



Social Impact of Mining Survey: Aggregate Results Queensland Communities



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Social Impact, Mining and Resources Industry, Queensland Mining Communities, Bowen Basin, Social Impact Guidelines, Non-resident Workforce



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EXECUTIVE SUMMARY

On 7 March 2011, a research team at Queensland University of Technology, led by Professor Kerry Carrington launched a study into the social impact of mining in Queensland (www.sites.google.com/site/socialimpactofminingsurvey).ⁱ The study surveyed perceptions about how mining projects reliant on a non-resident workforce, are impacting on Queensland mining communities. Only those aged 18 or over who either live or work in a community or region impacted by mining development were eligible to participate – this included non-resident workers. Perceptions about the impact on local economies, employment, the provision of social services and recreational activities, housing, community safety, crime, lifestyle and overall community wellbeing were surveyed. Social impacts, such as the impact on housing and rental affordability, can be triangulated with supporting data. However other social impacts (such as impacts on lifestyle, sense of community safety and wellbeing) are less tangible and perceptions offer the only guide to measuring their social consequences. In the qualitative responses to the survey the impacts of non-resident work arrangements on non-resident workers and their families emerged as a key issue, as did expectations about the role of government in mitigating adverse social impacts. These issues form a major part of the discussion in this report.

The on-line *Social Impact of Mining Survey* was open from 7 March to 27 May 2011. The aggregate results presented in this report are drawn from 559 eligible respondents residing or working in Queensland mining towns and regions. Respondents were recruited through on-line, print and radio advertising, mining community organisations (*Mining Communities United*, *FIFO Families* and *Mining Family Matters*), civic institutions (such as Local Government, Human Service Agencies, Shire Councils and Chambers of Commerce) and contacts randomly selected from community directories. The vast majority of survey responses came from localities in the Bowen Basin Region (Collinsville, Dysart, Blackwater, Emerald, Moranbah and Moura) which services most of Queensland's coal mining and resources sector development. Results at a community level have been made available to representatives from these communities.

After answering socio-demographic questions to validate responses, participants were asked to rate their perceptions about the impact of non-resident mining workforces housed in temporary accommodation on a range of aspects relating to their communityⁱⁱ. Responses were overwhelmingly negative:

- 75% felt mining developments with non-resident workforces housed in their communities had an adverse impact (47% very negative impacts and 28% a somewhat negative).

- 75% felt the impact on housing availability and 79% on housing affordability was negative
- 76% thought the impacts on local infrastructure was negative (and most very negative - 55%)
- 76% felt the impact on local services was somewhat or very negative;
- 63% felt the impact on amenities for recreation was either somewhat or very negative;
- 62% felt the impact on local employment opportunities was somewhat or very negative;
- 60% felt the impact on local business and economy was somewhat or very negative.
- 59% regarded the impact on crime and justice as adverse
- 58% felt the impact on community safety was adverse
- 55% felt the impact on lifestyle was negative

Far fewer respondents felt positive about the social impact of non-resident mining workforces on their local economy, infrastructure, employment and community wellbeing. The highest ranking perceptions about positive impacts were as follows:

- 26 % thought the impacts on local economy would be positive
- 23 % thought the impacts on the local liquor outlets would be positive
- 21% regarded the impacts on local employment opportunities as positive
- 14% thought the impacts on local amenities for recreation would be positive

Only

- 11% regarded the impacts as having a positive impact on their lifestyle
- 10% regarded the impacts as positive for overall community wellbeing
- 9% were positive about the impact on local infrastructure
- 9% were positive about the impacts on housing and rental availability
- 7% were positive about impacts on community safety
- 6% were positive about impacts on crime and justice
- 6% were positive about the impacts on housing and rental affordability

Of particular originality and significance of the study is the finding that the majority of respondents (61%) supported new mining projects with an expected non-resident work force of 25% or less, but most (82%) opposed the development of new mining projects planning to recruit a non-resident work force in excess of 75%. These results confirm the study hypothesis that the social license to develop new mining projects is strong for projects requiring a 25% or less non-resident workforce, diminishes significantly thereafter and is very weak for projects planning to recruit a non-resident workforce in excess of 75%.

This finding is particularly significant in light of plans for at least 67 new resource extraction projects worth around \$47 billion in capital expenditure destined to undergo social impact assessment in Queensland (Listed in Appendix 1). It appears many of these projects are planning to recruit substantial numbers of non-resident workers housed in temporary accommodation, some adjacent to or within the vicinity of existing well established mining communities in the Bowen Basin. Their projected cumulative social impact in the region, based on the findings of this study (and others referenced throughout), is anticipated to be substantially negative unless measures for mitigation are adequately planned, resourced and urgently addressed for the region as a whole. The most serious include deteriorating infrastructure, damage to transport corridors, drain on human and social services, fly-over effects on local business and economy and acute housing and rental shortages. The later are exacerbating housing and rental unaffordability, which can, in turn force out residents and business owners (Robertson, 2010). Other impacts include the erosion of community safety, lifestyle and wellbeing more generally. While outside the scope of the survey, it is evident from other research that the accelerating trend to hire non-resident workers in the resources sector is likely to increase fatigue related car accidents and work injury, increase rates of staff turnover, reverse the trend of women entering the mining industry and adversely affect the wellbeing of non-resident workers and their families and add to local crime and safety problems (see Murray and Peetz, 2010; Haslam et al 2008, Carrington et. al. forthcoming).

There is projected to be substantial demographic and population changes in the Bowen Basin region over the next 20 years. It is crucial that residents of mining communities are actively involved in decision-making about mining developments increasingly reliant on higher proportions of non-resident workers housed in camps. Through collaborative partnerships with mining community representatives, industry and government (state, local and national) adequate safeguards, solutions to the drain on infrastructure, adverse cumulative consequences on community wellbeing and fly over effects on local economies can be more effectively anticipated, mitigated and managed. Collaborative decision-making involves negotiation and consultation between communities, mining developers, and local, state and Australian governments. While the Qld Government Social Impact assessment process is a big step in the right direction, alone this policy instrument is insufficient to address cumulative social impacts of mining developments on whole regions over time. *Regional Development Australia* (www.rda.gov.au) appears to be the one agency with the potential to engage all key stakeholders in such consultations with a view to consensus building solutions, especially on infrastructure investment.

BACKGROUND AND SURVEY OBJECTIVES

THE MINING BOOM IN REGIONAL AUSTRALIA

The resources sector is the largest contributor to Australia's export trade, and with a total value of \$118.4 billion in 2008-09, the sector is growing at 15% per annum, with developers investing \$133 billion in new resource projects (Lampard et al., 2010). Global demand, especially from rapidly growing Asian economies, together with improved methods of extraction, processing and transportation and lucrative commodity prices, has fuelled this boom. The mining boom has also produced high incomes for resource sector workers, necessary to attract local and overseas labour in a tight market. Current economic returns for the mining corporations and their shareholders are staggering. Two of the giants announced record profits in early 2011: \$10.5 billion for the half year for BHP Billiton and an annual profit of \$14.3 billion for Rio Tinto. In 2009-2011 in Queensland alone, applications for 67 new coal projects worth a total of over \$47 million were either approved or were awaiting approval (See Appendix 1). The overwhelming majority of these new projects will be in the Bowen Basin of Central Queensland and many it appears will rely increasingly upon recruiting a non-resident supply of labour.

Bowen Basin Non-Resident Workforce estimates 2010

Row	Type of workers	Effective date	No.	Report source	References
A	Mining operations workforce	30 Jun 2010	24,765	Bowen Basin Coal Mines and Coal Projects	DEEDI, Mines Rockhampton, Aug 2010
B	Resident operations employees and contractors	2009-10	13,178	Minerals & Energy Resources Sector in Qld Economic Impact Study	Rolfe et al., Nov 2010
C	Non-resident operations, employees and contractors	2009-10	11,587	(= Row A – Row B) = 47% of operations workforce is non-resident	accords with information sourced
D	Other non-resident workers (exploration, construction)	30 Jun 2010	3,026	(= Row E – Row C)	
E	Reported non-resident employees and contractors (under-counted – see note below)	30 Jun 2010	14,613	Bowen Basin Population Report, 2010	OESR, Qld Treasury, Feb 2011

Source: Carrington and McIntosh, Workforce Planning in Mining, Presentation, 12 April 2011.

Note: These estimates are conservative as the measurement of mobile transitory populations poses a great many challenges to traditional data collection methods (See Carrington and McIntosh, 12 April 2011). The number of non-resident workers in the Bowen Basin at 30 June 2010 would be double the estimates provided in the table above (Row E) assuming symmetrical rosters because non-resident workers at home on rostered days off are not captured in the count. In addition, point-in-time data is not

representative of the average number of workers directly involved in all aspects of resource sector projects (including exploration, construction, operation, maintenance, processing, surveying, transport and catering) in a location for a nominated period.

STUDY OBJECTIVES

In September 2010 the Queensland Government introduced new social impact guidelines as part of an Environmental Impact Assessment process for assessing new mining and resource extraction projectsⁱⁱⁱ. These guidelines require robust research. Compared to mining and resource companies, local communities, volunteer organisations and small businesses are disadvantaged in not being able to afford consultants to conduct social impact research on their behalf. Mining industry funded research into social impacts is usually regarded as commercial in confidence and not always shared with communities or businesses directly affected. The aim of the on-line *Social Impact of Mining Survey* was to create a more level playing field for all key stakeholders, government, industry and local business and community. Results of the survey are being made publicly available to community and business representatives to build local knowledge and inform future submissions to Queensland Government and industry bodies on the social impact of mining proposals. Our larger research team has identified 67 new or expanded mining projects in QLD which will need to go through the social impact assessment process (See Appendix 1).

DEMOGRAPHIC CHANGE AND THE IMPACTS OF A NON-RESIDENT WORKFORCE ON QUEENSLAND MINING COMMUNITIES

The Bowen Basin has an estimated resident population (ERP) of around 82,000, covering LGAs of Banana Shire, Central Highlands Regional Council, Isaac Regional Council and Whitsunday Regional Council and encompassing the mining townships of Collinsville, Glenden, Moranbah, Dysart, Middlemount, Moura, Blackwater, and Tieri (ABS, 2010). Over the past three decades the Bowen Basin has experienced significant population growth accompanying rapid mining development and is projected to increase by around 2.2 percent per annum over the next twenty years (ABS, 2010). In 2006 the mining industry was the biggest employer in the Bowen Basin Region with around 7,600 (88 percent) of Queensland mining workers residing in Bowen Basin LGAs (OESR, 2010a: 2). In the twelve month period from 2009-2010 there was a four percent increase in full-time worker populations in the Bowen Basin (to around 98,500), encompassing both resident and non-resident workers. The non-resident workforce has been estimated to comprise around 14,600 or 15 percent of the full-time employment population in the Bowen Basin Region and more than two thirds (9900) in the LGA of Isaac (OESR, 2011), although these estimates are likely to be conservative. From 2009-2010, non-resident workers accounted for an estimated 65 per cent of the population growth in Isaac compared

to 24 per cent of growth in the Central Highlands (OESR, 2011: vi). As noted above these estimates are likely to be understated due firstly to discrepancies between Census counts of Estimated Resident Populations (ERP) in LGAs with transient populations, and secondly because a large proportion of non-resident workers are not captured in point of time population statistics, as up to 50% of this population may be off roster in another region, city or state at the time of the count. The impact of these statistical discrepancies on shortfalls in funding for essential infrastructure and other services, and how this compounds social and economic disadvantages for mining town residents, was frequently commented on by survey respondents, and warrants further investigation.

In 2006 the ERP of the Bowen Basin region had a 4 percent Indigenous population (which is slightly higher than the state average), and a 52 percent male and 48 percent female population (ABS, 2006). This gender demographic is consistent with the region's predominantly male mining workforce, where women constitute only around 16% of the mining industry workforce (ABS, 2011 Cat No. 6209.0.55.003). In 2006 (the last census), the Bowen Basin region had a relatively young population (median age 33 years) compared with the state average, and a relatively low resident population aged over 65. Educational standards in Bowen Basin LGAs are substantially lower than the average for Queensland (ABS, 2006). Although the proportion of families in the region is comparable with the Queensland average, it is projected that the region will experience a substantial decline in families with children, and an increase in lone person households over the next 20 years (OESR, 2010b), due to the mining industry's increasing reliance on a non-resident workforce. The growth of non-resident labour housed in temporary accommodation is an integral feature of the contemporary mining boom and one set to soar with the development of new coal mining projects in the Bowen Basin.

SURVEY DESIGN AND METHODOLOGY

An online survey was designed by the QUT research team, tested by volunteers from mining communities, and administered using licensed Qualtrics Survey Software. Limitations of the survey instrument are noted in the endnotes^{iv}. The survey comprises three parts:

- Socio-demographic questions included age, sex, employment status, employment within the resources sector, non-resident worker status, place, postcode and length of residence, involvement in service delivery, and participation in community and volunteer organisations.
- Respondents were asked to rate, on several Likert type scale questions, their perceptions of both the severity and probability of a range of social impacts on their communities. Scaled questions related to their perceptions of the impact of non-resident mining workforce on their community as well as the strength of their support or opposition to new mining projects

by proportion of non-resident workforce (from 25% or less, 26-50%, 51-75% and 76% or above).

- Open ended questions captured rich qualitative insights into how mining development has impacted on their local communities. The qualitative responses assist the interpretation of the survey results. A total of 338 respondents offered additional comments about the impact of non-resident mining workforces on their community and 319 made additional comments about the social impact of mining more generally. These comments have been organised thematically around key issues representing a diversity of views.

No individual identifying information was made available to the researchers about respondents. To ensure that the anonymity of respondents was protected the survey was distributed via a generic link. Other methods of distribution, such as custom linking the survey to individual respondents via Qualtrics software, allow for greater control of the sample and can help reduce the possibility of attracting non-representative sample. However, such methods can compromise confidentiality and breach research ethics, as they enable tracking of individual responses through email addresses. Hence the research team chose not to do this for ethical reasons. Respondents could only do the survey once as the software tracked IP addresses preventing repeat responses. The research team used four methods of recruiting survey respondents:

- Primarily through the research team's own Google website and blog, which were linked to or promoted through two support organisations for non-resident workers (Mining Family Matters www.miningfm.com.au and FIFO www.fifofamilies.com), as well as to Mining Communities United (www.miningcommunities.com).
- Through purposive sampling – including personalised email invitations sent to local government, local MPs, local civic representatives, local Chamber of Commerce and Progress Associations, community liaison officers in the mining industry in the Bowen Basin, shire councils, businesses, women in mining on-line social network group, and community organizations and volunteer associations. In line with promoting survey reliability, individuals were randomly selected from local community directories.
- Through local media and online sources in the Bowen Basin and Central Queensland. Advertisements were placed in *Shift Miner* (Second week of April 2011), *The Mackay Daily Mercury* 26 March plus two weekdays; *Morning Bulletin* 26 March plus two weekdays, *The Rural Weekly Central Qld* 1 April; *Rural Weekly North Qld* 31 March, *Central Qld News* (30 March, 1 April, 6 April) and *Blackwater Herald* 29 March.
- Through several radio interviews with regional radio stations, such as ABC Capricornia (based in Mackay), and ABC Central Queensland.

All potential respondents were given access to a participant information statement and the QUT research ethics approval number for the study. They were also provided with a link to the survey accompanying a separate message reminder that respondents must be over 18 and live or work in a community or region in Queensland affected by mining development. These details were repeated on the first page of the survey, together with a drop-down box requesting that respondents select 'yes' if they give consent to proceed with the survey. The software prevented repeat responses.

RESULTS

At the close of the survey on 27 May 2011 the data had reached saturation point. The data was analysed at intervals of around 100. The patterns in responses were remarkably stable from the first hundred through to the last. In total the survey was accessed by 658 potential respondents, however 99 cases were deleted because respondents did not answer any socio-demographic questions and could not be validated. The following analysis is based on 559 responses in total. A total of 486 respondents completed all the questions. Missing data varied per question (from 0 to 73) and is noted in the analysis. Results for specific communities for which there is sufficient data have been made available to mining community representatives to decide how these should be released. This is an ethical protocol designed to empower communities to decide how best to use the local level data.

SOCIO-DEMOGRAPHIC DATA

Most respondents reported they normally resided in Collinsville, Moranbah, Emerald, Blackwater, Moura and Dysart or surrounding smaller communities, such as Tieri, Theodore, Biloela, Clermont, Glendon, Middlemount, Springsure, Capella and Comet. A smaller number of respondents reported their usual residence as Kingaroy, Mackay, Central Queensland, Mt Isa, Rockhampton or Townsville.

In spite of our gender diverse sampling strategy, the majority of responses (62%) were from women, and 38% per cent from men. This is not reflective of the population demographics of the mining communities under investigation, which as noted earlier in this report, tend to have slighter higher proportion of male populations. There was a diverse age profile among respondents. The median age of our respondent sample is 36-45 which is slightly older than the population demographic of the communities surveyed for which the median age is around 33 years. We were concerned the on-line survey may deter older participants but this does not appear to be the case.

Table 1: Sex of Respondents M=0

	Response	%
Male	210	38%
Female	349	62%
Total	559	100%

Sixty three per cent of survey respondents own

their own dwelling while 5 percent reported living in a single person's quarters or a workers camp (27 out of 489) making this group under-represented in the sample (Table 3). Several non-

resident workers in the Bowen Basin who answered survey came from interstate, others normally resided in Brisbane or other regional Qld centres. Efforts were made to specifically recruit non-resident workers through *Shift Miner* (read widely by this demographic) and FIFO Families and Mining Family Matters – two support organisations for non-resident workers and their families.

Around 40 percent of respondents reported they had lived in their community for a period of 15-45 years, while almost 30 percent reported living in the community for less than 5 years. A small minority reported that they had arrived from other Australian towns or cities, or from overseas.

Table 2: Age of Respondents M=0

Age	Response	%
18-25	36	6%
26-35	131	23%
36-45	157	28%
46-55	130	23%
56-65	84	15%
66-75	19	3%
76+	2	0%
Total	559	100%

Table 3: Type of Dwelling lived in during week or rostered time on in the community (N = 486 M = 73)

Answer	Response	%
Worker's camp	18	4%
Caravan park	2	0%
Other single person's quarters	7	1%
Private rental dwelling	153	31%
Owned dwelling	306	63%
Total	486	100%

Most respondents were employed full time or part-time (69%) (Table 4), which is slightly higher than the Australian average participation rate of 65.7% (ABS, Cat No. 6202.0). The higher workforce participation rate is consistent with the demographic of mining regions. The majority of respondents worked in the Bowen Basin in a wide variety of occupations, mostly administration, small business, human services, hospitality, local government, plant and machine operation, mining construction, operation and maintenance and engineering.

Table 4: Participation in Employment (N=558 M = 1)

	Response	%
An 'at home' carer not employed outside your home	38	7%
In unpaid work	8	1%
Unemployed	6	1%
Employed full or part time	387	69%
Self-employed	97	17%
Retired	22	4%
Total	558	100%

A total of 139 respondents were employed in the resources sector – about a quarter of those who responded to the survey. Of these, 59% were employed by a resources company, 27% by a contracting company and 14% were self-employed (Table 5). The majority of responses came from employees of or contractors to: BMA, Anglo American, Thiess, Rio Tinto, EXTRATA, Moranbah Sand and Gravel, and Central Queensland Hydraulics (See Appendix 2 for the complete list).

Table 5: Employed in the Resources Sector (N= 139)

	Response	%
Employed by a resources company	74	59%
Employed by a contracting company	34	27%
Self employed	17	14%
Total	125	100%

M from those who answered yes =14

Table 6: Service Providers (N=259)

	Response	%
Human services	48	22%
Crime and justice	5	2%
Medical and health	23	10%
Other	144	65%
Total	220	100%

M from those who answered Yes =39

A total of 259 or 53% of the sample said they were service providers. Around 22% of respondents provided human services. The majority (65%) nominated 'other' services. Only five respondents (or 2%) worked in delivering crime and justice services to the community (Table 6).

Table 7: Community Representative or Volunteer in Community Organisations

(N = 550 M = 9)

	Response	%
Yes	296	54%
No	254	46%
Total	550	100%

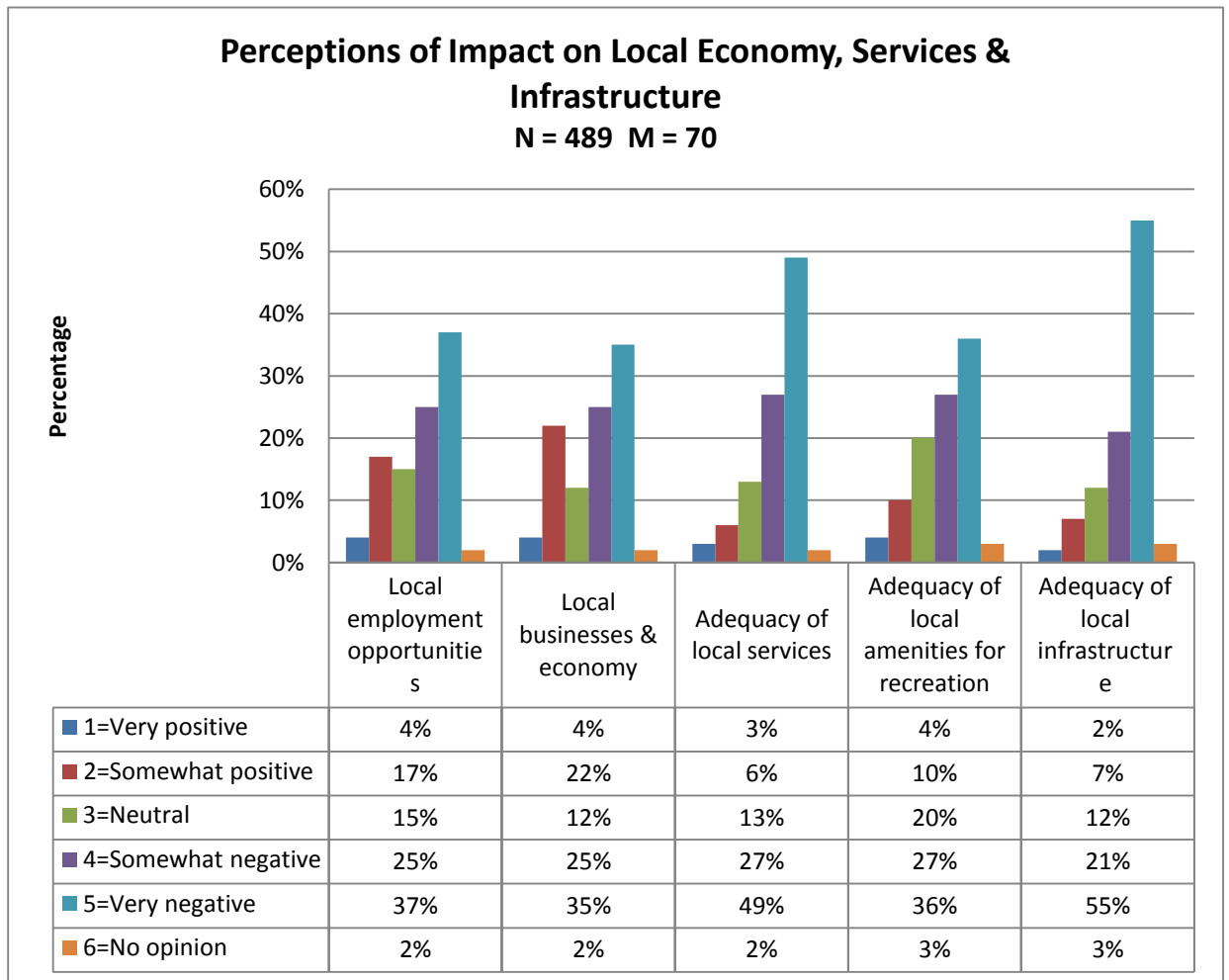
A total of 294, or more than half of all respondents (54%) said they were volunteers or representatives of community organisations (Table 7). The high participation rate in community and volunteer organisations is a distinctive socio-demographic feature of rural Australia (Hogg & Carrington, 2006). Consistent with this demographic, a large number of survey respondents were involved in a diverse range of community organisations such as sporting associations, civic bodies, arts and cultural associations, business associations, youth groups and religious associations (see Appendix 3 for a detailed list). This large cohort of information rich informants are well placed to represent the views of their members in responding to this survey. Their high participation rate reflects the purposive recruitment of community organisations randomly selected using publicly listed community directories.



PERCEPTIONS OF IMPACTS OF MINING DEVELOPMENT ON QUEENSLAND COMMUNITIES

Quantitative results from Likert type questions relating to community perceptions of the impact of non-resident mining workforces on local communities are presented in this section. The data was automatically generated from Qualtrics and after data cleaning, downloaded into Excel software to generate graphs. Respondents were asked to rate, on a number of variables, using a Likert type scale ranging from ‘very positive’ to ‘very negative’, their opinion about how mining projects using non-resident workers housed in temporary accommodation, impacted on their community. Variables included impacts on local employment, the economy, local services, amenities, infrastructure, housing, community safety and wellbeing, and crime and justice.

Figure 1



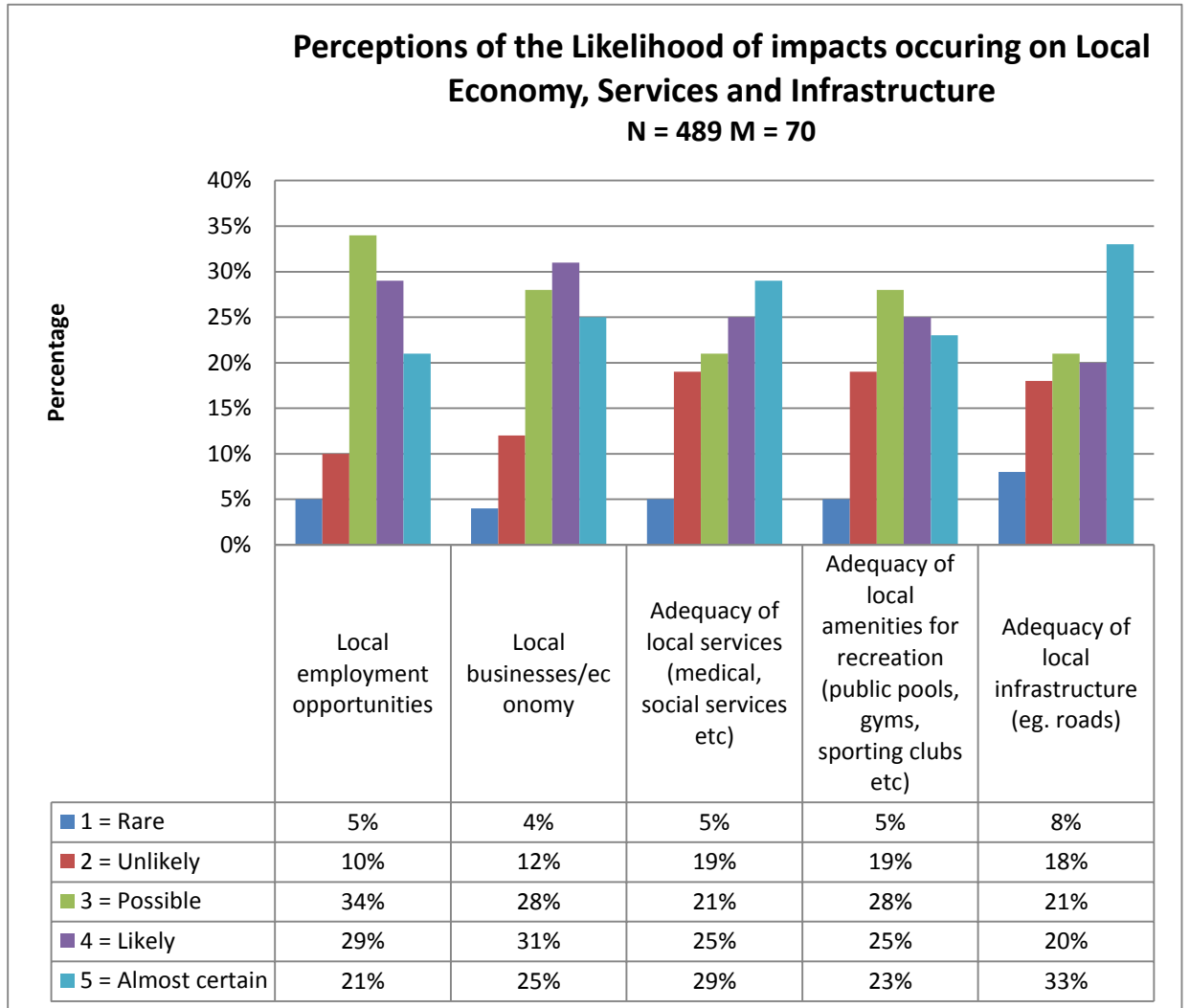
This set of questions was designed to identify the perceptions about the *severity* of the social impact of non-resident mining workforces housed in temporary accommodation on a range of social impacts. The list of impacts provided to respondents – from local employment to infrastructure, was based on known key risks associated with mining development.

The overwhelming response to the impact of non-resident mining workforces housed in temporary accommodation on the local economy, employment and infrastructure was negative - 62% felt the impact on local employment opportunities was somewhat (25%) or very negative (37%); 60% felt the impact on local business and economy was somewhat (25%) or very negative (35%); 76% felt the impact on local services was somewhat (27%) or very negative (49%); 63% felt the impact on amenities for recreation was either somewhat (27%) or very negative (36%); and 76% perceived the impacts on adequacy of local infrastructure to be negative (and most very negative 55%)^v. The results highlight the ‘fly-over-effects’ of the financial benefits of resource sector development reliant on non-resident workforces on the local economy (Rolfe et al, 2007:24; Storey, 2001).

Nevertheless, the highest ranking positive scores related to local employment, local business and economy. A total of 21% thought the impact of non-residential mining workforces housed in temporary accommodation would be positive (4% very positive and 17% positive), while 26% thought the impact on local businesses and economy would also be positive (4% very positive and 22% positive).

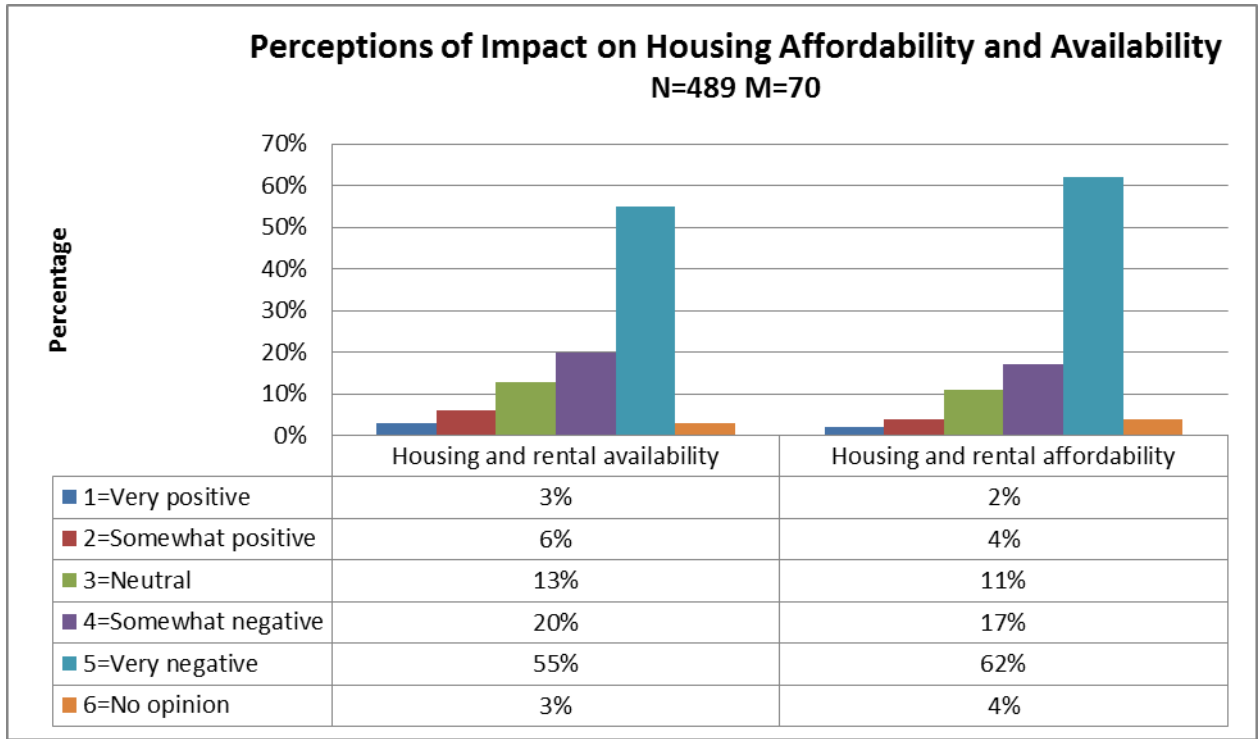
The next set of questions was designed to assess the *probability* or likelihood of perceived impacts eventuating. Respondents were asked to rate the same variables as the previous question, using a Likert type scale ranging from ‘rare’ to ‘almost certain’, what they thought the likelihood of such impacts occurring in their community. This is a variation of risk assessment analyses already widely used in the mining industry, though mostly in relation to assessing environmental or business risks (Department of Resources, Energy and Tourism, 2008:49-61). While most risk assessments are qualitative through the survey, this study sought to also quantify perceptions about the severity and likelihood of social impacts.

Figure 2



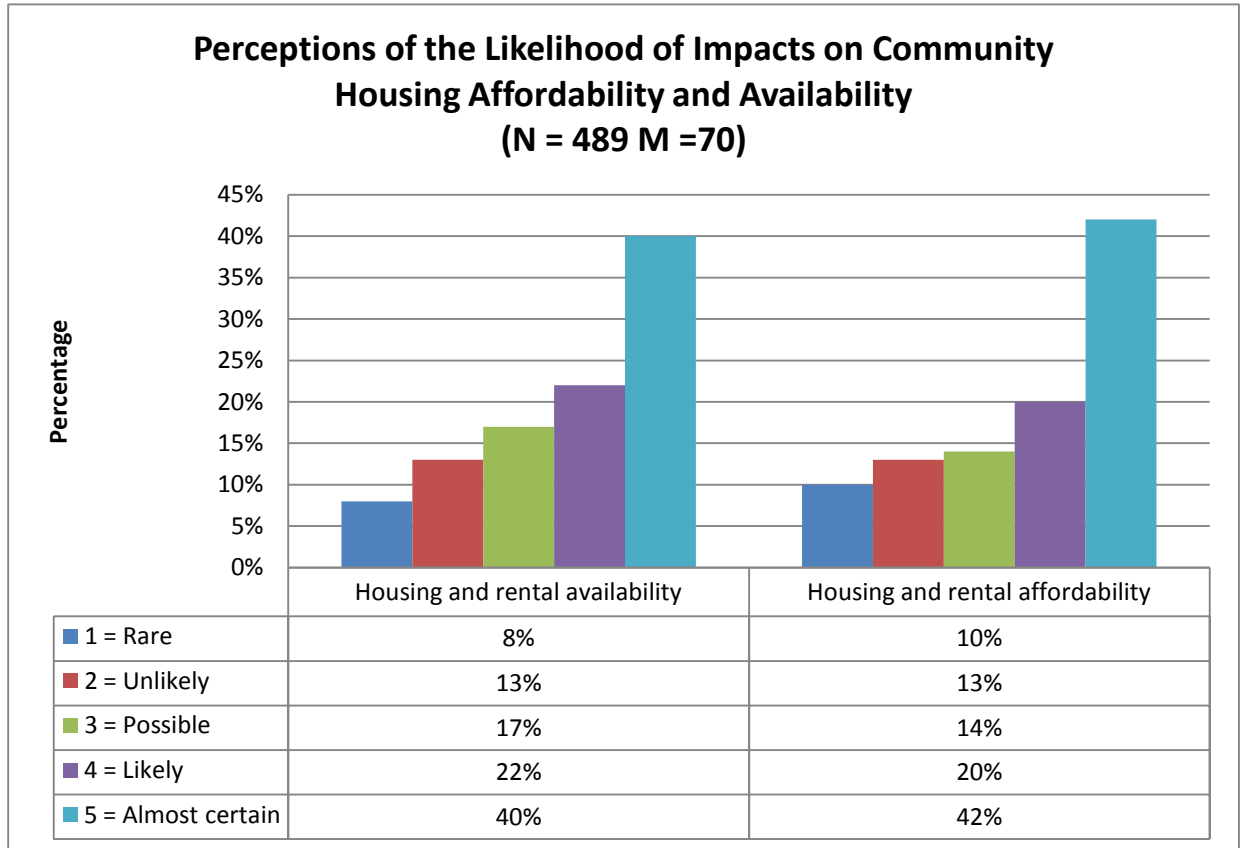
Respondents were specifically asked *how likely* they thought their perceived impacts would be on the local economy, infrastructure and employment. The majority (over half) of survey respondents felt their assessment of impacts on local economy, employment, services and infrastructure (and for most this was negative) was likely or almost certain to occur.

Figure 3



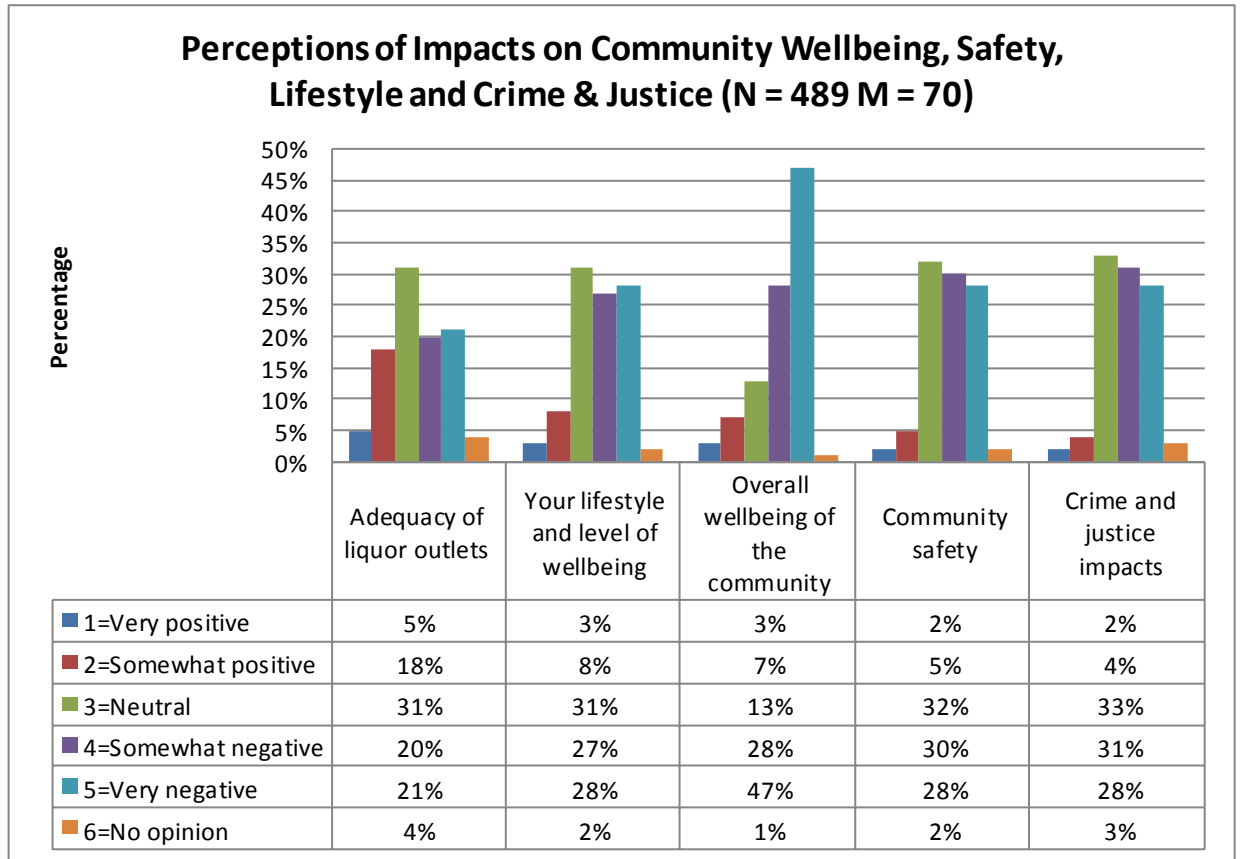
The adverse consequences of the mining boom on levels of local housing affordability and availability have been previously widely aired and researched (Haslam McKenzie et al., 2008). The results of this aspect of the survey are hardly surprising. The overwhelming majority of respondents rated the impact of mining developments using non-resident labour forces housed in temporary accommodation as having negative impacts on both the availability (75%) and affordability of housing and rental (79%) in the local community - two of the highest negative ratings in the survey (Figure 3). Only 9% felt mining developments using non-resident labour forces housed in temporary accommodation had a positive impact on housing or rental availability and 6% on housing or rental affordability. Sixty-two per cent of respondents rated the likelihood of these impacts occurring as likely or almost certain (Figure 4).

Figure 4



Respondents were asked to rate their perceptions of the impact of non-resident mining industry workers housed in temporary accommodation on various aspects of lifestyle and community wellbeing (Figure 5). In regards to overall community wellbeing 75% felt they had an adverse impact (47% rated their impact as very negative and 28% as somewhat negative). Over half the respondents felt these impacts were likely or almost certain (see Figure 6). The majority of respondents thought a non-resident mining workforce housed in temporary accommodation had an adverse impact on community safety (58%) and crime and justice (59%) (Figure 5), with almost half believing the risk was almost certain or likely (see Figure 6). In terms of lifestyle again over half of respondents (55%) rated the impact of non-resident mining industry workforces as very negative (28%) or somewhat negative (27%) (Figure 5). Almost half of survey respondents regarded these impacts on as either likely or almost certain (Figure 6).

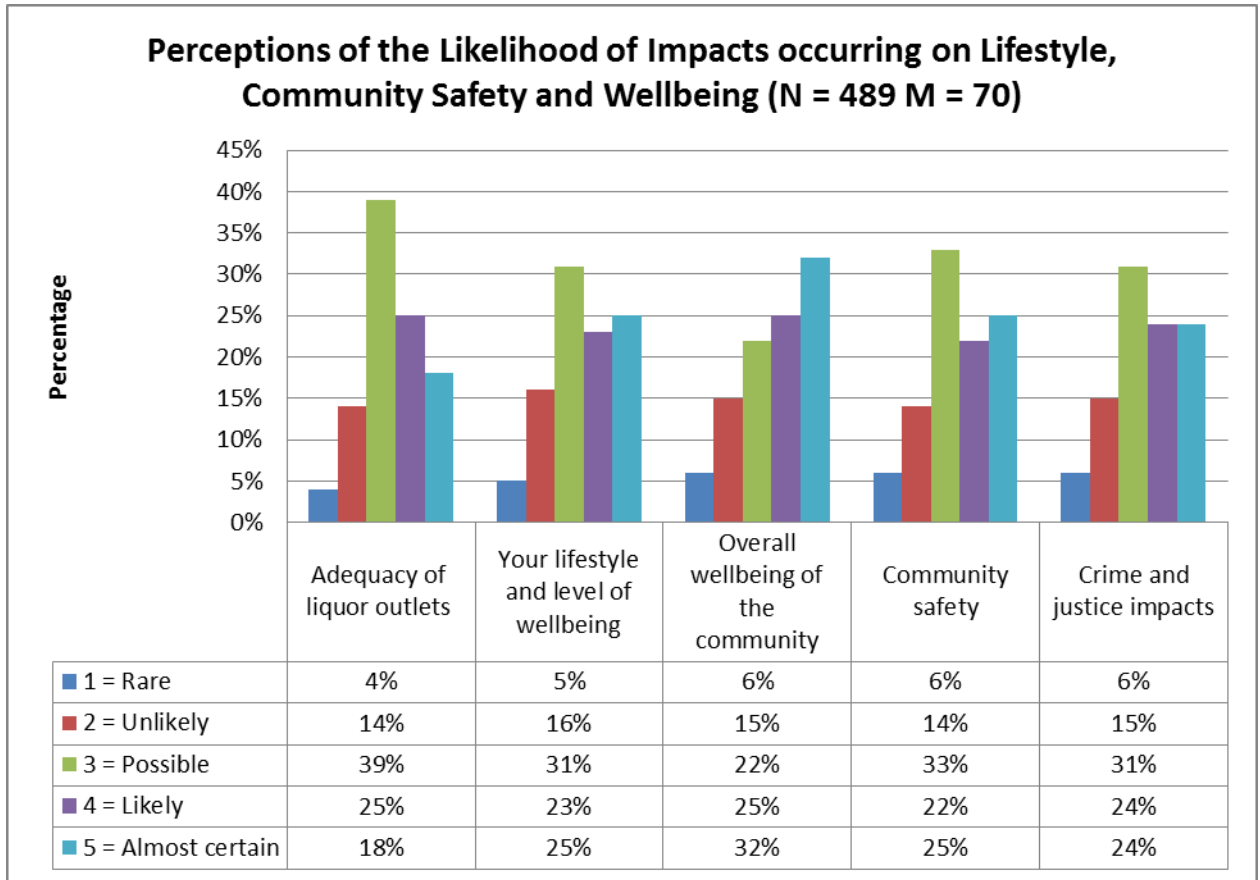
Figure 5



The most positive assessment of impacts, listed in Figure 5, related to adequacy of liquor outlets. Almost a quarter (23%) felt the presence of non-resident mining workforces housed in temporary accommodation would have a positive impact (5% very positive and 18% somewhat positive) on liquor outlets in their community. This result is hardly surprising given the higher per capita consumption of alcohol in rural Australia and the central role of the ‘wet mess’ and alcohol in camp life (see Carrington et al, 2010). A survey carried out in Moranbah in 2006 reported that the highest expenditure per work camp resident in that community was on alcohol (\$52.66 per week) followed by fuel (\$34.62 per week) and then food (\$24.43 per week) (Rolfe et al, 2007: p. 23).

Only 11% of respondents felt non-resident mining workforces would have a positive impact on their lifestyle, 10% on overall community wellbeing, 7% on community safety and 6% on crime and justice.

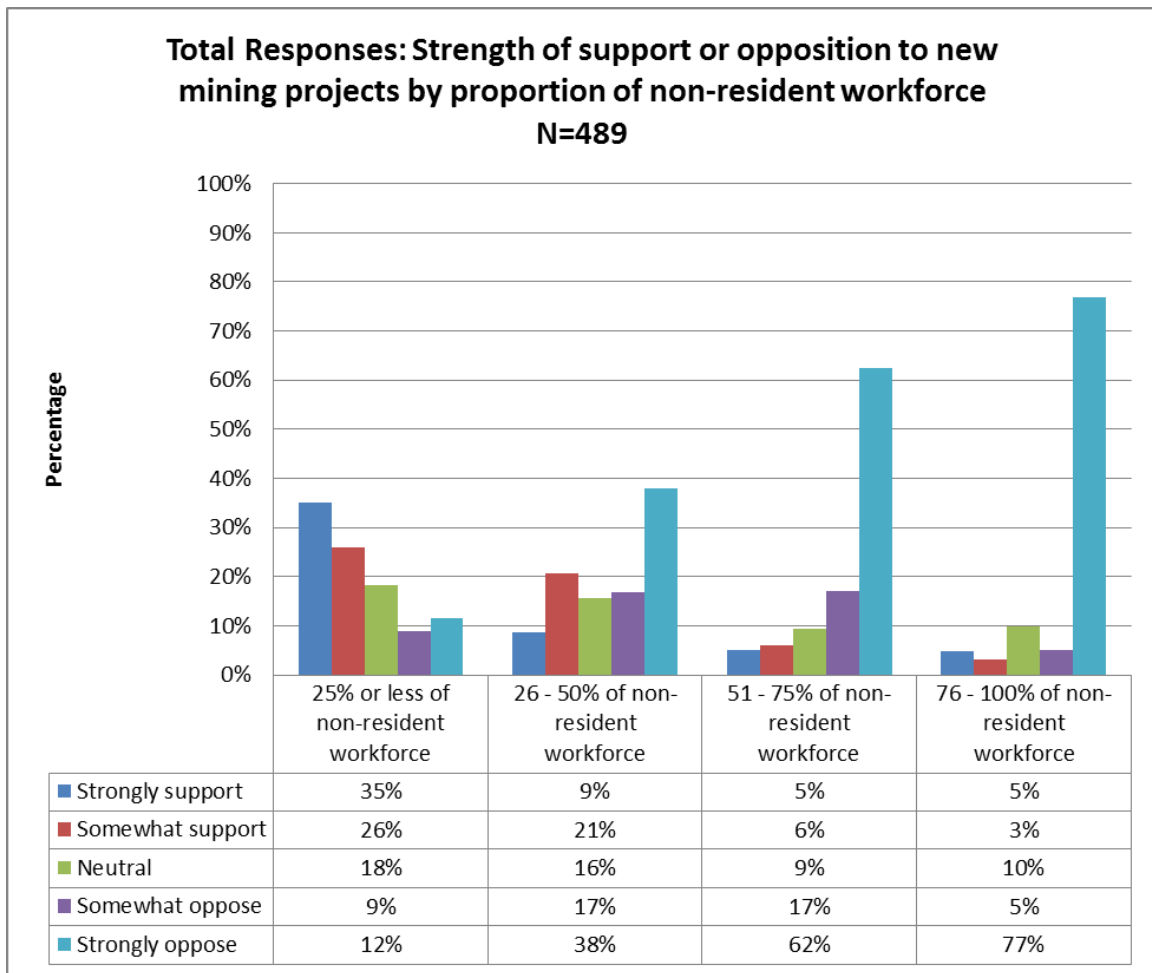
Figure 6



The reasons offered by respondents for their assessments of the social impact of mining developments reliant on non-resident workers are presented in the section of the report which analyses the qualitative results.

SUPPORT OR OPPOSITION TO NEW MINING PROJECTS BY PROPORTION OF NON-RESIDENT WORKFORCE

Figure 7



M=70

Participants were asked to rate their support for, or opposition to, potential new mining projects in their community, depending on the percentage of non-resident workforce the project expected to hire (Figure 7). Very few respondents (only 21%) were opposed to new mining projects with non-resident workforces of less than 25%. Sixty-one per cent supported new mining projects anticipating a non-resident workforce of 25%, and 35% strongly supported mining developments with this proportion of non-resident workers. The strength of support diminishes significantly thereafter, with

the majority of respondents opposed to new mining projects with non-resident workforces in excess of 25%. Fifty-five per cent of respondents were opposed to projects with a 26-50% non-resident workforce and of these 38% strongly. Eighty-two per cent were opposed to mining developments planning a non-resident workforce in excess of 75%. Of these, 77% were strongly opposed – one of the highest negative ratings in the survey. The results support the proposition that the social licence to develop new mining projects is strong for projects planning to hire a non-residential workforce of 25% or less, but that the social licence erodes significantly thereafter and is very weak for new mining projects planning to recruit a non-residential workforce in excess of 75%. The patterns differed little for respondents who work in the resources sector, with most (72%) supporting projects with 25% or less non-resident workforce and 80% opposing new projects anticipating a non-resident workforce in excess of 75%.

Figure 8

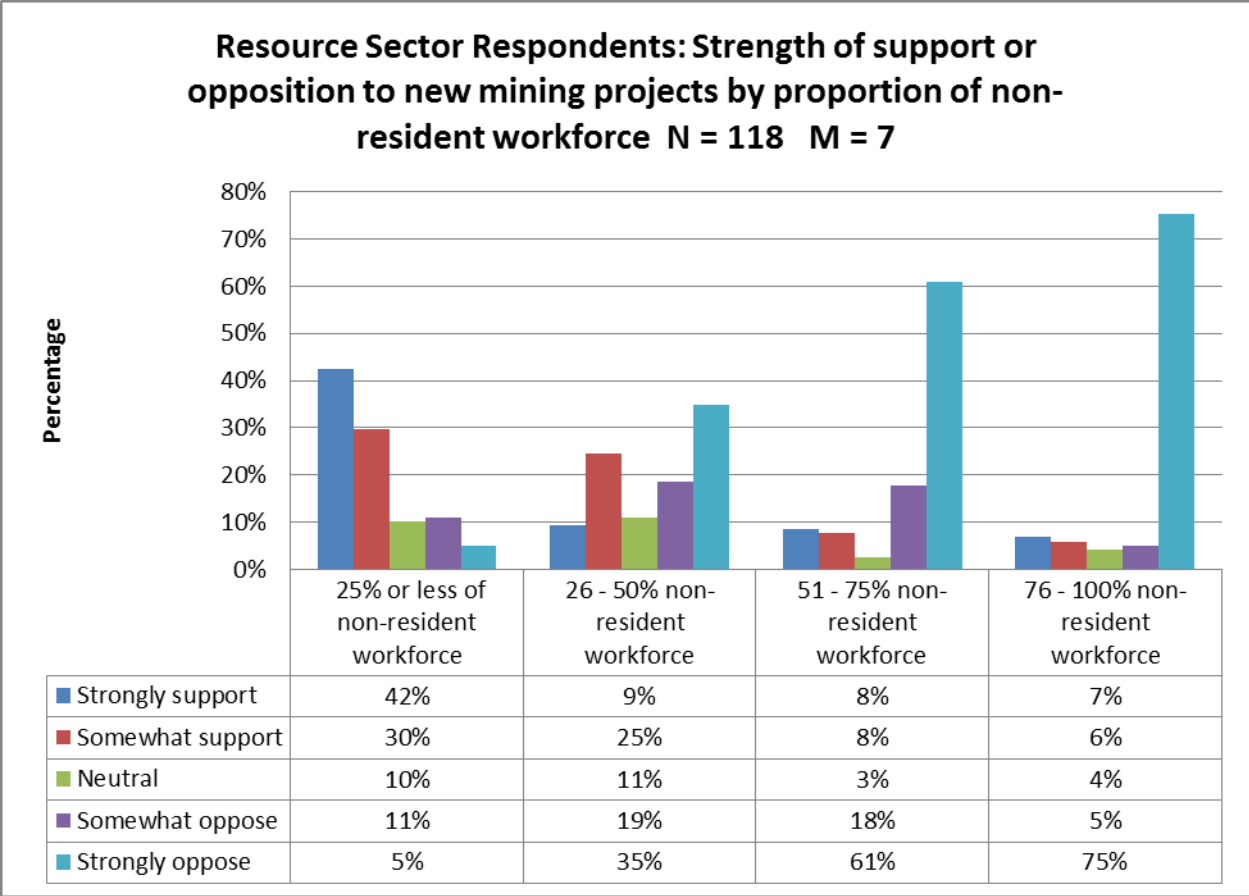
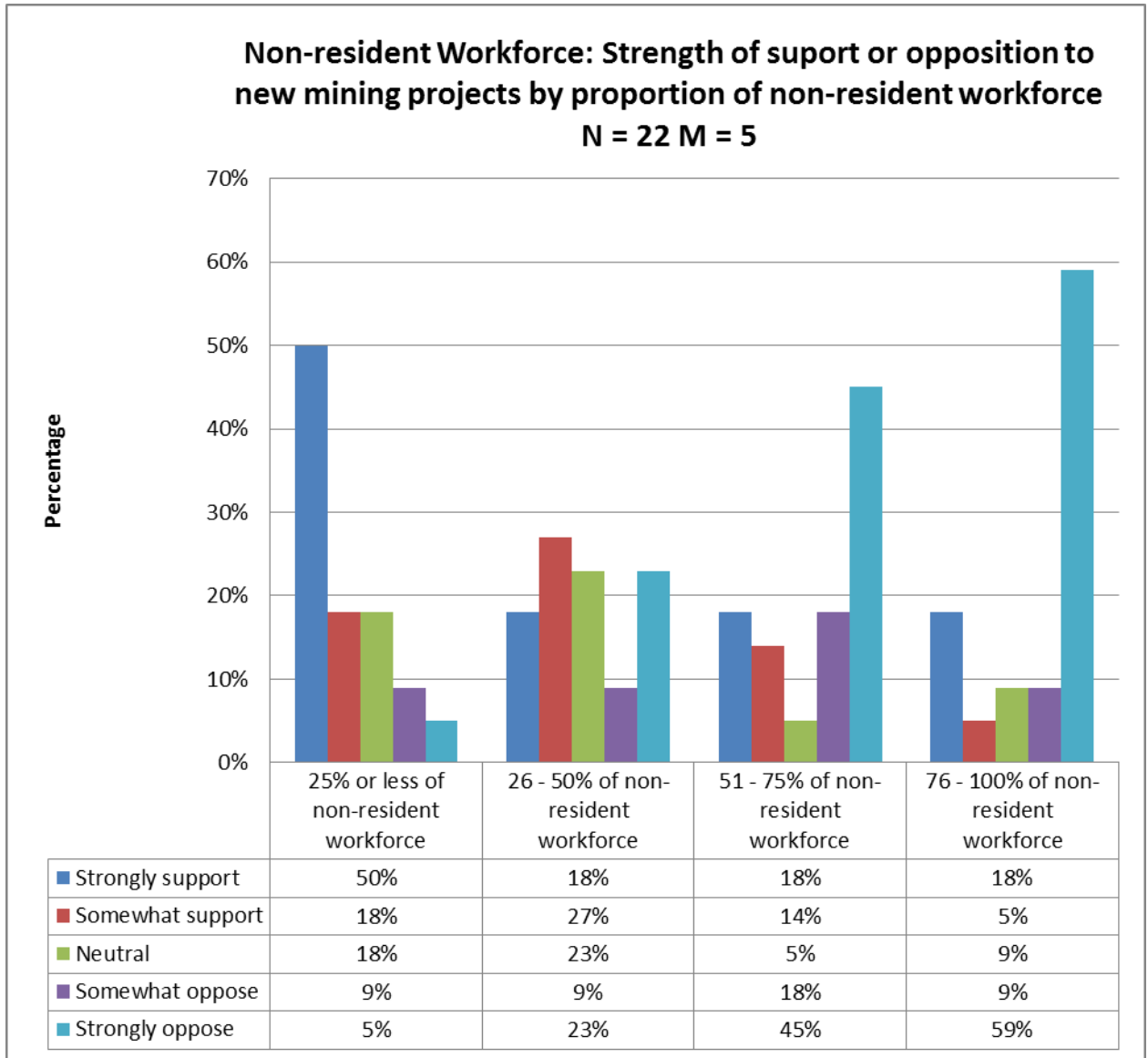


Figure 9



Non-resident workers themselves conformed to the same pattern of responses as the overall sample, expressing strong support for new mining projects with 25% or less non-resident workforce component, and strong opposition to new mining projects with a non-resident component in excess of 76%. The cell sizes in Figure 9 are small and hence caution in their interpretation is urged.

QUALITATIVE RESPONSES

The two last open ended questions in the survey captured rich qualitative detail about how mining development has impacted on local communities. A total of 338 respondents offered additional comments about the impact of the growing trend toward non-resident workforce on their community and 319 made additional comments about the social impact of mining more generally. These comments have been organised thematically around key issues representing a diversity of views. From these we have identified some striking patterns, general themes and concerns. Some of the key concerns raised in the open-ended section include:

- Adverse consequences for the wellbeing of non-resident workers and their families
- Fatigue arising from block rosters and long distance travel
- Strains on housing, services, infrastructure and economy
- Erosion of community wellbeing, safety, sporting and cultural life
- Lack of financial benefits to local business in spite of massive profits for mining companies and royalties for government
- Substandard living conditions for non-resident workers housed in camps and
- An expectation of a stronger leadership role for government on all these issues

These responses have been organized thematically and are available on the website to reduce the size of this report. A snapshot of responses, representing a diversity of views where possible, appears below. There was however a lot of homogeneity in the responses. Comments offered voluntarily by participants, provide rich local level insights into the community perceptions of the social impacts of mining developments and their increasing reliance on non-resident workforces. These comments capture the voices of rural Australian mining communities – left largely unheard in the ‘coal rush’.

IMPACT ON LOCAL ECONOMY, EMPLOYMENT, SERVICES AND INFRASTRUCTURE

The adverse impact on local employment opportunities in a time of critical skills shortage appears paradoxical. A number of participants expressed concerns about locals being over-looked for jobs in preference of non-resident workers. Here are just two examples.

'I've been a miner's daughter all my life and now my partner and 2 sons are in the industry. I've nothing against mining or the industry giants... what happened to the family side of mining, generations working at one mine? or for one company. Its heart breaking when your kids are knocked back for jobs by the very company who trained them for a position they're skilled in for someone who's never set foot in our town. I think the local campaign is a good one which should see mining giants employ locals over outsiders perhaps at a fair ratio that doesn't discriminate.'

'It is my experience that mining companies and contractors prefer to hire non local labour, to the extent that I have been told numerous times "if you want a job on the mines, get an address in Mackay, Rockhampton, Brisbane, etc, anywhere except in the Central Highlands"'

A great many comments focused on perceived negative impacts on the local economy – especially the fly-over effects on local business.

'The mining industry as a whole does not support the local businesses. Here are some examples. The camps get their food trucked in from Brisbane. The plumbers/electricians etc are also brought in from the bigger cities. The mines do not source many of their products from the local area. They do not support many community organisations or functions. They very seldom hire local people, and never advertise locally for any job vacancies. The people, who choose to move to a community, get no benefits for living there but those living in Camps get free accommodation and food.'

'I am employed by a small business which is seeing a huge impact from the use of a non-resident workforce. The simple fact is the money that these people earn is not put back into the community but goes elsewhere. This means less money for small businesses which employ a large part of the population and therefore there is less jobs. Businesses are also not being able to stock their businesses and this in turn leads to others taking their money out of town to shop. It's a vicious circle.'

Nevertheless a handful of survey respondents highlighted the substantial contribution that mining makes to the economy more generally. Here are three examples - the last of which weighs up the positive and the negative.

'The mining industry brings enormous opportunities to regional Australia and generates enormous wealth for the state and nation. They should be fully supported.'

'Large projects increase the population in our towns (regardless if they are temporary or not) which in turn boosts the local economy through the purchase of food, fuel, alcohol as well as boosting community participation and an increase in the opportunity for local contracting companies.'

'The mining companies impose very substantial costs on councils but also provide great benefits. By and large they are excellent employers, they pay substantial rates, they are quick to provide assistance in emergencies, and they are good supporters of local sport, recreation and cultural organisations and events. The downsides are well documented and are significant.'

A number of respondents were careful to distinguish between the practices and reputations of different mining and resource extraction corporations in different communities.

'In cases where mining is positively impacting the community, the corporate involved in the mining has a sound understanding of community development and integrates well in the community. Links and rapport needs to be established to create positive collaboration. Some companies do this better than others and there appears to be no standard across the industry... It seems from the outside that the bigger the mine is the poorer the effort in the community when on economics alone it should be the opposite.'

A great many comments highlighted the strain placed on local human, social and medical services and infrastructure. Here are just a few typical examples.

'This is an ongoing battle in X as well as other mining towns. Roads, hospital, water & sewage fast falling into 3rd world standard, not to mention the state of some rental houses & parts of the town resembling Soweto.'

'A Non-Resident workforce puts strain on the local Hospital, Ambulance, Fire Fighters and also puts a lot of extra strain on our already damaged highways.'

'The township becomes very disjointed. There is the impact on infrastructure, social issues affecting individuals, families and the community at large. Local businesses are impacted more in a negative aspect as often the mining camps are catered for by outside larger companies and minimal expenditure is done with the immediate community.... '

'I do not support the housing of non-resident workers in temporary accommodation as this does not make any money for the local economy at all - most of these workers do not use any of the local facilities as they are either at work or asleep. They only see the town when they drive in and out of it.'

IMPACT ON HOUSING AND RENTAL AVAILABILITY AND AFFORDABILITY

The impact of mining development on local housing and rental availability and affordability, which has been previously identified as a major issue for towns undergoing rapid socio-demographic change due to the mining boom, (Haslam McKenzie et al., 2008), provoked a large number of passionate responses.

'Greedy landowners and business owners should not price their products and/or services for the mine income as they perceive it. This is one of the main reasons why people won't move families to the areas as rentals as high as \$1-3000 are outrageous even if 10-12 people share a home revolving around the shifts they work.'

"Permanent residents cop all the negative effects of mining, such as dust and the associated medical issues, noise, increased prices, housing affordability and limited choices of housing options.'

"MINING PROJECTS HAVE ATTRACTED INVESTORS IN HOUSING, HOWEVER AFFORDABLE HOUSING FOR RESIDENTS NOT ASSOCIATED WITH MINING PROJECTS IS STILL A CONCERN THAT IS NOT BEING ADDRESSED." (The respondent wrote this capitalised)

The response below highlights the inevitability of non-resident work force arrangements, but also the differing impacts that non-resident workforces can have on local housing and rental accommodation, pointing out that it is possible to mitigate some the adverse consequences.

'Whilst it is generally preferable for any workforce to be housed in permanent accommodation this is not always possible and the workers themselves are not always willing to do so. Also cannot always source the required workforce locally, so sometimes this is the only option available. However, where this occurs it would be much better received by the community if it was kept to a minimum and there were a greater recognition and compensation for the impacts that both the workforce and the project/venture itself had on the community. Impacts can vary depending on type of accommodation - if construction camp then low impact on housing affordability and availability but if sourced from local accommodation, high impact on this aspect.'

IMPACT ON LIFESTYLE, COMMUNITY SAFETY AND WELLBEING

A large number of comments referred to a complex inter-connection between mining development, non-resident workers and impacts on lifestyle, community safety and wellbeing. The comment below, obviously from an insider from the resource industry with a wealth of local knowledge and experience, draws an historical link between shifts in the culture of mine management - from being part of the community to fly-in managers who no longer have a meaningful commitment to local identity.

'Non-resident workers make no contribution to the community. They make few, if any, purchases from local businesses. As their families are elsewhere, it means they are only in the community for work, therefore make no contribution to sporting groups and other volunteer organisations. The lack of permanent numbers also leads to a reduction in public facilities - schools, churches, hospital, fire and rescue, ambulance etc. Because many are not part of the community, I have noticed a marked reduction in support for local facilities and organisations by the mining company - many of our workers do not use the facilities, so we (X mining company) do not provide the previous level of support. When the "big boys" in the local organisation fly in on Monday morning and leave on Friday, on a full week, they have no concept of community life. Before non-resident workers, previous mine bosses held many volunteer positions in local groups and were part of community life. How many current bosses have ever seen local juniors play soccer - none as it occurs on weekends?'

A common perception expressed by respondents was that multi-national mining companies especially, lack a commitment to place, prefer a non-resident workforce because it's expedient and no longer care about local community wellbeing, leading to a spiral of decline. Here are just a few.

'It affects every aspect of our lives. It has depleted the labour pool for all other businesses, which makes every service very expensive Much of the mining work force is transient in nature so the sense of community is greatly diminished; values decline; concern for fellow workers and others disappears...'

'Don't get me started, schools suffer, less students, aged care suffers as not enough people to support it, local shops suffer as not enough people to support their business, roads are a mess, safety is thrown out the window, local people are frowned upon if they have the courage to have a say, just a tip of the iceberg. When are mines going to listen?'

'...The mines will return less and less money to the communities as more and more of their workforce will be employed from areas other than the mining regions, the mining towns will then go backwards rather than growing.'

'Mining companies are supported by the community; however they do not truly support the community. The mining companies would be more than happy to get rid of our town and community. We are happy that they are forging ahead with their projects and profits. However, our happy town and community will probably not see it. We are slowly losing our choice of whether we can live with our Families to work, or live away. I want to be with my Family and they with me, but that will be taken away from me and my co-workers who live in our little town and community.'

The survey did not explicitly asked about the impact of 12 hour block shift rosters on community wellbeing – an oversight in hindsight. However this was a common theme raised in the qualitative responses. The introduction of block roster 12 hour shifts depletes the availability of parents and volunteers to participate in local recreational and sporting clubs and activities, as described by this respondent.

'The introduction of 12 hours shifts, while supplying employees with a better wage, has had a detrimental effect on the local community in regards to sports, community groups and volunteers to help run these things. Parents are not available to help out at children's sporting events which mean these organisations can't run. Also the mining company in our area is not very community minded as far as supporting the different groups financially. These overseas companies are making a lot out of our country and they should be made to support the local community in a monetary fashion.'

A general sense of decline in community safety found expression in the some of the comments. The gender imbalance that flows from the impact of a largely male non-resident workforce on the local community was highlighted as having an adverse impact on community safety. Here are a few quotes of this nature.

'As there is often an imbalance of male/female representations often crimes increase in number and severity. It is an unnatural community setting to have families separated with the shift work that is being currently experienced...'

'...My wife feels insecure as it is now with the large numbers of single or working away married men. She can't go for a run anymore without being harassed or approached by those wanting a date etc.'

'It is a huge concern of mine for the safety of my children who are 19 and 13. A town full of men living in temporary accommodation is a time bomb waiting to happen.'

IMPACT OF NON-RESIDENT WORK ARRANGEMENTS ON WORKERS AND THEIR FAMILIES

'As a counselor in a mining community, I am very much aware of the limited relational development available to workers living in barrack accommodation. With one member of the family away for large periods of time, relationships suffer and are stretched to breaking point. If employers persist in this form of worker supply, then they must spend an increased amount ensuring the health and strength of relationships and encouraging families devoid of a parent for days at a time. Mining communities are not the only victims in this circumstance. Families and relationships suffer as well. Perhaps your University would like to open this up for study as well?'

The survey was criticised by this respondent for failing to specifically ask about the conditions impacting on non-resident workers and families. This issue arose as a common theme in the open ended responses to the survey, but was outside the scope of the current survey. Non-residents are typically accommodated in demountable dwellings or 'dongas' uniformly arranged in compounds with a common mess, laundry and entertainment facilities. Work camps, or single person quarters, vary greatly in conditions from air-conditioned five cabins with en-suite amenities and access to restaurant quality to food, to hastily and sometimes illegally erected structures, surrounded by barbed wire, resembling little more than a modern day 'gulag' (Carrington, et al, 2010). There is a paucity of planning regulations or creative design options evident in the erection of work camps leading to complaint of the kind expressed by this non-resident survey respondent.

'As a non-resident working in a mining town I can see why local residents and council are not totally happy with us. But cannot see myself living in these towns while billion dollar companies like X continue to provide sub standard housing for their workers. I try to support local business through buying consumables and local community groups through donations with the unions...'

Non-resident workers are seen to benefit under post-industrial mining regimes. But do they? The qualitative responses of 22 non-resident workers provide some insight on this matter. There are handsome economic rewards for workers but based on the reflections of the 22 non-resident workers one could hardly devise a work regime more hostile to sustainable family and community life. The drive in drive out/fly in fly out arrangements suited only a very small minority of non-resident respondents – 2 of out 22.

'I am a non-resident worker by choice. My family prefers to live in a coastal community. During my time at work and away from my family, I do not drink, I am offered excellent healthy food in the accommodation facility, I am given access to and use fitness equipment - in short, being a non-resident worker is fantastic for my and my family's health and well-being.'

The non-resident workers who responded to the survey expressed a range of views. Unlike the respondent above some said that they were given little choice about becoming non-resident workers, only two commented that it suited them, and others said they were unable to bring their family due to lack of housing and rental availability and affordability.

'X is a fantastic place to live. Unfortunately a majority of the workers have been forced to stay in camps as it is too expensive to bring their family to this location as cost of living is expensive, and accommodation is very hard to come by.'

Non-residents workers who responded to the survey appeared on the whole to be sensitive to the impact on communities and acknowledged how difficult it was for them to have meaningful participation in communal life of either - where they live or where they work. They are placed in an invidious position, as described by the following non-resident workers.

'...It is extremely difficult for non-resident workers to contribute to the community they live and impossible to contribute to the community they work in - I know because I am one.'

'Due to the nature of my work I move through several communities on a regular basis so do not identify myself with any of the mining communities in the Bowen Basin. That said however I do see the issues associated with these communities on a regular basis.'

'Obviously a somewhat contentious issue that really needs to be examined on a case by case basis. The largest variable is the existing community itself, strength of services and infrastructure.'

'I have had to give up positions on P&C's and Aged Care committees because of the difficulty of working away from home...'

The routine separation from family, support and informal social controls and sense of belonging to a community can have seriously negative impacts on the wellbeing of non-resident workers and their families – among them family breakdown, alcohol and substance abuse, and at the extreme end suicide, violence, and fatigue related deaths and injuries (Carrington et al 2011). Here's a quote from the wife of a non-resident worker which graphically illustrates the adverse impact on her family life.

'My partner works in the mining industry and stays out at camp during his working week. He has problems with drinking, drug use and money management. He drinks until he is drunk most nights out at camp and comes home and wants to do the same on the weekends. I find that him being out at camp for longer than he is home is very detrimental for his health and also for our relationship. ... This is not an isolated relationship - most of the women I meet and speak to about how they cope with their partner being away in the mines have developed a kind of coping mechanism where they have allowed their partner to do as he wishes because he will be leaving to go back to work anyway.'

A social worker from a Queensland mining community also drew attention to the risk of family breakdown and dysfunction associated with non-residential work patterns.

'As a social worker I have great concerns about the impact on the family whose partner comes to live and work in X and live in camps for their rostered days. I have been involved in a number of interventions where this significantly affected family functioning and led to breakdown in family relationships.'

The conditions of non-resident work patterns can adversely impact on worker health and well-being, occupational health and safety, fatigue related injuries and car accidents, family and community safety. Clearly this is a critical research gap, a significant and yearning issue for mining communities, mining industry, workers and their families. The larger research team does plan to address this research gap dependent on funding application outcomes.

EXPECTATIONS ABOUT THE ROLE OF GOVERNMENT

The survey did not prompt for any responses about the role of government in managing the social impacts of mining development. In the qualitative section a large number of respondents called for the urgent provision of infrastructure and services depleted because of mining development. Respondents expressed a strong desire for a redistribution of mining tax royalties to regions experiencing a drain on local infrastructure and services due to the rapid expansion of coal extraction projects, especially in Bowen Basin. Some typical examples appear below.

'... The state government needs to put back more of the mining revenues generated into the places where the mines are located. The infrastructure and government agencies are not coping with the rapid volume of developments in Central Queensland.'

"Support and financial assistance must be provided from the government and the industries to develop and improve services and infrastructure within our community before the industry should be given the go ahead.

'...The activities are happening on a huge scale, yet each project is 'assessed' in isolation. The state government needs to put back more of the mining revenues generated into the places where the mines are located. The infrastructure and government agencies are not coping with the rapid volume of developments in Central Queensland.'

'Is State Governments hunger for Royalties so great that they are prepared to sell the soul of the Bowen Basin communities?'

Of those who expressed a view about their expectations of government, several pointed to their perception of a gap in leadership urging the relevant government stake-holders to take a more active leadership role in mitigating social impacts of mining development. These two comments sum up the general sentiment.

'We need a strong government who will stop mining companies from being able to dictate to the Government about what is good for the State.... Mining has many positive impacts on the local community and the general economy for state and federal governments. What we need to see is the correct balance of family to non-resident workers in our community to ensure we can grow and have a happy healthy community. Other mining towns have done this already lets follow their lead.'

'I think we have a State Government that's compliant in regards to mining companies. No mining company will ignore the opportunity to increase their profit, and decrease their community obligations. I feel it's up to State Government to put legislation in place to ensure mining companies are accountable for the communities in which they

develop. At present the companies dictate how and where we live, while the State Government stands idly by dismissing any responsibility for the impacts of mining developments. We are at a critical point with the mining boom, where State Government needs to demonstrate who really is running the country, because at the moment out in the coalfields it's obviously debatable.'

SUMMARY OF RESULTS AND DISCUSSION

SUMMARY

At the close of the *Social Impact of Mining Survey* the majority of the 559 respondents were residents of Collinsville, Moura, Dysart, Emerald, Blackwater or Moranbah, aged between 26-45 years. Participants were asked to rate, on three separate scales, their perceptions of the impact of mining projects relying on a non-resident mining workforce on their community. In response to the first scale participants indicated they mostly considered the impacts to be 'very negative', particularly with regards to housing and rental affordability and availability, adequacy of local infrastructure, adequacy of human services, overall community wellbeing, safety, and lifestyle. On the second scale, over half respondents ranked a number of impacts on their community as almost certain or likely to occur in their community, particularly in relation to the adverse impacts on housing and rental affordability and availability, depletion of local infrastructure and human services, and erosion of community wellbeing, safety, and lifestyle. Perceptions of impact on local employment opportunities, local business and economy and adequacy of liquor outlets were more positive, but did not rate an overwhelming endorsement.

Of particular significance and originality is the finding that the vast majority of respondents indicated that most would strongly support new mining projects with an anticipated non-resident workforce of 25% or less, whereas most strongly opposed projects planning a non-resident work force in excess of 75%. The proposition that the social licence to develop new mining projects is strong for projects requiring a 25% or less non-resident workforce, and diminishes significantly thereafter and is very weak for projects planning to use a non-resident workforce in excess of 75%, is supported by these results. This finding is significant because there are at least 67 new resource extraction projects undergoing social impact assessment in Queensland, listed in Appendix 1, and many it appears are planning to hire significant proportions of non-resident workers expected to be housed in temporary accommodation within the vicinity of Bowen Basin mining communities.

DISCUSSION^{vi}

Until the 1970s mining leases tended to be issued by governments subject to conditions that companies build or substantially finance local community infrastructure, including housing, streets, transport, schools, hospitals and recreation facilities. Townships and communities went hand in hand with mining development. However, in the past thirty years, and under the growing influence of global economic forces, mining companies have moved progressively to an expeditionary strategy for natural resources extraction. This new regime of resource extraction operates a continuous production cycle involving 12 hour shifts alternating day and night with each roster cycle. This involves increasing reliance on non-resident, fly-in, fly-out or drive-in, drive-out (FIFO/DIDO) contract, work forces, who typically work block rosters (seven days on, seven days off is common), reside in work camps adjacent to existing communities and travel large distances from their homes. In 2010, around 85 percent of non-resident workers in the Bowen Basin were housed in Single Person Quarters (SPQs) such as work camps or hotels/motels (OESR, 2011: v).

The National Resource Sector Employment taskforce has forecast a demand for 65,000 new jobs in mining and energy by 2015, in addition to 45,000 in construction (National Resources Sector Employment Taskforce, (2011:1-3). The Taskforce has anticipated that the “Resources sector could be 36,000 tradespeople short by 2015”, and recommended workforce planning projections, including percentage forecast for resident and non-resident workers be included in project specifications at EIS stages to

- Enable enhanced workforce planning by industry
- Enhance government regional population, service and infrastructure planning
- Enhance training and skilling planning (i.e. apprenticeships)

The shortfall in resource sector workforce is critical and expected to be met largely through escalating the recruitment of non-resident workers housed in temporary accommodation. The increasing reliance on non-resident workforces has meant an ever-decreasing permanent resident workforce undermining sustainable community development (Gallegos, 2005). ‘Fly-over’ effects threaten the continuing sustainability of some towns (Storey, 2001), fostering tensions between residents (‘insiders’) and the non-resident workers (‘outsiders’) – some of which manifests itself as alcohol fuelled male on male violence (Carrington, et al 2010, Carrington, et al forthcoming). Residents see

themselves as having a long-term commitment to the community and as disproportionately bearing the social costs of resource developments, like many respondents to this survey obviously did. In addition to the sheer number of non-resident workers with little prospect of developing a meaningful commitment to place, the block roster system of 12-hour shifts can have profoundly disruptive effects on families and communities, of the kind highlighted by the qualitative responses. Where economic drivers subjugate all else, where a sense of local community based on dense patterns of acquaintanceship, participation in local sporting and other activities and high levels of implicit trust is seriously eroded, rural communities become less attractive places to live and enter into a spiral of 'rural crisis' (Hogg and Carrington, 2006).

More flexible work arrangements are part of a larger global trend in the pattern of employment in a post-industrial world (Louis et al, 2006:456). Research into these increasingly precarious employment conditions suggests they can adversely impact on worker health and well-being, occupational health and safety, union membership, job satisfaction, gender equity, and skills development (Louis et al., 2006: 466-67). In crude terms, the resources sector has been at the forefront of a trend to encourage the trading of rights, security and conditions for high wages. In the post-industrial resources sector the adverse risks of social consequences are born predominantly by individual communities, businesses, workers and their families. A longer term, more holistic view of the role of work in relation to well-being, personal identity, family and community is giving way to a narrower, shorter term focus on immediate economic benefits.

There are a range of differing and even competing policy responses to addressing the range of social impacts of mining across Australian jurisdictions. These include Queensland's new social impact guidelines, Western Australia's 'Royalties for Regions' program, NSW's moratorium, and the Australian Government's proposal for a Minerals Resource Rent Tax (MRRT) (Wayne Swan, PR, 1 June 2011). There is a clear need for national leadership in this contested public policy space. The newly formed body, *Regional Development Australia* an Australian government initiative that brings together all levels of government in a shared responsibility model of federalism, could make a difference to coordinating more effective local, industry, state and community stakeholders' responses to the cumulative social impact of mining development. A proportion of the proposed MRRT could even be one way of providing the critical investment so desperately needed in Australia's mining communities.

The present mining boom is producing huge economic benefits and is widely regarded as safeguarding Australia's prosperity. This is the key to its unstoppable expansion. What receives far too little attention is that the distribution of the benefits and burdens of the mining boom are highly uneven. Even some within the industry question whether these regimes, especially those reliant on

non-resident workforces, are sustainable in the long term^{vii}. In an era of critical skills shortage, an enlightened resources sector would act in concert with mining communities, many of which are brimming with an excess of social capital, to maximize their social license to operate, think outside the square ('donga'), and actively seek partnerships to mitigate the negative and maximize the positive social impacts on communities, workers and their families.

REFERENCES

- Australian Broadcasting Corporation (ABC) (2006). Mining boom blamed for basin housing shortages. *ABC News*, 6 November. Retrieved 18 October 2010 from www.abc.net.au/news/stories/2006/11/06/1781965.htm
- Australian Bureau of Statistics (2006). *Population by age and sex, Australia, 2006*, cat. no. 3235.0. <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3218.02008-09?OpenDocument>
- Australian Bureau of Statistics, (2008) *Towns of the Mineral Boom* (Cat. 4102), Australian Social Trends, Canberra, Australian Capital Territory: ABS
- Australian Bureau of Statistics (2010). *Regional population growth, Australia*. Cat. No. 3218.0. <http://www.abs.gov.au/AUSSTATS/abs@.nsf/DetailsPage/3235.02006?OpenDocument>
- Australian Bureau of Statistics, (2011) *Labour Force, Australia* Cat No 6202.0 <http://www.abs.gov.au/AUSSTATS/abs@.nsf/mf/6202.0>
- Carrington, K. Hogg, R and McIntosh, A. (forthcoming) 'The Resource Boom's Underbelly: Criminological Impacts of Mining Development, *Australian and New Zealand Journal of Criminology*
- Carrington, K. Hogg, R. (forthcoming), 'Benefits & Burdens of the Mining Boom for Rural Communities', *Human Rights Defender*, UNSW Law Faculty, Sydney.
- Carrington, K., McIntosh, A. and Scott, J. (2010). 'Globalization, Frontier Masculinities and Violence: Booze, Blokes and Brawls'. *British Journal of Criminology*, 50, 393-413.
- Department of Resources, Energy and Tourism, (2008) *Risk Assessment and Management: Leading Practice Sustainable Development Program for the Mining Industry*, Australian Government, Canberra.
- Gallegos, D. (2005). *Aeroplanes Always Come Back: Fly-in Fly-out Employment: Managing the Parenting Transitions*. Perth, Western Australia: Centre for Social and Community Research, Murdoch University.
- Haslam McKenzie, F., Brereton, D., Birdsall-Jones, C., Phillips, R. & Rowley, S. (2008). *A Review of the Contextual Issues Regarding Housing Dynamics in Resource Boom Towns*, AHURI Positioning Paper No. 105. Perth, Western Australia: Australian Housing and Urban Research Institute
- Hogg, R. and Carrington, K. (2006). *Policing the Rural Crisis*. Sydney: Federation Press.
- Lampard, M. & commodity analysts (2010). *Minerals and Energy: Major Development Projects – April 2010 Listing*. Canberra: Australian Bureau of Agricultural and Research Economics (ABARE).
- Louis, A., Ostry, A., Quinlan, M., Keegel, T., Shoveller, J. and LaMontagne, A. (2006) 'Empirical Study of Employment Arrangements and Precariousness in Australia', *Relations Industrielles*; Summer 2006; 61, 3.
- McIntosh, A. & Carrington, K. (forthcoming). 'Mining projects in rural settings: Some measures of the demographic mix', Institute of Australian Geographers Conference, University of Wollongong, 3-6 July 2011
- Murray, G. & Peetz, D. R. (2010) *Women of the Coal Rushes*, University of New South Wales Press, Sydney.

- National Resources Sector Taskforce (2011), *Resourcing the Future*, Department of Education, Employment and Workplace Relations, Canberra
www.deewr.gov.au/Skills/Programs/National/nrset
- Office of Economic and Statistical Research (2010a). *Workforce analysis of the Bowen Basin, 2010*. Office of Economic and Statistical Research, Brisbane.
- Office of Economic and Statistical Research (2010b). *Demographic analysis of the Bowen Basin, 2010*. Office of Economic and Statistical Research, Brisbane.
- Queensland Department of Infrastructure and Planning (QDIP) (2008a). *Queensland's Future Population, 2008 Edition*. Brisbane, Queensland: QDIP.
- Queensland Department of Infrastructure and Planning (QDIP) (2008b) *Resource Community Summits, November 2008, Final Report*. Brisbane, Queensland: QDIP.
- Queensland Department of Infrastructure and Planning (QDIP) (2010) *Social Impact Assessment*. Brisbane, Queensland: QDIP. Retrieved 2 October 2010 from
<http://www.dip.qld.gov.au/simp/>
- Robertson, M. (2010). 'Affordable housing in the boom', *Parity*, vol. 23, no. 6, pp. 64-66.
- Rolfe, J, Petkova, V, Lockie, S, Ivanova, G. (2007) *Mining Impacts and the Development of the Moranbah Township* (Research Report no 7), Centre for Environmental Management, CQU, Mackay.
- Rolfe, J., Ivanova, G, Lockie, S. (2006) *Assessing the Social and Economic Impacts of Coal Mining on Communities in the Bowen Basin*, Summary and Recommendations, Centre for Environmental Management, CQU, Mackay
- Rolfe, J., Miles, B., Lockie, S. & Ivanova, G. (2007). Lessons from the social and economic impacts of the mining boom in the Bowen Basin 2004 – 2006. *Australasian Journal of Regional Studies*, 13(2), 134-153.
- Storey, K. (2001). Fly-in/fly-out and fly-over: Mining and regional development in Western Australia. *Australian Geographer*, 32(2) 133-148.
- Swan, W. 'Exposure Draft – Minerals Resource Rent Tax', Press Release, 1 June 2011.

APPENDIX 1 QUEENSLAND ADVANCED COAL PROJECTS 2009–11

Queensland Advanced coal projects in 2009–11 (Mining Lease either granted or under application)

Table 1: Qld advanced coal projects summarise by region – 2009-2011

Region	Total identified projects			Identified new projects*:		Identified new projects*:	
	New	Expansion	Total	Estimated value		Estimated jobs	
				No of projects	\$m	No of projects	Jobs
Bowen Basin	35	20	55	26	22,745	20	6,390
Galilee Basin	5	0	5	5	16,000	4	5,450
Surat Basin	3	1	4	1	1,900	1	844
Other	2	1	3				
Total	45	22	67	32	47,301	26	12,684

* Estimated value of projects and number of operational jobs is not available for all new projects

Table 2: Qld advanced coal projects summarise by value – 2009-2011

Project value range \$m	Number	Total project value \$m	Av. project cost \$m
1-250	15	2,195	146
251-500	10	3,426	343
501-1,000	10	8,580	858
1,001-2,000	8	11,800	1,475
2,001-4,100	6	21,300	3,550
Total	49	47,301	146

Sources: ABARE, DEEDI Qld, DME Qld, DIP Qld, ASX, industry websites, company websites. Where data sources provided conflicting information, most recent data (when identifiable) takes precedence. Excludes coal mine infrastructure, LNG and CSG projects, and operational (completed) coal projects. Data are subject to change and updated information can appear in a range of sources.

Compiled by Dr Alison McIntosh, Queensland University of Technology, 21 April 2011, Senior Research Fellow, on behalf of Carrington's ARC research team.

APPENDIX 2 RESOURCE COMPANIES OF RESPONDENTS

Anglo American
ARROW ENERGY
BMA
BHP
Blair Athol Coal
Central Queensland Hydraulics Pty Ltd
CFMEU Mining & Energy Division
CQE Materials and Handling
Collinsville Coal Co
Diahminco
Dynonobel
FIELD Engineers Pty Ltd
Golding
Hastings Deering
Jellinbah Group
John Holland
Kagara Ltd
KellyOCG
Lake Vermont Resources
Leighton Contractors
Moranbah North Coal
Moura Sand and Gravel
Newmont
Nixon Communications
Pathfinder Exploration Pty Ltd
Pattel Collinsville Transport
QR National
Rio Tinto
Sedgeman
Thiess
Valley Excavations
Wesfarmers Curragh Qld Mining
Westside Seamgas
XSTRATA

N = 125 M = 6 Confidential = 4

APPENDIX 3 COMMUNITY AND VOLUNTEER ORGANISATIONS OF RESPONDENTS

Detailed List of Community and Volunteer Organisations of Respondents N = 296

Sporting Associations	Civic Bodies	Arts & Cultural Associations	Youth Groups	Business Groups	Religious Associations
Golf Clubs	Local Council/Government	Public Libraries	Girl Guides	Traders Association	Baptist Church
Soccer	Country Women's Association	Local Theatre Groups	Scouts	Chamber of Commerce	Anglican Ladies Guild
Netball	Mining Communities United	Amateur Radio Club	School P & C	Progress Association	Salvation Army
Rugby	Lions Club	Arts Council	Kindergarten Support Groups	District Development Association	Catholic Parish
Horse Riding	RSL & RSL Women's Auxiliary	Junior Motox Club (dancing)	PCYC	APEX	Christian Centre
Fitness Association	CMFEU local lodge	Ballet	Communities for Children	Tourism and Regional Development	Church Choir Groups
Waterski Club	Community Advisory Committee local Mines	Show Society	School Tuck Shops	Sugar Cane Industry	Christian Family
Swimming Club	Cancer Council	Friends of the Theatre		Cotton Growers	Baha'i Assembly
Hockey	Crime Stoppers	Craft Club		Hospital Boards	Lutheran Church
Tennis	Rural Fire Brigade Volunteers	Historical Society		Agforce	
Bowls Clubs	State Emergency Services	Historical Bikes		Producers Forum	
Triathlon	Meals on Wheels	Rodeo		Cotton Australia	
Fishing	Women's Health Group	Shape up Sheds		Irrigators Association	
Aero Club	Community Care	Academy of Dancing		Pastoral and Agricultural Society	
Speedway	Aged Care	Garden Club			
Boxing Club	MS Queensland	Visual Artists Association			
Polo Crosse	Rotary	Indigenous			
Cricket	Masonic Lodge	Toastmasters			

Sporting Shooters	Society for protection of native plants	Handbell Society of Australasia			
Racing Club	Mineworkers Club				
Volley Ball	Mental Health Network				
Touch	Seniors Health Appeal				
Squash	Landcare & Bushcare groups				
Ocean Adventures	Autism Australia				
	Council for Disabilities				
	CAN Community Advisory Network				

Endnotes

ⁱ The project was self-funded with the support of QUT Professorial Research Grant and has relied extensively on volunteer labour.

ⁱⁱ What types of impacts, if any, do you think the housing of non-resident workers in temporary accommodation has on your community? Please select an option for each of the potential impacts listed below.

ⁱⁱⁱ Social Impact Guidelines are designed to:

- “collect and analyse information about key social and cultural issues, population change and community and social relationships that are likely to occur as a direct or indirect result of a development project
- develop strategies for mitigation, management, monitoring, and review.”
(www.dip.qld.gov.au/coordinator-general-projects/social-impact-assessment.html)

^{iv} *Limitations of the study*

The sample while broadly consistent with local demographics and strong representation from local community organisations (54%) had some biases which may affect the reliability of results. There was a bias in favour of women (62% of respondents). This is somewhat understandable given the higher rates of women in volunteer and community organisations – groups targeted by the recruitment strategy. It is also understandable that where a predominantly male workforce (around 85%), works an average of 42 hours per week and one in four works in excess of 60 hours (ABS – reference), that men in the mining industry have little time to complete surveys. For non-resident workers, who have travel time on top of those hours have even less time to engage with surveys.

While the survey was open to non-resident workers who worked in Qld communities impacted by mining development, only 27 out 486 completed all questions, representing only 5% of the respondents, compared to

their estimate population of 16.6% in the Bowen Basin source: www.oesr.qld.gov.au/products/publications/bowen-basin-pop-report/index.php). Efforts were made through FIFO Families and Mining Family Matters to encourage their participation, but given it had to be outside of work hours and during precious family time their lower response rate is understandable.

There is a need to understand how fly-in fly-out; drive in drive out work arrangements impact in unique ways on non-resident workers and their families. While we have managed to capture the views of some non-resident workers and their families in this survey, we acknowledge that the topic is broad and requires its own comprehensive study.

We recognize that mining impacts uniquely on Indigenous communities. However, recruitment strategies for survey participation did not directly involve contacting Indigenous groups. To do justice to a study of the impacts of mining on Indigenous groups would involve considerable consultation with Indigenous community representatives to identify a set of variables suitable for such a survey. Unfortunately, this is beyond the scope of this survey, however, we acknowledge that such a study may well be overdue.

The research team was well aware of the risk of attracting invalid or non-representative responses through the use of a generic on-line survey link, and sought to strategically minimize such a risk. This was achieved firstly by distributing the link through sources that specifically targeted residents, businesses, community organisations and workers of Queensland mining communities, and secondly by designing questions that could only be answered by respondents who lived or worked in mining communities, or were affected by the impacts of mining in those regions. In total the survey was accessed by 658 potential respondents, however 99 cases were deleted because respondents did not answer any socio-demographic questions and could not be validated. A further 70 cases were incomplete due to missing quantitative data. After data cleaning, our analysis was based on 559 responses in total, 486 which completed all the questions. Missing data varied per question and is noted in the analysis.

^v Rolfe et al's study of the social and economic impacts of coal mining on Bowen Basin communities reported a gap between their economic modelling of the benefits and negative stake-holder perception. Their results were based on interviews with 15 key stake-holders in Blackwater and Bauhinia – 459 fewer than the responses to this survey (Rolfe et al, 2008:6). In another piece of research based in Moranbah, Rolfe et al estimated that 4000 non-resident workers would spend around \$15.5 million per year. However this figure would be substantially higher if they had their families with them. This study identified a couple of key expenditure leakages in Moranbah – the replacement of families with single men had decreased family shopping expenditure and the difficulties facing local business owners no longer able to recruit cheap labour (young people and females) (Rolfe, et al 2007:24)

^{vi} This section draws upon on a forthcoming publication by Carrington and Hogg in *Human Rights Defender*, UNSW Law Faculty.

^{vii} David Stewart, Chief Executive Leighton Holdings, commented on the accelerating trend toward fly in and fly out, or drive in drive out: 'Whilst this enables greater flexibility and access to skilled workers, it also places a great deal of extra stress on families and relationships. Looking more broadly it also puts a strain on local communities and in some cases is stifling regional development... this is not sustainable in the long term.' (*Sydney Morning Herald*, March 15, 2011, p. 8)