

***Mining Impacts and the Development of the
Moranbah Township***

RESEARCH REPORT No 7.

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***IMPACTS OF THE COAL MINING EXPANSION ON
MORANBAH AND ASSOCIATED COMMUNITY***

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Executive Summary

1. This report contains an overview of research into the economic and social impacts of mining on the Moranbah community and options for future development.
2. The mining boom has stimulated a population increase in Moranbah, as well as a large non-resident workforce (estimated at 4,000 people). The 'core' workforce for mines within 50 kilometres of Moranbah is expected to grow by a further 1,390 people by 2010. It has been estimated that there is potential for the town to grow by another 2,700 permanent residents over the next five years.
3. Key needs that currently exist for the community include improved shopping and services, a more reliable water supply, lower cost housing, and a larger labour pool.
4. Key issues for the community in options for future development include the extent of workcamp accommodation, the security of water supplies, the price of rentals and housing, and the potential environmental impacts of future mining close to town.
5. Moranbah residents preferred the development of housing rather than workcamps in their community; this value has been assessed at \$3,144 per year. Respondents indicated that they would reduce their length of stay in Moranbah by 2.6 years if workcamp development went from a low base to a high level of development.
6. Having a satisfactory buffer against future environmental impacts of mine development was the next most important issue. The value of avoiding future impacts was assessed at \$494 per household per year.
7. The average number of years that residents expected to stay in Moranbah was approximately 8.5 years. Almost no resident planned to move to another mining town when they left Moranbah.
8. At least 80% of the non-resident workforce indicated that they did not want to live permanently in Moranbah. Key reasons related to partner and family commitments, and to preferences for living in a larger centre.
9. Mackay residents were asked about potential relocation to communities such as Moranbah. Results showed that for the average Mackay person to move to a mining town, a salary premium of \$55,000 is required. A higher premium is needed to attract people to live in smaller communities. Key factors that are important in the choice of communities are the level of health and education services, availability of jobs for partners and children, and the standard of public infrastructure.
10. The level of economic activity in Moranbah is slightly lower than in other comparable towns, suggesting that there are large spending leakages from the community.

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1. INTRODUCTION: STUDY BACKGROUND AND OBJECTIVES

Recent growth in the coal industry in the Bowen Basin is generating a number of impacts, both positive and negative, on communities in the region. This growth has put pressure on the supply of infrastructure, resources and skilled labour, and identified needs for better planning and integrated infrastructure development. There also have been changes in employment patterns within the coal industry over the past few years, with more emphasis on the use of contractors to perform some or most of the mining operations and an increased usage of variations on drive-in/drive-out (or fly-in/fly-out) operations. Mining companies no longer build mining towns or take full responsibility of employees outside of working hours placing more focus on economic and social forces to influence the development of towns.

For towns in the Bowen Basin such as Moranbah, the restructuring in the mining industry of the later 1990s, followed by the mining boom from 2003, as generated a number of key issues. Key ones can be summarised as follows:

- The decline in population and business activity followed by rapid growth from 2003 has not been constructive to stable growth,
- Demands for housing and services have outstripped supply, leading to bottlenecks and delays,
- The development of new mines and enterprises is not necessarily coupled with development in the town,
- There are large spending leakages to other areas as Moranbah residents make more purchases elsewhere and a higher number of employees make their residential base elsewhere,
- Short term development pressures means that additional labour in the region bonds to housed in workcamps rather than in permanent accommodation, and
- Social trends, demographic changes and increased wealth mean a higher proportion of people prefer to locate in coastal areas, urban centres and regional hubs.

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. There are many options for the development of towns such as Moranbah (such as to choose between building more work camps or permanent houses) but there is limited knowledge about how to prioritise the options. 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.

Understanding what the community wants and how the community might prioritise different options is an important factor in helping to direct development in a town and region. This is because developments that meet with community approval are more likely to be accepted by residents, to generate subsequent multiplier effects, and to build social capital. In this report, research assessing the views that residents of Moranbah hold about the potential development of their community is detailed.

The report is the final summary report from a study conducted by Central Queensland University (CQU) into the economic and social impacts of mining on Moranbah and options for future growth. The study involved a number of different data collection stages, including:

- Desktop review of available data,
- Interviews with key community stakeholders,
- Survey of households in Moranbah,
- Survey of households in Mackay (about willingness to move to communities like Moranbah),
- Survey of non-resident workers in Moranbah, and
- Survey of businesses in Moranbah.

The surveys also included some exercises involving different town development options and the choices that people might make about expenditure and location. The survey exercises provided some information on how different aspects of town development might be prioritized. The research allows some quantitative information about the views of community members to be provided to industry and government decision makers.

Many of the results of this study have been detailed in the first six research reports:

Report 1. Identifying the potential and constraints for the growth of Moranbah

Report 2. Survey of the Moranbah Households

Report 3. The development of Moranbah: Stakeholder analysis

Report 4. Impacts of Mining on Businesses in Moranbah

Report 5. Factors Influencing Workforce Mobility to Regional Mining and coastal Towns: Moranbah

Report 6. Community Choices Among Options for the Development of the Moranbah Township

This report is structured as follows. In the next three sections, the results have been summarized in relation to key demographic, social and economic issues. Some discussion and conclusions are provided in the final section.

2. DEMOGRAPHIC TRENDS AND IMPACTS

Demographic changes and trends typically underpin the social and economic forces that impact on particular communities. Here the key issues that relate to the development of Moranbah are outlined.

There were 37 operating mines in the Bowen Basin in 2004/5, and by 2006 another 21 mines were being developed or under active consideration in the Bowen Basin area. The most intense region of new developments and mine expansions is occurring in the Moranbah area. Mine employee numbers in the coal industry in the Moranbah area increased from 2,890 employees in 2002-03 to 6,190 in 2006-07, with prospective increases to 7,560 employees by 2010. The developments are also increasing the number of building and construction employees in the region, as well as increasing demands for a range of materials and services. However, the increase in mining activity and employee numbers has had a modest impact on the growth of the Moranbah township. This is largely because of new patterns in working and living arrangements, where mining employees work in periods of 'block shifts', and stay in work camps during shift periods.

As at 30 June 2005, the estimated resident population of the Belyando Shire was estimated at 10,651 persons, with some 6,844 persons of that figure residing within the township of Moranbah. The annual average rate of change in population in the Belyando Shire between 30 June 2000 and 30 June 2005 was estimated at 1.1 per cent, compared with 2.2 per cent for the State. Projected growth patterns to 2026 for the shire are shown in the Table below, with much of that growth expected to be concentrated in Moranbah (PIFU 2006b). On these forecasts, the town population might grow by approximately 3,000 people between 2006 and 2016.

Table 1: Projected Population of Belyando Shire 2006-2026

Year	Projected Population			Average Annual Change % (high Series)
	Low	Medium	High	
2006	11,219	11,251	11,294	2.6
2011	14,263	15,524	16,193	7.5
2016	14,596	16,154	17,115	1.1
2021	14,584	16,292	17,314	0.2
2026	14,536	16,380	17,449	0

Source: PIFU (2006b)

As well as the resident population, the Belyando Shire accommodates a number of non-resident workers. At June 2006, Moranbah was estimated by to have 6,749 permanent residents and 1,915 non-resident workers at any one time (PIFU 2006a). As non-resident workers are typically rotating through a job, this implies that 3,000 – 5,000 non-resident workers are living elsewhere (largely in the Mackay region) and working/living in Moranbah during shift periods. For the purposes of this study, it has been assumed that approximately 4,000 people are commuting from an outside centre to work in Moranbah.

The growth in mining activity appears likely to generate more population growth in Moranbah. In Table 2, the estimated numbers of mining employees within a 50 kilometre radius of Moranbah are reported. These the ‘core’ workforce numbers, and do not include all of the contractor, construction, service or exploration employee numbers that may also be associated with the mining industry. The results show that the ‘core’ workforce requirements grew by 113% from 2002/3 to 2006/7, and are projected to increase by a further 22% to 2010.

Table 2: Projected mining employee numbers within 50 kilometres of Moranbah

	2002-2003	2006-2007	2010
Burton/Plum Tree	370	470	400
Goonyella/Riverside	650	2650	2500
Moranbah Nth	450	300	300
Coppabella	300	300	300
Moorvale	90	150	200
North Goonyella	300	620	600
Peak Downs	570	1000	1000
South Walker Creek	160	120	120
Isaac Plains		50	50
Carborough Downs/Broadlea North		150	150
Millennium		160	160
Poitrel		200	200
<i>Total</i>	2890	6170	5980
New developments			
Olive Downs			100
Goonyella expansion			200
Carborough expansion			50
Isaac Plain expansion			50
Grosvenor			300
Moranbah South			300
Moorvale West			200
Daunia			120
Wards Well			200
Lenton			60
<i>Total</i>			1580

The increased workforce, particularly those associated with contractors, exceeded available housing levels in most towns in the Bowen Basin in general and the boom has had a substantial impact on the cost of housing in Moranbah in particular. Between 2001 and 2006, average house sale prices in Moranbah have increased by approximately 7 times, while median rent levels have increased by approximately 4 times. In 2006, the cost of housing was rated as 95.5% higher than the cost in Brisbane. These price levels create pressures on households with lower incomes and non-mining sector businesses seeking labour supplies.

Although house prices and rents are at record high levels, this has not translated through to an expected increase in the supply of new housing. In 2006, the levels of building approvals, new housing building value and new commercial building value in Moranbah per capita remained well below regional and state averages. Dwelling construction activity even decreased by 41.7% in Belyando Shire in the year ending June 2006 with 88 approvals, compared to 151 approvals in the previous year. In contrast, the level of activity in Mackay was well above state averages.

The researchers have collected some more specific data about the interest in locating in/out of Moranbah and the key factors that seem to be important. Three key groups were surveyed about their community location preferences and future intentions for staying in / moving to Moranbah:

- People currently residing in Moranbah,
- People living in Mackay, and
- People living temporarily in Moranbah (in the workcamps).

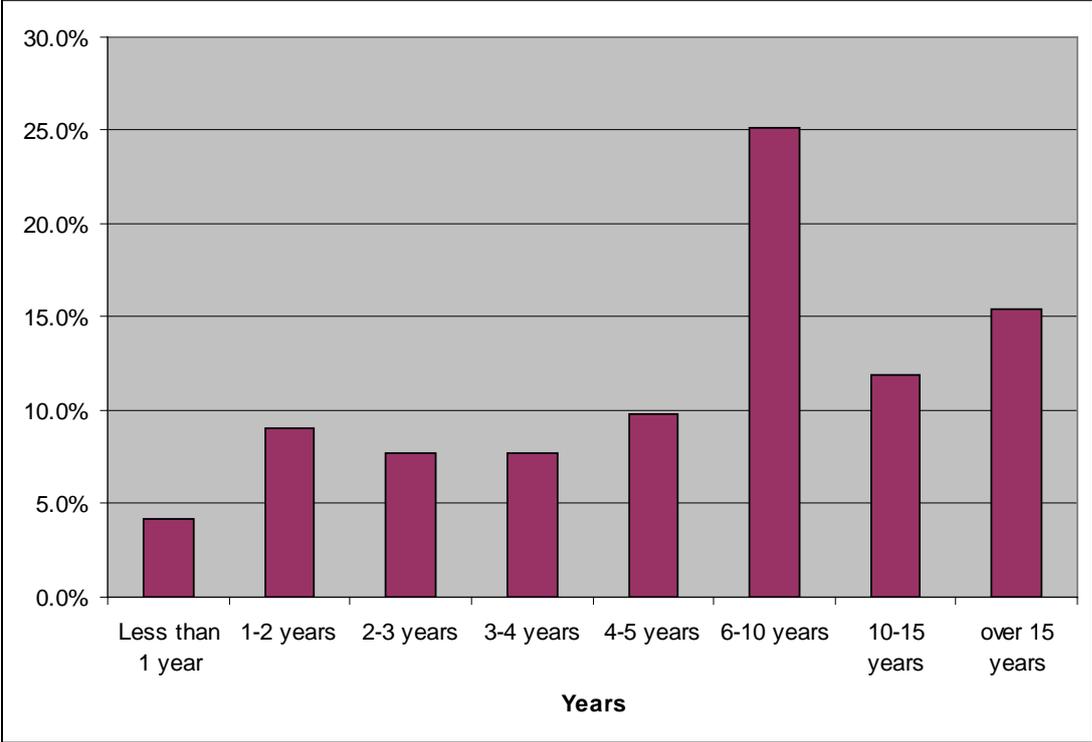
2.1. Results of a survey of the Moranbah community

The responses of the Moranbah community to survey questions about factors influencing their intentions to locate in Moranbah have been detailed in reports 2 and 6 of this report series. Results of a telephone survey of Moranbah households showed that household respondents were most likely to be:

- Working in the coal industry (38%),
- Employed in shift work (75%),
- Spend more time in Moranbah than Mackay or other areas when off-shift,
- Happy with Moranbah as a community to live (83%),
- Planning to live in the town for more than 2 years (70%).

Respondents indicated that Moranbah residents were planning to spend an average of 8.5 years in the township (Figure 1).

Figure 1. Planned length of residency in Moranbah



Respondents were also asked about where they would move to if they left Moranbah. About 25% of respondents would move to Mackay, with other parts of Queensland, the Central Queensland Coast and south east Queensland also receiving strong support. Only about 10% of respondents would move interstate while less than 2.3% of respondents would move to other mining towns in the Bowen Basin area. This latter result suggests that mining communities are not attractive in the longer term for Moranbah residents.

The issues around which factors were important in making Moranbah more ‘liveable’ were explored in two main ways. In the first, respondents were asked to identify which were the important factors. Some of the factors that would encourage respondents to stay longer (and attract other families) included:

- more and cheaper housing,
- better shopping and other services and more shops and services,
- more job opportunities for children and partners,
- more activities for younger children and partners,
- better entertainment,
- better medical services, and
- better educational facilities

One implication of this result is that higher levels of these services in other centres (such as Mackay) make Moranbah relatively less attractive. Other key issues that were identified as making Moranbah less attractive included:

- building more work camps (81% of households)
- potential environmental impacts (dust, noise) from coal mines developing close to the town (82% of households).

While the majority of respondents (58%) agreed that mining of the coal reserves close to Moranbah can be done in ways that don't impact on residents, 53% indicated that they might consider moving from Moranbah if mining comes close to the town boundaries.

The second approach to identifying key issues for Moranbah residents in town development involved giving them particular scenarios for town development in Moranbah, and asking if the scenarios would affect levels of expenditure or intentions to move. The results of these experiments showed that several key attributes were important, including the extent of workcamps in Moranbah, the level of housing and rental prices, the potential for mining impacts close to town and future levels of water restrictions. Key results showed that:

- The extent of workcamps in Moranbah was the key issue in terms of community perceptions about the 'liveability' of the town. The models indicated that the average value to households of living in Moranbah with little workcamp development as compared to extensive workcamp development was \$3,144 per year. Respondents indicated that they would reduce their length of stay in Moranbah by 2.6 years if workcamp development went from a low base to a high level of development.
- Having a satisfactory buffer against future environmental impacts of mine development was the next most important issue. The value of avoiding future impacts was assessed at \$494 per household per year.

The value of much more attractive rental prices (a major fall) was identified at \$559 per household per year, and the value of improved water services at \$415 per year.

2.2. Results of a survey of the Mackay community

The community in Mackay was surveyed to help assess the perceptions of people outside of Moranbah who might consider moving there at some point in the future. In the Mackay survey, respondents were asked about the factors that might influence their choices of location between different types of communities.

The key factors that Mackay residents saw as consistently important in evaluating relocation options included:

- Jobs for Family.
- Health and Education Services.
- Housing and Rental Prices.
- Standard of Public Infrastructure.
- Changed Income.

The results of an experiment about location choices show that substantial salary premiums are required to attract the average Mackay resident to relocate in other centres. The results show, for example, that the value of a one-category improvement in Jobs for Families is \$21,469 per

annum, while the value of a one-category improvement in Health and Education Services is \$35,681 per annum. A decrease in Housing and Rental prices had a negative value of \$936 per category to respondents, while a one-category improvement in the Standard of Public Infrastructure had an average value of \$14,971. Some of these factors are likely to be relatively more important than salary increases in attracting people to relocation options.

Coastal communities were preferred over mining towns, and medium sized communities were preferred over smaller ones. While respondents preferred staying in Mackay to any relocation choices, small mining towns were least preferred out of the options given, while medium coastal towns were most preferred. Results indicate that, in order for the average Mackay resident to move to a mining town, they need to be paid a salary premium of \$55,500 more than to move to a coastal town. The salary premium required between small towns and medium towns was larger at \$89,700. While some Mackay respondents would move for smaller premiums, the results indicate that it is difficult to attract the average resident to relocate to smaller mining communities.

2.3. Results of a survey of work camp residents in Moranbah

A random sample of residents of a Moranbah work camp was surveyed in March 2007. There were 70 respondents contacted in the dining room of the work camp who completed the brief survey form. Most respondents worked either directly for a mining company or for a contractor active in the mining industry (construction, drilling, earth moving, energy, engineering, heavy equipment repairs, logistics) while others worked for (and stayed overnight in) the camp itself.

The key demographic questions in the work camp survey focused on location patterns and preferences for living in Moranbah. Respondents in general spent more time when off shift in Mackay or other areas than in Moranbah. Only 16% of the respondents spent any of their free time in Moranbah. On average, respondents spent about 12% of their time in Moranbah when off shift.

Most of respondents (59%) were planning to work in the area for more than 2 years, but the majority (89%) were not interested in moving to a main town of residence closer to the mine site. Reasons given are reported in the Table below.

Table 3: Reasons for not wanting to move to a town of residence closer to the Mine Site

Reason	% of Work Camp Respondents giving reason
Partner has a Job	24.1
Family do not want to Move	31.5
Educational Facilities for Children	11.1
Recreational/entertainment Facilities	27.8
Prefer Living in a Bigger Centre	53.7
Other	25.9

Of the respondents that had ticked ‘Other’ on the survey, 78.6% gave one of the following explanations:

- own a residence somewhere else (3)
- no interest in Moranbah (3)
- bad attitude in mining town (2)
- too expensive (2)

Work camp residents were asked about the sort of accommodation they would like to have. Fifty-nine percent preferred to live in a work camp, 11% in a shared house in (a nearby) town and 30% in their own house in Moranbah. The residents who were interested in moving closer to their work place were asked about the key reasons stopping them (Table 4).

Table 4: Barriers to moving to a main town of residence closer to the Mine Site

Reason	% of Work Camp respondents who do want to move closer giving reason
Lack of Housing for Rental	69.2
Lack of Housing for Purchase	23.1
Educational Facilities for Children	7.7
Job Opportunities for Partner	15.4
Family do not want to Move	23.1

2.4. Summary of demographic issues

The numbers of coal mine employees around Moranbah have more than doubled over the past four years (while an increase of only 22% is expected over the next four years). Work camps within Moranbah and nearby towns are handling much of this increase in employee numbers, at least in the short term. In any day, approximately 28% of the Moranbah population is itinerant. Given the shift work rotations and increased reliance on contractors and outside

services, approximately 3,000 to 5,000 people work in Moranbah but do not live there on a permanent basis.

In the longer term, there are opportunities for Moranbah to convince a proportion of these temporary residents to settle in Moranbah. Survey results indicate that roughly 11% of work camp residents are potentially interested in moving permanently to Moranbah. The biggest obstacle for doing so is the availability of accommodation for rental and purchase in Moranbah.

Most non-permanent workers are happy to continue living in the residential camps as opposed to living in their own or a shared house in Moranbah when on shift. Mackay is the main town of residence of almost half (46%) of the temporary residents working in Moranbah. The main incentive for Mackay residents to consider relocating is an increase in income but as most are not interested in moving, the salary premiums would have to be substantial to convince the average Mackay resident to relocate to Moranbah. The implication for mining communities such as Moranbah is that while it might be possible to attract some residents to the mining towns for relatively low salary premiums, it will be more difficult (and expensive) to attract larger numbers.

Most Moranbah (permanent) residents are happy with living in Moranbah, but they did indicate that improvements in a number of services such as more and cheaper housing and better shopping would encourage them to stay longer in Moranbah. Key issues that would make the town less attractive for retaining population and growing in the future appear to be increased growth in workcamps in Moranbah and having direct environmental from mining close to the town boundaries.

3. SOCIAL IMPACTS

In this section the key social impacts identified in the study are summarised. The social impacts were identified and assessed in three main ways:

- Interviews with stakeholders in the Moranbah community,
- Survey of households in Moranbah,
- Survey of households in Mackay.

3.1. Stakeholder interviews

A number of stakeholders in the Moranbah community and other relevant areas were interviewed in the latter part of 2006. Here the key issues identified from that data collection stage are summarised.

Residents and service providers were generally supportive of mining and the employment opportunities it had created. The boom was seen to have opened up a number of economic and employment opportunities (for coal miners, local businesses, house owners and apprentices/trainees) and to have had some positive impact on community development and vitality (population growth and diversification).

However, respondents also thought that mining created some negative impacts on the local community. The majority of negative socio-economic impacts associated with mining were seen to flow directly or indirectly from three inter-related factors: the introduction of atypical work schedules throughout the mining industry, the shortage of locally available accommodation, and the dramatic expansion of a non-resident workforce. Such impacts were seen to include:

- Dramatic inflation in the cost of housing and accommodation. This led, in turn, to significant numbers of people living in sub-standard accommodation, commuting long distances to work, and/or spending an unusually large proportion of their income on accommodation.
- The separation of families who would prefer to live in Moranbah but who were forced to live elsewhere while one partner commuted to Moranbah for the duration of their shift block, placing significant pressure on family relationships.
- Social isolation among workers living in camp accommodation and/or spending large amounts of time commuting. This was believed to be exacerbated by the fatigue that all workers must manage when working 12 hour shifts.
- Increased demand for counselling and other services from men seeking help to cope with living away from their families and friends and to cope with problems such as depression, relationship breakdown, and social isolation.
- Increases in alcohol/substance abuse and in family violence.
- Declining capacity of local health, retail and other services to cope with demand.
- Declining visual amenity due to growth in the number of houses occupied by multiple temporary residents who did not care for gardens or premises. The more houses in the street taken up by miners sharing the rent, the bigger the decline in neighbourhood status with many large vehicles parked in the area and increases in noise levels.
- Increased risk and incidence of motor vehicle accidents.

Other negative impacts of the expansion in mining activity were seen to include:

- Increased income disparities between those who worked in the mining sector and those who either worked in less lucrative industries or did not work. This was exacerbated by the high cost of accommodation.
- Shortages of labour in other industries that could not compete with the mining sector on wages. Again, this was exacerbated by the high cost of accommodation.
- Increased dust and vibration.

With proposals to develop more mines in the Moranbah area, stakeholders believed it was imperative that more consideration be given to the management of the large itinerant population and the encouragement of more permanent residency. Many stakeholders expressed a desire to see State Government and local government solutions to the housing shortages (releasing large parcels of land around Moranbah, providing more low-cost accommodation, and speeding up subdivision processes) and mining companies being proactive (providing cheaper, subsidised rental accommodation for all employees). Complicating this, however, was a lack of land available for housing development (many

stakeholders believed that a proportion of the coal reserves should be sterilised and opened up for housing) and a proposal to develop at least one mine in close proximity to the township. A number of stakeholders believed that this would increase dust and noise pollution in the town, making Moranbah a less desirable place to live and encourage more workers to commute from elsewhere.

3.2. The community survey in Moranbah

A number of social issues and potential impacts were explored in the survey performed with the Moranbah community. Here, the key outcomes of that survey are reported. The results indicated that the community is generally supportive of mining activities in the region. Residents thought that mining companies support local businesses and events (86%) and create a good environment to invest in other businesses (71%).

However, residents also thought that mining creates some negative impacts on the local community. Key concerns included:

- shift work patterns had negative impacts on community activities in Moranbah (67%),
- increased house prices (less than 19% of respondents agreed that the recent increases in house prices and rents in Moranbah are a good outcome),
- risk associated with increased traffic (76%)
- driver fatigue issues (93%),
- crime rates (68%)
- mining expansions create cost burdens on the Shire Council (86%).

A number of statements about town development issues were tested in the survey on household respondents:

- 54% thought that there are no problems with having houses rented out to groups of shift workers,
- 43% stated that it would be preferable to have shift workers in Moranbah sharing houses rather than living in work camps.
- 53% thought that additional work camps are a good way of dealing with current (short-term) accommodation shortages,
- 72% of the respondents (strongly) disagreed with the statement that it is better to focus on building work camps rather than housing in Moranbah,
- 74% of respondents supported the statement that the town should be allowed to expand even if there are coal reserves underneath.
- There was support for restricting growth in Moranbah until more water supplies are available (76%), although 46% of respondents thought that it would be better to have more houses in Moranbah even if there are increased water restrictions.
- 95% thought that the development of the town should focus more on providing affordable accommodation,

- 67% of respondents thought that the current shift work patterns have negative impacts on community activities in Moranbah,
- 30% stated that they liked the current shift patterns,
- 31% indicated that they would prefer weekday shifts to allow more family time,

3.3. The community survey in Mackay

A number of social issues and potential impacts were also explored in the survey performed with the Mackay community. Here, the key outcomes of that survey are reported.

The residents of Mackay were generally very positive towards the impacts and consequences of mining on their communities; there was a strong agreement that mining was creating employment opportunities and flow-on business impacts. The percentage of respondents agreeing and strongly agreeing with the corresponding statements regarding the positive socio-economic impacts associated with mining are shown in the following table

Table 5: Attitudes towards Positive socio-economic Impacts associated with Mining

Statement	% of Respondents agreeing
The mines will bring more families to the Mackay region	67
The mines will help Mackay as a city to develop	63
The mines will help to develop Mackay as a business centre	62
Local people get more work because of the coal mines	60
Mining in the district creates a good environment to invest in other Businesses	54
The recent increases in house prices and rents in Mackay are a good outcome	53
The coal mines support local businesses and events	50
New people mean that the character of Mackay is changing for the worse	16

There were also concerns about cost burdens on local councils, increased traffic risks and social problems. The percentage of respondents agreeing and strongly agreeing with the corresponding statements regarding the negative socio-economic impacts associated with (the expansion of) mining are shown in the following table.

Table 6: Attitudes towards Negative socio-economic Impacts associated with Mining

Statement	% of Respondents agreeing
Driver fatigue issues mean that the district is not as safe as it used to be	62
Increased traffic means that the district is not as safe as it used to be	58
The mining industry expansion is creating cost burdens on the Local Council to provide extra services	53
Different people in the region may mean that crime and social problems are on the increase	50

The Mackay residents also expressed their opinions on issues identified for the future of their town. The results are presented in Table 7, which shows the percentage of respondents agreeing and strongly agreeing with the corresponding statements.

Table 7: Attitudes towards Issues identified for the Future of Mackay

Statement	% of Respondents agreeing
Mining companies should contribute more to the community even if it increases their operating costs	59
Local rates may have to increase so that the Council can improve the infrastructure and services in Mackay	36
Mackay should try to attract new mining families to move to the City	29
Mining Companies should focus only on production so that they can maximize employment and wage levels in the community	20

3.4. Summary of social issues

Stakeholders and residents of both Moranbah and Mackay all had a predominantly positive attitude towards mining in the area; one of the positive impacts mentioned by all three groups was the creation of flow-on business impacts.

Moranbah stakeholders also mentioned several negative impacts created by mining:

- Current shift work patterns impacting negatively on community activities (Moranbah residents agreed, but this issue was not raised in the Mackay survey).
- Increased crime rates/social problems (Moranbah and Mackay residents agreed that this is an issue).
- Increased house prices/rents (Moranbah residents agreed, with less than 19% agreeing that the recent increases in house prices and rents in Moranbah are a good outcome. Most of the Mackay residents, on the contrary, thought that the increased prices/rentals were a positive impact of the mining boom).
- Increased risk associated with increased traffic/driver fatigue issues (Moranbah and Mackay residents agreed).
- Miners sharing houses in the suburbs impacting negatively on visual amenity (While Moranbah stakeholders identified this as a major issue, Moranbah residents did not identify it as a concern in the survey. This issue was not raised in the Mackay survey).

4. ECONOMIC IMPACTS

In this section the key social impacts identified in the study are summarised. Four key areas of interest are reported:

- Expenditure multipliers (the extent of the business stimulus),
- Expenditure leakages
- Opportunities for business development
- Key inhibitors

4.1. Expenditure multipliers

4.1.1. The community survey in Moranbah

The extent that an economic stimulus flows through into broader economic activity in a town or region can be summarised by an analysis of expenditure patterns. When high proportions of expenditure are occurring locally, then there are associated employment and income effects, leading to further expenditure rounds. Data about economic-related activities and expenditure patterns has been collected in the different surveys performed in the project.

A key indicator of expenditure activity is likely to be the amount of time spent in the local community. To assess this, Moranbah residents were asked about where they spent their time

and the frequency of visits to Mackay. When off shift, 46% of Moranbah respondents indicated that they spent most of their time in Moranbah. This can be compared to the results of similar surveys, where 69% of survey respondents in Blackwater and 85% of survey respondents in the Bauhinia Shire (Springsure) spent most of their time off-shift in their local town (Rolfe et al. 2006). This suggests that Moranbah residents are more likely to spend time away from Moranbah compared to other communities in the Bowen Basin.

On average, Moranbah respondents spent about 75% of their time in Moranbah when off-shift, with Mackay nominated as the most frequently visited destination. Residents of Moranbah visited Mackay quite often: about 70% of respondents visited Mackay at least once a month. They indicated that they would travel less frequently to Mackay if shopping and services improved in Moranbah.

Moranbah residents indicated that approximately 57% of their expenditure was with local businesses. This is higher than the 50% local expenditure level recorded for Blackwater but similar to the 56% local expenditure level recorded for Springsure (Rolfe et al. 2006). Key areas of expenditure that were largely in Moranbah included:

- Food and groceries (84%).
- Accommodation (79%).
- Medical services (78%).
- Household appliances (57%).

Key areas where expenditure occurred elsewhere were:

- Car and machinery purchases (84%).
- Clothing, shoes and fashion (59%).
- Sporting goods (56%).
- Furnishing (55%).
- Cafes and restaurants (50%).
- Computing and electronics (50%).

4.1.2. The business survey in Moranbah

Economic information was also assessed from a survey of businesses in Moranbah¹. The results showed that there had been an increase in business activity with the mining boom, with 77% of businesses reporting increased turnover and 68% reporting increased profitability.

Full-time, part-time and casual staff numbers increased more over the two years prior to 2006 than the two years prior to 2003, with a 38% increase in average staff numbers over the past 2-year period and a 64% increase over the past 5-year period. Most business representatives reported difficulties in recruiting labour. Successful recruitment strategies that were

¹ See Report 4 in this series.

nominated most frequently included: employing overseas workers, providing accommodation and word of mouth advertising.

Wages and local supplies together made up almost 31% of total business expenses (Table 8). Money spent locally becomes income to other businesses or households in Moranbah and would therefore create multiplier impacts. Business supplies were sourced more from Mackay than Moranbah however; supplies from Moranbah comprised 7% of total business expense, while supplies from Mackay made up for 14% of total business expenditure. The reliance on other parts in Queensland for business supplies suggests that some of the economic stimulus from mining is flowing directly to major centres rather than being captured in Moranbah.

Table 8: Percentage of Moranbah Business Expenses by Category

Expenditure Item	% of Business Expense
Wages	23.5
Supplies from Moranbah	7.2
Supplies from Mackay	14.3
Supplies from Other Queensland	25.6
Rest of Business Expenses	28.4

4.1.3. Multiplier estimates

The size of the economic multiplier in a local or regional area can be summarised in the following way. The key concepts of interest (Jensen & West 2002) are:

- The extent to which project operators purchase inputs from the local or regional economy. Examples of inputs include wages for labour supplied from the local or regional area, and purchases of goods and services. The more that a project operator sources from the local or regional economy, the more money that is directly injected into the economy.
- The extent to which money spent in a local or regional economy is retained within that economy. If there is not much opportunity for people receiving income to spend it on goods and services in their local or regional area, then not as much money will be kept in the local or regional area. Larger and more diverse regional economies tend to be better at keeping expenditure in their economy and not ‘losing’ it to other regions.

The first concept can be thought of as the amount of direct injection of money into the local or regional economy that can be sourced from a particular project. The second concept can be thought of as the extent to which that initial injection is multiplied through the economy by secondary expenditure. Initial expenditure flows become revenue and income to the people and firms providing labour, goods and services to the project operator. Those people and firms can then spend that revenue and income, creating secondary economic impacts. In this way, an initial injection of expenditure can be multiplied into a larger economic effect on a region.

The multiplier effect is limited, because at each round of expenditure some money is lost to pay for goods and services that come from outside the region. As well, some money will be allocated to pay for taxes, and for savings purposes. Only a proportion of money that is spent in a region becomes available for expenditure in that region in a subsequent expenditure round.

The multiplier effect can be estimated by the application of what are known as Keynesian multipliers. This relates the increase in economic activity from an initial spending injection to both the propensity of spenders to shop locally, and the proportion of expenditure that becomes income to local residents (Jensen and West 2002). A simple formulation of the Keynesian income multiplier is as follows (where k stands for the multiplier):

$$k = 1/(1 - MPC_L \times PSY)$$

Where:

MPC_L is the marginal (or average) propensity to consume locally, or the proportion of income (or income change) which is spent locally,

and

PSY is the proportion of local consumption expenditures that eventually becomes local income, i.e. local salaries and wages, profits and interest payments. It is an expression of the proportion of each dollar spent locally which ends up in the pockets of the local community rather than paying for imported goods and services (Jensen and West 2002, pp.13-16).

Jensen and West (2002) suggest that for small communities (less than 5000 people), the MPC_L will range from 0.2 – 0.4. For larger communities, the MPC_L will be more like 0.6 - 0.7. The PSY can be expected to range between 0.25 and 0.75. Higher proportions are expected in service industries where labour is a high proportion of total costs. Lower proportions are expected where most of the business turnover reflects goods and services purchased in from outside a local area. In small communities the PSY can often take the value of about 0.4 – 0.5.

A broad estimate of the economic multiplier for the Moranbah community can be generated in the following way. First, disposable income is estimated at 50% of total income to take account of taxation, savings and other commitments. Second, the MPC_L is estimate by taking the estimate of household expenditure in Moranbah (57% of disposable income) and adjusting it to the full income level ($MPC = 50\% \times 57\%$). Third, the PSY is estimated at 30.7% (Table 8). This then allows the following formula to be calculated:

$$k = 1/(1 - .5 \times .57 \times .307) = 1.096$$

The multiplier value of 1.096 indicates that for every \$1 of additional income that is added to the local economy, the resulting indirect or flow-on impact on incomes is approximately 9.6 cents. This relatively low multiplier indicates that Moranbah is only capturing a small proportion of the economic benefits of the mining boom.

4.2. The work camp survey in Moranbah

Some of the questions in the survey of residents of a workcamp in Moranbah provided some information about economic impacts and the levels of expenditure into the Moranbah economy².

In the survey, questions regarding expenditure patterns were asked. This allowed estimations to be made about the economic impacts of non-resident workers on the local economy. Results from the survey regarding expenditure are summarised in Table 9. The results indicate that the average non-resident worker spent \$161.49 in Moranbah each week, with the key groups being alcohol, fuel, food and entertainment related expenditures. This estimate was extrapolated across 24 working weeks per year³ and an estimated 4,000 non-resident workers to generate predicted total expenditure within Moranbah of \$15.5M (Table 9). This is likely to be an under-estimate of expenditure patterns because many workers will pay higher accommodation costs than has been reported in the survey. If a weekly accommodation cost of \$300 is assumed, the total expenditure injection from non-resident workers is approximately \$43 M.

Table 9: Expenditure patterns of Moranbah work camp residents within Moranbah

	Average Weekly Expenditure per Work Camp Resident (\$)	Average Annual Expenditure per Work Camp Resident (\$)	Total Estimated Annual Expenditure of the Study Population (\$Million)
Accommodation	\$13.85	\$332.4	\$1.33
Food	\$25.43	\$610.3	\$2.44
Alcohol	\$52.66	\$1,263.8	\$5.06
Fuel	\$34.62	\$830.9	\$3.32
Car	\$8.08	\$193.9	\$0.78
Entertainment	\$15.85	\$380.4	\$1.52
Other	\$11.00	\$264.0	\$1.06
Total	\$161.49	\$3,875.76	\$15.50

² A copy of the survey used is attached as an appendix.

³ This allows for a typical block shift pattern of 7 days on and 7 days off.

4.3. Reasons for expenditure leakages

The flow-on effects of expenditure in smaller communities such as Moranbah tends to be limited when:

- (a) The proportion of local expenditure by consumers is low, and
- (b) Businesses do not source a large proportion of business inputs (including wages) from inside the community.

Both of these reasons appear to be impacted on limiting economic growth in Moranbah. Most business respondents indicated that the shopping loyalty of permanent residents has decreased between 2004 and 2006, while the non-permanent workforce was not viewed as having a positive impact on business operations. Although the population of Moranbah had increased, it was mainly an increase of 'single' men as many families had left Moranbah. Those single men did shop (not very much still) for themselves in Moranbah, but not for their families as men did not normally do the shopping. Residents indicated that they shop outside Moranbah because they either were not able to find the right goods and services, or because it was too expensive to shop in Moranbah.

Expenditure leakages also occurred because of the difficulties that businesses experienced in recruiting labour. Most Moranbah business respondents indicated that it was becoming more difficult to recruit/retain full-time/part-time labour because of a lack of (affordable) accommodation and more importantly; because of competition from the mining industry. At the same time, there was a lack of local women or young people available for work in the Moranbah businesses because the changed employment and demographic patterns meant many families were no longer located in the town.

4.4. Opportunities for business development

Some questions in the surveys were focused on identifying what business opportunities and needs existed in Moranbah, and how improved business services would help to attract and retain population. The majority of residents (71%) thought that mining in the district creates a good environment to invest in other businesses. Table 10 shows the key business developments that would encourage residents to live longer in Moranbah, and attract other families at the same time. Better shopping and service facilities rate the most highly.

Table 10: Factors that would attract residents to stay longer in Moranbah

Factor	% of Moranbah Respondents agreeing
Better shopping and other service facilities	93
More services and shops	92
More activities for teenagers	88
More job opportunities for children/partners	86
Better entertainment	80
Better medical services	78
More activities for younger children	74

Another way to determining service needs is assessing the importance of Mackay as a provider of different services to Moranbah residents (implying that the required services are not available in Moranbah). The most important reasons nominated for accessing Mackay were identified as:

- Medical services (59%)
- Car purchases and repairs (54%)
- Family and friends (51%)
- Clothing, shoes and fashion shopping (47%)
- Household appliances (40%)
- Financial services (36%)
- Cultural and social events (32%)
- Recreation activities (26%)
- Food and groceries (26%)
- Education and training (26%)
- Sporting activities and events (22%)

There is potential for business expansion in Moranbah. The key issues that Moranbah residents identified in the survey as being important to make the community more attractive included:

- Improvements in water supply – construction of a new dam,
- Improved shopping – including requests for a new shopping centre and a butchers shop,
- Increased housing and reductions in housing and rental prices,
- Improved medical services,
- More entertainment services and restaurants,

- Improvements to shiftwork patterns / reduced hours,
- Water park or dam for recreation,
- Recreation facilities (particularly for children),
- Better childcare facilities.

4.5. Key inhibitors to business expansion

The key inhibitor to business expansion within Moranbah appears to be labour shortages. Most Moranbah business respondents indicated that it was more difficult to recruit/retain labour in 2006 than in 2004, which was associated with a number of inter-related factors:

- Local children/wives are unwilling to work because their parents/husbands earn too much money.
- Mining rosters are attracting temporary ‘single’ mine workers instead of families (local business are missing out on potential staff).
- The mines are taking potential and existing employees away from Moranbah businesses.
- The rapidly increasing costs of housing/rents and shortage of accommodation.
- There are fewer skilled staff/tradespeople.
- There are greater costs involved with employing labour (recruiting from outside the area, subsidising accommodation etc.).
- There is not enough local labour available.

The owners/managers of some larger businesses in Mackay were also interviewed to identify key barriers to expansion into Moranbah. The key reasons that were nominated included:

- Small market size (less than 10,000 people),
- Risk of fluctuations in mining activities,
- High cost of employing labour, high costs of living,
- Not as attractive for staff/managers to live there,
- Most of the customers already come to Mackay,
- Moranbah residents will still travel to Mackay because of the choice of variety and competitive pricing,
- Hard to maintain high levels of quality control and servicing,
- Establishing a business in Moranbah raises expectations that businesses will be established in all mining towns serviced by Mackay
- Not cost-effective; a business would only service the population of Moranbah, as residents of other mining towns would pass Moranbah and still go to Mackay
- Too close; Moranbah residents shop in Mackay (uncertain markets)
- Too far away; not enough control on staff and too much hassle moving products between Moranbah and Mackay for servicing (logistics)

4.6. Summary/conclusions

Businesses in Moranbah, as in other towns in the region, are capturing benefits from the expansion in the coal industry. Turnover and profits are up, and there has been an increase in employment to service the additional demands.

However, there are also a number of constraints on businesses. On the demand side, there appears to be reducing levels of customer loyalty (perhaps a consequence of additional people moving to the town). The focus on workcamp development means that much of the population increase has not been associated with new families, leading to lower levels of increased demand. Most people appear to commute regularly to Mackay and other centres for a range of services and shopping, making it harder for businesses in Moranbah to capture market share.

On the supply side, businesses struggle to employ suitable labour. There are a number of reasons for this. The labour market is tight because of competition from other industries, high incomes means participation rates may be lower, and the demographic pattern means that there are not as high a proportion of young people and partners looking for work as there are in other centres.

The combination of these factors means that the level of economic activity may be lower in Moranbah than in other centres. An average expenditure multiplier of 1.096 has been estimated for the town, which is slightly lower than in other centres. This reflects the concentration of custom to business centres such as Mackay.

However, residents expressed a number of needs for better shopping and services in Moranbah. Better shopping and other service facilities would encourage 93% of Moranbah residents to stay/live longer in town than planned, and appears to be a major factor in the future retention/attraction of resident populations. Better entertainment in general and more activities for teenagers in particular are other major needs and potential business opportunities.

Although the size of the non-resident workforce has been identified as a factor that limits business development (as compared to a permanent workforce scenario), these outside workers still make a substantial contribution to the local economy. Annual expenditure from this group into Moranbah has been conservatively estimated to be at least \$15.5 M, and is more likely to be above \$43 M.

5. CONCLUSIONS

The research outlined in this report has involved a range of data collection techniques to explore the social and economic pressures involved in the continued development of the Moranbah community. The research has identified a number of positive aspects resulting from the boom in mining in the region. The population of the community is growing strongly, people are generally very satisfied and comfortable with living in Moranbah, there are a range of services in town that appear to be of high quality, and business turnover and profits are expanding.

A number of pressures and challenges have also been identified. Here some of the key themes are discussed.

The first key challenge relates to population growth. Core levels of employment in the mining industry are predicted to increase by another 22% in the next three years to 2010, with multiplier effects for supporting industries expected to increase that number further. There is potential for population growth to come from two key areas: some of the existing non-resident workforce (estimated at 4,000 people) and some of the future workforce becoming permanent residents in the town. A survey of workcamp residents suggested that up to 11% may be interested in relocating closer to their workplace, while the remaining 80% would continue to commute from elsewhere. If 11% of the existing non-resident workforce and 11% of the new workforce settled in Moranbah with an average family of 3 persons, the total population increase would be 1,778 people. When other population multiplier effects are considered (additional service population), this estimate corresponds quite closely with existing PIFU predictions about future population growth.

The second key challenge relates to housing. Shortages in suitable and affordable housing are constraining both population growth and business development in Moranbah. The lack of housing means that many new employees in the region become used to commuting from their homes, making it harder to attract them as permanent residents. The high cost of housing prevents people from moving to the area to take up employment, and makes it difficult for local businesses to employ labour.

The third key challenge relates to the provision of infrastructure and services. Water was nominated as a key infrastructure item that was important to future growth, while better shopping and other consumer services were identified as key areas of demand that were not being met with current facilities. The difficulties involved in expanding business opportunities relate to the high costs of labour and the relatively lower propensity of Moranbah residents to spend on goods and services in the local town.

The fourth key challenge relates to the development of workcamps and other temporary accommodation in Moranbah. Respondents to the various surveys and questions identified this as a negative issue, perhaps treating it as an indicator for a range of other town development issues. However, a large non-resident workforce appears set to continue for several reasons. Key reasons are that at least 80% of the non-resident workforce prefers living elsewhere (for a number of issues), and that it is very difficult to attract people from larger centres such as Mackay to shift to mining towns. Moranbah residents also do not appear to have long term plans to stay in Moranbah, and almost plan to move to another mining town.

The fifth key challenge relates to the development of new mines in the area that may have environmental or physical impacts on the town. While residents are generally accepting of mining in the local area, they will be sensitive to activities that might impact on their environment. Impacts from mining will reduce the attractiveness of the town for existing and potential residents.

6. REFERENCES

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Other research reports in this series.

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