment Projects scheme payments) is a significant factor. The level of disputation continues to be of great importance in this regard. Wik people use the option of shifting households, leaving the township for varying periods, camping out, moving to an outstation, or travelling to other Aboriginal townships in the region where they have kin, in a process which anthropologists commonly refer to as 'resolution of conflict by fission'.

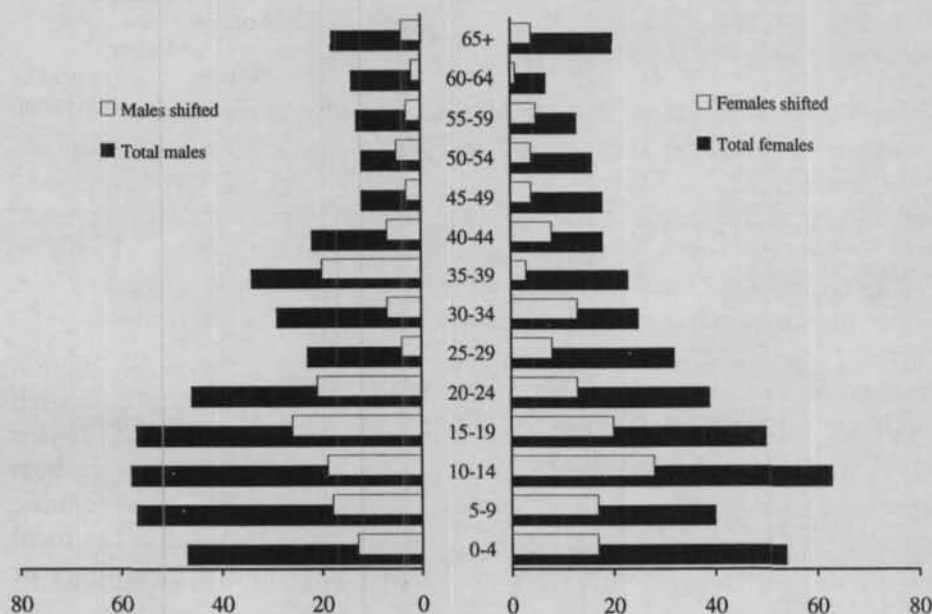
The existence of high levels of intra-regional mobility is clearly demonstrated in data from the ethnographic household surveys undertaken in February and June, 1986 (Table 3 and Figure 4). Residential mobility here is defined using the ABS convention, as having been enumerated in a different dwelling in June compared to February.

Table 3. Residential mobility by age and gender: Aurukun Aboriginal residents, February-June 1986.

Age group	Male	Male shifted	Female	Female shifted
0-4	47	13	54	17
5-9	57	18	40	17
10-14	58	19	63	28
15-19	57	26	50	20
20-24	46	21	39	13
25-29	23	4	32	8
30-34	29	7	25	13
35-39	34	20	23	3
40-44	22	7	18	8
45-49	12	3	18	4
50-54	12	5	16	4
55-59	13	3	13	5
60-64	14	2	7	1
65+	18	4	20	4
Totals	442	152	418	145

Source: D.F. Martin household censuses, February and June 1986.

Figure 4. Household mobility by age and gender: Aurukun Aboriginal residents, February-June 1986.



Source: D.F. Martin household censuses, February and June 1986.

These data show that some 35 per cent of the total Aurukun population had shifted their place of residence over this four month period and of these, only 11 had moved into new housing constructed during this time. Examination of household composition in these surveys demonstrated a frequent pattern whereby residential cores remained relatively constant, while more mobile groups moved between households (Martin 1993: 274; Finlayson 1991; Smith 1991). A substantial proportion of children (35 per cent of those under 15 years) and of young men (46 per cent of those aged 15 to 24 years) had shifted their place of residence over this same period, a rate of mobility between Aboriginal households commented on by a number of writers (Anderson 1982; Altman 1987; Birdsall 1988; Sansom 1988: 170-2; Finlayson 1991; Pholeros et al. 1993).

Of particular note was the relatively high mobility of children between households. This is further illustrated by an analysis of residence patterns for children based on the data from the October 1987 ethnographic survey (Table 4). Almost one third of children aged between 5 and 9 years were living with neither their father nor mother when this survey was conducted, and many were in households which included their paternal or (most commonly) maternal grandmothers (Martin 1993: 171). In such circumstances, the potential for under-enumeration of children in these age groups would appear to be considerable.

Table 4. Aboriginal children not living with parents, Aurukun, October 1987.

Age group	Not in household of:			
	Father		Mother	
	Number	Per cent of age group	Number	Per cent of age group
0-4 years	36	31	10	9
5-9 years	48	47	15	15

Source: D.F. Martin household census, October 1987 (Martin 1993: 171).

In the context of contemporary mobility impacts on Aboriginal population change in the Aurukun region, the crucial point to note is that despite such high rates of movement, residence in the locale remains continuous (Taylor 1995). With this in mind, the spatial structure of Wik society is best understood in terms of certain principles of social, political and economic organisation that are manifested in frequent shifts of residence at the local scale, rather than as an aggregate of fixed and bounded groupings or households (Martin 1993: 295-7).

The definition of households

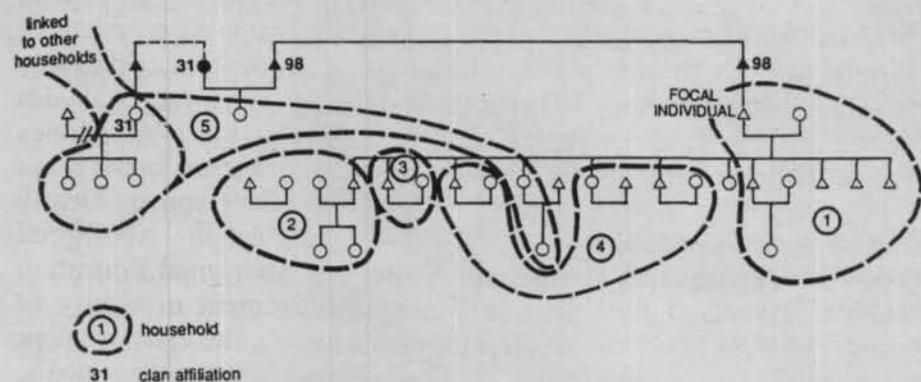
Current ABS remote area census methodology is compromised by the application of standard definitions of 'household' and 'family'. For census purposes, a household is held to comprise persons in a dwelling 'living and eating together as a domestic unit', and the coding of 'family types' is derived from a 'family reference person ... around whom a family can be constructed' (ABS 1986: 65). To be designated a family, two or more persons must be usual members of the same household. 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 one (ABS 1991: 6).

The ethnographic evidence is 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 (Finlayson 1991; Smith 1991, 1992; Martin 1993). In such circumstances, it is clear that the ABS distinction between 'usual residents' and 'visitors' can be problematic.

Moreover, 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; Anderson 1982; Finlayson 1991; Smith 1991, 1992; Martin 1993), and what Aboriginal people themselves refer to as 'families' are typically dispersed across a number of households, as shown in Figure 5. This describes a cluster comprising five households drawn from a single family group. It is such clusters, rather than individual households, which commonly form the basic units of consumption in remote Aboriginal Australia.

Figure 5. Sample household cluster composition, Aurukun township, February 1986.



Source: Martin 1993: 273.

This social construct clearly has methodological implications for the collection of basic demographic data. In the period of preparation for the actual census collection in remote Aboriginal communities, the current methodology adopted by the ABS involves the compilation of lists of families from which lists of households in the locale are developed. This information is then used as a basis for the actual census collection (ABS 1991). However, the Aurukun experience indicates that this methodology carries with it the potential for substantial error. In the ethnographic surveys in Aurukun, the methodology adopted recognised that there were high levels of inter-household mobility. Furthermore, while household residents were generally related through kinship, no a priori assumptions could be made about the relationship between particular family members and particular households. Rather, knowledge about the family structures of Aurukun was used in developing a list of the regional de jure population, against which the enumeration of the regional population through household surveys could be validated.

Conclusions and policy implications

Clearly, enumeration of any kind in remote areas is a difficult task. Compounding the problems presented by dispersed settlement over large distances, the Aboriginal population in such areas is highly mobile while the geographic and social distribution of households and their individual members presents definitional problems (Smith 1992). The obstacles to accurate enumeration that these factors present no doubt help explain the gap sometimes observed between official and unofficial population counts. This conundrum would be resolved to some extent if documentation were available detailing different modes of enumeration. At the very least, those using the data would be aware of the procedures employed in obtaining it so that results could be interpreted in an appropriate context.

Notwithstanding these difficulties, there are significant policy-related imperatives for the development of accurate and reliable demographic data on Aboriginal people, particularly in remote areas. It is well established, for example, that the Aboriginal residents of such areas are relatively disadvantaged, both in comparison with non-Aboriginal residents, and with Aboriginal people living in rural and urban areas (Taylor 1993c; Jones 1994). The targeting and monitoring of services and programs in the areas of health, employment, education, and infrastructural development clearly benefit from accurate demographic data. For example, the Aboriginal Employment Development Policy (AEDP) and the Aboriginal Education Policy (AEP) have as their core goals the achievement of equity in employment and education participation and outcomes. The establishment of realistic targets at both national and regional levels against these goals, and the ongoing monitoring of program delivery, is dependent upon reliable and consistent information on the demographics of the target populations.

The analysis in this paper suggests that there are methodological and conceptual issues relating to the current ABS remote area enumeration strategy which, at the very least, seem likely to compromise the accurate enumeration of Aboriginal people in remote Australia. In Aurukun, the effect appears to have been an under-enumeration, particularly of the young, more mobile and more socially marginal. While no basis exists for asserting that discrepancies of a similar magnitude exist elsewhere, the relative exclusion of such cohorts from official census counts is something that has been noted before by researchers and has also been acknowledged by the ABS (Gray and Tesfaghiorghis 1993: 84; ABS 1993: 16-17; Benham and Howe 1994: 3). Also apparent are substantially divergent regional trends in Aboriginal population change in parts of remote Australia that are difficult to explain solely by reference to demographic processes (Taylor 1993b: 5). Such anomalies, while not necessarily demonstrating under-enumeration as such, do suggest significant problems in the basic demographic data.

If, as the Aurukun data suggest, these problems relate in particular to the younger, more mobile and socially marginal segments of the remote Aboriginal population, there are major implications if policy goals such as those of the AEDP and AEP are to be realised. For one thing, an under-enumeration of the Aboriginal population presently aged under 20, could lead to significant discrepancies between projected and actual remote area populations in the future. Programs targeted at relative socio-economic disadvantage, particularly in areas such as education, housing, and employment, are predicated upon specific population projections and could well turn out to be significantly under-resourced.

Furthermore, principles of social justice and equity demand not only that the relative socio-economic disadvantage of indigenous people as a whole be reduced, but that the needs of particular segments within the indigenous population be addressed. The locational disadvantages suffered by Aboriginal residents of remote areas as a whole may well be exacerbated for younger Aboriginal people through their higher mobility and social marginality. A better understanding of the demographics of this segment of the population would be an important first step in targeting programs to address their specific disadvantages.

Undoubtedly, similarities exist between the methodology adopted in the ethnographic censuses undertaken at Aurukun, and that of the ABS remote area enumeration strategy. In both cases, for example, considerable effort was expended in compiling a population list against which census counts could be evaluated. However, two significant differences emerge in the manner of list construction and these are vital in understanding the variable outcome from the two enumerations. The first of these differences was that the list developed in the ethnographic censuses was an omnibus *de jure* list of the regional population. In the ABS case, the equivalent was, in essence, an aggregate of elicited household populations. While the ethnographic census sought to derive household structures and compositions from the regional population, the ABS census attempted the opposite in seeking to derive the regional population from an aggregate of household populations.

The second crucial difference was that the regional population list in the ethnographic census was used to validate the population count. The equivalent process in the ABS methodology relied upon household lists and appears to have been over-reliant upon the completeness of the actual information gathering process at each household prior to the census. Given the evidence from Aurukun regarding specific Aboriginal cultural values which could influence the elicitation of residents, as well as the high local-level mobility and high inter-household visitation rates, the completeness of the data gathered at the time of the actual census is likely to have been problematic. The ethnographic censuses on the other hand made no *a priori* assumptions whatsoever regarding the stability or otherwise of particular households, nor of their structures or sizes. Rather, those recorded as being

present at any of the households in the region in the census were checked against the list of the regional *de jure* population. Further follow-up information was then sought on individuals who were overlooked or double-counted.

These methodological differences relate to issues of a conceptual nature. Although the ABS has made considerable and laudable efforts to incorporate indigenous social and cultural factors into its enumeration of indigenous populations, the strategy is still predicated at a fundamental level upon the assumption that households are relatively bounded social entities which form the basic units from which the regional population can be derived. The ethnographic evidence cited above, particularly that related to local-level mobility, indicates otherwise.

Clearly, the last two decades have witnessed a good deal of development in the methods employed to officially enumerate indigenous people in remote Australia. Issues to do with data acquisition and quality are also increasingly recognised in policy and the social science literature. An obvious step towards addressing outstanding statistical needs has also been made with the establishment of a dedicated Aboriginal and Torres Strait Islander Statistics Unit in the Darwin regional office of ABS. Nonetheless, basic questions regarding the accuracy of some counts remain. With this in mind and with some capacity now in place, the challenge for the ABS, and all other agencies that procure statistical information, is to increase familiarity with the special conditions for enumeration that exist in remote Australia and to further adapt data collection methods accordingly.

One example of such improvement is the ongoing refinement of census geography to reflect the structural circumstances of people on the ground (Taylor 1992b). This is consistent with the emphasis here on a regional perspective as the basis for enumerating remote populations. It also conforms with recommendations made by Young and Doohan (1989) and Young (1990) regarding the need for regional population statistics which more closely reflect the realities of Aboriginal social organisation. The same perspective needs to be built into the remote area enumeration strategy. Much here would seem to hinge, as always, on the adequacy of resources. However, it is suggested that greater troubleshooting at census time to follow-up obvious discrepancies may go some way towards enhancing cost-effectiveness by ensuring greater accuracy in population counts with relatively little need for additional resources.

Where possible, the key to this would seem to be the construction of regional *de jure* population check lists. These would draw initially on existing data held by service providers such as Land Councils, Community Councils and Outstation Resource Centres. These check lists could then be used at census time as an adjunct to the actual counts of population, almost like an electoral roll, to help identify omissions or duplication. It is interesting to note that such a list of people is not dissimilar to the list of

places which is drawn up by ABS in advance of the census indicating all locations where individuals might conceivably be found at census time. Such a device may also have useful application if there are moves towards the development of intercensal estimates of the indigenous population. In this context, a strategic move by the ABS would be to encourage ongoing links between State offices and relevant community organisations.

Notes

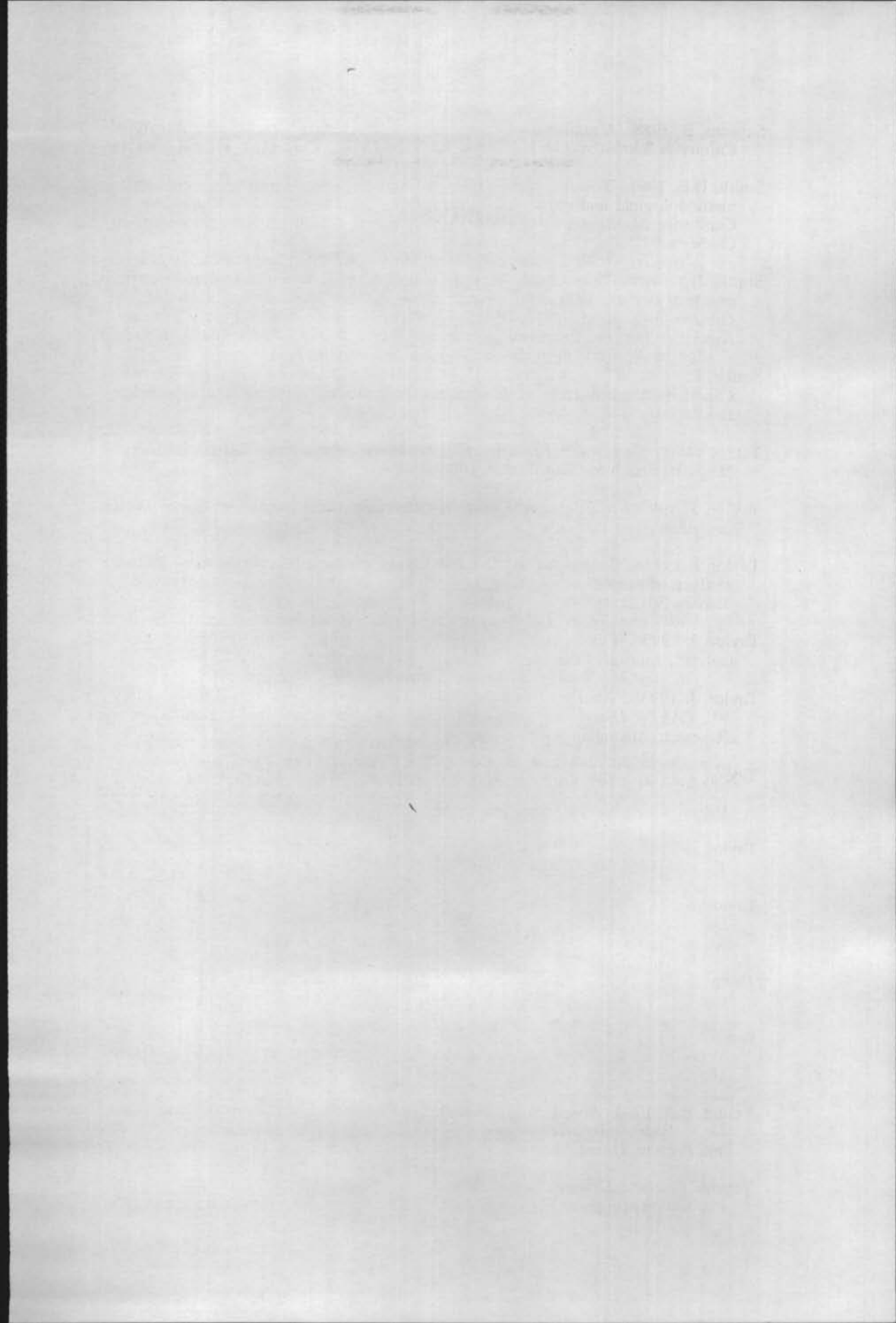
1. Only three Torres Strait Islander people were recorded in the Aurukun SLA in the 1991 ABS Census.
2. Since at the time of year when these censuses were undertaken only a few people had moved back to their outstations, and since the focus of the study was the township itself, it was not considered necessary to allocate more than one number to a given outstation centre.
3. For the purposes of extrapolating, it was assumed that the age pattern of deaths observed in the ethnographic surveys between 1986 and 1988 was representative of that in the full intercensal period.
4. Personal communication from the previous general manager of Aurukun Community Incorporated, August 1995.

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