

BE WHAT YOU WANT TO BE.



SMOOTHING THE PEAKS AND TROUGHS: MODELLING
HOUSING AND INFRASTRUCTURE FOR INFORMED POLICY
DEVELOPMENT AND SUSTAINABLE MANAGEMENT OF
MINING COMMUNITIES

Milestone Report Six

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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>

EXECUTIVE SUMMARY

While increased mining generates broad-based positive benefits for regional areas and the state economy, there are a range of negative economic and social impacts that need to be addressed to achieve sustainable development of the Bowen Basin Communities. In the small towns servicing the mining areas in the Bowen Basin, the major providers and planners of accommodation and services are being overwhelmed by the scale of change brought about by the recent growth in the mining industry. Differences in income levels, increases in housing costs and shortages of skilled labour are some of the impacts of rapid growth that are rippling across these communities.

The results of the research tabled in this report show that the existing services and infrastructure are not adequate to ensure the long term viability and vitality of many of the Bowen Basin communities. The choice modelling analysis identifies high community values for improving health services, increasing supplies of social housing, and ensuring that longer term housing is developed rather than work camps. Analysis of the demographic groups within communities demonstrate that while older, settled residents are generally satisfied with the current level of services and development, younger and more mobile residents are looking for better and more diversified services. This suggests that for communities to prosper in the longer term and maintain populations of younger people, the level of services and infrastructure may need to be increased.

There are significant information and planning gaps between industry, communities and levels of government. Improved data sharing and communication between all stakeholders about future mining developments, community needs and infrastructure provision is required. Better tools for modelling and analysis using leading indicators will also assist in filling many of the gaps. The development of an ongoing process to identify changing service and infrastructure needs is important, and some form of social management plans associated with mining operations will help to meet these needs.

The development of potential government strategies to address housing issues in the Bowen Basin will require ongoing focus by government and policy makers on the following policy questions

- Development of strategies to resolve the work camp versus more permanent housing question
- Development and enforceability of ongoing social management plans to address mining impacts
- Development of strategies to encourage diversification of industry in mining towns affected by housing and labour shortages
- Under- investment in social infrastructure/housing and services in mining affected towns
- Addressing the loss of diversity in skills and trades
- Addressing labour shortages and issues of recruitment
- Addressing spill-over impacts on lower income groups

TABLE OF CONTENTS

Executive summary	ii
Introduction	- 1 -
Project reports	- 3 -
The method: Inputs, processes, decisions and outputs	- 5 -
Future housing projections	- 5 -
Future government policy, Future mining needs; Future private investor needs	- 5 -
Future mine employee needs	- 6 -
Future Community needs	- 6 -
Research findings	- 9 -
A coordinated response to population, labour force and housing impacts.....	- 9 -
What do the mining companies want?	- 9 -
Who are the future mining employees and what do they want?	- 10 -
Where will future miners come from?	- 10 -
Future Housing needs – The BBRH Model	- 10 -
What are the developers and investors looking for?	- 11 -
What are the communities looking for?.....	- 11 -
What does Government want?	- 12 -
What do Local Governments want from mining companies?.....	- 12 -
What do Local Governments want from State Government?	- 12 -
What do State Government agencies want from mining companies?.....	- 12 -
What do State Government agencies want from their Government?.....	- 13 -
Discussion	- 13 -
Recommendations	- 14 -
References	- 15 -

TABLE OF FIGURES

Figure 2.1 Inputs, processes, decisions and outputs	- 8 -
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INTRODUCTION

The economic challenge for regional development in mining areas is to optimise the advantages of the booming resource industry, minimise any offsetting costs of impacts and to secure future development of the region. However there is mounting evidence that mining communities supporting much of the increased prosperity of the State of Queensland are experiencing considerable economic and social pressures originating from a sustained global mineral resource boom.

The focus of this research project has been to identify the issues and pressures that exist in mining communities, and to identify appropriate patterns of development in the longer term, particularly in relation to housing supply and developments. The initial stakeholder research in the project showed that those focused on the positive impacts of the mining boom at the regional and broader market level are concerned by labour supply, workforce churn and infrastructure limitations. Stakeholders who were focused on the impacts to society reported that many areas of their community are under great pressure from rising costs.

At the local level there are many options for the development of mining towns. For example, development options include the choice between building more work camps or permanent houses. However there is limited information and analysis available to help to prioritise the development choices. Factors that are likely to influence the desirability of different development options include the costs involved, the wishes of the relevant community, predictions about demographic, economic and social trends, and the strategic planning and development priorities of the local and state governments.

Regionally, the social and economic outcome of the boom period is an unprecedented influx and redistribution of mine labour force, producing large and widely distributed impacts to many communities in the Bowen Basin and adjacent regional cities. The changing workforce patterns and increased labour mobility mean that much of the demographic and economic stimulus of the mining boom is flowing through to regional centres and the regional economy. At the same time, these improved transmission linkages mean that the associated pressures of development are also flowing across communities and regional centres, with pressures on service provision and housing supplies now widespread. Both housing and service limitations are providing compounded social impacts to a sizeable proportion of middle and lower income employed, retired and vulnerable local residents; generating social pressures, as well as limiting the potential for further economic development and diversification.

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. Positive economic impacts from the mining boom can also include increased employment opportunities and higher income levels. Wage levels in mining are approximately double weekly earnings in the retail trade and tourism industries (ACIL Consulting 2002). However, the high levels of income in the mining industry mean that there is a growing divergence between housing affordability for mining employees and employees in other sectors.

The additional workforce growth in mining since 2001 has exerted pressures on the housing market, assisting to drive the prices up. The boom in the mining industry has more than doubled direct employment in Queensland by more than 10,000 employees in the five years to 2005-2006, with additional employment through contractors and service industries. 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. Driven by these employment and demographic changes, housing and rental prices have gone up sharply in most mining based communities, reflecting major shortages in available housing stocks. For example the average sale price for houses in Moranbah increased tenfold from \$30,000 to \$300,000 between 2002 and 2006 (Rolfe and O'Dea 2007).

The impacts of housing shortages and higher housing costs have had some negative impacts on many Bowen Basin communities, including those adjacent to the mining areas. With 'block shift' work patterns now becoming the norm, employees now have more choice about where they are located, with many now living in the larger centres or coastal cities and staying in company accommodation when they are 'on shift'. The Planning and Forecasting Unit (PIFU), Department of Local Government, Sport and Recreation (2006a) estimated at June 2006 that 14% of the Bowen Basin population at any one time were 'non-resident', moving in and out of the region for employment purposes¹. When an allowance for block shift work patterns is made (where at least half of the workforce is away from the area at any one time), there may be up to 28% of the population living outside of the area.

The increased demand for labour and the higher wages paid to mining employees has flow-on effects for other industries and businesses in regional areas, making it difficult for businesses to maintain and attract staff. There is a tendency for economic activity to concentrate in coastal centres and regional hubs, making it difficult to develop mining communities further than dormitory towns. In the mining towns, the costs of housing and service provision tend to increase, leading to higher prices paid by the locals. There are a large number of public servants and essential services providers who are affected by the higher costs of living in these regional towns surrounding the mining sites (Milestone report 5).

New company accommodation for mine employees and contractors during block shift periods is now primarily work camps. Traditionally, work camps were used to meet short term accommodation needs in the early construction phase of mining developments. They are now increasingly being used in the Bowen Basin for longer term arrangements especially where employees and often their families reside elsewhere. There are varying levels of integration of work camps within communities in the Bowen Basin, as well as increasing debate in communities as to the benefits of new housing development over the establishment of more work camps.

However, proper debate and focused engagement with the issues are limited by the lack of current, incisive and salient research and analyses. The underlying rationale for this study therefore was 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. The information and insights generated from this

¹ Data collected in this study and information from the mining companies suggests that the non-resident proportion of the workforce is continuing to rise.

report may also help to develop policies that will be applicable for future booms and other regions such as the Surat Basin.

Project reports

This final report for DTRDI presents a high level summation of the research activities that have been completed to date in this project. This report should be read in conjunction with the five previous project reports which are attached as appendices to this report. In this section a brief synopsis of the five previous reports is presented in order to contextualise a broader discussion of the research findings in the next section of the report. Because of perceived gaps in empirical knowledge and primary data, the research, analysis and modelling outlined in this report, and detailed in the five previous reports, has focused primarily on a case study approach.

The first milestone report '*Ensuring Sustainable Benefits from Boom Periods: A case study for long term housing policy in the Bowen Basin – Milestone Report 1*' included a review of the aims and objectives of the project and a review of the current issues confronting the Bowen Basin region. The information was drawn from an examination of the relevant literature, reports and articles on housing issues within Australia. It was argued in the report that the provision of housing in some regional areas of Queensland that are currently witnessing very high levels of economic and population growth is a complex and challenging task requiring increased debate with governments at all levels, industry groups and the wider community.

The second milestone report '*Bowen Basin Regional Housing Demand Forecasting Model: Application to Five Towns*' provided an overview of a Bowen Basin Regional Housing (BBRH) model capable of forecasting housing demand within regional locations. An preliminary application of the BBRH model to five towns in the Bowen Basin region was also provided. The BBRH model generated a clearer picture of the future demographic trends in the Bowen Basin and was refined and further updated in the fourth milestone report. The model can be utilised to provide the linear trajectory of the demand for housing, housing types, age cohort and family type on top of which localised responses to new development labour force requirements can be evaluated.

The third report '*Ensuring Sustainable Benefits from Boom Periods: A case study for long term housing policy in the Bowen Basin – Milestone Report 3 – Stakeholder Research*' explored in some depth stakeholder views on the housing situation within the Bowen Basin. The interview questions were framed with reference to mining towns, work-camps, and towns in the region (mainly coastal) that are the miner-preferred main residences when off-shift. The broad-based stakeholder interviews identified that there were concerns about a number of housing issues and pressures on local and regional communities, about the integrity and quality of the information upon which policy decisions were made, and about the current gaps and inconsistencies in policy approaches. Key issues of concern that were identified included the high cost of housing and impacts on non-mining families, the development of workcamps, and the issues in servicing a non-resident workforce.

The fourth milestone report '*Bowen Basin Regional Housing Demand: Identifying the Preferences of Mining Employees*' informed by the three previous reports (Milestone 1, 2 & 3) extended the discussion of housing issues within the Bowen Basin around case study research on the mining based township of Moura. The section of the case study presented in the report involved a survey of mining

staff and employees at the Dawson Mine Complex, with the results then extended into a discussion about policy implications. An effort was made to categorise the miners into different groups by analysing demographic, attitudinal and psychometric data collected in the survey. The discussion drawing on the Bowen Basin Regional Housing (BBRH) model extended the earlier findings by connecting the model outcomes with possible future policy initiatives and the outcomes of the mining staff survey. For appropriate policy to address the central issues of this project, evidence needed to be collected on the housing demands from a group known to have provided most recent demand; the mining employees. In hindsight, it seems one of the most obvious steps, but in reality there is a dearth of data on this group. In the fourth milestone report data and analysis from this group was presented.

The fifth milestone report '*Bowen Basin Regional Housing Demand: Identifying Community Aspirations*' sought to identify how different communities view housing needs and development options within the Bowen Basin region. A survey was conducted in three communities (Moura, Biloela and Theodore) to assess future population and development trends and needs of the relevant population groups. As well as collecting data about demographic characteristics and the location and housing preferences of respondents, the research included some stated preference experiments to assess how people would like their communities to develop. These stated preference experiments helped to provide more detailed analysis about the underlying tradeoffs about housing and community development issues that people found important.

The next section of this report will discuss the method used to coordinate the data results in a causal chain (Miles and Huberman 1994) in order to articulate the findings through the multiple viewpoints required for fully informed policy discussion and formation.

Please cite the Project Milestones Reports as follows :

Greer, L., Yabsley, E., Rolfe, J., (2008) Ensuring Sustainable Benefits from Boom Periods: A case study for long term housing policy in the Bowen Basin, Milestone Report 1 provided to the Department of Tourism, Regional Development and Industry (DTRDI).

Akbar, D., Rolfe, J., Greer, L. (2008). Ensuring Sustainable Benefits from Boom Periods: A case study for long term housing policy in the Bowen Basin: Bowen Basin Regional Housing Demand Forecasting Model: Application to Five Towns, Milestone Report 2 provided to the Department of Tourism, Regional Development and Industry (DTRDI).

Yabsley, E., Yabsley, B., Rolfe, J., Greer, L., (2008) Ensuring Sustainable Benefits from Boom Periods: A case study for long term housing policy in the Bowen Basin: Stakeholder Research, Milestone Report 3, provided to the Department of Tourism, Regional Development and Industry (DTRDI).

Rolfe, J., Yabsley, B., Akbar, D., Yabsley, E., Greer, L., Makiela, S., (2008) Bowen Basin Regional Housing Demand: Identifying the Preferences of Mining Employees, Milestone Report 4 provided to the Department of Tourism, Regional Development and Industry (DTRDI).

Rolfe, J., Ivanova, G., Yabsley, B., Yabsley, E., (2008) Bowen Basin Regional Housing Demand: Identifying Community Aspirations, Milestone Report 5, provided to the Department of Tourism, Regional Development and Industry (DTRDI).

Yabsley, E., Rolfe, J. and Greer, L. (2008) Smoothing the Peaks and Troughs: Modelling housing and Infrastructure Management of Mining Communities, Milestone Report 6, provided to the Department of Tourism, Regional Development and Industry (DTRDI).

THE METHOD: INPUTS, PROCESSES, DECISIONS AND OUTPUTS

A key stage in any research project is to identify the key research questions or hypotheses to be tested, and to specify the methodology that will be used. To coordinate the data results from this study into useful outputs the researchers mapped out the background inputs, processes, decisions and outputs relevant to the key research question (Figure 2.1).

“What are the potential Government strategies to address the housing issues?”

To address this, the initial focus of the research was to determine the needs and wants of each stakeholder group (Marsh 1999). The answers and process outputs from the stakeholder analysis were then used as further inputs into the research program to inform subsequent research questions. The input questions of most relevance to the research program (in relation to mining community housing policy) were identified as:

- What do mining companies want?
- What does Government want?
- Who are the future mining employees and what do they want?
- What are the communities looking for?
- What are developers and investors looking for?

By researching these questions of stakeholder needs and wants the specific research areas of focus can be identified as follows.

Future housing projections

A key data priority identified in the project was to provide fundamental demand data for housing, housing types, age cohort and family type to provide baseline data. From this, localised responses to new development labour force requirements can be evaluated. The researchers developed a housing model, called the Bowen Basin Regional Housing model (BBRH model), to describe the relationships between population age cohorts, household types and dwelling types. The model, described in the second research report and refined in the fourth report, is capable within stated limitations of forecasting the type and numbers of houses needed at the local and regional level over a 20-30 year period. Demographic information from the ABS 2006 Census data and PIFU population forecasting was used as input and throughput for modelling and predicting local, regional and State level housing needs. The model also considers given household size by the local government area, which are adjusted by assumptions on the period of stabilising population growth and/or considering a period for mining boom.

Future government policy, Future mining needs; Future private investor needs

To address questions about development issues, housing drivers and pressures, and policy requirements, stakeholder research was conducted with a broad cross section of relevant stakeholders. These included workers, managers and industry representatives in the mining industry, and representatives from community services, housing and indigenous housing services, as well as from local government and Queensland government agencies. Analysis of the views of thirty four

stakeholders as they pertained to mining and mine employee impacts, housing, workcamps and their views on preferred policy and stakeholder roles were captured in the third report.

Future mine employee needs

To examine demand drivers for housing from mine employees, employees of the Dawson mine in the southern Bowen Basin, including both miners and 'staff', were surveyed and asked about their preferences for work, housing, location and service need issues. The results are presented in report three, where the employee preferences are also compared with predictions from the housing (BBRH) model for the relevant communities. Policy recommendations about future housing need is also included in the report.

Future Community needs

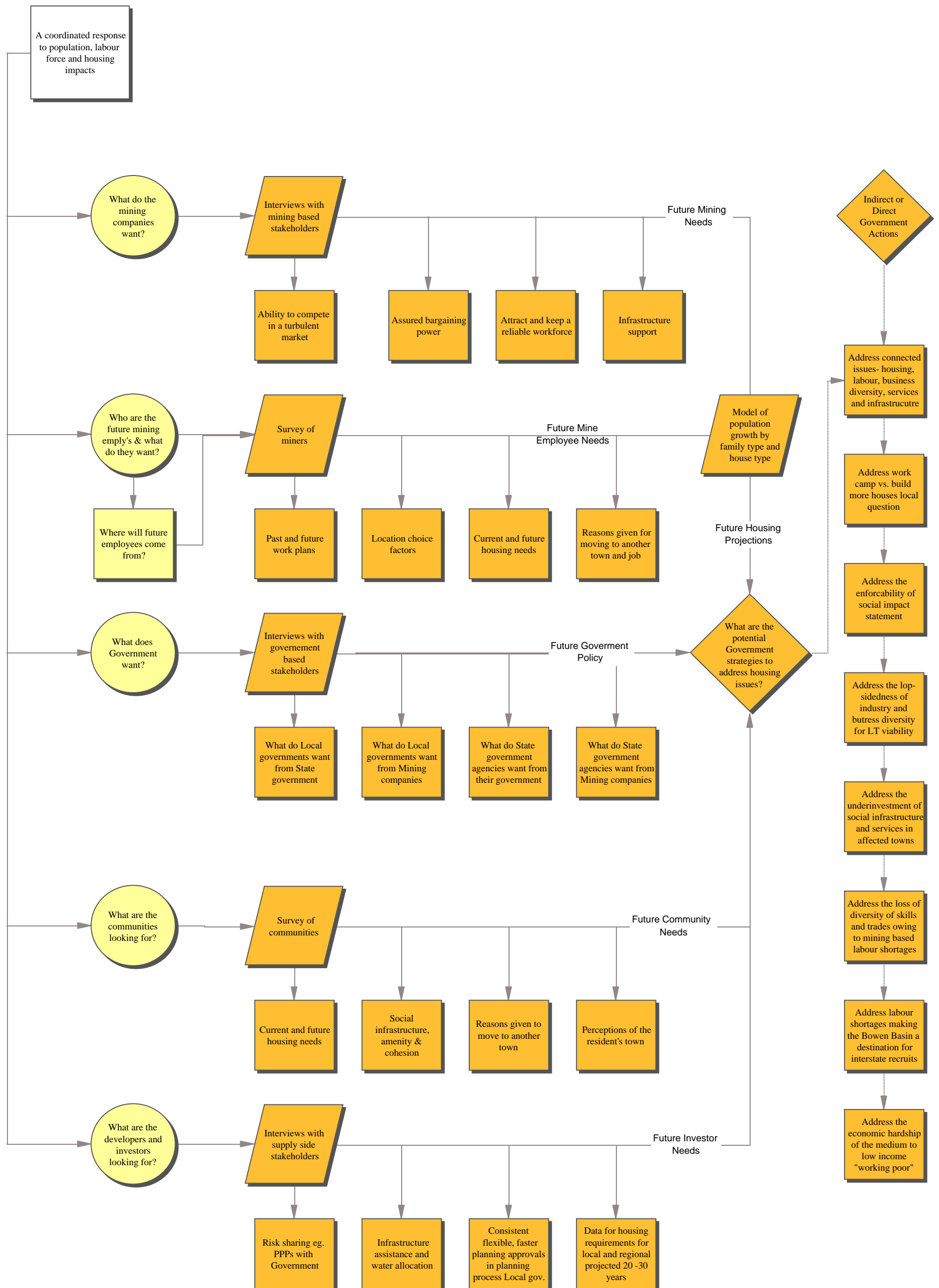
To estimate future need for housing and services at the community level, research and analysis was conducted with three communities in the vicinity of a major mining operation, the Dawson mine. The communities of interest were:

1. Moura - a small farming and long-time mining town in the vicinity of the mine site;
2. Theodore - a small nearby rural town with future mining town growth potential owing to its proximity to slated mine developments;
3. Biloela – a growing regional hub situated at a junction of rail, road and air services, servicing a number of industries including meat packaging and export, farming agriculture and livestock, energy generation and also servicing a number of mining sites.

A survey was conducted in each of the three communities with some parallels in the material collected in the mine employee survey. However, the community surveys assessed the needs of residents in more detail, and included some analytical exercises designed to provide more direct feedback on key development issues. Choice modelling and contingent behaviour techniques were applied to evaluate the trade offs that various groups will make for additional services and liveability factors. The survey also captured perceptions that respondents had about their community, mine employees in the community, and mining companies as well as a short psychographic measure for grouping the respondents between and within towns.

Figure 2.1 illustrates in graphic form the method undertaken to investigate the seminal questions posed by the department's research brief as reported in Milestone Report 1.

Figure 2.1 Inputs, processes, decisions and outputs



RESEARCH FINDINGS

A coordinated response to population, labour force and housing impacts

A key issue running through the research results was the need to develop more coordinated responses to the population, labour force and housing impacts of new mining developments. The speed at which many new developments occurred and the subsequent impacts flowed through to many regional communities appeared to be out of sync with many government planning processes and the responsiveness of private housing markets.

What do the mining companies want?

Through interviews with mining and associated industry based stakeholders and their representative bodies, it was established that a number of views are prevalent in the mining industry community, namely:

- To attract and retain a reliable workforce comprised of a good mix of experience levels and ages is paramount. Industry is facing labour shortages and believes that the salary and inducements that are offered to their employees are necessary to compete and keep up viable production levels.
- There is a belief that industry are competing in turbulent markets for which industry are carrying the bulk of the risk, and to spread some of the risk, they believe that government needs to provide some assurances that flexible work place agreements and other labour force issues will continue to be viewed fairly and include the mining industry perspective.
- Industry tends to see infrastructure support from the government as improving, though not at standards they believe commensurate with what the operators continue to pay in royalties and other infrastructure handling fees.
- Industry generally believe that to be free to compete in an open market, government needs to understand the inability to project returns on mining investments past the mid-term.
- The view from industry (with the exception of those that also work with community) is that work camps are;
 - in their modern inception, generally well accepted by mine workers;
 - the preferred choice of mine workers whilst on shift.
- Industry would like much greater consistency in the application of policy on accommodation, with greater understanding of the impact that local or state government delays have on their substantial investments.

There is often a focus by peak industry bodies on the substantial investment that mining companies put in the communities in which they operate; however not all mining companies are as equally engaged. Many mining communities now have several mining companies and contractors involved in local operations. This has tended to be seen as an excuse for less engaged operators to feel unobliged to assist directly in community development (DLSGPR 2007). Another issue is that it is often difficult to gain insight into future plans or to generate cooperation between companies to provide community services. The mining industry continue to be reluctant about sharing forward mining and work force plans with each other, the public or other industry, owing to the intrinsic business strategy content of any such revelation.

Who are the future mining employees and what do they want?

A survey of a random sample of employees of the Dawson mine at Moura investigated the past and future work plans, current and future accommodation and housing preferences, and potential triggers for moving on to another mining job. The results were segmented into the smallest number of distinctly different groups (three), where the mine employees' choices in housing and workforce were compared. The results of the segmentation (Milestone report 4) showed that the greatest demand for residing in the central Queensland coastal region was by the younger and single mine workers, who indicated a preference for the block-shift employment arrangement and rate their success and ambition as most important. In the miners survey, data from a values scale were gathered. The values data was combined with demographic categorical data to cluster the mine employees into the smallest number of recognisable groups. The group characterised as 'Empowered young single guys', so called because their profile includes a higher than average level of power and achievement attributes, preferred to live on the coast (65% in our sample). Another group, characterised as married male mine workers, tend to be a little older on average and are more engaged in having fun with the family. In our sample 60% of these 'married good time guys' are living in a nearby town or regional hub, probably to minimise loss of time with family. A third group, less hedonistic than both of the others, value the quality of their workplace, are mostly females, are generally married and are mostly staffers (rather than mine workers). This group, characterised as 'focused female staffers', have similar choices in housing location to married male mine workers, but unlike the other two are more likely to prefer to reside in a slightly more modest size house and block.

Importantly, putting all three groups altogether, 28% are currently living in work camps, however only 13% would like to do so in the future. This low level of preference for work camps contrasts with the high standard of this type of accommodation at Moura, with relatively high standards of service and amenities in the available range of mining work camp variations.

Where will future miners come from?

In the Dawson Mine survey (Milestone report 4), 60% of the survey participants (mine employees) came from the Bowen Basin/Central Queensland region, 12% came from interstate and overseas, and the remaining came from other Queensland locations. However it is unlikely that the development of future projects will involve the same level of workforce from the local region, as there appears to be severe labour force constraints in the central Queensland region (as at September 2008).

There is some evidence that the domestic occupational categories such as the manufacturing market may continue its decline and free up capacity in the workforce, particularly in southern regions of Australia (Lowry Molloy and Tan 2008). Further work is needed to understand better how to attract a potential workforce into relocation options.

Future Housing needs – The BBRH Model

The data revealed that for all five towns modelled, Moranbah, Biloela, Moura and Theodore, and to some extent Mackay, the current level of housing development in many towns is below the state average, despite the region being in one of the fastest growing areas in the state with further resource development prospects. The implication of these findings for new prospective resource developments in the area is that care has to be taken not to exacerbate the existing housing and labour market pressures.

However, this is difficult to achieve in practice because of limited assessment and mitigation tools. The model fills some gaps in identifying the nature and types of housing needs. These include a downwards trend in demand for private separate housing and increased demand for other housing options, providing information for planners and managers to deal with housing pressures.

The housing model generated for the three case study towns in which the community survey was performed, identified future development pressures, predicting that the current housing stocks were likely to be inadequate to meet future demands of single person and couples without children households. The implications of the model were that more attention needs to be placed on developing flats, duplexes and other high-density dwellings.

What are the developers and investors looking for?

Interviews with supply side stakeholders revealed that this group was surprised by what they saw as state government's relative inaction in response to housing pressures arising from the ongoing mining boom. This stakeholder group was well versed in the government's successful ventures and experience in producing a number of 'win-win' partnership developments and Master-planned solutions. Developers and investors believe the knowledge is within the grasp of government, as to how to 'fix' the housing shortage and associated pressures in the short term rather than later; if there is the 'political will' to do so. This group feel strongly that public-private partnerships are a good solution.

Developers and investors reported good examples of public-private partnerships where the investor developer was locked into providing a certain percentage of low-cost housing in return for concessions and underwriting the capital risk. In terms of releasing some market pressure from lower income and rental markets, they point to rent concessions (rent fixed at a percentage of the employee's salary) as a tried and tested method for assisting the low to medium income earners such as nurses, apprentices, carers and child-carers in small towns.

Not all developers and investors are optimistic on the 'political will' of government to do the necessary joining up of levels and agencies of government and various industries and investors, including manufacturing, builders and developers. There is a pervasive view that those that have attempted to get involved in the medium to large scale housing development in the Bowen Basin have had a significant number of barriers with infrastructure assistance, water allocation, inconsistent and inflexible local government, and slow planning processes; and the inability for any level of government to act swiftly when the investment is threatened by such things as land banking and local government prevarication.

What are the communities looking for?

In the vicinity of the Dawson mine where the mine employees were surveyed, three communities were also surveyed revealing that the housing needs, infrastructure and services preferences of people in the three different towns were very similar, differing only in the perceptions of their own towns. Moura, the town closest to the mine site was perceived as safer by its residents than residents of Biloela, the regional hub. Theodore people were generally happier than either Biloela or Moura about most aspects of their town, other than their access to other regional centres.

Choice Modelling and contingent behaviour analysis suggests that all towns similarly wanted improved health services, increased social housing and stated a preference for permanent housing rather than more work camps. The results of the Schwartz survey instrument were clustered for universal differences, which showed that the long-term residents were generally happy with their towns, and fell into two distinct groups. 'Older worker locals' were more predominantly blue collar than the other groups and are pleased to support mining growth but not work camps. The slightly younger and more community oriented 'Mature social locals' didn't support mining and felt their towns now less safe, however did support some level of work camps, and argued most for improvements to health services. There were two younger groups; the 'focused single females' who feel their opportunities to network socially are not satisfactory. The 'young and mobile' group comprise mostly married couples who haven't been in their town long, are not really enjoying living in their town, and don't expect to stay much longer. This group finds the lack of education facilities, at all levels, hampering their progress.

What does Government want?

Interviews with government based stakeholders revealed a number of recurrent themes for the various government-to-government and government-to-industry interfaces:

What do Local Governments want from mining companies?

Local government suggest they need more consultation ahead of mining development announcements, as they often have only limited information when there are a number of development discussions happening in the same region. Their need is to have some strategic information about likely developments and demographic changes, as this would make it easier to plan for infrastructure needs in the longer term. There are also pressures to upgrade infrastructure and provide extra services, which is often difficult for local government without additional financial support. Local government believe that the mining companies should sponsor their own specific infrastructure requirements that do not service their constituents.

What do Local Governments want from State Government?

Local governments want more preliminary and strategic information on new mining leases and forward notice of land releases. Local government would like more funding for services and amenity programs and are asking for better overall policy coordination.

What do State Government agencies want from mining companies?

State government want the social and economic impact statement process to be voluntarily improved to include rigorous social and economic impacts of development. State government want extra accommodation for miners, family, and displaced locals. State government believe proponents and operators should be engaged in transparent and continuous state, community and local engagement rather than ad hoc 'gift giving'. State government agencies mentioned numerous times that the annual reporting of economic, social and environmental performance (triple bottom line) of the mine companies need to become 'concrete' deeds rather than 'abstract' words.

What do State Government agencies want from their Government?

A range of agencies report a need for policy development to be given full support of relevant and timely research data, and are united in their call for better coordination between agencies and across levels of government; and for better information sharing practices between agencies.

DISCUSSION

While increased mining generates broadly-based positive benefits to regional communities, closer consideration needs to be paid to offsetting economic and social impacts, particularly those affecting mining towns. This research shows that in the most affected communities in the Bowen Basin there exists a sense of inequitable returns of the positive benefits of mining flowing back into the region, compared with urban area profligacy. While communities are generally quite similar in their expectations and service requirements, there are some key issues of concern.

In the small towns servicing the mining areas, the major providers and planners of accommodation, services are being overwhelmed by the scale of change brought about by the recent growth in the mining industry. Differences in income levels, increases in housing costs and shortages of skilled labour are some of the impacts of rapid growth that are rippling across communities.

The results of the research show that the existing services and infrastructure are often not adequate to ensure the long term viability of communities. The choice modelling analysis identifies high community values for improving health services, increasing supplies of social housing, and ensuring that longer term housing is developed rather than workcamps. Analysis of the demographic groups within communities demonstrate that while older, settled residents are generally satisfied with the current level of services and development, younger and more mobile residents are looking for better and more diversified services. This suggests that for communities to prosper in the longer term and maintain populations of younger people, the level of services and infrastructure may need to be increased.

The research shows that the miners can also be delineated into groups so as to better predict housing needs by workforce type. There are married males who rate time with their family and enjoying life's pleasures higher than other groups and tend to live in their own houses close to work, so they can maximise family time. There is a mostly married and mostly female group, abbreviated to 'focused female staffers' who are serious about their careers and are focused on maintaining a positive working environment. Another identified segment, 'empowered single young guys' are proportionally the largest users of the work camps and shared accommodation. Given the opportunity, many would prefer to live in their own house near the mine, however currently when off-shift they have the largest proportion of their numbers (60%) choosing to live on the coast or in a regional hub.

RECOMMENDATIONS

There appears to be some information and planning gaps between industry, communities and different levels of government. Improved data about future mining developments, community needs and infrastructure provision will help to address these gaps, together with better modelling and analysis tools. The development of an ongoing process to identify changing service and infrastructure needs is important, and some form of social management plans associated with mining operations will help to meet these needs.

The development of potential government strategies to address housing issues in the Bowen Basin will require ongoing focus by government and policy makers on the following policy issues:

- Development of strategies to resolve the work camp versus more permanent housing question.
- Development and enforceability of ongoing social management plans to address mining impacts.
- Development of strategies to encourage diversification of industry in mining towns affected by housing and labour shortages.
- Under- investment in social infrastructure/housing and services in mining affected towns.
- Addressing the loss of diversity in skills and trades.
- Addressing labour shortages and issues of recruitment.
- Addressing spill-over impacts on lower income groups.

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