



Mr Glenn Worthington
The Secretary of the Committee
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Dear Mr Worthington

Please find attached Skills Australia's response to the Inquiry into the experience of fly-in, fly-out (FIFO) and drive-in, drive-out (DIDO) workers in regional Australia.

The submission is based on and builds on research from industry, education and government on the impacts of FIFO and DIDO in the resources sector.

FIFO and DIDO has an important role in meeting the demands of labour and skills across Australia. Skills Australia welcomes this House of Representatives Inquiry and considers it to be an opportunity to provide input on FIFO and DIDO work arrangements.

Yours sincerely

Robin Shreeve
Chief Executive Officer
Skills Australia
6 October 2011





Skills Australia submission to the House of Representatives Standing Committee on Regional Australia

Inquiry into the experience of fly-in, fly-out (FIFO) and drive-in, drive-out (DIDO) workers in regional Australia

October 2011

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Executive Summary

Skills Australia is an independent statutory body, providing advice to the Minister for Tertiary Education, Skills, Jobs and Workplace Relations on Australia's current, emerging and future workforce skills needs and workforce development needs.

Following its consideration of the National Resources Sector Employment Taskforce (NRSET) report published in June 2010 the Australian Government requested that Skills Australia prepare annual reports about the resources sector's likely demand for labour and the supply of skills available to meet the sector's skill needs.

The aim is to better inform industry forward planning for future major projects, assist in better meeting industry skill needs, and to inform further policy responses to the emerging needs of the resources sector, including mining operations, major project construction and gas operations. Coinciding with this work, consideration of the mobility of labour skills and the importance of fly-in and fly-out (FIFO) workers will provide further solutions to increasing the availability of workers to the mining sector.

Skills Australia acknowledges that FIFO is an extremely complex issue and that there are mixed views about the social effects of FIFO, including its impact on families, individuals and industry. However, FIFO is a cost-effective way to address skills shortages and meet workforce needs, to increase efficiency, and to avoid some of the social problems that may arise from developing a 'mining town' or 'company town'. There is also the advantage of flow on effects to home communities, locating families with services and improving the local economy.

The call for an Inquiry into FIFO by the House of Representatives Standing Committee on Regional Australia is timely. While it is well known that FIFO is now a common form of work, the extent to which the resources sector utilises the FIFO and DIDO workforce is not well documented.

Skills Australia therefore recommends that more data be collected to define the extent of FIFO and DIDO workforce nationally on a regular basis. Critical data should include those defined in the House of Representatives terms of reference to inform the whole of Government policy relating to the resources sector.

Skills Australia considers that its long association with the resources and construction peak bodies places it in a unique position to work with industry and develop policy to better understand and promote strategies for the effective utilisation of workforce in the different sectors and more importantly the resources sector. In addition, Skills Australia will work with key stakeholders to formulate a holistic approach to FIFO and DIDO arrangements taking into account the individual, family, local community and the broader regional affects. With this in view, Skills Australia has embarked on the 2011-2012 work program to examine broader regional impacts as a result of the resources sector growth.

Introduction

Skills Australia is an independent statutory body, providing advice to the Minister for Tertiary Education, Skills, Jobs and Workplace Relations on Australia's current, emerging and future workforce skills needs and workforce development needs.

Following its consideration of the National Resources Sector Employment Taskforce (NRSET) report published in June 2010 (DEEWR, 2010) the Australian Government requested that Skills Australia prepare annual reports about the resources sector's likely demand for labour and the supply of skills available to meet the sector's skill needs. The aim is to better inform industry forward planning for future major projects, assist in better meeting industry skill needs, and to inform further policy responses to the emerging needs of the resources sector, including mining operations, major project construction and gas operations. Coinciding with this work, consideration of the mobility of labour skills and the importance of Fly-in and Fly-out (FIFO) workers will provide further solutions to increasing the availability of workers to the mining sector.

Skills Australia notes that under the terms of reference for the inquiry into fly-in, fly-out/drive-in, drive-out (DIDO) Mining Operations, the House of Representatives Standing Committee on Regional Australia is to inquire into and report on the use of 'fly-in, fly-out and 'drive-in, drive-out' workforce practices in regional Australia.

This submission specifically refers to the following terms of reference:

- the extent and projected growth in FIFO/DIDO work practices, including in which regions and key industries this practice is utilised;
- costs and benefits for companies, and individuals, choosing a FIFO/DIDO workforce as an alternative to a resident workforce;
- the effect of a non-resident FIFO/DIDO workforce on established communities, including community wellbeing, services and infrastructure;
- strategies to optimise FIFO/DIDO experience for employees and their families, communities and industry;
- potential opportunities for non-mining communities with narrow economic bases to diversify their economic base by providing a FIFO/DIDO workforce; and
- current initiatives and responses of the Commonwealth, State and Territory Governments.

Background

Historically, mining operations in Australia were generally established as small mining towns during the 1950's. Logistical factors, such as cost and distance, and government initiatives formed and promoted the development of mining company towns. Competitive global pressure, increased costs – including the cost of developing and maintaining mining towns and reduced travel costs have combined to enable an increased use and development of FIFO and DIDO; described as mining operations where workers commute to the workplace and are provided with food and accommodation during their stay at the work-site.¹ Workers travel from their usual place of residence and remain there for a period of time and return home between rosters. This can also be referred to as long distance commuting, including ship-in ship-out, drive-in drive-out, or other transport combinations.²

¹ The Chamber of Minerals and Energy Western Australia (2005); *Fly in Fly out: A sustainability Perspective*

² Australian Bureau of Statistics, (2009), 6209.5 - *Labour Mobility and Intentions, Western Australia, Oct 2008, Glossary*, p.1 [http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/6209.5Glossary1Oct per cent202008?opendocument&tabname=Notes&prodno=6209.5&issue=Oct per cent202008&num=&view= Statistics](http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/6209.5Glossary1Octper cent202008?opendocument&tabname=Notes&prodno=6209.5&issue=Oct per cent202008&num=&view= Statistics)

Implications of the resources sector growth

Costs and benefits for companies and individuals choosing fly-in fly-out and drive-in, drive-out

Historically, mine sites and mining towns were developed with the required infrastructure needed for the lifespan of the project. Modern operations of a mine are separated into distinct categories based upon location and available services.

The Australian Bureau of Agricultural and Resource Economics and Sciences classify regions into three areas, 'coastal, 'inland' and 'remote'. Garnett (2011) has mapped out the mining activity in Western Australia noting that most of the mining activity is being conducted in remote areas and primarily in the Pilbara.³ Large companies who have mines in these remote regions will consider the cost benefit of maintaining a functional town-site. The Chamber of Mines and Energy, Western Australia (CMEWA) (2011) has listed the factors inhibiting town development citing the cost of town development, a lack of government support services, approvals for construction, environmental considerations and closure of old towns.

By comparison, FIFO is a cost effective alternative particularly when considering that where mines may have been a long-term gradual operation, many more of the modern mines, with advanced equipment, have mine life-cycles measured in years, not decades.⁴

McKenzie (2011) suggests that FIFO can positively influence regional economic development by building local economies and attracting infrastructure investment.⁵ Where a FIFO workforce is located in or near a township and services are easily obtained there is an additional economic benefit, even though it may be limited to small expenditures like newspapers, coffee and cigarettes.

As the FIFO workforce are not local residents and primarily reside within company sponsored accommodation, the majority of FIFO income returns to the primary place of workers residence and has little active impact on the local community. The workforce does not pay rates and are not counted in the Census as residing in the region. FIFO workers do not attract financial, infrastructure or local services to foster sustainable and resilient development. In some established regions, some of these issues are being considered both at the company and government level with the development of programs, for example education and indigenous, to support the local population. Population retention, and subsequent growth, influences and creates the environment for infrastructure development.

³ Garnett, A., (2011) *The Effect of the Resources Boom on the Western Australian Labour Market*, The Centre for Labour Market Research, Murdoch University.

⁴ The Chamber of Minerals and Energy Western Australia (2005); *Fly in Fly out: A sustainability Perspective*

⁵ McKenzie, F.H., (2011); *Fly in fly out: the challenges of transient population in rural landscapes*, Curtin University of Technology

Labour force

FIFO has become an essential source of labour for the resources sector with approximately 2 000 regional flights departing Perth Airport every month let alone any other regional or capital city.⁶ It should be made clear, however, that sourcing workers within the resources sector should be separated into the different components of need over the mine lifecycle. This consists of the construction workforce and the operations workforce.

Construction workforce

During the construction phase, the majority of the workforce required will be FIFO.⁷ The lack of available services and infrastructure, particularly in remote locations, prohibits the extended residence of construction workers. As the construction phase ends, maintaining a population of construction workers at one mine-site becomes redundant. A better use of this workforce is to move it to a new location where construction is being undertaken. FIFO, therefore, is the most practical option for this sector of the workforce.

Operational workforce

Operational workforces are generally smaller than construction workforces.⁸ By distinction, operational workforces in rural areas, such as the Bowen Basin in Queensland, are often sourced as much as possible from local workforces – this will often include DIDO as well as FIFO. As the mine sites become more remote, such as with Weipa, Jabiru and Roxby Downs, the requirement for FIFO increases as the number of skilled, professional and middle-management workers becomes more difficult to source.⁹

From an employer perspective, FIFO allows companies to attract a higher quality workforce, limit environmental impacts by not building infrastructure for short term mining operations and reduces the negative impact on local economies when mining operations cease.¹⁰

While FIFO arrangements attract a wider workforce, there is some disparity in the number of males and females working in the resources sector. This is despite efforts to increase the participation of women in the resources sector as a source of labour. Studies conducted in 2009 indicate that women account for 18 per cent of the mining work force; however operational staff numbers are low with technical professional and site based workers only 7 per cent and 3 per cent respectively.¹¹ Pirota reports that there are both rewards and challenges for women in the resources sector. Opportunities for women include financial security, work satisfaction, a sense of belonging, adventure and friendships. Equally, difficulties experienced include maintaining friendships, community living and the extended problems with working in a male dominated environment.¹²

The majority of the female work force in the resources sector under takes support roles in metropolitan and regional centres. Increasing numbers of women in FIFO is more challenging, particularly for operational work. FIFO barriers include work arrangements, location and the industry's culture of long work hours and therefore can pose a particular challenge for employees with young families and workers who are single parents.¹³

⁶ McKenzie, F., (2011) *Fly-in fly-out: the challenges of transient populations in rural landscapes*, Curtin University of Technology

⁷ The Chamber of Minerals and Energy of Western Australia, *WA State Growth Outlook, April 2011*

⁸ The Chamber of Minerals and Energy of Western Australia, *WA State Growth Outlook, April 2011*

⁹ McKenzie, F., (2011) *Fly-in fly-out: the challenges of transient populations in rural landscapes*, Curtin University of Technology

¹⁰ McKenzie, F., (2011) *Fly-in fly-out: the challenges of transient populations in rural landscapes*, Curtin University of Technology

¹¹ AusIMM (2009); *Gender pay equity and associated issues for women in mining – survey report*, Women in Mining, WIMnet

¹² Pirota, J., (2009) *An Exploration of the Experiences of Women who FIFO*, The Australian Community Psychologist, Volume 21 No 2 December 2009

¹³ MCA, CMEWA, QRC (2010); *Submission to the NRSET on Resourcing the Future*,

Working FIFO is considered generally incompatible with starting a family and caring for young children and most women leave the industry when they start a family.¹⁴

Many companies are trying to combat the perception that the resources industry is not suitable for female workers. Many have a range of policies designed to flexibly allow continued work in the industry including compressed working hours, maternity leave and family rooms. Some of the larger companies are working with local government to try and facilitate child-care arrangements. Unfortunately, for many workers, many of these difficulties still remain as barriers to working FIFO.

Social impact of fly-in, fly-out in the resources sector

Individual and family

Mining rosters vary from site to site ranging from short cycles such as 9 days on 5 days off to 28 days on 7 days off. Studies conducted on job satisfaction indicate that employee churn rates were influenced by a number of factors including roster length, whether the environment was positive and commitment by management to training and skill development.¹⁵ A study conducted on roster dissatisfaction found that three quarters of FIFO respondents were dissatisfied because they were unable to participate in the community, are tired during the early leave period, miss important family and social events and are not available for daily activities. However, shorter roster cycles generally garnered lower employee turnover rates and mining companies are putting in place the opportunity for workers to join sites with different roster conditions.¹⁶

Work rosters impact on both individual and family satisfaction. For workers, negative impacts can be quite strong including loneliness and anti-social behaviour during down time.¹⁷ However, support structures by mining companies, government and independent organisations are all lending to support workers in managing FIFO impact. For example, FIFO employees at Paraburdoo are guaranteed every second weekend off to be with their families¹⁸ and organisations such as Mining Family Matters offer information and support to families with FIFO workers.¹⁹

Long distance commuting has been documented in the media and academic research as placing stress on families through regular parental absence, family disruption and social support issues (Watts, 2004). However, a preliminary report by Clifford (2009) on the effects of FIFO commute arrangements found that while FIFO and extended hours, including twelve hour shifts, had a negative impact on an employee's work satisfaction and lifestyle it did not necessarily lead to high stress levels or poor health.

There are, however, positive effects from FIFO working arrangements for both employees and their families. FIFO allows the family to continue to reside in regional or city centres that provide:

- stable education for the children
- access to sporting, social and other recreational activities
- employment opportunities for spouses

¹⁴ Kemp et al (2007); *Retention of Women in the Minerals Industry in Unearthing new Resources: Attracting and retaining women in the Australian minerals industry*, (pp 111-197), Centre for Social Responsibility in Mining, University of Queensland

¹⁵ Beach, R., Brereton, D., Cliff, D., (2003); *Workforce Turnover in FIFO Mining Operations in Australia: An Exploratory Study*, Centre for Social Responsibility in Mining, Sustainable Minerals Institute, University of Queensland

¹⁶ Clifford, S., (2009); *The Effects 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, School of Anatomy and Human Biology, University of Western Australia

¹⁷ Carrington, K., McIntosh, A., Scott, J., (2010); *Globalisation, Frontier Masculinities and Violence: Booze, Blokes and Brawls*, Queensland University of Technology

¹⁸ Trenwith, C., (2011); *Pregnant mother rules the roost at Pilbara mine site*, Business Day, 20 September 2011 <http://www.watoday.com.au/business/pregnant-mother-rules-the-roost-at-pilbara-mine-site-20110919-1khqj.html>

¹⁹ Mining Family Matters: <http://www.miningfm.com.au/>

- ability to maintain friendships, family and community networks at the place of residence.

The anecdotal evidence indicating the advantageous impact FIFO has on the 'home' towns for workers has led to further developments by both local and federal government. The Gold Coast is set to get a new FIFO terminal. The flow on effects of such a development includes allowing the worker's families to reside in a location of choice, to be "an integral part of the community with the children enrolled in local schools and through their investment in housing and lifestyle spending."²⁰

Training and development pathways

The Commonwealth Government, on 21 September 2011, announced the addition of four FIFO co-ordinators, following the establishment of a co-ordinator in Cairns, to facilitate training and employment pathways for skilled workers and unemployed job seekers.²¹

Charles Darwin University commented that training is an additional challenge in FIFO operations.²² FIFO employees may find it difficult to engage with training that requires physical or even online attendance for classes and workshops and FIFO workers are time poor except for on the job training. Onsite training is one solution (and one which is already exercised in many companies like Rio Tinto and Newcrest), but there remain limitations on the kind of training that is suitable for this approach, particularly for young apprentices who are away from home, experience long rosters and have difficulty being self sufficient.²³

To some extent, FIFO workers seem to be precluded from participating in formal training in ways that workers in other parts of the resources sector (and in other sectors) are not. In their submission to the NRSET 2010²⁴, EE-OZ recommends that training and learning be treated in the same as FIFO, i.e. developing a culture where technical trainers are regularly sent to worksites, trainees are sent to training hubs (training hubs are already utilised at locations like Perth by companies such as the Australian Centre for Energy & Process Training (ACEPT) and Sinclair, Knight, Mertz (SKM)).

The extent of fly-in, fly-out employment in the resources sector

It is difficult to establish the extent of FIFO in the resources sector because recent authoritative data is not available about the issue. The most recent sources of data are from Australian Bureau of Statistics (ABS) surveys and some private surveys commissioned by the Pilbara Industry's Community council (PICC), the Chamber of Minerals and Energy of Western Australia (CMEWA) and the Queensland Treasury. The most authoritative source of data is the ABS census of population and housing, however these data are dated (2006), and the extent of FIFO indicated by the more recent private surveys in industry growth and employment demands has increased since 2006 with rapid growth expected over the next five to ten years. The newer data validates the rise of FIFO employment when mines are busy, or new developments are being constructed.

Regional employment demands in fly-in, fly-out

Studies in FIFO and DIDO indicate that operational use of FIFO workers has been expanding since its first use in the 1950's²⁵. A study undertaken during 2000 by Hogan and Berry showed that of 156 publicly listed mining companies 47 per cent of mines in Western Australia, 43 per cent in Queensland and 38 per cent in the Northern Territory used long distance commuting.²⁶

²⁰ Douglas, S., (2011); *Coast view for fly in, fly out mine workers' terminal*, Friday 29 July 2011, Gold Coast City Council http://www.goldcoast.qld.gov.au/newsweb/t_news_item.aspx?pid=9647

²¹ Senator the Hon Christopher Evans (21 September 2011); *Address to the National Press Club: Connecting Skills to Jobs*

²² Charles Darwin University (2010); *Submission to NRSET on Resourcing the Future*

²³ Newcrest Mining (2010); *Submission to the NRSET on Resourcing the Future*

²⁴ EE-OZ (2010); *Submission to the NRSET on Resourcing the Future*

²⁵ The Chamber of Minerals and Energy Western Australia (2005); *Fly in Fly out: A sustainability Perspective*

²⁶ Hogan, L. & Berry, P. 2000, *Mining and Regional Australia: Some Implications of Long Distance Commuting*, Australian Commodities, Vol. 7, No. 4, pp. 648-659.

A Western Australian Chamber of Mines and Energy (CMEWA) (2005) survey of over 100 mining operations and over 18 000 mining industry personnel showed that:

- 76.5 per cent of all personnel were employed directly by mining companies;
- 23.5 per cent of all personnel were employed by contractors;
- 53 per cent of all mining employees (contractors and direct employees) were employed on a residential basis;
- 47 per cent of all mining employees were employed on a FIFO basis, including 4.7 per cent utilising DIDO arrangements;
- 62.5 per cent of directly employed personnel are residential and 37.5 per cent are FIFO; and
- 22.3 per cent of contractor personnel are residential and 77.7 per cent are FIFO.²⁷

The ABS uses several criteria to calculate likely FIFO and DIDO populations both regionally and nationally. The ABS (2008)²⁸ examined population trends in detail using 2006 census data in twelve urban centres where mining employment is concentrated. Due to unprecedented growth in resources sector projects, national data on FIFO as described by the ABS is an unusual circumstance. All relevant diagrams and tables for the ABS data are at Attachment A. The Census data included information on visitors, that is: persons usually resident somewhere else who were in a particular location on census night, residential data and usual residential location.

Eleven of the twelve urban areas were located either in the Pilbara, Western Australia or in the Bowen Basin, Queensland. The exception was Roxby Downs located in South Australia. Of the workers employed in these urban hubs, one in six worked directly in the mining industry. In general, all twelve areas experienced population growth of 2.2 per cent per year compared with a national average rate of 1.1 per cent over the same 5 year period.

Additionally, visitor numbers were disproportionately higher in these regions, in comparison with the national average increase of 6 per cent. Dampier, for example experienced a 37 per cent increase, Blackwater at 24 per cent and Tieri 26 per cent. In the Bowen Basin, the majority of visitors to this region came from other urban centres such as Mackay, Brisbane and Yeppoon or from farms and small communities. In 2006, Brisbane and Mackay each had more residents employed in the mining industry than any Bowen Basin town.

During 2006, Perth was the largest employment mining centre in Australia. Ten per cent of workers, though located in Perth, worked in the Pilbara, followed by South Eastern, 8 per cent and Central 6 per cent. Between 2001 and 2006, the census enumerated a near fourfold increase in Perth residents working in the mining industry in the Pilbara Statistical Division where the towns of Paraburdoo, Dampier, Newman and Karratha are situated.

Submissions to the NRSET indicate that many of the studies undertaken by government and industry on worker and FIFO demand has been arranged by resource intensive regions primarily the Pilbara, Western Australian and Bowen Basin, Queensland. While there is some anecdotal evidence indicating that FIFO workers do cross the country to work, generally speaking those located in WA and Queensland stay within these boundaries and it is those who are outside of WA and Queensland that establish long distance FIFO patterns.²⁹

²⁷ The Chamber of Minerals and Energy Western Australia (2005); *Fly in Fly out: A sustainability Perspective*

²⁸ Australian Bureau of Statistics, (2008), *4102.0 - Australian Social Trends, 2008, Towns of the mineral boom*, p. 1
<http://www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/4102.0Chapter3102008>

²⁹ Department of Education Employment and Workplace Relations, NRSET (2010) *Submissions to the National Resources Sector Employment Taskforce*

Regional employment in Western Australia

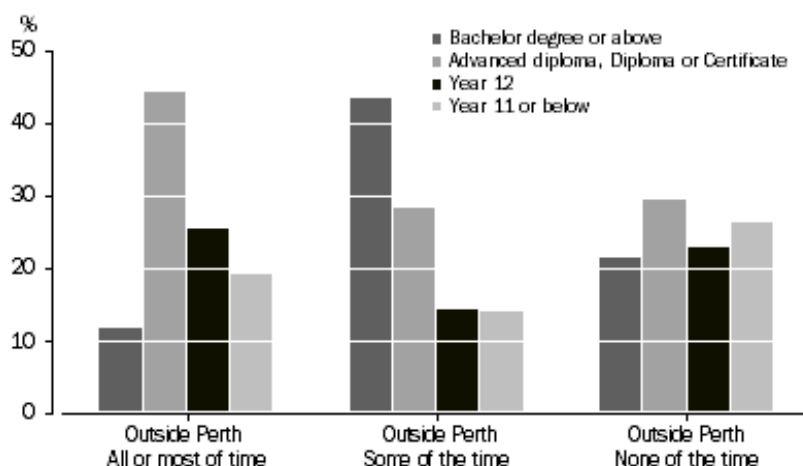
Work undertaken by the ABS suggests that Western Australia experienced rapid growth in FIFO prior to 2008.³⁰ These findings were based upon working arrangements by location against the proximity and location of their usual place of residence. Low unemployment and high job mobility were also indicators of growth for the region.

There were an estimated 876 000 employed persons in Western Australia of whom 4 per cent worked directly to the mines. Of this percentage, 21 per cent or 34 000 employed Perth residents spent some or all of their time working outside of the metro area.

This study indicates that the lower the level of qualification the higher the percentage of time spent working outside of the metropolitan area of Perth. For example of the residents who worked outside the Perth metropolitan area all or most of the time;

- 36 per cent were year 11/12 graduates
- 44 per cent held Advanced Diploma, Diploma and Certificate III qualifications
- 12 per cent held Bachelor or higher qualifications

Figure 1: Working time spent away from Perth, by level of qualification



Source: Australian Bureau of Statistics, (2009), 6209.5 - *Labour Mobility and Intentions, Western Australia*

The occupation of the individual also influences the amount of time they spend outside of the metropolitan region. Of the 4 per cent who worked directly in the mining industry, 72 per cent worked outside Perth most or all of the time. Those workers employed in occupations such as machinery operations and drivers, technicians and trades workers and professionals spent the most time outside of Perth. For example, 37 per cent of machinery operations and drivers, 21 per cent of technicians and trades workers, followed by 16 per cent of professionals.

See attachment A for a detailed summary of recent ABS FIFO data.

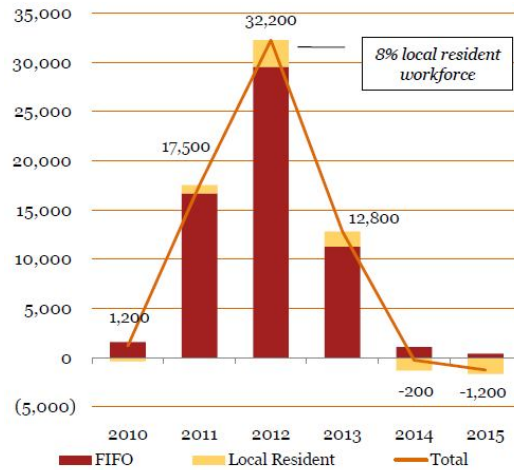
Looking ahead, the Chamber of Minerals and Energy, Western Australia (CMEWA) (2011) in their recent report noted that there will be continued strong growth in the resources sector and FIFO across Western Australia with bulk expansion in the Pilbara.³¹

In terms of FIFO workforce demands, CMEWA estimates that from 2010 to 2015 the majority of the incremental construction workforce is to be met through FIFO arrangements with 29 600 or 92 per cent of the total workforce being FIFO (see Figure 2). As expected, Figure 3 shows that operational FIFO workers gradually expand as construction ceases.

³⁰ Australian Bureau of Statistics, (2009), 6209.5 - *Labour Mobility and Intentions, Western Australia, Oct 2008, Summary of Findings*, p.1, <http://www.abs.gov.au/AUSSTATS/abs@.nsf/Latestproducts/6209.5Main+Features>

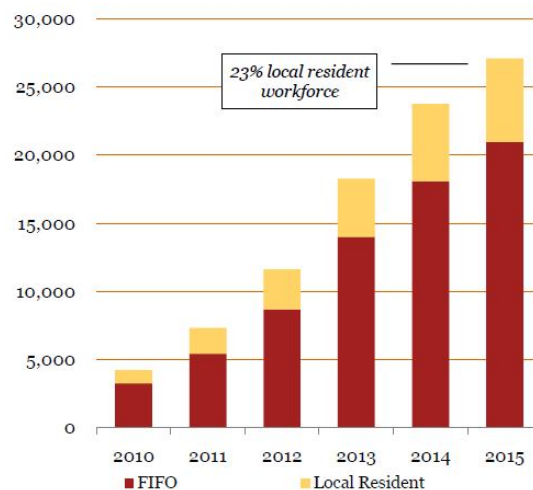
³¹ The Chamber of Minerals and Energy of Western Australia, *WA State Growth Outlook, April 2011*

Figure 2: Construction workforce breakdown – FIFO vs. local resident



Source: The Chamber of Minerals and Energy of Western Australia, *WA State Growth Outlook, April 2011*

Figure 3: Operations workforce – FIFO vs. local resident



Source: The Chamber of Minerals and Energy of Western Australia, *WA State Growth Outlook, April 2011*

Heuris Partners (2010) anticipate the greatest growth in the workforce will be for new and expanded projects in the Pilbara. The Pilbara is expected to grow more than three times that of the next region, Goldfields/ Esperance, peaking at approximately 68 000 workers during 2012.³²

The Pilbara

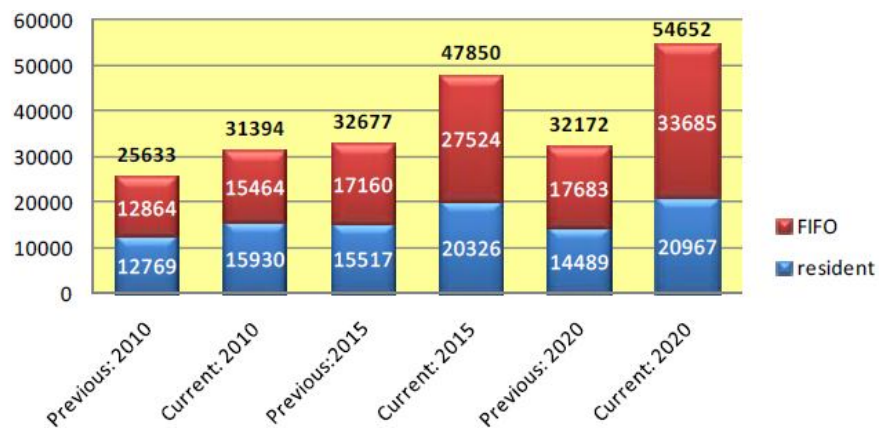
The Pilbara Industry's Community Council (PICC) report (2010) estimated that the highest and fastest growth in employment in the Pilbara to 2020 will be in FIFO workers.³³ Figure 4 shows that the current (2010) employment figures as FIFO are 15 464 with an estimated projection of 27 524 in 2015 and 33 685 workers in 2020. These projections are significantly higher than those previously predicted in PICC's 2008 report.³⁴

³² The Chamber of Minerals and Energy of Western Australia, *WA State Growth Outlook, April 2011*

³³ Heuris Partners (2010); *Planning for resources growth in the Pilbara: revised employment and populations projections to 2020*, Pilbara Industry's Community Council

³⁴ Heuris Partners (2008); *Planning for resources growth in the Pilbara: employment and population projections to 2020*, Pilbara Industry's Community Council

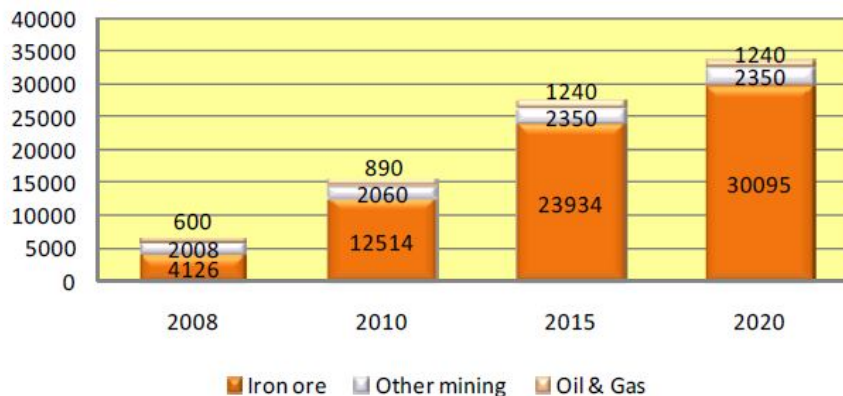
Figure 4: Pilbara resource related employment: July 2008 and April 2010 projections



Source: Heuris Partners (2010); *Planning for resources growth in the Pilbara: revised employment and populations projections to 2020*, Pilbara Industry's Community Council

Iron ore projects are shown as being the dominant driver of operational employment in the Pilbara. Oil and gas employ high numbers of construction workers and relatively few numbers of operating workers. By 2015, iron ore production is expected to comprise approximately 90 per cent of the FIFO positions in the Pilbara (see Figure 5).

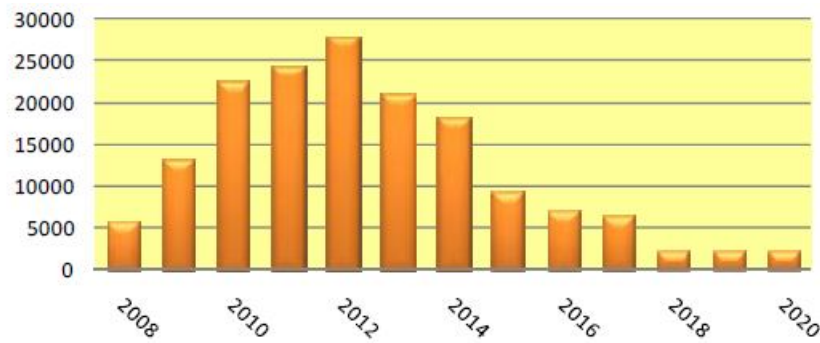
Figure 5: Pilbara FIFO employment projects (land based only)



Source: Heuris Partners (2010); *Planning for resources growth in the Pilbara: revised employment and populations projections to 2020*, Pilbara Industry's Community Council

Figure 6 shows that construction worker estimates peak at 28 000 in 2012, and nearly all are expected to be FIFO. However, these numbers are likely to be conservative as much of the data only includes expansion or new projects at an advanced planning or approval stage.

Figure 6: April 2010 construction employment projections, 2008-2020



Source: Heuris Partners (2010); *Planning for resources growth in the Pilbara: revised employment and populations projections to 2020*, Pilbara Industry's Community Council

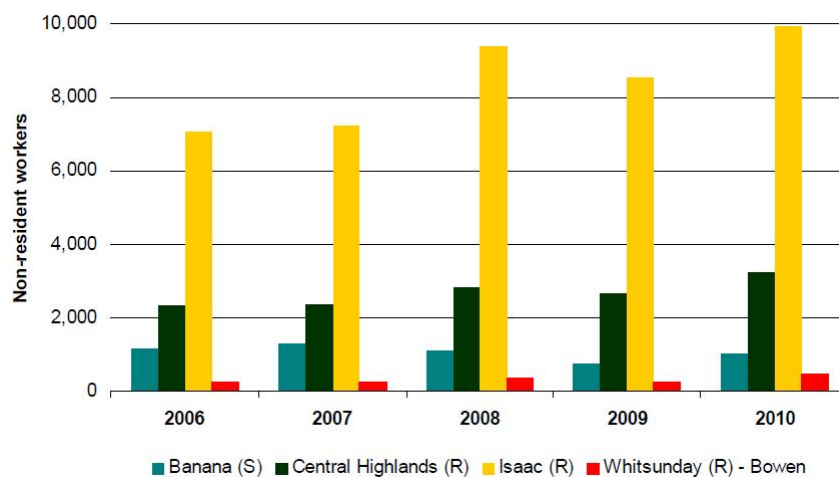
Regional employment in Queensland

Bowen Basin

The Queensland Treasury in its historical analysis on population changes (2006-2010) within the Bowen Basin found that non-resident worker numbers have grown at a faster rate than resident workers. Queensland Treasury extrapolated the information using a combination of visitor data against residential data and housing types which provides insight into the numbers of FIFO workers in a given region.

Across the four regions in the Bowen Basin, Isaac, Central Highlands, Banana and Whitsunday, the aggregate percentage of full time equivalent (FTE) non-resident workers was 15 per cent with the largest number of non-resident workers in Isaac (9 903) and the lowest number in Whitsunday (479)³⁵.

Figure 7: Non-resident workforces for Bowen Basin LGAs, 2006-2010

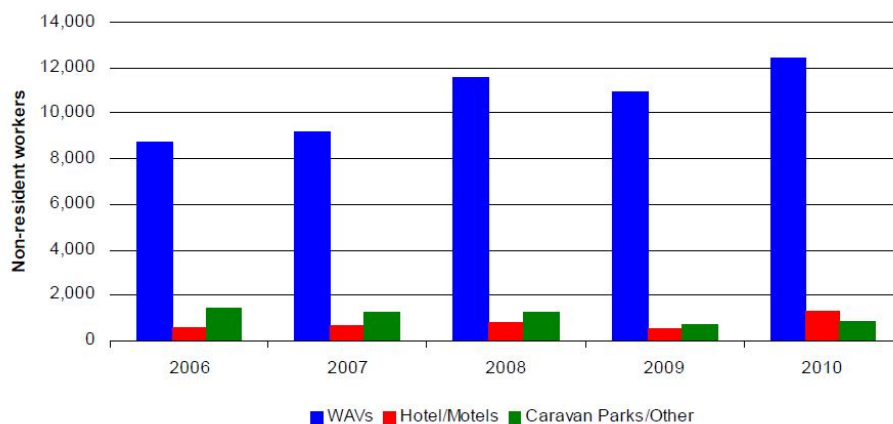


Source: Barker, R., (2011) *Resource Communities Research*, Office of Economic and Statistical Research, Queensland Treasury, July 2011

Figure 7, above, illustrates the proportion of non-resident, including full-time and part-time workforce numbers in each of the four local government areas (LGA) in the Bowen Basin between 2006 and 2010. The LGA of Isaac indicates the highest proportion and growth of non-resident workers reaching almost 10 000 during 2010. The least proportion and growth of non-resident workers was in Whitsunday.

³⁵ Barker, R., (2011) *Resource Communities Research*, Office of Economic and Statistical Research, Queensland Treasury, July 2011

Figure 8: Non-resident workers by accommodation type, Bowen Basin, 2006-2010



Source: Barker, R., (2011) *Resource Communities Research*, Office of Economic and Statistical Research, Queensland Treasury, July 2011

Queensland Treasury analysed the type of accommodation used by workers to show that non-resident workers primarily reside in worker accommodation villages (WAV) in the Bowen Basin indicating that the majority of the work force comprises of FIFO workers (see Figure 8).

The Queensland Treasury report concluded that in the Bowen Basin:

- the resident population has grown steadily since 2001 and is now the highest it has ever been;
- the number of resident population had grown by 5 620 since 2006, comprising 59 per cent of the FTE population growth between 2006-2010, and
- the number of non-resident workers increased by 3 850 in 2006-2010 representing 41 per cent of the FTE growth.

The key finding by Queensland Treasury of a 41 per cent growth in non-resident workers is illustrative of the FIFO worker activity in the Bowen Basin.

The Skills Australia 2011 Interim report on resources sector skill needs

The 2011 interim report, prepared by Skills Australia, updated the work undertaken by NRSET. The major findings of this report have strong implications for the FIFO work force. These findings include:

- The outlook is for even stronger growth in production and exports of resources commodities than estimated by NRSET, accompanied by greater expansion of productive capacity in the resources sector than anticipated by NRSET. Many major resource investment projects which were previously tentative have now been confirmed. Advanced major projects in April 2011 were valued at \$173.5 billion, compared to \$109.6 billion when NRSET reported in June 2010, representing an increase of \$64.4 billion.
- The Australian Bureau of Statistics (ABS) anticipates Mining capital expenditure will rise by 62.5 per cent to \$83.3 billion in 2011-12 when Mining investment is expected to rise to 59.7 per cent of total national capital investment..
- Based on the NRSET approach to modelling demand for skills in the resources sector, Skills Australia anticipates very strong growth in employment in the resources sector, including mining operations. Potential employment in gas operations has been underpinned by Final Investment Decisions (FIDs) for major gas projects in Queensland. Santos has estimated that 1 500 new jobs will be created from its project by June 2011 and BG Group's project will employ more than 3 000 people during construction.

- The supply of skills through training effort is increasing but the data highlight the need for further skills formation in the sector. The National Centre for Vocational Education Research (NCVER) Apprentice and Trainee Destinations data suggest that apprentices and trainees mostly remain with the employer with whom they undertake their apprenticeship or traineeship, which means investment by the sector in new apprenticeships could assist the longer term supply of skilled workers.
- At the time the *2011 Interim Report* was written the supply of skills through short term or long term migration appeared to be waning. However, primary grants for the temporary business visa (subclass 457 visa) have increased by 38.2 per cent from 34 790 in 2009-2010 to 48 080 during 2010-2011 and visa grants under the General Skilled Migration (GSM) program increased from 59 892 in 2009-10 to 61 459 in 2010-2011 (DIAC, 2011). The Australian Government 2011-12 Budget introduces Enterprise Migration Arrangements (EMAs) as recommended by NRSET to streamline arrangements for access to overseas workers, which will assist more flexible labour market responses through migration, as will the Critical Skills Investment Fund and the Cairns based FIFO Coordinator.

Given the strong outlook for the sector, it seems likely that the extent of FIFO and DIDO work will increase in the period ahead.

Skills Australia concluded that the data highlight the need for further policy responses if the resources sector's skill needs are to be met without adverse impacts on the rest of the economy, and suggested that the policy mix should include:

- Further consideration of measures to achieve sustained increases in labour force participation to better meet Australia's overall skill needs as well as the resource sector's skill needs;
- Options to facilitate greater increases in labour mobility, both by region and from declining to emerging industries;
- Possible measures to increase participation by Indigenous people so they can take advantage of entry level job opportunities in the resources sector; and
- A strong policy focus on means by which more women can also be encouraged to take advantage of entry level work opportunities which can be accessed relatively quickly through training provision in the resources sector, given that women continue to be significantly under-represented in this sector.

Skills Australia's 2011-12 work program on resources sector skill needs

Skills Australia notes that the 2011 Interim Report is the first of what will be an annual review of skills needs in the resources sector. The 2011 Interim report largely concentrated on analysis of what has changed in the 12 months since NRSET reported. Subsequent reports will involve more detailed analysis on a number of topics, including detailed analysis of the extent and impact of FIFO labour and the effect of the Cairns based FIFO coordinator on enhancing use of FIFO labour.

The full Skills Australia Interim Report is available at: www.skillsaustralia.gov.au, under publications.

Skills Australia also foreshadowed more detailed analysis of the broader community flow on effects of growth in the mining sector. In this context, Skills Australia plans to undertake further work in association with the Minerals Council of Australia (MCA) concerning FIFO with the initial aim of better quantifying the extent of FIFO in Australia both for the resources sector and in other industries, including for example in the health industry.

Skills Australia considers that its long association with the resources and construction peak bodies places it in a unique position to work with industry and develop policy to better understand and promote strategies for the effective utilisation of workforce in the different sectors and more importantly the resources sector. In addition,

Skills Australia will work with key stakeholders to formulate a holistic approach to FIFO and DIDO arrangements taking into account the individual, family, local community and the broader regional affects. With this in view, Skills Australia has embarked on the 2011-2012 work program to examine broader regional impacts as a result of the resources sector growth.

Conclusion

The call for an Inquiry into fly-in fly-out (FIFO) by the House of Representatives Standing Committee on Regional Australia is timely. While it is well known that FIFO is now a common form of work, the extent of FIFO has is not well documented.

The outlook is for even stronger growth in production and exports of resources commodities accompanied by greater expansion of productive capacity in the resources sector. Many major resource investment projects which were previously tentative have now been confirmed. Advanced major projects in April 2011 were valued at \$173.5 billion, compared to \$109.6 billion when NRSET reported in June 2010, representing an increase of \$63.9 billion. This will increase demand for skilled labour in mine construction and mine operations. FIFO will play a vital role in meeting these needs.

Skills Australia acknowledges that FIFO is an extremely complex issue and that there are mixed views about the social effects of FIFO, including its impact on families, individuals and industry. However, FIFO is a cost-effective way to address skills shortages and meet workforce needs, to increase efficiency, and to avoid some of the social problems that may arise from developing a 'mining town' or 'company town'. There is also the advantage of flow on effects to home communities; locating families with services and improving the local economy.

Skills Australia will continue to address FIFO with the aim of better meeting the resources sector's skill needs. In the first instance, Skills Australia will work with the Minerals Council of Australia to better quantify the extent of FIFO in Australia.

ABS data about FIFO/DIDO

ABS data suggests that there is considerable use of FIFO in the resources sector. The ABS notes that in the decade prior to 2008, the Western Australian economy experienced rapid growth fuelled by high commodities prices in the mining sector. It experienced sustained low levels of unemployment and a shortage of skilled workers. With rising job opportunities, there was a noticeable increase in employment mobility.

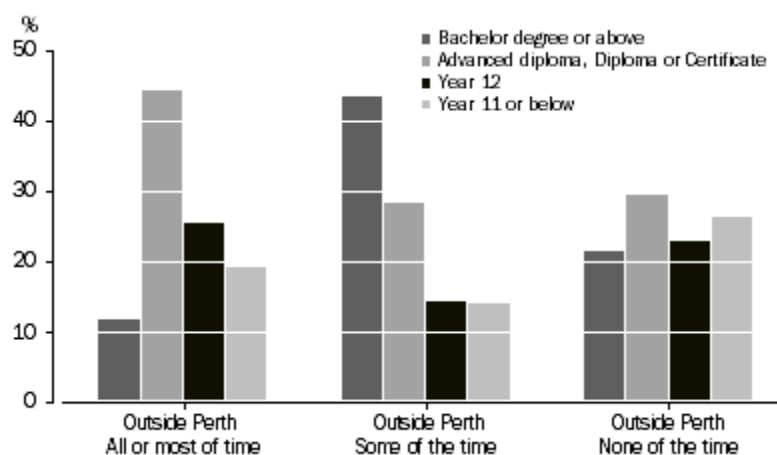
Reflecting this, in October 2008 the ABS estimated that 34 000 employed Perth residents worked outside the Perth metropolitan area all or most of the time. Over half (54 per cent) were employed in the mining industry. Furthermore, a number of other workers in other industries (e.g. Transport, postal and warehousing) also travelled outside the Perth metropolitan area for their work.

To establish the number of people affected by this working arrangement, respondents to this ABS survey who were usual residents of Perth were asked whether they worked outside the metropolitan area for 'all or most of the time', 'some of the time' or whether they worked exclusively in the Perth metropolitan area.

Of the estimated 876 000 employed persons in WA who were usual residents of Perth, 21 per cent spent some time working outside the metropolitan area (4 per cent outside Perth all or most of the time and 17 per cent some of the time). There was some variation in this pattern according to the metropolitan statistical region in which people lived. The South East Metropolitan Statistical Region had the lowest proportion of residents spending at least some time working outside the Perth metropolitan area (17 per cent) while the Central Metropolitan Statistical Region had the highest (27 per cent).

Among Perth residents who worked outside the Perth metropolitan area all or most of the time, 44 per cent (15 000) had an Advanced diploma, Diploma or Certificate as their highest level of education. A further 25 per cent had Year 12 and 19 per cent had Year 11 as their highest qualification. Only 12 per cent had a bachelor degree or higher.

Figure 1: Working time spent away from Perth, by level of qualification



Source: Australian Bureau of Statistics, (2009), 6209.5 - *Labour Mobility and Intentions, Western Australia, Oct 2008*

People working outside Perth all or most of the time were concentrated in particular occupations including Machinery operators and drivers (37 per cent), Technicians and trades workers (21 per cent) and Professionals (16 per cent).

Among people working outside Perth some of the time the most common occupations were Professionals (36 per cent), Managers (25 per cent) and Technicians and trades workers (13 per cent).

Of the 876 000 employed persons usually resident in Perth, only 4 per cent worked directly in the mining industry. However, of these people 72 per cent worked outside Perth all or most of the time. By comparison, while people in the Transport, postal and warehousing industry accounted for a similar proportion (5 per cent) of Perth's employed usual residents, only 24 per cent spent any time working outside the Perth metropolitan area.

FIFO in mining towns across Australia

The ABS also examined population trends in more detail using census data in urban centres where mining employment is concentrated. Census data includes information on visitors, that is persons usually resident somewhere else who were in a particular location on census night. It should be noted that as the census refers to a different reporting period to the labour mobility survey discussed above, estimates of the extent of FIFO vary between the two data sources.

Of all the urban centres in Australia in 2001, there were 12 that had average annual census-enumerated population growth of at least 2 per cent between 2001 and 2006, and at least one in six employed people working in the mining industry in their main job in 2006.

With the sole exception of South Australia's Roxby Downs (near a large copper, uranium, gold and silver ore body) all of these urban centres were located in either the Pilbara region in north-west Western Australia (mainly iron ore, oil and gas) or the Bowen Basin in central-eastern Queensland (mainly coal).

Some of these towns experience a reverse in the population decline they had experienced during preceding intercensal periods. For example, the number of people enumerated on census night in Moranbah (Queensland) fell from 6 883 in 1986 to 6 133 in 2001, before rebounding to 8 258 in 2006.

Almost 6 per cent more people were enumerated in Australia on census night 2006 than in 2001, representing an average annual rate of population increase of 1.1 per cent during the five year period. Compared with this national average, the census-enumerated populations of the 12 featured high-growth mining towns expanded by 2.2 per cent *per year* (Roxby Downs) and by 8.0 per cent *per year* (Dysart) between 2001 and 2006.

Table 1: Population growth in selected urban centres (a)

	Census-enumerated population			Census usual residence population			Estimated resident population(b)		
	7 August 2001	8 August 2006	Annual growth	7 August 2001	8 August 2006	Annual growth	30 June 2001	30 June 2006	Annual growth
	'000	'000	per cent	'000	'000	per cent	'000	'000	per cent
Dysart (Qld)	2.5	3.6	8.0	2.4	3.1	5.6	2.5	3.4	6.0
Paraburdoo (WA)	1.2	1.7	7.5	1.2	1.6	5.9	1.3	1.7	6.1
Dampier (WA)	1.5	2.0	6.2	1.3	1.4	1.2	1.4	1.5	1.6
Moranbah (Qld)	6.1	8.3	6.1	5.9	7.1	3.8	6.3	7.6	3.8
Newman (WA)	3.5	4.7	6.1	3.3	4.2	4.9	3.6	4.6	5.3
Blackwater (Qld)	4.9	6.2	4.5	4.5	5.0	2.1	4.8	5.4	2.4
Middlemount (Qld)	2.1	2.5	4.2	1.9	2.0	1.3	2.0	2.2	1.7
Karratha (WA)	10.8	13.3	4.2	9.9	11.7	3.5	10.5	12.6	3.8
Tieri (Qld)	1.6	1.9	3.1	1.5	1.7	1.7	1.6	1.8	2.2
Emerald (Qld)	10.1	11.5	2.6	9.3	11.0	3.5	9.9	11.8	3.5
Moura (Qld)	1.8	2.0	2.3	1.7	1.8	0.6	1.8	1.9	0.5
Roxby Downs (SA)	3.6	4.0	2.2	3.4	3.8	2.6	3.5	4.1	2.9
Australia	18 972	20 062	1.1	18 769	19 855	1.1	19 413	20 698	1.3

(a) All 2001 urban centres with average annual census-enumerated population growth of at least 2 per cent between 2001 and 2006 and at least one in six employed people working in the mining industry in their main job in 2006.

(b) Estimates for the urban centres at 30 June 2006 are preliminary rebased estimates and are based on the 2006 Census. Final rebased estimates will become available on 19 August 2008. For more information see the feature article in [Australian Demographic Statistics, December Quarter 2007](#) (cat. no. 3101.0).

Source: 2001 and 2006 ABS Censuses of Population and Housing; [Australian Demographic Statistics, December Quarter 2007](#) (cat. no. 3101.0).

Visitors

Of those enumerated in the selected 12 high-growth mining towns, the proportion spending census night away from home generally rose relatively sharply between 2001 and 2006. For example, compared with the marginal nationwide increase from 5 per cent to 6 per cent, Dampier's census night visitor population jumped from 17 per cent to 37 per cent, Blackwater's from 8 per cent to 24 per cent, and Tieri's from 10 per cent to 26 per cent. Visitor increases were less marked in Roxby Downs (7 per cent to 11 per cent) and Karratha (13 per cent to 17 per cent) while the most populous urban centre in Queensland's Bowen Basin (Emerald) actually had a slightly smaller proportion of visitors in 2006 (11 per cent) than in 2001 (12 per cent). *The generally increased visitor presence suggests that 'drive-in/drive-out' and 'fly-in/fly-out' arrangements have become an increasingly popular way of attracting workers to regional and remote mining towns.*

Usual residents

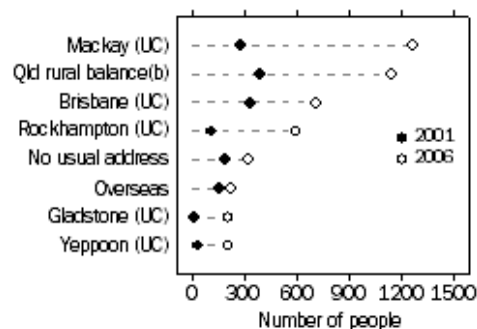
All of the featured mining towns increased their census usual resident populations between 2001 and 2006, and most of them gained residents much faster than the rest of the country. However, because of the generally increased visitor presence, only Emerald and Roxby Downs increased their census usual resident population more swiftly than their census-enumerated population.

In 2006, most of the towns had an estimated resident population smaller than their census-enumerated population, with the shortfall largest in Blackwater, Karratha, Moranbah and Dampier. Knowledge of this difference is useful to planning agencies and providers of goods, services and infrastructure such as accommodation, water and sewerage.

Where do the visitors usually live?

On census night in 2006, 49 560 people were enumerated in a Bowen Basin urban centre or locality. Of these people, 17 per cent (8,512) spent the night in a dwelling in which they did not usually live. Some (225) usually lived overseas, 320 did not have a usual address, 1 313 were from farms and small communities of less than 200 people throughout Australia (of whom 1 144 were Queenslanders) and the remaining 6 654 hailed from 386 Australian urban centres and localities. Topping the list was Mackay, home to 1 260 or 15 per cent of all census night visitors in Bowen Basin urban centres and localities in 2006. Next on the list was the state capital, Brisbane (713), followed by the nearby inland city of Rockhampton (595) and the central Queensland coastal centres of Gladstone (206) and Yeppoon (also 206). There were appreciably more census night visitors from Mackay, Brisbane, Rockhampton, Gladstone, Yeppoon and rural Queensland in Bowen Basin towns in 2006 than in 2001.

Figure 2: Usual residence of census night visitors in Bowen Basin towns (a)



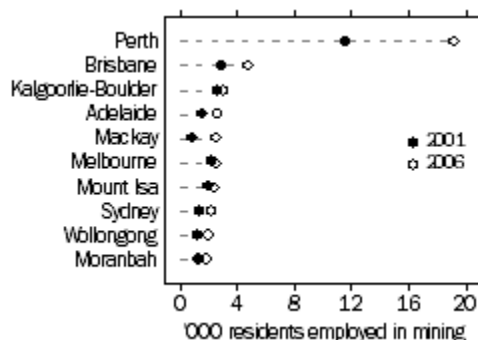
(a) Comprises the urban centres and localities of Biloela, Blackwater, Capella, Clermont, Collinsville, Dysart, Emerald, Glenden, Middlemount, Moranbah, Moura, Nebo, Springsure, Theodore and Tieri.

(b) Areas within Queensland populated by clusters of less than 200 people (e.g. farms and small communities).

Source: 2001 and 2006 ABS Censuses of Population and Housing.

The increase in the number of residents of Brisbane and Mackay enumerated through the census in Bowen Basin towns was accompanied by relatively large increases between 2001 and 2006 in the number of Brisbane and Mackay residents employed in the mining industry (up by 65 per cent and 202 per cent respectively). In 2006, Brisbane and Mackay each had more residents employed in the mining industry than did Mount Isa or any Bowen Basin town.

Figure 3: Urban centres with the most residents employed in the mining industry (a)



(a) In their main job held in the week prior to census night.

Source: 2001 and 2006 ABS Censuses of Population and Housing.

The ABS reports that as at 2006, by far the largest mining centre in Australia (in terms of mining industry employment) is Perth. This was even more apparent in 2006 than in 2001, due to a surge in the number of Perth urban centre residents who said they were employed in the mining industry in their main job (from 11 543 in 2001 to 19 160 in 2006). In 2006, most of them (11 255 or 59 per cent) reported the workplace address of that job to be in the Perth Statistical Division.

However, many resided in Perth and worked in the Pilbara (1 972 or 10 per cent), South Eastern (1 613 or 8 per cent) and Central (1 068 or 6 per cent) Statistical Divisions of Western Australia. Between 2001 and 2006, the census enumerated a near fourfold increase in Perth residents working in the mining industry in the Pilbara Statistical Division, where the towns of Paraburdoo, Dampier, Newman and Karratha are situated.

Table 2: Workplace of residents of the Perth urban centre employed in the mining industry (a)

	2001	2006
	no.	no.
Western Australia		
Perth (SD)	6 666	11 255
Pilbara (SD)	526	1 972
South Eastern (SD)	1 468	1 613
Central (SD)	840	1 068
Kimberley (SD)	289	308
Midlands (SD)	292	242
South West (SD)	144	87
Upper Great Southern (SD)	32	29
Lower Great Southern (SD)	69	8
Off-Shore Areas & Migratory	92	165
No fixed place of work	316	826
Undefined	221	428
Interstate	226	264
Not stated	362	895
Total	11 543	19 160

(a) In the main job held in the week prior to census night. Data quality affected by census underenumeration, and census form non-response and inadequate response.

* SD = Statistical Division

Source: 2001 and 2006 ABS Censuses of Population and Housing.

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