

Self-build:

alternative housing procurement
in remote Indigenous communities





HEAD OFFICE:

Desert Peoples Centre,
Desert Knowledge Precinct,
South Stuart Highway,
Alice Springs NT 0870

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Central Australia	North Queensland	Northern Australia	Kimberley
HEAD OFFICE Desert Peoples Centre Desert Knowledge Precinct South Stuart Highway Alice Springs NT 0870 Tel: (08) 8959 6100 Fax: (08) 8959 6111 info@icat.org.au	7/330 Sheridan Street PO Box 6182 CAIRNS QLD 4870 Tel: (07) 4031 0505 Fax: (07) 4031 0431 nq@icat.org.au	GPO Box 2875 DARWIN NT 0801 Tel: (08) 8981 7599 Fax: (08) 8981 7233 darwin@icat.org.au	3/68 Clarendon Street PO Box 1304 DERBY WA 6728 Tel: (08) 9191 2585 Fax: (08) 9191 2598 derby@icat.org.au

www.icat.org.au

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Executive Summary

This project is a preliminary study of the motivations and conditions for Indigenous self-build housing in Australia. It is a contribution towards understanding the status and possibility of self-build housing as a viable means of housing delivery to overcome or bridge the housing shortage in remote Indigenous communities.

Although this study proved to be limited in its demographics, and thus may be limited in its application, it has yielded some new insights into the conditions under which self-build is an alternative procurement process, and will inform any further research projects in the area.

A literature review revealed that very little research has been undertaken on Indigenous self-build housing. This is despite a substantial amount of policy attention and research that has been given to Indigenous housing since 1970. In order to begin addressing this gap, the authors sought out and interviewed individual self-builders in Qld, WA and the NT, as well as organisations that had incorporated some aspect of Indigenous participation in their building programs.

The data was collected through semi-structured interviews. The data was categorised according to broad themes of personal background, motivations, land tenure, construction planning, skills, finances, help and labour, materials, infrastructure, maintenance, time to build, social, support and facilitation, livelihoods and design. Based on the responses, and on analysis of the data, inferences were drawn about the nature of self-building as a process and the role of organisations in facilitating this process.

The study identified certain personal and motivational attributes displayed by individuals that appeared critical to making self-build housing a reality. It also identified specific pre-conditions such as land tenure, availability of cheap building materials, skills and access to technical information as fundamental to the success of self-build housing.

The study suggests analysis of international practice in comparable circumstances to remote Indigenous Australia could inform an approach to how organisations may support individuals or groups who wish to self-build their homes. This is based on the findings that organisations have the resources and the networks to support and provide access to soft loans, volunteers, technical support and training and financial advocacy for individuals who are less independent than the participants in this study.

The study recommends the development of a 'self-building resource network' that enables self-builders across Indigenous communities to access information. The network would facilitate the sharing of knowledge, inexpensive building materials availability, tools, access to volunteers, financing and other enabling networks. It would increase the accessibility, quality, safety and sustainability of self-build housing for communities of Indigenous people.

1. Introduction

This study explores the context and motivating factors for self-build housing as an alternative means of housing procurement for small remote Indigenous communities in Australia.

The findings and recommendations of this study inform the direction of the future work to be undertaken by organisations such as the Centre for Appropriate Technology and the Australian Government who have long been engaged in identifying viable means of procuring affordable housing for remote Aboriginal communities. Among the alternatives that have been the subject of considerable research (Long et al. 2007), it appears that the self-build approach to Indigenous housing in Australia had not been much interrogated, and this study aims to begin redressing that gap.

The principal goal of this project is to gain an overview of self-building as a means of housing in remote Indigenous Australia and to begin to map the main factors that affect the execution of self-build housing. In addition to summarising the historical and political context, and looking at the relevance of international practice, case studies from the Northern Territory, North Queensland and Kimberley Region of Western Australia on the processes, experiences and outcomes of existing self-build projects were undertaken. The personal, physical and institutional factors that have made self-build housing projects possible were explored, including motivations, land security, skills and employment, means of finance, planning and construction processes, materials, maintenance and labour components. The case studies selected included both individual approaches to self-build housing and relevant housing organisations, with whom interviews were conducted, to understand project specifics such as aims and objectives, project development and management methods, participant profiles and housing outcomes.

The individual case studies in particular point to the need for some support in the form of information, as well as indicating areas for future applied research.

2. Background

As noted, this project stemmed from the need to examine alternative forms of housing procurement that are affordable and appropriate for small remote Indigenous communities.¹ Procurement is generally understood, and as defined by Davidson et al (2011 p.1), as "... the act or process of bringing into being a building that was not there before and embraces all activities that might be necessary to that objective." This section provides a summary background on this form of procurement and its potential importance to small Indigenous communities.

For the purposes of this study, 'self-building' is the process by which stakeholders are directly involved in the building of their homes, including involvement in the design and planning. It has been described in other contexts as 'self-help' housing and 'owner-builder' housing (Denigan 2002), discussed below. In the Indigenous context, Smith (2008) refers to the phenomenon of self-build housing as 'gotten' housing that is generated by inhabitants themselves against 'given' housing, which is provided by benevolent institutions such as the government or others.

¹ Small Indigenous communities for the purposes of this paper include what are also often referred to as outstations or homelands.

Although Smith (2000; 2008) and Haar (2000; 2003) have documented self-building initiatives taken up by the Aboriginal residents of Goodooga, NSW and Mt Catt and Moa Island, QLD respectively, there appear to be few other studies on this subject. This is particularly the case with regard to the role of Indigenous residents as agents or actors in housing procurement in the context of shifting Government housing policy regimes.

Housing procurement in small remote Indigenous communities has been impacted by the withdrawal of government support for building new houses on homelands/outstations and a re-focusing of government support for regional growth centres (Johns 2008; NT Government 2009; PricewaterhouseCoopers 2007).

Further, the Australian Government is promoting Indigenous home ownership as a part of its 'Closing the Gap' policy (FaHCSIA 2010; Fien et al. 2008; Hudson 2009). Small remote Indigenous communities have difficulties accessing home ownership programs as this initiative is primarily available to Indigenous people who have the ability to repay a loan and have access to affordable housing stock in regional and urban settings (Hudson 2009). The added financial burden associated with maintaining the housing and services infrastructure in remote areas makes this option for remote communities with limited economic opportunities quite unattractive and, in some cases, unrealistic (Sanders 2008). It is in this context that residents of remote Indigenous communities, who continue to aspire to live remotely and 'on country', seek inventive means of fulfilling their housing needs.

Building and maintaining housing at a fraction of the cost of builder-build public housing in Indigenous communities can involve self-funding, project planning, and sweat equity. A handful of Indigenous organisations have responded to the financial and resource constraints on remote sites, to promote 'living on country' by facilitating small loans coupled with sweat equity, hands-on training and the use of local materials to build housing. For both the individuals and organisations, self-build housing appears to be as much about being on country as it is about the need for a structure and thus represents a challenge to the applicability of the dominant housing procurement paradigm.

2.1 Historical and policy background

Australian Indigenous people built shelters and set up domiciliary spaces prior to non-Indigenous arrival into the Aboriginal domain. Shelters of different types were built by their occupants from readily available local materials and employing a range of technologies (Memmott 2000). Customary houses or shelters were used like tools to make everyday life more comfortable from inclement weather. The shelters themselves held little significance to the Indigenous users when compared with the land on which these structures stood (Memmott 2007; Neutze 2000). The central focus of Aboriginal dwelling was their relationship with their ancestral lands, upholding kinship, social cohesion and maintaining their cultural systems.

With the arrival of non-Indigenous settlers, many Indigenous people were driven off their ancestral lands and from their sources of traditional livelihood. Many Indigenous people were institutionalised and accommodated on government-run reserves, ration stations and church missions (Read 2000). Housing was a strong vehicle for assimilation policies from the 1940s through to the 1960s in Australia and was used by successive governments in a wider scheme of directing Indigenous lives and opportunities (Ross 2000). This clearly did not uniformly impact all Indigenous people, and in many areas, separate Indigenous communities began to

emerge on the margins of non-Indigenous settlements, and an Indigenous vernacular began to emerge on these fringe settlements (Smith 2008).²

In particular, on the edges of pastoral properties, reserves and missions, Indigenous people created their own living environments away from non-Indigenous buildings and services. They used building materials drawn from the surrounding vegetation and later started to incorporate non-Indigenous material into their own building practice (Keys 2000 p.118). On the fringes of towns and mining camps, short-term and seasonal camping gave way gradually to more permanent arrangements for some.

Aboriginal self-built dwellings began to use imported materials such as canvas or calico, and corrugated iron, producing the hybrid now generally known as the 'humpy'. These were later labelled as 'no good housing' and widely seen as a public symbol of disadvantage (Ross 2000 p.14). As Ross observes, 'Many Indigenous people have held the sad view that having 'no good housing' meant to the public (and even to themselves) that they were 'no good people'. As self-built Indigenous housing solutions became more visible in urbanising Australia, the improvised structures also came to represent and express a form of independence and resistance to the dominant and coercive housing paradigm or regulatory building practices (Sanders 2000 p.240).

Self-constructed town camps (fringe dwellers) were found around towns throughout Australia. In many instances, Indigenous people were prohibited to enter town after dark and non-Indigenous residents did not want Indigenous people living close by. In turn, Indigenous people set up self-constructed living areas as a resistance to, or rejection of non-Indigenous lifestyle as well as a positive affirmation of their values and social and spatial needs.

Memmott (2007) further describes how self-constructed shelters (humpies) were constructed by occupants with the assistance of relatives. Their location and spacing were planned by residents based on customary principles. They were built from locally available material, combining natural resources from the environment with imported second-hand materials. Resident of these self-defined domiciliary spaces did not comply with any regulations and did not have to pay rent or rates.

2.2 Development of homelands/outstations and small communities

In the early 1970s, land was the focus of Indigenous political activism and the economic basis for the recognition of Indigenous peoples. Indigenous people started to campaign for the right to return to their ancestral lands, now known as the homeland or outstation movement. This also involved a temporary rejection of conventional housing and settlement structures, as well as, other high-cost services in favour of a free choice of location and independency.

The impetus for this movement was Aboriginal people's desire to look after their country, gain some level of independence, fulfil ceremonial obligations and escape the stress and social problems prevalent in larger communities (Kerins 2010).

Housing and associated services resisted the homelands movement, officials arguing the services (including education as well as water and housing) were difficult, if not impossible, to provide on a decentralised basis. The people moved anyway, and slowly the services, in different forms, followed (Ross 2000).

² Musharbash, Y. (2008). *Yuendumu Everyday: Contemporary life in remote Aboriginal Australia*. Canberra: Aboriginal Studies Press. for a mapping of this phenomenon around the settlement of Yuendumu in Central Australia.

In 1972, a new policy framework in Indigenous affairs strengthened the outstation/homeland movement by replacing the assimilation policy with a self-management/self-determination policy. Commonwealth grants provided support to outstations/homelands through the Department of Aboriginal Affairs (DAA).

In 1976 the *Aboriginal Land Rights (Northern Territory) Act 1976* became the first legal recognition of Aboriginal system of land ownership and allowed a claim of title (in the Northern Territory) provided there was evidence of traditional association with the land.

The Australian Government report 'Return to Country' (House of Representatives and Standing Committee on Aboriginal Affairs 1987) recommended that government policies and service delivery (including the provision of infrastructure, education, housing and health) be revised to support homelands. The continuation of funding for the establishment of new homelands, funding for homelands resource centres to deliver services to homelands and the extension of CDEP to all homelands were all derivatives of this policy.

Commonwealth funding for outstations/homelands was channelled through community organisations or Outstation Resource Agencies (ORAs), who in turn, provided support for infrastructure and logistics.

To receive support, outstations/homelands residents had to prove that they had secure land tenure, that the outstation was their principal residence (that they lived on land for at least 6 months of the year), and that they had access to potable water and received support from a community organisation or Outstation Resource Agency.

In 1990 the Aboriginal and Torres Strait Islander Commission (ATSIC) was established and developed a '*National Homelands policy for outstations, homelands and new and emerging communities*'. They also sponsored a major review of Outstation Resource Agencies in 1997, which documented how pivotal the CDEP scheme had become to the operations of most Outstation Resource Agencies.

After the abolition of ATSIC in 2005, the Commonwealth Government continued its responsibility to provide funding for essential services to outstations/homelands through what is now the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA) under the Community Housing and Infrastructure Program (CHIP). A review of CHIP (PricewaterhouseCoopers 2007) recommended that this program be replaced with a new housing program, the Australian Remote Indigenous Accommodation (ARIA) Program, for remote and very remote Indigenous communities and recommended a shift away from building new housing on outstations and homelands.

It should be noted that a number of the outstations became relatively substantial communities in terms of size and are now viewed as townships, some of which continue to attract development funding.

As part of the Commonwealth Government's '*Closing the Gap*' initiative, the ARIA program was incorporated under the National Partnership Agreement (NPA) on Remote Indigenous Housing and in 2009 was replaced with the Remote Indigenous Housing Program. Under this NPA \$5.5 billion over ten years was allocated to delivery of new and refurbished houses to address overcrowding, homelessness, poor housing conditions and severe housing shortages in remote Indigenous communities (COAG 2008). This does not include small communities or outstations/homelands.

Another NPA, the National Partnership Agreement on Remote Service Delivery, aims to improve the coordination and delivery of services in remote areas and is focused on 29 remote Indigenous communities, or priority locations, in the Northern Territory, Western Australia, Queensland, New South Wales and South Australia. This excludes many of the existing small remote Indigenous communities.

The 'Closing the Gap' initiative has also promoted home ownership through the Indigenous Business Australia (IBA) Home Ownership Program. This program is directed at Indigenous people who have the ability to repay a loan and access affordable housing stock in urban and regional settings. It is not, however, as yet providing a framework to create home ownership in small remote Indigenous communities.

3. Approaches to self-build

Remote Indigenous housing development is affected by factors such as distance, transportation, the high cost of non-local labour, including accommodation, and short delivery timeframes. These factors do not lend themselves to incorporating local Indigenous skilled and/or unskilled labour into the construction process. The *Remote Indigenous Housing Procurement and Post-occupancy Outcome study* (Davidson et al. 2010) notes that Indigenous housing procurement has not improved over the last 10 years and suggests that different methods need to be implemented – ones that add to the local Aboriginal social capital and are supported by outside mainstream housing procurement systems at communal and regional levels. It requires a system that adds to long-term benefits for Indigenous people rather than contribute to the burden of livelihood vulnerabilities.

3.1 Self-build – contemporary context

So far, research projects undertaken on Indigenous perceptions of 'home ownership' in Australia generally point to the benefits of Indigenous people owning a home of their own in the mainstream sense of the term (Birdsall-Jones and Corunna 2008; Memmott et al. 2009; Moran et al. 2002; Szava and Moran 2008). The benefits associated with home ownership include:

- » an increased sense of security
- » control
- » privacy
- » self-esteem

Home ownership can be associated with positive social values such as the ability to provide for future generations through being able to pass a house down within the family with intergenerational asset building and security being a greater motivator than financial gain (Memmott et al. 2009 p 3). However, homeownership for many Indigenous people remains difficult due to the many economic, social and tenure-related factors that exist in remote communities, not least, the weak real estate market of small remote communities. Self-build is an approach that may provide a more accessible path to home ownership.

'Self-build' is often likened to 'Do It Yourself' (DIY) and home-owner builder schemes. Although they are all different, they share the common characteristic of the owner's involvement in the construction, usually with the aim of reducing building costs.

Do It Yourself (DIY)

Put simply, 'Do It Yourself' describes a person involved in using their skills, tools and purchasing materials to reduce costs. They build or assemble components or elements of their house or general living environment without necessarily building their house in entirety.

Owner-Builder

Davidson et al (2011 p.15) list nine formal contractual methods that are prevalent in the procurement of projects constructed in mainstream Australia. The category of 'Owner-Builder' falls outside the commonly used contractual types, with this category having limited application in housing procurement of large-scale centrally administered housing projects that are the norm (Davidson et al. 2011 p 18).

Nonetheless, the home owner-builder enters and accepts the legal responsibility of obtaining a building permit and agrees to ensure that their completed house complies with the Building Code of Australia (BCA). The owner-builder's role is not limited to labour, obtaining construction materials and tools, but can extend from design to project and construction management, including managing sub-contractors.

Self-Build

Self-build in remote areas includes both aspects of the 'do it yourself' and owner-builder models. The self-builder is physically involved in the building process as with the DIY method, but also in management and construction processes as is the owner-builder. However, the self-builder is less subject to legal obligations due to remoteness, title – in many cases, the BCA simply does not apply.

Self-build is a practical, multifaceted method of creating affordable and appropriate housing by reducing construction costs through the use of free building labour and free or inexpensive construction materials. It involves owners building on land for which they have legally recognised tenure. The outcome is a house that the owners can call 'a place of their own', in which they have invested time, labour, skills and other resources and which may provide a source of pride (Smith 2008) or sense of control missing in other contexts (Memmott et al. 2004).

Self-help

Self-help in the context of housing emerged in rural areas around the world where people organised building construction through unpaid family labour in gathering materials, preparing the site and assembling the shelter (Sinner and Rodell 1983). Similarly, self-help housing developed in urban settings as part of the pattern of chaotic and often illegal 'spontaneous urban settlement' emerging after the Second World War (Santos-Delgado 2009). Controlling the impact of spontaneous settlements remains a challenge to governments and policy makers; the idea of 'organised self-help' (Santos-Delgado 2009) is one alternative whereby programs can support individual families and groups of families that assist each other in constructing their homes.

Organised self-help programs involve social decision-making about the construction process rather than a particular technology. Organisations support self-help by collecting resources to help people access finances that traditional banks do not offer. Further, they may

provide affordable housing by organising unpaid labour and by transferring professional's fees, contractor's profit and contractor's overheads to the supervision cost of the facilitating organisation and community administration. In addition to providing a simple housing procurement alternative, organised self-help can promote community empowerment and generate social responsibility within a community. Elements of this approach can be found in self-help housing projects in Australia, and are discussed later in this paper.

Paul Haar's experience with St Paul's Village (Moa Island, Queensland) and Mt Catt Homeland Centre (Arnhem Land, NT) between 1984 to 1992, are among the very few instances of organised self-help, or Indigenous owner-builder projects documented in Australia. Haar (2003 p 91) found that, once beyond the traditional procurement process and passive reception of assistance, the difficulties in self-help are not so much the 'hardware', or the planning, material and construction elements; but the 'software' or the dynamics of human nature, relationships and politics and their collective impacts on the design and construction process.

The personal characteristics, vision and organisational skill essential to initiate self-help in housing construction according to Haar are:

'... [an] open mind, patience, and eye for detail and diversity. The aspirations for constructed housing outcomes and appropriate logistics for community-based housing processes varied enormously between individuals, families, communities and regions.' (Haar 2003 p 91).

4. Research methodology

This study adopted a qualitative research approach that included a broad background review, and a series of case studies based on semi-structured interviews and documentation of the self-built structures.

Background review

The background review was, out of necessity broad, and used research papers and government documents to identify major features of the following:

- » Government approaches and policies to homeland / outstations in WA, QLD, and NT
- » Current Indigenous homeownership initiatives and issues papers
- » Indigenous self-build history, both national and international (including self-help and owner-builder)
- » Housing procurement initiatives, issues and alternatives.

As very little material was found on recent Australian Indigenous self-build housing, the related concept of self-help was also explored. This yielded a handful of projects in Australia, and a wealth of material on self-help housing in rural developing countries. This helped to identify significant components of self-build, which informed the development of the interview questions for the individual case studies.

Case studies

The case studies were comprised of Indigenous self-builders and organisations that involve Indigenous people in the housing construction process. For each sector separate interview questions were developed (see Appendices 1 & 2).

The interview questions for the Indigenous self-builders (Appendix 1) focused on their personal backgrounds including:

- » skills and training
- » location of their homeland/outstation/community
- » land title
- » motivation
- » planning
- » financing
- » construction
- » materials
- » labour
- » maintenance
- » livelihoods
- » social aspects
- » what was learnt
- » advice to future builders.

Questions for the organisations (Appendix 2) centred on details of project background, Indigenous involvement and other participants, project development and implementation, and outcomes.

The case study sites in Western Australia, Queensland and the Northern Territory were identified by the Centre for Appropriate Technology's regional offices and were based on a combination of access to communities, available resources and concentration of Indigenous communities.

Permission

All individual and organisational participants volunteered to take part in the study, and standard permissions procedures were followed to ensure that it was an ethical process. At the commencement of each interview the intention of the research and the interview process was explained. Each interview participant signed a consent form, agreeing to the interview and approval for audio recording of the interview that formed a part of research tools used. They were also given the option of agreeing to photographs and video recording of their housing, infrastructure and themselves which could be used for later publication or presentation purposes. Some participants chose not to be identified in the report or audio taped, photographed, or filmed. Interviews took one to two hours to complete.

In the case of individuals, all information collected through the interview processes has been de-identified and remains anonymous, thus no names or specific place locations are mentioned in this paper.

Individual case studies

Case study groups were identified through:

- » Centre for Appropriate Technology (CAT) networks
- » professional networks including resource agencies, architects, researchers, community engagement professionals
- » personal networks with Indigenous and non-Indigenous people.

A total of 16 groups comprising 24 people were interviewed:

- » West Australia (Kimberley) - 5 groups
- » Queensland (Cape York) – 6 groups
- » Northern Territory (Central Australia) - 5 groups.

After the completing each interview, the participant/s gave a guided tour around the house and the block of land. Photographs were taken of the houses, construction details, materials, storage, infrastructure and surroundings.

Additional information was collected using data sheets. The material data sheet was used for recording details of materials used in the building construction components (from foundations to roof), and to identify types and location of kitchens, bathrooms and toilets. The infrastructure data sheet was used to record details of the infrastructure on the property such as power, water supply, waste disposal and other significant details. A site plan was drawn by an interview participant from each group.

The de-identified, consolidated responses can be found in Appendix 3.

Organisational case studies

Six organisations in WA and QLD were interviewed following enquiries through researchers' networks about possible interviewees. Two of those had or have organised self-help housing procurement initiatives, both in Queensland (Cape York). A summarised response from the organisational respondents is in Appendix 4.

5. Findings

5.1 Individual case studies

The findings described in this section are based on 16 Indigenous self-build housing projects in small remote Indigenous communities. The questions and full description of the interview results can be found in the Appendices.

Twenty-four people, in total, were interviewed across the 16 locations. Fifty-nine percent of the respondents were male, and 41% female. Only four of the participants were single.

Each location had different numbers of full-time residents, with 68% having up to 5 permanent residents, and one community with 30-40 residents. Three of the communities had schoolchildren who travelled to school from the community.

All of the respondents were over 40 years of age, and 50% were over 50 years of age. Over a third of the respondents had attended high school. Over a third (37.5%) were employed full time (in two out of three regions) and there was a correlation between full time work and having to travel the least distance to main service towns. That is, respondents whose primary income was self-employment, CDEP or pension were more likely to live over 100 km from a service hub than those with full time employment, all of whom lived within 50 km of a main town.

In 50% of the case studies, there had been no pre-existing development on site. On the remaining sites, other family houses already existed. Across WA, Qld and the NT, respondents shared similar motivations for building; intergenerational legacy (87.5%); cultural connection to land (75%); independence/business opportunity (37.5%); to get away from towns (50%); healing quality of the land (37.5%); protect the land (33.3%).

Eighty-one percent of the participants were traditional owners, two-thirds of whom had legal title. The remainder had permission to build from traditional owners.

All participants had given considerable forethought about moving to the site where they had built, seeking permission where necessary and considering the proper site in the context of the whole environment. The process of planning and building housing and infrastructure was driven by circumstance and opportunity, often with initial temporary accommodation and infrastructure being built into the permanent accommodation. In nearly two-thirds of the cases, residents saved money and organised second-hand materials, tools, transport, organising planning construction activities prior to building. Actual planning of the community and house layout was limited, with less than 50% considering design before beginning to build.

Over half of the respondents had some experience in building trades or had received help from family, friends, or volunteers with trade experience. "Everyone helped. Even kids came out, makes you feel happy seeing them." In both the NT and WA, most groups also paid for some trade assistance, and were confident that they could do their own maintenance or pay for work that needed to be done.

Cost, availability, opportunity and incorporation of pre-existing structures drove housing material choices, with second-hand materials, stud wall frames, concrete floors, and corrugated iron predominating (see Appendix 5, No 1). The majority of houses could be labelled as 'works in progress' with some that had been in progress since 1970. None were considered complete at the time of the interviews.

With regard to infrastructure, 75% of the communities used septic tanks, with water from bores (37.5%) or surface water (37.5%). Three of the communities used town water and power, with the majority split between diesel and solar power systems. Internet access was available to less than half of the respondents.

Respondents found the self-build process to be a positive experience, citing self-confidence, learning and role modelling as benefits. When asked what advice the self-builders would give to others, most cited a need for careful financial and construction planning and support, realistic self-assessment regarding skills, sweat equity and life plans, and the need for land and tenure. Participants had not appeared to give much thought to what other help they needed. When asked, the responses included items such as legal help and information on building materials and technologies.

Participants had established livelihoods in tourism and ecology (whale and marine research) or were planning ventures in healing, tourism and agriculture. The many advantages of self-built places, as perceived by the participants, ranged from the quiet of the bush, flexibility, setting examples for others, access to land to greater likelihood of maintenance through ownership and security. Perceived disadvantages included making mistakes due to lack of skills and knowledge, limited labour and restrictive legislation.

5.2 Alternative housing procurement initiatives – the role of organisations

In order to gain an understanding of possible different approaches and levels of involvement, benefits and risk for organisations, representatives of six organisations were interviewed. The organisations are or have previously involved Indigenous people in the housing construction process, either building their own or others' houses. The organisations included in the study were:

- » Cape York Partnership (CYP), QLD
- » Balkanu, QLD
- » Mowanjum Aboriginal Corporation (MAC), WA
- » NBC Aboriginal Corporation (NBC), WA
- » Wunan Aboriginal Development Organisation, WA
- » Djarragun Enterprises, Qld.

This aspect of the study was to gain an understanding of the role of organisations who procure housing for Indigenous remote communities through approaches that include alternatives such as sweat equity and Indigenous participation. A limited number of organisations were found that had utilised sweat equity or otherwise dealt with self-build procurement for Indigenous communities (see Appendix 4 for details).

Most of the housing procurement initiatives conducted by organisations that were located for this self-build study focused on Indigenous training and/or employment within the construction process. The level of training and/or employment offered to Indigenous users/owners varied with the aims and the vision of the organisations involved in the process.

Only two of the organisations, Cape York Partnerships (CYP) and Balkanu, have or had provided individuals access to soft loans for self-help building initiatives or access to professional and technical support in addition to training to assist Indigenous people involved

in building their own house through 'sweat equity' programs. CYP had just begun their program at the time of interview; Balkanu's pilot program had ceased by 2008. Training is/ was intrinsic to the program for owners, and construction volunteers too were put through their paces in training. While these two organisations support Indigenous people to build affordable homes for themselves on their traditional lands, they were subject to and dependent on ongoing external financial support. This makes the approach initially appear less robust, sustainable and more vulnerable to external economic vagaries than the individual experiences.

In WA, Mowanjum and NBC organisations continue to be focused mainly on creating sustainable livelihoods for Indigenous locals through paid work and employment in the construction business, and to a lesser degree on capacity building in the community or development of individual construction skills. All the same, it was anticipated that benefits would trickle down at both a personal level and at the community or family level through the imparting of construction skills. This was particularly evident in the case of Mowanjum. All of these approaches, however, depended on reliable ongoing and outsourced funding to offer paid employment as well as construction training or apprenticeships to the local Indigenous beneficiaries.

6. Characteristics of self-build Indigenous housing

Each group and building in this study was the result of a unique composite of skills, materials, personal qualities, opportunities and circumstances. What was lacking in one area, such as building skills, was compensated for by innovative use of materials or networking skills that provided the building skills or labour needed. Common to all the participants was access to land for building, ambition, and a capacity for resourcefulness and adaptability.

6.1 Land – catalyst for opportunities

Having ownership of or access to land opened up the possibility for the respondents to take advantage of housing opportunities as they present. In some cases, even though people in this study did not have their land title fully documented, it did not impede them from engaging with the land, building houses and generating livelihoods. The availability of land enabled them to seize opportunities such as offers for building materials and resources, labour, volunteers and professional assistance (see Appendix 5, No 2) or nurturing opportunities for creating possible livelihoods.

'Land is the ground from which everything else can grow'.

6.2 Economic opportunity in land

Land provided the self-builders with the opportunity to create appropriate, affordable homes of their own, which in turn created stability and independence for its owners.

'Leave something that children, grand-children can continue'

'This is our land, a place for our kids and grand kids'

The opportunities afforded by access to land meant that livelihoods could also be created. Two of the self-builders had created successful tourism or research station businesses that became a regular and sustainable source of income for them (see Appendix 5, No 3). Still another respondent had established the beginnings of a market garden venture. His vision for the market garden include the plans to grow crops, harvest fruit trees and grow trees as a carbon offset scheme. Another respondent had plans to create a healing places for others.

6.3 Land as an opportunity to generate wellbeing

All those interviewed perceived that wellbeing came from living on one's land, and wellbeing was the motivation for several respondents to move back to ancestral lands and build homes. Comments included:

'Going back to homeland is good feeling to live on your land'

'Want to give family a place to heal and recover'

'Have love and passion for the land'

'Living in town creates more problems. Town is a bad influence on young people'

'Makes you feel good and happy'

'Mother nature will take care of you'

'You can be happy and healthy.'

6.4 Resourcefulness and adaptability

The majority of those interviewed started to live on their country in temporary accommodation. Some of the structures were subsequently incorporated within their now permanent living arrangements. For example, a used two-bedroom donga that housed the family at first became integrated with the new extensions to become a part of the house. This was done by constructing and adding an open plan living room and kitchen onto the existing donga (see Appendix 5, No 4).

Sourcing materials

The interviewees were resourceful and innovative in finding ways to adapt unusual building materials into their house construction methods. For example, one self-builder found old and discarded road sign materials that were used rather inventively to construct parts of the house.

Self-builders sourced their second-hand materials from numerous sources and used a variety of means for gathering information about sales, including:

- » Obtaining materials from building contractors on demolition sites, usually found through checking newspapers and networks. Mostly the sourced materials were free as the demolishers were happy to have superfluous materials removed from the construction site without having to pay or arrange to have it transported to the tip.
- » Using their personal networks, such as family and friends, to procure unused building materials and other building items or to learn about demolished houses in others communities.
- » Going to lawn sales for second-hand appliances.

- » Using wider social and professional networks such as builder acquaintances and work mates, to source available damaged or rejected materials on construction sites or hardware stores that they could pick up for free or little money.
- » Searching rubbish tips for suitable materials to re-use, e.g. doors, and windows. Some identified the end of the financial year as a good time and opportunity to find better quality second-hand materials in the tip.
- » People also gathered materials from demolished houses in other small communities.

Labour

To assist with labour, all self-builders were able to receive help from their extended families and friends. Some were also able to attract the involvement of volunteers in their projects through personal connections, including links with groups or research institutions. The exchanges and links with the volunteers not only created additional labour to work on the house, but also opened doors to possible livelihood opportunities such as specialised tourism, healing places, and a research centre.

Self-builders also swapped labour for skills as a sort of a building barter system. For example, one participant, who was a fencer, was able to obtain a second-hand solar power generating system from an electrician in return for providing fencing services.

Innovative thinking

Several respondents displayed marked originality in creating construction details from second-hand or reused materials (see Appendix 5, No 5). This was especially where unlike materials came up against each other, or joining issues arose from a lack of modularity or a lack of standard sizing in construction materials. Such situations take time, thinking and demand mechanical ingenuity to resolve complex structural connections such as creating structural joints for re-used materials (see Appendix 5, No 6). At times, the second-hand materials influenced the overall design response of the builder, and design solutions were adapted to suit the available construction materials. In most instances, cost-effectiveness or cost constraints were the main consideration and the motive for innovation and ingenuity that were displayed by many of the respondents.

Infrastructure on each site was primarily built and installed by the self-builders. The infrastructure servicing systems were kept simple, to enable self-management and self-maintenance and to thereby reduce the ongoing and future costs for upkeep. In most cases, the whole process was marked by a great deal of forward thinking.

During construction, most self-builders planned for the flexibility and the possibility of exchanging or replacing second-hand parts of the house with 'newer' second-hand parts. This ensured that the repair and maintenance of the house was a sustainable and ongoing process. The layout and design of the majority of the self-build houses were planned and built so that the living spaces would be flexible and easy to modify, so as to remain responsive and adaptable to ever-changing spatial requirements and allow for expansion when needed (see Appendix 5, No 7).

The process of self-building proved to be a rich learning ground for many respondents, with the builders modifying their designs and construction techniques as they learnt from their mistakes during construction.

6.5 Self-build - transcending shelter

The motivation to build by those interviewed for this study emerged out of a multitude of personal factors that included aspirations, sense of responsibility, personal attributes, life experience and the ability to be opportunistic.

'Perseverance', 'hard work', 'not giving up', 'passion', 'commitment', 'learn as you go', 'get out of your comfort zone', 'know your skills', 'not too proud to ask what you don't know': these were cited as some of the personal attributes and attitudes necessary for self-building according to the respondents. This confirms Haar's conclusion that '... the great potential challenges and difficulties inherent in self-help housing involve not the 'hardware', like planning, materials or construction solutions, but the 'software', or the dynamics of human nature, relationships, and politics...'. (2003 p.91).

All but one of the participant groups designed their own house. All of them chose outdoor living as the prominent spatial and functional feature of their homes (see Appendix 5, No 8). The advantages of outdoor living were described as *'Happy to live outside', 'see the stars', 'close to country', 'you are in the nature, which makes you feel happy' and 'the land looks after you'.*

Participants generally stated that the process of design made them feel very happy. In describing their homes they said, *'it has character', 'feels comfortable'*(reference Appendix 5, images eight). About the process of designing their homes some said that they *'can be creative'* and have a *'sense of freedom'* (see Appendix 5, No 9).

Shelter, in the case of those interviewed, clearly represented more than a roof over their heads; that they were motivated to build something for which they could claim ownership, not just for themselves but for also for their children, as home, as refuge, a *'... a safer place to live, away from town and its problems'*; as a safe haven to young people which would serve as an alternative to committing suicide.

The benefits of self-build housing in the small remote Indigenous communities surveyed clearly transcended the basic provision or material need for shelter and the emotional needs that are fulfilled by or attributed to having a place of one's own. Other benefits included the ability to provide for one's family, an increased sense of capacity, control over one's present circumstances and future, and heightened self-esteem. Building their own homes engendered a feeling of pride in participants in what they have achieved through their own efforts and own finances. One of the participants described the emotion as, *'makes you feel proud having done something completely by ourselves'.*

The self-builders had, in each case, developed the confidence and physical ability to maintain and sustain what they have built. They have done so by being the driving force behind the project and by being involved in all aspects of envisioning, organising, financing and constructing their own house and related infrastructure. In the process, they have acquired skills, self-reliance, leadership and the ability to assist others.

The self-builders were generally aware of the impact that they had on their wider networks including both Indigenous and non-Indigenous people. Many of the self-builders interviewed were conscious that in building their own house and creating a home, they would be setting an example to other Indigenous groups, and in several cases non-Indigenous people, who may be inspired by their lead to take up similar projects.

All interviewees expressed a wish to help other Indigenous people, and in particular, to encourage the younger generation to build their own houses. Some participants emphasised the importance of breaking the cycle of welfare dependency on the Government and instead stressed the need for Indigenous people to learn that *'people first have to help themselves'* and to take the risk and *'just give it a go'*.

Through the self-build initiative, the initiators are exemplars not only for their own extended family, children and grandchildren, but also to others that have been associated, however indirectly, with the self-building project. As one of the self-builders observed about the impact that the project had on the young people who had worked on his project - *'it makes them shine & feel their goodness'* and *'it lifts their spirits and makes them smile'*.

6.6 Housing materials and building methods

Materials

In all but one case, concrete flooring that was used in over 50% of the case studies; the main building materials were second-hand or re-used. The choice of re-used materials was predominantly motivated by low costs (14 groups out of 16 confirmed this). The interviewees also cited other reasons for the choice of building materials such as:

- » seizing opportunities of readily available materials (11 groups out of 16)
- » knowledge of how to construct with the materials available (7 groups out of 16)
- » self-builder's perceptions of the durability of the material (2 groups out of 16).

Only four of the groups interviewed suggested that they would consider building materials other than what they used. However, they asserted that their choice would depend on its cost, availability or opportunities to access those materials and their ability or skill to construct with that material. Four groups identified alternative building materials that they had considered but rejected, including:

- » earth but not rammed earth, which was rejected due to associated white ant problems
- » bamboo
- » straw walls
- » polystyrene walls filled with concrete.

Reasons for rejecting the alternative materials, except rammed earth, were not given.

Interaction of design, materials and construction methods

The development of a house consists of the following components: the design (or a series of conscious decisions made by the builder), the building materials used, and construction methods employed. As Memmott (2007 p.11) has pointed out with reference to traditional Aboriginal ethno-architecture, and which is just as relevant to contemporary and modern building practices, the choice of shelter type and therefore materials in use is influenced by weather, raw materials available, planned purpose of shelter, and envisaged life of structure. These components are interconnected and dependent upon each other and whose order of influence on the final product is fluid or multilinear. The influences of these relationships can also be seen in each of the 16 self-build housing case studies. For example:

Floors – Design driving materials and construction technique

Ten groups chose to use concrete for flooring as a deliberate design decision. Concrete is a labour-intensive construction method and therefore not a cheap material in the Australian context. Nor are the constituent materials such as cement, aggregate and reinforcement steel available locally. Pouring a good concrete floor requires specialised tools, skills and technique and a high degree of quality control. It is, however, widely and popularly construed to be a durable material with very low maintenance requirements over its life cycle. Its use, despite its cost, may possibly be attributed to the high number of responses that affirmed the desire to create something for family to inherit. Thus the decision to use concrete for the floor was driven by factors other than cost and skill levels available.

Walls – Materials driving construction technique and design

Twelve groups used second-hand material for cladding the walls. In the case of the walls, and in contrast to the selection of concrete, it appeared that the uses of second-hand materials were 'self-selecting' on account of cost and availability – the materials could in many cases be acquired without payment. In this case, the material (corrugated iron) determined the construction technique (stud wall system) and the look of the product and the subsequent decisions that were made. Additionally, the cladding material is a ready and low-maintenance finish that would also have influenced the design.

Roof – Material driving construction method and design

- » Fifteen groups used a combination of beam, rafter and purlin system
- » One group used a timber truss system
- » Thirteen groups used second-hand material in the roof
- » Sixteen groups used second-hand corrugated iron as roof cladding

The choice of roofing materials seems to have dictated the construction method and the design as in the case of the wall cladding materials.

6.7 Impact of gaps in construction skills and knowledge

Structural compromise

Although most houses represented an innovative use of second-hand materials, there were some issues which may have compromised the structural stability and strength of the material or structure such as:

- » spreading rust, which could affect the intrinsic strength of the material
- » unsealed holes in the corrugated iron used as roof and wall cladding that could result in leaks or seepage into the house (see Appendix 5, No 10)
- » combining incompatible sections and profiles in an irregular manner, which can compromise the structural stability of the building
- » applying a disproportionately high structural force on the weaker parts of the building's material could compromise the building's structural stability (see Appendix 5, No 11)

- » lack of or inadequate mechanical support to structural members at critical joints (see Appendix 5, No 12).

Some of these potential issues indicate that although self-builders need to be resourceful, the innovative building practices have potential risks that will require a higher level of skills and better information to mitigate the danger. This risk is compounded by the fact that in many cases protective regulations and safety standards do not apply in remote Australia and on structures that fall outside building control areas. Similarly, many of the builders would have benefited from an understanding of the advantages of properly stored materials, which when neglected resulted not only in deteriorated materials but also in the unnecessary loss of decent building material.

Impact on amenity

While most of the buildings performed their basic function of shelter and protection from the elements, there were some basic issues in the buildings that seem to flow from a lack of knowledge in finishing details and possibly from a lack of funds. For example:

- » some buildings had gaps between the roof and walls, which let in rain and unwanted animals and pests
- » some walls have no interior lining, which can result in dust management, thermal and acoustic issues
- » some the ceilings were very low, which could lead to injuries, poor light and ventilation
- » most buildings did not have insulation in their ceilings thus compromising thermal comfort for residents (see Appendix 5, No 13).
- » some houses do not have proper waste water drainage collection and disposal systems which could lead to unsanitary conditions and health issues
- » some houses use water directly from the creek (unfiltered) which could pose a potential health risk to visitors and residents
- » additionally, some people expressed difficulties in squaring up and aligning of their structures and getting the floor levels right

Many of these shortcomings could easily be rectified with the availability of some information, materials or skills in basic training and tools for the self-builders.

7. Conclusion and recommendation

7.1 Conclusion

The case studies conducted for this report illustrated that the primary ingredients of individual self-build housing projects in remote Indigenous communities are the self-builder's personal attributes, such as determination, aspiration, and resourcefulness, underpinned by access to income, skills and, most importantly, land ownership or permission to occupy. This has enabled the creation of places that provide a sense of security, and reflects the individuality and aspirations of the builders and their families.

Although the self-build process and its success involves tangible/physical components such as building materials, available labour, financial wherewithal, construction experience, and ability to adapt the resources, it clearly also requires some less tangible, more personal attributes that drive individual participation in the design and building of remote Indigenous housing [see Lee and Morris (2005 p.13)]. What was most needed was not motivation, but information how to improve the quality of the project.

While many of the houses were not finished to the same degree as those built by responsible building professionals, the study suggests that the self-builders are comfortable with what they have built and proud of what they have accomplished through the resolution of the many design and construction challenges of self-build. They were all confident of being able to repair and maintain their houses, which ensures the sustainability of both houses and infrastructure.

The finding of the importance of particular personality attributes and agency that has emerged in this study provides a challenge for promoting the possibilities of self-build where those attributes are lacking. Adopting an organisational or institutional approach to aspects of Indigenous self-build has not, at the time of this study, been a much-tested option. Given the lack of Australian examples, a further review of international practice, if and where such practice exists in comparable circumstances, would help to further the possibilities of the self-build approach to housing for a broader Indigenous constituency.

7.2 Recommendation

The following section outlines a recommendation that intends to address the major issue of lacking information that has been identified in this study.

Self-building Resource Network

As noted in the materials and methods section, the participants in this study, although exhibiting considerable resourcefulness, also acknowledged that their buildings could be better and safer if they had access to better information with which they could work. This can be done by providing a means of creating access to technical information, methods of construction, detailing and finishing and access to financial and other tangible resources. Assistance could be provided with the development and instituting of a 'self-building resource network'³ that is adaptable and readily available to self-builders wishing to construct or in the process of constructing their own housing in remote Indigenous communities.

The 'self-building resource network' will need to be engaging, interactive and operate across multiple disciplines of construction, finance, supplies, tools and trades. It will enable the self-builder to maintain control over their construction projects while being assisted in specific areas that they have identified as a need. It would facilitate interaction between self-builders and suppliers of building materials, implements and transport. It could also be useful tool for users to seek assistance with or from volunteers, securing grants or micro loans, gaining livelihood/enterprise opportunities, accessing technical resources, training (video and audio), safety or personal development etc. The resource network is envisaged to be a 'one stop' knowledge and database for those who are seeking to build affordable, safer and better houses for themselves and their families.

The challenge of such a 'resource network' is that it doesn't overwhelm or undermine the self-builder's personal attributes, such as motivation, resourcefulness and creativity. At the same time, the value of a resource network would be as a cumulative database and network for organisations that facilitate self-build housing in remote communities across Australia. It would be used to create awareness and/or broadcast both traditional and innovative construction knowledge that could be useful in multi-contextual scenarios. Such a network could also publicly acknowledge self-build housing achievements through regional and national indigenous self-build housing awards.⁴

To be most effective, a 'self-building resource network' would need to be developed from the ground up, using the experience of parties such as those who took part in this study, in response to the needs and enquiries received directly from potential users. In doing so, the resource network would respond directly to actual needs and ensure relevance of content and sustainability.

³ Refer to Smith, S. (2008). Self-Built. Architecture Australia, Vol. 97, No. 5, pp81-84, who has also recommended the establishment of a similar database which she refers to as a 'library of building technology, climatic data and building materials' to be made available locally and regionally.

⁴ At an infrastructural level, communication tools will be essential to facilitate this network. CAT is currently trialling the introduction of broadband connectivity and accessibility for small remote and very remote communities in Central Australia. Although this project is at an early stage, if funding mechanisms and enthusiasm within remote communities for broadband internet access becomes pervasive, such infrastructure could offer the self-building resource network many other possibilities. These possibilities could include live audio and video interaction between individual self-builders, live and recorded technical demonstrations and networking.

In brief, the recommended 'self-building resource network' would hope to:

- » encourage and inspire resourcefulness and networking by users with other self-builders
- » value and build on actual, on-the-ground experience
- » assist users to design and plan their self-build project on the basis of their specific requirements and needs
- » provide 'how to' building information with links to professional advice
- » provide information on availability and possible building materials, infrastructure options, tools and equipment hire
- » provide financial planning assistance and information,
- » be available as a register for volunteer and professional assistance, training
- » provide the opportunity for self-builders to showcase their projects,
- » provide a forum for discussion and exchange of ideas.

In order to develop the proposed resource network, it is suggested that:

- » the findings of this study are confirmed through further studies to establish a demand for the resource network
- » work with and engage self-build case study groups and organised self-help initiatives, including local builders and suppliers, tips, volunteers etc. to identify, explore and develop possible models, form and content for the establishment of a 'self-builder's resource network'.
- » Create the 'self-builder's resource network' by developing the support network and resources information for the network.
- » Investigate the option of the 'resource network' being developed in partnership with others such as community organisations, social enterprises and other organisations with capacity to contribute and to build the network, including commercial concerns, and organisations employing sweat equity, such as Cape York Partnerships.
- » ensure ongoing updating of the network through broad documentation of self-build and self-help approaches, new uses of old materials and construction methods through pilot projects sponsored by relevant organisations in response to invitation from self-building individuals or

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Appendix 1

Interview Questions: Self-build housing

Background

What is your name/s?

Age, gender, level of education, employment?

What is the name of the small community?

Where is it located?

On average how many people live in your small community?

☐ full-time or ☐ part-time

How long have you lived here?

☐ full-time or ☐ part-time

What other places do you live?

What language group do you belong to?

Motivation

Why did you decide to build your own house?

What process did you go through to start the project?

(Decision making, governance, land issues, ownership, location of house)

Land

What gives you the permission to live and build on this land?

(land title, ownership, family members)

Planning

What things did you need to organise before you started the construction?

(Design, Budget, Finance, People, Time, Land, Infrastructure)

Did you follow any building codes or building guidelines?

Skills

What training or experience have you had in building?

If none, how did you know how to build?

Finances

How did you get the funds to pay for building?

(Income, social security / pension, savings, grants, royalties)

How much have you spent on this project so far?

How much do you think the project will cost in total?

If needed, how will you access more funds to finish your housing

Construction	project? How did you organise everything needed for the construction? <i>(People, materials, tools, timing)</i>
Help	Did other people or groups/organisations help with this project? <i>(Family for labour, trades, advice, support)</i>
Labour	Do you have to pay anyone to do any of the work? <i>(% of free labour: foundation, structure, floors, walls, roof, plumbing, electricity, and design)</i>
Materials	What are the basic materials used in building your house? <i>(Local, imported, recycled)</i>
	Why did you choose these materials? <i>(Local materials, transportation, recycled, techniques)</i>
	What other building materials did you consider using?
Environment	What environmental factors have influenced the design and/or location of your house? <i>(weather, wind, water flow)</i>
Culture	What cultural factors have influenced the design and/or location of your house?<i>(layout, outside/inside, male/female sides, avoidance relationships, proximity to other houses)</i>
Infrastructure	What infrastructure and services do you have? <i>(which ones - simple or complex, who funded/installed: water, power, toilet, waste, telecommunication, roads, school, others)</i>
	What other infrastructure and services do you plan to get?
Maintenance	After having built your house, do you feel confident to undertake the maintenance and repairs of your house and infrastructure? ☐ yes ☐ no
	If not who will?
	How will you meet the costs? <i>(House/Infrastructure: water, power, waste management)</i>
	How much time have you spent on building your home? How much more time will you spend on building? What factors influence the time it took to build the house? <i>(Weather, motivation, money, other work, family matters, available tools & materials & labour)</i>
Time	

Living Standards	What things do you really like about your house? <i>(design of the house, life style (social life), healthy environment, relationship to the land)</i> Are there any things that you would change and why? <i>(design of the house, money and knowledge (guides, building code))</i>
Social	What have you learnt from building your house that can be useful to the community? <i>(planning, problem solving, construction, resourcefulness, self-confidence, communication)</i> Now that you have had this experience, what advice would you give to someone who wants to build their house? <i>(land, funding, design, construction, training, materials)</i>
Facilitating	What kind of support and advice do you think would be helpful? <i>(Technical, legal, administrative)</i>
Livelihood	How do/how will you support yourselves to live here? <i>(Food, extra funds, enterprise, education, services)</i>
Design	What is the difference between your house and government funded / contractor built houses in communities and towns? <i>(Design (layout), materials, construction, ownership, cost, quality)</i> What do you like better about your house than the government funded / contractor built houses in communities and towns?
Overview	What are the advantages to self-build? What are the disadvantages to self-build? Who else is building or financing their own place?
Comments	

Appendix 2

INTERVIEW QUESTIONS: ORGANISED SELF-HELP HOUSING PROCUREMENT INITIATIVES

General

Name and type of organisation (*NGO, Government*)

Name of project

Project location

Project duration (*When and how long*)

Participants

Who initiated project? (*Individual, agency, NGO*)

Who took part in the project?

Who was managing the project?
(*Owner builder, project manager, builder, architect*)

How was this person/entity selected?

In what capacity were Indigenous people involved in the project?

What was the financial value of their work/contribution to the project? (*labour, in kind*)

Who supported/sponsored the project?

Project Development

What was the overall aim of the project?

What were the project brief/requirements? (*multi or single site, residential only or community facility*)

Were there any tenure arrangements or issues?

What regulations or compliance processes did you have to meet ? If none, why not?

What was/were the budget and funding sources?

What resources (*money, people, materials, land*) were available at the start of the project?

What were design issues/characteristics?

What degree of professional involvement was required (*engineers, certifiers, skilled tradespeople*)?

Was there any training/skills development in project scope? If so how?

Were recurrent costs or sustainability part of the project plan?
If not – why not. If yes – how were those included?

Project implementation

What building materials and construction methods were used?
Why did you choose those and not others? (*concrete slab, raised platform; block work and/or steel frame; or alternative*)?

What building services were included (*electricity, sewer, water*)?

Outcome

How did the final outcome meet the initial brief?

How is/are the building/s currently maintained?

What are the ongoing costs?

Did the process engender a sense of ownership? If so by whom?

What advice would you give someone who wanted to engage in a building process such as yours?

Appendix 3

RESEARCH RESULTS: INDIGENOUS SELF-BUILDERS

A total of 16 groups were interviewed across the Kimberley WA, Central Australia NT and Cape York Qld.

Background

People

Interview participants – total of 16 groups, 24 people in total

West Australia (Kimberley) - 5 interviews

Queensland (Cape York) - 6 interviews

Northern Territory (Central Australia) - 5 interviews

Gender

59% (14) male, 41% (10) female

Marriage/Relationship Status

4 participants (16.7%) were single (males)

The remaining 20 (83.3%) participants were in relationship/couples with other participants.

Age of Participants

12 participants (50%) were between the age of 40 – 50 years

10 participants (42%) were between the age of 50 – 60 years

1 participant (4%) was between the age of 60 – 70 years

1 participant (4%) was over 70 years of age

Education attained by Participants

7 participants (29%) attended secondary school

8 participants (33%) attended high school

1 participant (4%) attended university

Employment

9 participants (37.5%) participants were employed full-time (3 in QLD, 6 in NT, 0 in WA) and lived between 10km to 50km from the main service town

5 participants (21%) were employed through CDEP (all in WA) and lived between 100km to 250km from main supply town

4 participants (16%) lived from Social Security/Pension (1 in WA, 3 in QLD, 0 in NT) and lived between 100km to 250km from main service town

3 participants (12.5%) were self-employed contractors/enterprise (all in WA) and lived between 100km to 250km from main service town

Participants employed on CDEP and remote from supply town consider creating an independent livelihood on their land in comparison to participants in full-time employment and close to town who did not consider creating independent livelihood on their land.

Building started

WA - between 1970 to 2004

QLD - between 1988 to 2008

NT - between 1970 to 2010

Distance from main town

In WA the interviewed groups were 100km to 250 km away from main town, in QLD 50 to 150km way from main town, in the NT 25km to 250km away from main town.

Number of people living fulltime at the small community

Of the 16 groups interviewed:

68% had 0 to 5 people living full time at the small community

25% had 5 to 10 people

7% had 30 to 40 people (only in WA)

From 16 groups interviewed, 3 groups had schoolchildren living with them who travelled to a school up to 45km away from the small community.

Development

50% of the self-builders initiated/started their project, independent of any pre-existing development on the site or at the small community.

50% of the self-builders built where other family members had already built on the small community.

Motivation

In all cases the deciding factors as to 'Why did you decide to build your own house?' were interrelated and interconnected. There were no significant or distinguishing differences in participants' responses from either WA, Qld or NT.

21 participants (87.5%) Pass it on to the next generation: Leave something that children, grandchildren can continue.

18 participants (75%) Cultural / Spiritual connection to land: living on traditional ground, ancestral country, grow up in the bush, love and have passion for the bush, ancestral connection.

12 participants (50%) Get away from town: noise, bad influences on children, alcohol.

9 participants (37.5%) Land being a healing and recovering place: giving inspiration, stimulation, creating opportunities for oneself and others, healing self, healing others (Indigenous, non-Indigenous), look after family, create livelihood

8 participants (33.3%) Protect land: secure, preserve, treasure.

9 participants (37.5%) Be independent: no rent, cheaper, freedom, business opportunity, growing something on the land.

1 participant (4%) Transfer knowledge / bush skills to the next

Land tenure

13 of the 16 groups are Traditional Owners on their land

9 with legal document, 3 without legal document

3 of the 16 groups are not Traditional Owners of their piece of land

2 have permission from the Traditional Owners, both are in WA.

1 is a 'Historical person' with legal document from Qld State Government.

Planning Construction

There were no significant differences in participants from WA, Qld or NT response/approach to planning.

Responses indicate that Planning is not necessarily a linear process.

The groups of self-builders were able to respond to opportunities and took opportunities when those were offered, such as getting help with building, materials, funds (CDEP or specific grant).

Temporary accommodation, such as donga, transportable, caravans, shacks and tents have become incorporated in or became the permanent accommodation.

Having no infrastructure to start off with was not a deterrent for people to move to country – they just created it, carried it in.

24 participants (100%) thought about moving to the particular piece of land for some time, some for many years. Most discussed/gained permission from other family members or TOs on the selection of site/location of structures.

All the participants considered the impact that weather and environmental elements have on their place. They observed the land, plants, animals and influences of weather before selecting the location of the buildings and infrastructure. They reported that they: walked the land, look and feel the place and sit within the landscape.

Planning Process

10 groups (62.5%) saved their own money, organised other funds (CDEP materials, 'chuck in', or special grant).

10 groups (62.5%) prepared by collecting second-hand materials.

11 groups (68.75%) created or organised temporary accommodation on the site such as donga, transportable, caravans, shacks and tents.

6 groups (37.5%) created a community layout/plan considering expansion, infrastructure, roads, and houses (only 1 of these groups drew-up their community layout/plan on paper)

6 groups (37.5%) considered the design/layout and of their house before starting to build
50% used a mind map, 50% had a plan.

‘Think of what I need and get it when I need it’
‘Know in your head where all these materials go’
‘I see in my mind the final finish and from there I work out how to do it –
working backwards’

10 groups (62.5%) organised second-hand materials, transportation and tools (barter, borrow or bought equipment and tools)

8 groups (50%) organised labour (CDEP, volunteers, tradespeople, family, workers, help)

Skills

Building Training and Experience

9 groups (56.25%) had members who had worked in construction or related trades, such as labourer, plumbing, painting & decorator, plasterer, brick layer, carpentry.

6 groups (37.5%) had members with practical (‘hands-on’) experiences working with tools, materials, infrastructure.

1 group (6.25%) had no members with any construction training and/or practical experiences in construction/building.

0 groups (0%) had members having a construction certificate. Nevertheless,

14 groups (87.5%) build their own place.

2 groups (12.5%) received external help but assisted their labour.

1 person with no construction training and/or practical experiences said that *‘my skill is in attracting people’* His house was designed and built by a professional builder who gifted his labour, tools and some material.

Most participants said they learnt skills through watching work mates on jobs, or observing family and friends. Comments included *‘While working, watched others.’* ‘It is just common sense’.

Finances

All 16 groups self-financed either the start or their entire building projects, using their own money/savings.

In WA all 5 groups received support through CDEP (some materials and labour).

2 groups (12.5%) received additional funds through special purpose grants:

1 group in NT for a market garden and

1 group in WA for building an office structure.

Help & Labour

WA

Of the 5 WA groups:

4 groups (80%) received help from family members (some with trades such as electrician, plumber)

2 groups (40%) received help from friends (builders, electricians, trades people, labourers)

1 group (20%) received help from Volunteers (international and national - whale research)

All 5 groups pay for additional labour costs (concreter, plumbing, and electrician)

QLD

Of the 6 Qld groups;

4 groups (66.6%) received help from family members

4 groups (66.6%) received help from friends (builders, road workers)

2 groups (33.3%) received help from Volunteers (Christian group)

0 groups pay for any additional labour costs

NT

5 groups (100%) received help from family members

3 groups (60%) received help from friends (builders, road workers)

4 groups (80%) pay for additional labour (brick layer, concreter, plumbing, electrician)

NT comments included: 'Everyone helped. Even kids came out, makes you feel happy seeing them'

Materials

Why did you choose these materials?

14 groups (87.5%) because cost

11 groups (68.8%) because availability and opportunity

7 groups (43.75%) because the construction technique

2 groups (12.5%) because is a strong material

What other building materials did you consider using?

4 groups (25%) would consider others materials

1 group (6.25%) would consider what work in other part of the world

2 groups (12.5%) would consider a strong material

5 groups (31.25%) do not know

Foundations

9 groups (56.25%) were on or into the ground

6 groups (43.75%) were on or in concrete

Floor system

10 groups (62.55%) used concrete floors

4 groups (25.0%) used raised floors (1 group incorporated raised floor with donga)

1 group (6.25%) was an element of the second-hand manufactured donga

1 group (6.25%) used dirt floor

Floor finishes

14 groups (87.5%) used rough floor finish (1 group incorporated raised floor with donga)

1 group (6.25%) used dirt floor

1 group (6.25%) was an element of the second-hand manufactured donga

General roof structure

8 groups (50%) used steel structure

8 groups (50%) used timber structure, (of these 3 groups use local timber and 3 groups use second-hand timber)

2ND hand material in roof structure

13 groups (81.25%) use second-hand material in the main structure

3 groups (18.75%) not use second-hand materials in the main structure

Wall system

12 groups (75 %) with stud system

1 group (6.25%) with rock

1 group (6.25%) with mud brick

2 groups (12.5) was an element of the 2nd hand manufactured donga

Finished Interior wall

9 groups (56.25%) with finished interior walls

5 groups (31.25%) with finished no interior walls

2 groups (12.5%) was an element of the second-hand manufactured donga

Exterior wall cladding

12 groups (75%) used corrugated iron

1 group (6.25%) used rock

1 group (6.25%) used mud brick

2 groups (12.5%) was an element of the second-hand manufactured donga

Windows

4 groups (25%) have no windows-open system

6 groups (37.5%) have metal frame filled with corrugated iron

4 groups (25%) used second-hand aluminium windows

2 groups (12.5%) were an element of the second-hand manufactured donga

Roof cladding

16 groups (100%) used corrugated iron, of these 12 groups (75%) used second-hand corrugated iron as roof cladding

Ceiling

10 groups (62.5%) with no ceiling

4 groups (25%) with ceiling

2 groups (12.5%) was an element of the second-hand manufactured donga

Kitchen location

9 groups (56.25%) with the kitchen inside

7 groups (43.75%) with separate out-door kitchen structures

Sink

10 groups (62.5%) have a sink.

6 groups (37.5%) with no sink

Structured sink drainage

Of the 10 groups with sinks

4 groups have no form of drainage connection

6 groups have drainage to take water away from the building but not connected to a waste water system

Cooking Method

14 groups (87.5%) use a stove

2 groups (12.5%) use fire

Lighting connection

8 groups (50%) use power leads connection to the generator

8 groups (50%) with switchboard

Toilet location

14 groups (87.5%) with toilet outside

2 groups (12.5%) with toilet inside

Toilet system

12 groups (75%) with septic tank

4 groups (25%) with pit toilet

Veranda

9 groups (56.25%) with a veranda

7 groups (43.75%) with no veranda

Infrastructure

Water supply

6 groups (37.5%) with bore water supply

6 groups (37.5%) with fresh water supply from a creek or spring

3 groups (18.75%) with town water supply

1 group (6.25%) fill drums for water supply

Power generation

7 groups (43.75%) use generator

6 groups (37.5%) with solar system

3 groups (18.75%) with town supply

Toilet waste

4 groups (25.0%) have pit toilet

12 groups (75%) with septic tank

Telecommunications

4 groups (25.0%) with fixed communication phone
8 groups (50%) with telephone line
4 groups (25.0%) with mobile

Internet

9 groups (56.25%) without internet access on site
7 groups (43.75%) with internet access

Rubbish disposal

10 groups (62.5%) have an on-site rubbish tip
4 groups (25.0%) have town collection
2 groups (12.5%) take rubbish to town by themselves

Maintenance

100% of all self-builders felt confident to do their own maintenance.
All groups are confident they will be able to cover any maintenance costs if/when any additional work needs to be done, which is beyond their skills/capabilities.

Time to build house

The majority of all houses are not completed. The duration of the primary construction phase for each self-build project was:

WA

6 month:	ongoing process
7 years:	ongoing process
10 years:	ongoing process
10 years:	ongoing process
18 years:	ongoing process

QLD

3 month:	plan to build new home
3 month:	ongoing process
3 month:	ongoing process (pathways, gardens, deck)
12 month:	ongoing since 3 years
10 years:	ongoing process
11 years:	ongoing process

NT

6 month:	ongoing process
6 years:	ongoing process
11 years:	ongoing process
12 years:	ongoing process
30 years:	ongoing process

15 groups said that building is an ongoing process '*do it until you die – there is always something to do*' and 1 group wanting to build a new home.

Factors influencing the building process were: wet season and availability of helpers.

All groups focused on the initial building project – creating the basic and essential living space. After that the endeavour reduces either due to lack of funds or the lack of knowledge of how to finish construction details.

Social

Responses to the question 'What have you learnt from building your house that can be useful to the community' fell into 3 categories:

Personal

- 3 x Gain self-confidence
- 1 x Don't give up
- 1 x Proud that my project could influence billion dollar project (gas pipeline relocated)
- 1 x Passion
- 1 x Learned from my mistakes
- 1 x Get out of comfort zone
- 1 x Learnt to be self-sufficient and not rely on Government
- 1 x If you built yourself you appreciate things more – eg the value of water

Social

- 5 x Show what can be done – be an example to others to self-fund your own place,
- 5 x Give support to people who want to be helped (help young people)
- 2 x I can show people how to build simply and quickly
- 2 x Anyone can do it
- 1 x Create meeting place for others
- 1 x Pass on knowledge of how to build with second-hand materials

Building Skills

- 1 x Project management & organisational skills
- 1 x Get quotes and do costing
- 1 x Learned more about infrastructure

Responses to the question 'Now that you have had this experience, what advice would you give to someone who wants to build their house?' fell into 6 categories:

1.Planning

- 8 x Think properly about what you want to do (plan)
- 3 x Do things one step at a time – don't make quick decisions, think it through
- 2 x Position your house properly (wind, sun)
- 2 x Collect lots of second-hand materials, recycled stuff
- 1 x Think what house you want (big or small, layout)
- 1 x Get quotes
- 1 x Keep it small and simple
- 1 x Find a good place

2.Construction

- 1 x Measure everything properly
- 1 x Built to a standard safe for your family and children

1 x Built with whatever you can use

1 x Build properly

3.Finances

3 x Save money and built

1 x Reduce maintenance costs

1 x Keep cost of living down

1 x Have enough funding available so you can make a start

1 x Know how much you will have to pay

1 x Get CDEP vacancies (WA)

4.Personal

4 x Be prepared to do lots of hard work

4 x Have a go, do it yourself, you never know what you can do if you never try

2 x Assess your personal situation – is it realistic

2 x Know where do you want to be in 5 years/10years time.

2 x Know what your skills are

2 x Your need to help yourself – don't wait for someone else to do it for you

2 x Have perseverance and commitment

1 x If you don't have anything, don't do it – lack of support may discourage you

1 x Use your common sense – use your brain

1 x If you have a vision nothing can stop you

1 x Be genuine

1 x Think it through - can you cope with change of lifestyle (if you grew up urban and now want to live remote?)

5.Ownership

3 x Have love and passion for the land

2 x Good to built you own house

2 x Going back to homeland is good feeling to live on your land

2 x Respect the land

2 x Make sure the land tenure is secure

1 x Get ownership by building your house – makes your family happy

1 x Land (connection to land)

1 x Get the name for your outstation from your elders

6. Support

8 x Ask for advice – Don't be proud to seek advise- there are professional that give free and genuine advice (hardware store, trades person)

4 x Research what is available (magazines, internationally)

1 x Get training in construction

1 x Get construction mentor

1 x Look into prefabricated structures or dongas

1 x Ask for help

1 x Networking is essential for success

1 x Recognise existing hierarchies and examine which gates are open to you

1 x Have a reliable umbrella organisation to help

Support and Facilitation

In response to the question, *'What kind of support and advice do you think would be helpful?'* most people said: 'I never thought about that.' Once they thought about it, responses were:

- Help by professional: Structural, lawyer, regulations
- Assistance with filling out grants, forms
- Help with labour
- Information on technology: hydro-electric, solar, wind, toilets
- Information on where to get second-hand materials
- Get internet access
- Construction mentor
- Training

Participants used their networks to get advice and support as they did not feel there was a 'place to knock at the door' to get help

Livelihood

Responses to 'How do/how will you support yourselves to live here?' (several groups had more than 1 response)

- 8 x Agriculture (fruit trees, vegetables, bee keeping, cattle, firewood)
- 6 x Tourism
- 3 x Healing centres (grog recovery, healed by the land, new age/earth spirit for non-Indigenous)
- 2 x Ecology (whale and marine research)
- 2 x Arts

2 businesses (1 Tourism and 1 Ecology) in WA support the self-builders. The other self-builders groups have plans for future livelihoods but at the moment support themselves through employment, contracts or pension/social security.

Design (including questions on living standards, environment and culture)

All groups designed their place with the environment in mind.

They all tested their designs and plan to change the aspects that don't work.

Elements considered in building:

- Cyclone: built strong connection, structure
- Fire: create fire breaks
- Wind: open plan house to let the breeze, walls to protect from winds and storms, rubber matting
- Sun: shade structures, correct orientation, vegetation
- Cold: plan to add insulation
- Rain/water run offs/flooding: built on higher ground
- Dust: vegetation
- Insects and vermin: steel structure against white ants, mouse proof

Design feature that the participants liked about self-build

Outdoor living:

- Happy to live outside
- See the stars
- Close to country

You are in the nature, which makes you feel happy
Kids can run around happy
Peaceful
Nice lifestyle

Designed as wanted:

It is our house, our place
It has character
Feels comfortable
Feel satisfaction
Having done something completely ourselves
Express our creativity
Beautiful place
Looks nice

Simplicity

Easy to change
Flexible

Open plan living

Not boxes
Not small
More space and healthy
Not confined

Not too close to others

Quiet

Overview

Responses to 'What are the advantages to self-build?'

Cost

No debt
No stress
Safe money
Reduction & cheaper
No loan, no mortgage
Place you built for nothing
Just do it without waiting for funds

For others

Example for our children
Inspire families
Show it can be done
Setting an example
The ones who have done it seem to thrive
Transfer knowledge

For young people:

- build up their skills and knowledge,
- Makes them shine & feel their goodness
- Lift their spirits
- Make them smile
- Break the cycle

On the land

- Has resources (bush food)
- Transference of bush skills
- Grow trees and vegetables
- Makes you feel good and happy
- This is your land
- Mother-nature will take care of you

Design

Feels

- Homely
- Sense of freedom
- Proud of it
- Proud to have built this with our own hands
- Done this from scratch
- Happy
- Alive
- Keeps your mind active
- Life style that suits us
- Can come and go
- Do something for yourself
- You can be happy and healthy

Maintenance

- More likely to look after it
- Reduce
- Look after and don't damage
- I will maintain it

Inheritance

- Have something to pass on to our children
- A place for our kids and grandkids

Ownership

- You know it is yours
- It's mine
- What you own, stays your own
- Do what you want
- Own assets
- More security
- You are your own boss

You can come home
Something belongs to you and your family
Can do anything you like
Place to come to

Learn

Learn from your mistakes
Learn how to do things
New things
Learn as you go
You have to make your own choices

Responses to 'What are the disadvantages to self-build?'

Difficult without having building skills
You can only built within your skills
I wish I had building skills
If you don't know how to do things and don't ask for help, it is hard
You can get discouraged and feel despair (if government does not support you)
Legislation can be restrictive
Work without help – some work is hard for 2 people such as lifting heavy poles

Response to: 'Do you know others that build their own place?'

Only 3 groups out of 16 knew other people who have built their own places.

Appendix 4

RESEARCH RESULTS: ORGANISATIONS

Six organisations were conducted with organisations that have involved Indigenous people in the housing construction process, to gain an understanding of different approaches and levels of involvement, benefits and issues. The differences between the organisations, their purposes and experiences meant that the set of interview questions designed for this part of the study could not be used consistently. The following is a summary of the discussions with each of the organisations.

Example 1: Northern Building Consultants - NBC Aboriginal Corporation, WA

NBC is a nonprofit, self-funded commercial organisation providing remote area design and project management. They are committed to provide employment and training opportunities for local Indigenous people

Issues:

- Difficulties engaging Indigenous people to work in other than their home communities
- Training programs and construction timelines are at times incompatible
- Increase costs associated with on-the-job training and selected tender processes
- Continuous involvement of Indigenous people is dependent upon the availability of contracts

Benefits:

- Employment opportunities for Indigenous people
- Indigenous employees gaining construction skills

Example 2: Mowanjum Aboriginal Corporation, WA

This community building project arm of the corporation is funded through the Department of Housing WA and also receives CDEP funding. A local Indigenous building team led by a local Indigenous licensed builder undertake renovations and housing maintenance projects.

Issues:

- Without secure recurrent funding, employment and apprenticeships are difficult to guarantee
- Dept of Housing does not fund training
- Continuity of the program is dependant on the availability of a licensed builder

Benefits:

- Employment opportunities for local Indigenous people
- Indigenous employees gaining construction skills
- Profits generated stay in community
- Community pride in local workers

Example 3: Wunan Aboriginal Development Organisation, WA

Wunan attempted to operate a construction and maintenance enterprise from 2007 to 2010. The program was not successful as an ongoing business.

Issues:

- Unable to secure a reliable local building crew with skills
- Were unable to make the initiative viable in the 3 years of operation
- Unable to attract funding.

Benefits:

- Local employment opportunities
-

Example 4: Djarragun Enterprise, QLD

The organisation is a social enterprise, industry-based employment pathway for young Indigenous people, producing pre-fabricated modular building materials and small scale construction and renovation.

Issues:

- Introduction into the market of a new product developed
- Dependency of funding to run the program

Benefits:

- On-the-job training in manufacturing and construction
- Local employment opportunities
- Social enterprise
- All work produced to industry standards

Example 5: Balkanu Cape York Development Corporation, QLD

Not-for-profit organisation supporting Indigenous people in Cape York. Balkanu is a partnership organisation with Cape York Partnership, and had organised a self-help project called 'Low Cost Housing Project', a trial program that operated for 3 years and discontinued due to lack of ongoing funding. The program supplied materials, design, volunteers and professional mentorship. Indigenous people supplied labour (sweat equity).

Issues:

- Organisation is the driver of the Indigenous people's vision (design by organisation)
- Financial capacity for Indigenous people to apply and repay the loan
- Dependency of funding to run the program
- Requires land title on place of building

Benefits:

- Indigenous people participate in building their own home
- Promote independency for remote small Indigenous communities
- Guaranteed construction standards
- Training in construction
- Other organisations, universities and volunteers supporting the program

Example 6: Cape York Partnership, QLD

Not-for-profit organisation supporting Indigenous people in Cape York, in partnership with Balkanu. Launched a self-help housing program called 'Bush Owner Builder' (BOB) in June 2011 which is administrated and organised by CYP including loans, materials, design, volunteers and professional mentorship. Indigenous people supplied labour, (sweat equity) local bush timber and looking after volunteers.

Issues:

- Organisation is the driver of the Indigenous people vision
- Financial capacity for Indigenous people to apply and repay the loan
- Ongoing program dependent on funding
- Requires land title on place of building

Benefits:

- Indigenous people participate in building their own home
- Promote independency for remote small Indigenous communities
- Guarantee construction Standards
- Training in construction
- Can become a social enterprise
- Other organisations, universities and volunteers supporting the program

Appendix 5

Images

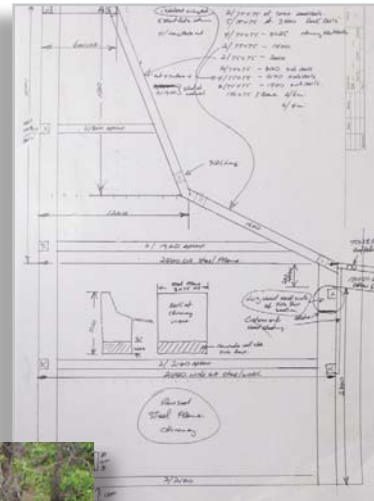
No 1

Building with second-hand materials and local mud bricks.



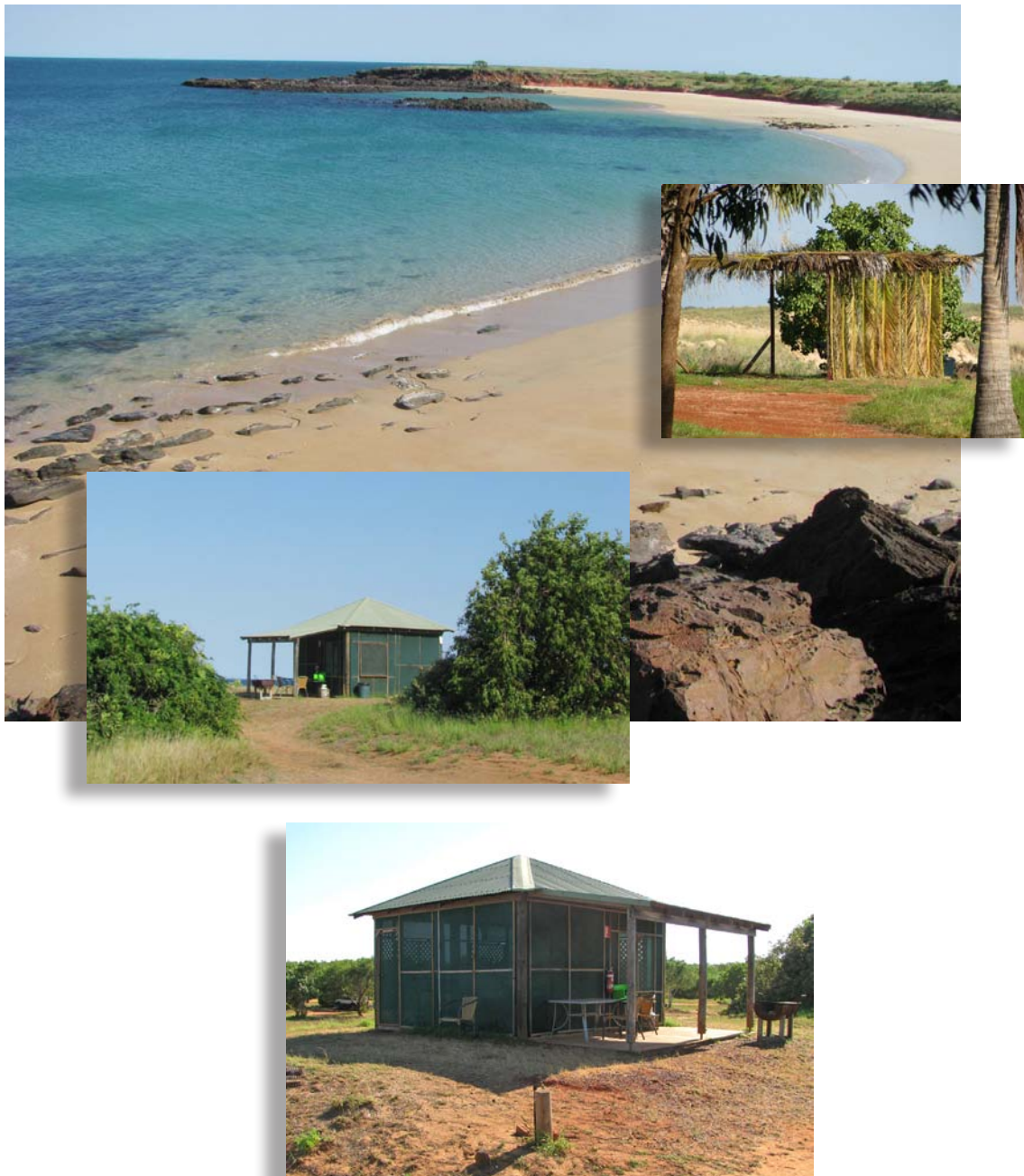
No 2

A professional volunteered to assist in the design and construction of this building with indoor chimney.



No 3

With access to land, this self-builder created a successful tourism business.



No 4

Open space living spaces- existing donga incorporated into new building.



No 5

Overlapping roof cladding used to create a circular shape.



No 6



Rafter/post connections



Timber floor bearer



Bracketed end supports

No 7

Flexible living space.



No 8

Emphasis on outdoor spaces



No 8

Emphasis on outdoor spaces



No 9

Creative design



No 10 - Corrugated iron can be sealed



No 11 - Disproportional loads



No 12 - Mechanical support needed



No 13 - Insulation helps to improve comfort



**‘Makes you feel proud having done something
completely by ourselves.’**

Indigenous self-builder, WA