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ENSURING SUSTAINABLE BENEFITS FROM BOOM PERIODS:
A CASE STUDY FOR LONG TERM HOUSING POLICY IN THE
BOWEN BASIN

Milestone Report 1

Prepared for Department of Tourism, Regional Development and Industry
(DTRDI)

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Abbreviations

<i>ABS</i>	<i>Australian Bureau of Statistics</i>
<i>ACOSS</i>	<i>Australian Council of Social Services</i>
<i>AMCORD</i>	<i>Australian Model Code for Residential Development</i>
<i>BBRH</i>	<i>Bowen Basin Regional Housing (model)</i>
<i>CH</i>	<i>Community Housing</i>
<i>CSHA</i>	<i>Commonwealth State Housing Agreement</i>
<i>CQU</i>	<i>Central Queensland University</i>
<i>DIDO</i>	<i>Drive in/Drive out</i>
<i>DIP</i>	<i>Department of Infrastructure and Planning</i>
<i>DoC</i>	<i>Department of Communities</i>
<i>DoH</i>	<i>Department of Housing</i>
<i>DTRDI</i>	<i>Department of Tourism, Regional Development and Industry</i>
<i>EIS</i>	<i>Environment Impact Statement</i>
<i>EPA</i>	<i>Environment Protection Authority</i>
<i>FIFO</i>	<i>Fly in/Fly out</i>
<i>ISRD</i>	<i>Institute for Sustainable Regional Development</i>
<i>LGA</i>	<i>Local Government Authority</i>
<i>NGO</i>	<i>Non-Government Organisation</i>
<i>OESR</i>	<i>Office of Economic and Statistical Research</i>
<i>OSHS</i>	<i>One Social Housing System</i>
<i>PPP</i>	<i>Public-private partnerships</i>
<i>SAAP</i>	<i>Supported Accommodation and Assistance Program</i>
<i>SHA</i>	<i>State Housing Authorities</i>
<i>SPP</i>	<i>State Planning Policy</i>
<i>SPQ</i>	<i>Single Person Quarters</i>
<i>TAFE</i>	<i>Technical and Further Education</i>
<i>TBL</i>	<i>Triple Bottom Line</i>

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SECTION 1 INTRODUCTION AND METHODS

This report (Milestone 1) is presented to the Department of Tourism, Regional Development and Industry (DTRDI) as fulfilment of the requirements within the approved activity agreement for the project titled, *Ensuring Sustainable Benefits from Boom Periods: A case study for a long term housing policy in the Bowen Basin* that commenced in February 2008.

The report includes a comprehensive literature review of the current housing issues confronting the Bowen Basin region. Further to this milestone report, ongoing activities will include a socio-economic characterisation of the urban and rural centres (16 towns or localities) of the region with an emphasis on housing related trends, and a discussion of current and future housing options with regional policy implications.

1.1 Project Background

This project has been designed to facilitate a better understanding of the rapid economic expansion (boom conditions) that is occurring in the Bowen Basin region of central Queensland. The ISRD research program was developed in response to concerns expressed by the DTRDI and from recent public forums within central Queensland. The concerns are that while the Bowen Basin region and the state of Queensland are currently benefiting from economic prosperity brought about by the rapid expansion in the coal industry, more could be done to ensure that ongoing benefits and intergenerational sustainability can be achieved from these boom periods

The research focuses on the primacy of housing as a basic human need and a central requirement for appropriate regional economic development within the Bowen Basin region. The central theoretical proposition is that if the housing issues could be better addressed by governments, local communities and the mining industry, then many other social issues could be better managed. Confronting the research however are the key questions of what type of housing is most appropriate, where it should be located, and the best means of obtaining outcomes that promote regional sustainability.

The underlying rationale for the study therefore is to assemble evidence to bring confidence to the development of proactive policies that may be applied to the on-going boom conditions in the Bowen Basin, as well as attempting to develop policies that will be applicable for future booms in other regions.

1.2 Project Objectives

The broad purpose of the research is to:

‘investigate the management of boom periods to ensure sustainable benefits for regional communities. The project will draw on the Bowen Basin as a case study.’

A further intent of this study is that:

‘The Department is interested in focusing its research investment in this project around a model to ensure that communities can realise sustained benefits from boom periods.’

The research objectives will be to:

- Collate and analyse data relating to housing, housing developments and demographic, social and economic changes within the Bowen Basin region;
- Identify the different housing and service needs of communities generated by an increase in mining operations;
- Identify the impacts of housing trends on communities and groups, particularly those who have lower incomes or who are ‘pushed’ into commuting and adopting split-family lifestyles;
- Identify housing needs arising from flow-on impacts of mining on local and regional economies. These impacts may be both positive and negative and vary across communities;
- Identify gaps within the existing policy framework and market response for addressing housing needs;
- Identify options for the management of housing demand and to improve the supply of housing;
- Identify more coherent and integrated policies for managing work camps and housing the non-resident labour force in different communities;
- Develop a regional housing model to provide recommendations on mechanisms to maximize sustainable growth following a boom period; and
- Document and communicate those principles, guidelines and models in packages relevant to the needs of the regional stakeholders and the Bowen Basin coal industry.

1.3 Research Questions

The “resources boom” has underpinned levels of great prosperity and employment for many regional areas of Queensland. While there are benefits to local communities and individuals in these areas, the rapid growth associated with incoming workforces and their families’ places great pressure on social infrastructure such as housing and community services. Quality of life issues such as choice in education services and the availability of health services are also key issues contributing to the development of prosperous regions and liveable communities.

This is particularly the case in the Bowen Basin where key issues have been identified around regional planning, roads, housing, education, training and health services. Anecdotal evidence has highlighted particular concerns around the high growth of the mining industry and its impact on town based business, social impacts, housing shortages, high rents, deaths on roads from fatigue, marriage breakdowns, possible increase in suicides, low paid workers and young people leaving towns due to high rents.

Using a number of these concerns as a guide for the research the follow key research questions have been developed:

- What are some of the social impacts in local and regional communities arising from current housing pressures?
- What are the key pressures on housing, employment and demographic movements associated with the coal industry boom?
- What are the different strategies and policies to deal with supply and demand pressures relating to housing issues?
- What role do work camps that are built to address short term housing needs, have in relation to longer term housing needs and community development?

- What are the planning mechanisms and governance institutions required that will be appropriate for coordinating housing developments during a rapid development period?

1.4 Research Scope: Bowen Basin Region

For the purposes of this research the study area comprises of three geographical areas of increasing focus;

- the Bowen Basin Region
- the sixteen towns or localities within the coal mining areas of the Bowen Basin
- the towns bordering the Anglo Coal Dawson mine complex (Moura, Baralaba, Theodore and Biloela)

1.4.1 Research Study Area - Policy

The area under study for policy discussion is defined broadly as the Bowen Basin region which falls within the Regional Growth Management Planning areas of the Whitsunday Hinterland and Mackay (WHAM) and Central Queensland A New Millennium (CQANM). These areas cover a total of 19 councils/shires, 3 cities and 1 Aboriginal Council (Table 1.1).

The local government reform process has however created a realignment of regional local government bodies and will result (March 2008) in the study area being constituted of eight regional councils which align very closely with the WHAM and CQANM planning areas.

Table 1.1 Regional Planning areas, Local Government Areas and Regional Councils, 2008.

Regional Planning Area (2007)	Local Government Area (2007)	Regional Council or Shire (2008)	Council Amalgamations (2008)
WHAM	Bowen	Whitsunday	Bowen & Whitsunday
	Whitsunday		
	Mackay	Mackay	Mackay, Mirani & Sarina
	Mirani		
	Sarina		
	CQANM	Belyando	Isaac
Broadsound			
Nebo			
Bauhinia		Central Highlands	Bauhinia, Duaringa, Emerald & Peak Downs
Duaringa			
Emerald			
Peak Downs			
	Woorabinda	Woorabinda	Woorabinda
	Fitzroy	Rockhampton	Fitzroy, Livingstone, Mount Morgan & Rockhampton
	Livingstone		
	Mount Morgan		
	Rockhampton		

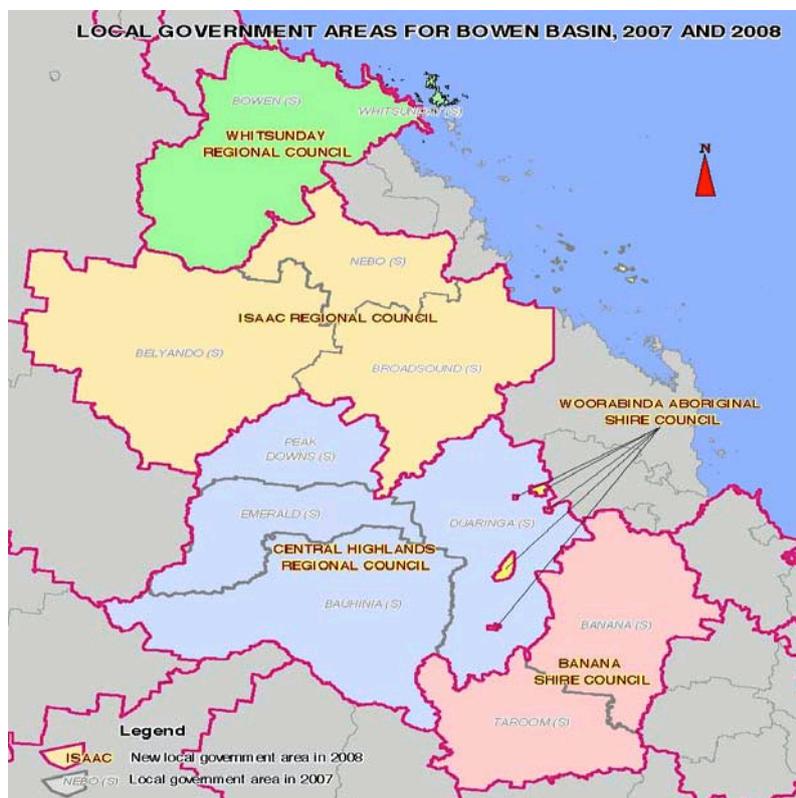
Regional Planning Area (2007)	Local Government Area (2007)	Regional Council or Shire (2008)	Council Amalgamations (2008)
	Jericho*	Barcaldine*	Jericho*, Barcaldine* & Aramac*
	Gladstone	Gladstone	Gladstone, Calliope & Miriam Vale
	Calliope		
Wide Bay-Burnett	Miriam Vale		
	Banana	Banana	Taroom & Banana
Darling Downs – SW	Taroom		

*Not in scope of new regional council amalgamations for the Bowen Basin.

Source: *Stronger Councils for a Growing Queensland, Department of Local Government, Sport and Recreation*

Figure 1.1 is a graphic illustration of the regional councils for the Bowen Basin region. The proposed regional councils are colour coded with Whitsunday Regional Council (green), Isaac Regional Council (orange), Central Highlands Regional Council (blue), and Banana Shire Council (pink).

Figure 1.1 Maps of shires and regional council boundaries for 2008



Source: The State of Queensland, 2007. Boundary concordances provided by Local Government Reform Commission

1.4.2 Research Study Area – Specific Housing Trends

The research study area for the documenting of housing trends is the 16 towns and localities that are geographically situated within the coal mining areas of the Bowen Basin. The towns (localities) are shown in Table 1.2 with the estimated residential populations and population density, geographic area, and state ranking.

Table 1.2 Bowen Basin Mining Towns (Localities)

Urban centre/locality	Estimated resident population as at 30 June 2006		Population density per sq km	State rank (population size)
	number	Area sq km		
Emerald	10,524	15.2	692.4	21
Moranbah	7,082	8	885.2	28
Biloela	5,659	14.6	387.6	36
Blackwater	4,979	14.4	345.8	39
Nebo	2,682			
Dysart	2,617	5.1	513.1	70
Middlemount	2,121	4.7	451.3	87
Clermont	2,095	7.2	291	88
Collinsville	2,063			
Moura	1,866	8.7	214.5	93
Tieri	1,712	7.2	237.8	96
Glenden (L)	915	4.7	194.7	169
Springsure (L)	861	4	215.2	181
Capella (L)	834	6.1	136.7	184
Theodore	444	n/a	n/a	n/a
Rolleston	217	n/a	n/a	n/a

Source: OESR Queensland Regional Profile, 2007

The Bowen Basin mining towns are located within the Whitsunday Regional Shire, the Isaac Regional Shire, the Central Highlands Regional Shire, and the Banana Regional Shire. Figure 1.2 graphically illustrates the location of the towns and the location of operating mines (as of 2005)

Figure 1.2 Bowen Basin Mining Towns (Localities)



Source: Bowen Basin Website, 2008

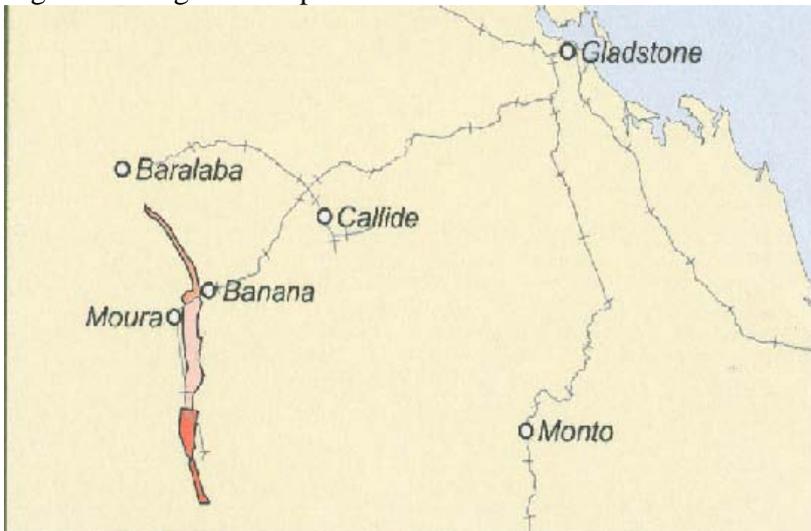
1.4.3 Research Study Area – Case Study (Moura – Dawson Mine)

The research study area for the in-depth case study is the town of Moura, which services and the Dawson Mining Complex. The mining operation is managed by Anglo Coal Australia. The town of Moura is located 200 km south west of Rockhampton, 192 km west of Gladstone, 676 km North West of Brisbane via the Burnett Highway and 65km from Biloela. Moura is a major cattle centre, in addition to producing coal, cotton and grain.

The Dawson mining complex consists of three operations; Dawson central which is the existing mining operation and Dawson North and Dawson South, which are new mining operations. Dawson Central has been pivotal to the development and character of the town of Moura and the new operations are expected to extend the life of the mining operation by at least 20 years. The Dawson Complex is held through a joint venture, comprising Anglo Coal Australia (51%) and Mitsui Coal Holdings (49%). Capital expenditure on the new mine expansions is estimated in excess of US\$ 600 million and will include a new coal preparation plant, additional mining equipment, a coal conveying system for transporting coal, rail load out facilities and administration buildings. The Dawson Central mine is located 140 km southwest of Gladstone and is operated by Anglo Coal (Moura) Ltd.

Figure 1.3 illustrates the location of Moura and the three Dawson Mine operations as well as the rail infrastructure to the port of Gladstone.

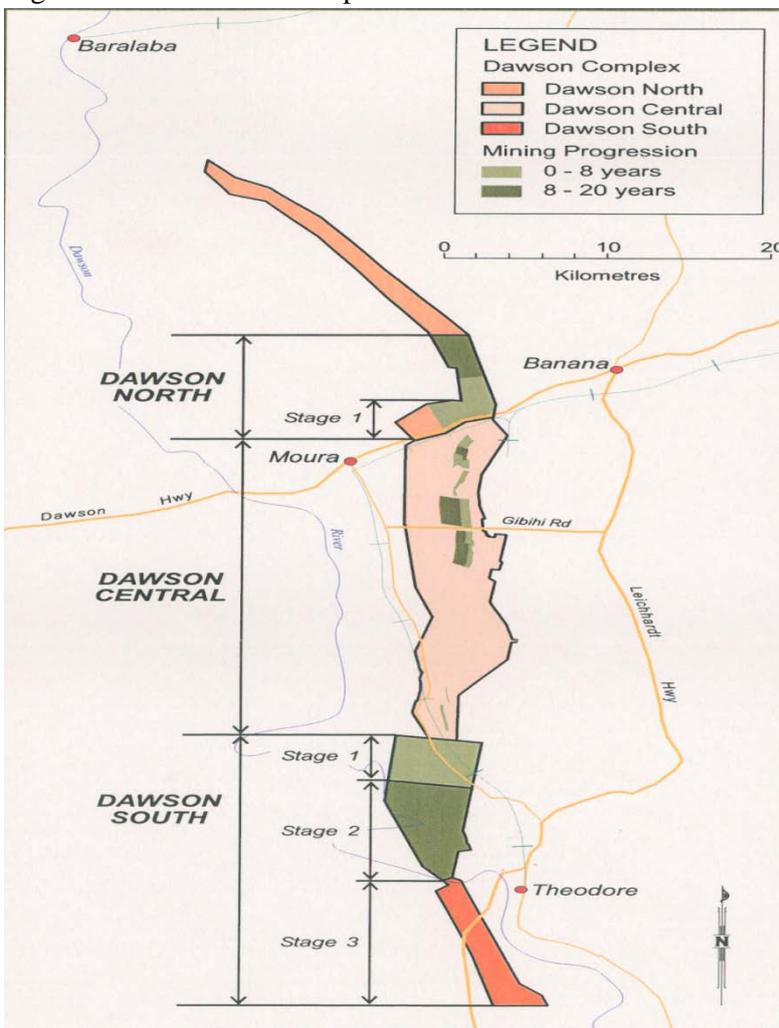
Figure 1.3 Regional Map of Moura



Source: Anglo Coal Australia

The Dawson Mine complex is shown in more detail in figure 1.4.

Figure 1.4 Dawson Mine Operation



The research method involves both economic and social assessment techniques. These are well established procedures, and have been used by the researchers in earlier Australian Coal Association Research Program projects, research on the Coppabella mining project and the Moranbah Mining Impacts project. The procedures to be applied include:

- Desktop analysis (e.g. ABS Census & PIFU data)
- Interviews with key stakeholders and mining families
- Community based surveys
- Surveys of current employees in the mining industry

The research is being conducted using a staged approach with the initial fieldwork being undertaken following a review of relevant housing and regional development literature.

Stage 1: Stakeholder Interviews:

The initial fieldwork involves a series of stakeholder interviews designed to generate and extend the key housing issues and trends across the Bowen Basin. This in turn will inform not only the policy discussion but also assist in the formulation of the analysis of the complex economic housing modelling which will be generated from an analysis of customised ABS data produced specifically for the research.

Stage 2: Market Characterisation:

In stage 2 the characterisation of housing trends across the 16 towns and localities will be completed. The characterisation will concentrate on key trends in the housing and employment market as well as the available data on inter and intra regional migration trends.

Stage 3: Regional Housing Market Model:

The researchers will develop a model, 'Bowen Basin Regional Housing Model', underpinned by relationships between age cohorts, household types and dwelling types. The model will forecast the type and numbers of house needed at the local and regional level over a 20 to 30 year period. The Bowen Basin Regional Housing model is based on linear extrapolation of demographic variables and housing types. The model includes the demographic variables and housing characteristics and assumes the value of the variables will increase over time linearly. It is assumed that the propensity to belong to a particular household is expected to change over time with decreasing fertility rates and changes in life style and family types. It is also assumed that every household has a propensity to own a house/unit. The model uses secondary data from Australian Bureau of Statistics (ABS) and from the Planning Information and Forecasting Unit (PIFU). The model also considers given household size by the local government and their assumption on the period of stabilising population growth and/or considering a period for economic growth. The model has three stages of development: input, throughput and output.

Stage 4: Case study- Moura – community & mining employee survey:

There are two main groups to be surveyed and/or interviewed. The first of these are the miners and other employees at the mines. Information will be collected about their main place of residence,

where they live when on shift at the mine, their preferred housing options and type of employment skill. The key information to be gained from this group is an understanding of their residential location choices and their preferred housing options in mining towns. With prior arrangement and communication from management, miners will be invited to fill in a brief survey during break times at the site.

The second group to be surveyed and interviewed is households in mining towns. Information to be collected from this group includes information about housing options in mining towns, and factors that drive location choice.

Stage 5: Case study - Choice modelling survey:

A sub-sample of respondents from the community and mining employee survey will be invited to participate in an additional Choice Modelling (CM) survey process. Choice Modelling is a stated preference technique that has been adapted from conjoint analysis roots in transport and marketing fields to estimate values in economic research. There have been a number of applications to recreation and environmental issues in recent years (e.g. Adamowicz et al 1998, Blamey et al 2000, Rolfe, Bennett and Louviere 2000, Morrison et al 1998, Bennett and Blamey 2001).

Of particular interest are efforts to adapt the technique to analysis of social issues. Bennett and Blamey (2001) report use of the technique to assess community preferences for the preservation of country communities in Australia. There has been application of Choice Modelling to identify community preferences for town developments in Moranbah (Rolfe and Ivanova, 2007b) and the relocation of workforces to mining towns (Rolfe and Ivanova, 2007a). In this project, a key aim is to extend the application of Choice Modelling to social issues by analysing the potential factors that influence relocation choices to regional areas. This will be illustrated in the final report.

SECTION 2 REVIEW OF HOUSING LITERATURE

This section of the milestone report offers an outline of recent trends and issues within the Bowen basin and offers a review of the relevant literature, reports and articles on housing issues within Australia.

2.1 Bowen Basin Trends

The connection between the provision of affordable and appropriate housing and sustainable regional development is widely accepted within the current literature on regional development. For example, availability of affordable housing can increase or compensate for deficits in social cohesion that arise because of other reasons (Hulse and Stone 2006). However the provision of housing in some regional areas of Queensland that are currently witnessing very high levels of economic and population growth is arguably a more complex and challenging task that requires increased debate with governments at all levels, as well as industry groups and the wider community.

An assessment of recent data clearly indicates that major growth and development is occurring in the Bowen Basin coalfields in Central Queensland. This growth is driven by the global demand for energy and minerals and is expected to provide significant regional development opportunities into the foreseeable future.

The growth in the coal industry is having a number of positive effects on employment and regional economic conditions. Between 1999-2000 and 2005-2006, direct employment in the Queensland coal industry grew by 134% with approximately 85% of this employment being related to mines in the Bowen Basin. There has also been a large increase in the number of contractors and sub-contractors working in the industry, as well as the multiplier effects resulting from the economic stimulus on regional economies. Consequently housing and rental prices have gone up sharply in most communities, reflecting major shortages in available stocks. For example, Rolfe and O’Dea (2007) report that the average sale price for houses in Moranbah, one of the larger mining towns, increased tenfold from \$30,000 to \$300,000 between 2002 and 2006, while median rental prices had a fourfold increase from \$150/week to \$600/week over the same period.

Increases in housing and rental prices can have positive economic and social impacts because of increases in the stock of wealth and family assets, and because higher prices might stimulate further housing development. However, the higher demands for housing and rapid increases in prices are associated with some economic and social consequences at a regional level. Here, some of those consequences are outlined.

1. High housing and rental costs can cause negative economic impacts when lower-paid workers are out-competed, and it becomes difficult for businesses to maintain and attract staff. Service and non-mining business growth in these communities may stagnate, with economic activity tending to concentrate in coastal centres and regional hubs. Local business costs tend to rise leading to higher prices in the mining towns.
2. High housing and rental costs can cause negative social impacts when people on lower incomes find it more difficult to remain in the towns, or suffer effective reductions in their

living standards. As a result, significant demographic and social changes can occur when mining towns are concentrated with those on higher incomes.

3. The impacts of housing shortages and higher housing costs ripple outwards and transfer housing demands across wider communities. With greater adoption of 'block shift' work patterns, employees now have more choice about where they are located, and many now live in the larger centres or coastal cities and stay in company accommodation when they are completing a shift. The Planning and Forecasting Unit (PIFU), Department of Local Government, Sport and Recreation (2006a) estimated at June 2006 14% of the Bowen Basin population were 'non-resident', moving in and out of the region for employment purposes.
4. To provide accommodation for coal employees and contractors during block shift periods, a number of work camps have been constructed. Traditionally work camps are used to meet short term needs in the early construction phase, but are increasingly being used in the Bowen Basin for longer term arrangements where employees are based elsewhere. There are varying levels of integration of work camps within communities in the Bowen Basin, and increasing debate in communities about the benefits of new housing development over the establishment of more work camps.

2.2 Non-resident population data

In its report 'Bowen Basin Population Report, 2007' the Department of Planning and Infrastructure (PIFU) notes the reliance on a high non-resident working population in the Bowen Basin region. In the Bowen Basin 11,075 or 12% of an estimated total worker population of 89,303 are non-resident. The 2007 survey follows a similar survey in 2006 and a twelve month trend can be drawn from the two surveys. The proportion of non-resident workers in the Bowen Basin has increased by approximately 3 per cent with one in four jobs occupied by non-residents. Strong job growth in the mining, construction and technical services is evident.

Non-resident worker populations are not uniformly high across the Bowen Basin with Nebo Shire resident population (2,716) being outnumbered by non-resident workers (2,868). In Broadsound and Duaranga non-resident workers constitute approximately one third of workers and the number appears to be increasing over the length of the 2006/07 survey.

The PIFU study estimates that around 9,200 non-resident workers (or 83% of total) were counted in single person quarters (SPQs) across the Bowen Basin on 31 July 2007. Caravan parks were the next largest source of accommodation (around 1,030 persons, or 10%) followed by hotels/motels (657 workers, or 6%). SPQs reported a maximum capacity of 13,850 beds in July 2007, an increase of 3,050 beds from June 2006 and accounted for 83 percent of non-resident accommodation. The study noted a declining average SPQ occupancy rate from 81% to 67% over the same period.

The PIFU report concludes that while non-resident workers continue to play a significant role in the Bowen Basin economy, representing 25 per cent of all jobs, for the foreseeable future there will be a demand for a variety of housing options to supplement permanent housing including non-private accommodation providers such as Single Person Quarters (SPQs), hotels/motels and caravan parks that perform an important function in meeting the local housing needs.

2.3 Regional Development Implications

The further development of the Bowen Basin poses some interesting trade-offs for regional development. In the initial development of the Bowen Basin, the only viable way of supplying labour was to build or expand township close to site. Since then, due to the changed shift work patterns (involving longer break periods), cheaper and more efficient transport options and changed social preferences, two other models of development, compared to the “local township” option, have emerged.

The first main option is the “regional hub” model, where employees are based at a larger centre in a region and then travel to work site for the period of shift. This is currently a major option in the Bowen Basin, with Mackay, Rockhampton, Emerald, and the Capricorn Coast emerging as regional hubs.

The second main option is to base employees outside of a region, with transport by air back to major cities after the completion of the shift. This model is commonly used in Western Australia, where many mine employees are based in Perth. It could potentially be used in the Bowen Basin, with employees based in Brisbane or other centres.

These options mean that the development of some small towns in the Bowen Basin will not automatically occur as a consequence of increased production in the mining industry. For these towns the success of potential mining developments will be dependent on the attractiveness of the town to potential employees. Identifying the factors that contribute to attractiveness is a key factor in generating regional development.

2.4 Bowen Basin Housing issues

One needs to ask why market forces are not operating to meet the current demands for housing. There appears to be a number of reasons including:

- Limited availability and release of land in some communities,
- Limited availability of building contractors (and housing for them),
- Caution of investors,
- Bargaining power of workers and suppliers,
- Constraints in infrastructure provision,
- Constraints in planning and approvals processes.

Housing market issues intersect with a range of other demographic and social changes. Lifestyle, employment and services are key issues that drive demographic changes in the regional area. There appears to be increasing interest in living in regional hubs or coastal centres (the sea-change patterns), with jobs for partners and children, education and health facilities, access to services and lifestyle being some of the factors that are driving these patterns.

A key issue is the extent to which housing development, infrastructure provision and other strategic developments need to be coordinated at the regional level. Strategies to address housing market shortages or to deal with the flow-on effects of new developments in regional areas should involve forward planning and coordination across a range of government, industry and community

stakeholders. Finding mechanisms that allow planning and coordination to occur at regional and sub-regional levels are key needs.

In the Bowen Basin, there is a need to assist mining companies, communities and all levels of Government to bring clarity to the issues and stakeholder forces to improve planning and engagement processes.

Key issues are to:

- better understand the demographic and social impacts arising from rapid regional change and subsequent effects on housing;
- identify the possible impacts of different growth patterns on housing demands in the regional area of interest;
- identify different impacts on disadvantaged stakeholders, particularly those forced into commuting patterns and split family lifestyles;
- understand the factors and forces that influence the supply of housing;
- identify mechanisms to better manage demand and address the housing supply issues;
- identify the appropriateness use of work camps to address housing supply needs;
- identify ideal processes of engagement at the community level that will better inform planning and coordination for housing related issues.

This research will develop an integrated understanding of the opportunities, implications and impacts of rapid growth in the Bowen Basin and forces affecting demographic and social issues, particularly with regard to the demand and supply of housing in the region. The integrated analysis and understanding will allow the three tiers of government to proactively work with industry and the community to reduce social issues and help to optimize the development of housing in the region, and enhance the significant benefits of growth in the mining sector for the regional area. This will progress to the development of a strategic framework to analyse, plan and implement strategies for housing issues in areas experiencing mining developments.

2.5 Current housing research

Housing research is a multi-disciplinary field combining social, economic, environmental, cultural and policy issues. The key housing issues currently under examination – both in Australia and elsewhere internationally – include concepts of housing careers, housing demand-and-supply and housing markets. In addition to these, the role of, and approaches to, the provision of housing is of particular interest and importance, in terms of securing social and economic sustainability for Australian communities. A fundamental requirement of this research is to develop an acute understanding of the housing markets in the Bowen Basin and of the underlying factors that are shaping the market trends into the immediate future.

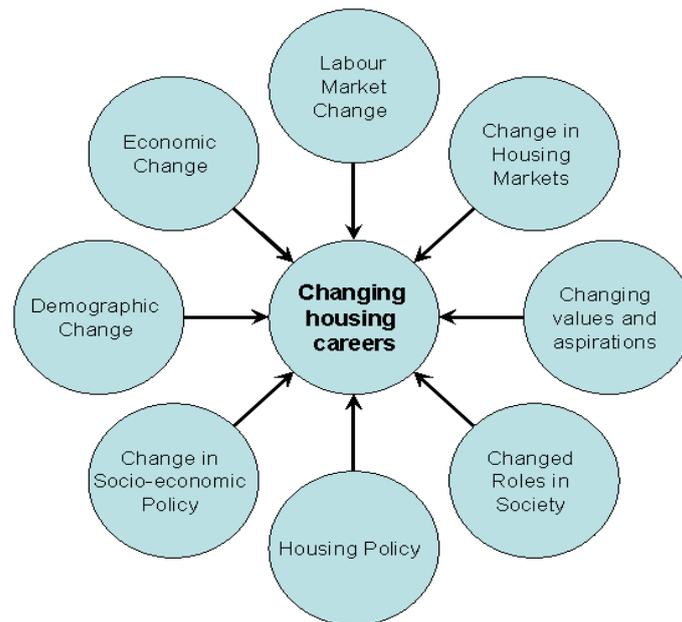
2.5.1 Understanding housing

Understanding housing can involve developing an understanding of the housing careers or the sequence of housing stages that individuals progress through over a lifetime (Flatau et al. 2004). Research suggests that there are three distinct phases of housing careers, which result from the typical

patterns of housing consumption in early, middle and late adulthood (AHURI (2004) and Huston and Han (2005)

These three housing phases have recently undergone fundamental change. It is no longer possible to talk of a single, linear progression through the ‘typical’ or ‘traditional’ housing career, because the pressures and opportunities presented by 21st century living often disrupt the transition from early adulthood, through to home ownership and the eventual mature phase. Key influences on modern Australian housing careers are summarised in Figure 2.4.

Figure 2.4 Processes contributing to change in modern Australian housing careers.



Source: adapted from Beer et al. (2006).

Demographic changes in Australian households, particularly shifts in marriage, divorce, separation and fertility rates, have resulted in a decrease in the size of the average household from 3.8 in 1947 to 2.6 in 2001: almost half of households now contain only one or two individuals (Forster 2006). In Queensland, for example, the number of households is expected to more than double from 1996 to 2036 as the average household size continues to recede (DoH 2000).

Another key area of demographic change which is expected to exert a lasting impact is the changing housing careers of older people. Added to the housing issues of the aging population is the emerging importance of ‘couple with no children’ and ‘lone person’ households. Declining household sizes have been attributed to a number of factors such as:

- declining fertility levels,
- increased life expectancy,
- ageing of the population,
- increasing proportion of single parent households,
- preference for living in smaller households, and

- higher incidence of divorce and family separations.

Attitudes to housing have also changed, and, for many people, home ownership is now viewed as a way to express luxury consumption. The meaning attached to housing has also changed: for example, it has become increasingly acceptable – even desirable – that there are delays in leaving the parental home and in accepting financial support from parents in order to purchase the first home (AHURI 2004). This has come about since younger people now tend to take longer to find employment and gain independence from the family home (Forster 2006). Recent rises in the age at which people first leave the parental home have been generated by higher school retention rates and improved participation in higher education (AHURI 2004).

In short, the emerging housing careers of modern Australians can be characterised not by a linear transition from young adulthood, to home ownership to a mature phase, but instead by:

- delay or cancellation of home ownership,
- higher reliance on higher-density housing,
- increased prevalence of second-home ownership (e.g. as an investment or holiday home),
- increased importance and impact of inheritance (as cash or property) as baby boomers inherit from the first generation of home owners (born in the 1920s, 30s and 40s),
- less chance of entering aged care housing and higher likelihood of remaining ‘aged at home’,
- greater diversity in housing careers across Australia due to social, economic and cultural and ethnic differences, and
- an increased mobility of housing stock as people more readily shift tenure and location (Beer et al. 2006).

2.5.2 *Housing markets, submarkets and pricing*

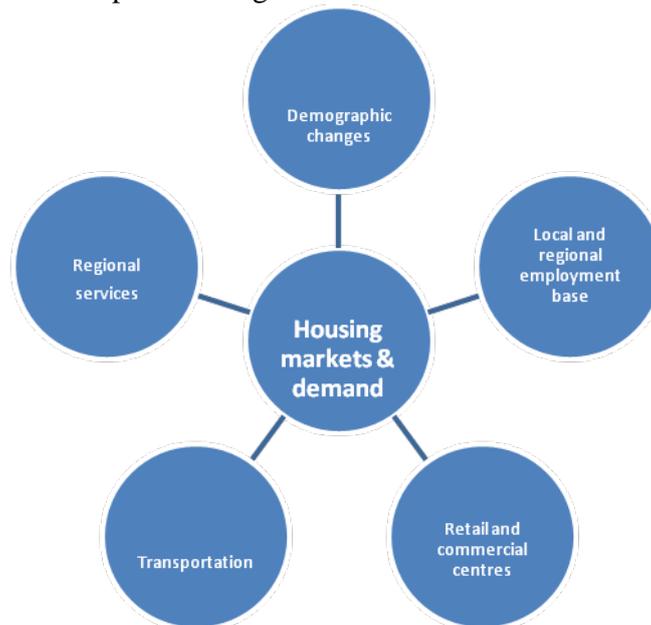
Housing markets describe the patterns of purchase and sale, including the motivations and pressures that individuals and households face in order to find and purchase or rent a dwelling that is appropriate for their needs. A multiplicity of factors affect housing markets, including variations in policy styles and implementation, the structure of local communities, patterns of land ownership, and the stringency of other local regulations. Housing markets are also intrinsically local in character. Growth (and subsequent price) of housing stock can be constrained in the short term as a result of the length of local planning and construction phases and the inertia of existing land planning schemes (Tsatsaronis and Zhu 2004). Empirical models suggest a large number of factors (see Figure 2.5) affect house prices, particularly:

- Incomes,
- interest rates,
- credit availability,
- tax structure,
- housing supply, and
- demographic structure.

Factors that influence the demand for housing over longer horizons include growth in household disposable income, shifts in demographics (such as the relative size of older and younger generations), enduring features of the tax system that might encourage home ownership as opposed to other forms of wealth accumulation, and the average level of interest rates (possibly related to the long-run

behaviour of inflation). The availability and cost of land, the cost of construction, and investments in the improvement of the quality of the existing housing stock are longer-term determinants of housing supply. Housing markets themselves can also affect other economic and social conditions (Berry 2006). Attitudes and behaviours toward housing can easily influence neighbourhood characteristics, mortgage markets, urban growth and decline and national housing policies. For example, rising housing prices are positively correlated with consumption, which itself may account for up to 60% of demand in an economy (Berry 2006). Thus, it can be said that housing markets share an intimate relationship with the functioning of communities as a whole.

Figure 2.5 Factors that impact housing markets and demand



Source: adapted from *Queensland Department of Housing (2003)*.

2.5.3 Housing demand

Housing demand can refer to demand for either purchase of a dwelling, or demand for rental properties. According to Bond (2003, pp. 26-27), there are three main needs-based segments of home purchasers. First home buyers, which are parental home leavers and former renters; Upgraders which are those households who already have a first home and become interested in homes of better quality, location, or appropriateness to the household needs; and Investors. The decision to upgrade can be influenced by household size, shifts in employment or other economic gains. Investors are those households, companies and trusts which seek to purchase homes for purposes other than owner-occupying. Investors currently have a large and ultimately growing share in the Australian housing market (exceeding 40% in 2003) and hence contribute substantially to housing demand.

Housing demand is influenced by both economic and demographic factors. Population growth (both birth rates and net migration) is a key driver of housing demand, and this demand can be satisfactorily met only by the construction of new dwellings (Bond 2003). Demand in the investor segment is particularly influenced by interest rates, financial deregulation (the ability to secure bank loans for investment homes), rental income and the performance of alternative wealth classes such as the share

market. The Upgrader segment contributes not only to demand, but also to supply, since the original home typically becomes available for purchase.

Housing demand is currently at record highs within Queensland (DoH 2006). Demand for housing is largely generated by regional employment growth and demographic and economic forces that transcend LGA boundaries. Generally speaking, the supply of land available for housing development to meet that demand is largely controlled locally by municipal policies and land use regulations.

2.5.4 *Housing supply*

There are three categories of housing supply:

- Unchanged existing dwellings,
- Modified existing dwellings, and
- Newly constructed dwellings (Galster 1996).

It is through the modification of existing dwellings, and the construction of new dwellings, that suppliers can respond to changes in market conditions and housing demand (Galster 1996). However, there can often be time lags before the housing sector adjusts or responds to market changes (Wallace 2004). Houses cannot be (easily) relocated if demand falls locally. The ability to quickly respond and meet the changing needs of different households therefore remains a key challenge for housing suppliers.

Housing delivery by the private sector can be achieved via land development, construction, private property/tenancy management, private rental investment and by outright home ownership (DoH 2003). Australia's population is, by far, predominantly housed in private stock. Private rental stock in Australia accounts for only 20% of the rental housing market in Australia, and is provided almost exclusively by small-scale landlords (Yates and Wulff 2005). The largest section of the private market is represented by owner-occupiers, representing 62% of Queensland households.

2.5.5 *Social, Public and Community housing*

In Queensland, low-cost housing solutions such as boarding houses and caravan parks in particular appear to be viewed less favourably for investment by the private sector: this has resulted in a decrease in the supply of these types of dwellings (DoH 2006).

Low cost housing options include 'social housing' which can be described as 'secure, affordable rental housing for low to moderate income or special needs households' (NCHF and AHURI 2003, p. 2). In Queensland, social housing is delivered directly by the state Department of Housing, together with over 350 community and local government registered providers (DoH 2007). The Queensland government currently owns approximately 56,000 housing properties (public housing, Aboriginal and Torres Strait Islander rentals and Department of Housing community housing properties) (DoH 2005).

Another option is 'public housing' which is a form of social housing that specifically relates to government-managed housing provided to people who are disadvantaged in their access to the private rental market (NCHF and AHURI 2003, p. 3). Access to public housing is now tightly rationed and hence available only to those in extreme housing need, although the use of rent rebate programs for welfare-dependent households has allowed some individuals to enter the private rental market (Forster 2006).

Community housing is yet another option and has been described as a mechanism that allows households and communities to cooperatively own, rent and run their housing (DoH 2005). Community housing is a small, growing and integral part of the social housing system. It is locally based and comparatively small as community housing represents only a tiny proportion of housing (approximately 0.5% of all households) (NCHF and AHURI 2003).

2.6 Temporary Housing Options - Work Camps

Work camps have emerged as a major housing option in the Bowen Basin. Work camp accommodation, in general, tends to be seen as a temporary sub-standard housing option, and may be associated with housing practices within the corrective services or with work compounds in developing countries. A review of the available literature on work camps, housing options and mining reveals research centred on aging communities dealing with underinvestment in infrastructure and housing, declining mining activity and urban renewal programs found primarily in the UK. It serves to illustrate that the debate around the cost of mine worker accommodation and the controversy is not a recent phenomena. The issues raised are similar to the debates that are occurring in the Bowen Basin over the various contributions and obligations that are inherent or to be negotiated within mining developments.

Conflicts over planning decisions have occurred in the Bowen Basin. This is illustrated by the Nevtan Investments proposal to build a work camp for 2000 people 20 km from Moranbah. The Belyando Shire Council rejected the proposal on the basis that it did not meet the requirements of the Moranbah Strategic Plan. An appeal lodged by Nevtan Investments with the Planning and Environment Court of Queensland in the latter part of 2007 was also dismissed.

In this judgment, Judge Britton SC found that ‘due to the range of services planned and the possibility of the camp operating for up to 15 years, it could not be considered a temporary abode or defined as a work camp, and as such is not in line with the Transitional Planning Scheme. The judgment stated the proposed development undermined the Strategic Plan and did not represent a logical growth site for the town, but rather represented the establishment of a whole new town of some 2000 people. As such, the Judge felt there was no evidence that the proposed development would improve services to the locality and could even be detrimental to the community’ (Belyando Shire Council – Media Release).

The proposed work camp development was a substantial commitment described as occupying two large green-field areas, each accommodating up to 1000 people. The development, specifically designed for work employees, proposed to separate the sleeping areas by a large kitchen and dining facility, tavern, gym, swimming pool and other sporting facilities, including a tennis court and basketball court. The project was to be constructed on land that was zoned Rural A.

The Belyando Shire Council cited the need for planned strategic development that looked to the long term and was sustainable beyond the short term. At question was the shared vision of the community and an expression for the need for sustainable benefits that encompass the whole community and those that are solely industry focused.

2.6.1 *Single Person Quarters*

The Bowen Basin work camps tend to be referred to as Single Person Quarters (SPQ's) and take different forms within the mining industry dependent on the specific or general need, the tenure arrangements, whether they are company controlled or independent, the number of operations catered for, and the proximity to urban populations. A definition of SPQ's within the Bowen Basin drawn from PIFU is that they are usually a non-private type of accommodation, developed to accommodate unaccompanied mining non-resident company workers and associated contractors.

Bowen Basin SPQ



As with the SPQ proposal mentioned above, most SPQ accommodation is arranged similar to a hostel in which the sleeping and private living areas are separated from communal shared areas that consist of kitchen, laundry and entertainment facilities. Some SPQ's will contain permanent and semi-permanent dwellings however most of the building will be demountable and able to be relocated if necessary. Company operated SPQ's will typically offer a number of services such as room cleaning and possibly meal and laundry services.

2.6.2 *Work Camps – SPQ Trends*

Obtaining reliable data on the trends associated with work camps and SPQ's in the Bowen Basin is limited by the few studies undertaken to date. This review relies primarily on the PIFU (2007) study and an examination of individual LGA data sources. This reliance is reflected in one of the criticisms of work camp development raised in a number of regional forums and that is an apparent lack of uniformity in regulation and coordination of planning at a regional level. This is evident in the scarcity of available data and reviews at the regional level.

The PIFU (2007) study highlights that the housing options incorporated by mining companies and contractors differs across the Bowen Basin and is subject to demand preferences of resident and non-resident populations, housing availability and opportunities; and demand fluctuations in a dynamic housing market.

Overall trends can be discerned in percentage of non-resident workers residing in SPQ's, compared with other housing alternatives, reaching such high levels in Nebo Shire (95%), Broadsound Shire (93%), Daringa Shire (90%), Bauhinia (90%) and Peak Downs (85%) (PIFU, 2007).

These can be contrasted with the lower figures of the Bowen Shire (48%), Banana Shire (65%) and Emerald Shire (63%) which reflects the ready supply of alternative housing options, level of mining activity, maturing mix of industry within the shire. Competing pressures are an important part of understanding the characterisation of the housing markets within the various shires of the Bowen Basin

A trend in work camp delivery reported by the Queensland DoH 2007 report ‘Housing in the Bowen Basin’ was the shift from mining companies providing various forms of work camp accommodation for its employees to private accommodation providers developing accommodation camps of mainly relocatable demountables instead of permanent accommodation. Concerns have been raised over the standards applied to the residences and the need for greater uniformity of accommodation standards for this category of accommodation. Impacts on the private rental markets have also been noted at these locations where there is insufficient supply (CEO’s report, 2007).

The towns of Glenden and Nebo in Nebo Shire have non-resident worker populations that exceed the resident population component of the town (1,463 non-resident persons in Glenden and 693 persons in Nebo). Due in part to the availability of suitable locations and possibly the time frame of planning processes Glenden has several large SPQ’s located on private land or on nearby mining leases (Table 2.1). This is also the case in Moura although these arrangements may be changed as future options become more evident. A key factor is the intended life expectancy of the SPQ.

Table 2.1 Private land or Mining Lease - Work Camps – SPQ’s

LGA	SPQ name	Location	Nearest town	Comments
Emerald	Ensham Village	Mining lease	Comet	Mining lease straddles Peak Downs and Emerald Shires. SPQ created for construction workforce - closed in 2006-07
Nebo	The MAC Coppabella	AMCI	Coppabella	Not a designated locality
Nebo	Hail Creek Village	Pastoral lease adjacent to Hail Creek mining lease	Glenden	SPQ in private land near lease.
Nebo	Kerlong Village	Mining lease	Glenden	SPQ in private land near lease.
Nebo	North Goonyella Village	North Goonyella mining lease	Glenden	SPQ in private land near lease.
Banana	Cracow	Newcrest mining lease	Cracow	SPQ on mining lease
Banana	Kotti Doon	Kotti Doon Station	Moura	SPQ on private land. Built for construction workforce to be closed in 2007-08

Source: PIFU, 2007, Appendix F

A proposed typology of work camp (SPQ) functionality is shown (Figure 2.6) which differentiates work camps on the basis of function for existence based on the purpose the work camp was constructed for or on the basis of project that it is catering for. On this basis work camps are designed for an expected timeframe either short term, generally for a construction workforce or longer term for

mining extraction activities. Another key factor of the typology is whether the work camp is privately owned and operated or whether it is a public facility. Public facilities are able to function to accommodate multiple projects and purposes more so than mining company owned facilities, although there is a trend for privately operated facilities to be managed for multiple projects in some circumstances.

Figure 2.6 Typology of Work Camps

Function of Work camps - SPQ's		
Expected Timeframe		
Private - Public	Short-term construction camp (public)	Long - term on-going accommodation - alternative to township (public)
	Short-term construction camp (private)	Long - term on-going accommodation - alternative to township (private)

Source: ISRD 2008

2.7 Rationale for Work Camps

The justification for most work camps can be located in increased 'block shift' work patterns and the opportunity for mining operations to lessen the on-site capital expenditure required. Alternative accommodation for mining operations that are not located near large urban populations can lessen the front end capital outlays required to build new towns.

This is partially evidenced by the last exclusive mining town to be built in Australia, Roxby Downs being built in the 1970's in South Australia. According to Houghton (1993) a feasibility study in 1984/85 the capital costs for constructing a work camp for fly in operations was set at \$A37.1 million compared to \$A56.9 million for the construction of a conventional township. The recurrent annual operating costs were put at \$A1.7 million and \$A5.7 million meaning that the additional cost of operating a FIFO operation would limit economic viability to a five year period.

Other examples of the introduction of FIFO operations in the Bowen Basin in the early 1990's resulted in considerable political pressure and the eventual construction of additional housing in the town of Emerald (Gillies, 1993). The cost effectiveness of work camp options or conventional housing construction would appear to relate clearly to the size of the operation and the life spans of the mine. Short term mining operations that were not close to an existing town would favour the construction of temporary work camps over more permanent arrangements.

2.8 Social impacts of work camps

The research to date on the social impacts of FIFO mining operations is limited as most studies have concentrated on permanent mining communities. In general fly in/fly out mining workers tend to express satisfaction with their situations citing high income levels and increased leisure time due to

compressed working hours (Houghton, 1993; Clark et al 1985). Although, Pollard (1990) relates that increased stress for spouses who are left for longer periods with the sole decision making for families has been cited as a negative factor of FIFO work cycles.

Recent qualitative research (Allan, 2007) into the recruitment and retention in the mining industry focused on the social impact of mining worker relocations. The focus of the research was the families of mining workers who had experienced the frequent relocations that characterise the industry. An insight into the social implications of frequent relocations is revealed through personal conversations with the families as Allan recounted;

‘without exception the biggest challenge was making friends and social activities. Those who had moved several times described being tired of having to make the effort although experienced at what had to happen. They described going anywhere and everywhere they were invited just in case that was the place where a friend was made. The local knowledge was also collected from these outings. Often work issues affected the women’s view of the relocation. Relocation usually meant a new job for the partner and this entailed new working conditions including places, hours and responsibilities. While mines have 12 hour shifts, travelling seems to increase as people change jobs. In locations where people made connections this was less of an issue. However, life stages and family demands affected each move’.

A key insight from Allan’s research is that locations that experience a lot of population migration can become more attractive to, and supportive of, their newcomers. Allan argues for a greater recognition that women and children are the community members and service users with the greatest need for integration.

Recent research (Ivanona and Rolfe, 2006) into work camp life reported that work camp accommodation was relatively expensive and in high demand. This meant that some shift workers leaving for their days off were required to clean out/move out for those days while someone else used their room.

Stakeholders reported that work camps were not good for the emotional wellbeing of the workers; a growing number of camp residents were believed to feel isolated and to be experiencing family problems.

One of the stakeholders said:

“Community connectiveness and social isolation... Not only women [wives] and children but single young guys that come here and live away from their friends... A lot of those guys crave company, not all sexual stuff.”

Her colleague:

“Blokes do different things than girls; if you don’t play sport and just go to work you don’t have any connections, that’s [sports] how they [men] meet and mix with people. Men mix differently [than women]; they joke but don’t make a proper connection with people. *It* can have a long impact”.

Participation in sport and other activities for socialising among men were believed to be curtailed by the shiftwork system. Since people were on a number of different shifts/rotations and often spent

considerable time commuting, sporting club memberships and socialising in general both decreased. At times, in fact, even colleagues from outside their own shift groups were only seen on workers' 'pyjama days'; that is, the half day period when they moved from day to night shift.

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