



Positioning Paper

Remote Indigenous housing procurement and post-occupancy outcomes: a comparative study

authored by

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ACRONYMS

AAS	Australian Anthropological Society
ABS	Australian Bureau of Statistics
AERC	Aboriginal Environments Research Centre
AHP	Aboriginal Housing Panel
AHURI	Australian Housing and Urban Research Institute
AIA	Australian Institute of Architects
AIAS	Australian Institute of Aboriginal Studies
AIHW	Australian Institute of Health and Welfare
AIMSC	Australian Indigenous Minority Supply Council
AP	Anangu Pitjantjatjara
APY	Anangu Pitjantjatjara Ynkunytjatjara
ARIA	Accessibility/Remoteness Index of Australia
ASA	Association of Social Anthropologists
ASAANZ	Association of Social Anthropologists Australia and New Zealand
ATSIC	Aboriginal and Torres Strait Islander Commission
BAC	Bawinanga Aboriginal Corporation
BCA	Building Code of Australia
CAEPR	Centre for Aboriginal and Policy Research
CAT	Centre for Appropriate Technology
CDEP	Community Development Employment Projects
CHIP	Community Housing and Infrastructure Program
CRHDM	Central Remote Housing Delivery Model
CRC	Cooperative Research Centre
CRM	Central Remote Model
C'th	Commonwealth
DAA	Department of Aboriginal Affairs
D&C	Design and Construct
DBIA	Design-Build Institute of America
DCM	Design, Construct and Maintain
DD&C	Design Development and Construct
DF	Design Framework
DHC	Department of Housing and Construction
DMR	Department of Main Roads, Queensland
DN&C	Design, Novate and Construct

FaCS	Department of Family and Community Services, Commonwealth
FaCSIA	Department of Families, Community Services and Indigenous Affairs, Commonwealth
FaHCSIA	Department of Families, Housing, Community Services and Indigenous Affairs, Commonwealth
FHBH	Fixing Houses for Better Health
GCS	Guaranteed Construction Sum
GISCA	National Centre for Social Applications of Geographic Information Systems (formerly known as Geographic Information Systems Co-operative Agency)
GMP	Guaranteed Maximum Price
HICH	Housing Improvement and Child Health
HLP	Healthy Living Practices
ICH	Indigenous Community Housing
ICHO	Indigenous Community Housing Organisation
IHANT	Indigenous Housing Authority of the Northern Territory
JET	Jobs, Education and Training
MC	Managing Contractor
NAHS	National Aboriginal Health Strategy
NAHS EHP	National Aboriginal Health Strategy Environmental Health Project
NBC	Northern Building Consultants
NIHG	National Indigenous Housing Guide
NOP	Non-Owner Participant (Note that this includes any service provider such as designers, constructors, specialist consultants, etc and could also include an agency or government-backed enterprise acting as a service provider rather than owner.)
np	not-paginated
NPA	National Partnership Agreement
ODB	Owner/Designer/Builder
PC	Practical Completion
POE	Post-occupancy Evaluation
PPP	Public Private Partnerships
RAIA	The Royal Australian Institute of Architects
SALT	Strategic Alliance Leadership Team
SCRGSP	Steering Committee for the Review of Government Services Provision
SERC	Social and Economic Research Centre
SIHIP	Strategic Indigenous Housing and Infrastructure Program

SL	Sustainable Livelihood
SOMIH	State Owned and Managed Indigenous Housing
TAFE	Technical and Further Education
UBC	University of British Columbia
UPK	Uwankara Palyanyku Kanyintjaku
UQ	University of Queensland

EXECUTIVE SUMMARY

Building procurement is defined as ‘the act or process of bringing into being a building that was not there before and embraces all the activities that might be necessary to that objective’. Aboriginal housing procurement practice occurs in a complex context of political, market, and industry dynamics. Housing procurement is delivered using the practical and legal mechanism of a building contract into which drawings and specifications are incorporated in order to bring into being a physically defined outcome that was not there before. But there is a relative absence within current Indigenous housing literature that directly addresses the relation between the *procurement method*, and the social, human and economic outcomes of the supply of housing, or the ‘social, cultural, human and economic capitals’ as they are termed herein.

Achieving high-level outcomes beyond the physical units of houses is fraught with difficulty in remote Indigenous housing. Despite this, there are some procurement success stories; with this in mind, this project aims to assess what has been achieved during the last decade of procurement of Aboriginal housing, as grounded in actual practice. Aboriginal housing procurement, if done well, would not only diminish livelihood vulnerabilities, but would also strengthen self-governance and generate services responsive to community demand. As will be discussed in this Positioning Paper and further explored in the subsequent research Final Report, the significance of a better understanding of housing procurement systems within the context of remote Indigenous communities has potential benefit for all peoples engaged in the built environment sector.

Specifically, this study explores the relationships between remote Indigenous housing procurement and the broader objectives of Indigenous communities. It contributes to an understanding of the potential longer-term economic, social, health and cultural outcomes of current and future housing policies and housing delivery programs. It also aims to address the lack of published comparative analyses of case studies on what the authors gloss as the ‘socio-economic capitals’ of housing procurement methods. This Positioning Paper reviews the available literature on the socio-economic capitals of housing outcomes, describing them systematically and documenting any established techniques of measuring such outcomes. In the next stage of the project (post=literature analysis), we shall sample a selected number of best practice case studies, to examine in more depth, a range of the types of benefits outlined above. The project aims to generate and discuss strategies, guidelines, principles and measures for good Aboriginal housing procurement practices in remote Australia.

Housing procurement in remote Aboriginal communities has at times been sporadically linked to other forms of government service delivery outcomes and objectives such as construction, maintenance, training, employment, education, governance, management, health, sustainability; yet still further program values have emerged in recent years that can best be described as ‘symbolic capitals’ inclusive of leadership, mutual respect, positive cultural identity and other life skills outcomes.

Close examination of all the capitals (social, human, natural, economic and physical) upon which housing procurement impinges reveals a stark gap in the inclusiveness of social capital theory to respond to the unique circumstances of human settlement in remote Indigenous contexts. This gap has been addressed by introducing the theory of ‘sustainable livelihoods framework’, which attempts to emphasise improved life outcomes in alignment with remote Indigenous settlement expectations and has the

potential to link a range of capitals to housing procurement and to the distinctive markets of hybrid economies evident in the majority of remote settlements.

Understanding procurement in remote Indigenous settings

In attempting to understand the relationship between housing procurement and Aboriginal capital networks in remote communities, this paper begins by presenting the common procurement strategies and associated contractual methodologies used in the Australian construction industry. Most forms of building procurement rely on legally binding contracts that establish the scope of works and specify the outcomes to be achieved during the contracted works. Currently, in the Australian construction industry, there are nine contractual methods used in the provision of mainstream construction projects. These are:

- Documented Design (Traditional *Lump Sum*), also known as *Construct Only*.
- Design Development and Construct (DD&C).
- Design, Novate and Construct (DN&C).
- Design and Construct (D&C).
- Design, Construct and Maintain (DCM).
- Guaranteed Maximum Price (GMP).
- Managing Contractor.
- Alliance (Co-operative) Contracting.
- Public Private Partnerships (PPP).

Two broad government programs have delivered most remote Indigenous housing over the last ten years—State Owned and Managed Indigenous Housing (SOMIH), and Indigenous Community Housing (ICH). SOMIH is provided in all Australian states and the dwellings are owned and managed by the particular state housing authorities funded through the Commonwealth-State Housing Agreement. Indigenous community housing is managed by Indigenous community housing organisations (ICHOs) with funding provided by the state and Commonwealth governments. Accordingly, this Paper seeks to understand the various strategies used in the procurement of Aboriginal housing over the last ten years in order to discuss the efficacy of these processes and the future of housing procurement in remote Aboriginal communities.

Understanding the capitals of Indigenous housing procurement

Because mainstream housing procurement contracts and methods are driven by economic imperatives of minimising financial risk and maximising financial gains, all with expected delivery in set timeframes, they do not readily lend themselves to integration with the largely unskilled, highly mobile labour markets of remote Indigenous settlements. The available evidence suggests that a different system needs to be implemented—one that borrows from local Aboriginal social capitals, and is fostered from outside mainstream housing procurement systems at communal or regional levels. Aspects of Aboriginal social, human and economic capitals seem to have been in conflict, mismatched or not recognisable under the rigid parameters of conventional mainstream housing procurement delivery. If Indigenous people are to derive improved livelihood outcomes from housing and infrastructure programs, it needs to be recognised that rushed program agendas can strip long-term benefits, and may contribute to the burden of livelihood vulnerabilities due to the increased running costs of houses and the reduced social benefits. This is further exacerbated

by a shortened building period due to the wet season in many regions of northern Australia, resulting in the exclusion of local involvement in training.

The sustainable livelihoods framework thus argues for an intercultural and hybridised approach to sustainability based on the procurement realities faced by remote settlements; with a cautionary approach to adopting procurement frameworks that draw on technologies and contractual systems that prohibit or restrict Aboriginal labour engagement, or that entrust innovation solely into the hands of consultants who lack the necessary contractual powers and experience to implement these innovations under current procurement practices. The authors contend that such a framework is possible through an engagement with Aboriginal 'capitals' consisting of social, health, employment and training, and governance frameworks within a sustainability livelihoods approach.

Social capital consists of networks of social relationships formed for mutual benefit and based on norms of trust, reciprocity and unity. Although Indigenous social capital investment in housing procurement appears to yield only limited economic gain and does not usually manifest as capitalistic economic development, there is a possibility of exploring whether informal Aboriginal groups, such as sociospatial kin-based residential groupings, customary gendered activity groups, hunting or craft manufacturing groups, and ceremonial or ritual groups, can play roles in housing economy or housing management. Such social capital would need to be localised and contextualised due to the distinct economic and social circumstances in remote settlements. For purposes of identification and evaluation, it is possible to measure social capital strength, although it is necessary to combine a quantitative scaling approach with a qualitative assessment to capture the distinctive cross-cultural mix of values and networks in Aboriginal communities.

Another dimension of social capital, cultural capita, can play a significant role in housing design. The cultural design paradigm involves the use of models of culturally distinct behavior to inform definitions of Aboriginal housing needs. These need to be generated from effective consultation with end users, requiring specialist expertise in cross-cultural consultative skills. This design approach provides opportunity in housing procurement for the reinforcing of cultural identity, thereby strengthening social and cultural capital. Ethical capital is further generated from a consistent application of primary ethical principles of mutual respect, mutual rights and mutual responsibilities in meeting the reasonable culturally specific needs of householders.

A form of human capital that can be generated from housing procurement is *health capital*. Houses and associated environments can contribute positively to sustaining Aboriginal health and reducing livelihood vulnerabilities. Surveys are available to assess the quality of the health hardware, i.e. the physical equipment necessary for healthy and hygienic living, which provides a measure of health capital in Indigenous housing. Another form of health capital is arguably generated by supporting the social and psychological functions of housing. A significant way to do this is to reduce crowding. However, *crowding* is also a specialist area of research and design practice due to the complexity of cross-cultural crowding models, and to the complex inter-relationships of household density, behavioural codes and values, the functional state of house infrastructure, the hygienic condition of houses, and psychological well-being. The problem of quantifying and measuring crowding reduction in housing in order to reduce psychological stress and infectious disease transmission is similarly difficult, and although coarse measurements are regularly made using conventional occupancy standards, they are not necessarily an accurate guide as indicated by some of the culturally distinctive examples given.

Housing and infrastructure procurement, as one of the largest capital investments by governments in remote communities, has a clear potential to generate *employment and training capitals* (or economic capitals) and thereby provide improved wealth creation and economic sustainability for Aboriginal people. However, variable project delivery methods clearly result in varied opportunities for employment and training. Time-pressured housing delivery limits opportunities for community participation and has resulted in a contracting preference for low-key or zero Aboriginal involvement in many jurisdictions.

If the constraints of urgent construction timeframes were not prioritised, synergies could occur, contributing significantly to livelihood sustainability. However, the use of small-sized building teams prevents apprenticeship uptake, and typically there are often no fully qualified Indigenous tradespersons involved in construction projects. Small-scaled building projects thus appear to only have minor impact on achieving significant improvements in livelihood strategies. On the other hand, the promotion of housing technology systems for housing procurement that can radically reduce the extent to which conventional certifications of on-site skilled labour are required, needs to be considered. The example of Bawinanga Aboriginal Corporation in Arnhem Land demonstrates that sustained employment opportunities can emerge when infrastructure is carefully and selectively introduced to match local management capacity and skills levels for repairs and maintenance, even if there is a lack of ability to uptake recognised trades certification.

Larger scales of labour organisation and training need to be explored. High level skills uptake by Indigenous staff can occur under key government contract agencies like the Queensland Government's QBuild, because they offer the required perpetual employment to achieve this, yet there is a considerable lack of interface and minimal local labour input within the settlements where construction projects are rolled out. A good practice example is the Myuma group in North-west Queensland which runs a pre-vocational training course. Here there is a unique symbiotic relationship between the practice of Aboriginal law and the practice of commerce whereby the two are mutually supportive of one another, generating a strong Aboriginality in day-to-day *business*. The overall positive benefit to economic capital is thus supported and underpinned by cultural and social capital resulting in a potential for greater livelihood sustainability.

In addition, capacity building of local *governance capital* is also necessary to obtain sustainable training and employment outcomes. Housing procurement can contribute to both local and regional forms of Indigenous governance. However, there is generally an imbalance in power relations and capacities between Aboriginal and non-Aboriginal governance systems, one which needs to be corrected in order to generate the best capital outputs from housing procurement. The latter includes local, state and Commonwealth Government representative bodies and their associated funding cycles that require coordination at the scales of the settlement and the region. Problems of procurement result when there is not a 'collective mind set of values and attitudes' among these respective players. In general, Indigenous self-governance is a critical key to developing sustainable remote Aboriginal communities. With governance capitals inevitably impacting on housing procurement, an ultimate aim for remote Indigenous communities would be for at least some, if not the majority, of Aboriginal groups to develop (build infrastructure) and purchase land, construct, maintain and manage housing stock, buy, sell, and rent houses themselves without or with minimal government intervention. Implementing such an economic aim requires a sufficient strength and flexibility of local governance to facilitate corporate innovation as well as a demand responsive model of housing procurement such that communal

motivation for involvement in housing construction and maintenance is clearly aligned with housing products that fulfil local needs.

The striving and planning for multiple capitals to be generated from housing procurement suggests adopting a form of *sustainability framework* in order to integrate the hybrid economic use of community-based resources within a range of human activities, incorporating complementary concepts of ecology and social values. The Design Framework (DF) method and the Sustainable Livelihood (SL) Framework both offer positive foundations for the procurement of housing in remote Aboriginal communities. The sustainable livelihood's framework has the potential to link a range of capitals to housing procurement and attempts to emphasise improved outcomes in alignment with remote Indigenous settlement expectations.

Linking socio-economic capitals to procurement methods

In concluding this Positioning Paper, the discussion prepares the foundation for the subsequent empirical case study analyses to be undertaken in Stage 2, through presenting initial findings regarding social, cultural, health and economic capitals in remote Aboriginal communities and their potential relationship with the procurement processes and contractual methodologies discussed previously in this report.

Social capitals in procurement

In this report, social capitals were described as networks inclusive of social relationships, norms of trust and reciprocity, being in certain ways non-separable from natural capitals where customary capital is all important and outstrips economic capital. In terms of procurement and its relationship to social capitals, it could be argued that the better a given community's social capitals are understood and respected, the better any potential housing procurement system will be. Furthermore, it can be expected that different communities will exhibit potentially different social capitals dependent on a multitude of given circumstances including, but not limited to, remoteness, local levels of leadership, social organisation, education, adherence to local custom and cultural traditions among others. However, there is negligible evidence in documented case studies of housing providers attempting to understand how informal Aboriginal networks might contribute to housing procurement and this remains an untested area. It is intended that Stage 2 of this research project will focus on more in-depth analysis of these interrelated issues in seeking to understand which (if any) social capitals might be demonstrable from the chosen case studies. There is nevertheless one exceptional practice clearly visible in the housing literature, which draws on social capital and which the current authors believe is relevant and necessary to creating sustainable procurement strategies in remote Aboriginal communities, that of 'design cultural fit' between culturally distinct domiciliary behaviours and house design.

Cultural and ethical capitals in procurement

In order to achieve a close 'design cultural fit' in remote Aboriginal housing, there must be a common consensus between the initial designer, the builder and the project manager overseeing the procurement process. One of the most contentious debates in Aboriginal housing over recent decades relates to whether or not the standardisation of house designs can deliver culturally appropriate housing. The argument once again comes down to risk management for both funder (proprietor) and building contractor. For example, the standardisation of house designs results in less community consultation as community members choose from a range of design options that have typically been predetermined, while the individualisation of house designs requires a much greater commitment to community consultation and adds a

greater level of complexity to the documentation and eventual building program as well as cost. Individualisation also reduces opportunities for achieving economies of scale as building materials cannot be ordered in bulk and architectural detailing and technology may vary. The history of housing procurement systems in Aboriginal communities has shown that the standardisation of house designs is yet to be proven to result in a strong cultural fit, where the individualisation of house designs while seemingly more culturally appropriate is yet to deliver successful large-scale housing programs. Both methods present problems for the delivery of culturally appropriate housing. The intention of Stage 2 of this research project will be to evaluate which procurement systems have proven more effective in creating positive outcomes for a close cultural fit in house design.

Cultural appropriateness in house design relates to how well the finished product functions to support the occupants' beliefs and their associated domiciliary behaviours. The contractual system itself is important in this respect; however, as discussed above, it appears that projects with short timeframes and grand expectations in achieving large numbers of houses will automatically preclude time-intensive or householder responsive consultation due to the focus on standardisation in house design and the dominance of economies of scale. Consequently, it appears that large-scale design-and-construct (D&C) and alliance contractual processes would lend themselves to this methodology, whereas small-scale traditional lump sum contracts would lend themselves to intense pre-design consultation and individualisation in house design, which until investigated fully in Stage 2 of this project, appears to produce better results in relation to cultural appropriateness in house design.

Health capitals and procurement

In looking at the relationship between housing procurement processes and reducing livelihood vulnerabilities, two main aspects are considered based on the literature analysis—reducing crowding and improving health hardware performance. The majority of work required to improve health and overcrowding outcomes in remote Aboriginal housing needs to be undertaken at a strategic design level with a heavy focus on grass-roots consultation with key stakeholders, typically those who are living in the household settings in which the house and related infrastructure are to be constructed. A review of those contractual mechanisms discussed previously shows either the lump sum or alliance contracting systems may best support such an activity, versus the D&C contracting scenarios with their set timeframe and budgetary requirements. Both the traditional (lump sum) and alliance forms of contract would typically rely on either pre-contract or schematic design consultation being undertaken during the initial stages of the design process. The reason for ruling out D&C as a potential system relates to the time that the consultative process would typically add to the project program; and with the head building contractor assuming all the risk in the D&C process, it would appear more likely that whoever was exposed to the most risk would attempt to limit consultative input and seek standardised house designs versus the individualised designs possible under lump sum and alliance contracting.

To improve health and reduce crowding in remote Aboriginal housing requires both technical and social design considerations. While good technical design may improve access to health hardware within a house, and thus have a positive effect on some of the health indices of its occupants, it may not necessarily reduce crowding or improve health if day-to-day cleaning regimes are not constant or undermined by large households. However, we do know that a lack of quality technical design does exacerbate house hardware functions, and can have a flow-on effect on overcrowding.

Employment and training capitals in procurement

In terms of incorporating local labour and implementing training programs within the range of different procurement strategies, the issue becomes one not just of additional cost, but also of risk mitigation for both proprietor and building contractor. The risk to the proprietor relates to timeframe and budget overruns given the potential of a more transient, possibly truant, and certainly low-skilled semi-literate labour force in many remote communities. Those same risks also affect the building contractor. Given this scenario, one could assume that the proprietor would attempt to shift the potential risk of timeframe and budget overruns to the building contractor with a resultant increase in overall construction sum to cover the contractor's additional risk. Of the contractual scenarios discussed previously, both the traditional lump sum and D&C approaches would see the contractor taking on the risks associated with labour force truancy whereas the alliance form of contracting would see all parties sharing those risks. One could imagine that the majority of head contracting companies with the appropriate experience to run D&C and lump sum contracting would shy away from contractual situations that stipulated the implementation of training and employment programs in remote communities on the basis of risk to their business enterprise. Therefore, it could be suggested that alliance contracting is more likely than either lump sum or D&C contracting to accommodate local training and employment strategies in remote Aboriginal communities as all risks are shared. Thus, it is no surprise that the current SIHIP program in the Northern Territory is being administered as an alliance contract with all risks shared between the Australian and Northern Territory Governments and the contracting consortia undertaking the construction work.

With this in mind, the question is how to build appropriately in remote settings where there is a high likelihood of transient behaviour due to mobility associated with Aboriginal kinship and ceremonial responsibilities, and where Aboriginal social priorities may outweigh economic priorities with individuals choosing family obligations/responsibilities over their own personal material desires. This situation affects procurement strategies given that the construction of house projects is typically a linear continual program of construction and administration until practical completion. It may be unrealistic if not incongruous to expect Aboriginal people to compromise their long-held social responsibilities to receive construction training that may not culminate in long-term employment. Case study analyses in Stage 2 will investigate the relationship between training, employment, mobility and procurement systems in greater detail in an attempt to draw conclusions as to which direction procurement scenarios should head in the future to benefit all stakeholders and not just those who provide the project funding or those who benefit financially from undertaking the works.

Governance capitals in procurement

In terms of governance as a social capital and its relationship to procurement processes, improved housing procurement in remote Aboriginal communities will not produce quality governance structures within communities; however, improved self-governance systems within communities will result in greater information dissemination and accountability, and thus better housing procurement in remote communities. It is therefore difficult to choose any one particular contractual strategy over another in relation to strengthening and working with governance as a form of capital. In saying this, after reviewing the governance literature, the current authors believe that an improvement in self-governance mechanisms, whereby Indigenous people administer infrastructure and housing programs themselves will result in the positive development of Aboriginal housing procurement throughout Australia. While this seems an obvious statement, history has shown this pursuit to be a difficult

achievement. For example, self-governance of housing procurement was attempted in the recent decades through ICHOs administering community consultation, design and construction contracts. However, those housing organisations not only had to balance a three-tiered system of government, i.e. local, state and Federal, in order to continue receiving support, but also the social and cultural expectations of their respective communities that at times sat in polar opposition to government political agendas.

For some, the heavy burden that this situation placed on these small organisations resulted in their eventual failure and the abolition of their responsibilities for housing and infrastructure management. The literature shows that unless ICHOs are equipped with the relevant skills and personnel to carry out such an undertaking, they are bound for failure in the medium to long-term. Even if they succeeded under this regime, they were considerably defunded in sweeping ICHO changes through the removal of CHIP and NAHS funding, and any competencies gained were lost when they were defunded. Nevertheless, there are some operational ICHOs that continue to have a relatively successful track record. If quality governance structures did exist in Aboriginal communities, it would be possible for that ICHO to use any one of the different contractual strategies described previously to procure housing for that community; it would only be a matter of choice as to which contract system worked best for a given scenario. This is, again, a dimension of the research project that will be examined through a later case study.

Conclusion

In reviewing the recent history (2001–2010) of housing procurement in remote Aboriginal communities, two major observations stand out. Firstly, given the political complexities of working in cross-cultural contexts, there does not appear to have been a significant improvement in Aboriginal housing over the last ten years; and secondly, in response to this complexity, there appears to have been a shift away from traditional lump sum contracts controlled at a community level (through ICHOs) to large alliance forms of contract controlled at a regional level by the Australian Government. Initial research findings indicate that many of the barriers affecting the outcomes of particular procurement systems may be government-related and due to a lack of understanding of the social and economic capitals that Aboriginal people can bring to procurement in conjunction with an appropriate awareness of market and construction industry dynamics in remote Australia. Stage 2 of this research program will draw out and clarify these relationships in greater detail.

This research project promises to make a valuable addition to the body of knowledge regarding housing procurement processes in remote Aboriginal communities in Australia. It also has the potential to educate funders (government), ICHOs (community governance) and project facilitators (contracting companies) working in remote Australia as to best-practice administration processes leading to more positive outcomes of culturally responsive housing in using the social and economic capitals that Aboriginal people can bring to procurement. In order to appropriately procure Aboriginal housing in remote communities in Australia, it is argued that an envelope of 'ethical fairness' needs to cover all participants in the process; be they building contractors, Aboriginal occupants, government officials or others in procuring quality housing outcomes which attest to a shared future built environment that will last and that is representative and responsive to each other's cultural, social and economic values.

1 INTRODUCTION

History shows Aboriginal housing to be a politically contested realm as diverse stakeholders in both Indigenous and non-Indigenous industry contexts attempt to negotiate different social, economic and cultural values in constructing a shared future Australian built environment. Historically, housing procurement in remote Aboriginal communities has at times been sporadically linked to other forms of government service delivery outcomes and objectives, such as construction, maintenance, training, employment, education, governance, management, health, sustainability; yet still further program values have emerged in recent years that can best be described as 'symbolic capitals' inclusive of leadership, mutual respect, positive cultural identity and other life skills outcomes.

These secondary outcomes of the housing process are what we loosely term the 'capitals' of housing: outcomes that are in addition to the physical asset of the house. The idea of a research study on the relation between the procurement methods and the social, human and economic capitals in Indigenous housing seems even more compelling given the shifts in Indigenous policy in the Howard and Rudd era of Australian Government during the early 2000s. If one is to track through Indigenous policies from the early 1970s (starting in the Whitlam era), one finds the persistent inclusion of a range of capitals in housing delivery, initially generated from the policies of self-determination and self-management (the Fraser era).

The late 1970s and 1980s saw a flourishing of self-help construction, Aboriginal pre-fabricated house manufacturing companies, concrete block-making, house maintenance teams, landscaping enterprises, housing management committees and co-operatives, and even the employment of architects within Aboriginal-controlled agencies (Memmott 1988). By the 1990s government policies across many jurisdictions subscribed to levels of Indigenous decision-making and governance which became formalised within the many Indigenous Community Housing Organisations (ICHOs), the Regional Councils of the Aboriginal and Torres Strait Islander Commission (ATSIC) and the various state housing authorities such as the Aboriginal Coordinating Council (Qld), the Aboriginal Housing Board (WA), the Indigenous Housing Authority of the Northern Territory (IHANT) and the Aboriginal Housing Office (NSW). With the exception of the last mentioned organisation, all of these structures were dismantled or disempowered in the first decade of the new millennia (early 2000s), with a swing back to mainstreaming policy approaches. However, policies tend to move cyclically through time like a pendulum, and at the time of writing there was renewed interest in the potential capitals of Indigenous housing and an opportunity to re-examine how they might be achieved within a renewed call for the economic sustainability of communities and for 'closing the gap' in Aboriginal health and poverty under the National Partnerships with states and territories.

Given that the construction of houses is delivered using the practical and legal mechanism of a building contract into which drawings and specifications are incorporated, it is surprising that no study to date has directly addressed the relation between the latter, which we term the 'procurement method', and the former, the social, human and economic outcomes of the supply of housing, or the 'social, human and economic capitals'. As will be discussed in this positioning paper and further explored in the subsequent research report, the significance of a better understanding of housing procurement systems in remote Indigenous communities has potential benefit for all peoples in the Australian built environment sector. Aboriginal housing procurement, if done well, would not only provide a vision towards diminishing

livelihood vulnerabilities, but would create a powerful voice for strengthening self-governance and achieving services responsive to demand.

1.1 The study and its aims

This project explores the relationships between Indigenous housing procurement and the broader social and economic objectives or *capitals* of Indigenous communities. It contributes to an understanding of the potential longer-term economic, social, environmental, health and cultural outcomes of current and future housing policies and housing delivery programs. The types of desirable outcomes from housing projects and their relative weightings vary across jurisdictions and between communities, but the following criteria for such outcomes are frequently encountered in the policy and program literature:

- Involving Indigenous decision-making through consultation.
- Achieving competitive housing delivery costs and economies of scale.
- Sustaining local Indigenous building and maintenance teams in employment and training.
- Ensuring that design complies with environmental health criteria.
- Establishing a portfolio of high standard designs (cost effective, culturally and environmentally sustainable, disabled/elderly access).
- Ensuring that routine maintenance is consistent with local community capacity.
- Matching building contract sizes and performance goals with the regional capacities of private sector building contractors.
- Affordability with regards to energy usage and maintenance costs.
- Tenant satisfaction with housing product and process.

While a number of theoretical frameworks have been devised to classify and describe this range of benefits based on individual project reports, ideological arguments and limited case study material, there are no published comparative analyses of case studies on what we shall gloss as the 'socio-economic capitals' of housing procurement. Housing procurement practice occurs in a complex context of political, market, and industry dynamics. Achieving high-level outcomes beyond the units of houses is fraught with difficulty in remote Indigenous housing. For example, contractual requirements on building contractors to use local Aboriginal labour or purchase Aboriginal Council-supplied materials can introduce hidden risks, which in turn inflate tender prices in a market-driven economy. Despite this, there are some procurement success stories; with this in mind, this project aims to assess what has been achieved during the last decade of procurement of Aboriginal housing, as grounded in actual practice. These aims also partly address the AHURI Indigenous Research Agenda 2009 on sustainability relating to the financial implications of different procurement systems in meeting asset management practices and housing outcomes for Indigenous people in remote areas (AHURI 2008, p.21).

Let us briefly overview the contents of this Positioning Paper. The remainder of this chapter deals with methodological issues, firstly by describing the 'Research background' and how the study builds on earlier AHURI reports, which leads into the formulation of a set of research questions, then followed by more detailed discussion of the literature sources and the impact of remoteness on procurement. Chapter 2 provides a technical introduction to, and definitions of, nine contractual methods used in the provision of mainstream construction projects, and then provides a recent history of the use of these procurement models in the Indigenous housing sector.

Chapter 3 is about 'Understanding the Capitals of Indigenous Housing' and deals separately with social capitals, cultural and ethical capitals, health capitals, employment and training capitals, and governance capitals. Before discussing each of these respective capitals, there is a section on 'sustainability frameworks for improved livelihoods' which attempts to integrate a broad set of values into models to guide human endeavours, and that usually contain both sustainable environmental and economic goals as well as a range of the capitals that are of relevance to the current analysis. Sustainability frameworks are thus useful to understand ways in which a set of capitals might be theoretically combined to generate sustainable Aboriginal livelihoods.

Finally, in Chapter 4, our initial findings are set out on how each of the capitals described in Chapter 3 might be more logically or appropriately gained or enhanced through a particular type of procurement process, thereby creating a set of prescriptors to use for case study selection in the second stage of this project. Stage 2 will examine a set of case studies in greater depth.

1.2 Research background

Drawing on a body of previous and current housing research, and using the AHURI report by Long et al. (2007), *An audit and review of Australian Indigenous housing research*, as a starting point, the authors have now conducted a more in-depth literature review to assist in defining the social and economic capital frameworks of current Indigenous housing procurement in Australia. In particular, reference is made to recent AHURI reports by Fien et al. (2007; 2008) who in turn drew upon previous AHURI work by Long et al. (2007), Memmott et al. (2006), Memmott (2004), Memmott and Chambers (2003), Moran (2004; 1999), Memmott and Moran (2001). Fien et al. (2008, p.85-103), through an integrated process of intense literature analysis grounded in three remote field case studies (Mimili, Palm Island, Maningrida), compiled a Design Framework for Indigenous Housing that consists of six principles of sustainability:

1. Cultural appropriateness.
2. Environmentally sustainable.
3. Healthy living practices.
4. Employment opportunities and economic development.
5. Life-cycle costing.
6. Innovation in procurement, ownership and construction systems.

These principles are combined with the specification of key decision-making points for their application through consultation in the housing system at settlement planning, housing design, construction and post-occupancy management phases.

Fien et al. (2008) derive an extensive list of best practice principles, many of which have also been similarly devised elsewhere by Memmott (1989a; 1991). But it must be noted that the full list is so demanding and far reaching that it is doubtful whether most or even a modest number are likely to be incorporated under conventional procurement methodologies. For a senior public servant in a government department or a professional consultant (project manager) to successfully implement all these program principles would require not only a very high level of professional expertise, but also a shared willingness and capacity to engage in them by the many other players in the housing process; what Ackfun (2008, p.75) has referred to as the

collective 'mindset of attitudes and values' of all the participants in the housing procurement process (policy-makers, managers, contractors, stakeholders, clients, employers). Thus, it is the idiosyncratic application by these players who are called upon to execute bureaucratic programs that can vary the scales of success or failure of any carefully devised policy or program (Moran 2006a, p.152-159). Unfortunately, in Australian Indigenous housing, very seldom is such an ideal realised due to the aforementioned complex reality of political, market, and industry-driven dynamics.

Dr Bruce Walker, Director of the Centre for Appropriate Technology (CAT) in Alice Springs, has called for an even further expanded agenda in housing procurement beyond cultural factors, health objectives, appropriate technology and cost optimisation, to encompass investment in the economic development of the livelihood options, social capitals and social assets of Indigenous communities as part of a total regional reform and development system (Walker 2008, p.38). Under this wider umbrella would fit such exemplar initiatives as (a) the recently formed Inaugural Australian Indigenous Minority Supply Council (AIMSC), which aims to assist Indigenous business entrepreneurs (including those in the housing industry sector) to gain access to the procurement processes of Australia's top corporate companies, and (b) Myuma Pty Ltd under the auspices of the Dugalunji Aboriginal Corporation (Camooweal) in establishing its own pre-vocational courses in training Aboriginal people for the construction industry and positioning them with jobs (Memmott 2007; 2010). In an attempt to move towards such a broad housing outcome and framework, the current research seeks to ground an understanding of housing procurement in actual practice and within a longitudinal perspective that covers the post-occupancy period so that housing outcomes can be adequately assessed—an area of housing research fraught with empirical challenges.

It could be asked why this is necessary or significant if the Design Framework for good housing procurement is already developed within the literature? The problem is the current lack of well-documented evaluations of Aboriginal housing procurement in a total sense. There are a few early comprehensive case studies, such as Heppell and Wigley 1981 (Mt Nancy in Alice Springs) and Memmott 1991 (Wilcannia), but they are somewhat outdated with respect to contemporary professional practice standards and contractual methodologies, although some key principles are worth re-visiting. An extensive literature review has shown that there are comparatively few recent documented examples, and those that are available are often embedded in unpublished documents, such as professional reports or theses, e.g., Howorth 2003 (Central Australia—Apatula ATSIC Region, NT), Fantin 2003(a) (North East Arnhem Land, NT), Grant 1999 (Oak Valley, SA), Go-Sam 1997 (Mutitjulu, NT), or are only confined to one outcome or one subset of outcomes of the procurement process. An exemplar category of the latter type comprises post-occupancy housing evaluations that confine themselves to houses as functional products rather than the procurement and decision-making process, for example, Memmott (1989a; 1989b)—Tangentyere Council housing design assessment, Architects Studio et al. (2000)—NT IHANT housing POE; the recently published fieldwork findings in Fien et al. (2008) case studies at Maningrida—NT, Palm Island—Qld and Mimili, AP Lands-Central Australia, fall mainly within this latter category.

1.3 Research questions

This study proposes to review the available literature on the socio-economic capitals of housing outcomes, describing them systematically and documenting any established techniques of measuring such outcomes. In the next stage of the project (post literature analysis), we shall sample a selected number of best practice case studies, to examine in more depth a range of the types of benefits outlined above. The

project aims to generate and discuss strategies, guidelines, principles and measures for good Aboriginal housing procurement practices in remote Australia.

In order to successfully undertake the research program defined above, the authors have formulated a list of working research questions with which to guide investigations. These questions are divided into Stage 1, Positioning Paper; and Stage 2, case study analyses. The specific questions underscoring the current Positioning Paper are:

- What distinctive procurement strategies and contractual methodologies have sought to address and impact on the wider aspects of socio-economic capital in Aboriginal communities?
- What established techniques exist to measure such social and economic capitals?
- What are the procurement models used in Aboriginal housing in recent times?
- What are the complexities and barriers to realising these procurement strategies?

The questions above will be refined through the subsequent case study analyses undertaken in Stage 2 which addresses the following:

- Which social and economic capitals are demonstrable from these case studies, and to what extent might they encompass construction, maintenance, training, employment, education, leadership, governance, service delivery, management, health, sustainability, mutual respect, positive cultural identity and other life skills outcomes?
- Can available techniques for measuring social and economic capitals be applied more broadly, and in the case of an absence of techniques what are the future needs for additional measurement technologies?
- What examples of good practice housing procurement in building socio-economic capital in communities can be identified through the case study analyses?
- What obstacles or project disruptions can be identified in specific case study analyses that prevented such socio-economic capitals being realised in communities?
- In successful case studies, how enduring have these social and economic capitals been?

It should be noted that the question above regarding investigating those established techniques that exist to measure social and economic capitals does not imply that we shall undertake the use of such techniques nor develop them, but rather discuss and evaluate the application and usefulness of those we encounter. In other words, it is expected that a central issue of the analysis will be the questions of measurement of outcomes and, in addition, the combined measurement of a set of dissimilar outcomes (e.g. overcrowding, health, employment). Our aim is to see what tools have been used, whether they work, and whether they could continue to be applied, as well as to identify gaps where there is an absence of measurement tools.

1.4 Methodological approach

In compiling this positioning paper, a desktop literature review was undertaken between July and November 2009. The review focused on the varying forms of economic and social capital frameworks and contractual methodologies evident in the literature relating to procurement systems in remote Aboriginal communities in Australia. Literature searches were undertaken of citation databases as well as government and community organisation websites. This literature survey yielded numerous documents, including research reports and Federal and state government

policy documents which were reviewed in terms of their significance to the present research project and the key issues addressed.

While the main research project will use the combined methods of literature analysis and survey questionnaires/interviews from four major case studies, the current paper weaves the results of historical Post-occupancy Evaluation (POE) studies of Aboriginal housing projects into the discussion of social and economic capitals for greater emphasis of specific explanations and clarity of argument. Consequently, the authors have drawn on several notable examples of Indigenous housing POE studies, all conducted using varying methodological approaches and cross-disciplinary frameworks such as psychology, sociology, medicine, anthropology and architecture; being Ross (1987), Memmott (1989a; 1989b), Memmott (1991), Pholeros, Rainow and Torzillo (1993), Morel and Ross (1993), Memmott et al. (2000), Fletcher and Bridgeman (2000), Fantin (2003a), Parnell and Seemann (2005).

Furthermore, in Section 3, a summary of three Post-occupancy studies about three distinct cultural regions of Aboriginal Australia covering the 1970s, 80s and 90s, provides a useful collection of knowledge developed from both practice and research. These examples largely focus on houses as functional objects delivered in varied socio-cultural, political and economic contexts. Commencing with the pioneering work of architect Julian Wigley at Mt Nancy, Alice Springs, and collated in Heppell and Wigley's *Black out in Alice* (1981), this 1970s case study of the emerging 'cultural design paradigm', as it was applied at Mt Nancy, generated significant and enduring design methods. Additionally, Memmott's, longitudinal study of housing delivery at Wilcannia in *Humpy, house and tin shed* (1991) provides a comprehensive overview of the problematic interchange between the numerous players in housing procurement arising from their inconsistent mindsets and values concerning housing outcomes; whereas a more recent study by Fantin (2003a) examined houses as receptacles accommodating Indigenous values and lifestyles and critiqued the dominant framework of environmental health through understanding cultural imperatives.

One of the research questions to be addressed in this Positioning Paper is what established techniques exist to measure the social, human and economic capitals that housing procurement might provide. Our general finding is that very few such measurement techniques are being used in the Indigenous housing industry. We shall make reference here to the Healthhabit survey method of health hardware (Pholeros 2003, Aust, FaCSIA 2007), various methods for calculating reduction of crowding (e.g. Booth & Carroll 2005), the measurement of social capital (Hunter 2004) and of economic sustainability (Neutze et al. 2000), as well as to the potential of the *National Aboriginal and Torres Strait Islander Social Survey*, 2008 (ABS 2009).

In terms of procurement strategies in Aboriginal housing, the authors have drawn from a varied literature base to formulate their argument surrounding the associated benefits and risks of the contractual methodologies used in the delivery of housing. For example, information has been collected from the Australian Institute of Architects *Acumen* professional advisory database (2009a; b; c), the New South Wales Department of Commerce *Procurement Practice Guide* (2008), Connell Wagner's *Discussion Paper: procurement methodologies strategic intervention housing program* (2007a), the Commonwealth Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA), and the former Indigenous Housing Authority of the Northern Territory (IHANT). All of these studies and reports generate findings that resonate into current and future housing design and delivery practices in remote Aboriginal communities.

1.5 The impact of remoteness on procurement

A recurrent challenge in the Aboriginal housing sector since its development in the mid 20th Century, has been the logistics of delivering houses to the many remote parts of the continent where transportation infrastructure is basic and regularly disrupted by extremes of climate and location, where tradesmen and product suppliers are few and far between, and where maintenance regimes have been poor to non-existent over many decades. The quality of remote housing procurement has been repeatedly undermined by low standards of workmanship and quality control, inferior materials and lack of effective contract administration.

Degrees of remoteness are commonly conceptualised in terms of geographic distance by road from the nearest nominated major service centre, hence the wide application of ARIA (Accessibility/Remoteness Index of Australia) developed by the National Centre for Social Applications of Geographic Information Systems (GISCA) at the University of Adelaide. ARIA measures the remoteness of settlements in Australia based on physical road distances from location to service Centres. Five differing categories are defined according to accessibility and remoteness: highly accessible; accessible; moderately accessible; remote and very remote. Application of ARIA tends to limit revelations of other factors that influence access between service centres and Aboriginal settlements such as seasonal weather conditions, variable road conditions, extent of access to public or private transport, economic status of local Councils and householders and their associated transport technologies (Memmott et al. 2006, p.11). Fien et al. (2008, p.4) also refer to these factors using the terms 'community size', 'distance' and 'relative economic resources', but without clarification.

Other adverse factors related to higher degrees of remoteness recently identified by Eringa et al. (2008, p.38) in relation to the viability and capacity of Indigenous Community Housing Organisations (ICHOs) were the lack of opportunities for professional development, for sharing experiences and expertise, and the lack of access to reliable service infrastructure (water, power, sewerage, communication systems). In this study (2008, p.39), it was found necessary to add another two categories to those defined by ARIA to more accurately represent the reality of the most inaccessible Indigenous settlements. These were 'very very remote' (inaccessible by road in the wet season), and 'very very very remote' (inaccessible by road all year round). The Eringa et al. survey (2008, p.69) concluded that:

... location is of major importance to the organisational capacity of ICHOs through its impact on a number of factors, including the cost of maintenance and construction and the availability of qualified personnel for key staffing roles and government positions.

In order to clearly define remoteness against any social capital framework of Indigenous housing procurement, it must also be contextualised against what Moran (2006a, p.23) describes as the varying administrative scales of Indigenous service delivery, acknowledging that remoteness is conceptualised more than according to geographically defined scales and densities of Indigenous settlements and population; they are simultaneously 'geographic scales of administration'. According to Moran (2006a, p.23-24), Indigenous affairs are overlaid hierarchically from macro to micro scales, inclusive of national, state, regional, local/community, land/linguistic group, household and family and these scales have qualitatively variable levels of both potency and limitations. Agreed-upon boundaries and conceptualisation of a region within one jurisdiction can become juxtaposed and even diffused with differing applications of geographic definitions by other overlapping jurisdictions and agencies.

Likewise, definitions of local and/or community in many instances can be confused because of 'complex social structures, mobility between settlements and the difficulties of assigning spatial boundaries to communities and settlements'. The nature of 'community' itself is also problematic with the phenomenon having a wide-ranging and diverse make-up (Hunt & Smith 2007, p.15).

Remoteness is therefore not unlike other multiplicitous terms such as 'settlement' and 'community' which attempt to broadly describe Indigenous groups by locality, but which can be misconstrued by conceptual overlaps between geography, administration and Aboriginal social groupings (Moran 2006(a):26). Long et al. (2007:39) concur that the nature of remoteness, although conceptualised objectively, can be subjectively realised through politicisation, governmental administration and race relationships.

Moran's (2006a, p.23) framework of geographic scales of administration as they relate to remote Aboriginal settlements is an additional aid in understanding how they impact upon service delivery and facility procurement. When geographic scale is not clearly defined by agencies, negative consequences identified by Moran (2006a, p.23-24) can result from 'overlapping administrative regions ... [being] adopted by different organisations and planning processes'. Such confused systems of administering service delivery embedded within government policy and funding cycles have clearly impacted upon housing procurement in the past.

For the purposes of this study, the classification of Indigenous settlement types according to remoteness attempts to address shortcomings in relying upon nominations that overlook the finer-grained nature of descriptions that may fall outside common typologies. An Indigenous settlement typology for Australia as defined by Memmott and Moran (2001) will also assist in narrowing classifications of existing settlement types, subdivided into two main categories of discrete Indigenous settlements and dispersed settlements in non-Indigenous townships. The focus of empirical research in the current study (next stage) is four discrete Indigenous settlements in addition to one case study of dispersed settlement in a township.

2 UNDERSTANDING PROCUREMENT IN REMOTE INDIGENOUS SETTINGS

2.1 Defining procurement

The Australian Institute of Architects defines 'construction procurement' as 'the act or process of bringing into being a building that was not there before and embraces all the activities that might be necessary to that objective' (AIA 2009a). Typically, most forms of building procurement involve the use of written contracts that set out the scope of work in defining 'whatever proportion of the design, documentation, construction or maintenance is desired' (NSW Government 2008, p.1). The following discussion presents the common procurement strategies and associated contractual methodologies used in the Australian construction industry. Most forms of building procurement rely on legally binding contracts which establish the scope of works and set out the terms of reference to be undertaken during the contracted works.

2.2 Procurement strategies and contractual methodologies

Currently in the Australian construction industry there are nine contractual methods used in the provision of mainstream construction projects. These are:

- Documented Design (Traditional *Lump Sum*), also known as *construct only*.
- Design Development and Construct (DD&C).
- Design, Novate and Construct (DN&C).
- Design and Construct (D&C).
- Design, Construct and Maintain (DCM).
- Guaranteed Maximum Price (GMP).
- Managing Contractor.
- Alliance (Co-operative) Contracting.
- Public Private Partnerships (PPP) (NSW Government 2008:1).

2.2.1 Documented Design contracts

In general, the Documented Design contract is an agreement between two parties, commonly referred to as the proprietor (client/owner) and head contractor (builder), for works to be completed for a fixed monetary amount. This *construct only* process typically involves the proprietor initially engaging an independent design consultant (such as an architect) who is responsible for the overall design intent and scope of work. This design work forms the basis for a tendering process whereby a number of contractors are invited (either through public or private notification) to compete for construction services. The perceived advantage to this form of contract is its provision for greater proprietor control by the proprietor over design quality prior to and during construction. The perceived disadvantage of this system is the resultant risk borne by the proprietor in relation to time and cost overruns which has the potential to lead to an adversarial contractual environment (Connell Wagner 2007a, p.2). Consequently, this form of contractual mechanism is appropriate for projects where:

1. Design quality is critical.
2. The proprietor is skilled enough to manage the design process.
3. Flexibility is needed during the construction process to account for design parameter changes.

4. There is confidence in the design consultant to understand all brief requirements.
5. There is enough time available for detailed design and documentation to occur (NSW Government 2008, p.4).

A literature review of the last ten years of housing procurement projects in remote Aboriginal communities shows the prevalence of small-scaled housing projects administered mainly by individual Indigenous Community Housing Organisations (ICHOs) and funded entirely by state and Federal Government departments through programs such as the Community Housing and Infrastructure Program (CHIP) and the National Aboriginal Health Strategy (NAHS).

2.2.2 Design Development and Construct (DD&C) contracts

According to the Design-Build Institute of America (DBIA), Design and Construct (D&C) procurement (which includes DD&C, DN&C and DCM) harks back to pre-modern forms of contract whereby a master builder or architect maintained absolute control over all aspects of project design and delivery (DBIA 2009). Under a typical D&C process, the head contracting entity enters into an agreement with the proprietor whereby they assume all projects risks in further developing the proprietor's already established conceptual design and project brief. Once the D&C contract is in place, the contractor oversees the preparation of detailed design and construction documentation and then manages construction in order for the project to achieve practical completion. Under this form of procurement process, the contractor tenders a lump sum price and assumes all responsibility for errors and omissions in their design documentation, which is ultimately beneficial to the project proprietor.

Commonly, D&C contracts are used when there are significant financial risks associated with time delays and potential project scope changes and the proprietor does not have the skill to manage the design, documentation and consultant coordination process themselves. The D&C process also has the added advantage of shrinking project timeframes as construction can begin before the finalisation of design documentation; thus bringing a swifter recovery of initial capital investment by the proprietor. As compared to the traditional lump sum method, D&C supporters claim that greater opportunities exist for innovative design in the search for more efficient construction techniques which in turn offer potential savings to the proprietor (Connell Wagner 2007a, p.3). Ultimately, the major risks borne by the proprietor through the D&C process are the possibility of higher tender prices to cover for the contractor's increased risk. Furthermore, other possible risks include reduced design quality due to *value management* (re-designing) exercises carried out by the contractor during construction to mitigate their own economic losses due to errors or omissions during the construction period.

2.2.3 Other forms of D&C contracting, GMP and Managing Contractor contracts

A review of Australian procurement history shows a number of other variations to the common D&C contractual system, including: Design, Novate and Construct (DN&C) which is used when a single designer is required for the entirety of the project and involves *novating* the design team from the employ of the proprietor to the contractor who then assumes 'full and unambiguous responsibility for the whole of the design as well as the construction' (NSW Government 2008, p.5); and Design Construct and Maintain (DCM) which has an additional post-construction maintenance period included in the original contract. According to the *Procurement Practice Guide* (NSW Government 2008, p.8), for proprietors, maintenance stipulations work better in D&C procurement than traditional lump sum scenarios as the contractor retains full legal responsibility over the entire process from design through construction to post-

construction maintenance. In this model, the benefit to the proprietor is the contractor's liability period which is typically six years and three months post-construction and which can be extended through maintenance clauses in the contract (NSW Government 2008, p.9).

Also included within the D&C procurement framework is the Guaranteed Maximum Price (GMP) contract whereby a head contractor guarantees the project proprietor a *maximum* price for the construction works (NSW Government 2008, p.10). The contractor assumes all responsibility for cost over-runs and timeframe extensions; while the proprietor may provide further incentive with early completion bonuses. The major benefit to the proprietor in using GMP contracts is the mitigation of financial risk by having a contracted maximum price while the greatest threat is the reduction in project scope and quality to meet contracted cost and time objectives (Connell Wagner 2007a, p.4). The authors have yet to find evidence of D&C forms of procurement being used in remote Aboriginal communities over the last ten years. The risk profile of the D&C process may account for this lack of use as building contractors choose to shy away from perceived unforeseen risks associated with building in remote communities.

The Managing Contractor (MC) process combines elements of both 'traditional' and D&C procurement systems whereby the contractor takes on the role of a traditional project manager to deliver the contracted works to an agreed Target Construction Sum and Target Date for completion (NSW Government 2008, p.11). The MC contract is awarded on the basis of negotiating a number of non-price criteria and management fees that cover the contractor's costs in consultant coordination, authorities' approvals processes and liaison with user and client groups. Once the project scope and deliverables are established, the contractor then tenders a Guaranteed Construction Sum (GCS) and Date for Practical Completion (PC), after which they are then liable for any cost overruns as well as typically being entitled to a 50 per cent share with the proprietor in any cost savings upon completion. Due to the extra time and resources spread across the design and build process, administration costs may be more for an MC when compared to a traditional construct only Lump Sum process (Connell Wagner 2007a, p.5).

Typically, the benefits of MC procurement is better communication between proprietor, contractor and key stakeholders during the design and construction process which has the added advantage of minimising time delays resulting in better cost controls than most other forms of construction procurement. Consequently, the major risks with this contractual system relate to maintaining cooperative relationships between the key parties to the contract as well as the complexities for the proprietor involved in administering the contract. Further risks involve achieving an appropriate GCS, given that initial target sums may be either too low, and thus difficult for the contractor to achieve, or too high, resulting in minimal value for money for the proprietor (NSW Government 2008, p.12). Due to a lack of documentary evidence in the literature, the authors have yet to ascertain whether managing contractor processes have been used in housing procurement in remote communities.

2.2.4 Alliance Contracting

Alliance Contracting or Project Partnering is a relatively new form of procurement in the Australian construction industry and involves two or more entities entering into an agreement to 'work cooperatively, reaching decisions jointly by consensus and using intensive relationship facilitation' (NSW Government 2008, p.13). In managing relationships, alliance contracting calls for a commitment from all parties to common objectives, cooperative action and collective decision-making in sharing information and knowledge in a non-adversarial workplace environment (Connell Wagner 2007a,

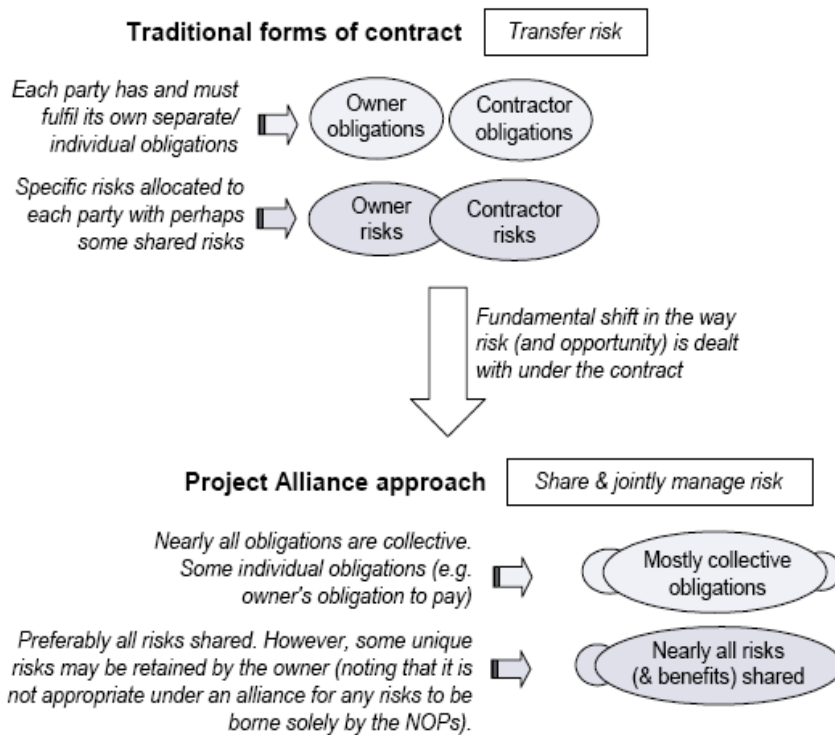
p.7). Yeung et al. (2007, p.219) define the alliancing model as having its origins in the German philosopher Wittgenstein's idea of family-resemblance, where a complicated concept can be understood as a network of overlapping similarities. The model is broadly subdivided into contractual and relationship-based components, nominating the former as hard and the latter as soft. Alliancing is seen as a model to flexibly structure and define vague elements within the contractual arrangement. Although the definition of the model has had little industry consensus, it is conceptualised as having necessary elements of formal contracts comprising real gain-share/pain-share elements and so-called vague relationship-based elements identified as trust, long-term commitment, cooperation and communication.

Alliance contracting is useful for long-term projects with complex social and technical parameters where the project scope is uncertain or unknown at the outset and where all stakeholders agree to share the risks collectively. Under the terms of an Alliance agreement, all parties generally commit to sharing project risks and potential benefits equally. If the project proceeds effectively with benefits such as cost savings, then these are shared equitably by the partners on a win/win basis. However, the converse also occurs with any project losses also being shared. In this way, the Alliance agreement is structured so that it is in the best interests of all Alliance participants to cooperate for the best project outcomes (Durkin 2005).

Alliancing contracting is used to combine 'a relationship management system and a delivery system' where 'partnering [is] underpinned with economic rationalism' and 'agreed profit and loss outcomes are contractually binding on all parties' (Yeung et al. 2007, p.223). It is also advantageous when the project in question has exceptionally challenging circumstances with high time constraints and a fixed and limited budget. The advantages of alliance contracting are the potential for reducing costs and risk through good relationship management; the facilitation of special projects with extraordinary circumstances; and the involvement of all parties to the contract from the point of inception through to completion (NSW Government 2008, p.15). Risks associated with alliance contracting relate to inexperienced participants, disparate project goals needing to be managed, project consultants receiving higher profit margins due to the interwoven participation of stakeholder (relationship) management, and reduced litigation rights as Public Indemnity insurance cover is limited by participant involvement.

The 'Alliance' contract model was earmarked in an earlier AHURI Positioning Paper as a potential opportunity to introduce innovative constructions systems in order to garner regional models of housing procurement and achieve cost efficiencies (Fien et al. 2007, p.34-35). Currently, the Australian and Northern Territory Governments are administering an alliance/partnering system for the large-scale procurement of housing in remote Aboriginal communities in the Northern Territory. The SIHIP project as it is called (Strategic Indigenous Housing and Infrastructure Program) is discussed in a latter section of this paper. Interestingly, the Australian Institute of Architects (AIA) neither endorses nor rejects this contractual methodology, but does maintain its endorsement of lump sum contracts as the 'best way to deliver 'one-off' construction projects and cautions architects to consider carefully before entering into alliancing contracts' (AIA 2009b). As a point of comparison, the figure below models the risk transfer associated with traditional forms of contract and project partnering (alliancing).

Figure 1: Comparison between traditional and alliance forms of contract



Extracted from the Department of Treasury and Finance 2006:10

A recent example of an Indigenous group engaging in a successful alliance contracting relationship has been that of Myuma Pty Ltd of Camooweal with the Queensland Department of Main Roads and a series of construction firms. However, this was not a housing program, but a highway and bridge construction project, done in three successive contracts during which Myuma progressed its capacity from a minimal base to become a full alliance partner by the third contract, managing to gross \$13.4 million over six years (2001–06) but, more importantly, transforming itself into an independent ongoing commercially viable company (Memcott 2010).

2.2.5 Public Private Partnerships and owner/designer/builder facilitation

The final two procurement systems are Public Private Partnerships (PPP) which involve private sector companies financing the design, construction, operation and maintenance of public assets for a given period of time (Connell Wagner 2007a, p.8) and the Owner/Designer/Builder (ODB) facilitation process whereby a project manager (possibly an architect or engineer) assists a given community or household in constructing required infrastructure and housing. Again, due to a lack of documentary evidence in the literature, the authors are yet to ascertain whether PPP processes have even been used in housing procurement in remote Aboriginal communities. Anecdotal comment and advice from a cross-section of housing industry personnel indicates that PPP probably has not been used.¹

However, one of the best known examples of an ODB system is the work of architect Paul Haar at Mount Catt, Arnhem Land, and St Paul's Village on Moa Island in the Torres Strait. In describing his design facilitation methodology, Haar states that '[o]ne cannot underestimate the value of allowing remote communities to appropriate their

¹ PPP is, however, being used in correctional facilities that are a specialised form of residential environment overly used by Indigenous people (Giustina 2006).

own dwelling experience, to design, construct and take pride in their own homes, and to again embrace housing as a *symbol of the self* (Haar 2003, p.96). Other community development organisations such as Emergency Architects Australia² are known to use this method of ODB facilitation in their housing aid projects in Asia and the Pacific. Due to its grass-roots approach, the ODB process appears unsuitable for large scale housing projects controlled by a central administration such as government.

² www.emergencyarchitects.org.au

Table 1: Commonly used contract types—potentials and risks

	<i>Traditional Lump Sum</i>	<i>Design & Construct</i>	<i>Guaranteed Maximum Price</i>	<i>Managing Contractor</i>	<i>Alliance Contracting</i>	<i>Public Private Partnerships</i>
Administration						
<i>Project scale</i>	Suits small & large projects	Suits large projects	Suits small & large projects	Suits large projects	Suits large projects	Suits large projects
<i>Community consultation</i>	Conducted pre-contract by proprietor's consultants	Conducted during design period by contractor/consultants	Conducted during design period by contractor/consultants	Conducted during design period by contractor/consultants	Conducted during design period by contractor/consultants	Conducted pre-contract by proprietor's consultants
<i>House design types</i>	Variable as agreed	Suit Standardised	Variable as agreed	Suit Standardised	Variable as agreed	Variable as agreed
Potentials						
<i>New build construction</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>House renovation</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Repairs and maintenance</i>	Yes	Yes	Yes	Yes	Yes	Yes
<i>Quality design</i>	High with better pre-construction consultation	Low due to timeframe limitations	Low due to Timeframe Limitations	High with better pre-construction consultation	Variable as agreed	High with better pre-construction consultation
<i>Quality documentation</i>	High, depending on design timeframe	Low	Low	High, depending on design timeframe	Variable as agreed	High, depending on design timeframe
<i>Quality construction</i>	High with good construction documentation	Low due to high risk of design changes during construction period	Low due to high risk of design changes during construction period	High with good construction documentation	High risk of design changes during construction period could impact	High with good construction documentation
<i>Innovation in construction</i>	Possible, better with more preparation	Desirable	Desirable	Possible, better with more preparation	Desirable	Possible, better with more preparation
Risks						
<i>Construction costs</i>	Borne by Proprietor	Borne by Contractor	Borne by Contractor	Borne by Proprietor	Shared	Borne by Contractor
<i>Construction cost efficiencies</i>	Possible, better with more preparation	Good, depending on contract conditions	Yes	Yes	Good, depending on contract conditions	Good, depending on contract conditions
<i>Timeframe</i>	Shared	Borne by contractor	Borne by contractor	Borne by contractor	Shared	Borne by contractor
<i>Design changes</i>	Time & cost borne by proprietor	Time & cost borne by contractor	Time & cost borne by contractor	Time & cost borne by contractor	Shared by proprietor & contractor	Time & cost borne by contractor

Procurement in Indigenous housing: A recent history

Currently, there are two main government programs that deliver Indigenous-specific forms of housing—State Owned and Managed Indigenous Housing (SOMIH), and Indigenous Community Housing (ICH). SOMIH is provided in all Australian states and the dwellings are owned and managed by the particular state housing authorities funded through the Commonwealth-State Housing Agreement. Indigenous community housing is managed by Indigenous community housing organisations (ICHOs) with funding provided by the state and Federal governments. The following description aims to understand the various strategies used in the procurement of Aboriginal housing over the last ten years in order to discuss the efficacy of past processes and the future of housing procurement in remote Aboriginal communities. In doing so, discussion centres on the following four housing programs administered by state and Federal Government statutory authorities:

- The Central Remote Model (CRM) formerly the Papunya Model administered by the Indigenous Housing Authority of the Northern Territory (IHANT).
- The National Aboriginal Health Strategy (NAHS) funded by the Community Housing and Infrastructure Program (CHIP) which was originally administered by the Aboriginal and Torres Strait Islander Commission (ATSIC) before being subsumed under the administration of the Commonwealth Department of Family and Community Services (FaCS).
- Fixing Houses for Better Health (FHBH) administered by Healthhabitat Pty Ltd and currently funded by the Commonwealth Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA).
- The Strategic Indigenous Housing and Infrastructure Program (SIHIP) initiated in the Northern Territory as one part of the National Partnership Agreement (NPA) on Remote Indigenous Housing administered by FaHCSIA at a Federal level.³

³ It is proposed that SIHIP will run to 2013, whereas NPA runs until 2018.

Table 2: Procurement strategies in selected housing programs in remote communities 2000–2009

	<i>Papunya</i>	<i>CRM</i>	<i>NAHS (CHIP)</i>	<i>SIHIP (Ongoing)</i>	<i>FHBH (Ongoing)</i>
<i>Contract methodology</i>	Traditional Lump Sum	Traditional Lump Sum	Traditional Lump Sum	Alliance	Traditional Lump Sum
<i>Project management</i>	Community-by-Community (ICHOs)	Regional	Community-by-Community (ICHOs)	Regional	Community-by-Community (Private)
<i>House design types</i>	Individualised	Standardised	Individualised	Standardised	
<i>New build</i>	Yes	Yes	Yes	Yes	No
<i>Renovation</i>	N/A	N/A	Yes	Yes	Yes
<i>Outstation houses</i>	Yes	Yes	Yes	No	Yes
<i>Repairs and maintenance</i>	INA	INA	Yes	Yes	Yes
<i>Cost efficiencies</i>	Low	Low with CDEP High without	Low	INA	INA
<i>Community consultation (house design)</i>	High Level	Low Level	High Level	Yes	High Level
<i>Training and employment</i>	No	Yes partial CDEP	Yes	Yes	Yes
<i>Environmentally appropriate design</i>	INA	Yes	INA	INA	Yes
<i>Culturally appropriate design</i>	Yes	Yes	Yes	INA	Yes

INA—Information Not Available at the time of writing.
N/A—Not Applicable.

2.2.6 The Central Remote Model

The Central Remote housing model was developed by the Central Remote Regional Council in association with ATSIC and IHANT in response to the increasing costs of the community-by-community approach of the former Papunya model and the lack of training and employment opportunities for Indigenous youth in remote communities (Jardine-Orr et al. 2004, p.24). As compared to the previous Papunya model where consultation, design and construction contracts were let on an individualised lump sum contract-by-contract basis, the CRM was a pilot program that centralised the planning and design of housing with communities selecting from six standard house designs. The aim for centralising project management in housing delivery was to determine if the letting of major contracts across several communities rather than a series of smaller contracts (as per the Papunya model) could lead to cost savings, greater construction efficiencies and provide an overall framework for the training and eventual long-term employment of Aboriginal people in remote communities (SGS 2003, p.i).

In reviewing the CRM in 2003, the *Central Remote Housing Delivery Model* (CRHDM) report distinguished between construction-only houses and those provided under the Federal Government's CDEP training and employment program. According to the CRHDM report, when compared to the previous Papunya model, the centralised

construction-only strategy resulted in greater cost efficiencies and more environmentally and culturally appropriate housing. On the other hand, the CDEP housing resulted in a cost neutral assessment when compared to the previous Papunya model, while actual housing costs were higher with the CDEP program due to factoring in the extra costs associated with training and the prospect of long-term employment. The ensuing decrease in reliance on CDEP payments meant that the training and employment program also resulted in greater long-term cost efficiencies and maintenance regimes when compared to the former Papunya model. The report notes that this result is predicated on the continuation of real employment in the communities in which CDEP housing was constructed (SGS 2003, p.iv).

The key recommendations arising from the CRHDM report related to setting benchmarks at the regional level for assessing community capacity in readiness for housing provision, training and construction as well as clearer criteria for housing allocation and numbers delivered. The report also discusses the importance of a community's readiness for this housing provision, stating that the more socially 'functional' a community is, the higher its capacity to support training, community building teams and the potential development of a sustainable Indigenous housing sector (SGS 2003, p.xi). The report also made a strong case for a centralised administrative model with standardised housing types which could possibly be individualised to suit particular community needs at the micro level. It did not question whether a lack of pre-construction consultation through the standardisation of house types had resulted in less long-term socially and culturally appropriate housing.

2.2.7 National Aboriginal Health Strategy (NAHS) through CHIP

The National Aboriginal Health Strategy was developed in 1989 by the National Aboriginal Health Strategy Working Group to oversee the delivery of Aboriginal housing in Australia. Originally funded as part of the Community Housing and Infrastructure Program (CHIP) administered by ATSIC, the NAHS program was dismantled in September 2006 when CHIP became part of the Commonwealth Department of Families, Community Services and Indigenous Affairs (FaHCSIA). As with the CRM discussed above, the majority of NAHS and CHIP administered programs procured housing using the lump-sum (construct-only) methodology controlled on a community-by-community basis by Indigenous Community Housing Organisations (ICHOs). In aiming to improve the living environment of Indigenous Australians, the NAHS programs focused on community consultation between architects and residents and resulted in not only new-build houses but also renovations of existing housing stock and the development of infrastructure projects in some communities.

In recommending the abolition of the CHIP (and NAHS) program, the *Indigenous Housing: Findings of the Review of the Community Housing and Infrastructure Program* prepared in February 2007 by private accounting firm Pricewaterhouse Coopers for FaHCSIA, stated that 'CHIP in its current form contributes to the policy confusion, complex administration and poor outcomes and accountability of government funded housing, infrastructure and municipal services' (FaHCSIA 2007b, p.14). The report states that overcrowding and poor infrastructure are major issues which the CHIP program failed to improve. Furthermore, CHIP was criticised for creating a large number of small, fragmented Indigenous Community Housing Organisations (ICHOs) that were unable to deliver housing, infrastructure, maintenance and tenancy management regimes as well as offer training and employment opportunities for Indigenous community members (FaHCSIA 2007b, p.18).

Consequently, the 2007 CHIP review recommended replacing the existing program with a 'new strategic approach' to the procurement of housing and related infrastructure in remote Aboriginal communities. FaHCSIA through Pricewaterhouse Coopers called for provisioning all future Aboriginal housing and infrastructure with access to sustainable essential services (water, power and sewerage), transport and *basic* support services such as law, education, training, employment and health management. Among the 35 strategic recommendations of the CHIP review, the following were directly relevant to the current discussion on procurement processes in remote Aboriginal communities, including the need to:

- Increase the quantity and standard of available housing through a three-year 'blitz' program of repairs and maintenance.
- Shift away from building housing on outstations.
- Focus on building new housing close to access to education, health, law and order and other basic services.
- Provide essential infrastructure services via mainstream service delivery arrangement.
- Establish a regional procurement system to coordinate the planning and delivery of housing and infrastructure, which would benefit from an economy of scale and see the completion of construction work in a single, integrated program.
- Investigate options for prefabricated housing and encourage both private and public sector construction companies to compete for Aboriginal housing contracts.
- Reduce overcrowding through a repairs and maintenance regime of existing housing stock.
- Foster home ownership and effective rental tenancy regimes.
- Create an accredited training regime to foster ongoing employment in construction and maintenance.
- Standardise house designs, building materials and construction arrangements (contractual methods). (FaHCSIA 2007b, p.23-26.)

Of further interest in this review was the lack of mention in the importance of consulting Aboriginal stakeholders through the design, documentation and administration processes involved in procuring housing and infrastructure in remote communities. History has shown that the recommendations arising from the CHIP review formed the basis for the ongoing Strategic Indigenous Housing and Infrastructure Program (SIHIP) currently being administered by FaHCSIA in the Northern Territory.

2.2.8 Strategic Indigenous Housing and Infrastructure Program (SIHIP)

One of the selected case studies in stage 2 of this project is the Strategic Indigenous Housing and Infrastructure Program (SIHIP) initiated under the National Partnership Agreement (NPA) on Remote Indigenous Housing (FaHCSIA & NT Government 2009, p.5). The Australian and Northern Territory Governments' alliance/partnering system for the large-scale procurement of the SIHIP program in remote Aboriginal communities comprised seven key areas—reduce overcrowding, quality construction, training and employment programs, timely completion, cost efficiencies, best practice management outcomes, and positive relationships with all stakeholders (FaHCSIA & NT Government 2009, p.11).

Between September 2007 and December 2008, SIHIP funding was originally allocated a total of \$672 million targeting 73 Northern Territory discrete settlements

(with 16 of these communities listed as high needs and an additional 57 communities to receive refurbishment work) and three town camps. The program budget was to target 750 new houses at a unit cost of \$450 000, with 230 rebuilds, 2500 refurbishments and a reduced program management cost of 8 per cent (FaHCSIA & NT Government 2009, p.7, 13). In May 2008 a national request for construction consortia to operate within an Alliance framework with three successful awards announced in October 2008 to:

1. Earth Connect Alliance.
2. Territory Alliance Partners.
3. New Future Alliance.

At the time of writing, this new approach to procurement was under considerable political, media and public pressure. A subsequent review of the program was conducted by FaHCSIA and the Northern Territory Government in response to opposition and public concerns examining:

1. Speed of delivery.
2. Governance structures of the program.
3. Overall program cost including individual housing unit costs along with administrative costs (FaHCSIA & NT Government 2009, p.5).

Part of the SIHIP briefing process was to investigate innovative ways to procure Indigenous housing. In looking into this, the alliance contractual methodology presents as one of the more flexible forms of contract that would enable innovation to occur without negatively affecting project outcomes. However, one question for further case study analysis relates to the governance and management framework for the SIHIP program. As discussed previously, alliancing is generally underpinned by an agreement between a proprietor and contractor who agree to work cooperatively, whereas, it appears that in the current SIHIP program in the Northern Territory, Aboriginal people have been given negligible contractual presence as part of the alliance in neither the management nor delivery systems. Given the experience of Myuma Pty Ltd in Western Queensland, and given the program goal of providing Aboriginal training and employment, it would seem logical to:

1. Seek out suitable Aboriginal building groups who are already an established business (such as the Wadeye tilt-up reinforced concrete wall panel production enterprise) or who could potentially form a business.
2. Provide them with initial sub-contracts and technical assistance; and then.
3. Provide potential pathways through successive SIHIP housing packages (each in the vicinity of \$50m), with an ultimate goal of their becoming a full alliance partner.

2.2.9 Fixing houses for better health

In comparison to the large scaled housing models described above, Fixing Houses for Better Health (FHBH) is a small-scale FaHCSIA-funded housing repair and maintenance program focused on improving the basic 'functionality', health and safety measures of existing Aboriginal houses in rural and remote communities across Australia. The FHBH program is administered by Healthhabitat Pty Ltd, initially a privately-funded venture beginning in 1985, which evolved into a government-funded (through ATSIC) national program in 1999. The FHBH relies on a 'survey and fix' methodology which involves an initial assessment of the functionality of hardware (taps, shower roses, ovens etc) within a house, followed by an immediate reparation of those elements found to be non-functioning (AIHW 2009). All houses within the

FHBH agenda are evaluated against 36 categories termed Healthy Living Practices (HLPs), of which 11 are deemed as critical and include: assessing the functionality of water, power, waste, electrical, and gas services, that adequate fire safety measures are in place, that the house is structurally sound and has a functioning shower, laundry and toilet in conjunction with adequate waste removal and it has the ability to store, prepare and cook food. The physical results of the FHBH 'survey and fix' program underpin the publication of the *National Indigenous Housing Guide*, a resource for the design, construction and maintenance of housing for Aboriginal people (AIHW 2009). The guide does not discuss procurement processes and focuses on safety, health and housing, healthy communities, and managing houses for safety and health.

Of further interest to the current study is that the FHBH *survey and fix* methodology has been used as the basis for the rebuilding and refurbishing of houses in the current Northern Territory SIHIP program. Stage 2 of this investigation will report on the outcomes of this program as part of the SIHIP case study.

2.3 Summary

An initial review of the literature pertaining to the procurement programs discussed above illustrates that many of these programs have attempted to incorporate a number of Indigenous social and economic capitals into their methodological framework. Stage 2 of this research program will draw out and clarify these relationships in greater detail. However, for future clarity, the following discussion presents what is currently understood in regards to these capital frameworks and their relationship to housing procurement in remote Aboriginal communities.

3 UNDERSTANDING THE CAPITALS OF INDIGENOUS HOUSING PROCUREMENT

Mainstream housing procurement contracts and methods that are driven by economic imperatives of minimising financial risk, maximising financial gains, all with expected delivery in set timeframes, do not readily lend themselves to integration with the largely unskilled, highly mobile labour markets of remote Indigenous settlements. Evidence suggests that a somewhat different system needs to be implemented, one that borrows from local Aboriginal social capitals, and one that is fostered from outside mainstream housing procurement systems at communal or regional levels (Memmott & Melzer 2005). Aspects of Aboriginal social, human and economic capitals seem to have been in conflict, mismatched or not recognizable or acknowledged under the rigid parameters of conventional mainstream housing procurement delivery. This chapter therefore aims to examine the different capitals in Indigenous communities that might be linked to housing procurement, through a review of the available literature. The first part of the chapter discusses the concept of ‘sustainability’ and models of ‘sustainability frameworks for improved livelihoods’, as such models promise a capacity to integrate the various capitals together. This start to the chapter is followed by a discussion on each of the main capitals that have been identified as potentially achievable through housing procurement, namely:

- Social capitals.
- Cultural and ethical capitals.
- Health capitals.
- Employment and training capitals.
- Governance capitals.

3.1 Defining sustainability frameworks for improved livelihoods

The term ‘sustainability’ is defined broadly in this paper as that which sustains human livelihood, and not narrowly as it may be conceived in certain other disciplines—such as environmental resource management or sustainable urban development. The concept of *sustainability* as used in mainstream Australian society tends to emphasise broad economic objectives of ‘meeting the needs of current and future generations through an integration of environmental protection, social advancement and economic prosperity’ (Newman 2006, p.6). The idea of a ‘sustainability framework’ is thus a type of model that attempts to conceptually integrate the economic use of resources within a range of human activities, incorporating complementary concepts of ecology and social values. Various ‘sustainability frameworks’ are increasingly being applied by theorists to domains of human activities in varying ways that are becoming relevant to Indigenous groups and communities. In particular, we shall examine sustainable design concepts, and sustainable livelihood frameworks, as they relate to housing procurement.

Achieving consensus views on what constitutes ‘sustainability’ remains contested and politically fluid. While acknowledging that the sustainability movement is still emerging and transforming, there is a need to recognise the disadvantaged state of Indigenous people when conceptualising how they might fit into such a movement that clearly includes economic values in mainstream definitions (Marinova & Raven 2006, p.31–34). Given the under-investment in physical assets and limited economic development in Indigenous communities where housing procurement is largely dependent upon the

benevolence of government, there is a need for cautious application of the idea of sustainability, where it is largely economically resource focused. However, this has not prevented attempts by housing researchers to sensitively apply sustainability measures to housing development and procurement in Indigenous settlements.

In terms of mainstream *sustainable design frameworks*, a useful benchmark is Bycroft and McGregor's (2002, p.3) model of 'sustainable design' which is built on the *quadruple bottom line* of four prominent features:

1. Ethical and cultural values.
2. Social and community values.
3. Environmental values.
4. Economic values.

A most recent example in the Indigenous housing sector is the Design Framework (DF) methodology of Fien et al. (2007, p.85-94), based on the principles of durability and positive environmental impact, and which adopts six key elements of sustainability:

1. Cultural appropriateness.
2. Healthy living practices.
3. Environmental sustainability.
4. Employment opportunities and economic development.
5. Innovative procurement, ownership and construction systems
6. life-cycle costing.

The DF model centres on the house and its *designer* who is charged with professional and ethical responsibilities to deliver innovative solutions, some of which are based on economically sustainable requirements. The viability of the DF model of sustainability is limited by the fact that it focuses on the *designer* who is engaged within the framework of mainstream service delivery systems by external institutional agencies to lead the process of housing innovation. A review of the housing delivery projects described in the previous chapter shows that the service delivery model of the lead design consultant is sporadically practiced at best and non-existent in the majority of contemporary procurement models; as history testifies, the devolution of powers of 'the designer' have been contractually curtailed over successive decades (Heppell & Wigley 1981; Memmott 1989a; b; 1991; 1997; 2001; Go-Sam 1997; Memmott & Go-Sam 2003; Szava et al. 2007; Long et al. 2007).

In addition to the DF method described above, the authors contend that the 'Sustainable Livelihood (SL) Framework' as conceptualised in international development settings offers a positive foundation for the procurement of housing in remote Aboriginal communities. The SL Framework considers 'the range of settlement-based assets that settlements can draw on', irrespective of how disadvantaged their residents may be, in order to achieve livelihood outcomes (Moran et al. 2007, p.ix). Moran et al. (2007, p.xi-xii) applied the SL Framework to Engawala, a small Central Australian Aboriginal settlement on an Aboriginal-owned pastoral property of marginal profitability. They assessed a set of five asset capitals encompassing human, financial, physical, natural and social capitals arguing that for such assets to be useful as a means for livelihood action, they must be 'accessible and transformable'. In linking sustainability and social capitals, Moran et al. found that for Engawala, social capital was the most significant of these five in terms of its transferability in an economic sense, '[b]y investing time and resources into family and

kin, people effectively make deposits into social capital from which they can later draw' (Moran et al. 2007, p.xii). For example, mobility to visit kin within a cultural region was found to build and sustain such social capital.

However, Moran et al. (2007, p.xiv) impose two hypothetical caveats on this proposition for consideration. One is that high Aboriginal mobility may be an adaptive response to uncertainty in the policy (and hence in the economic) environment. The second is that the investment reliance on social capital by Aboriginal people may be inadvertently undermining the potential long-term sustainability of remote settlements. If economic reliance is to extend beyond social capital (and associated regional mobility), there is a need to enhance sustainability by strengthening other capitals, e.g. through education, training and innovating private enterprise (Moran et al. 2007, p.xiv). However, Moran et al. emphasise that such solutions or processes are needed to occur in the inter-ethnic domain and within the sphere of local governance and of bridging networks (including governments), i.e. simultaneously drawing on the external institutional environment and the private Aboriginal domain. The framework is best summarised by Moran et al. (2007, p.xiii) as a 'participatory model of practice, to draw both outsiders and locals onto an intercultural field on which knowledge sharing and innovation is possible'.

Here Altman's (2001) contribution in 'Sustainable development options on Aboriginal land' is useful on what he identifies as developing 'hybrid economies' in Indigenous communities, i.e. local economies that incorporate customary, market and government or state components. While remaining preoccupied with economic sustainability, Altman maintains a holistic and realistic assessment of sustainability as it applies to Indigenous settlements. He argues for an approach to a hybrid economy:

... that combines scientific assessment of biological sustainability, social-scientific assessment of commercial and social viability, and Indigenous expert assessment of cultural practice. Just as with the various combinations between market, state and customary sectors of the economy, so a variety of approaches combining science, social sciences and Indigenous expertise is needed to provide holistic and realistic assessments of sustainability and viability (Altman 2001, p.8).

Furthermore, Altman notes four fundamental development dilemmas impeding the growth of hybrid economies in Indigenous communities:

1. The difficulty of achieving Indigenous engagement and participation in the global economy from a geographically and culturally remote setting.
2. The current lack of government recognition of the contribution of customary economies to nation-building, for example, with respect to local roads, airstrips and remote communication infrastructure.
3. The need to strengthen and stabilise local Aboriginal governance against the dynamic tensions between customary law and commercial law.
4. How to structure community and economic governance that recognises the inter-cultural nature of community transactions and that balances the roles of Indigenous leaders and those non-Indigenous staff who often exercise considerable power in local organisations (Altman 2001, p.6–7).

In addressing these dilemmas, the hybrid approach thus incorporates Indigenous values in customary economies while recognising the need to assist in the sustainable development of robust local governance frameworks. Altman (2001, p.1) notes the general failure of government to recognise or acknowledge the hybrid economies of remote Aboriginal Australia; he posits that this is largely due to the dominance of

mainstream market mentalities. Of further importance, we note Altman's use of the term 'inter-cultural', and Moran's (2007, p.3–4) caution that conceptualisations of separate Aboriginal and non-Aboriginal domains or spheres of activity are no longer regarded as useful by theorists. There is a need to recognize that Aboriginal governance takes place in an inter-ethnic field of practice that is situated 'between the local political arena and the external institutional milieu' (Moran 2007, p.5).

As an adjunct, yet important element to the current discussion, Seemann et al. (2008), building on their earlier research on housing life-cycle analysis (Parnell & Seemann 2005; Seemann 2003), have developed a *whole-of-systems* sustainability framework for Aboriginal housing, recognising that 'too often the house is seen as the technical, or at best a health solution to shelter needs, rather than as a central factor in supporting livelihood ...'. The authors generate a 'Housing for Livelihood' approach, based on the premise that 'while participation in the mainstream economy is a vitally important aspect of achieving sustainable livelihoods, the term ['livelihood'] is used to describe desired, productive, culturally based, on-country living practices as well'. Emphasis is on the close link between good livelihood outcomes and good housing management practices (Seemann et al. 2008, p.98).

Consequently, Seemann et al. (2008, p.99) argue for careful selection of 'innovative, housing technology systems' for housing procurement that can radically reduce the extent to which conventional certifications of on-site skilled labour are required, thus facilitating local housing and livelihood investment opportunities using local labour. They argue that the inclusion of local Aboriginal employment in the NAHS housing program discussed earlier was a failure (Pricewaterhouse Coopers 2007)⁴ partly 'due to the skill type required by the housing systems selected'. Unfortunately, Seemann et al. do not provide examples of appropriate housing technologies they considered important; they do however go on to invoke the sustainability paradigm by subscribing to the 'Triple Bottom Line plus One' approach of environmental, economic and social capitals, plus good governance performance, to achieve better matches between resources, capacities and outcomes (2007, p.99). While being suspicious of the pragmatics of calling for demand-driven service delivery in remote settlements, Seemann et al. (2008, p.6) nevertheless emphasise the need to identify and acknowledge the local value systems around housing that are likely to be culturally different in certain ways from the externally imposed housing value systems of government policy-makers.

If Indigenous people are to derive improved livelihood outcomes from housing and infrastructure programs, it needs to be recognised that rushed program agendas strip long-term benefits, and may contribute to the burden of livelihood vulnerabilities due to increased running costs and reduced social benefits (Seemann et al. 2008:5). The livelihoods framework thus argues for an intercultural and hybridised approach to sustainability based on procurement realities faced by remote settlements; with a cautionary approach to adopting procurement frameworks that draw on technologies and contractual systems that prohibit or restrict Aboriginal labour engagement, or that entrust innovation solely into the hands of consultants who lack the necessary contractual powers to implement innovations under current procurement practices.

3.2 Defining and achieving social capitals

While there are many variations to the theoretical definition of *social capital*, there is some consensus that it consists of networks of social relationships formed for mutual

⁴ We also note that Moran et al's (2007, p.xii) Engawala study also found that participation in on-the-job training and employment on a short-term contract, one-off construction project, had limited success when viewed through the long-term, outcomes lens of improved livelihood strategies.

benefit and based on norms of trust, reciprocity and unity. One type of definition states that both collective and individual actions generated from within social networks can potentially contribute to productive economic gain, such that they are not conceived separately from the objectives of economic capital (Onyx 2005, p.3; Hunter 2004, p.3). To this extent, the term 'socio-economic capital' can be employed where social capital makes a clear contribution to economic capital. Three categories of social capital are described by Hunter (2004, p.3) as:

1. *Bonding* based on the internal strength of closed networks (e.g. among immediate family and friends).
2. *Bridging* which consists of overlapping networks that may make other networks accessible.
3. *Linking* comprised of social networks that can connect with persons in authority or positions of power.

In the mainstream market context, social capital has the potential to develop into leveraged economic action. By contrast, Indigenous social capital investment appears to yield only limited economic gain and does not usually manifest as capitalistic economic development largely due to the nature of what Moran (2009, np) describes as the unique political economy of discrete remote Indigenous settlements. He argues that 'the political economy of settlement has led to an unusual asset base and resource use, in which internal asset transformations were more important than inputs and outputs'. The driving force of remote Indigenous social capital generates the culturally destined 'economically rational strategy' of 'pooling limited cash' that both sustains and perpetuates high Indigenous mobility, and where customary capital outstrips physical capital and other livelihood options (Moran 2009, np).

An Aboriginal researcher, Dennis Foley, has recently carried out a study of the relationship between Indigenous entrepreneurs' networking behaviours and their employment of cultural and social capital. Foley carried out 60 interviews with Indigenous Australian business entrepreneurs in the early 2000s; 75 per cent of participants had tertiary qualifications and most had no history of family members in business; only about one-sixth were second-generation entrepreneurs. On entering business, many had negligible social capital (networking capacities), were without role models, and felt isolated in many ways. Networking was developed as a key survival strategy, but it was with non-Indigenous business people and mentors. The more experienced Indigenous entrepreneurs reported that it took years of experience networking in the mainstream business world to overcome the 'cultural and/or racial barriers' in order to achieve strategic goals, build credibility and a positive image, and access both customers and suppliers. Female Indigenous business entrepreneurs were particularly disadvantaged in non-Indigenous male business networks by both race and gender discrimination (Foley 2008, p.209–210). For most of the sample, networking opportunities with Indigenous peers in the business world was non-existent, and upon engaging with the non-Indigenous business world, the participants reported a negative backlash from their Indigenous peers in their communities. Foley infers that this undermined their inter-cultural stability. These findings were by way of contrast with comparative samples of Hawaiian and Maori entrepreneurs where there were much higher numbers of second generation entrepreneurs having strong cultural identity and tribal land connections, high family and peer group support and business integration in the Indigenous society, 'a solid cultural capital base', albeit with lower rates of tertiary education levels among the participants (Foley 2008, p.216–218). However, it appears not insignificant that these two Indigenous peoples are demographically in greater proportion within their state populations than their Australian counterparts. Foley concluded:

The comparative case studies also revealed that entrepreneurs embedded in minority cultures have to consider two cultures simultaneously. Their networking activities need to consider the expectations from both the majority as well as their individual minority culture. Subject to the content of their Indigenous society it might be easy to integrate these cultures (as in the case with native Hawaiian entrepreneurs), yet it can also be difficult and often associated with huge personal and social decisions (as in the case with Indigenous Australian entrepreneurs). When cultures are difficult to integrate it may result in a disintegration of social frameworks. In some minority cultures (as in the case with the Indigenous Australian culture) interacting with the majority culture is a difficult choice as it is not an appreciated behaviour. It is perceived as violating the social framework and is capable of causing identity crisis alienating those who do so. (Foley 2008, p.217.)

Although social capital is generally perceived as having positive social and economic outcomes, a complex dynamic might occur between Indigenous and non-Indigenous capitals if one engages in an enterprise development such as a building product manufacturer or trade service. There are also manifestations of Indigenous social capital that may at times have negative influences.

A critical question that follows and one raised by Moran et al. (2007, p.xiv), is whether over-reliance on social capital by Indigenous people is curtailing other capitals of education, training, income creation and private enterprise, and thereby contributing vulnerabilities to remote settlement sustainability. Hunter (2004, p.8) has also argued that social capital is theorised as having a benefit for individuals and groups, yet in the Indigenous context social networks can at times have negative consequences. He notes the example of Aboriginal social networks in which most people have minimal skills, few are employed, and even fewer are in secure employment positions with capacity to employ staff; in such contexts it is improbable that one's social capital can be levered to gain wage-earning employment within one's social network.

Memcott and Meltzer (2005, p.105–118) carried out a case study at the remote Aboriginal community of Wadeye,⁵ in which a mainstream social capital model was adapted and refined. One of the study outcomes on Wadeye social capital was that, despite the apparent under-investment in physical capital evidenced by acute housing shortage, identified elements derived from natural capital such as Dreamings, totems, story places, sacred histories and fertility concepts about plant and animal species, contributed positively and were mutually interdependent with social capital. Memcott and Meltzer (2005, p.105–106, 116) state that social capital is 'not easily analysable separate from natural capital; the two are mutually interdependent in an epistemological sense'. The study also found that the visual barrier of the impoverished state of Wadeye masks the strong social capital of a distinct Aboriginal nature, based on multiple systems of Aboriginal social organisation co-existing within the settlement and confirmed that social capital concepts, such as trust and reciprocity, were valid and understood in Wadeye (Memcott & Meltzer 2005, p.116–117). The inter-ethnic setting required considerable sensitivity to recognise the

⁵ The study drew upon technical reports that were part of the *Community Strength Indicators and Measurement Project* conducted by Memcott and commissioned by the Department of Families and Community Services (FaCS) (Memcott 2002; Memcott in UQ; SERC 2002). Under further FaCS initiatives, measurement methods developed by the Social and Economic Research Centre (SERC) at the University of Queensland, based upon a preceding literature survey of 'community strength' by Black and Hughes (2001), were undertaken. The SERC questionnaire required modification and was adapted by Memcott and redrafted to simplify the English, remove excessively abstract terms and constructs, and make the questions relevant and remove those that were irrelevant to the experience of remote and rural Indigenous participants.

multiple properties of formality that could not be readily 'conflated into a simple dichotomy of formal versus informal networks', but which ranged on a spectrum from customary to acculturated and westernised attributes. They also observed that social capital development involved localised activities, such that: 'the goal of promoting and developing social capital, must be place- and people-specific and deeply grounded in local values, needs and circumstances" (Memmott & Meltzer 2005, p.122).

In the Wadey study, Aboriginal social capital was examined in two parts, firstly within the customary Aboriginal cultural networks of family, extended family, 'skin' relatives, ceremonial partners, friends and residential neighbours, and secondly within the more westernised 'whitefeller-type' organisations in the community, consisting of Aboriginal corporations, worker's groups, government department networks, church groups, etc. In the customary networks, kinship was above all the social glue that facilitated the sharing of certain traditional values. Of interest to the current study were values of respect, personal and communal sharing, and belief in self-capacity. Relevant Aboriginal norms evident in the white-feller style organisations included 'taking ownership of the problem' and social 'levelling' or homogeneity (Memmott & Meltzer 2005, p.110–114).

Furthermore, a number of hypotheses can be generated from this social capital analysis that can contribute to housing procurement. Firstly, can the Aboriginal sociospatial residential groupings based on close kin connections be used to form self-help labour gangs, either in housing construction or post-occupancy housing management? Secondly, can customary gendered activity groups such as hunting groups or craft manufacturing groups be employed in building or household economies? Thirdly, can reciprocal ceremonial or ritual relations of responsibility and exchange be used in allocating responsibilities for housing functions? In asking these questions, it is noted that Memmott and Meltzer (2005, p.116) recorded the use of ceremony as a local technique for reinvigorating corporations as a symbol of Aboriginalisation.

Difficulties can be experienced in pinpointing the mechanisms whereby social capitals may have either a positive or negative impact. Whereas Hunter (2004, p10–11) reports that, in mainstream Australia, repeated studies indicate that social connectedness has a positive bearing on good health, the answer to why improved health is experienced and what specific aspects contribute to it, is elusive. Conversely, when we examine social connectedness in the Indigenous sphere, it does not appear to confer the same protective measure on health outcomes, possibly due to the limitations of social capital requiring cross pollination from what Hunter (2004, p.10) specifies as, 'familiar categories of class, gender, race and age'.

Whether the predominant reliance on social capital is culturally inherent or a consequence of what Moran (2009, np) describes as a 'dysfunctional service-delivery system, most evident in the disconnect between external services and the intended end-users', it is compelling to contemplate the potential of using social capital as a resource base in housing procurement. Social capital as it relates to remote Indigenous realms therefore may have limitations and needs to be localised and contextualised due to the distinct economic and social circumstances in remote settlements. It is particularly challenging to use social capital as a resource for housing procurement, but it may be possible.

3.2.1 Social capital measurement methodology

The current study precludes developing systematic measurement methods of social capital indices, yet attempts have been made by a number of researchers, including the ABS to examine a range of measurement methods using comparative analysis to

extract social measurement factors such as 'network types and levels of trust' and 'personal stressors'. Concern is expressed at the difficulty of empirically measuring social capital among individuals, if theorised as a collective Hunter (2004, p.7). In measuring social capital, the ABS (2000, p.4–5) likewise cautions that the use of data aggregated from individuals may have an underlying methodological flaw if it is questionably applied to the collective. However, while acknowledging the difficulty of measuring social capital, Hunter (2004, p.12) finds it may be useful in addressing Indigenous disadvantage.

A team of University of Queensland researchers designed and piloted a quantitative methodology for collecting data on social capital, and measuring community strength for the Department of Family and Community Services in 2002 (UQ, SERC 2002). Social capital assessment for mainstream communities involved sampling via computer-assisted telephone interviews and using a structured questionnaire and scales to measure the relative strengths of informal structures (or networks), formal structures, informal norms, and formal norms. As described above, a complementary study was carried out by Memmott at Wadeye (Memmott & Meltzer 2005), which aimed to see whether the conceptual framework of social capital could be operationalised in a remote discrete Aboriginal settlement. This resulted in an adaption of the model whereby informal and formal networks became Aboriginal networks and 'whitefella' organisations in the models respectively. This pilot project showed that it is possible to measure social capital strength, although it is necessary to combine the quantitative approach with a qualitative approach in Aboriginal communities to capture the distinctive cross-cultural mix of values and networks (see Table 3 below).

The ABS's new 'National Aboriginal and Torres Strait Islander Social Survey' carried out in 2008 (ABS 2009) contains at least one data category that could contribute to social capital profiling if the data could be disaggregated for specific settlements; namely the category 'Social networks and support' which includes questions such as whether one participated in sporting, social or community activities and whether one is able to get support in times of crisis from outside one's household. If FaHCSIA were to restore its interest in social capital measurement, perhaps the ABS could be persuaded to collect more detailed data to contribute to social capital assessment, such as differentiating whether the networks and support reported upon, pertain to Aboriginal or whitefella networks.

In designing a method of profiling the social capital of an Aboriginal community with a view to identifying how it could complement housing procurement strategies, a range of methodological considerations need to be considered that are beyond the scope of this study, but have been canvassed elsewhere (ABS 2000; UQ, SERC 2002; Hunter 2004; Onyx 2005).

Table 3: Understanding community strength in relation to Indigenous community networks

<i>Network type</i>	<i>The two parts of social strength</i>	
	<i>1</i> <i>Amount of strength</i>	<i>2</i> <i>Type of strength</i>
	Number of networks Size of networks Access to network (open or closed) Interconnectedness and overlapping networks Mixing together of networks	Trusting people Giving back (reciprocity) Belonging together (unity)
<i>A</i> <i>Aboriginal cultural networks</i> Family Extended family Skin relations Ceremony partners Friends Neighbours	<i>A1</i> How much community strength comes from Aboriginal cultural networks?	<i>A2</i> What sort of strengths come from Aboriginal cultural networks?
<i>B</i> <i>‘Whitefella-style’ organisations</i> Community organisations Workers organisations Clubs and societies Government departments	<i>B1</i> How much community strength comes from ‘whitefella-style’ organisations and networks?	<i>B2</i> What sort of strengths come from ‘whitefella-style’ organisations?

Source: Memmott and Meltzer 2005, p.111

3.3 Achieving cultural and ethical capitals

The collection of specialist knowledge and skills related to the design of housing for Aboriginal Australians has emerged as an architectural sub-discipline.⁶ One of its chief components centres on how an understanding of the cultural differences in Aboriginal domiciliary behaviour can inform the design process. This can be described as the ‘cultural design paradigm’. Two other architectural paradigms have impacted on Aboriginal housing design in recent years; these are the ‘environmental health paradigm’ and the ‘housing-as-process philosophy’, both of which contribute to its distinctiveness as a field of study and practice. Reconciling these approaches within the design process has become a key challenge for contemporary practitioners (Memmott & Go-Sam 2003).

⁶ In making this statement, we are not suggesting the approaches to Aboriginal housing design that we discuss are somehow fundamentally different to those adopted in mainstream practice. Indeed, all of the normal design principles, methods and precepts apply. But in addition there is a gradually accruing body of knowledge and techniques focused on a range of problems encountered in this field of work, which in combination, if not in their inherent nature, are rather unique.

The cultural design paradigm involves the use of models of culturally distinct behavior to inform definitions of Aboriginal housing needs. Its premise is that to competently design appropriate residential accommodation for Aboriginal people who have traditionally oriented lifestyles, architects must understand the nature of those lifestyles, particularly in the domiciliary context. This knowledge also increases understanding of the needs of groups who have undergone changes, including those in rural, urban and metropolitan settings, by helping to identify those aspects of their customary domiciliary behavior that have been retained. The cultural design paradigm was initially adopted by a variety of practitioners in the 1970s and is still a dominant design approach in contemporary architectural practice some 40-years later.

With respect to the procurement of Aboriginal housing in remote communities, the current authors contend that design professionals cannot successfully design housing and plan settlements for Aboriginal people unless there is an understanding of their everyday behavior and climatic context. The customary use of domiciliary space supports distinct types of household groups and sub-groups, typical diurnal/nocturnal behaviour patterns suited to different seasonal periods, as well as characteristic socio-spatial structures. Culturally distinct behaviour includes set forms of approach and departure, external orientation and sensory communication between domiciles, different concepts of privacy and crowding (to be discussed in a subsequent section), sleeping behaviour, and sleeping group composition, cooking and using hearths, and storage of artefacts and resources. Of further relevance to remote Aboriginal communities is the link between customary camp behaviour patterns and possible contemporary housing design. Furthermore, there are other culturally distinct aspects that have a bearing on housing design and settlement planning, and that are the subject of ongoing research, such as frequent residential mobility, avoidance behaviours related to kinship rules, different values and attitudes about the possession and sharing of objects, including shelter, and response to the death of a householder.

In order to design culturally appropriate housing, design professionals generally rely on consultation (through interviewing techniques) with those people who are typically the final occupants of the house. This 'briefing process' as it is called sets the parameters for the functional and also non-functional⁷ areas of the design. It is within the consultative framework that ethical considerations come to the fore. For example, consultation assumes two scenarios; the first is that an interaction exists between two parties whereby one party seeks an understanding of another parties' wishes and desires and then proceeds to document that in order to establish the design parameters and brief for the project; and the second is that the first party listens to the second party and is able to incorporate their understanding into the design and planning proposal. There is an ethical breach in housing procurement methodologies as indicated in Fien et al's (2008, p.5–7, 94–95,105) Design Framework that attempts to counter the prevailing status quo of poor and non-existent consultation at key decision points.

However, the imperative to consult is not sufficient enough; effective consultation requires specialist expertise in cross-cultural skills and this has been the premise of informed practitioners in remote settlements for decades, where budgets permit (Memmott & Go-Sam 2003, p.13–15).

⁷ Non-functional refers to those areas that are considered to be more emotive aspects that are typically driven by individual desires and are not necessarily related to the functional aspects of the house design—for example, qualities of light and space, colours etc.

The participatory planning model underpinning the Sustainable Livelihoods (SL) Framework developed by Moran et al. (2007) and incorporated by Seemann et al. (2008) whole-of-systems approach attempts to redress the social housing framework where external funding agencies dominate the parameters of householders and maintenance. Whether negligible consultation is a product of the current low-cost social housing model where limited budgets do not incorporate consultation visits to remote, very very remote and very very very remote settlements or whether it is a consequence of predominant mindsets to impose service delivery without consultation driven by lagging unmet need, it is clear that this serious ethical dilemma has not been addressed in housing procurement. There needs to be a consistent application of primary ethical principles of mutual respect, mutual rights, and mutual responsibilities in meeting reasonable culturally specific needs of householders, so that necessity, location, features, cultural fit of building and infrastructure are genuinely considered in current remote housing procurement practice.

Consequently, the ethical dimension is at play when the design consultant chooses to be bound by the original client brief or prefers to deliberately move away from that which has been previously communicated. The current authors contend that in order to design culturally appropriate housing for remote Aboriginal communities, design professionals need to maintain the original design brief given to them by their Aboriginal clients, and if they perceive a necessity to adjust this brief for whatever reason, they need to at least enter into a dialogue with their clients. This has been objectively substantiated at a continental scale by the 'Fixing Houses for Better Health' surveys by Healthhabitat in recent years (Pholeros 2003, p.59), a key conclusion being:

Poor construction coupled with lack of supervision leads to houses that do not function properly. Improved consultation processes and levels of design and specification will not produce better housing unless it can be ensured that those decisions made during the design process are enacted on the building site.

Yet there is also recognition that current procurement methodologies can suppress reasonable client expectations elicited by design professionals and this may be an avenue for contractual redress.

Furthermore, by acknowledging culturally distinct lifestyles and behaviours in the design brief and discussing them in a constructive way with Aboriginal clients (whether they be individual householders or consultative communal housing committees of some sort), a second consequence over and above a good design *fit*, is allowing opportunity in housing procurement for reinforcing of cultural identity, thereby strengthening social and cultural capital. Once this process is deemed successful, Aboriginal clients are even likely to request forms of symbolic architectural references in housing designs to reflect their cultural identity (e.g. Fantin 2003c).

One of the earliest and detailed examples of the cultural design paradigm in Aboriginal housing procurement was carried out by architect Julian Wigley in Alice Springs in 1976-77. Wigley was employed by the Aboriginal and Torres Strait Islanders Housing Panel (AHP) under the directorship of Dr Michael Heppell (Memmott 1989a) and assisted in the establishment of Tangentyere Council, an umbrella Aboriginal organisation that has consistently serviced some 19 town camps in Alice Springs. Underpinned by empirical research, the AHP, through Wigley, provided housing design and service delivery that was committed to innovative and exploratory approaches to procurement. Wigley designed eight houses at the Mt Nancy town camp and documented this project in a book called *Black out in Alice: a history of the establishment and development of town camps in Alice Springs* (Heppell

& Wigley 1981). Mt Nancy was located on the northern edge of Alice Springs and contained predominantly Anmatyerr and Kaytetye people (Memmott 1989b). Thus, Wigley became one of the few Australian architects who not only made, but also clearly documented systematic ethnographic observations of Aboriginal domiciliary life to assist with the accurate definition of user requirements. He carried out research on self-constructed architecture and camp behaviour, prepared design criteria and house designs, and administered the construction contract for eight houses (Memmott 1990, p.119).

At the time the Mt Nancy houses were designed, the Northern Territory Housing Commission had let a contract for 36 three-bedroom houses in the Alice Springs suburbs for an approximate \$27 000 per house (Heppell & Wigley 1981, p.154). Pre-fabricated housing manufacturers were also attempting to provide system houses for as low as \$16 000 (e.g. James Hardie with the Apatula house), but finish quality was questionable (Wigley p.c.). In order to achieve a similar competitive price for the Mt Nancy houses, Wigley invited tenders from a number of local Alice Springs building contractors. 'The houses were to be low cost and in line with the Hay Inquiry's recommendations...that Aborigines be given access to housing on terms no less favourable than Housing Commission terms in rural areas' (Heppell & Wigley 1981, p.154). The most competitive price tendered was \$24 000 which at the time was considered reasonable when compared to the Housing Commission homes.

Some discrete parts of this process as described in Heppell and Wigley (1981, p.132–150) resulted in limited data on the sociospatial organisation of households, extensive data on aural and visual communication, external orientation of domiciliary lifestyle, the intense sensory communication between households, and the necessity for external surveillance; the role of town campers in hosting visiting relatives from remote communities, and an attempt to identify the types of facilities, spatial preferences and level of interaction optimally required; the development of a set of design criteria for house design, the approach and departure behaviours of individuals in relation to the overall domiciliary space, plus a general principle of providing higher levels of individual privacy in the interior of the house; and the problems of designing for unpredictable changing needs that may occur in the life span of the house.

Furthermore, Heppell and Wigley's work shows how an understanding of traditional domiciliary behaviour and the surrounding artefactual environment informed the architect's design process to produce one of the first generative plan types where a range of floor plans could be built on a basic *core* of service rooms for a group of clients with varying needs (Memmott 1990, p.120; Long et al. 2007, p.19). This early consultation under the auspices of the Aboriginal Housing Panel placed importance on social organisation through minimising change to this structure through design. Yet the limitations of placing focus entirely on building design to the exclusion of a more encompassing master plan inclusive of economic, social and physical requirements were soon realised (Heppell & Wigley 1981, p.106–107).

3.4 Achieving health capitals

Houses and associated environments can contribute positively to sustaining Aboriginal health and reducing livelihood vulnerabilities. Improving Aboriginal health through housing provision developed as a policy and field of industry practice through the 1980s. Health outcomes comprise a number of significant social and human capitals for housing procurement to address, yet significant health related problems continue to persist. In Aboriginal Australia, healthy living practices are conceptualised as not only connected to the physical infrastructure of the house, but also related to the social and psychological functions of housing (Reser 1979; Pholeros et al. 1993;

Bailie 2008). Health problems in remote communities form a distinctive grouping of recurrent and interrelated categories, encompassing infectious diseases, problems resulting from social disruption and 'lifestyle-related' diseases. When defining the multi-faceted issues impinging upon healthy living practices within the Indigenous realm, the term is inclusive of all social activities and their impact upon aspects of human health, in particular how they relate to housing and surrounding living environments (Bailie & Wayte 2006, p.179)

3.4.1 Addressing health hardware in houses as a form of health capital

Environmental health as a field of study in Aboriginal Australia was first raised in the architecture at Wilcannia in 1974 by Ken George (Memmott 1991, p.151–154) but was not systematically addressed until the work of Nganampa et al. (1987) by the multi-disciplinary team of Paul Pholeros (architect), Stephan Rainow (anthropologist) and Paul Torzillo (doctor), who documented groundbreaking findings and practices in the Anangu Pitjantjara (AP) lands (South Australia). The Nganampa study demonstrated that internal and external house environments contributed to a range of negative health outcomes with direct and indirect factors influencing health often working together in complex and dynamic ways as well as being affected by the adaptive responses of individuals and groups (Bailie 2008, p.59). For these reasons, developing predictive housing or environmental design strategies to improve health is challenging. Nevertheless, based on their 1987 study and subsequent investigation, the Nganampa research team has consistently advanced nine household living practices to maintain good health: washing people, washing clothes and bedding, removing waste, improving nutrition, reducing crowding, separating dogs and children, controlling dust, temperature control and reducing trauma. Design strategies for housing and infrastructure can address these factors, but householder behaviours and housing management practices are equally required.

The Nganampa (1987) study led on to further important studies and the formation of Health Habitat by Pholeros, Rainow and Torzillo which countered prevailing assumptions that infrastructure failure was primarily the result of user fault or vandalism, and linked such failure largely to poor quality control, substandard materials, substandard workmanship, incorrect installation and poor contract administration (Pholeros et al. 1993). Further systematic studies by Health Habitat advanced the methodologies of the Nganampa survey to develop into the technological POE survey work of the 'Fixing Houses for Better Health' (FHBH) program (2000 to current). These and other findings from previous technical surveys and the national FHBH program then became embedded in *The National Indigenous Housing Guide* (NIHG) (FaHCSIA 2007a). This document is now an accepted industry standard for remote-area Aboriginal housing design and construction practice.

The National Indigenous Housing Guide (NIHG), as the by-product of numerous technical POE surveys under the *Housing for health* and *Fixing Houses for Better Health* (FHBH) projects, draws on investigative and diagnostic methods based around the guiding principles of safety, health, quality control and sustainability. Although the NIHG does not provide any overt definition of *sustainability*, goals pertaining to sustainability are implicit in the various environmental design and economic criteria of housing prescribed in the Guide. The NIHG's findings confirm that the failure of specified building hardware essential for maintaining the health of residents, was due to a lack of routine maintenance in 67 per cent of houses; 25 per cent due to poor initial construction and less than 8 per cent because of misuse, abuse or vandalism (FaHCSIA 2007a, p.11–17).

The NIHG (FaHCSIA 2007a) is inclusive of practice standards for the design, construction and management of housing to achieve safety and health outcomes, with

cross-reference to the BCA (Building Code of Australia) and supplemented by the specific state or territory guidelines covering codes and standards pertaining to each jurisdiction (Long et al. 2007, p.65–66). The value of the NIHG would not be so high if past and present procurement contractual systems ensured a guarantee of quality control. The NIHG as a publication directs attention to the lack of quality control during construction and the need for regular maintenance regimes, practices that are at times non-existent or inconsistently applied across remote Indigenous Australia. One criticism of earlier editions of the NIHG was that it overlooked socio-cultural aspects of design; this has been partially addressed in the current addition, specifically, in Appendix 2—'Issues to consider in the design and construction of houses'. Particular mention is made of avoidance relationships and beliefs in spirits based on the work of Fantin (2003b), as described in a subsequent section of this paper.

A measure of health capital in Indigenous housing is the quality of the health hardware, i.e. 'the physical equipment necessary for healthy, hygienic living' (FaCSIA 2007, p.9). A rigorous set of measures of the functionality of health hardware has been developed by Healthhabitat for the Fixing Houses for Better Health (FHBH) program undertaken in Indigenous housing across five states since 2000 (Pholeros 2003). These survey data are summarised in tables throughout the Guide (FaCSIA 2007) and are collected on the basis of either the presence or non-presence of an item of health hardware, and its functionality or performance based on a prescribed test. The survey data are set out in tables and cover the following topics:

Wet area design, hot water, taps, baths and tubs, showers, wet area drainage, water mains (for maintenance), laundry design, drying clothes and bedding, flush toilets, house drains, septic systems and on-site waste disposal, drinking water quality, food storage, food preparation facilities, food cooking, house edge and yard, animal impacts, vermin presence, insect presence (ants, cockroaches, flies, mosquitoes, dust mites, termites), dust presence, cooking design, heating design, electric light performance, risk of falls, windows.

It should be noted that 'Self Assessed Health Status' is a theme of data collection by the ABS in its *National Aboriginal and Torres Strait Islander Social Survey* (ABS 2009) and if the data could be disaggregated for individual settlements, it could be a useful measure to supplement the health hardware data.

3.4.2 Reducing crowding in houses as a form of health capital

In recent years, where correlations are drawn between the poor state of housing and the problems of Aboriginal health, they have usually centred on overcrowding and the under-supply of housing as the combined major contributing factor, not only contributing to social dysfunction but also to the mental and physical well-being of the residents (Wild & Anderson 2007, p.57–75,166; Long et al. 2007, p.24; Baillie 2008, p.59; Fien et al. 2008, p.24). Crowding is a complex field of social analysis, with a state of crowding involving an unaccepted density of persons and dependent on there being perceived stress for its existence. Marked cross-cultural differences are noted in the literature in the varied social manifestations of crowding (Memmott 1991:255). The Australian literature clearly establishes that traditional Aboriginal crowding behaviours are culturally distinct (see Reser 1979; Ross 1987; Nganampa Health Council 1987; Memmott 1988, p.34–47; Memmott 1991, p.255–262; Memmott & Chambers 2002, p.88–97).

There is no research to date that prescribes what in fact would be the ideal or maximum residential size for an Aboriginal household, in other words what numbers of household occupation would be considered the tipping balance for a particular sized house, between healthy living practices, infrastructure functionality and social

stability, given that extended kin households are a persistent feature of Aboriginal communities. The dynamic complexity of crowding precludes such simplistic analysis. Furthermore, the types and structures of Aboriginal households vary in certain ways between the remote regions on the continent, as well as in rural urban and metropolitan settlements. Ongoing research needs to isolate both quantitative and qualitative evidence-based distinctions between the negative impacts of overcrowding and pre-existing social conditions that may or may not relate to overcrowding. Particular research analysis needs to be developed on the related issue of Indigenous privacy, as it remains systematically undefined as noted by Memmott (1988, p.40) over two decades ago.

On the topic of household composition and mobility, Moran (2006a, p.31) notes that overcrowding may be an ever-shifting phenomenon and that a 'single Indigenous house may be doing the job of three or more houses' and due to mobility 'one group may occupy several houses simultaneously'. The objective to reduce a fluid and moving entity of overcrowding⁸ through a construction procurement contractual system, as was an aim of the current SIHIP program, has its challenges in developing objective low-cost performance measurements. The constant flux of household populations as reported in studies of crowding, mobility and homelessness, has resulted in the AIHW (2009, p.56) classifying such Indigenous people who rely upon friends and relatives, as being technically homeless, noting that a total of 9248 people representing 1.9 per cent of the Indigenous population as homeless.⁹ It is beyond the scope of the current study to include any in-depth analysis of homelessness and mobility, but they are noted as phenomena that impact upon the issue of overcrowded households, in particular, sustainable tenancy as well as being contributing factors to high levels of household service malfunction of fixtures and fittings (Fien et al 2008, p.74–75; Long et al. 2007, p.27,78; Habibis et al. 2010).

A pioneering study in this field was conducted by the environmental psychologist Reser (1979) based on 15 months of fieldwork in the Arnhem Land Reserve of the Northern Territory, who identified a complex of cultural and environmental variables as greatly affecting a sense of individual control over one's house. From this early research, it was argued that loss of control over one's domiciliary environment and household relations can lead to stress with negative impacts on physical and mental health as well as the social and economic functioning of the household. An outlet valve from localised stress may be mobility, as the study by Memmott et al. (2005, p.4–5,61) examining the underlying reasons for mobility in the Mt Isa and greater region indicates that one of many explanations is that it may provide immediate relief and escape from the stresses of home community life. However, the research in this area is not without conundrums, as noted by Flatau et al. (2005, p.191) and previously Memmott (1988; 1991) and Memmott and Chambers (2002), Indigenous residents may not express an annoyance with high density households even though unacceptable negative impacts are experienced. The relevance of social capital studies may have significant bearing on explaining this conundrum. Although differing cultural norms in relation to the nature of perceived crowding may exist between Aboriginal and non-Aboriginal households, simultaneously distorted cultural norms may exist in certain Aboriginal households, such as the tolerance of high alcohol

⁸ We use the term 'overcrowding' here as it is employed by policy-makers in the Aboriginal housing sector, but there is yet no usefully scientific distinction that has been made between the concepts of 'overcrowding' and 'crowding'.

⁹ Further specific state or territory data on Indigenous households that are overcrowded (P22) and additional bedrooms required (P21) is incomplete, so that contributing factors defining Indigenous housing need under these categories is not quantified or accessible (AIHW 2009:20-21).

consumption that has created broad levels of overt and subtle dysfunction (Wild & Andersen 2007, p.166).

Recent discussions on psychological stress have pointed to the persistent phenomenon of overcrowding as a major factor, yet how these factors interact with other significant environmental and social influences effecting health, needs to be more carefully examined to gain guidelines for improving health benefits for residents (Bailie 2008, p.59). Bailie's (2008, p.59–60) preliminary health and housing findings for the *Housing Improvement and Child Health Study* (HICH) carried out between 2003–2005, drew data on children and their carers from ten remote study communities in the Northern Territory where significant building programs were undertaken, and showed that there was 'a clear association between crowded household conditions and the functional state of house infrastructure, and the hygienic condition of houses'. However, Bailie's team was not able to establish a direct link between crowding and psychological well-being, nor between crowding and the functional state of infrastructure. They were able to state that:

The general psychological well-being of carers was associated with broad community level factors such as overall quality of community housing and housing management, and community location and exposure to stressors in their daily lives (which may arise within household or in the broader community). (Bailie 2008, p.59).

Bailie's general point here is that the 'relationships between housing and health do not operate in a clockwork universe' (Bailie 2008, p.59–60), but within a complex and dynamic multi-variant field of internal and external factors in houses, households, communities and cultural regions. It is understood that crowded household conditions do increase the probability of spreading infectious diseases among occupants, as demonstrated by FaHCSIA (2007a, p.137), however, poor health may be exacerbated by a number of other contributing factors, such as poor household infrastructure, high incidence of exposure to infection, poor commercial food supply and dieting practices, security over household food, mental health of other householders, social influences on health, along with limited effective management of health and housing (Bailie & Runcie 2001, p.365; Bailie 2008, p.59–60).

The problem of quantifying and measuring crowding reduction in housing in order to reduce psychological stress as well infectious disease transmission is vexed. To measure the reduction of crowding achieved by housing requires calculating what constitutes a crowded house versus an uncrowded house. This has been achieved conventionally with an occupancy standard. An example of such a standard would be 'one bedroom for each couple and for each single, non-dependent adult, with dependent children sharing bedrooms at a maximum of two per bedroom' (Neutze et al. 2000, p.3). Less sensitive occupancy standards would be simply two-persons maximum per bedroom (Walker et al. 2002:16), or a specification of minimum floor area (m²) per householder in a house (after FaCSIA 2007, p.140).

A more detailed set of seven prescriptors of the type used above by Neutze et al. is that employed by the Canadian National Occupancy Standard which aims to be sensitive to both household size and composition. This standard was employed in an analysis of Indigenous 'housing utilisation' based on the 2006 Australian census data (ABS 2008, p.134,178–179). It is interesting to note that the ABS refrained from using the term 'crowding' (or 'overcrowding') when concluding the numbers of Indigenous households that required an extra bedroom. Perhaps this was due to the realisation of the analytic difficulty of measuring crowding if it is dependant on an attribute of stress being present in its definition.

3.4.3 Examples of culturally specific behaviours that contribute to crowding stresses

One housing and health related architectural project executed under the former National Aboriginal Health Strategy (NAHS) program was undertaken by the architect Shaneen Fantin in North-east Arnhem Land, Northern Territory, and began with the premise of the environmental health paradigm, yet upon execution, a number of surprising culturally dominant factors were discovered causing a reviewed approach. This project, and subsequent PhD research by Fantin, forms the basis of the following case study which is worth citing to highlight the relationship between culturally-distinct household behaviours and perceived stress contributing to a sense of crowding, house design and health.

When Fantin carried out the architectural design of 35 new houses at Galiwin'ku in the Top End of the Northern Territory in 2001–02 under the auspices of the National Aboriginal Health Strategy (NAHS), the foremost driving force in the spatial planning was perhaps one of the most experimental specifications of the Nganampa environmental health design paradigm—that of separating wet area functions away from other functions of the house. Although, still finding value in certain aspects of the health paradigm objectives and specifications, the resulting designs were received with a mixed response causing the architect to rethink and synthesize the environmental health and cultural design paradigms (Fantin 2003a, p.171–172,197–202). Fantin addresses these issues in depth in her PhD thesis (2003a).

A key focus of Fantin's study was the overall impact of housing on avoidance behaviour as expressed through the spatial manifestations of avoidance between:

1. An adult brother and sister.
2. A son-in-law and mother-in-law (2003a, p180–191).

The internal designs of particular houses brought such adults into close spatial or visual contact with one another, and with whom they were culturally required to avoid, causing behavioural stress and at times aggressive displays. Fantin was able to demonstrate alternate house layout designs to re-organise the distribution of activity and circulation spaces and lines of vision so as to alleviate this problem, which can be analysed as a culturally-specific form of crowding (and one that is independent of high household density).

A second key focus of Fantin's study was the pan-Aboriginal belief in spirits, called *galka* in Yolngu, which manifests itself as fear of spirits who cause harm. Every Yolngu adult is believed to have a potential to practice forms of *galka*. Her discussion includes the spatial and physical design implications generated by concerns about personal security due to this belief system (2003a, p.223–231). The Yolngu belief in spirits and the practice of *galka* made the location of the wet area functions in Fantin's house designs quite unacceptable to various residents by reducing the potential for convenience of access, surveillance and security. Fantin (2003a, p.229) acknowledged this as a challenge to designers, but advocated that a solution should be sought to meet both cultural and environmental health guidelines; one that recognised that belief in spirits impacts significantly on resident behaviour, stress, and perceptions of security. She highlighted simple strategies to alleviate these heightened, but real concerns, such as specially located landscaping, the use of night-lights to assist visual surveillance, and the depositing of sand around the house to identify the tracks of intruders. These responses subscribe to general standards of community safety and should not be considered an unjustified imposition on tight housing budgets.

Much Australian anthropological literature has discussed the prevalence of Aboriginal beliefs in spirits and sorcery practice in some detail (Berndt 1982, p.128; Reid 1982, p.43; Berndt 1939–1940, p.291; Hamilton 1972, p.289; Tonkinson 1966, p.199), but only occasional writings link these beliefs to housing design. No other comprehensive analyses exist in the architectural literature that discuss pan-Aboriginal beliefs in forms of spirits and their impact on the location of design features, functions and resident behaviour in housing, with the exception of an earlier study by Go-Sam (1997).

Go-Sam's (1997) thesis study centred on Mutitjulu in Central Australia where environmental health technical specifications and their objectives to improve health by separating wet area functions (toilets, showers and the laundry) away from the envelope of the house, also proved to be a most unpopular strategy among residents. Here Aboriginal preferences for the non-separation of wet area facilities in house design were also connected with beliefs in spirits (see Go-Sam 1997, p.51–53, 124; Hamilton 1972). The concern over malfunctioning wet areas and their impact on health is not to be lightly dismissed where procurement methodologies do not ensure quality control, but Go-Sam's (1997; 2008) study showed the continuance of traditional cultural imperatives regardless of the impositions that non-Aboriginal statutory authorities and architects had placed on the Aboriginal residents (FaCSIA 2007; Go-Sam 1997, p.116).

3.5 Achieving employment and training capitals

One of the key framework objectives of the Australian Government's Productivity Commission's, *Overcoming Indigenous Disadvantage, Key Indicators Report* (SCRGSP 2009, Section 2.2 np) is to obtain 'improved wealth creation and economic sustainability for individuals, families and communities'. Achieving economic outcomes to improve livelihoods in remote regions of Australia, where there are considerable economic vulnerabilities of labour and skills shortages, which simultaneously exist alongside high unemployment in Aboriginal settlements, has proved elusive. Upwards pressures by macroeconomic forces causing tight labour markets by developing sustainable local employment has affected social housing programs with fixed budgets as they are increasingly competing with industries with greater purchasing power (Szava et al. 2007); while declining housing affordability in remote settlements has dual regional social impact at the policy level for efficiency and equity (Haslam McKenzie et al. 2008, p.10–16). Szava et al. (2007, p.10–13) further observe that major construction projects coupled with a booming mining industry have caused inflationary costs on housing labour, subdivision service infrastructure, cost of materials, and remote location costs in the Northern Territory, resulting in a dramatic expansion of housing procurement costs and project completion timeframes.

The economic context in remote settlements bears greatly upon other sustainability livelihood factors, such as cultural and human capitals of employment, training and education, albeit in a context where limited economic opportunities are stifled due to geographic location, small populations and mobility (Moran 2009, np). In many instances, the largest capital investment by governments in remote communities is housing and other infrastructure projects, yet variable project delivery often leads to varied opportunities for employment and training. When Indigenous labour was involved in housing procurement, Walker (2008, p.36–37) reported that in some communities in Central Australia there existed an obvious mismatch of time-pressured delivery, which limited a given community's capacity to participate. Subsequently, the dominance of pressured delivery time-frames has reduced the capacity to develop human capitals impacting on management in housing procurement and resulting in a

preference for low key Aboriginal involvement, leading to questions such as: If there is a labour under-supply and skills deficit in repairs and maintenance, what measures have to be taken to increase meaningful participation resulting in skills transfer in order to increase livelihood sustainability?

The history of Indigenous involvement in construction programs shows mixed results and is worthy of revisiting in the context of repeated calls for design innovation as demonstrated by the case study recorded in *Humpy, house and tin shed* (Memmott 1991). This detailed longitudinal study provides an interesting precedent of innovative design solutions, designed by architect Ken George, tailored for a restricted budget using local Indigenous labour at Wilcannia. The case study demonstrates, in part, that if contractual arrangements and local trade skill levels do not exist to implement these innovative solutions, then pressure is placed on delivery time frames that can ultimately lead to the failure of the procurement system and its quality assurance. Thus, training to improve skills shortages in communities is a paramount consideration for any future housing procurement activities with an aim to using local labour through capacity building.

Variable capacity or opportunity for training and employment on building procurement projects are demonstrated in Fien et al's (2008) study communities of Maningrida, Northern Territory; Palm Island, Queensland, and Mimili, South Australia. The study preceded one of the most dramatic and rapid changes in government funding for infrastructure and housing, with sweeping structural changes to housing governance at all levels, resulting in the replacement of the Community Housing Infrastructure Program (CHIP) with Australian Remote Indigenous Accommodation (ARIA). The abolition of CHIP resulted in many Indigenous Community Housing Organisations (ICHOs) in remote and very remote settlements being stripped of their previous responsibilities to procure housing and infrastructure construction (Porter 2009, p.6–14). However, at Maningrida, reduced funding was not the case; the local Council was and continues to have involvement in significant housing construction and maintenance programs. The Bawinanga Aboriginal Corporation (BAC) is the outstation resource agency at Maningrida that also operates a mud brick factory. It provides housing, supporting technology (solar power, water delivery), road and air infrastructure, along with repairs and maintenance of building stock. The area is also resourced by the Jobs, Education and Training (JET) Centre, which provides training but not in building or maintenance (Fien et al. 2008, p,23–28).

Also at Maningrida, local employment opportunities have been developed as a consequence of simple construction techniques through a close working relationship between the architectural firm Build Up Design and BAC where designs are formulated to match local skills levels, offering training opportunities and greater Indigenous involvement in construction. BAC employs fifteen people in the mud brick factory and uses them in outstation construction. Many of the simple strategies developed by Build Up Design were documented by Scally (2003, p.84–88) and demonstrate the synergies that could occur, contributing significantly to livelihood sustainability when constraints due to urgent construction timeframes were not prioritised. Although, there does not exist an opportunity to attain a trades certificate, it appears that employment is meaningful and ongoing. (Fien et al. 2008, p.29). However, despite the sizable investment of funds, Fien et al. (2008, p.80) notes a lack of TAFE courses on building and that the small size of building teams prevents apprenticeship uptake. Consequently, due to shortages in local skilled labour, there are typically no qualified Indigenous tradespersons involved in construction projects, while the shortened building period due to the wet season in many regions of northern Australia also places an urgency on construction timeframes, thereby resulting in the exclusion of local involvement in training (Fien et al. 2008, p.28–29,80–81).

The settlement of Palm Island includes high level infrastructure facilities with a resident TAFE college and housing managed by the local Community Council. An alternate model for procuring housing was found by Fien et al. (2008, p.42) using prefabricated housing construction at Palm Island, yet they note limited opportunity for local employment. Other systems, such as the Remote Housing Australia alliance with Cape York Corporation, Bluescope Steel and Djarragun College (Gordonvale), have developed a prefabricated system that offers high Indigenous training and construction involvement using rapid construction techniques. This alliance has not been evaluated to any significant degree, but its overall objectives may indicate, at Palm Island, that it is not the method of construction that is as problematic as the findings of Fien et al. (2008, p.41–42) indicate, but the persistent feature in Aboriginal housing procurement systems of time-pressured delivery which consistently excludes local labour and works against human and cultural capital livelihoods' sustainability. Note that this case study is in contrast to the findings of Foley (2008), whereby Aboriginal entrepreneurs, to be successful in the mainstream business world, had to detach from Indigenous social capital and is more in line with his findings on Maori and Hawaiian entrepreneurs where bi-cultural integration of social capitals was achieved.

At the time of the Fien et al. (2008, p.42) study, QBuild (key construction and building maintenance provider for the Queensland Government) employed four Indigenous tradespersons and had five Indigenous apprentices. The level of completion of Indigenous tradespersons indicates that stable employment, along with long-term opportunities for work, will result in high level skills uptake. In 2007, three school-based apprentices were engaged and QBuild were working towards the eventual goal of employing 30 people from Palm Island (Fien et al. 2008, p.41–42). Fien et al. (2008, p.64–65) note that the use of transportable building systems at Mimili have prevented younger men from gaining building skills and that there is a broader skills deficit across the Anangu Pitjantjatjara Ynkunytjatjara (APY) Lands due to a lack of ongoing construction and maintenance programs, preventing sustained training opportunities. Moran et al. (2008, p.xii) reported a similar lack of success of small scaled building projects that have had a minor impact on achieving significant improvements in livelihood strategies.

One of the more recent positive training and employment industry scenarios comes from the activities of Myuma Pty Ltd at Camooweal, Queensland, which is a demonstrable case of Aboriginal cultural and socio-economic empowerment with major participation in the mainstream economy through competitive service delivery. Myuma's enterprise initiatives have successfully negotiated agreement with the Queensland Department of Main Roads (DMR) on major roadworks projects generating a gross revenue from major civil works contracts to the value of \$19.8 million during the period 2001-2009 (Memmott 2010, p.3). Whereas there is a complex mix of enterprise functions, service functions, cultural functions and representational (governance) functions within the Myuma portfolio and its daily round of work, all of these activities are underpinned by Aboriginal cultural law precepts and an Aboriginal ethic of social harmony in Myuma's Dugalunji Work Camp. There is a unique symbiotic relationship between the practice of Aboriginal law and the practice of commerce in the Dugalunji Camp whereby the two are mutually supportive of one another, generating a strong Aboriginality in day-to-day *business*. The overall positive benefit to economic capital is thus supported and underpinned by cultural and social capital resulting in a potential for greater livelihood sustainability. Note that this case study is in contrast to Foley's (2008) findings on Aboriginal entrepreneurs detaching from Indigenous social capital to be successful in the mainstream business world, and

more in line with his findings on Maori and Hawaiian entrepreneurs who achieved bi-cultural integration of social capitals.

A more in-depth POE survey of the use of local resources and labour in housing procurement was undertaken by Memmott, and summarised in *Humpy, house and tin shed* (1991). As described previously, the study focused on houses designed by architect Ken George and constructed in Wilcannia NSW during 1974–1978. Memmott's POE developed, through extensive analysis, a model of the Bakandji language group's settlements, planning and socio-spatial behaviour on the Darling River (NSW), by combining techniques of geographic mapping with anthropological studies of social organisation and detailed genealogical information (Long et al. 2007, p.22). The Bakandji project overview is incorporated herewith to demonstrate both the complexities and connections between pre-existing economic vulnerabilities, external and local governance and their impact on desirable objectives of training and local labour involvement in housing procurement, in particular where there is a lack of skill and management capacity of all players at all tiers.

Consequently, the interface between statutory policy, local, state and Commonwealth Government representative bodies and funding cycles provides a significant insight into the present day governance issues that overshadow the delivery of Aboriginal housing in remote regions, and calls up the problems of procurement when there is not a 'collective mind set of values and attitudes' (as defined by Ackfun) among these respective players. The provision of housing at Wilcannia was subject to restrictions of government cycles, timeframes and policy changes, along with the persistent feature of high turnover of government agency staff, each with differing personalities and varied methods of execution. Compounding the situation was the imposition of cyclic government policy-making, the increased emphasis on raising housing standards, and introducing *mainstream* building industry timeframes (Memmott 1991, p.135–138,181–198,270–274,281–283).

The experimental Wilcannia housing project was designed to facilitate staged self-help housing, and used the combined techniques of architectural, social and economic planning, with the objective of using local unskilled labour under the supervision of a building supervisor. There were a plethora of players in the procurement process, with principal funding provided by the Department of Aboriginal Affairs (DAA) and technical monitoring and assessment by the Department of Housing & Construction (DHC). The DAA engaged the services of an electrical engineer as team leader, to oversee the work of the architect and structural engineer. The Wilcannia Town Council provided a building supervisor and three tradespersons to work on the project, but they did not remain for the duration of the project. Bakandji Ltd (est. 1974), the newly formed local Aboriginal company, were contracted to build the houses and associated infrastructure under the supervision of a building supervisor and the financial oversight of DAA. The Directorate of Aboriginal Welfare appointed, a community advisor in the mid-period of the project as a Housing Project Officer to advise Bakandji Ltd with the consultant architect Ken George initially engaged to undertake the design, investigation of block manufacturing plant and building supervision. However, George's services were terminated towards the end of 1976 by either DAA or DHC due to incongruent differences in project vision with DAA staff, resulting in inconsistent, incompetent construction oversight by subsequent building supervisors engaged by an inexperienced Bakandji Ltd (Memmott 1991, p.181–197).

Although touted as a self-help housing project (1974–1978), it was in reality far too ambitious for the inadequate management capacity of Bakandji Ltd and the lead funding body, the DAA. Four years later, the community of 550 Aboriginal people,

gained a rapid increase in infrastructure using the labour of 69 Aboriginal people, with a total of two completed houses and eight incomplete 'George' houses—in addition to industrial sheds and plants, an office, a concrete block making machine, 35 temporary sheds, and the purchases of 17 town dwellings. Of the eight incomplete houses, six were taken to completion and occupation, comprising four earlier near-complete houses that were finalised by a separate builder with Bakandji labour. A further two incomplete houses were completed by another builder with no Aboriginal labour input (Memmott 1991, p.143–145,183–197).

In many instances, the Bakandji experience highlights the necessity for capacity building of local governance in order to obtain sustainable training and employment outcomes, if and when local capacities are clearly under developed. Strengthening self-governance where local capacity may exist is not an easy task to accomplish in remote settlements, but there are clear paths to predicting failed training and employment programs when physical capital is increased in the absence of stable human capacity to manage its delivery and ongoing maintenance, as exemplified in the case study example at Wilcannia. It could be argued that, currently, governments have gained greater insight into local capacity and would not defer project management of the scale attempted at Bakandji on an emerging Aboriginal construction enterprise; contemporary procurement practices testify that this is correct, but any infrastructure project leaves behind significant capital investment that has to be managed and maintained, to some extent locally, where varied and often extremely limited capacities continue to exist in remote settlements. Additionally, the latter period of the Wilcannia project also foreshadowed the common housing procurement method undertaken today, where local labour is entirely excluded from the building contract in order to ensure practical completion on time and for a fixed project sum.

Furthermore, the example of Bawinanga Aboriginal Corporation (BAC) in Arnhem Land clearly demonstrates that when infrastructure is carefully and selectively introduced to match local management capacity and skills levels for repairs and maintenance, then sustained employment opportunities emerge, even if there is a lack of ability to uptake recognised trades certification. A number of options should be presented to remote communities and the example of Palm Island is a case in point, that high level skills uptake by Indigenous staff can occur under key government contract agencies like QBuild, because they offer the required perpetual employment to achieve this, yet there is a considerable lack of interface and minimal local labour input within the local settlements where construction projects are rolled out. Hence, the long-term gain in human capital for the local Indigenous settlement is minimal, though significant gains in physical infrastructure are delivered where there is a clear negative impact on other capitals.

The long-term gains for livelihood sustainability outweighs the externally driven service delivery approach prevailing in the majority of infrastructure and procurement projects across the continent and highlights the need to examine in greater detail the benefits of gradually strengthening self-governance and how, as exemplified in the case examples of Myuma Ltd, Maningrida and BAC, this leads to achieving demand responsive services with an uptake in employment and training. The recent study by Fien et al. (2008) has focused on defining Indigenous governance, but there is a complex interplay between governance exercised at the local level in remote settlements and that exercised by external agencies that impacts upon their livelihood vulnerabilities. The subsequent discussion on strengthening self-governance and demand responsive services can contribute to improvements in administrative operations in remote Indigenous settlements.

In terms of measuring economic capitals, a few relevant techniques can be mentioned. The issue of economic sustainability of housing for the householder, i.e. cost of rent and running costs of the house (power, water, waste removal) can be measured through the use of an *affordability measure* which looks at the income of an average householder after basic needs have been met in accordance with the Henderson Poverty Line (Neutze et al. 2000, p.3). Housing affordability is generally very low in remote communities with minimal or few employment opportunities whereby Aboriginal people could yield an income that is substantially higher than unemployment benefits. The ABS collects and analyses data on Indigenous labour force participation and financial stress indicators (ABS 2009) which, if disaggregated for individual settlements, could provide a rough guide to general improvements in income and employment brought about by a local building enterprise undergoing successful growth. However, actual targeted case study data would be more useful to collect due to its more reliable contextual objectivity.

3.6 Achieving governance capitals

Indigenous self-governance is a critical key to developing sustainable remote Aboriginal communities. With governance capitals inevitably impacting on housing procurement, an ultimate aim for remote Indigenous communities would be for at least some, if not the majority, of Aboriginal groups to develop (build infrastructure) and purchase land, construct, maintain and manage housing stock, buy, sell, and rent houses themselves without or with minimal government intervention. Implementing such an economic aim requires a sufficient strength and flexibility of local governance to assist corporate innovation as well as a demand responsive model of housing procurement so that communal motivation for involvement in housing construction and maintenance is clearly aligned with housing products that fulfil local needs. An obstacle to achieving corporate innovation comes when 'governments are preoccupied with finding linear *solutions* to new conceptualisations of the *problem* and packaging these for *top-down* implementation' (Moran & Elvin 2009, p.415). This approach also clearly pertains to livelihoods sustainability where functioning communities are sustainable communities.

In relation to housing procurement in remote Aboriginal communities, recent research by Desert Knowledge Cooperative Research Centre (DKCRC) indicates the vital link between governance and what is called 'demand responsive services'. Through an analysis of specific case study examples, Moran (2006b; 2009) in *Demand responsive services: an analytical framework for improved administrative practice in Indigenous settlements* and *Which job, Which house?*, describes four key components of governance that are inclusive of both formal and informal decision-making processes. He clarifies the fundamental definition of governance, stating that it involves meaningful engagement in 'representative structures and procedures to ensure information dissemination, grievance mechanisms and downward accountability' (Moran 2006a, p.32). Furthermore, Moran (2006a, p.34) provides a modification of Plumptre and Graham's (1999, p.3) succinct definition of Indigenous governance through highlighting its salient dimensions:

Governance involves the interactions among actors, structures, processes and traditions that determine how power is exercised, how decisions are made locally [whether they are conducted formally or informally] and how beneficiaries participate. Fundamentally, it is about power, relationships and accountability; who has influence, who decides, and how decision-makers are held accountable.

In comparing formal and informal governance structures in remote Aboriginal communities, Moran (2006b, p.33) illustrates the significance of formal political structures where they are used, 'for administrative efficiency and to ensure responsiveness and accountability to constituencies and governments', and also the contribution that informal *behind-the-scenes* processes make to local decision-making. Moran (2006b, p.34) usefully applies the term 'Indigenous governance' in order to separate it from mainstream governance. Other possible derivatives of the term, when applied to the Indigenous context, are 'self-governance' and 'local governance'. When exercised at the local level in the Indigenous context, there are a broad number of diverse participants ranging from government representatives to Indigenous people of varying ages who contribute to decision-making (Moran 2006b, p.32–33). Moran's (2007, p.2–3) examination of the *interethnic* practice in Aboriginal settlements in desert Australia focuses on the understudied area of local governance, which he argues has been prohibited by 'ideological *blinding* and over-stating the bipolar position between Aboriginal and non-Aboriginal domains', as defined earlier in this paper.

In critiquing the imbalance in power relations between Aboriginal and non-Aboriginal governance systems in remote desert settlements, Moran and Elvin (2009, p.416–417) argue that policy systems implemented by external *service providers* ignore the rights, responsibilities and capabilities of Aboriginal people. They acknowledge the complexity of governance as played out in remote Aboriginal settlements, but see value in examining whether these systems are adaptive to feedback in order to attain more than cultural fit, but flexibility with regard to social, economic and environmental contexts.

Of relevance to housing procurement processes and methodologies is governance as applied to Aboriginal affairs and its relationship to demand responsive service delivery in remote settlements as modelled by Stanley (2008) in *A survey of the ideas and literature on demand responsive services for desert settlements: an economist's viewpoint*. Stanley (2008, p.2) defines two aspects of demand responsive service delivery, firstly commencing with whether services consumed are important for economic development and secondly, which service delivery model is best. Demand responsive services complement Moran and Elvin's (2009, p.420) ideal of adaptive governance systems, particularly, when services driven by external government agencies in remote settlements proliferate despite the possible absence of any demand.

Moran's (2007, p.1,4) specific case study example of the discrete settlement of Kowanyama at Cape York, highlights active and continuing Aboriginal engagement under self-determination policies reinforcing that Kowanyama was not 'a cultural isolate, nor autonomous, but rather intertwined in a complex and dialectic relationship with wider society'. Kowanyama has been exemplified for its best practice achievements and financial accountability while straddling innovation through the persistence of traditional cultural values and ways of doing things. The unique socio-cultural composition and economic paucity among Aboriginal settlements in remote Australia has resulted in what Moran and Elvin (2009, p.418) describe as the 'hybrid and intercultural nature of governance'.

When reviewing service delivery applied at the level of local governance of Moran's study of Kowanyama, it was the absence of cohesive coordination among external agencies (between the various arms of Federal and state governments) appeared to be a 'constant feature' leading to confusion and wastage in service delivery. Moran and Elvin (2009, p.418) also report that the ever-changing government reform agendas driven by public management practices further exacerbate problems with the

delivery of much needed services and local self-governance aspirations. The authors also found that once self-governance improved, people and communities were in a better position to identify those services that they required, in turn driving demand.

According to Hunt and Smith (2007:22) in 'Indigenous Community Governance Project', concerted Indigenous action to build and strengthen community networks has shown to make a substantial difference to governance effectiveness and outcomes on a local level. Similarly, Porter (2009) argues for a 'hybridised' model of governance through recognition and translation of Aboriginal values and practices, where remote settlements are no longer passive recipients of services they do not actually require, and where 'services have meaning for people'. We are concerned here both with Aboriginal capacity and government capacity to respond to administrative reform requirements impacting on housing procurement. Stage 2 of this research agenda will investigate the possibilities for Indigenous self-governance in line with a streamlined and unobtrusive government facilitation system.

3.7 Chapter conclusion

This chapter examined the different capitals in Indigenous communities that can be linked to housing procurement. The following conclusions arise from this examination.

Social capital consists of networks of social relationships formed for mutual benefit and based on norms of trust, reciprocity and unity. Although Indigenous social capital investment appears to yield only limited economic gain and does not usually manifest as capitalistic economic development largely, there is a possibility of exploring whether informal Aboriginal groups such as sociospatial kin-based residential groupings, customary gendered activity groups, hunting or craft manufacturing groups, and ceremonial or ritual groups, can play roles in housing economy or housing management. Such social capital would need to be localised and contextualised due to the distinct economic and social circumstances in remote settlements. For purposes of identification and evaluation, it is possible to measure social capital strength, although it is necessary to combine a quantitative scaling approach with a qualitative assessment to capture the distinctive cross-cultural mix of values and networks in Aboriginal communities.

Another dimension of social capital is *cultural capital* which can play a significant role in housing design. The cultural design paradigm involves the use of models of culturally distinct behavior to inform definitions of Aboriginal housing needs. These need to be generated from effective consultation with end users, requiring specialist expertise in cross-cultural skills. This design approach provides opportunity in housing procurement for the reinforcing of cultural identity, thereby strengthening social and cultural capital. Ethical capital is further generated from a consistent application of primary ethical principles of mutual respect, mutual rights, and mutual responsibilities in meeting the reasonable culturally specific needs of householders.

A form of human capital that can be generated from housing procurement is *health capital*. Houses and associated environments can contribute positively to sustaining Aboriginal health and reducing livelihood vulnerabilities. Surveys are available to assess the quality of the health hardware, i.e. 'the physical equipment necessary for healthy, hygienic living', which provides a measure of health capital in Indigenous housing. Another form of health capital is arguably generated by supporting the social and psychological functions of housing. A significant way to do this is to reduce crowding. However, 'crowding' is also a specialist area of research and design practice due to the complexity of cross-cultural crowding models, and to the complex inter-relationships of household density, behavioural codes and values, the functional state of house infrastructure, the hygienic condition of houses and psychological well-

being. The problem of quantifying and measuring crowding reduction in housing in order to reduce psychological stress and infectious disease transmission is similarly difficult, and although rough measurements are regularly made using conventional occupancy standards, they are not necessarily an accurate guide as indicated by some of the culturally distinctive examples given.

Housing and infrastructure procurement, as one of the largest capital investments by governments in remote communities, has a clear potential to generate *employment and training capitals* and thereby provide improved wealth creation and economic sustainability for Aboriginal people. However, variable project delivery methods clearly result in varied opportunities for employment and training. Time-pressured housing delivery limits opportunities for community participation and has resulted in a contracting preference for low-key or zero Aboriginal involvement in many jurisdictions. Rushed housing program agendas strip long-term benefits, and may contribute to the burden of livelihood vulnerabilities due to the increased running costs and reduced social benefits. This is further exacerbated by a shortened building period due to the wet season in many regions of northern Australia, resulting in the exclusion of local involvement in training.

If the constraints of urgent construction timeframes were not prioritised, synergies could occur, contributing significantly to livelihood sustainability. However, the use of small-sized building teams prevents apprenticeship uptake, and typically there are often no qualified Indigenous tradespersons involved in construction projects. Small-scaled building projects thus appear to only have minor impact on achieving significant improvements in livelihood strategies. On the other hand, the promotion of housing technology systems for housing procurement that can radically reduce the extent to which conventional certifications of on-site skilled labour are required, needs to be considered. The example of Bawinanga Aboriginal Corporation in Arnhem Land demonstrates that sustained employment opportunities can emerge when infrastructure is carefully and selectively introduced to match local management capacity and skills levels for repairs and maintenance, even if there is a lack of ability to uptake recognised trades certification.

Larger scales of labour organisation and training need to be explored. High level skills uptake by Indigenous staff can occur under key government contract agencies like QBuild, because they offer the required perpetual employment to achieve this, yet there is a considerable lack of interface and minimal local labour input within the local settlements where construction projects are rolled out. A good practice example is the Myuma group in North-west Queensland which runs a pre-vocational training course. Here there is a unique symbiotic relationship between the practice of Aboriginal law and the practice of commerce whereby the two are mutually supportive of one another, generating a strong Aboriginality in day-to-day *business*. The overall positive benefit to economic capital is thus supported and underpinned by cultural and social capital resulting in a potential for greater livelihood sustainability.

Capacity building of local *governance capital* is also necessary to obtain sustainable training and employment outcomes. Housing procurement can contribute to both local and regional forms of Indigenous governance. However, there is generally an imbalance in power relations and capacities between Aboriginal and non-Aboriginal governance systems, one which needs to be corrected in order to generate the best capital outputs from housing procurement. The latter includes local, state and Commonwealth Government representative bodies and their associated funding cycles that require to be coordinated at the scales of the settlement and the region. Problems of procurement result when there is not a 'collective mind set of values and attitudes' among these respective players. Indigenous self-governance is in general a

critical key to developing sustainable remote Aboriginal communities. With governance capitals inevitably impacting on housing procurement, an ultimate aim for remote Indigenous communities would be for at least some, if not the majority, of Aboriginal groups to develop (build infrastructure) and purchase land, construct, maintain and manage housing stock, buy, sell, and rent houses themselves without or with minimal government intervention. Implementing such an economic aim requires a sufficient strength and flexibility of local governance to assist and encourage corporate innovation as well as a demand responsive model of housing procurement so that communal motivation for involvement in housing construction and maintenance is clearly aligned with housing products that fulfil local needs.

The striving and planning for multiple capitals to be generated from housing procurement suggests adopting a form of *sustainability framework* in order to integrate the hybrid economic use of community-based resources within a range of human activities, incorporating complementary concepts of ecology and social values. The Design Framework (DF) method and the SL Framework both offer positive foundations for the procurement of housing in remote Aboriginal communities. In particular, the latter promises a 'participatory model of practice, to draw both outsiders and locals onto an intercultural field on which knowledge sharing and innovation is possible' (Moran et al 2007), thus helping to address governance imbalance between Aboriginal and non-Aboriginal systems. The sustainable livelihoods framework has the potential to link a range of capitals to housing procurement and attempts to emphasise improved outcomes in alignment with remote Indigenous settlement expectations. It examines the short-term limitations of one-off procurement contracts to exert long-term improved economic changes in livelihood outcomes.

4 CONCLUSIONS

In concluding this Positioning Paper, the following discussion focuses on setting up the foundation for the subsequent empirical case study analyses to be undertaken in Stage 2. This case study analysis will present initial findings regarding social, human and economic capitals in remote Aboriginal communities and their potential relationship with the procurement processes and contractual methodologies discussed previously in this report.

4.1 Social and economic capitals in procurement

Previously in this report, social capitals were described as networks inclusive of social relationships, norms of trust and reciprocity, being in certain ways non-separable from natural capitals where customary capital is all important and outstrips economic capital. In terms of procurement and its relationship to social capitals, the better a given community's social capitals are understood and respected, the better any potential housing procurement system will be. Furthermore, it can be expected that different communities will exhibit potentially different social capitals dependent on a multitude of given circumstances including, but not limited to, remoteness, local levels of leadership, social organisation, education, and adherence to local custom and cultural traditions among others. There is negligible evidence in documented case studies of housing providers attempting to understand how informal Aboriginal networks might contribute to housing procurement and this remains an untested area. The following discussion is a brief outline, based on literature evidence, of one key form of social capital that the current authors believe is relevant and necessary to creating sustainable procurement strategies in remote Aboriginal communities—that of design cultural fit. It is intended that Stage 2 of this research project will focus on more in-depth analysis of these interrelated issues in seeking to understand which social and economic capitals are demonstrable from the chosen case studies.

4.2 Cultural and ethical capitals in procurement

In order to achieve a close cultural fit in remote Aboriginal housing, there must be a common consensus between the initial designer, the builder and the project manager overseeing the procurement process. One of the most contentious debates in Aboriginal housing over recent years relates to whether or not the standardisation of house designs can deliver culturally appropriate housing. The argument once again comes down to risk management for both funder (proprietor) and building contractor. For example, the standardisation of house designs results in less community consultation as community members choose from a range of design options that have typically been predetermined, while the individualisation of house designs requires a much greater commitment to community consultation and adds a great deal of complexity to the documentation and eventual building program as well as cost. Individualisation also reduces opportunities for achieving economies of scale as building materials cannot be ordered in bulk and architectural detailing and technology may vary. The history of housing procurement systems in Aboriginal communities has shown that the standardisation of house designs is yet to be proven to result in a strong cultural fit, where the individualisation of house designs, while seemingly more culturally appropriate, is yet to deliver successful large-scale housing programs. Both methods present problems for the delivery of culturally appropriate housing. The intention of Stage 2 of this research project will be to evaluate which procurement systems have proven more effective in creating positive outcomes for a close cultural fit in house design.

Cultural appropriateness in house design relates to how well the finished product functions to support its occupants' beliefs and their associated domiciliary behaviours. The contractual system itself is important in this respect; however, as discussed above, it appears that projects with short timeframes and grand expectations in achieving large numbers of houses will automatically preclude time-intensive or householder responsive consultation due to the focus on standardisation in house design and the dominance of economies of scale. Consequently, it appears that large-scale D&C and alliance contractual processes would lend themselves to this methodology, whereas small-scale traditional lump sum contracts would lend themselves to intense pre-design consultation and individualisation in house design which, until investigated fully in Stage 2 of this project, appears to produce better results in relation to cultural appropriateness in house design.

4.3 Health capitals and procurement

In looking at the relationship between housing procurement processes and reducing livelihood vulnerabilities, two main aspects are considered—reducing crowding and improving health hardware performance. The majority of work required to improve health and overcrowding outcomes in remote Aboriginal housing needs to be undertaken at a strategic design level with a heavy focus on grass-roots consultation with key stakeholders, typically those who are living in the household settings in which the house and related infrastructure is to be constructed. A review of those contractual mechanisms discussed previously shows either the lump sum or alliance contracting systems may best support such an activity, versus the D&C contracting scenarios with their set timeframe and budgetary requirements. Both the traditional (lump sum) and alliance forms of contract would typically rely on either pre-contract or schematic design consultation being undertaken during the initial stages of the design process. The reason for ruling out D&C as a potential system relates to the time that the consultative process would typically add to the project program; and with the head building contractor assuming all the risk in the D&C process, it would appear more likely that whoever was exposed to the most risk would attempt to limit consultative input and seek standardised house designs versus the individualised designs possible under lump sum and alliance contracting.

To improve health and reduce crowding in remote Aboriginal housing requires both technical and social design considerations. As discussed previously in this paper, while good technical design may improve access to health hardware within a house, and thus have a positive effect on some of the health indices of its occupants, it may not necessarily reduce crowding nor improve health if day-to-day cleaning regimes are not constant or are undermined by large households. However, we do know that a lack of quality technical design does exacerbate house hardware functions, and can have a flow-on effect on overcrowding. The aim in Aboriginal housing should be the construction of quality houses that function to meet social, cultural and natural environments and in which the occupants themselves have greater capacity to support sustainable livelihoods.

4.4 Employment and training capitals in procurement

In terms of incorporating local labour and implementing training programs within the range of different procurement strategies, the issue becomes one of risk mitigation for both proprietor and building contractor. The risk to the proprietor relates to timeframe and budget overruns given the potential of a more transient, possibly truant, and certainly low-skilled semi-literate labour force in many remote communities. Those same risks also affect the building contractor. Given this scenario, one could assume that the proprietor would attempt to shift the potential risk of timeframe and budget

overruns to the building contractor with a resultant increase in overall construction sum to cover the contractor's additional risk. Of the contractual scenarios discussed previously, both the traditional lump sum and D&C approaches would see the contractor taking on the risks associated with labour force truancy, whereas the alliance form of contracting would see all parties sharing those risks. One could imagine that the majority of head contracting companies with the appropriate experience to run D&C and lump sum contracting would shy away from contractual situations that stipulated the implementation of training and employment programs in remote communities on the basis of risk to their business enterprise. Therefore, it could be suggested that alliance contracting is more likely than either lump sum or D&C contracting to accommodate local training and employment strategies in remote Aboriginal communities as all risks are shared. Thus, it is no surprise that the current SIHIP program in the Northern Territory is being administered as an alliance contract with all risks shared between the Federal and Northern Territory Governments and the contracting consortia undertaking the construction work.

With this in mind, the question is how to build appropriately in remote settings where there is a high likelihood of transient behaviour due to mobility associated with Aboriginal kinship and ceremonial responsibilities. Is alliance contracting the best method for quality housing outcomes for Aboriginal people in remote communities? Furthermore, and as discussed previously in this report, it is commonly understood that in the majority of remote situations, Aboriginal social priorities outweigh economic priorities with individuals choosing family obligations/responsibilities over their own personal material desires. This situation affects procurement strategies given that the construction of house projects is typically a linear continual program of construction and administration until practical completion. Given the transient behaviour in remote communities with more adherence to local traditions, life-ways and law, it may be unrealistic if not incongruous to expect Aboriginal people to compromise their long-held social responsibilities to receive construction training that may not eventuate in long-term employment. Case study analyses in Stage 2 will investigate the relationship between training, employment, mobility and procurement systems in greater detail in an attempt to draw conclusions as to which direction procurement scenarios should head in the future to benefit all stakeholders and not just those who provide the project funding or those who benefit financially from undertaking the works.

4.5 Governance capitals in procurement

In terms of governance as a social capital and its relationship to procurement processes, improved housing procurement in remote Aboriginal communities will not produce quality governance structures within communities; however, improved self-governance systems within communities will result, as Moran (2007) states, in greater information dissemination and accountability, and thus better housing procurement in remote communities. It is therefore difficult to choose any one particular contractual strategy over another in relation to strengthening and working with governance as a social capital. In saying this, after reviewing the governance literature, the current authors believe that an improvement in self-governance mechanisms, whereby Indigenous people administer infrastructure and housing programs themselves, will result in the positive development of Aboriginal housing procurement throughout Australia. While this seems an obvious statement, history has shown this pursuit to be a difficult achievement. For example, as the historical overview of Aboriginal housing procurement presented above shows, self-governance of housing procurement was attempted in the recent decades through ICHOs administering community consultation, design and construction contracts. However, as reported previously,

those housing organisations not only had to balance a three-tiered system of government, i.e. local, state and Federal, in order to continue receiving support, but also the social and cultural expectations of their respective communities which at times sat in polar opposition to government political agendas.

For some, the heavy burden that this situation placed on these small organisations resulted in their eventual failure and the abolition of their responsibilities regarding housing and infrastructure management. The literature shows that unless ICHOs are equipped with the relevant skills and personnel to carry out such an undertaking, they are bound for failure in the medium to long-term. Even if they succeeded under this regime, they were considerably defunded in sweeping ICHO changes through the removal of CHIP and NAHS funding, and any competencies gained were lost when they were defunded (see further Bynoe, Normanton, Queensland by Pascoe 2008, p.51–52). Nevertheless there are some operational ICHOs that continue to have a relatively successful track record.

If quality governance structures did exist in Aboriginal communities, it would be possible for that ICHO to use any one of the different contractual strategies described previously to procure housing for that community; it would only be a matter of choice as to which contract system worked best for a given scenario. This is, again, a dimension of the research project that will be examined through a later case study.

4.6 Complexities and barriers in procuring remote Aboriginal housing

In reviewing the recent history (2001–2010) of housing procurement in remote Aboriginal communities, two major observations stand out. Firstly, given the political complexities of working in cross-cultural contexts, there does not appear to have been a significant improvement in Aboriginal housing over the last ten years; and secondly, in response to this complexity, there appears to have been a dramatic shift away from traditional lump sum contracts controlled at a community level (through ICHOs) to large alliance forms of contract controlled at a regional level by the Australian Government. Initial research findings indicate that many of the barriers to procurement systems are government related and due to a lack of understanding of the social and economic capitals that Aboriginal people can bring to procurement in conjunction with an appropriate awareness of market and construction industry dynamics in remote Australia.

4.6.1 Case study design: Stage 2

While preparing this Positioning Paper, a number of early observations and further questions regarding procurement strategies, contractual methodologies and the complexities of socio-economic capital frameworks in procuring housing in remote Aboriginal communities have arisen. These questions form the basis for analysis and inquiry in Stage 2 of this AHURI project and have influenced the choice of primary and secondary case studies. Primary case studies will combine (i) literature analysis, (ii) semi-structured interviews with professionals who were involved in procurement, and (iii) field visits to a number of communities to inspect houses, and interview community leaders and residents and local Council or ICHO staff involved in housing. Secondary case studies will only involve (i) and/or (ii). The final selection of four primary case studies is based on a range of criteria, including the existence of project documents, gaining project document access permission, the capacity of User Group members to facilitate such access, community access permissions, and cost of community visitation, as well as the actual suitability of the case study for the analysis.

One further criteria that has shaped case study selection is whether the houses under consideration in the communities outlined above have more recently participated in a *Fixing Houses for Better Health* (FaHCSIA 2007a) to assist in evaluating the quality of construction, the quality of repairs and environmental health, pending securement of necessary permissions to do so (via FaHCSIA). There is benefit to not only investigating 'new-build', but also investigating renovation and retrofitting projects in the communities identified as current state and Commonwealth housing programs include both in their housing procurement programs.

In compiling the section on contractual methodologies in Aboriginal housing delivery, it was difficult to find in-depth accounts on the contractual mechanisms in the procurement scenarios above. Most of the information above was gained through reviewing formal reports of housing programs that were already under political pressure for their demise. Therefore, the intention in the next phase of this project is to conduct a detailed investigation of the actual legal parameters and formal agreements evident in the provision of CRM, NAHS and SIHIP housing discussed above, in order to independently evaluate the effectiveness and outcomes of those programs. In reviewing the contractual methods and procurement strategies above, a series of questions as to the barriers in effectively procuring housing in remote communities have arisen. These questions form the basis for future analysis and inquiry in Stage 2 of this AHURI project, and include:

- If historical strategies for housing provision are known and understood, why is the provisioning of Aboriginal housing continuing to generate variable (and often poor) results?
- What are the distinct differences (advantages and disadvantages) between lump sum, D&C and alliance contracting in procuring Aboriginal housing?
- Rather than a one-size-fits-all contractual process, is it better to have a flexible system that uses all types of contractual scenarios on different scales, a kind of *horses-for-courses* ideology rather than a one-size-fits-all approach of 'this is the one correct answer'?
- Did the contractual frameworks outlined in the various programs above, contribute to the confusion and difficulties experienced in the provision of housing?
- Is it better to have flexible contractual arrangements that cater for changing circumstances as programs evolve, or better to have inflexible arrangements where the scope of work is clearly defined and understood by all parties allowing for subsequent negotiations between parties to the contract as things inevitably change?
- Did barriers arise due to the form of contract used or was it the administration of that contract that caused the failure of effective procurement?
- Does the incorporation of additional *capitals* such as maintenance, training and employment, the use of local resources, sustainable construction practices, respecting traditional life-ways, consultation etc., contribute to the difficulties experienced in procuring Aboriginal housing?
- Would a simplification of these processes improve Aboriginal housing?
- Is it possible to create more innovative, cost-effective housing delivery methods, and if so, how?
- What examples of good practice housing procurement can be identified through the case study analyses and are they being continued to be used?

Table 4: Contract types and sustainability livelihoods for Stage 2

		<i>Case studies & contract types</i>			
		<i>Case study 1 Traditional lump sum</i>	<i>Case study 2 Traditional lump sum</i>	<i>Case study 3 Design & construct</i>	<i>Case study 4 Alliance contracting</i>
SUSTAINABILITY LIVELIHOODS	<i>Procurement scales & types</i>				
	<i>New build construction</i>				
	<i>Housing renovations</i>				
	<i>Outstation house design</i>				
	<i>Repairs and maintenance</i>				
	<i>Social capitals</i>				
	<i>Kinship networks (Bonding)</i>				
	<i>Overlapping family networks (Bridging)</i>				
	<i>Authority networks (Linking)</i>				
	<i>Cultural & ethical capitals</i>				
	<i>Culturally appropriate design (Incorporating traditional beliefs & behaviours)</i>				
	<i>Community consultation</i>				
	<i>Good stakeholder relationships</i>				
	<i>Environmentally appropriate design</i>				
	<i>Health capitals</i>				
	<i>Addressing health hardware in design</i>				
	<i>Health through maintenance programs</i>				
	<i>Reducing crowding (Accepting mobility)</i>				

	<i>Case studies & contract types</i>			
	<i>Case study 1 Traditional lump sum</i>	<i>Case study 2 Traditional lump sum</i>	<i>Case study 3 Design & construct</i>	<i>Case study 4 Alliance contracting</i>
<i>Sustainable services (Water, power, sewerage)</i>				
<i>Employment & training capitals</i>				
<i>Training</i>				
<i>Ongoing employment</i>				
<i>Using local material resources</i>				
<i>Governance capitals</i>				
<i>Aboriginal project management</i>				
<i>Aboriginal building contractors</i>				
<i>Aboriginal foremen & labourers</i>				
<i>Overall potential for procurement innovation in using Aboriginal capitals</i>				

In attempting to devise the table above, the authors realised that a lot of the information needed to make relevant value judgments on the relationship between mainstream contract mechanisms and sustainability livelihoods (in the guise of ‘capitals’) was missing from the literature. Therefore, once the Stage 2 case studies are completed, the authors intend to address this missing information in the final report.

4.6.2 Case study locations

In responding to the initial observations and associated conclusions above, the following list identifies those primary and secondary case studies chosen for further analysis in Stage 2 of this research program. This list is only indicative at this stage as the authors are still in the process of seeking permissions from the relevant parties to look into these housing projects. The four primary case studies chosen are:

- Qld Dept of Housing Project: Thursday Island Redevelopment Project, Queensland.
- NAHS funded ICHO Project: Bynoe CACS Ltd, Normanton, Queensland.
- South Australian Housing Unit/Housing Trust funded project: Tjilkaba Community [Scotdesco].
- SIHIP project: Case study on Nguuu, Bathurst Island, Northern Territory.

Possible secondary case studies chosen for this investigation are:

- IHANT/ATSIC project the Apatula/Papunya former ATSIC region's Central Remote Housing Development Model.
- Northern Peninsula Area (NPA) Region Bamaga, New Mapoon, Injinoo, Seisia, Umagico, Qld Dept of Housing & ATSIC Demonstration Project.

4.7 Final statement

This research project promises to be an invaluable addition to the body of knowledge regarding housing procurement processes in remote Aboriginal communities in Australia. It also has the potential to educate both funders (government), ICHOs (community governance) and project facilitators (contracting companies) working in remote Australia as to best-practice administration processes leading to more positive outcomes of culturally responsive housing in using the social and economic capitals that Aboriginal people can bring to procurement. In order to appropriately procure Aboriginal housing in remote communities in Australia, an envelope of 'ethical fairness' needs to cover all participants in the process; be they building contractors, Aboriginal occupants, government officials or others in procuring quality housing outcomes that attest to a shared future built environment that will last the test of time and is representative and responsive to each other's cultural, social and economic values.

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