



**A Longitudinal Data Resource on Key Influences
on Health in the Northern Territory:
Opportunities and Obstacles**

Frank Siciliano • Matthew Stevens • John Condon • Ross Bailie

Cooperative Research Centre for
Aboriginal Health

Discussion Paper Series: No. 1

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The ideas and opinions presented in this discussion paper are the authors' own and may not reflect those of the Menzies School of Health Research and the Cooperative Research Centre for Aboriginal Health.





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The Cooperative Research Centre for Aboriginal Health (CRAH) has instituted this Discussion Paper Series (DPS) as a forum for its researchers, students and associates. The purpose of the DPS is:

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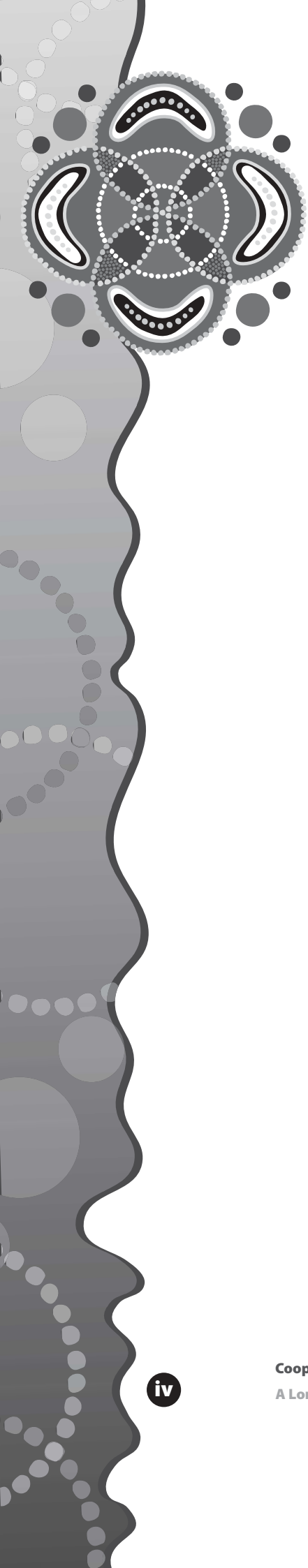
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Foreword

The quality and responsiveness of primary health care services — and other services that contribute to health status — delivered to and by Aboriginal and Torres Strait Islander people are issues of long-standing concern to leaders and organisations in the Northern Territory Aboriginal health sector. The Cooperative Research Centre for Aboriginal Health (CRAH) and its predecessor the Cooperative Research Centre for Aboriginal and Tropical Health (CRCATH) have played, and continue to play, a significant role in the research and debate in this area.

This discussion paper draws together information on the design and feasibility of an information resource covering the key indicators of social, infrastructure and environmental status in Aboriginal communities in the Northern Territory. Such an information resource would inform ongoing planning and evaluation processes relevant to health, and should result in better policy and service program design.

This discussion paper, therefore, provides a potentially useful step in the development of information systems that should be of interest to a range of stakeholders including government departments, for example, Education, Health and Community Services, Sport and Cultural Affairs, other agencies such as the Office for Aboriginal and Torres Strait Islander Health (OATSIH) and the Aboriginal Medical Services Alliance Northern Territory (AMSANT). Ultimately, local services should be able to use the information resource both to understand the health status of their constituents and to measure change in that health status.

A Longitudinal Data Resource on Key Influences on Health in the Northern Territory: Opportunities and Obstacles contributes to a broader program of interrelated research activities. It ties in with an ambitious research concept proposed to the CRCATH in 2000 by the Central Australian Aboriginal Congress and members of the Northern Territory Aboriginal Health Forum. That was subsequently categorised by the CRCATH into a framework to support the development of relevant areas of research activity. This consisted of four areas of focus:

- a) Data infrastructure — including (but not limited to) the domains of health status; PHC service output and quality; education; housing; economic data; transport; social leadership.
- b) Relationships between social determinants of health and health service programs.
- c) Performance of health services and their effectiveness.
- d) The framing of relevant research questions and testing of hypotheses, identification of datasets required to answer important policy and service-relevant research questions, and enhancement of the quality and type of data collected.

These four areas of focus have informed, and continue to inform, research activity within the CRAH and its partners. This discussion paper has relevance to all four areas of the framework.

International trends towards promoting the use of evidence to help inform policy and practice are now focusing on the use of 'live' datasets, such as proposed within this discussion paper, to provide close to real-time answers to the pressing needs of policy and decision makers. The realisation of the potential presented by this discussion paper now depends on the response of key stakeholders to the identified opportunities. The CRAH is committed to supporting the transfer of research findings into policy and practice, and will welcome the opportunity to work with relevant government and non-government agencies to explore how this discussion paper can contribute to improving health relevant information systems.

Mick Gooda
Chief Executive Officer
Cooperative Research Centre for Aboriginal Health

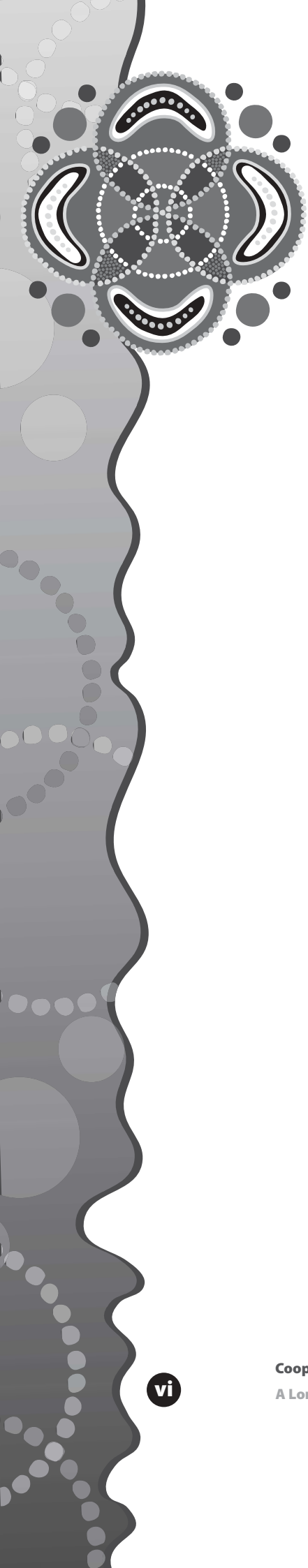
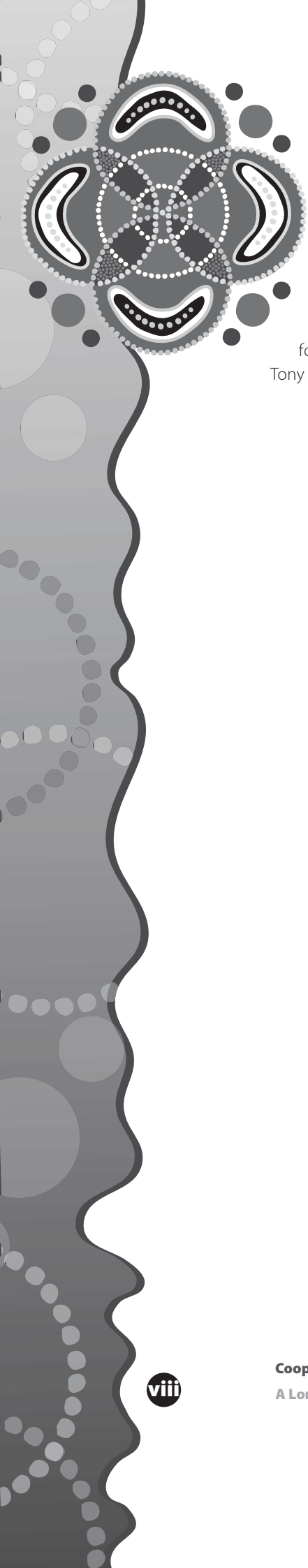


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Preface

This project arose from the recognition of the importance of a longitudinal analysis of how factors in the social, physical and health service environment are related to the health status of, and to the health risk and health protective factors for, Aboriginal people in the Northern Territory. Early discussion on the development of this project included the suggestion that a retrospective longitudinal analysis may be useful. However, it rapidly became clear that the availability and quality of existing data would place serious limitations on the value of such an analysis. It was also apparent that a focus on opportunities for, and barriers to, the development of a prospective database would have much greater value, particularly in the long term — hence the focus of this discussion paper.



Abbreviations

ABS	Australian Bureau of Statistics
ABCD	Audit and Best Practice for Chronic Disease
ACE	Angiotensin-converting Enzyme (inhibitor)
AMI	Acute Myocardial Infarction
AMSANT	Aboriginal Medical Services Alliance Northern Territory
ANZLIC	Australian and New Zealand Land Information Council
BMI	Body Mass Index
CARPA	Central Australian Rural Practitioners Association
CDEP	Community Development Employment Projects
CDU	Charles Darwin University
CHINS	Community Housing and Infrastructure Needs Survey
CIAS	Community Information Access System
CRCAH	Cooperative Research Centre for Aboriginal Health
CRCATH	Cooperative Research Centre for Aboriginal and Tropical Health
DBERD	Department of Business, Economic and Regional Development (NT)
DCDSCA	Department of Community Development, Sport and Cultural Affairs (NT)
DEET	Department of Employment, Education and Training (NT)
DHCS	Department of Health and Community Services (NT)
DLGHS	Department of Local Government, Housing and Sport (NT)
EBA	Enterprise Bargaining Agreement
EHS	Environmental Health Survey (renamed as the Housing Condition Survey since 2004)
ESBW	Emotional and Social Wellbeing
FaCSIA	(Commonwealth Department of) Family, Community Services and Indigenous Affairs
GIS	Geographic Information System
HbA1c	Haemoglobin A1c test
IDP	Information Development Plan
IHANT	Indigenous Housing Authority of the Northern Territory
IT	Information Technology
LID	Longitudinal Indicators Database
MSHR	Menzies School of Health Research
NTG	Northern Territory Government
NTLIS	Northern Territory Land Information System
NT PD	Northern Territory Police Department
OATSIH	Office for Aboriginal and Torres Strait Islander Health
PHC PI	Primary Health Care Performance Indicators
PIs	Performance Indicators
PROMIS	Police Real-time Online Management Information System
SEEDH	Socio-Economic and Environmental Determinants of Health
SLC	Statistical Liaison Committee
SPAC	Statistical Priorities Advisory Committee
STI	Sexually Transmitted Infections

Executive Summary

The role of social factors in contributing to the poor health status of Indigenous people living in rural and remote regions is widely accepted but not well understood. Increasing the knowledge and understanding of the social and environmental determinants of health among researchers, public health professionals, government policy makers and the wider health workforce is fundamental to making a difference to the health of Indigenous Australians. Determinants include income, employment, education, housing, community infrastructure, social disruption, crime and violence. There is a clear need to encourage a strong evidence base through information systems to support the development and implementation of policies that aim to promote the health of people in the Northern Territory (NT).

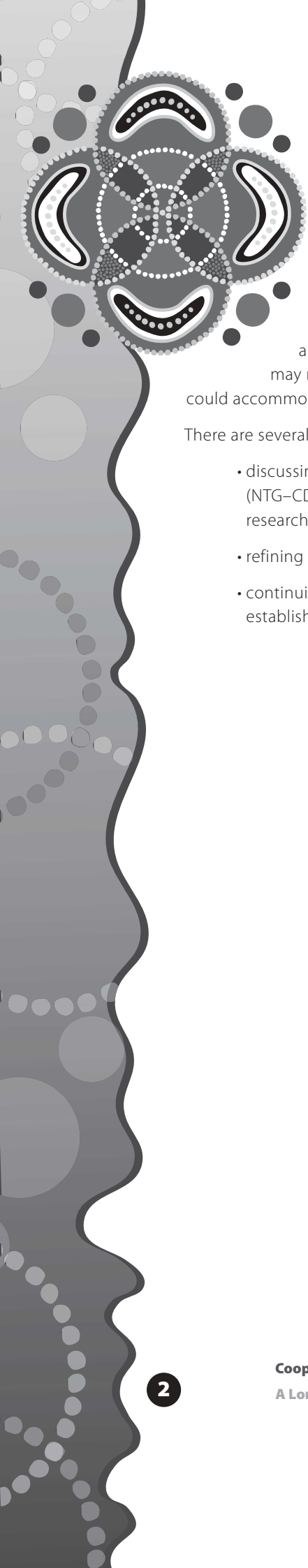
This paper summarises the benefits and feasibility of a longitudinal database of socio-economic, environmental and health indicators at the regional and community level within the NT: a Longitudinal Indicators Database (LID). Such a statistical resource would facilitate both the monitoring of trends over time and access to regularly updated data to support applied research and inform policy makers and service providers.

The LID envisaged in this paper focuses on health as one main area of interest. This reflects the work of the Menzies School of Health Research (MSHR) and the Cooperative Research Centre for Aboriginal Health (CRAH). However, the proposal to develop such a resource should be seen in the context of a broader integrated information system of environmental, economic and social (including health) indicators which could be used by a large number of government agencies and researchers who require a consistent set of time series data for their work. Encouraging and supporting increased research–government collaborations in a number of sectors is a major focus of this investigation.

At present, it is difficult, often impossible, for both government and academic researchers to access a comprehensive longitudinal data resource to support their work and inform policy makers of changes in community conditions or service provision. For non-government people and organisations, data acquisition often involves one-off requests to an agency for a specified dataset covering a defined period of time. Additional data from the same dataset generally requires a new access request; this clearly hinders the ability to monitor trends and patterns efficiently over time. The development of a LID would greatly facilitate such research, and has the added capacity to improve the quality of original data sources as researchers feed back concerns to data collecting agencies and advise of areas of improvement.

Multi-disciplinary statistical databases have existed within various Northern Territory Government (NTG) agencies over time, for example, the development of the 'Community Information Access System (CIAS)' from the 1980s. Although not specifically focused on health, these resources have supported numerous users and uses. The current investigation has been driven by the research of two data-related projects undertaken through the MSHR and the CRAH: 'Socio-economic and environmental determinants of health in Indigenous communities in the NT–SEEDH' (Stevens in prep.) and 'The development of a performance reporting system for Indigenous primary health care' (Gollow 2003).

Both of these projects present a number of statistical indicators that could form the basis of a new longitudinal database as proposed. Furthermore, a proposed conceptual framework developed as part of the SEEDH project is presented in order to provide a starting point for discussion about the content of a LID resource.



The discussion paper reviews several statistical initiatives currently underway in the NT Government and identifies a number of issues and obstacles related to the development of a LID resource. It is hoped that this discussion paper will raise awareness as to the benefits of a LID for the Northern Territory. The investigation of the issues has found clear potential benefits, which the authors view as important enough to warrant development of a business case for establishing a LID.

The approach undertaken on the project has involved a series of consultations with stakeholders and a review of literature. Discussions to date suggest that while a health-focused LID as envisaged may not be a high priority for the NTG at present, there are a number of statistical initiatives which could accommodate the resource and that these require further investigation.

There are several avenues still to pursue. These include:

- discussing the database concept with the Northern Territory Government–Charles Darwin University (NTG–CDU) Partnership Secretariat highlighting the advantages for advanced policy and applied research linked to NTG strategic directions;
- refining the draft set of indicators; and
- continuing to liaise with key NTG stakeholders and maintain discussion and support for the establishment of a LID resource.

Key Messages

A Longitudinal Indicators Database containing Northern Territory community and regional level indicators for socio-economic and environmental determinants of health in addition to health indicators is feasible and, with high-level organisational commitment, achievable. This would go some way to meeting the requirements for reporting on a range of social indicators as set out in several national reports, including the recent report of the Aboriginal and Torres Strait Islander Social Justice Commissioner.

The LID information system proposed in this paper focuses on health as the main area of interest. However, the proposal should be seen in the context of a broader integrated information system of environmental, economic and social (including health) indicators which could be used by a large number of government agencies and researchers who require a consistent set of time series data for their work.

Major benefits of establishing a LID:

- Improved potential for monitoring of programs and policies aimed at improving population health.
- Better understanding of community and regional level factors that impact on community health.
- Assisting data-collecting agencies and statistical users to better understand data quality and analysis issues related to applied research.

Challenges related to the establishment of a LID:

- Gaining high-level commitment from key NTG agencies for the establishment of a LID.
- Gaining acceptance and support from data custodians and managers regarding their central role and responsibilities in supplying data on a regular basis.
- Developing a clear strategic plan that outlines resources required to establish and maintain a LID, in addition to access protocols and conditions of use.

Key steps in moving forward in the establishment of a LID:

- Continuing to lobby for high-level commitment from key NTG agencies.
- Establishing a working group with representatives from NTG data custodians from whom data is intended to be sourced, the NT Treasury as NTG statistical co-ordinators, Charles Darwin University's Institute of Advanced Studies (including the Menzies School of Health Research and the School of Social and Policy Research), and the Australian Bureau of Statistics.
- Exploring collaborative opportunities through the NTG-CDU Partnership Agreement.
- Obtaining feedback and buy-in from key NTG and CDU statistical users.
- Conducting further consultations with stakeholders and researchers to better understand their statistical needs, ensuring mutual benefits are maximised.
- Refining the proposed minimum set of statistical indicators.
- Proposing options for a physical location of a LID that could include one or more NTG agencies and/or CDU.



1. Introduction

1.1 This discussion paper presents the findings of an investigation into issues surrounding the development and maintenance of a multi-disciplinary database of statistical indicators in the Northern Territory — a Longitudinal Indicators Database. Such a statistical resource would streamline access to regularly updated data for the benefit of a large number of users of statistical information. It is believed that a LID could greatly assist in developing stronger linkages and collaboration between researchers and government policy makers, while increasing the mutual understanding of the benefits that a longitudinal data resource has for supporting applied research, policy development and program monitoring in key areas of social and economic concern.

1.2 The health focus in this discussion paper reflects the work of the MSHR/CRAH and, in particular, the state of social and environmental conditions and the health of people living in Indigenous communities in the NT. Our aim is to improve the standard of longitudinal research in NT-based public health, building on disciplinary-specific expertise to develop multi-disciplinary understanding and policy-relevant approaches.

1.3 In an effort to promote a broader application of such a statistical resource and greater collaboration between government agencies and researchers, we encourage readers to consider how a LID could be used to support a range of program evaluation and policy development tasks (both health and non-health related), such as:

- monitoring time trends and geographic variation related to social and economic development;
- monitoring time trends and geographic variation for the evaluation of government and non-government programs;
- identifying barriers in communities and regions to the success of interventions aimed at improving the health, education and living standards of Territorians;
- identifying factors in communities that hinder economic development; and
- identifying important community contexts that relate to poor community health.

1.4 Although one of the original aims of the investigation was to prepare a document which could be used to advocate for the development of a LID in the NT, it became clear that there was a real need to document current and planned NTG initiatives with regard to statistical information systems in an effort to understand the variety of users, needs and applications of key datasets. By outlining some issues and obstacles related to the development of a LID resource, it is hoped that this discussion paper will prove useful to NTG data custodians and providers who may be considering options for the future development of their statistical information systems to support government policy making and research.

1.5 This discussion paper focuses on NT health-related statistical indicators that could be derived from routinely collected datasets and proposes a minimum dataset based on the most relevant, best quality data currently available (refer to Section 8.4).

1.6 Within NTG agencies over time, there have been a number of previous LID-type developments at least as far back as the late 1980s (e.g., CIAS). While not specifically focused on health, these have supported numerous users and uses. Two recent projects have provided further impetus for this current investigation. Firstly, the PhD research currently being undertaken at MSHR by Matthew Stevens on the 'Socio-Economic and Environmental Determinants of Health (SEEDH) in Indigenous Communities' (also a CRAH-endorsed and funded project). This work has accessed and assessed the data quality (*fitness for use*) of a range of statistical data from different NTG and Commonwealth agencies and created indicators of population health and related issues for individual communities (Stevens in prep.). Secondly, the 'Development of a Performance Reporting System for Indigenous Primary Health Care' (PHC PI), undertaken by the CRCATH in 2003, defined a set of performance indicators used to measure the effectiveness of primary health care service provision (Gollow 2003).

1.7 It is proposed that a selection of indicators from both projects form the basis of a prototype database that can be used to demonstrate the capability and value of a LID for service planning, policy development and applied research.

1.8 This discussion paper is presented in a number of sections. Background information is provided to place the LID proposal in the context of broader NTG developments related to the use of statistical data to monitor changes in population health and service provision outcomes. A summary of the SEEDH project is presented, a brief review of some key NTG statistical data initiatives are outlined and opportunities that could arise from the NTG–CDU partnership agreement are discussed. The potential of incorporating Geographic Information System (GIS) data into the database project is reviewed, and a number of identified issues and obstacles related to establishing a database are presented. Finally, conclusions and recommendations for developing the LID concept are proposed.

1.9 The information was obtained from consultations, government publications and a review of the literature. Limitations are acknowledged and need to be considered when reading this discussion paper. These include a relatively small number of stakeholder consultations and limited access to information on the current status of NTG statistical data resources. We hope, through this discussion paper, to contribute to and promote the ongoing development of information systems to support applied research, policy making and service planning.



2. Background

General

2.1 The role of social factors in contributing to the poor health status of Indigenous people living in the Northern Territory is widely accepted but not well understood (NTG 2003). Increasing the knowledge and understanding of the social and environmental determinants of health by researchers, public health professionals, government policy makers and the wider health workforce is fundamental to making a difference to the health of Indigenous Australians. There is a clear need to encourage a strong evidence base through information systems to support the development and implementation of policies that aim to promote the health of people in the NT (CRAH 2004).

2.2 Research into the social and environmental determinants of health of Indigenous Australians has been identified as a priority area and an underpinning philosophical direction both through the MSHR and the CRAH strategic planning processes. Such research is also required by those NTG agencies that administer a range of programs and services aimed at improving health outcomes across the NT.

Primary health care performance indicators

2.3 The work commissioned by the NT's Department of Health and Community Services (DHCS), and undertaken by the CRAH in 'Development of a Performance Reporting System for Indigenous Primary Health Care' (Gollow 2003), has played an important role in giving rise to the current database project (Qld Treasury 2004).

2.4 The need to develop a series of consistent indicators with standardised data definitions to measure the effectiveness of primary health care services was recognised and addressed by this project. This need arose during the implementation of the Primary Health Care Access Program (PHCAP), which is establishing health boards to manage the delivery of primary health care services in remote areas of the NT within communities grouped into newly defined health zones. The NT's DHCS and the Commonwealth Office of Aboriginal and Torres Strait Islander Health jointly fund PHCAP.

2.5 Extensive stakeholder consultations and workshops allowed for the review and refinement of forty-three indicators that are documented in the project report (Gollow 2003). These indicators inform about three domains: Health Status and Outcomes; Determinants of Health; and Health System Performance (refer to Appendix 3 for details).

2.6 It should be noted that a performance reporting system based on this work is now being implemented with the support of the NT Aboriginal Health Forum. The current implementation of this reporting system is focused on the Health System Performance domain, and is limited to indicators that small health centres should currently be able to report on.

2.7 The roll-out of the ABCD Project in the NT has greatly enhanced the capacity of health centres to report on indicators in the Health System Performance domain, and established a system to collate and analyse this data at the regional and Territory-wide level. The ABCD Project is a continuous quality improvement project that provides an integrated system of clinical audits, health centre system assessment, and web-based data entry, analysis, reporting and networking functions.

2.8 This work has at least two important implications for the current LID discussion. Firstly, the success of the PHC PI project, and the fact that a component of the recommended framework from this project is now being implemented, was largely due to a good consultation process and the engagement of key players in government over the duration of the project. A number of these key players also need to be effectively engaged in discussions about assessing the feasibility of a LID. Secondly, any attempt to develop a prototype indicators information system will need to incorporate a number of the indicators that are specified in the PHC PI report. The list of data sources required for the indicators effectively identifies the departments and organisations that need to be engaged.

Access to data

2.9 Access to the large number of NTG statistical datasets can be difficult for people and organisations outside of the government sphere. Privacy legislation and administrative procedures restrict data availability where the identification of individuals and/or communities could occur. Data summaries grouped to agency-specific geographical boundaries can be accessed in a variety of formats. Currently, access to a limited number of such datasets is possible if protocols and user conditions specific to each agency are agreed to. However, access to a specific dataset covering a defined time period and geography does not allow on-going access to the same data to monitor changes over time; repeated approvals are required for additional data from the same collection. Examination of medium to long-term trends under these conditions is inefficient at best, and often severely impeded or completely obstructed.

Collaborative research

2.10 In general, there appears to be limited multi-disciplinary, cross-agency research to support whole-of-government policy development in the NT. This is a reflection of both the relatively small size of the administration and the difficulties of overcoming issues of data ownership and information sharing between agencies. Collaboration with academic researchers working on issues relevant to government social policy under the NTG–CDU Partnership agreement has the potential to generate numerous positive outcomes to support NTG policy makers and service providers.

Regional planning

2.11 The NTG's move to regional planning, driven by the 'Stronger Regions' policy, has led to a greater focus on the need to have consistent, comparable datasets across agencies. The NTG has recently introduced common geographical boundaries for statistical reporting by all its agencies. A new internet statistical and map application (www.id.com.au/nt/commprofile) highlights the use and presentation of Census data based on these boundaries.

2.12 Some recent work on regional governance in the NT by John Taylor from the Australian National University has highlighted a number of issues related to the availability and application of a range of data to support development planning (Taylor 2003, 2004). Taylor notes that 'an essential component of community capacity building for regional planning is an ability to benchmark and monitor change in social and economic conditions, and a prerequisite for this is the construction of a baseline profile of the regional population' (2003:8). Where data are inconsistently and unsystematically collected it is difficult to recognise and monitor longitudinal effects.



Information system models

2.13 A useful model to consider when reviewing options for the NT is the Queensland data hub based within the Treasury's Office of Economic and Social Research (OESR). The hub provides subscriber access to the Queensland Regional Statistics Information System, which contains a variety of time-series collections of economic, social and demographic data at the regional level sourced from both State and Commonwealth agencies. The OESR provides support to users to help them understand the various aspects related to data collections and analysis in an effort to strengthen policy making and applied research tasks.

2.14 With regard to health information systems, recent work undertaken by the Canadian Centre for Health Services and Policy Research (CHSPR 2005) is particularly relevant to a consideration of a LID in the NT. The CHSPR report of this work describes the current status of population-based health and health services databases in Canada and highlights the potential for their use in innovative and important health research. Current and emerging issues around the collection, storage and use of data were identified through interviews with data collectors, custodians and users. Privacy and data access issues were also reviewed.

2.15 With a large number of data collectors and custodians operating across different levels of government in Canada, the investigators found that most agencies have no explicit mandate to support the research community — 'data are collected for public health and surveillance, or, more commonly, in the course of operating health, education and social systems' (CHSPR 2005:5).

2.16 In a situation reflected in the NT, regardless of the original purpose of data collection, secondary analysis of the data has great potential for improving our understanding of the impact of public policy and other interventions on individuals and populations. However, secondary analysis also requires arrangements to govern the retention, disclosure and use of data. These issues become contentious when 'research is not recognised as a primary mandate for the collecting agency' (CHSPR 2005:5). As a result, a complex and fragmented set of arrangements exists which limits access to data for research.

2.17 A number of recommendations outlined in this Canadian study cover issues such as:

- privacy;
- the need to convene a coordinating body to improve access to data for researchers;
- encouraging data custodians to review and increase their commitment to the provision of data for research;
- developing a web-based 'population, public health and health services research' portal; and
- building and maintaining a standardised inventory of population health and health services databases across agencies (CHSPR 2005:11–12).

It is argued that for these recommendations to be accepted and implemented, the value of applied research generating evidence to inform policy development and service provision decisions needs to be recognised.

Data quality issues

2.18 In addition to informing and understanding the impact of public policy and associated programs, secondary data analysis can also lead to a better understanding of the limitations of data sources used in deriving performance indicators. This stimulates efforts to improve data quality and ultimately leads to more effective monitoring of policy and programs. Integral to promoting data quality improvement are the following points adapted from the Canadian Institute of Health Information's report *Earning Trust: Key Findings and Proposed Action Plan from the Data Quality Strategies Study* (CIHI 2003):

- Data quality issues are critical to the organisation's credibility and long-term success.

- The success of the program depends on strong collaboration with standards-setting bodies, data collectors, and users of health information — all of which may have competing priorities.
- The acknowledgment of new and evolving uses of data and the associated challenge of ascertaining the fitness for use of the data (for example, trade-offs between accuracy, cost, comprehensiveness and timeliness).
- Staff and management buy-in is critical to the success of any quality improvement initiatives.
- Staff consultations indicated the desire to have better clarified roles and responsibilities. For example:
 - there must be a broad recognition that all staff have a role to play in facilitating data quality;
 - program managers should be accountable for the quality of data produced in their areas of responsibility and for liaising with other areas to ensure consistent strategies are in place; and
 - the corporate data quality unit has specialised expertise and should continue to champion data quality internally and externally and to support the efforts of program areas (this implies a facilitative, not a ‘watchdog’, role).
- External stakeholder consultations indicated the need for:
 - strong feedback loops to identify potential data quality issues and generate action plans for addressing them; and
 - exploring strategies to increase buy-in of stakeholders with special interest and expertise to ensure high-quality data.

2.19 Critical in the above recommendations is the building of partnerships between generators, processors and users of data. The report also recommends improving data quality capacity in the future, such as investigating opportunities to engage health service researchers through commissioned studies, joint research proposals and information sharing regarding results of data quality studies.



3. Socio-Economic and Environmental Determinants of Health in Indigenous Communities in the Northern Territory

3.1 The material contained in this section has been developed by Matthew Stevens as part of his PhD work on the SEEDH project (Stevens in prep.). This project is based on the premise that social determinants are those factors that can affect a population's health — such as income, education, social and physical environments, housing, nutrition, etc. (Turrell *et al.* 1999; Wilkinson & Marmot 2003). While such factors are important in their own right, there is clear evidence that they are interrelated and that people who are classified in the lower levels of socio-economic status experience significantly worse health outcomes.

3.2 There is also a growing body of evidence linking a range of contextual (community) factors — of areas such as dilapidated housing (Cohen *et al.* 2003; Bashir 2002), limited access to services (Burns *et al.* 1998), income inequality (Kennedy *et al.* 1996) and socio-economic status (Larrea & Kawachi 2005) — to the poorer health of individuals living in these areas.

3.3 The need for consistent quality data covering a number of subject areas at different levels of geography is critical for the effective monitoring and evaluation of government programs aimed at improving health outcomes across the population (Raudenbush 2003).

3.4 The SEEDH research work has two main aims:

- To provide an improved understanding of the relationships between social, economic and environmental factors, health care access and utilisation, and health outcomes in Indigenous communities in the NT.
- To determine the relative need of Indigenous communities and health zones in relation to socio-economic and environmental factors, health care access and community health.

3.5 The processes being undertaken to achieve these aims include:

- Accessing and extracting relevant data from routinely collected datasets. Issues addressed in doing this cover data quality, confidentiality and consent.
- Linking all datasets at common geographic levels including discrete communities (where possible), Census-defined Indigenous areas and/or Indigenous locations, and Primary Health Care Access Program zones.
- Developing composite measures integrating data from a range of variables within the dimensions of social, economic, health access and utilisation, environmental and health outcomes.
- Analysing associations between environmental, social, economic, and health system access/utilisation factors and a range of health outcome variables in the linked datasets.
- Establishing a picture of the distribution of environmental, social, economic, health system access/utilisation and health status variables at the community, Indigenous area/location and health zone geographic levels.

3.6 A conceptual framework has been developed for the SEEDH project that categorises data items (indicators) available in the datasets based on social and environmental determinants of health (Stevens in prep.). A copy of this framework is provided in Appendix 1 along with available indicators.

3.7 The expected outcomes of the project include:

- i) Drawing together a wide range of available upstream (social, economic, physical and environmental) and midstream (health system access and utilisation, and some psychosocial) indicators into a single body of work that can be used to prioritise policy development and program initiation, and to focus effort on the most important underlying determinants of health.
- ii) Understanding the limitations of data sources used in deriving performance indicators, and to inform efforts to improve data quality ultimately leading to more effective monitoring of policy and programs.
- iii) Improving the health of Indigenous people in the NT through assessing the relative need of communities and regions based on the proposed analysis, which will lead to more effective and equitable regional planning.
- iv) Strengthening links between organisations that collect data and policy makers, service providers and the broader community.

3.8 From the stated aims and objectives it is apparent that a key component to the success of the SEEDH project is the *fitness for use* (adequate data quality) of the proposed data sources that are used in deriving performance indicators and area-level measures to monitor social and environmental determinants of health. Data sources included administrative datasets and large-scale censuses and surveys.

3.9 The following table lists data sources used in the SEEDH project and categorises their fitness for use for monitoring and improving an understanding of socio-economic and environmental determinants of health. Data quality (or *fitness for use*) was assessed using the same framework employed by the Australian Bureau of Statistics and Statistics Canada in assessing the quality of data for which they are custodians or administrators (ABS 2005; Statistics Canada 2002).

Table 1: Data sources used in the SEEDH project and assessment of fitness for use for determining relative socio-economic and environmental conditions and compositional community health

Data Sources	Fitness for use^a
NT Hospital Separations (1995–2002)	Fair
NT Midwives Collection (1995–2002)	Fair
NT Environmental Health (Housing) Survey (1998/99–2000/01)	Fair
Police offences — PROMIS (1999–2003)	Poor
School Enrolment & Attendance (2000–2002)	Fair
CHINS [§] (1999 & 2001)	Good
Census of Population & Housing (2001)	Good

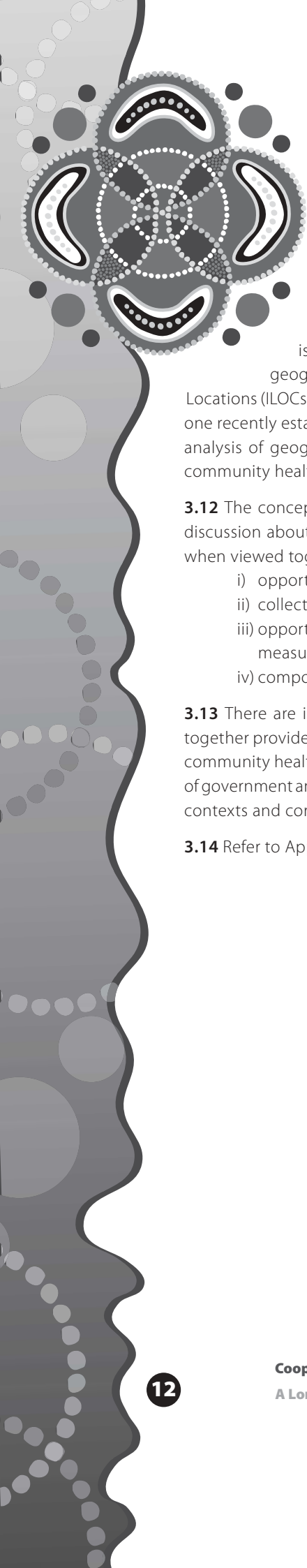
§ CHINS — Community Housing and Infrastructure Needs Survey

¶ Poor — inconsistent time trends with little or no documentation, very poor geographical coding, fair coverage of the NT, lots of missing data, unable to use below regional aggregate level.

Fair — some inconsistency in time trends with some documentation, geographic coding generally reliable though misclassification of communities present, fair coverage of the NT, some missing data.

Good — some inconsistency in time trends with fair documentation, good geographic coding, good coverage of the NT, little or no missing data.

Source: Stevens, M. unpub. data.



3.10 The Menzies School of Health Research evaluated the NT Environmental Health Survey in 2001 and 2002 (Bailie & Maine 2002, Stevens *et al.* 2002). A subsequent internal review by the Territory Housing Agency resulted in the survey being renamed the Housing Condition Survey (HCS) and becoming a biennial survey. Significant improvements in survey protocols, such as better training of surveyors, have also been implemented, and it would be expected that good quality data from the HCS could be used in a LID in the future.

3.11 The fitness for use of community-level data for most of the administrative data sources is limited by poor geographic coding (misclassification) of Indigenous communities as bounded geographic localities. However, most of the data sources can be aggregated into the Indigenous Locations (ILOCs) defined by the Australian Bureau of Statistics. These can be further aggregated into the twenty-one recently established Primary Care Health Zones. These zones may provide a good starting point for further analysis of geographical variation, particularly to compare socio-economic and environmental factors and community health.

3.12 The conceptual framework and data items identified in the SEEDH project provide a starting point for discussion about the content of the proposed LID. The framework consists of four interrelated domains that, when viewed together, provide a profile of a community or region. The domains are:

- i) opportunity contexts: availability of goods, services, programs and facilities;
- ii) collective community attributes;
- iii) opportunity context: community demographic, social and cultural attributes: service performance measures; and
- iv) compositional community health profile.

3.13 There are indicators across many community contexts making up a set of interrelated indicators that together provide a community profile covering socio-economic and environmental determinants of health and community health status. The four domains and sub-domains in the framework can be easily related to aspects of government and non-government services provision, particularly the two domains associated with opportunity contexts and corresponding performance measures.

3.14 Refer to Appendix 1 for more details of the SEEDH conceptual framework.

4. Current Status in the Northern Territory

4.1 The following comments should not be seen as a comprehensive review of statistical issues and related information system developments within NTG agencies. The observations and comments are based on limited consultations undertaken as part of this project in addition to the review of some internet-based resources. Significant gaps will be obvious to those with experience working with NTG datasets. At the very least, the comments allow the discussion of a LID to be viewed in the context of some current initiatives.

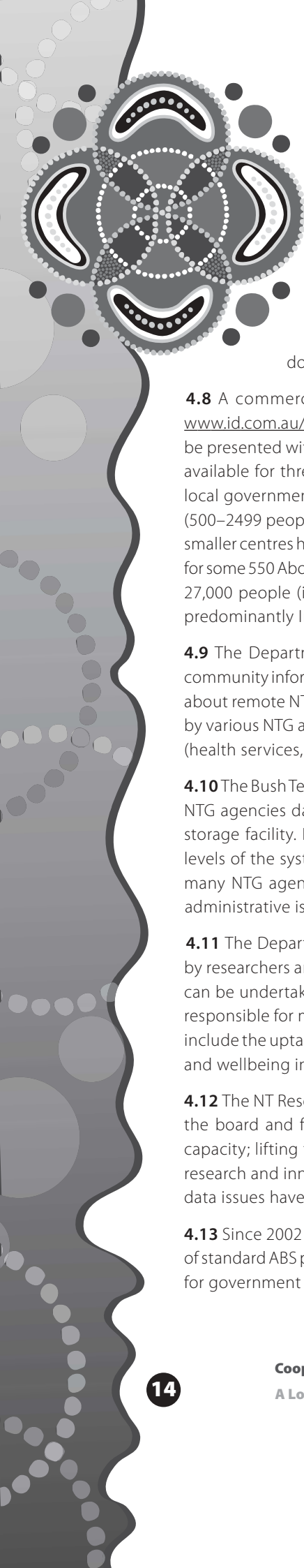
4.2 There are a number of statistical data initiatives and discussions taking place within the NTG at present. The Statistical Priorities Advisory Committee (SPAC) and the Statistical Liaison Committee (SLC) provide cross-agency perspectives, coordination and guidance on statistical matters to support whole-of-government activities. In November 2005, a presentation of the LID project was given to the SLC, which provided valuable feedback and suggestions for furthering the investigation.

4.3 The NTG, through the SPAC and the SLC, is currently considering a proposal to develop an Information Development Plan (IDP) — a strategic tool used to establish a shared understanding between key stakeholders related to statistical information requirements. One component of the IDP concerns work on a data inventory needed to establish an NTG-wide assessment of differences and inconsistencies related to the large number of datasets. Such an inventory has the potential to highlight data quality issues and poor documentation procedures. In line with this proposal is the need for a comprehensive information policy to facilitate the coordination and sharing of statistical information among NTG agencies. Such a policy would address, among other things, issues related to data linkage across agencies, responsibilities for information management and inconsistencies in how different agencies interact with research bodies.

4.4 A recent government restructuring has resulted in significant changes for some agencies. The Department of Business, Economics and Regional Development (DBERD) now has a greater number of NT regional planning functions. By centralising these functions, the opportunity exists with DBERD to coordinate and combine a large number of existing data storage applications and provide a portal to a valuable resource for research–government collaboration on key social and economic issues. DBERD is collaborating with the Australian Bureau of Statistics (ABS) as a future test site for the National Data Network (NDN) initiative; this places DBERD in a favourable position to take a leading role in the statistical information field in the NT through the development of a comprehensive statistical resource.

4.5 The NDN is a national platform for acquiring, sharing and integrating data relevant to policy and research. It is based on an information system model which has a central portal connected to any number of nodes from where individual data custodians and related information can be accessed (ABS 2005a). The NDN allows data custodians to retain control of their data holdings either by providing a link back to the custodians website or fully utilising the NDN infrastructure. Either way, users can search for information and view related metadata but may not necessarily be able to access the statistics without having to undertake a formal user agreement and/or payment process.

4.6 Two key issues emerged with regard to the new NTG regional indicators statistical databank (formerly based at the Department of Chief Minister and now at DBERD). Firstly, it is likely that access will be restricted to senior government and policy officers only. Secondly, detailed (i.e., sub-regional and community level) datasets will not be available. Academics, researchers and others will still be required to contact individual agencies and request access to specific detailed datasets as per the current situation. These restrictions are likely to inhibit the utility of statistical resources both for government and non-government users.



4.7 The recent work to create a set of common regional and sub-regional boundaries for NTG agency statistical reporting has considerably improved the potential to create comparable datasets across administrative agencies. The ABS has modified the Census statistical boundaries to concord with the new NTG boundaries. While the regional boundaries seem to be generally accepted by most agencies there appear to be concerns with the ability to report at the proposed sub-regional level, as many of these currently do not concord with the numerous NTG agency boundaries. It is envisaged that over time these sub-regions will be adopted and used as standard reporting units. It is important that resolution of this issue does not delay the development of statistical resources more generally.

4.8 A commercial web-based data and mapping product has recently been activated in the NT (refer www.id.com.au/nt/commprofile). This application allows users to query Census data, customise geography and be presented with a variety of tables, maps and charts. Longitudinal aspects are considered with many variables available for three Census periods. Data are available for the five newly established service planning regions, local government areas, community government councils, larger towns (>2500 people), and smaller localities (500–2499 people). For larger population areas the profiles present Census data for 1991, 1996 and 2001, while smaller centres have summary profiles presenting only 2001 data. At present, however, information is not available for some 550 Aboriginal communities with populations of less than 500. These communities recorded approximately 27,000 people (including 105 communities with populations of 100 to 499 containing approximately 17,000 predominantly Indigenous people).

4.9 The Department of Local Government, Housing and Sport is currently developing the 'Bush Telegraph' community information on-line resource. This website aims to provide a portal for accessing a variety of information about remote NT communities and is a collaborative effort using statistical data and other information provided by various NTG agencies. It is planned to include community maps, a range of statistical data, service directories (health services, police stations, libraries) as well as tourism related information.

4.10 The Bush Telegraph information system is designed in such a way as to provide dynamic links to participating NTG agencies databases so as to avoid the problem of having to duplicate resources; it is not a primary data storage facility. Responsibility for data maintenance rests with each participating agency. Access to different levels of the system can be regulated in order to maintain the security of the resource. It is unclear as to how many NTG agencies will participate in this initiative; at the time of writing there appear to be funding and administrative issues that have delayed the development of the project.

4.11 The Department of Health and Community Services' (DHCS) statistical resources have long been utilised by researchers and provide a useful example of successful applied research to support policy and planning that can be undertaken in cooperation and collaboration with government staff. The DHCS Information Division is responsible for maintaining and developing a comprehensive health-related data warehouse and its objectives include the uptake of evidence-based policy development and a stronger information base on population health and wellbeing in the NT.

4.12 The NT Research and Innovation Board and Fund is an NTG initiative that sits within DBERD. In establishing the board and fund, the government aims include: building and retaining the Northern Territory's research capacity; lifting the profile of Northern Territory researchers and innovators; and encouraging and supporting research and innovation. (www.nt.gov.au:8501/dberd/research_innovation/). The concept of a LID and general data issues have yet to be presented to the board for consideration.

4.13 Since 2002 the NTG has contracted the ABS' 'ABS @' service, which provides on-line access to the full range of standard ABS publications, statistics and support to users across the NTG. This is a valuable source of information for government researchers and policy development staff.

5. NTG–CDU Partnership Agreement

5.1 The partnership agreement between the NTG and CDU appears to provide numerous opportunities for facilitating the development of a LID. One of the stated principles of the partnership is that ‘the agreement reflects the desire on both parties to establish deliberately and over time a significant quantum of resident intellectual, research, professional and analytical capacity’ (NTG–CDU 2003:2.3) — information resources are an essential component of this desired capacity.

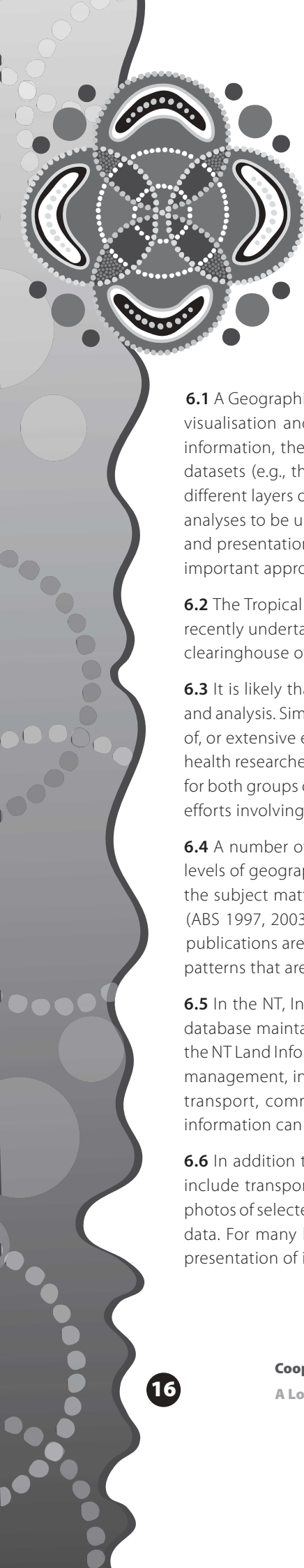
5.2 One key objective of the agreement refers to ‘particular projects enabling Indigenous social and economic development’ and includes:

- the exploration of opportunities where CDU and the NTG could pool resources in research and development; and
- the provision of expertise, indices and interventions in high-need areas such as Indigenous health and education.

5.3 There are numerous references to the role CDU can play as a major contributor to the social and economic development of the NT. There is particular recognition of the expertise CDU has in the area of Indigenous health research through the MSHR (now formally part of CDU’s Institute of Advanced Studies).

5.4 The schedules to the agreement deal with the specific objectives and initiatives that the parties wish to achieve, together with implementation strategies. Schedules 1.3 (Strengthening Scientific Research Capacity in the Territory) and 2.2 (Social and Economic Research) deserve attention. The stated goal of Schedule 1.3 is to ‘engender collaboration in research between the government and the university such that full capacity development, financial and scientific research benefits are realised in the Territory’s best interests’. A number of issues outlined for Schedule 2.2 highlight the need to redress knowledge gaps and develop advanced research capabilities.

5.5 To date, there has been no discussion on the LID proposal with the Partnership Secretariat and it is crucial that this take place in the near future in conjunction with the release of the discussion paper. For the LID concept to be effectively developed, the views of other government and CDU-based data users and managers must be sought in an effort to support and develop this initiative.



6. Geographic Information System (GIS) Data

6.1 A Geographic Information System is essentially a data storage and dissemination facility that focuses on the visualisation and analysis of spatial information. Traditionally concerned with environmental and property information, there is a growing use of GIS applications to present demographic and other population based datasets (e.g., the ABS' five yearly Census of Population and Housing CDATA product). The ability to visualise different layers of data (environmental, topographical, social, economic, etc.) provides a platform for innovative analyses to be undertaken. The concept is introduced here as a way of highlighting the multiplicity of datasets and presentation tools that could be incorporated into a LID resource. Spatial analysis techniques could be an important approach to pursue.

6.2 The Tropical Spatial Sciences Group based within the School of Science and Primary Industries at CDU has recently undertaken a survey of university staff as part of its GIS data storage project, which aims to establish a clearinghouse of NT geo-referenced data to support CDU teaching and research.

6.3 It is likely that many health researchers have limited experience using a GIS tool to support their research and analysis. Similarly, GIS users trained in natural resources or land management are unlikely to have knowledge of, or extensive experience using, the wide range of health and other population-based data regularly used by health researchers. The potential positive benefit of combining these two areas of expertise could be significant for both groups of professionals and their respective research and teaching agendas, in addition to collaborative efforts involving NTG policy makers.

6.4 A number of datasets regularly used by health researchers contain geo-referenced information at various levels of geography; i.e., the data can be readily incorporated into a GIS to support analysis and visualisation of the subject matter. Census and other datasets are increasingly being presented as maps or in an atlas format (ABS 1997, 2003; Glover et al. 1999; Bailie et al. 2002; Arthur & Morphy 2005). While data presented in these publications are based on various statistical geographies, presentation in map format may demonstrate spatial patterns that are otherwise difficult to identify in the data.

6.5 In the NT, Indigenous community locations and relative population size are available as a geo-referenced database maintained by the NT Department of Infrastructure and Planning (DIP 2005). This is just one layer in the NT Land Information System (NTLIS). Land information management encompasses the capture, organisation, management, integration and distribution of information about natural resources, the environment, land use, transport, communications, built assets, mapping, demography and socio-economic factors, where such information can be related to a geographical location.

6.6 In addition to community locations, some examples of other relevant GIS layers available from the NTLIS include transport (rail, roads and tracks), service point locations (schools, health services, etc.) detailed aerial photos of selected communities, key topographical features (rivers and waterbodies, land cover, etc.) and climate data. For many health research projects, these spatial data are not regularly utilised in either the analysis or presentation of issues at the local, regional or Territory levels.

6.7 There are advantages in further investigating the synergies between the LID and GIS storage projects. New opportunities could arise for coordinating activities and determining how best to utilise the NTG–CDU partnership agreement to advance the case for a more comprehensive data resource that includes a GIS application in addition to statistical indicators of socio-economic and environmental determinants of health.

6.8 Also of interest in the GIS field is a new strategic partnership between the ABS and the Australian and New Zealand Land Information Council, the peak inter-governmental council for spatial information (ABS 2005b). While largely focusing on support for the new Census geographical unit of mesh blocks, this initiative recognises the increasing demand for small area and community level data. GIS will be used to improve statistical output, increasing their relevance and use through spatial referencing. This aims to facilitate research and monitoring at the community level.



7. Issues and Obstacles

During the course of this investigation, a number of issues and obstacles related to defining, implementing and sustaining a LID have been raised. These are summarised below:

7.1 Minimum test of success As a way to measure the usefulness of a LID, what minimum amount and type of data, compiled at what regularity is required from agencies to make it a useful applied research support tool?

7.2 Potential uses The LID proposal has arisen out of a need to develop a statistical data resource to inform government policy makers and service providers and support applied research. Academic institutions are founded on the basis of providing sound research and teaching. Within some NTG agencies, data analysis and research capacity is strong but others tend to focus solely on data collection and reporting largely for internal administrative purposes. Is there a need to develop guidelines, resources or short courses that will lead to government and other interested organisations more fully realising the potential of statistical resources?

7.3 Political nature of data It is widely recognised that some datasets have the potential to highlight inadequacies and underperformance in government administration and service delivery. What mechanisms and conditions can be established to ensure that a LID informs rather than embarrasses government?

7.4 Commonwealth Office of Indigenous Policy Co-ordination (OIPC) The Commonwealth Government has created an Indigenous Policy Framework. It has been advised that discussions between the OIPC and the NTG have covered the issue of indicators to measure outcomes from the Shared Responsibility Agreements Framework and Regional Partnership Agreements. It is likely that numerous statistical indicators could emerge from this process. How should this LID proposal take account of such developments? A recent Commonwealth Government restructure has seen the OIPC incorporated into the Department of Family, Community Services and Indigenous Affairs (FaCSIA).

7.5 NTG statistical data resources A number of initiatives are currently underway in the NTG to compile and present a variety of statistical data. Some are planned for internal NTG access only while at least one is aimed at internet applications for unrestricted access. These are in addition to the presentation of subject-specific statistics on individual NTG agency websites. It has been suggested that these resources will not provide the level of detail required for applied research purposes as envisaged by a LID. However, if good enough for policy and planning why would the data not be good enough for research — particularly in the absence of more detailed data? Are there opportunities to incorporate a series of statistical indicators into existing systems in a way that allows some form of access for non-NTG people? How can the NTG-CDU partnership be utilised to move forward on this database issue, bearing in mind that the intention is to add value and support NTG policy making and planning?

7.6 Duplication With regard to suggestions that the database proposal could duplicate NTG initiatives by creating yet another information system, it needs to be made clear to stakeholders that there is currently no data resource that contains a consistent set of indicators useful for monitoring trends over time. Duplicating existing NTG databases would not only be counterproductive, inefficient and costly, it would also result in poor usage of the resource over time. Rather, the focus must be to complement NTG initiatives and developments for the benefit of users of statistical information. There clearly is a need for a multi-agency supported and maintained longitudinal data resource.

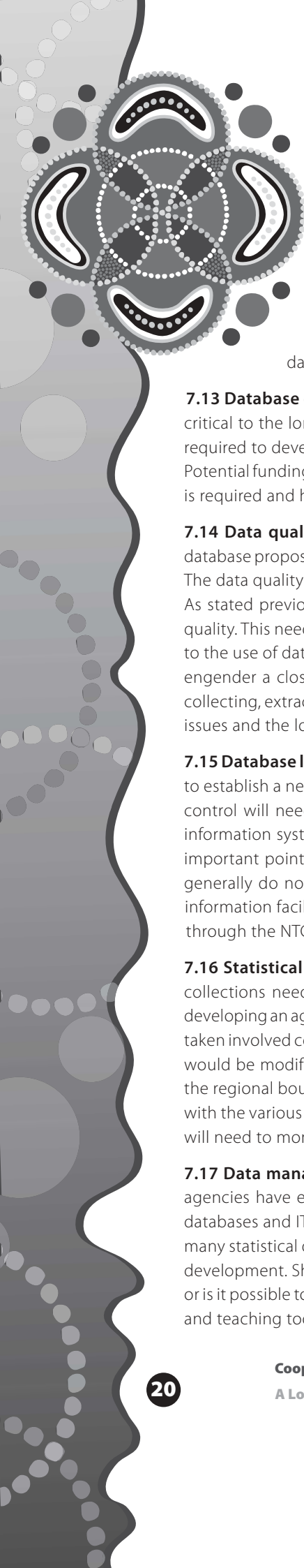
7.7 Confidentiality A number of datasets are based on unit record data and are subject to legal restrictions to ensure privacy. Other datasets contain information relating to potentially identifiable small numbers. It may be possible to aggregate the geographic units up to a level where numbers are larger, confidentiality concerns are covered and the aggregated data are still useful. A LID will need to account for these restrictions. In addition to individual level confidentiality, some data items required for the LID are also likely to have restrictions on public release of information at the community level. The SEEDH project addressed these issues through the development of a consent and confidentiality protocol that could be adapted for the purposes of a LID.

7.8 Data custodian responsibilities The development and maintenance of a LID will rely heavily on the acceptance and co-operation of data custodians. How much time and effort will be expected of data custodians and managers either in-kind or via some form of fee-for-service arrangement? There needs to be clear guidelines as to their potential roles and the resources required to sustain a database successfully. In addition, while ownership of source data clearly rests with the individual agencies, does this responsibility diminish once a number of datasets are combined to form composite statistical indicators?

7.9 Sustainability Many academic research projects are undertaken as one-off exercises fixed to a particular project funding regime. These are often the result of responding to a particular need for information associated with a subject area or specific project. A change in funding and/or personnel can have serious implications for the long-term sustainability of the database. In the light of the current proposal, should there be a data needs analysis or data user survey undertaken within MSHR and CDU generally to gauge support for the initiative? It is possible that such an exercise may lead to more support at the organisation level for some form of centralised statistical data resource incorporated into a broader CDU IT system to support applied research and teaching? An issue to be considered with this approach is that the scope of data covered will clearly be broader than originally envisaged. It is also likely to raise a number of practical and conceptual issues which to date have not been considered.

7.10 Source data access This remains the main issue to be addressed. There are likely to be numerous obstacles related to a LID that is physically located outside of an NTG information systems environment. As data would need to be sourced from a number of agencies, standard access protocols to streamline the process are required for efficient database development and maintenance. At present, access to specific datasets is generally determined by each data custodian on a case-by-case basis. The situation is compounded where some individual agencies maintain a number of datasets that have different internal administrative units responsible as custodians. Among other things, a sustainable LID will require commitment, resources and a change in access protocols from NTG agencies.

7.11 Defining data required For a database to be created there needs to be some discussion and agreement as to what data are required from NTG and Commonwealth agencies in order to develop a set of defined indicators. Consideration must be given to availability, consistency, relevance and data quality issues. The indicators developed as part of the SEEDH and PHC PI projects provide a strong base from which to start the selection process for incorporation into a LID. However, there are likely to be competing interests in the establishment of a LID. For example, to what extent should the database also attempt to reflect the reporting framework outlined in the Commonwealth Productivity Commission's Report 'Overcoming Indigenous Disadvantage' (SCRGSP 2005) as well as other national Aboriginal and Torres Strait Islander health information reporting frameworks? It has been suggested that the LID proposal needs to be very clear about its objective and proposed outcomes as each NTG agency will differ on what it perceives to be the key data items or indicators relevant to their specific core areas of business. A more thorough review of individual agency statistical data holdings and perceived research needs may be required.



7.12 Database access Many issues around physical access to a database must be addressed before, rather than after, a LID is created. Issues for discussion include the need to develop ‘user agreements’ and guidelines that specify the conditions of use of any dataset. Public access to some information is an import aim, which may not be achievable immediately but should be considered early in the process. A possible way forward could be to develop Memorandums of Understanding whereby data custodians and users buy-in to the project leading to better communication and transfer of knowledge from researcher to government and vice-versa. However, more options will need to be explored through consultations with data custodians before access protocols to the LID can be clearly defined.

7.13 Database development and maintenance Ensuring a regular flow of data from a number of agencies is critical to the long-term success of a LID. Consideration needs to be given to the human and other resources required to develop, maintain and manage the LID effectively. How many people and what skills are required? Potential funding sources to support the initiative need to be addressed. What type of documentation (metadata) is required and how often would these need to be updated and reviewed?

7.14 Data quality This has been highlighted as an issue that affects some datasets. Is there scope for this database proposal to assist and support data quality and validation procedures for NTG data collecting agencies? The data quality assessment work undertaken on the SEEDH project will be invaluable in addressing this issue. As stated previously, the need to gain the buy-in of all stakeholders is essential to addressing issues of data quality. This needs to be done acknowledging the different needs that the various stakeholders have in relation to the use of data. Developing a relationship of mutual understanding and trust (through consultation) should engender a closer working relationship where different stakeholders can benefit from the work of others in collecting, extracting, cleaning or analysing data. This process should also lead to a better understanding of data issues and the long-term continuous monitoring and improvement in the quality of data collected.

7.15 Database location With a number of NTG statistical initiatives currently underway or planned, any proposal to establish a new database needs careful consideration as to its physical location. Issues of security and access control will need to be addressed. Is there scope to integrate the statistical indicators into an existing NTG information system environment in a way that allows access for non-government researchers and others? An important point to consider is that traditionally, academic and research institutions are project oriented and generally do not have sufficient experience, infrastructure or funding to develop and maintain the required information facilities. Discussion on this issue should be undertaken in the light of exploring options available through the NTG–CDU Partnership Agreement.

7.16 Statistical concordance The issue of inconsistent boundaries and administrative regions between data collections needs consideration. The NT Department of Chief Minister has recently undertaken the task of developing an agreed set of regional and sub-regional boundaries for agency reporting. Importantly, the approach taken involved consultation with the Australian Bureau of Statistics to ensure that Census geographic boundaries would be modified to conform to the new NTG boundaries. While there appears to be general acceptance of the regional boundaries, there remain issues surrounding the delineation of sub-regions that may not concord with the various administrative areas currently used for data collection and reporting. The development of a LID will need to monitor developments carefully on this front and work closely with key NTG stakeholders.

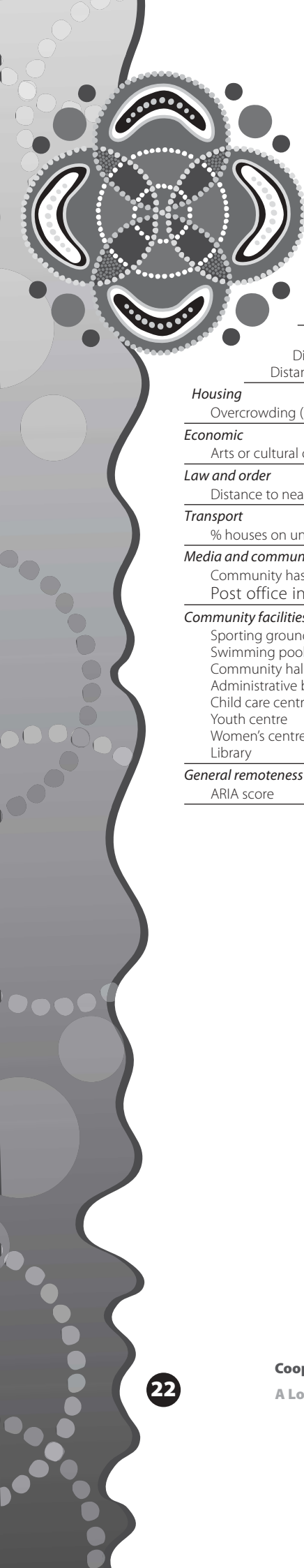
7.17 Data management capacity This is a critical area for the long-term sustainability of a LID. Government agencies have extensive experience in the daily management of a large number of statistical and corporate databases and IT systems to support on-going public administration. Conversely, within academic institutions many statistical databases tend to be project oriented with serious implications for long-term sustainability and development. Should the proposed LID resource be managed within an NTG information system environment, or is it possible to be based at CDU either as a stand-alone resource or one integrated with other applied research and teaching tools?

8. Conclusions and Moving Ahead

8.1 While there are many issues and complex relationships to be discussed and negotiated, we clearly have a number of important building blocks in place for the further development of a Longitudinal Indicators Database for monitoring health outcomes and their major social and environmental determinants in Indigenous communities. These include: 1) The implementation of a key component of the Primary Health Care Performance Indicators Framework; 2) The roll-out of the ABCD project that provides a mechanism for the more effective and efficient implementation of the Health Systems Performance component of this framework through an integrated system for collecting, analysing and reporting on health system performance indicators; and 3) The demonstration through the SEEDH Project of the availability and quality of data to generate key indicators in the Health Status and Outcomes and Determinants of Health domains of the framework.

8.2 The systems for reporting on the Health System Performance components of the framework will continue to be enhanced through the Aboriginal Health Forum and through the ABCD Project. The development of systems for reporting on indicators relating to Health Status and Outcomes and Determinants of Health will require a higher level of commitment and political will because of the need to use established data systems efficiently and the wide range of stakeholders with an interest and role in the performance of these systems. Because of this complexity we are proposing the development of a longitudinal database with a minimum set of indicators. The generation of these indicators will require data from a number of sources that will, in turn, require commitment from data custodians and senior government officials. By emphasising the minimum dataset we intend to focus on establishing coordination and commitment by the senior officials responsible for the major routine data sources, and on the functional state of these data sources from which the minimum dataset needs to be drawn. This approach is intended to avoid long, drawn-out debates about the details of the appropriateness and interpretation of indicators that might be included in a dataset.

8.3 The proposed minimum dataset is listed in the Table below. These are drawn from indicators developed through the SEEDH Project (see Appendix 1). The establishment and operation of a longitudinal database around this minimum dataset would be a significant step in meeting the requirements for reporting on a range of social indicators as set out in several national reports, including the recent report of the Aboriginal and Torres Strait Islander Social Justice Commissioner (ATSI SJC 2005).



8.4 Proposed minimum dataset for a Longitudinal Indicators Database on health status and outcomes and determinants of health

Opportunity contexts: Goods, services, programs and facilities	Data source	Data custodian
<i>Health (primary and secondary care)</i>		
Distance to nearest health centre	CHINS	FaCSIA
<i>Education</i>		
Distance to nearest primary school		
Distance to nearest Year 10 school	CHINS	FaCSIA
<i>Housing</i>		
Overcrowding (provision)	Census and/or CHINS	
<i>Economic</i>		
Arts or cultural centre present	CHINS	FaCSIA
<i>Law and order</i>		
Distance to nearest police station	PROMIS	NT PD
<i>Transport</i>		
% houses on unsealed roads	CHINS	FaCSIA
<i>Media and communications</i>		
Community has public phone	CHINS	FaCSIA
Post office in community	CHINS	FaCSIA
<i>Community facilities</i>		
Sporting grounds and equipment	CHINS	FaCSIA
Swimming pool	CHINS	FaCSIA
Community hall or meeting area	CHINS	FaCSIA
Administrative building	CHINS	FaCSIA
Child care centre	CHINS	FaCSIA
Youth centre	CHINS	FaCSIA
Women's centre	CHINS	FaCSIA
Library	CHINS	FaCSIA
<i>General remoteness indicator</i>		
ARIA score	CHINS	FaCSIA

Opportunity contexts: Performance measures	Data source	Data custodian
Health		
% receiving 1st trimester antenatal care Antenatal visits per birth by term	Perinatal	DHCS
Education		
Enrolment & attendance rates	Age-grade census	NT DEET
Housing		
Healthy living practices Prepare & store food HLP (% houses) Remove sewerage HLP (% houses)	EHS EHS	DLGHS
Economy/employment		
% unemployed (CDEP)	Census	ABS
Essential Services		
% houses not connected to main source	CHINS	FaCSIA
% houses not connected	CHINS	FaCSIA
% houses affected by overflows	CHINS	FaCSIA
Frequency of organised rubbish collection	CHINS	FaCSIA
Law and Justice		
Total offences	PROMIS	NT PD
Regulatory driving & pedestrian offences	PROMIS	NT PD
Assault	PROMIS	NT PD
Property damage	PROMIS	NT PD
Transport		
% houses on unsealed roads	CHINS	FaCSIA
Media and Communications		
Number of working telephones	CHINS	FaCSIA
Collective community attributes		
Historical & socio-cultural		
Main religion	Census	ABS
Number of different religions	Census	ABS
Number of different language groups	Census	ABS
% speaking English not well	Census	ABS
Socio-demographic		
Dependency ratio	Census	ABS
% males 55 or more years	Census	ABS
% females 55 or more years	Census	ABS
% Houses with 2 or more families	Census	ABS
Community population	Census / CHINS	ABS
Overcrowding	Census / CHINS	ABS
Behaviours and norms		
Local governance and politics		
CDEP's operating Strategic plan	CHINS CHINS	FaCSIA FaCSIA
Natural environment		
Latitude	CHINS	FaCSIA



Compositional community health profile Data source Data custodian

Birth outcomes (perinatal)

% live low birth weight by non/term births	Northern Territory Perinatal DB	DHCS
Mean birth weight term	Northern Territory Perinatal DB	DHCS
Perinatal mortality (rate per 1000 births)	Northern Territory Perinatal DB	DHCS
Infant mortality (rate per 1000 births)	Northern Territory Perinatal DB	DHCS

Morbidity (hospitalisation separations)

Rate of complications in pregnancies	Hospital separations data	DHCS
Rate of all acute separations	Hospital separations data	DHCS
Rate of infectious & parasitic diseases by age	Hospital separations data	DHCS
Rate of skin infections by age/sex	Hospital separations data	DHCS
Rate of acute respiratory infection by age/sex	Hospital separations data	DHCS
Rate of nutritional deficiencies by age/sex	Hospital separations data	DHCS
Rate of blood diseases (iron deficient anaemia)	Hospital separations data	DHCS

8.5 The proposed minimum dataset presented above needs to go through a process of refinement and consultation. To date, the project has consulted only a small number of stakeholders and presented an overview to the NTG Statistical Liaison Committee. Clearly, there are a number of other key stakeholders (both data specific and IT systems related) who have not been consulted. The leadership of NT Treasury, as overall government statistical coordinator, will be critical to the further development of the proposed LID resource.

8.6 Comments on this discussion paper are invited from a variety of people and organisations with an interest in the development and application of a longitudinal indicators database resource as proposed. This includes key stakeholders from the NTG and CDU. The potential opportunities to further this initiative via the NTG-CDU Partnership Agreement also need further exploration.

9. Consultations

Government

Tony Barnes, Jenny Coccetti: Northern Territory Treasury

Dennis Griffiths: Department of the Chief Minister

Sharon McAnelly, Ashley Winks: Department of Community Development Sports and Cultural Affairs

Roger Brailsford, Janice Shaw, Richard Inglis, Steve Guthridge, Jan Tucker: Department of Health and Community Services

Northern Territory Statistical Liaison Committee

Megha Raut: ABS @ NT Treasury

Non-Government

Rob Curry: Aboriginal Medical Services Alliance of the Northern Territory (AMSANT)

Waqar Ahmad: Tropical Spatial Sciences Group (Charles Darwin University)

Joan Cunningham: Menzies School of Health Research

Waqar Ahmad: Tropical Spatial Sciences Group



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Appendix 1:

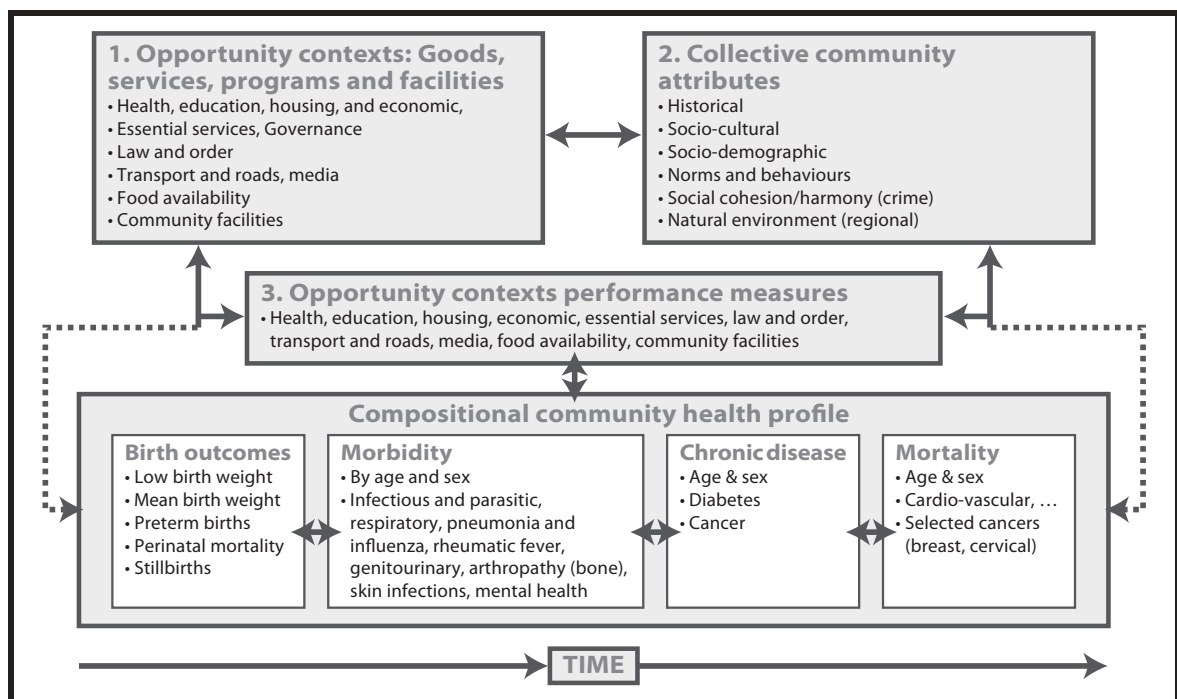
Proposed Conceptual Framework and Content of a Longitudinal Database

The following sections will define each domain, and the sub-domains of the framework, referring to research highlighting previous findings between community-level indicators and compositional community health. Reference is also made to individual-level health outcomes research, where it has showed contextual and compositional area effects on individual health, independent of other individual-level measures. Indigenous examples in the research are referred to where available. Tables A1.1 to A1.3 list available community level indicators, the source and years for each domain and sub-domain of the framework.

Domains and sub-domains of the Conceptual Framework

It is important to note that the lists of indicators below (Fig. 1) are all encompassing and will be cut down after further analyses identifying the important opportunity contexts and corresponding performance measures and collective community attributes that relate to the communities health status (as measured by birth outcomes and acute hospitalisations). This framework can also be used for aggregated geographic units such as the Primary Care Health Zones.

Figure 1: Community/regional framework for Socio-Economic and Environmental Determinants of Health



All data in the following tables have been accessed and the most recently available year will be 2002 unless otherwise stated. For example, censuses and surveys are usually carried out cyclically and will, therefore, only be available for certain years (e.g., ABS Census of Population and Housing 1996, 2001, 2006, etc.).

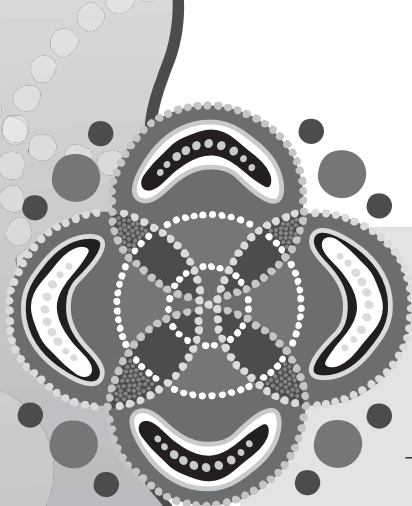
Opportunity contexts

These are physical structures or programs involving human activity that are available to all members of the community. They include sub-domains of health, education, housing, economic, essential services (power, water, waste disposal), law and justice, transport and road, media, community facilities and food availability. These contexts provide opportunities for the people of an area to receive some kind of service — whether it is knowledge transfer or treatment for an acute or chronic illness, to assistance in obtaining paid employment. These contexts can be seen as structural aspects of the community (Samson 2003). However, it is important to note that while these contexts are equally available to all residents of a community in theory, there are likely to be differences in how households, families and individuals in communities access these opportunity contexts (Macintyre & Ellaway 2000).

Table A1-1: Opportunity context sub-domains, indicators, data sources and availability

Sub-domains Indicator/variable	Data source	Data custodian
Health (primary and secondary care)		
Distance to nearest health centre	CHINS	FaCSIA
Distance to nearest hospital	CHINS	FaCSIA
Frequency of access to health specialists	CHINS	FaCSIA
Conduct of health programs	CHINS	FaCSIA
Education		
Distance to nearest primary school	CHINS	FaCSIA
Distance to nearest secondary school (yr 10)	CHINS	FaCSIA
Distance to nearest secondary school (yr 12)	CHINS	FaCSIA
Housing		
Overcrowding	Census and/or CHINS	ABS/FaCSIA
Healthy living practices	Housing condition survey or EHS	DLGHS
CDEP housing maintenance	CHINS	FaCSIA
EHW activity: personal and domestic hygiene	CHINS	FaCSIA
EHW activity: food storage and preparation	CHINS	FaCSIA
Economic		
Arts or cultural centre present	CHINS	FaCSIA
Essential services		
Main source of electricity	CHINS	FaCSIA
CDEP electricity maintenance	CHINS	FaCSIA
Main source of drinking water	CHINS	FaCSIA
Type of water treatment	CHINS	FaCSIA
CDEP water maintenance	CHINS	FaCSIA
EHW activity: quality of water supply	CHINS	FaCSIA
Main source of sewerage disposal	CHINS	FaCSIA
CDEP sewerage system maintenance	CHINS	FaCSIA
EHW activity: drainage and sewerage	CHINS	FaCSIA
Drainage management responsibility	CHINS	FaCSIA
Has organised rubbish collection		
Organised rubbish collection responsibility	CHINS	FaCSIA
EHW activity: rubbish disposal	CHINS	FaCSIA
CDEP rubbish collection	CHINS	FaCSIA
Type of rubbish disposal	CHINS	FaCSIA
Rubbish disposal pick up point	CHINS	FaCSIA
Law and order		
Distance to nearest police station	PROMIS	NT PD

Continued overleaf



Sub-domains Indicator/variable	Data source	Data custodian
Transport		
Road maintenance responsibility	CHINS	FaCSIA
CDEP road maintenance	CHINS	FaCSIA
% houses on unsealed roads	CHINS	FaCSIA
Has air access (air strip)	CHINS	FaCSIA
Community transport loading facilities	CHINS	FaCSIA
Food and other goods availability		
Media and communications		
Number of working public telephones	CHINS	FaCSIA
Access to telephones	CHINS	FaCSIA
Type of radio broadcasts received	CHINS	FaCSIA
Type of television broadcasts received	CHINS	FaCSIA
Post office in community	CHINS	FaCSIA
Community facilities		
Sporting grounds and equipment	CHINS	FaCSIA
Swimming pool	CHINS	FaCSIA
Community hall or meeting area	CHINS	FaCSIA
Administrative building	CHINS	FaCSIA
Child care centre	CHINS	FaCSIA
Youth centre	CHINS	FaCSIA
Women's centre	CHINS	FaCSIA
Library	CHINS	FaCSIA
Pub or canteen	CHINS	FaCSIA
General remoteness indicator		
ARIA score	CHINS	FaCSIA

Opportunity contexts: Performance measures

Associated with each domain of the opportunity contexts is a set of indicators that capture a measure of the performance or effectiveness of the opportunity context. Performance measures may act as mediators or moderators in pathways between opportunity contexts and community contextual health. These indicators may, in turn, be affected by collective community attributes. That is, they may mediate the effect of opportunity contexts while also having indirect and direct effects on community contextual health. Many of the indicators making up this domain are similar to the compositional variables defined by Macintyre and Ellaway (2000) and are often aggregates of individual level indicators given as percentages or rates. However, it is important to note that the performance measure indicators, while compositional, are not constrained by using the community population as a denominator.

Table A1-2: Opportunity context effectiveness sub-domains, indicators and data sources

Opportunity contexts	Performance measures for opportunity contexts	Data source	Data custodian
Health			
Distance to nearest health centre	% receiving 1st trimester antenatal care	Perinatal	DHCS
Distance to nearest hospital	Antenatal visits per birth by term		
Frequency of access to health specialists	<i>See community contextual health</i>		
Conduct of health programs	% smoking in pregnancy by trimester	Perinatal	DHCS
	% drinking in pregnancy by trimester		

Opportunity contexts	Performance measures for opportunity contexts	Data source	Data custodian
Education			
Distance to nearest primary school	Enrolment and attendance rates	Age-grade census	NT DEET
Distance to nearest secondary school (yr 10)	Enrolment and attendance rates	Age-grade census	NT DEET
Distance to nearest secondary school (yr 12)	Grade 7 to 8 retention rates Enrolment and attendance rates	Age-grade census	NT DEET
Private or public school	Grade 10 to 12 retention rates Enrolment and attendance rates Grade 7 to 8 retention rates Grade 10 to 12 retention rates % no schooling % Less than year 10 % non-school qualification	Age-grade census	NT DEET
Housing			
Overcrowding (persons/bedroom/dwelling)	Healthy living practices Wash clothes HLP (% houses)	EHS	DLGHS
CDEP housing maintenance	Wash children HLP (% houses)	EHS	DLGHS
EHW activity: food storage and preparation	Prepare & store food HLP (% houses)	EHS	DLGHS
	Remove sewerage HLP (% houses)	EHS	DLGHS
EHW activity: personal & domestic hygiene	Remove waste HLP (% houses) Housing/strategic management plan	EHS CHINS	DLGHS FaCSIA
Economic			
Employment assistance in region	% unemployed (CDEP)	Census	ABS
Industry opportunities			
Mining in region	% Indigenous employed in mining	Census	ABS
Tourism in region	% Indigenous employed in tourism	Census	ABS
CDEP	% not in CDEP and unemployed	Census	ABS
Arts or cultural centre present	% in cultural & recreational services	Census	ABS
Essential services			
Main source of electricity	% houses not connected to main source	CHINS	FaCSIA
CDEP electricity maintenance	CHINS	FaCSIA	
Main source of drinking water	% houses not connected	CHINS	FaCSIA
CDEP water maintenance	Water testing failure: reason	CHINS	FaCSIA
EHW activity: quality of water supply			
Main source of sewerage disposal	% houses affected by overflows	CHINS	FaCSIA
CDEP sewerage system maintenance		CHINS	FaCSIA
EHW activity: drainage and sewerage	Frequency of ponding	CHINS	
Drainage management responsibility	Reason for sewerage overflow	CHINS	
Organised rubbish collection responsibility	No organised rubbish collection	CHINS	FaCSIA
EHW activity: rubbish disposal		CHINS	
CDEP rubbish collection		CHINS	FaCSIA
Type of rubbish disposal (tip)		CHINS	FaCSIA
Rubbish disposal pick up point		CHINS	FaCSIA
Law and justice			
Distance to nearest police station	Total offences	PROMIS	NT PD
	Regulatory driving & pedestrian offences	PROMIS	NT PD
	Assault	PROMIS	NT PD
	Liquor, tobacco & gambling offences	PROMIS	NT PD
	Robbery & break & enter	PROMIS	NT PD
	Property damage	PROMIS	NT PD

Continued overleaf

Opportunity contexts	Performance measures for opportunity contexts	Data source	Data custodian
Transport			
Road maintenance responsibility	% houses on unsealed roads	CHINS	FaCSIA
CDEP road maintenance	Road access all year	CHINS	FaCSIA
Has air access (air strip)	Air access all year	CHINS	FaCSIA
Community transport loading facilities		CHINS	FaCSIA
Media and communications			
Access to telephones (C356, < 50)	No. of working public telephones	CHINS	FaCSIA
Type of radio broadcasts received	Number stations received	CHINS	FaCSIA
Type of television broadcasts received	Number stations received	CHINS	FaCSIA
Post office in community	Mail delivery point	CHINS	FaCSIA
Community facilities			
Sporting grounds and equipment			
Swimming pool			
Community hall or meeting area	Skin infection hospitalisations	Hospital	NT DHCS
Administrative building			
Child care centre			
Youth centre			
Women's centre	Incidence of domestic violence	PROMIS	NT PD
Library	MAP literacy rates		
Pub or canteen	Drink driving	PROMIS	NT PD
	Assault	PROMIS	NT PD
	Hospitalisations due to assault	Hospital	NT DHCS

Collective community attributes

Collective community attributes consist of a range of indicators that are both related to domains in a multi-directional way, and to other attributes within the domain. They include historical and socio-cultural attributes, socio-demographic structure, personal (compositional) behaviour, political or governance-related attributes of the community, and the natural environment. Collective community attributes, like opportunity contexts, tend to affect all residents in a community equally, although not in all cases (see below). They may mediate or moderate the effects of opportunity contexts on the opportunity effectiveness indicators (see below for discussion that is more detailed). The collective community attributes domain is similar to that proposed by Macintyre et al. (2000, 2003) and represent collective aspects of neighbourhoods. However, the natural environment can also be seen as a collective community attribute here, rather than a contextual aspect as in Macintyre and Ellaway (2000).

Table A1-3: Collective community attribute sub-domains, indicators and data sources

Sub-dimensions Indicator/variable	Data source	Data custodian
Historical & socio-cultural		
Main religion	Census	ABS
Number of different religions	Census	ABS
Number of different language groups	Census	ABS
% speaking English not well	Census	ABS
Socio-demographic		
Dependency ratio	Census	ABS
% males 55 or more years	Census	ABS
% females 55 or more years	Census	ABS
% Houses with 2 or more families	Census	ABS
Community population	Census / CHINS	ABS/FaCSIA
Overcrowding (maybe housing outcome or CCA)	Census / CHINS	ABS/FaCSIA

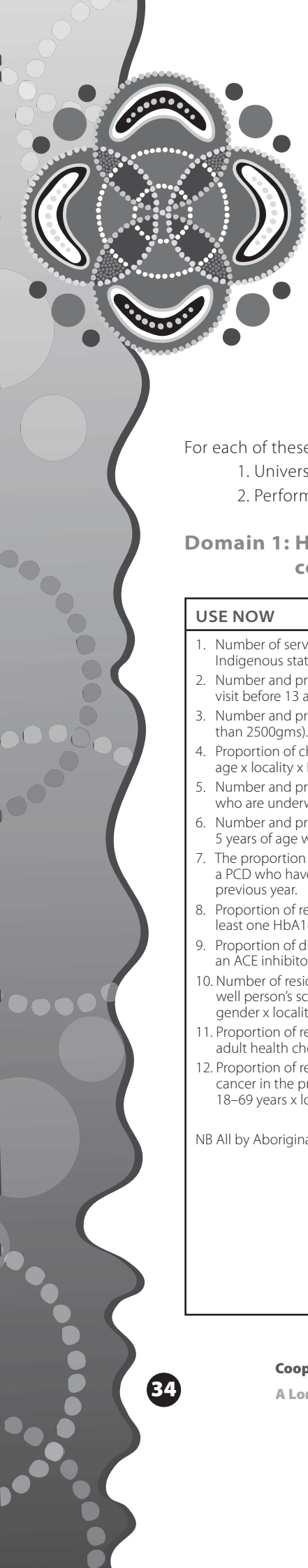
Sub-dimensions Indicator/variable	Data source	Data custodian
<i>Behaviours and norms</i>		
<i>Local governance and politics</i>		
CDEP's operating Strategic plan	CHINS	FaCSIA
<i>Natural environment</i>		
Community Location	CHINS	FaCSIA

Compositional community health

Contextual community health is a measure of community health as derived from aggregated data for individual health outcomes and is most often community level incidence rates or prevalence. The domains of contextual community health include birth outcomes (including perinatal mortality), morbidity (hospitalisations), chronic diseases and mortality. As with collective community contexts, the sub-domains interact with each other, as well as with other domains in the framework. Sub-domains of community contextual health can be viewed separately, as each has its own set of indicators. However, the sub-domains do have a multi-directional relationship between them and indicators are not independent of each other.

Table A1-4: Contextual community health sub-domains, indicators and data sources

Sub-domains Indicator/variable	Data source
<i>Birth outcomes (perinatal)</i>	
% live low birth weight non/term births	Northern Territory Perinatal DB
% live high birth weight	Northern Territory Perinatal DB
Mean birth weight term	Northern Territory Perinatal DB
Mean birth weight non-term	Northern Territory Perinatal DB
Perinatal mortality (rate per 1000 births)	Northern Territory Perinatal DB
Infant mortality (rate per 1000 births)	Northern Territory Perinatal DB
<i>Morbidity (hospitalisation separations)</i>	
Rate of complications in pregnancies	Hospital separations data
Rate of all acute separations	Hospital separations data
Rate of infectious & parasitic diseases by age	Hospital separations data
Rate of skin infections by age/sex	Hospital separations data
Rate of acute respiratory infection by age/sex	Hospital separations data
Rate of nutritional deficiencies by age/sex	Hospital separations data
Rate of blood diseases (iron deficient anaemia)	Hospital separations data
<i>Rate of mental disorders (drug and other)</i>	<i>Hospital separations data</i>
<i>Rate of inflammatory disease (CNS)</i>	<i>Hospital separations data</i>
<i>Rate of acute rheumatic fever by age</i>	<i>Hospital separations data</i>
<i>Rate of pneumonia and influenza by age/sex</i>	<i>Hospital separations data</i>
<i>Rate of genitourinary related by age/sex</i>	<i>Hospital separations data</i>
<i>Rate of arthropathy</i>	<i>Hospital separations data</i>



Appendix 2:

Key Service Domains and Core Performance Indicators for Aboriginal Primary Health Care Services

There are four key domains of Aboriginal primary health care services requiring indicators of performance, as follows:

- Domain 1: Health Services (including clinical services and community health programs).
- Domain 2: Management and Support Services.
- Domain 3: Linkages, Policy and Advocacy.
- Domain 4: Community Involvement.

For each of these domains two categories of performance indicators have been agreed:

1. Universal performance indicators that can be measured now.
2. Performance indicators that can be worked towards in the future.

Domain 1: Health services (includes two subsections: clinical services and community health programs)

USE NOW	WORK TOWARDS
<ol style="list-style-type: none"> 1. Number of service contacts x gender x age group x Indigenous status x locality. 2. Number and proportion of women attending first antenatal visit before 13 and before 20 weeks gestation. 3. Number and proportion of low birth weight babies (less than 2500gms). 4. Proportion of children fully immunised at 1, 2 and 6 years of age x locality x Indigenous status. 5. Number and proportion of children less than 5 years of age who are underweight x client population. 6. Number and proportion of children between 6 months and 5 years of age who are anaemic. 7. The proportion of resident clients age 15 years and over with a PCD who have had an EPC item 720 claimed in the previous year. 8. Proportion of resident clients with diabetes who have had at least one HbA1c within the last 12 months. 9. Proportion of diabetic patients with albuminuria who are on an ACE inhibitor. 10. Number of resident clients 15 to 55 years who undertook a well person's screen during the past 2 years x age group x gender x locality (Pap smears, STI, chronic disease). 11. Proportion of residents over 55 years who have had a full adult health check in the past 12 months x gender x locality. 12. Proportion of resident women having Pap tests for cervical cancer in the previous 24-month period for the target group 18–69 years x locality. <p>NB All by Aboriginal/Non-Aboriginal.</p>	<ul style="list-style-type: none"> • Mean number of consultations per estimated zone residents per year x service delivery type x locality x age group x gender. • Mean number of visitor patients x locality x gender x age group. • Proportion of residents 50 years or over who are immunised for influenza x gender x locality. • Proportion of population who have been screened for an STI x age group x gender x locality. • Numbers and proportion of resident clients aged 15 years and over with a BMI in the overweight or obese range x age group x gender x locality. • Proportion of resident clients who misuse alcohol who have had a brief intervention from clinical staff x age group x gender x locality. • Proportion of resident clients who smoke who have had a brief intervention from clinical staff x age group x gender x locality. • Dental: Number and proportion of clients who have • Report on strategies undertaken to reduce tobacco consumption. • Report on follow-up of abnormal laboratory tests. • Report on improvement in clinic total file audit scores towards targets. • Proportion of diabetics who have had a dilated eye check in the last 12 months. • Injury. • Substance misuse. • Hearing: build into Growth Action Assessment screen. • ESWB. • Disability. • Environmental health: Review IHANT Housing reports. • Nutrition: Market basket survey. • Cardiovascular (aspirin post AMI). • Proportion of eligible resident clients aged 5 to 10 years who have participated in the Healthy School Age Kids screening program in the previous twelve months. • Proportion of ischaemic heart disease patients on aspirin.

Domain 2: Management and support services

AGREED	WORK TOWARDS
<p>13. Report on unplanned staff turnover (where possible by occupation) over each 12-month period.</p> <p>14. Report on percentage of recruits (excluding locums) completing an orientation and induction program, including cultural awareness, over past 12 months.</p> <p>15. Report on overtime expenditure as a proportion of overall salary expenditure.</p> <p>16. Report on quality improvement systems including the use of best practice guidelines; e.g., CARPA.</p>	<ul style="list-style-type: none"> • Report on formal training courses attended, number of participants, and details of training x profession x location. • Provide evidence of risk management strategy and implementation plan. • Show evidence of accreditation of health service. • Report on processes in place to assess client satisfaction with service. • Report on actions taken to ensure compliance with CARPA protocols. • Proportion of health service positions (i.e., Clinicians, admin, managers) occupied by Indigenous people x location. • Report on percentage of planned positions that are filled. • Report on training and support for Health Boards (where they exist) over past 12 months.

Domain 3: Linkages, policy and advocacy

AGREED	WORK TOWARDS
<p>17. Report on service activities (position papers, collaborative meetings and services, published papers, policy submissions, participative research).</p>	<ul style="list-style-type: none"> • Report on store sales of cigarettes expressed as number of cigarettes per resident population for past 12 months x location. • Report on liquor sales for past 12 months x location.

Domain 4: Community involvement

AGREED	WORK TOWARDS
<p>18. Report on community involvement in determining health priorities and strategic directions through any of the following:</p> <ul style="list-style-type: none"> • Health boards • Steering committees • Advisory committees • Community councils • Health councils. <p>19. Show evidence of appropriate reporting to community on progress against core PIs.</p>	

Appendix 3:

Primary Health Care Performance Measures Mapped to the Health Information Framework (from Gollow 2003)

Indicators in *italics* appear in more than one section.

Indicators in **bold** are contextual indicators not required to be reported on.

Health Status and Outcomes			
How healthy are Territorians: Where is the opportunity for improvement?			
<p>Health Conditions</p> <ul style="list-style-type: none"> • <i>Prevalence of disease, disorder, injury or trauma or other health-related states.</i> 	<p>Human Functions</p> <ul style="list-style-type: none"> • <i>Alterations to body, structure or function (impairment), activities (activity limitation) and participation (restrictions in participation).</i> 	<p>Life Expectancy and Well-being</p> <ul style="list-style-type: none"> • <i>Measures of physical, mental and social well-being.</i> 	<p>Deaths</p>
<ul style="list-style-type: none"> • Prevalence of preventable chronic diseases in resident clients aged 15 years and over, by age and gender. 	<ul style="list-style-type: none"> • Disability rates • Presentations to emergency for injury/trauma. • Amputations resulting from poor diabetic control. 	<ul style="list-style-type: none"> • Number and proportion of screened children less than 2 years of age who are underweight. • Proportion of children less than 5 years of age who are anaemic. 	<ul style="list-style-type: none"> • Mortality rate in health zone.

Determinants of Health		
Are we trending towards or away from health?		
<p>Environmental Factors</p> <ul style="list-style-type: none"> • <i>Physical, chemical and biological factors such as water, food and soil quality.</i> 	<p>Socio-economic Factors</p> <ul style="list-style-type: none"> • <i>Such as education, employment, per capita expenditure on health and average weekly earnings, income distributions.</i> 	<p>Person-related Factors</p> <ul style="list-style-type: none"> • <i>Genetic related susceptibility to disease and other factors.</i>
<ul style="list-style-type: none"> • Frequency of refuse removal. • Sealed roads. • Food supply, store turnover and store opening hours. • House occupancy rate. • Number and proportion of Indigenous people who reside in dwellings with adequate water, electricity and sewerage. 	<ul style="list-style-type: none"> • Proportion of adults aged 20–64 who are employed full-time, employed part-time, unemployed, on CDEP and not in the labour force, by indigenous status. • Number of adults aged 20–24 who have completed secondary school (or equivalent level of education) by gender and indigenous status. • Number completing Year 12 by region • School attendance at each primary school in Health Zone • Average income 	<ul style="list-style-type: none"> • Number and proportion of liveborn infants born to resident clients in selected birthweight range. • Mean birthweight of liveborn infants born to resident clients.
<p>Community Capacity</p> <ul style="list-style-type: none"> • <i>Characteristics of the community such as population, age structure, health literacy, education, community support services, housing and transport.</i> 	<p>Health behaviours</p> <ul style="list-style-type: none"> • <i>Aspects of personal behaviour and risk factors that influence health status, including behaviours, meanings and knowledge.</i> 	
<ul style="list-style-type: none"> • Number of resident clients serviced by Health Zone by age, sex and Indigenous status. • Local training opportunities and proportion of workforce filled by local Indigenous people. 	<ul style="list-style-type: none"> • Store sales of cigarettes expressed as number of cigarettes per resident population. • Qualitative report on initiatives targeted at reducing use of hazardous substances e.g., alcohol, tobacco and kava. • Number and proportion of resident clients aged 15 years and over with BMI in the overweight and obese range, by age group and gender. 	

Indicators in *italics* appear in more than one section.

Health System Performance How well is the THS health system performing in delivering actions to improve the health of Territorians?	
Effective	Coordinated, Appropriate and Safe
<ul style="list-style-type: none"> • Care, intervention or action achieves desired outcome. 	<ul style="list-style-type: none"> • Care/intervention/action is coordinated and relevant to the client's need and based on established standards. Potential risks of an intervention or environment are identified and avoided or minimised.
<ul style="list-style-type: none"> • Proportion of clients with preventable chronic diseases managed on care plans (by disease). • Proportion of resident clients with diabetes who have had a HbA1c test in the last 12 months. • Proportion of resident clients with diabetes with a HbA1c less than 7% and less than 9.5% in the last 12 months. • Mean HbA1c level for resident diabetic clients in the last 12 months. • Proportion of resident children fully immunised at 1 year and 2 years and 6 years of age. • Proportion of resident clients aged 50 years and over who were immunised for influenza in the previous 12 months, by gender. • Number and proportion of resident clients who have been seen by a dentist or dental therapist in the previous twelve months. • Proportion of resident clients aged 5 and 10 years who have participated in a school screening program in the previous 12 months, by gender. <p>Also provide details on:</p> <ul style="list-style-type: none"> • Number and proportion of 4–5 year olds who had ear examinations (otoscopy) and number and proportion who needed follow-up. • Number and proportion of 4–5 year olds who were screened for hearing and number and proportion who needed follow-up. • Number and proportion of 10 year olds who had urinalysis for proteinuria and number and proportion who needed follow-up. • Number and proportion of 10 year olds who had a heart examinations (for rheumatic heart disease) and number and proportion who needed follow-up. • Number and proportion of 10 year olds who had a Mantoux test. • Proportion of resident clients aged 15 years and over who were screened for chronic diseases in the past year, by age group and gender. <p>Also report on:</p> <ul style="list-style-type: none"> • Number and proportion of population who have been tested for chlamydia, gonorrhoea, syphilis and HIV/AIDS in the last 12 months, by age group and gender. • Number and proportion of screened population who reported use of tobacco. • Number and proportion of screened population who report use of harmful or hazardous levels of alcohol consumption. • Number and proportion of population who were screened for hypertension. • Proportion of resident female clients having pap tests for cervical cancer in the previous 24 months period for the target group (15–69 years) 	<ul style="list-style-type: none"> • Report on normal health centre hours and after hour's service if provided. • If after hours service provided, report on proportion of consultation after hours. • If after hours service provided, report on procedures implemented for staff safety on after hours call outs. • Proportion of resident clients who have an abnormal pap smear in the previous 12 months who have had appropriate follow-up. • Report on procedures in place to follow up on abnormal laboratory tests.

Indicators in *italics* appear in more than one section.

Accessible and Responsive

Ability of the community to obtain care or service at the right place and right time, with access to appropriate technology and accommodation

- Mean number of consultations per estimated zone resident, per year, by service provider type, health centre, age group, gender and indigenous status.
- Ratio of full time equivalent staff to estimated zone population, by profession.
- Proportion of pregnant resident clients attending their first antenatal visit at or before 13 and 20 weeks gestation.
- *Proportion of resident clients with diabetes who have had a HbA1c test in the last 12 months.*
- *Number and proportion of resident clients who have been seen by a dentist or dental therapist in the previous twelve months.*
- *Proportion of resident clients aged 5 and 10 years who have been screened according to the guidelines for Healthy School Aged Kids in the previous 12 months, by gender.*
- *Proportion of resident clients aged 15 years and over who were screened for chronic diseases in the past year, by age group and gender.*
- *Proportion of population who have been tested for chlamydia, gonorrhoea, syphilis and HIV/AIDS in the last 12 months, by age group and gender.*
- *Proportion of resident female clients having pap tests for cervical cancer in the previous 24 months period for the target group (15–69 years).*

Efficient

- *Achieving desired results with the most cost effective use of resources.*

- Provide evidence of risk management strategies and discuss their implementation.
 - Proportion of total funding managed by Health Board that was sourced from funding bodies other than PHCAP.
- NB: Financial measures listed in separate document.
Average number of filled board places in the previous 12 months per meeting.

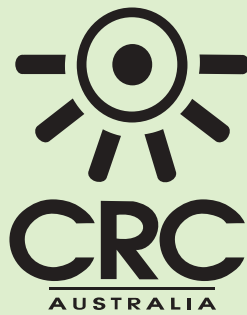
Capable and Sustainable

- *System or capacity to provide a health service and infrastructure such as workforce, facilities and equipment, and to be innovative and respond to emerging needs (research, monitoring).*

- Number of meetings of the board and proportion of board members in attendance.
- Report on turnover of Health Board members and any issues related to recruitment of Board members.
- Proportion of board members undertaking governance training by type of training undertaken ie financial, management, computing etc. in the previous 12 months.
- Report on actions taken to ensure compliance with formalised policies and guidelines for clinical management.
- Is the health service accredited? Report of processes in place to assess client satisfaction.
- Provide evidence of formal guidelines for staff recruitment and termination including report on current EBA and identify issues related to completion and/or implementation of EBA.
- Number of visitor clients who have presented to the health centre at least once during the last 12 months, by age, gender and Indigenous status.
- Provide details of training and development opportunities by professional group and type of training undertaken.
- Proportion of new staff who have been employed for at least 6 months who have attended an orientation program.
- Report of processes in place to ensure cultural awareness of staff.
- Report on quality assurance processes including development of procedures manual and systems for audit and review of health services.
- Report on strategies and practices for community involvement in health planning.



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