



## Factors linked to the well-being of Fly-In-Fly-Out (FIFO) workers

## Research Team

### Centre for Social Responsibility in Mining (CSRM)

Dr Jo-Anne Everingham, Senior Research Fellow  
Mary Anne Barclay, Senior Advisor for Social Enterprise  
Dr Susan Arend, Research Fellow  
Julie Kim, Research Analyst

### Minerals Industry Safety and Health Centre (MISHC)

Professor Philipp Kirsch, Associate Professor and Projects Manager  
Dr Jill Harris, Senior Research Officer  
Shirley Shi, Research Analyst

## Acknowledgements

The research was supported by funding from SPOTLESS Integrated Services. The research team would also like to acknowledge the following organisations for their support and assistance with distribution of the survey: Mining Family Matters, the Australasian Institute of Mining and Metallurgy (Aus-IMM), Australian Institute of Geoscientists (AIG), Women in Mining Network, RISKGATE, and JKTech Pty Ltd.

Finally, we would like to extend our thanks to the many FIFO workers who took the time to respond to the survey and to pass it on to colleagues.

## Recommended citation

Barclay, M.A., Harris, J., Everingham, J., Kirsch, P., Arend, S., Shi, S. & Kim, J. (2013) Factors linked to the well-being of fly-in fly-out (FIFO) workers. Research Report, CSRM and MISHC, Sustainable Minerals Institute, University of Queensland: Brisbane, Australia.

## Executive Summary

This report contains the findings from a research project aiming to identify factors linked to the retention and well-being of FIFO workers in the resources sector.

The research methodology involved a literature review and a survey of 286 FIFO workers currently employed in the resources sector in Australia. The majority of survey participants were male (58%) and the average age of respondents was 35. Three-quarters were partnered and just 25% had dependent children. The sample comprised mainly professionals, with almost 70% holding a university degree. While this particular group provides some insights into the FIFO experience, we also believe that the findings from this survey will be applicable more broadly.

### Survey Findings

The majority of FIFO workers who participated in this survey are satisfied with the FIFO lifestyle and with many of the specific work and accommodation arrangements they experience.

For this group of respondents, the benefits of the lifestyle outweigh the disadvantages, although this may not necessarily be the case for all FIFO workers.

### Job satisfaction and job turnover

The vast majority of respondents are satisfied with their current FIFO work arrangements. Specifically, they were satisfied with:

- the job (86%)
- the salary (89%)
- job security (80%)
- shift length (80%)
- roster cycle (70%)

Despite these high levels of job satisfaction, almost half (44%) reported that they intended to change jobs in the next 12 months. A desire for better pay, greater work-life balance, and career advancement were the reasons given for changing jobs.

### Accommodation

The majority of respondents (63%) rated their accommodation as good or very good. Standard facilities provided included: air-conditioning, en-suite bathroom, room cleaning, laundry facilities and a mess.

However, almost two-thirds of participants (62%) reported that they would like to change their accommodation:

- 30% wanted to move to accommodation with better services and facilities
- 25% wanted a room upgrade
- 7% wanted to change from camp accommodation to a town rental

Facilities that were particularly sought after and where demand outstripped supply included:

- Having exclusive use of a room
- Having the same room each swing
- Having internet and TV connections to the room

### Health and well-being

A majority of participants (75%) reported overall good or very good levels of physical and mental health. However:

- 20% reported moderate to severe sleep disturbance;
- 60% agreed that the demands of LDC work arrangements interfered with their home and family life
- 40% reported feeling lonely or socially isolated, to some degree
- 5% reported moderate to severe stress levels

Perhaps the most important finding from this survey is the extent to which respondents value their privacy and personal space.

The desire for a private room where they can use the internet, phone family and friends, or watch TV at a time of their choosing, and without other people nearby, was clearly expressed. The ability to connect with family and friends is important for the psychological health of FIFO workers – a sense of belonging reduces stress and loneliness and reassures people that they play an important role in the lives of people closest to them.

### **Strategies for increasing worker well-being and employee retention**

A number of strategies for increasing worker wellbeing are recommended.

#### **Accommodation**

- Design improvements in accommodation villages that focus on enhancing people's personal space and communication channels. Private rooms with direct internet access and their own TV/ video connections were highly valued.
- Accommodation camps should be designed to maximise peace and privacy. As far as possible, sleeping quarters should be distanced from communal areas and comfortable beds and blackout curtains provided to minimise sleep disturbance. Hot-bedding was highlighted as a particularly adverse arrangement.

#### **Health and well-being**

There are a number of human resource (HR) management strategies that could improve the health and wellbeing of FIFO workers:

- It is important to raise awareness of some of the potential challenges associated with the FIFO lifestyle. An information booklet that discusses the common challenges faced by FIFO workers and provides contact details for agencies that provide support may be helpful.
- Easy-to-access information about anxiety, stress, and other mental health issues should be provided in the workplace and at the accommodation site.
- An online service that workers could access privately would be useful. A dedicated website that enabled workers to assess the severity of their stress symptoms via an online checklist with direction to medical or counselling assistance could be a valuable tool.
- Contact details for the nearest doctors and counsellors should be prominently displayed in the workplace and in the accommodation camp.
- Initial 'fitness' assessments for FIFO employees could be used to establish a baseline against which the physical and mental health of individuals can be monitored.

## Table of Contents

<b>Introduction</b>		<b>1</b>
<b>Background to the project</b>		<b>2</b>
<b>1. Job role, work and commute arrangements</b>		<b>4</b>
	Work characteristics	5
	Work and commute arrangements	7
	Commuting arrangements	9
<b>2. Job satisfaction</b>		<b>10</b>
	Job satisfaction and future job intentions	10
<b>3. Workplace Accommodation</b>		<b>13</b>
	Accommodation and amenity	13
<b>4. Health and well being</b>		<b>20</b>
	Physical health	20
	Mental health and emotional well-being	22
<b>5. Demographics</b>		<b>24</b>
<b>6. Discussion</b>		<b>26</b>
	Participant profile	26
	Job satisfaction	26
	Job turnover	28
	Accommodation	28
	Health and well-being	30
<b>7. Conclusion</b>		<b>31</b>
	Strategies for increasing worker well-being and employee retention	31
<b>Appendix 1: Research Methodology</b>		<b>33</b>
	The survey	33
	Data collection and analysis	34
<b>References</b>		<b>35</b>

## List of Tables

Table 1: Employer	7
Table 2: Workplace accommodation	13
Table 3: Comparison of Depression, Anxiety and Stress levels (DASS)	23
Table 4: Marital status	25
Table 5: Rank order of job satisfaction items	27

## List of Figures

Figure 1: Job roles	4
Figure 2: Annual wages	5
Figure 3: Work Location	5
Figure 4: The resource commodity mined	6
Figure 5: Respondents working at each stage of the mine life cycle	7
Figure 6: Work roster	8
Figure 7: Typical work shift	8
Figure 8: Commuting arrangements	9
Figure 9: Home-work commute distance	9
Figure 10: Proportion of respondents who were satisfied with different job factors	11
Figure 11: Future job intentions	12
Figure 12: Intention to leave timeframe	12
Figure 13: Percentage of sample reporting that accommodation amenities were provided	14
Figure 14: Accommodation facilities important and provided	15
Figure 15: Accommodation amenities unimportant and provided	17
Figure 16: Positive lifestyle variables associated with mine accommodation amenities	18
Figure 17: Respondents' overall satisfaction with their life	20
Figure 18: Work-life balance	22
Figure 19: Gender distribution	23
Figure 20: Dependent children	24
Figure 21: Highest level of education	25

## Introduction

The purpose of this report is to present the findings from a study into the factors that are linked to the retention and well-being of long-distance commuting (LDC) workers in the resources sector. LDC work arrangements are defined as involving employees whose permanent place of residence is beyond daily commuting range of their work site. Travel to and from work is usually by air – hence the generic use of the term, 'fly-in fly-out' or FIFO as a descriptor for this workforce model. Travel by car - drive-in drive-out (DIDO) and bus-in bus-out (BIBO) are variants of this commuting model. For the purposes of this report, the term 'FIFO' is used to denote all variants of the LDC workplace model.

This study, which was conducted by Centre for Social Responsibility in Mining (CSRSM) and the Minerals Industry Safety and Health Centre (MISHC) at the University of Queensland, is part of a wider program of research into the FIFO lifestyle that

has emerged in response to a need for greater research evidence about FIFO work arrangements.

Specific research objectives for this project were to:

- Profile the current FIFO workforce in the Australian resources industry, with particular focus on Queensland and Western Australia.
- Develop and apply a cost-effective methodology for surveying FIFO workers about their attitudes, expectations and experiences that could be used to establish benchmarks for the physical and mental health and well-being of FIFO workers.
- Collect data on FIFO workers' needs, experiences, intentions and attitudes that may influence workforce stability and staff turnover.

## Background to the project

The use of a non-resident or FIFO workforce is now an integral part of many mining, oil and gas operations in Australia although its use is not confined to the resources sector. FIFO workforces are also used in the construction industry, particularly for large-scale infrastructure projects, in the military and, to a lesser extent, by health care providers and other service industries in remote regions. FIFO work arrangements can be defined as involving employees whose permanent place of residence is beyond daily commuting range of their work site. Employees typically work blocks of shift work on a rotational basis, with a regular roster at the workplace alternating with intervals of rest at home. FIFO workers are provided with transport to and from their work site for the duration of a 'swing', i.e. the block of days when they are 'on roster', and also with food and accommodation. This accommodation is located at or near the work site and most often takes the form of single-person quarters in work 'camps' or 'villages'.

As a result of rapid expansion in the resources sector over the last decade, the use of FIFO arrangements has become increasingly widespread, particularly in Western Australia and Queensland, where 70% of Australia's 255,200-strong resources sector workforce is employed (ABS 2012a). Western Australia has more than 80 mining operations that use FIFO arrangements, which represent about 50% of the state's mining operations (CMEWA 2005). In Queensland, it is estimated that

FIFO workers account for 40% of the Bowen Basin workforce (Rolfe et al 2011). However, these statistics need to be viewed with some caution since it is widely agreed that it is impossible to obtain exact figures on the size of the FIFO workforce<sup>1</sup>. Indeed, it is generally accepted that available statistics represent a significant underestimate of the numbers (KPMG 2013) and the actual figure could easily be twice that of current estimates.

As the resources sector has become increasingly reliant on FIFO workers, it has become important to better understand the social and economic implications of this particular workforce model. FIFO work practices have developed relatively recently, first beginning in the 1950s to service offshore oil and gas operations (Storey, 2001). The more recent explosion in FIFO worker numbers has meant that there has been relatively little research into the impacts of FIFO work arrangements on individual workers, or on the communities that house them, when they are at work. In particular, there is a dearth of information on the impacts of large-scale in-migration of FIFO workers into local

---

<sup>1</sup> Sources from industry, government and research institutions offer widely varying estimates of the number of Australians working in the resource sector on an FIFO basis. Though the difficulties in collecting this data are well understood, there is nevertheless a sense of considerable frustration with the lack of accurate, consistent and accessible information about the size, distribution and nature of the FIFO workforce, not least being from all levels of government – see, for example House of Representatives, 2013.



communities, or about the types of accommodation that are likely to be appealing to FIFO workers. The latter is of particular concern to industry personnel, who are keen to attract and retain skilled employees, and to accommodation providers who wish to better serve the industry.

**There is a large and growing demand for accommodation for FIFO workers and evidence of demand for different types of accommodation.** While the characteristics of FIFO facilities vary considerably from camp to camp, depending on such factors as the nature and location of the operation, the age of the camp, and the requirements of the company or operator involved, there is evidence of a move to more sophisticated design elements in modern FIFO accommodation. Earlier temporary accommodation was basic, with the facility typically located on the mine lease or construction site. These camps were sometimes 'closed' facilities that were both physically and socially isolated from the nearest residential community. While such camps still operate, more recently, there have been significant changes in the design and location of FIFO worker accommodation, with a greater range of facilities on offer and, in some cases, efforts to incorporate modern FIFO villages into existing residential communities. Increasing attention is being directed towards understanding the experience of the FIFO lifestyle and the expectations of FIFO workers. As one researcher has commented, "mining villages appear to be changing from the appearance of desolate 'correction facilities' to mining villages that resemble a 'softened' work environment" (Greer et al, 2009).

The changing face of workforce accommodation is linked to three factors. First, there is an interest in facilitating the recruitment and retention of skilled workers in the resources sector and

providing more attractive accommodation is seen as one way of achieving this. Second, a better understanding of workers' attitudes towards the FIFO lifestyle and of their accommodation preferences could assist in addressing concerns that the FIFO lifestyle impacts negatively on the well-being of workers and their families. Finally, there is a growing need for companies operating in the resources sector to address criticisms by local residents and governing bodies that traditional worker accommodation villages are segregated, unattractive and detrimental to the social cohesion of mining-affected communities.

The purpose of this study was to gain from FIFO workers a clearer understanding of:

- the work they do
- their levels of job satisfaction
- their experiences of FIFO accommodation
- their mental and physical health, and
- their sense of personal well-being.

The report begins with a description of the job role, work and commuting arrangements of survey participants. Section two reports the findings on job satisfaction and section three explores workplace accommodation. Section four describes the health and well-being of participants and section five provides a demographic profile of survey participants. We then discuss the implications of the survey results and conclude with some recommendations for managers.

## 1. Job role, work and commute arrangements

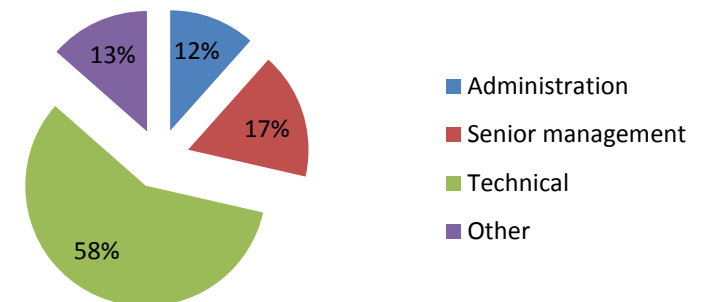
### JOB CHARACTERISTICS

- 75% of survey participants were employed in professional technical roles or senior management roles
- 53% were FIFO workers in WA and another 26% worked in Qld.
- Respondents worked predominantly in iron ore, copper, gold and coal operations
- 44% of participants earned \$100,000-\$150,000 p. a.

### Job Roles

The majority of participants (58%) were employed in professional technical roles (i.e. geologists, engineers, surveyors, metallurgists, environmental advisors) or senior management roles (17%), e.g. as mine managers and superintendents. Another 12% were employed in business administration. Roles included; business systems and analysis, human resources, external relations, health and safety and general administration (Figure 1).

Figure 1: Job roles

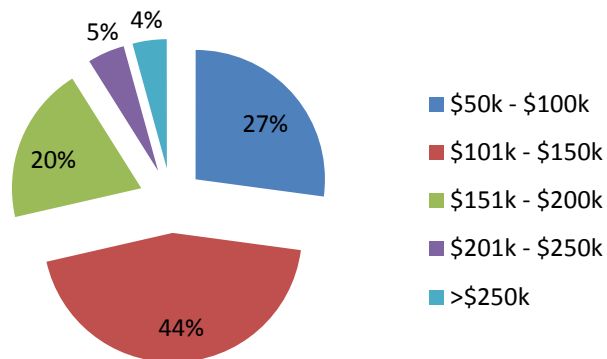


### Wages

Wages were high relative to the average Australian wage:

- Almost three quarters of respondents (73%) earned over \$100,000 p.a.
- The most common wage bracket was \$100,000-150,000, which accounted for 44% of respondents.

Figure 2: Annual wages

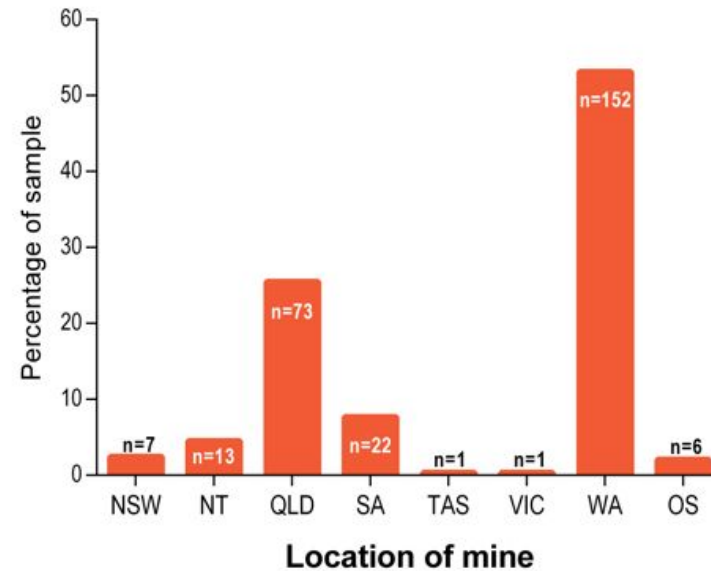


### Work characteristics

#### Work location

Respondents were primarily working in mines in Western Australia (53%) and Queensland (25.5%) and South Australia (7.7%) (Figure 3). The prevalence of respondents from Western Australia and Queensland is to be expected as these two States account for 70% of the overall Australian mining workforce (ABS 2012a).

Figure 3: Work Location



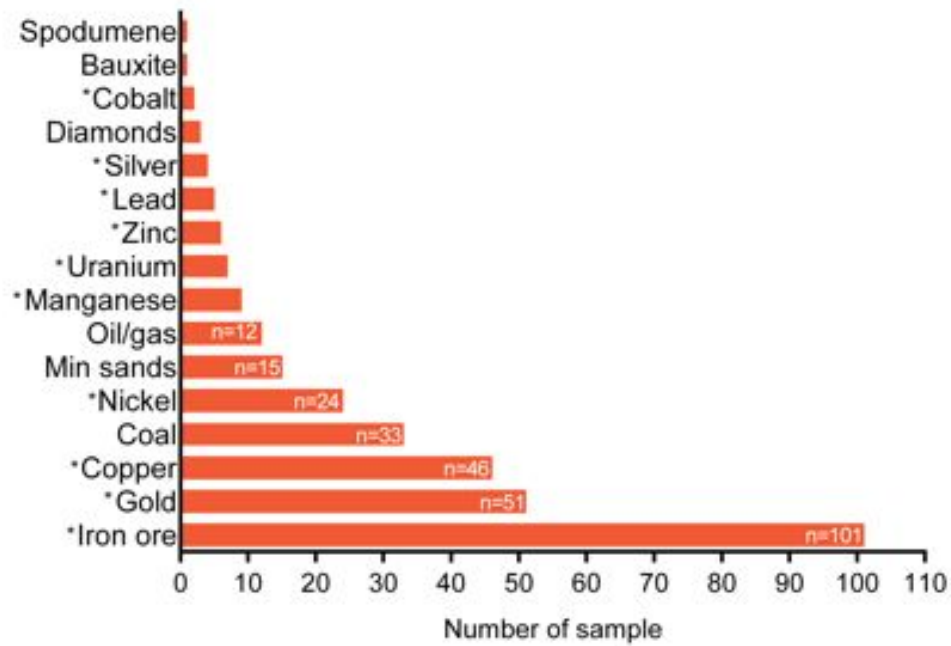
Note. OS = overseas, n = 275

#### Commodity

Most survey participants worked for companies extracting iron ore (n=101). Other mineral commodities included, gold (n=51), copper (n=46), coal (n=33) and nickel (n=24). Figure 4 shows all commodities listed by participants.

Of those working in Queensland (n=73), most worked in coal (n=29) and copper (n=29) mines. Respondents who worked in Western Australia (n=152) mainly worked in mines extracting iron ore (n=89), but many also worked in gold (n=23) and nickel mines (19).

Figure 4: The resource commodity mined



Note. 27 respondents (out of n=280) listed more than one commodity mined at their site, an asterisk (\*) indicates those commodities that were mined with another; Min sands = mineral sands; Mineral sands includes rare earth; Magnetite was collapsed into Iron Ore

## Work and commute arrangements

### WORK & COMMUTE ARRANGEMENTS

- Average length of employment in current job was 2 years
- Average tenure in the resources sector was 9 years
- 76% worked in operations and a further 12% worked at the construction stage of the mining lifecycle
- 81% were employed directly by mining companies and a further 11% worked for mining company contractors.
- Just 5% worked in the oil & gas sector
- The entire sample worked 12 hour shifts and 90% worked day shift only
- 50% worked an 8/6 roster and just 8% worked a 21/7 roster
- 66% were FIFO workers and 25% commuted via a combination of FIFO/DIDO
- 61% commuted over 1000kms between home and work, taking approximately half a day to complete their travel

### Tenure and industry of employment

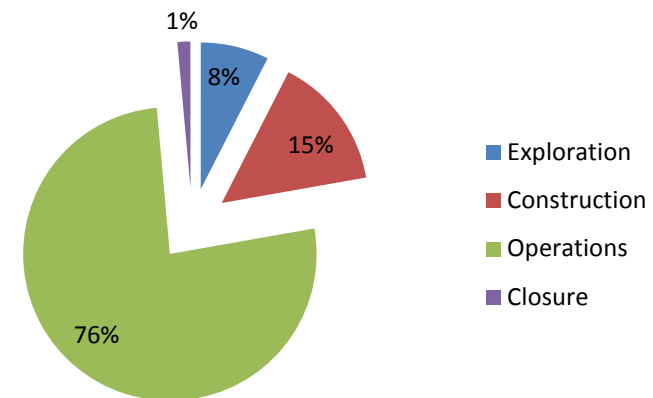
The average length of time that respondents had been employed in the mining industry was 9 years and they had been employed at their current job for an average of 2 years. The vast majority worked directly for mining companies (81%) or as contractors to mining companies (11%). Just 5% worked in the oil and gas sector (Table 1).

Table 1: Employer

	Total Number	Percentage (%)
<b>Employer (n=284)</b>		
<b>Mining company</b>	231	81.34
<b>Oil and gas company</b>	5	1.76
<b>Contractor to a mining company</b>	32	11.27
<b>Contractor to an oil and gas company</b>	7	2.46
<b>Work offshore for an oil and gas company</b>	1	0.35
<b>Other</b>	8	2.82

Over three quarters of the survey sample (76%) worked in the operations stage of the mine lifecycle and a further 15% worked in construction. Just 1% of respondents were working at the closure stage (Figure 5).

Figure 5: Respondents working at each stage of the mine life cycle



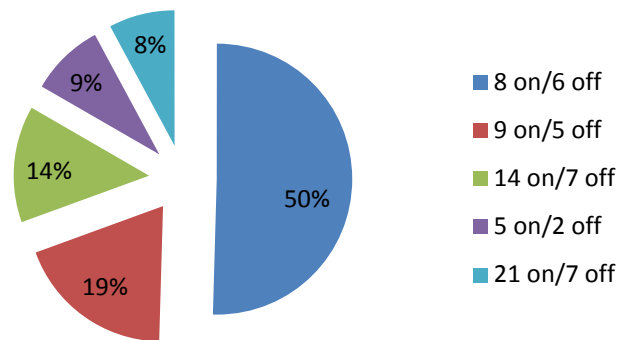
### Work hours

As an industry, mining has higher average weekly hours actually worked than any other industry category – reported as 49.6 hours per week in the ABS Labor quarterly report for November 2012 (ABS 2012a, Table 11). These long hours are largely related to shift lengths and this was evident in the survey responses. Respondents to this survey generally worked about 12 hours per shift.

### Shift length and roster cycle

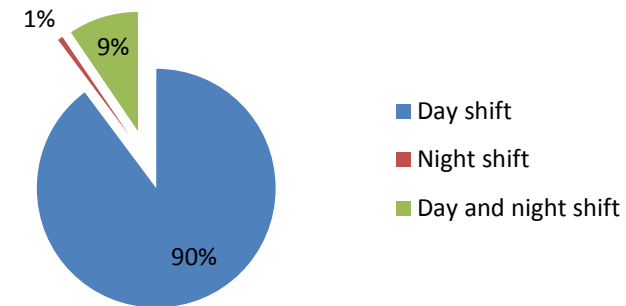
The 12-hour shift is now common in Australian mines (Peetz & Murray, 2010), and proponents of this longer shift length claim that it provides benefits for employees and employers alike. For the former, advantages include compressed working weeks and more even roster schedules, and for the latter, reduced staffing levels and change-over periods. Our results indicate that half of all respondents are on an even roster cycle (50%). The other half, however, do not benefit from this type of roster, as their breaks are relatively shorter than their work periods (Figure 6).

Figure 6: Work roster



Nearly 90% of the sample worked day shift only (Figure 7), which is likely an outcome of this sample's professional status. Mine professionals such as engineers and other technical specialists, senior mine managers and administrators generally work day shift only (Figure 7).

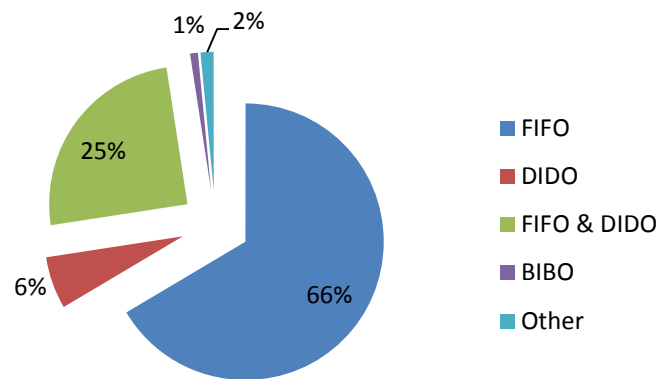
Figure 7: Typical work shift



## Commuting arrangements

On average, respondents had been working as FIFO employees for 5 years. Two-thirds (66%) commuted between their place of residence and work using FIFO arrangements or a combination of FIFO and DIDO (25%). Only 6% used exclusively DIDO arrangements (Figure 8).

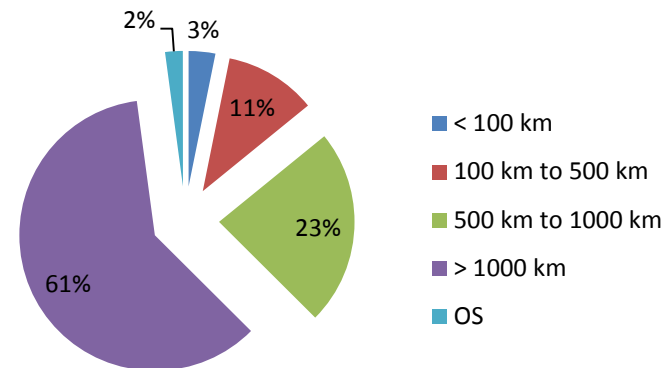
Figure 8: Commuting arrangements



The majority of participants (60%) commuted more than 1000 km to get to work. A further 23% travelled between 500 and 1000kms (Figure 9).

Most participants travelled significant distances between roster cycles, taking about half a day to get to and from work. While 75% of respondents reported that they were satisfied with the time taken commuting between home and work, 15% would like to change their accommodation if they had the opportunity to do so.

Figure 9: Home-work commute distance



These journey times exceed the averages found in an industry survey in Western Australia some years ago (CMEWA 2005). Then the average journey time for FIFO operations was reportedly about 2.5 hours with a minimum of 15 minutes and maximum of 5 hours; for DIDO operations average journey time was 2.5 hours (minimum of 1.5 hours and a maximum of 4 hours); and average journey time for residential operations was about 25 minutes. It seems likely that 'boom' conditions in the industry and the labour market pressures prompted longer commutes.

## Job satisfaction

### JOB SATISFACTION

- Survey participants reported very high levels of job satisfaction. They were most satisfied with:
  - Salaries (89%)
  - Commute mode (87%)
  - The job in general (86%)

In spite of these high satisfaction levels, many were considering changing jobs.

- 44% were intending to change jobs in the near future for:
  - Higher salaries
  - Greater flexibility in managing work and family
  - Better roster cycle
  - Career progression

## Job satisfaction and future job intentions

### *Job satisfaction*

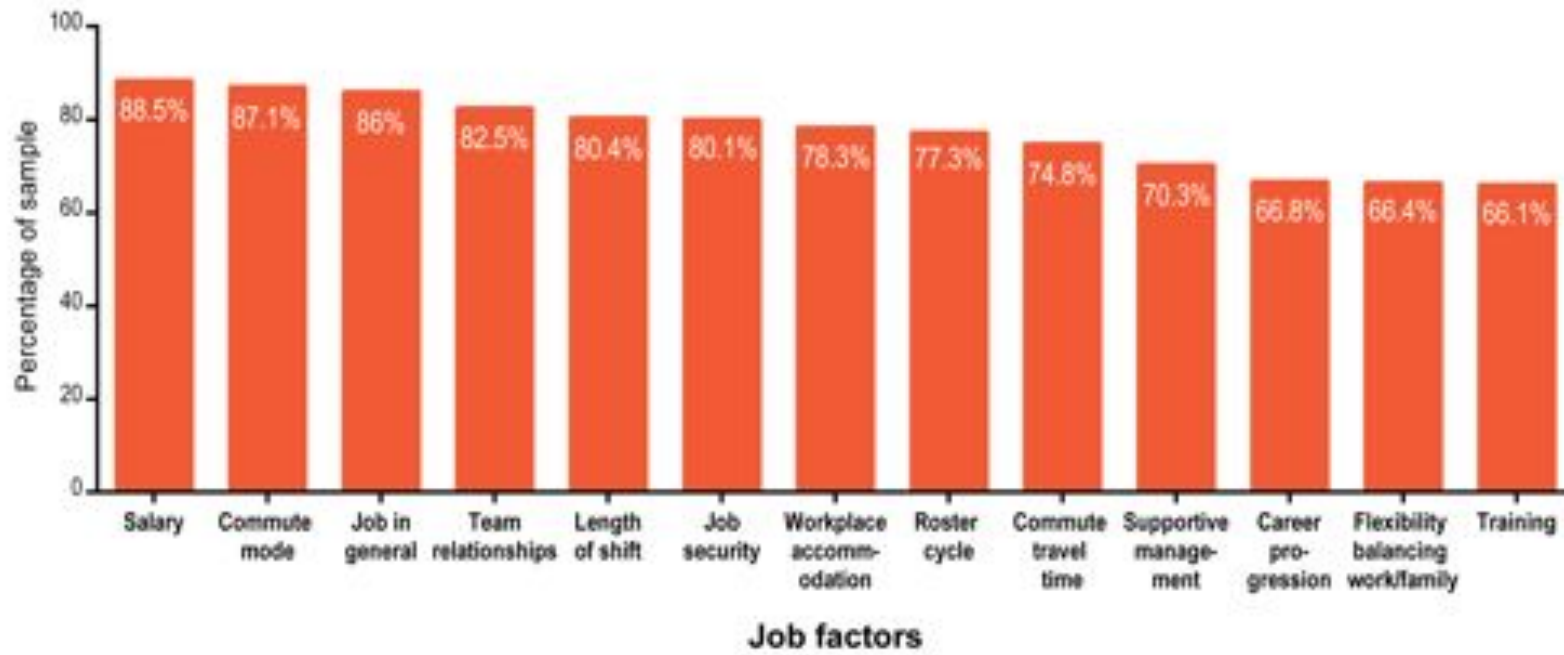
The majority of survey respondents reported that they were satisfied or highly satisfied with various aspects of their job. Job factors that nearly 90% of the respondents reported satisfaction with were:

- Salaries (89%)
- Commute mode (87%)
- Job in general (86%)

Those job factors that the fewest number of respondents were satisfied with were balancing work and family, training and career progression (66% each). Nonetheless, overall at least two-thirds of the respondents reported being satisfied with the various aspects of their job, indicating a common feeling of job satisfaction within this group.



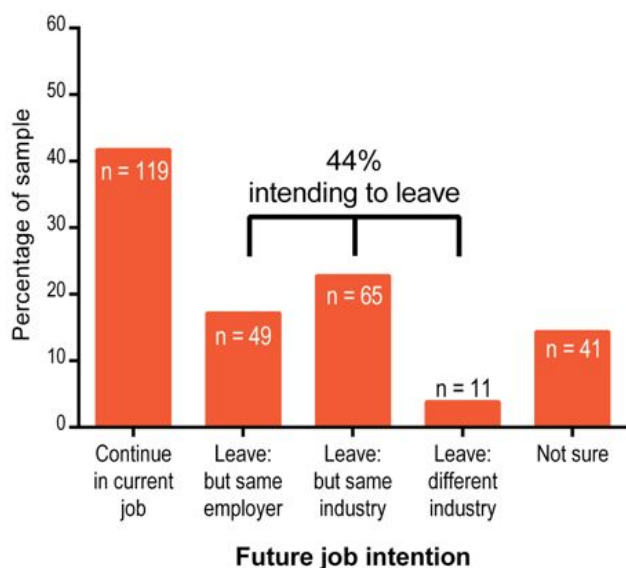
Figure 10: Proportion of respondents who were satisfied with different job factors



### Future job intentions

Despite the high proportion of respondents reporting satisfaction with their job, almost half (about 44%) were intending to change jobs in the near future (about 70% of them in the next 12 months) (Figure 11).

Figure 11: Future job intentions

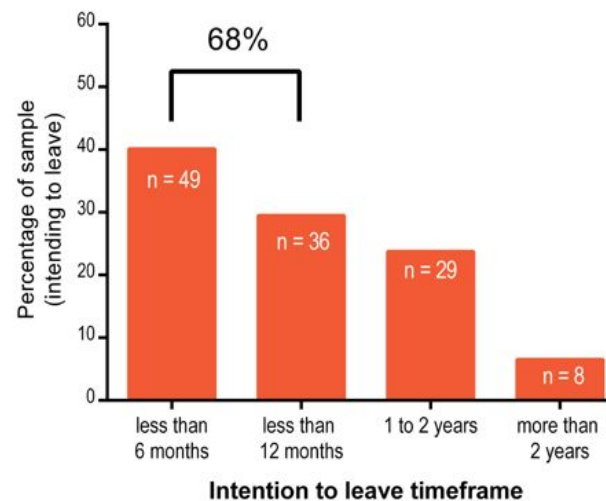


The most common reasons given by respondents (selected by more than 80% of the sample) for wanting to leave their jobs were to:

- receive a higher salary
- have better flexibility in managing work and family
- have a better roster cycle, and
- seek career progression opportunities.

For those respondents intending to change jobs, the majority were proposing to do so in the near future. Figure 12 shows that over two thirds (68%) of this group were planning to change jobs in less than 12 months.

Figure 12: Intention to leave timeframe



Note. 125 respondents (out of n=285) indicated that they were intending to leave their job (see Figure 11)

Despite the relatively high numbers anticipating a change of job and the much-publicised retrenchments in the industry in late 2012, there was a high level of satisfaction with job security (80%) as indicated previously in Figure 10. The fact that 44% of respondents were intending to change jobs in spite of these retrenchments suggests that they were confident of being able to change jobs to something more suitable and suggests that they expected the high demand for their skills to continue.

## 2. Workplace Accommodation

### WORKPLACE ACCOMMODATION

- Nearly all participants (91%) were housed at onsite accommodation camps (dongas)
- 63% rated their current accommodation as good or very good. Just 6% rated it as poor.
- Nevertheless 62% would prefer better services and facilities
- The facilities that were rated as most important related to the comfort and amenity of individual rooms
  - En suite bathroom (89%)
  - Air-conditioning/ heating (88%)
  - Same room each roster (81%)
- The mess was the shared facility rated as most important by 76% of respondents
- Exclusive use of room and internet access in the room were two amenities that were rated as important but were not necessarily available

### Accommodation and amenity

#### *Workplace accommodation*

While at the mine, nearly all of the survey group (91%) were accommodated at on-site employer-provided rooms (e.g. dongas), known as accommodation camps or villages (Table 2). Another 6% were accommodated in employer-provided houses in nearby towns and just 3% of respondents were accommodated in 'other' accommodation.

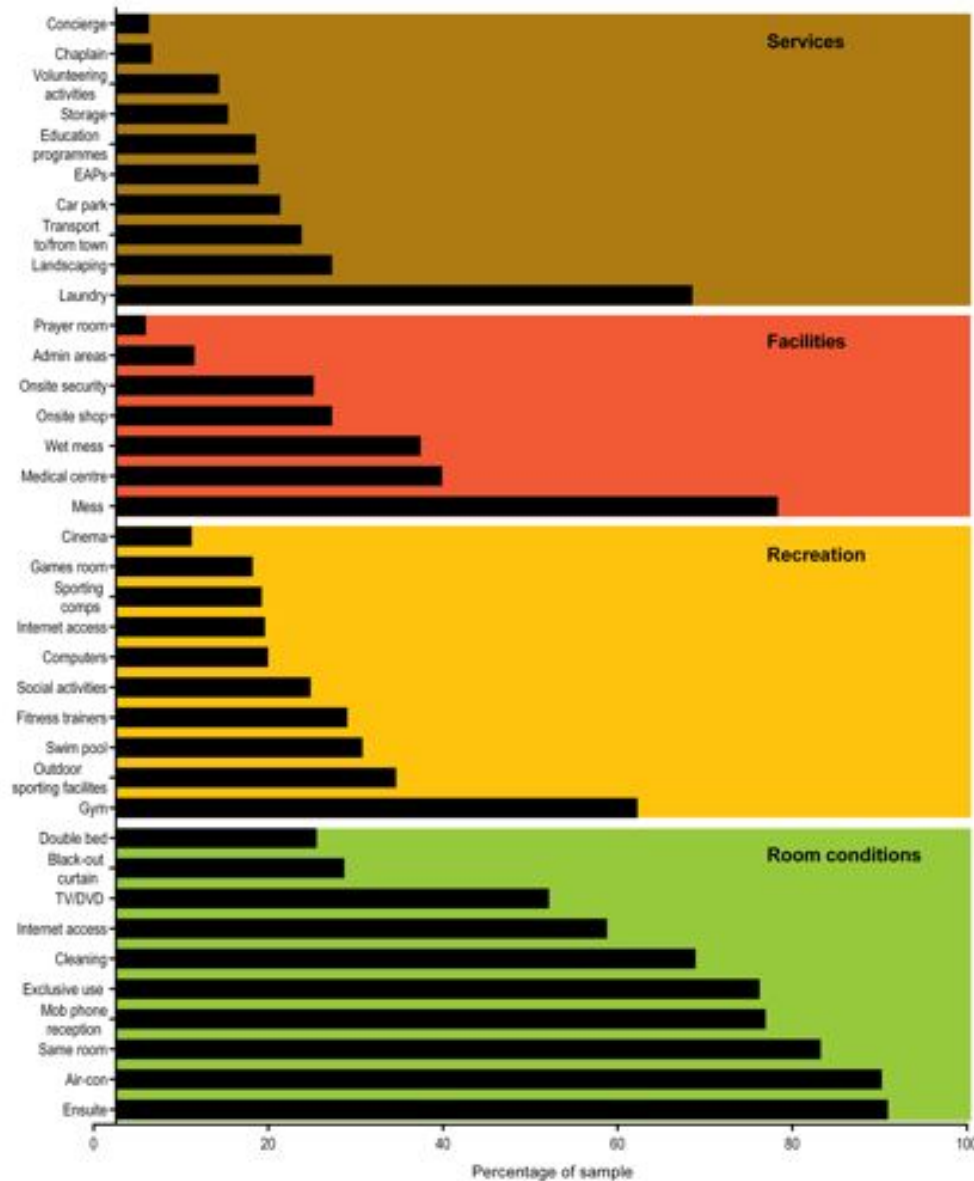
**Table 2: Workplace accommodation**

	Total Number	Percentage (%)
<b>Accommodation types</b>		
<b>Employer-provided room</b>	270	94.74
<b>Employer-provided house</b>	14	4.91
<b>Other housing</b>	1	.35

#### *Rating of amenities provided*

To identify those amenities that were commonly provided at accommodation centres, respondents were provided with a list of amenities covering four general areas: room conditions, recreation, facilities and services. Respondents were asked to indicate whether or not these amenities were provided at their village. The results of this question are categorised according to the four areas previously listed; room conditions, recreation, facilities and services, (Figure 13).

Figure 13: Percentage of sample reporting that accommodation amenities were provided



The most common *room condition* amenities were:

- Air-conditioning/ heating (97%)
- En-suite bathroom (94%)
- Room cleaning (92%)

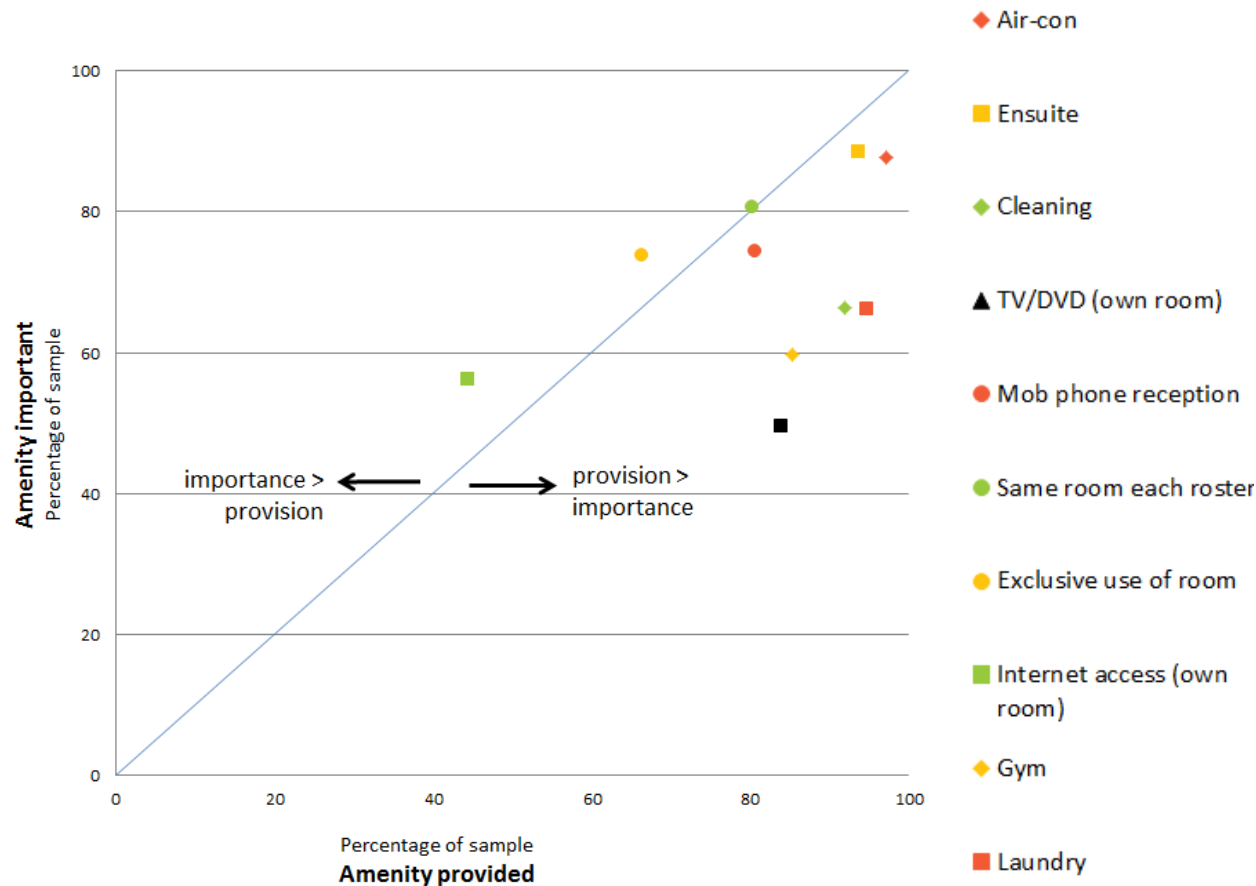
The most common *recreation* amenities were:

- Gym and fitness area (85%)
- Games room (66%)
- Outdoor sporting facilities (66%)

A mess (92%) and wet mess (77%) were the most commonly provided general *facilities* and laundry (95%) and car parking (71%) were the most commonly provided camp *services* (Figure 13).

*Note.* Admin areas = administration areas & meeting rooms; Air-con = air-conditioning/heating; EAPs = employee assistance programmes (for counselling & advice); Ensuite = ensuite (private shower & toilet); Exclusive use = exclusive use of room (no hot bedding); Mess = dining room/eatery; Mob phone reception = mobile phone reception; Prayer room = prayer/reflection room; Same room = same room each roster; Social activities = scheduled social activities (e.g. games nights); Sporting comps = sporting competitions; Storage = luggage storage; Volunteering activities = volunteering & fundraising activities; Wet mess = bar.

Figure 14: Accommodation facilities important and provided



Respondents were also asked whether these same amenities were *important to them personally*. For each amenity, the percentage of the sample rating it as important was then plotted against the percentage of the sample reporting it as provided (see Figure 14 and Figure 15). In this way, the relative importance of each amenity could be measured against its availability and an indication obtained of the extent to which provisions match employee preferences. Importantly, this method provided a way to identify those amenities that *were important to respondents but not currently supplied* at corresponding levels (see those above the line in Figure 14). Figure 14 shows ten amenities that were important to 50% or more of the sample. Interestingly, seven out of ten of these amenities specifically concern the respondents' room conditions. And six of these room conditions concerned room privacy and comfort. Another important feature, mobile phone reception, is associated with workers being able to contact home. From this list, those amenities rated by more than 75% of respondents as important were:

- En suite (89%)
- Air-conditioning/ heating (88%)
- Same room each swing (81%)
- Mess (eatery) (76%)

For most amenities (shown in Figure 14) there was generally a match between provision and importance except for two amenities - 1) *exclusive use of room* and 2) *internet access in room*. That is, more people perceived these amenities as important compared to their reported availability. The *mess* was the amenity in the 'facilities' category deemed important by most people. The 'recreational' feature and the service most frequently nominated as important were the gymnasium (60%) and laundry (66%) (see Figure 15).

Figure 15 displays those amenities that fewer than 40% of the sample regarded as important. It does show a couple of these less widely valued services or facilities, such as concierge and chaplain, are rarely provided. It also shows that many of these amenities are plotted below the line. *This shows the percentage of the sample reporting that they were available is higher (and in some case much higher) than those who regard them as important.* For instance a swimming pool is only important to half of those who have access to one. Another interesting example of this is the wet mess, where only 35% of the sample rated it as important, but 77% of the sample reported it as provided. These facilities are evidently valued by a sizeable proportion of the workforce, and are generally available however, they are not the highest priority for the majority of this sample.

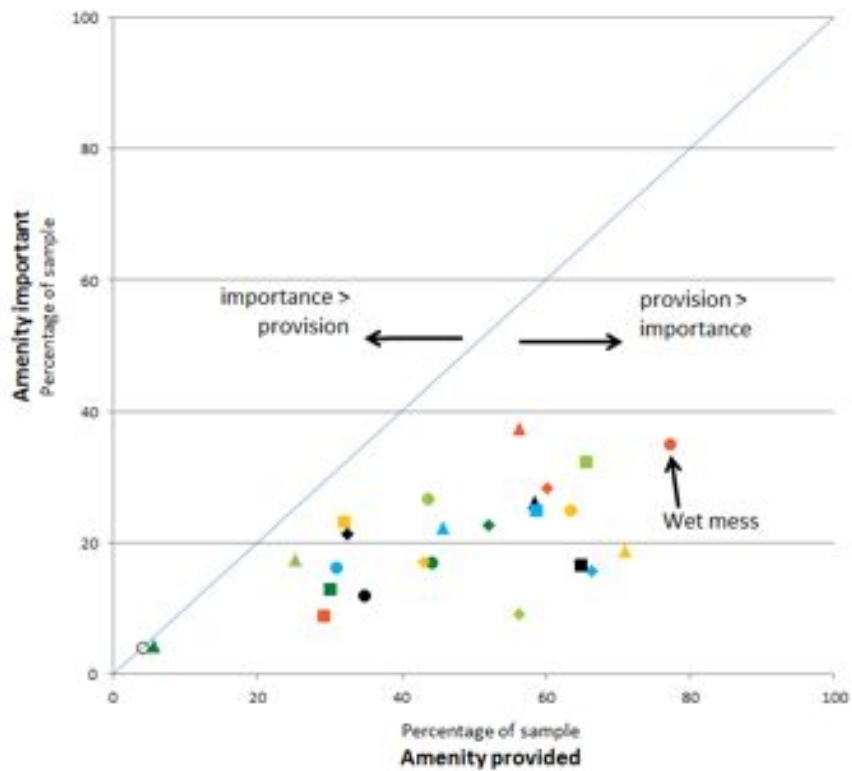
Respondents were asked to assess the impact of the standard of their accommodation on their quality of life by indicating the extent to which they agreed with a range of statements. These statements included potential positive attributes of their mine accommodation and benefits they afforded. They addressed the respondent's capacity to have suitable social interaction, healthy

lifestyle (diet, exercise), safety, rest and recreation. Results showed that at least two-thirds of respondents agreed with all but one of these statements (Figure 16).

The five factors that most respondents agreed with were:

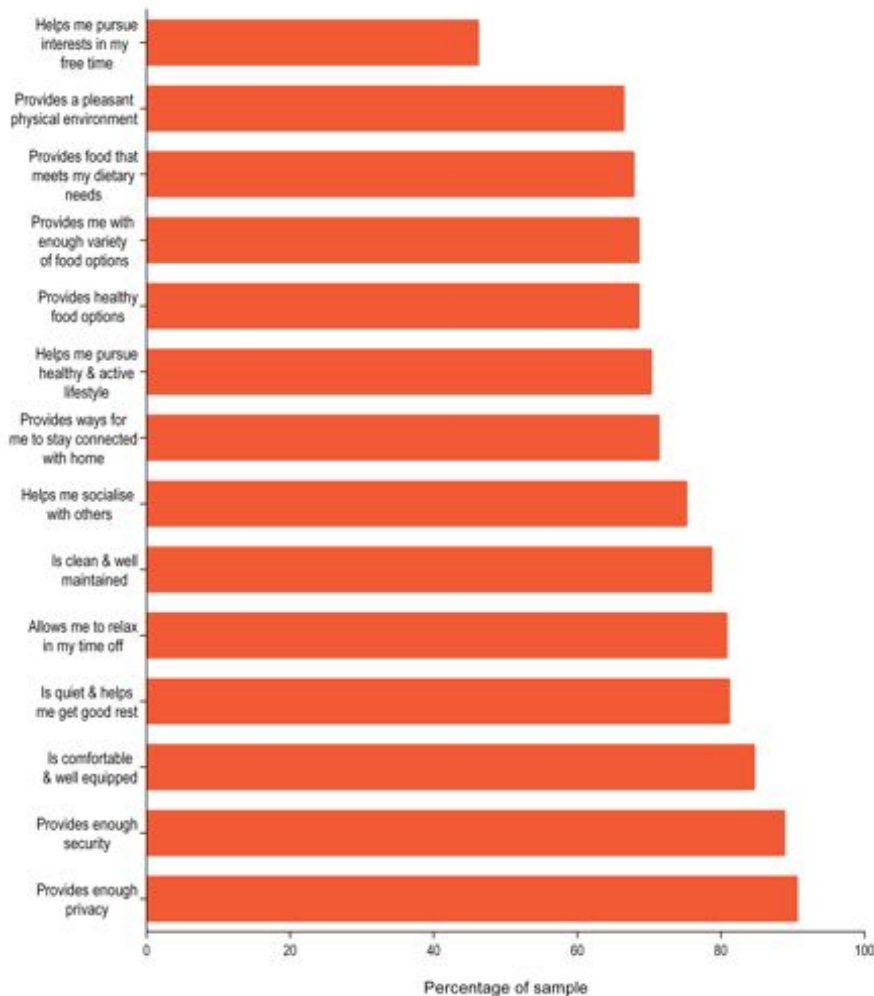
- Provides enough privacy (91%)
- Provides enough security (89%)
- Is comfortable and well equipped (85%)
- Is quiet and helps me get good rest (81%)
- Allows me to relax in my time off (81%)

Figure 15: Accommodation amenities unimportant and provide



- ▲ Black-out curtains
- ◆ Games room
- Swimming pool
- Sporting comps
- Internet access
- ▲ Computers
- Onsite shop
- ▲ Medical centre
- ▲ Car park
- Landscaping
- ◆ Transport to/from town
- Storage
- Concierge
- Double bed
- Outdoor sporting facilities
- ▲ Social activities
- Fitness trainers
- Cinema
- Wet mess
- Admin areas
- ◆ Onsite security
- EAPs
- Volunteering activities
- Education programmes
- ▲ Chaplain

**Figure 16: Positive lifestyle variables associated with mine accommodation amenities**



The statement that fewest respondents agreed with was:

- Helps me to pursue interests in my free time (46%)

Perhaps it is not surprising that less than half of the sample group agreed that their camp accommodation facilitated their own interests, as these might typically include time spent with family and friends, interests unique to a particular location (e.g. surfing), etc.

However, apart from this one recreation-focused statement, the majority of the group collectively agreed that the camp accommodation facilitated social engagement, a healthy lifestyle (diet, exercise), safety and rest.

Additionally, the responses were consistent with the features they had previously identified as important (Figure 14). For example, personal space and privacy was previously identified as important to a high proportion of respondents and there was overwhelming agreement with the statement, here, that accommodation 'provides me with enough privacy' (91%, see Figure 16).

One apparent discrepancy between Figures 16 and 15 was that, while there was strong endorsement for the statement 'provides enough security', (89%) here, only 22% of respondents reported there was onsite security at their workplace accommodation (Figure 15). This seems to suggest that despite only about 20% of sites having onsite security, respondents feel their security is suitably controlled. This may be the result of the isolated location of mine camps, strategies and policies to manage onsite camp behaviour, and community relations. This stands in stark contrast to mines in some overseas countries where employee security is a major concern for companies.



Together Figures 14 to 16 indicate that most respondents were satisfied with their current accommodation. However, there was also evidence that many also sought better services and facilities. In fact, in a final accommodation-related question that asked respondents 'If you had the opportunity what would you like to change about your accommodation arrangements', almost two thirds of all respondents (62%) reported that they would prefer better facilities:

- Almost one-third (30%) would like to change accommodation to experience better facilities and services overall
- 25% would like an upgraded room, and
- 7% would like to change from dongas to a town rental.

However, around one-quarter of respondents (23%) did not wish to change anything about their accommodation.

In an associated question, 53 respondents volunteered feedback about their accommodation, and the criticism that was most common was *poor food options* (e.g. people wanted healthier food, or had particular dietary requirements). Other common

suggestions were improved gym facilities and better beds to get better quality sleep and to reduce fatigue.

Finally, respondents were asked to rate the *overall quality* of their workplace accommodation, and almost two thirds of respondents (63%) rated their accommodation as 'good' or 'very good'. Another third of the sample (32%) rated their accommodation as average. Just 6% of respondents rated their accommodation as 'poor' or 'very poor'.

Interestingly, the proportion of the sample rating the accommodation as 'average' is a similar proportion to that reporting that they would like to change to accommodation with better facilities and services. Together this may indicate that about 32% of the sample is somewhat unsatisfied with their accommodation even though only a very small proportion of the sample (6%) rated their accommodation as being poor or very poor.

### 3. Health and well being

#### HEALTH AND WELL BEING

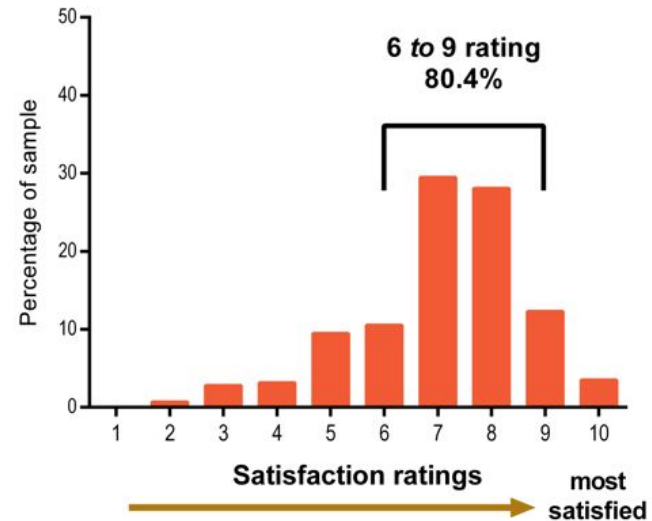
- Survey participants reported relatively high levels of general health and life satisfaction
  - 83% reported above midpoint life satisfaction levels
  - 75% experienced good or very good health
- Alcohol use varied significantly across the sample, with 5% drinking every day and 18% drinking rarely or never. The largest group (34%) drinks multiple days per week.
- 75% were non-smokers
- Sleep disturbance was a common problem with 70% reporting some level of disturbance
- 60% agreed that job demands interfered with family life, but
- Just 20% agreed that stress from home interfered with job performance
- 54% reported feeling lonely or socially isolated to some degree
- However, rates of depression, anxiety and stress among the sample were lower than data for the general population.

#### Physical health

##### *Life Satisfaction*

Overall, participants reported that they felt relatively satisfied with their life, with over 80% of the sample reporting above midpoint satisfaction levels (see Figure 17). Three quarters (75%) of our sample also reported that their health was either very good or good, and 80% said their health was stable, being better or about the same as one year ago.

Figure 17: Respondents' overall satisfaction with their life



### **Weight**

Almost half of all respondents (45%) reported themselves as being overweight. This response rate is in line with the Australian population average, where 55% of females and 74.1% of males in the 35 to 44 year age bracket are either overweight or obese (ABS, 2012). This finding may also reflect that the mining occupation entails largely sedentary tasks and mine workers are often seen to have poor diets (Chalmers & O'Neill, 2012).

### **Drugs and alcohol**

Questions on *alcohol* and drug use prompted a range of responses:

- Just 5% of the sample reported drinking alcohol every day
- 34% drink alcohol on multiple days a week, and
- 28% drink at least once a week.
- However, 18% consume alcohol only once a month or less (i.e. rarely or never).

When asked 'have you ever felt you ought to cut down on drinking?' 34% of respondents gave affirmative responses while 47% of respondents disagreed. However, very few respondents (8%) reported that people had annoyed them by criticising their drinking. Nevertheless, 16% of respondents reported feeling guilty about their levels of drinking. Respondents were also asked whether they ever had a drink first thing in the morning to

steady their nerves or get rid of a hangover. Only 5% agreed with this statement compared to 77% who disagreed. These responses suggest that alcohol consumption is likely to be at safe levels for the vast majority of participants. However, a small, but important group is indicating that alcohol consumption may be at a serious enough level to warrant health concerns.

Respondents were also asked about *smoking*. Just 9% reported that they smoke, compared with 75% who are non-smokers.

We also sought information about the frequency of *visits made to health professionals* within the preceding three months. Again, there was a range of responses:

- About 30% of respondents did not visit any health professional during that time
- 27% visited a health professional only once
- 11% visited a health professional twice during that time
- About 13% visited a health professional three times or more.

When asked about their *use of prescription medicine* in the last three months, half of the sample report not using any prescription medicine and 20% of the sample used it once during that time period. About 10% of the sample used it two to three times and only 3% used it four times or more.

## Mental health and emotional well-being

### *Sleep, stress and work-life balance*

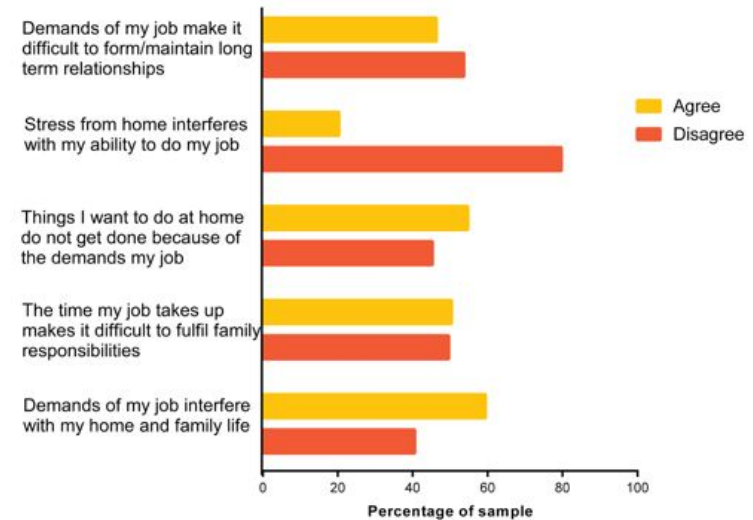
Getting adequate rest is a major issue for FIFO workers. When asked about sleep patterns:

- About half of the participants (50%) reported some mild disturbances to their sleep in the fortnight prior to completing the survey
- 20% reported quite significant disturbances, as they had difficulty sleeping either a good part of the time or most of the time.

Also, respondents were experiencing some quite negative reactions to the demands of their lifestyle, including:

- More than half of the group (59%) agreed that the demands of FIFO work arrangements interfered with their home and family life
- 55% of the group agreed that it also interfered with their ability to get things done at home (Figure 18)

Figure 18: Work-life balance



### **Emotional well-being**

The survey also included a number of questions about emotional wellbeing. When asked about the extent to which they felt lonely or socially isolated, over half the sample (54%) reported these feelings:

- About 40% said that they felt lonely or socially isolated to some degree
- Another 14% said they felt this way a good part of the time, or most of the time.

A significant body of research (e.g. Watts, 2004; Carter & Kaczmarek, 2009; Torkington et al., 2011; Bowers, 2010) indicates that workers who commute long distance and are away regularly from home for extended periods of time can suffer from depression, anxiety or stress. We included the DASS21 in this study to ascertain the degree to which participants suffer from these negative emotional states and to compare their responses with data from the general Australian population.

The results (Table 3) show that the study sample actually has *lower* rates of depression, anxiety and stress, indicating overall

good psychological health. It should be noted that, despite the positive results, about 5% of the sample still rate highly on the DASS21 scale.

- 86% of the group had normal levels of stress
- 9% had mild levels of stress
- 3% had moderate stress levels and
- 2% suffered high levels of stress

**Table 3: Comparison of Depression, Anxiety and Stress levels (DASS)**

Group	Group Means		
	Depression	Anxiety	Stress
General Population	6.34	4.70	10.11
Study Sample	5.00	4.62	7.41

## Demographics

### DEMOGRAPHIC PROFILE

- Mean age of participants was 35 years
- Gender split was 40% female, 60% male
- 76% were either married or in a relationship
- 28% had dependent children
- Participants were highly educated:
  - 70% had a university degree
  - One quarter had an additional postgraduate qualification

Figure 19: Gender distribution

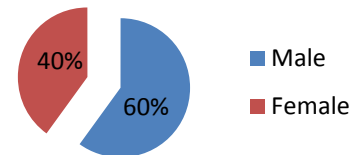
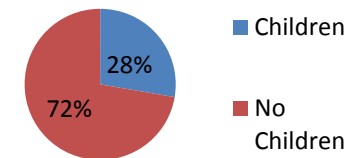


Figure 20: Dependent children



### Age

Respondents to this survey were relatively young, with a mean age of 35 years. This mean age is slightly under the mean for the whole of Australia, which was 37 years in 2010.

### Gender

The average age of respondents was 35 years and the gender split was relatively even, although men (58%) still outnumbered the women (42%) (Figure 19).

### Marital status

Three quarters of respondents were either married (39%) or in a relationship (37%). Less than a quarter (24%) were single, divorced or separated (Table 4).

**Table 4: Marital status**

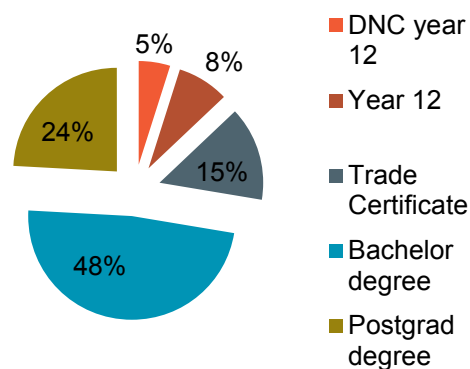
	Total Number	Percentage (%)
<b>Marital Status (n=286)</b>		
<b>Married</b>	112	39.16
<b>In a relationship</b>	106	37.06
<b>Not in a relationship</b>	58	20.28
<b>Divorced/Separated</b>	10	3.50
<b>Widowed</b>	0	0

However, only about a quarter (28%) of the sample had dependent children, as shown earlier in Figure 19.

### Education

Participants were also very well educated, with almost 70% holding a university degree and one quarter of those having a postgraduate degree. Just five per cent of respondents had not completed high school (Figure 21).

**Figure 21: Highest level of education**



The age profile and level of education of this group indicate that it represents a specific sub-set of the resource sector workforce, namely professionals employed in technical or managerial roles. The comparatively high proportion of female respondents is also unusual given that mining is a male-dominated industry. The comparatively high representation of females is most likely the result of the survey recruitment strategies adopted for this project. These strategies involved engagement with the Women in Mining network and contacts among Community Relations professionals, who include a higher proportion of women than other work roles in the mining workforce. It is also possible that the proportion of women in professional roles is greater than the proportion in trade or operation roles.

## 4. Discussion

### Participant profile

The profile that emerges from this survey is of a group of well-educated, mid-career professionals who are generally satisfied with their current jobs and lifestyle. Most are employed by mining companies in operational contexts. They largely work day shift and compressed roster cycles, with 8/6 rosters being the most common pattern. These would be regarded as the most desirable roster arrangements for most people.

In terms of domestic arrangements, most participants (76%) have partners, but less than one quarter (24%) of the group was single, divorced or separated, which is lower than expected, based on previous studies. Greer and colleagues (2009), for example, found in their survey at Queensland accommodation villages that 40% of respondents were single, divorced, or separated. However, the proportion of couples with dependent children was similar in both studies (28% in our survey and 25% in the Greer study).

The relatively small percentage of the sample with dependent children coupled with the age profile of our sample is consistent

with a 'lifecycle' hypothesis, which suggests that acceptability of FIFO commuting to workers may vary through a working career (Rolfe et al. 2008). Young and single workers often prefer to live in larger centres and commute to work locations, whereas employees with young families often prefer to live locally (within daily commuting distance). As children get older, and families have greater need for more options with respect to education, lifestyle and partner employment, many prefer to establish the family home in a larger centre, with the mining employee taking on the commuting lifestyle of the FIFO employee again.

### Job satisfaction

A key finding of this survey is that respondents reported high levels of job satisfaction across the various items on the job satisfaction scale. These items are ranked in order of satisfaction in the following table (Table 6).



**Table 5: Rank order of job satisfaction items**

<b>Ranking</b>	<b>Job satisfaction item</b>	<b>% of sample</b>
<b>1</b>	Salaries	89
<b>2</b>	Commute mode	87
<b>3</b>	The job in general	86
<b>4</b>	Team relations	83
<b>5</b>	Length of shift,	80
<b>6</b>	Job security	80
<b>7</b>	Workplace accommodation	78
<b>8</b>	Roster cycle	77
<b>9</b>	Commute travel time	75
<b>10</b>	Supportive management	70
<b>11</b>	Career progression	67
<b>12</b>	Flexibility balancing work/ family	66
<b>13</b>	Training	66

A correlation analysis was undertaken to explore the relationship between these items. A number of these relationships prove to be statistically significant. We found that:

- The relationship between Shift length, Roster cycle and overall Job satisfaction is statistically significant, in other words, overall job satisfaction is likely to depend on having satisfactory roster cycles and shift lengths.
- The positive relationship between satisfaction with the Number of hours worked and both Shift length and Roster schedule shows that people's satisfaction with the hours they work is likely to depend on their satisfaction with the 'package' of these linked factors.
- The correlation between Job satisfaction, Commute allowance and Performance bonus was also highly significant, indicating that satisfaction with these 'additional' payments is related to overall job satisfaction. Satisfaction with Performance bonus also tended to be higher when a satisfactory Commute allowance is received.
- The more participants were satisfied with Training opportunities, the more satisfied they were with Career progression.
- Supportive management was positively associated with good Team relationships.

- Greater satisfaction with Management Support was also associated with increased satisfaction with Career progression, Training opportunities, Commute allowance, Job security, Roster schedule and Shift length.
- Correlations between Pay, Commute allowance and Performance bonus indicate that people's satisfaction with their salaries increases in line with satisfaction with these supplementary forms of remuneration.
- Feeling satisfied about Job security is positively associated with Training opportunities, Career progression and Supportive management. This indicates that participants feel more secure in their jobs when they are satisfied with Training opportunities and Career progression and when they feel they work in an environment with supportive management.

Overall high satisfaction levels suggest that these workers feel adequately compensated in terms of wages and job satisfaction for any inconvenience or ill-effects associated with the FIFO lifestyle, namely, long working hours and extended periods away from home.

## Job turnover

The second major finding is that, despite high levels of job satisfaction, a large proportion of respondents (44%) reported an intention to change jobs in the next 12 months. High turnover rates are a well-recognised characteristic of the modern mining industry and the employment profile of survey participants indicates that their work experiences conform to the general industry trend. The high 'churn' rate of resource sector employees is well documented in studies of both residential and FIFO workforces (Dunham & Bryant, 2009; Brereton et al, 2003;

Sibbel et al, 2006; Tonts, 2010). Consistent with these earlier studies, our respondents also attributed their turnover intentions to a desire for better pay, greater work-life balance, and career advancement.

We also ran a correlation between Work-life balance and the thirteen job satisfaction variables. This was significantly correlated with ten of the job satisfaction variables. The five strongest relationships in order were:

1. Roster Schedule
2. Supportive management
3. Quality of accommodation
4. Shift length
5. Team relationships

These findings suggest that our survey sample comprises an ambitious, career-oriented cohort, who is keen to seek career progression and do not feel their work-life balance is significantly compromised by the negative aspects of the FIFO lifestyle.

## Accommodation

Survey responses to the accommodation questions indicate that the majority of camps or villages used by participants provided similar basic amenities such as air-conditioning, an en-suite bathroom, room cleaning, laundry facilities and a mess. Overall, FIFO workers reported satisfaction with the quality of their accommodation, with over half (63%) rating it as good or very good.

Despite this general level of satisfaction, however, it is very apparent that respondents saw plenty of room for improvement

in their current accommodation arrangements. Almost two thirds of participants (62%) reported that they would like to change their accommodation in some way, either by:

- Moving to accommodation with better services and facilities (30%)
- Getting a room upgrade (25%), or
- Changing from dongas to a town rental (7%).

There appear to be a number of reasons for this desire for change. The most common criticism of current accommodation was of food quality. Participants either wanted healthier food or had specific dietary requirements that were not being met. There were also a number of other criticisms, notably: the quality of beds, recreation facilities, landscaping, and room cleaning. In short, while ratings of the accommodation were generally satisfactory, respondents singled out a number of facilities and services for improvement.

The third major finding from this survey is that participants value highly their privacy and personal space. The results indicate clearly that participants prefer the exclusive use of a room and they prefer to stay in the same room each swing. Other features that are very important to them are internet access in their own rooms and mobile phone reception. In contrast, communal facilities such as gyms, cinemas, swimming pools, game rooms and a wet mess were rated as important by fewer people.

The preference for privacy is understandable, given the long working hours reported and respondents' preferred leisure activities. Outside of work hours, participants preferred leisure activities such as video/ internet/ television watching in their own rooms rather than socialising in games or recreation rooms or participating in sporting competitions. While it is possible that these findings are an artefact of this particular sample population (young, educated professionals, mainly working day shifts), it seems equally likely that other resource sector workers will feel the same need for private leisure activities after a long working day. There is plenty of evidence that demonstrates being away from family and friends is the biggest challenge for all FIFO workers (e.g. URS, 2012). Therefore we would expect all FIFO workers to value private time to contact family and friends to the same extent as our sample.

These findings have clear implications for accommodation providers. While there is no doubt that FIFO workers would rather live in accommodation that has attractive physical surroundings than not (landscaping, swimming pools), it would appear that these facilities are less important to them than privacy.

## Health and well-being

The self-assessed health of survey respondents is quite robust and participants appear to be very aware of the importance of monitoring their health and fitness. While they reported some concerns about being overweight, there was no evidence of any drug and alcohol problems. The vast majority of respondents also reported that they were coping successfully with the stresses and strains they encountered. The responses to questions from the DASS21 scale, which evaluates mental health, indicate that survey participants overall experienced good psychological health.

Nevertheless, a sizeable minority of respondents experienced sleep disturbance, stress and feelings of loneliness. About 70% of the survey respondents reported sleep disturbances and these were quite significant in 20% of cases. Given the importance of gaining enough rest to prevent fatigue, it might have been expected that blackout curtains would be regarded by survey respondents as an essential item. In fact, however, they were regarded as unimportant by the vast majority of respondents. This anomaly may be explained by the fact that the majority of respondents work day shifts. Getting to sleep at night is likely to be easier for those on day shifts because their normal circadian rhythms are undisturbed. One would expect to find that blackout

curtains were much more important to workers on night shifts attempting to sleep during daylight hours. Nevertheless, cool, quiet rooms and comfortable beds will be fundamental provisions for all workers.

Finally, about 40% of participants also reported feeling lonely or socially isolated to some degree and about 5% of respondents reported moderate to severe levels of stress. While this is a small group, it is important that their health problems be identified and managed. The negative impacts of long working hours on the psychological wellbeing of mining industry employees and their families are well documented (e.g. Watts, 2004; Carter & Kaczmarek, 2009; Bowers, 2010; Torkington et al., 2011) and are of concern to the mining industry. Measures being put in place by the industry (such as fitness for work programs) and by support groups like Mining Family Matters can raise awareness among workers of both warning signals and of preventative measures. For those individuals particularly at risk, tailored stress management approaches are likely to be necessary. Therefore the availability of on-site medical staff for advice and good HR support programs will be of value.

## 7. Conclusion

This study demonstrates that the majority of FIFO workers are satisfied with the FIFO lifestyle generally and with many of the specific work and accommodation arrangements they experience. For this group of respondents, the benefits of the lifestyle outweigh the disadvantages but, as indicated in the previous discussion, this may not be the case for all FIFO workers. Although there are some extraneous factors involved, many of the factors that this study identified as important to worker wellbeing are within the control of management either of mining operations or of accommodation-providers. Since FIFO work arrangements are likely to continue and indeed will be preferred by many, it is appropriate to try to adopt leading practice in HR management and accommodation management and design to provide the best possible working environment for FIFO workers. Based on the evidence documented in this report, the following strategies are recommended as approaches that may increase the well-being and retention of FIFO workers.

### Strategies for increasing worker well-being and employee retention

#### *Accommodation*

- Improvements in accommodation villages that focus on enhancing people's personal space and communication channels are likely to be valued by more workers than the ever-more sophisticated array of communal recreational facilities such as games rooms, sporting competitions or media rooms that are being provided at some sites.

Private rooms with direct internet access and their own TV/ video connections are highly valued. In situations where no, or few, private rooms are available, internet and television connection points could be installed in shared rooms, not just common recreation areas.

- Camps should be designed to maximise peace and privacy. As far as possible, sleeping quarters should be removed from communal areas and comfortable beds, sound-proofing and blackout curtains provided to minimise sleep disturbance.

#### *Health and well-being*

There are a number of HR management strategies that could improve the health and wellbeing of FIFO workers:

- There is a case, for instance, for raising awareness among workers of some of the potential challenges associated with the FIFO lifestyle. An information booklet that discusses the common challenges faced by FIFO workers and provides contact details for agencies that provide support may be helpful, especially for new recruits.
- Easy-to-access information about anxiety, stress, and other mental health issues should be provided in the workplace and at the accommodation site. An online service that workers could access privately would be useful. A dedicated website that enabled workers to assess the severity of their stress symptoms via an online survey and then be directed to medical or counselling assistance could be a valuable tool for FIFO workers in remote locations.

- Contact details for the nearest doctors and counsellors should be prominently displayed in the workplace and in the accommodation camp.
- Initial 'fitness' assessments for FIFO employees could be used to establish a baseline against which the physical and mental health of individuals can be monitored.



## Appendix 1: Research Methodology

The methodology for this research project comprised a literature review and a survey of FIFO workers. The purpose of the literature review was to document the current state of academic and practitioner knowledge in relation to:

- the nature of the FIFO workforce, providing definitions, demographics and reporting trends
- the impact of FIFO employment on worker perceptions of well-being, incorporating personal, work and family aspects
- the impacts of 'camp' life on workers' well-being and coping capacity
- the factors influencing workforce turnover rates.

### The survey

The aim of the survey was to collect a systematic body of data about the attitudes, experiences and intentions of FIFO workers. The survey contained 61 questions separated into the following topic areas:

- general work questions; included resource commodity, mine lifecycle, current role and remuneration
- FIFO work arrangements, including mode of commute, length and time of commute, location of mine site, and shift and roster cycle
- job satisfaction and career plans
- level of satisfaction with current workplace accommodation
- personal wellbeing, including physical and mental health
- demographic details.

The survey instrument was developed in accordance with the University of Queensland's ethical guidelines<sup>2</sup> and a draft version was piloted with ten FIFO workers who were recruited through personal networks. The survey instrument was further refined on the basis of feedback from the pilot study and the final version was prepared for hard copy and electronic distribution.

A convenience sampling methodology was adopted for this project. Convenience sampling involves selecting a sample population that is readily accessible. It was considered most appropriate for this project because it would enable the researchers to elicit feedback from a mobile population of FIFO workers at a range of sites throughout Australia, within a defined timeframe and with wide geographical reach.

The survey was distributed as an on-line survey that could be completed by any worker with internet access. The survey took approximately 20 minutes to complete and could be completed at the workers' convenience. The survey was promoted via email and electronic newsletters through a range of professional and industry-associated networks:

- People currently working as FIFO workers in the resources sector were contacted via representatives of professional bodies such as the Australian Institute of Mines and Metals (AusIMM), the Australian Institute of Geologists (AIG), and

---

<sup>2</sup>The University of Queensland requires that all projects involving human subjects conform to University ethical research requirements. Consequently, study procedures were approved by an ethics committee at The University of Queensland (approval # 2012000831).

Women in Mining (WIM) network. The survey was also advertised in their regular electronic newsletters.

- The organisation FIFO Families, which is a support group for FIFO workers and their families, also made details of the survey known to their membership via their electronic newsletter.
- Personal mining company contacts were emailed directly and asked to circulate the survey, and
- The alumni of professional graduate certificate and professional development courses at the Sustainable Minerals Institute (SMI) were contacted via email.

The survey was also promoted using postcards that contained the email address of the survey. These postcards were then

distributed through personal and professional contacts and at the accommodation sites of some mines.

## **Data collection and analysis**

Data collection began in October 2012 and was officially closed for analysis for this report at the start of 2013, spanning a period of approximately three months. At the end of the survey period the research team downloaded the responses from Survey Monkey into Excel spread sheets. A total of 330 surveys were returned and after identifying incomplete or invalid survey responses, 286 valid surveys were recorded. The data was then cleaned and coded for analysis in SPSS, a statistical analysis software program.



## References

- Australian Bureau of Statistics (2012). Australian Health Survey: First results, 2011-2012. Accessed from <http://www.abs.gov.au/ausstats/abs@.nsf/Lookup/034947E844F25207CA257AA30014BDC7?opendocument>
- ABS (2012a) *Labour Force, Australia, Detailed, Quarterly, Nov 2012*. Table 5 Employed persons by State and industry. Cat no. 6291.0.55.003 Canberra: Australian Bureau of Statistics.
- Bowers, J. (2010) "*This Place Is Doing My Head In*" *Strategies for building mental health and wellbeing in the mining and resources sector*. Cairns: Centre for Rural and Remote Mental Health, Queensland.
- Brereton, B., Beach, R. & Cliff, D. (2003). *Workforce turnover in FIFO mining operations in Australia: An exploratory study*. A Research Report by Centre for Social Responsibility in Mining and Minerals Industry Safety and Health Centre. The University of Queensland.
- Carter, T. & Kaczmarek, E. (2009). An exploration of generation Y's experiences of offshore fly-in/fly-out employment. *The Australian Community Psychologist*. 21(2), pp.52-66.
- Chalmers, L. & O'Neill, E. (2012) *Diabetes, a new challenge for the mining industry*, paper presented at the *Queensland Mining Industry Health & Safety Conference*, Townsville, 19-22 August 2012.
- Clifford, S. 2009. *The effect of Fly-in/Fly-out Commute Arrangements and Extended Working Hours on the Stress, Lifestyle, Relationship and Health Characteristics of Western Australian Mining Employees and Their Partners: preliminary report of research findings*. Perth: School of Anatomy and Human Biology, The University of Western Australia.
- CMEWA (2005). *Fly In / Fly Out: A Sustainability Perspective. A discussion of the triple bottom line impact of fly in / fly out operations in Western Australia's resources sector*.
- Dunham, S. & Bryant, J. (2009). Mine geology skill shortages, churn and mentoring – ways to improve individual and team performance, pp. 53-57, in *Proceedings of the Seventh International Mining Geology Conference*. Perth, Australia. August 17-19, 2009. The Australasian Institute of Mining and Metallurgy. Melbourne Australia.
- Greer, L., Akbar, D., & Rolfe, J. (2009). Sustainable mining futures and the liveability of mining villages, in, *Regional Australia: exploring new frontiers, Proceedings of Sustainable Economic Growth for Regional Australia 2009*. Kalgoorlie-Boulder, Australia. October 27-29, 2009. Retrieved from: <http://www.segra.com.au/pdf/LindsayGreerRefereedPaper.pdf>

- KPMG (2013). *Analysis of the Long Distance Commuter Workforce Across Australia*. Melbourne: Minerals Council of Australia and KPMG.
- Peetz, D.R. & Murray, G. (2010). Involuntary Long Hours in Mining, in Barnes, A. & Lyons, M.(eds) *AIRAANZ: Work in Progress: Crises, Choices and Continuity*. University of Western Sydney. Retrieved from: <http://www98.griffith.edu.au/dspace/handle/10072/34048>
- Rolfe, J., Yabsley, E., Greer, L., Akbar, D., Ivanova, G. & Yabsley B. (2008). *Ensuring Sustainable Benefits from Boom Periods: A Case Study for Long Term Housing Policy in the Bowen Basin*, Final Report Prepared for the Queensland Department of Tourism, Regional Development and Industry, Central Queensland University, Rockhampton.
- Rolfe, J., Lawrence, R., Rynne, D., Gregg, D., Morrish, F. & Ivanova, G. (2011). The Economic Contribution of the Resources Sector by Regional Areas in Queensland, *Economic Analysis and Policy*. 41(1), pp.15-36.
- Sibbel, A.M., Sibbel, J. & Goh, K. (2006). Fly-in, fly-out operations – strategies for managing employee well-being, pp. 25-34, in *Proceedings of the International Mine Management Conference*. Melbourne, Australia. October 16-18, 2006. The Australasian Institute of Mining and Metallurgy. Melbourne Australia.
- Storey, K. (2001) Fly-in/Fly-out and Fly-over: mining and regional development in Western Australia, *Australian Geographer*. 32(2), pp.133-148.
- Tonts, M. (2010). Labour market dynamics in resource dependent regions: an examination of the Western Australian Goldfields. *Geographical Research*, 48(2), 148-165.
- URS (2012). *Workforce Accommodation Arrangements in the Queensland Resources Sector: workforce survey*. Perth: Queensland Resource Council and URS Australia.
- Watts, J. (2004). *Best of Both Worlds? Fly In–Fly Out Research Project Final Report*. Karratha, WA: Pilbara Regional Council.
- Welters, R., Lynch, P., Pryve, J., Blackman, A. & Murphy, L. (2013). *FIFO workforce in Cairns: perspective from Cairns based FIFO workers employed in North-West Queensland and Groote Eylandt in Northern Territory*. An Initiative of the Cairns FIFO Coordinator Project funded by the Commonwealth Government. Department of Industry, Innovation, Science, Research and Tertiary Education; SkillsDMC and The Cairns Institute.

# SMI CSR

Centre for Social  
Responsibility in Mining

[csr@smi.uq.edu.au](mailto:csr@smi.uq.edu.au)

[www.csr.uq.edu.au](http://www.csr.uq.edu.au)



# SMI MISHC

Minerals Industry Safety  
& Health Centre

[mishc@smi.uq.edu.au](mailto:mishc@smi.uq.edu.au)

[www.mishc.uq.edu.au](http://www.mishc.uq.edu.au)

**SMI** Sustainable  
Minerals  
Institute

[www.smi.uq.edu.au](http://www.smi.uq.edu.au)

The Centre for Social Responsibility in Mining (CSR) is a leading research centre, committed to improving the social performance of the resources industry globally.

At CSR, our focus is on the social, economic and political challenges that occur when change is brought about by resource extraction and development. We work with companies, communities and governments in mining regions all over the world to improve social performance and deliver better outcomes for companies and communities. Since 2001, we have contributed significantly to industry change through our research, teaching and consulting.

The Minerals Industry Safety and Health Centre (MISHC) sets the global benchmark for risk, health and safety research and education in the global minerals industry.

At MISHC, our applied research focuses on leading practice systems and procedures to help solve existing health and safety challenges. We are implementing a number of strategic research initiatives with companies, industry associations and regulatory agencies to optimise health and safety outcomes and minimise risk within a rapidly expanding resource sector.

MISHC education and training programs are designed to up-skill, educate, improve awareness, and establish and promote a positive health and safety culture within the minerals industry. Our graduate programs produce highly skilled risk management professionals who are essential for the industry to sustain productivity and support organisational performance whilst also achieving the highest levels of safety.

CSR and MISHC are part of the Sustainable Minerals Institute (SMI) at the University of Queensland, one of Australia's premier universities. SMI has a long track record of working to understand and apply the principles of sustainable development within the global resources industry. With over 350 staff across seven inter-related Research Centres and its commercialization company JKTech, the SMI has a global presence that is rapidly expanding.