

# **WORKFORCE ANALYSIS OF THE BOWEN BASIN, 2010**

Produced by the Office of Economic and Statistical Research, Queensland Treasury for the Queensland Department of Employment, Economic Development and Innovation

December 2010

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## 1. SUMMARY

*Workforce analysis of the Bowen Basin, 2010* presents an analysis of selected characteristics of the workforce of the Bowen Basin based largely on the results of the 2006 Census of Population and Housing. The report contains statistical analysis of 2006 Census results, including place of work, place of usual residence, age structure of the labour force, and occupation and industry of the employed population. The report also contains detailed analysis of census results for the mining industry workforce in the region. The companion report, *Demographic Analysis of the Bowen Basin, 2010* presents an analysis of the demographic characteristics of the region also based on the 2006 Census.

The report shows that most of the employed usual residents of the Bowen Basin in 2006 also worked in the region. Of the 37,211 employed usual residents, 32,105, or almost nine in ten, also worked within the region. Other employed residents worked in other parts of Queensland or elsewhere in Australia. Central Highlands (R) has the largest population of all four local government areas (LGAs) in the region—Banana (S), Central Highlands (R), Isaac (R) and part of Whitsunday (R)—and also the largest employed workforce (14,101 people).

Mining and agriculture, forestry and fishing industries were the largest employers in the region. In 2006, the mining industry accounted for 8,585 people or 23 per cent of the employed resident population. A total of 5,284 people or 14 per cent of the employed labour force worked in the agriculture, forestry and fishing industry. Wholesale and retail trade industries employed a further 4,086 people or 11 per cent of the labour force.

The dominance of the mining industry in the region is reflected in the distribution of occupations of the resident labour force. At the 2006 Census, almost one in five workers (19 per cent) were machinery operators and drivers. By contrast, only 7 per cent of the Queensland labour force were employed in this occupation group.

Use of non-resident workers is a common practice in the mining industry in the Bowen Basin and in remote regions of Australia. Many workers who live elsewhere in Australia fly in or drive in to the Bowen Basin for the duration of their extended rosters, and then fly out or drive out to their usual place of residence. In 2006, the number of people (32,105) who lived and worked in the Bowen Basin was supplemented by an additional 10,283 workers who lived elsewhere in places such as Mackay (R), Rockhampton (R) and South East Queensland. Conversely, some 4,731 employed people who were usual residents of the Bowen Basin worked elsewhere or did not state their place of work. Mackay (R) was the destination of the largest number (271 people) who reported a geographical workplace outside the Bowen Basin. Many of the remainder did not state their place of work or had no fixed place of work.

Labour force containment rates measure the proportion of the employed labour force of an area that lives and works in the same area. Based on unpublished ABS statistics, the labour force containment rate for the Bowen Basin was 87 per cent, since 32,105 of the 36,836 employed people who lived in the region also worked there.

Job containment rates indicate the proportion of jobs in an area that are filled by the usual residents of that area. The job containment rate for the region was relatively low (76 per cent). This indicates that the available labour supply in the region was too small to meet demand. This demand was met largely by non-resident workers who travelled from elsewhere in Australia to work in the region. These workers, many of whom travelled from the nearby centres of Mackay (R) and Rockhampton (R), made up almost one quarter (24 per cent) of the regional labour force of 42,388 people.

## 2. KEY FINDINGS

### **Employed labour force in the Bowen Basin was more than 38,000 people in 2006**

The employed usual resident population of the Bowen Basin was 38,203 people at 30 June 2006, and almost 90 per cent worked in the region.

### **Most employed residents lived and worked in the LGAs of Central Highlands (R) and Isaac (R)**

At the 2006 Census, usual residents of Central Highlands (R) accounted for 12,249 or 29 per cent of the working population of the region. An additional 8,713 workers or 21 per cent of the total lived in Isaac (R).

### **Non-resident workers represented almost one quarter of the region's workforce**

A total of 10,283 workers who held jobs in the Bowen Basin lived elsewhere. This represented 24 per cent or almost one quarter of the regional workforce. Over 3,000 of these workers travelled to work from the nearby LGA of Mackay (R) and a further 1,552 came from Rockhampton (R). Almost 1,200 workers in the region lived in South East Queensland.

### **In 2006, the mining and agricultural industries were the largest employers in the region**

The mining industry was the largest employer in the region. In 2006, the mining industry accounted for 8,585 people or 23 per cent of the employed resident population. A total of 5,284 people or 14 per cent of the employed labour force worked in the agriculture, forestry and fishing industry. Wholesale and retail trade industries employed a further 4,086 people or 11 per cent of the labour force.

### **The Bowen Basin was the workplace of more than 42,000 people in 2006**

In 2006, a total of 42,388 people worked in the Bowen Basin. The mining industry accounted for 12,336 of them or 29 per cent of the total. Less than half this number (6,049 people) were employed in agriculture, forestry and fishing, which was the second largest industry. Wholesale and retail trade employed an additional 4,127 people.

### **The labour force containment rate for the region was 87 per cent in 2006**

The labour force containment rate for the region was 87 per cent, since 32,105 of the 36,836 employed people who lived in the Bowen Basin also worked there.

### **The job containment rate for the region was 76 per cent in 2006**

The job containment rate for the region was 76 per cent, since 32,105 of the 42,388 employed people who worked in the Bowen Basin also lived there. The lowest job containment rate (65 per cent) in the region was in Isaac (R), which is equivalent to two local usual residents to one non-resident who works there. Almost 2,700 non-resident workers in Isaac (R) travelled to work from the adjoining LGA of Mackay (R).

## 3. INTRODUCTION

### 3.1 About this report

This is the second report of the Population study for Bowen Basin, 2010 project. The first report contains an analysis of the demographic characteristics of the region at the 2006 Census, including population growth and projections, household composition, household and dwelling projections, income, qualifications and dwelling tenure. This second report presents workforce characteristics, including occupation and industry of the employed population at the 2006 Census, and also an analysis of place of work by place of usual residence. The *Bowen Basin population report, 2009* was the key deliverable of stage one of the project.

### 3.2 Description of the project

The project was divided into three stages, with the following outputs:

- **Stage one:** Full-time equivalent population and non-resident population estimates for Bowen Basin LGAs from 2006 to 2009 (*Bowen Basin population report, 2009*).
- **Stage two:** Scoping study for stage three—consultations with stakeholders to identify variables and issues to be analysed at local government area and locality level.
- **Stage three:** A detailed demographic, employment and housing analysis of the Bowen Basin in two reports.

### 3.3 Project clients

The primary client for the project is the Department of Employment, Economic Development and Innovation (DEEDI). The secondary client for the project is the Coal Infrastructure Task Force of the Department of Infrastructure and Planning (DIP).

### 3.4 Rationale for the project

The project will:

- provide baseline information for regional planning studies of Central Queensland;
- provide time series information on non-resident workers and estimates of the full-time equivalent population of the Bowen Basin;
- inform local government planning schemes; and
- inform the implementation of the Sustainable Resources Community Policy.

### 3.5 Geographical coverage

The Bowen Basin covers the LGAs of Banana Shire, Central Highlands Regional Council, Isaac Regional Council and Whitsunday Regional Council. These areas were formed in 2008 following local government amalgamations in Queensland. Of the two pre-amalgamated LGAs in Whitsunday Regional Council area, only the statistical local area (SLA) of Whitsunday (R) - Bowen is included in the Bowen Basin. The SLA of Whitsunday (R) - Whitsunday is excluded.

In this report, statistical tables are presented for existing LGAs and also pre-amalgamated LGAs. Boundaries of pre-amalgamated LGAs correspond with those in existence at the 2006 Census. Current SLA boundaries in the Bowen Basin differ from those defined at the 2006 Census only in the case of Banana Shire, which now incorporates part of the former LGA of Taroom.

Table 1 shows the concordance between the new LGAs and the pre-amalgamated LGAs and also statistical local areas (SLAs) introduced in 2008 following the local government reforms.

**Table 1. LGAs and SLAs making up Bowen Basin**

Local government area	Pre-amalgamated LGAs included in current LGA	2008 ASGC SLA name
Banana (S)	Banana (S) Taroom (S) - part	Banana (S)
Central Highlands (R)	Bauhinia (S) Duarina (S) Emerald (S) Peak Downs (S)	Central Highlands (R) - Bauhinia Central Highlands (R) - Duaringa Central Highlands (R) - Emerald Central Highlands (R) - Peak Downs
Isaac (R)	Belyando (S) Broadsound (S) Nebo (S)	Isaac (R) - Belyando Isaac (R) - Broadsound Isaac (R) - Nebo
Whitsunday (R)*	Bowen (S) Whitsunday (S)	Whitsunday (R) - Bowen

(R) Regional Council, (S) Shire

\* Note: This report only includes the former Bowen (S) and does not include the former Whitsunday(S).

Source: Source: ABS, *Australian Standard Geographical Classification (ASGC)*, 2009 online

Figure 1 on the next page shows the geographical coverage of the Bowen Basin and 2008 statistical boundaries in the region.



## 4. BACKGROUND

### 4.1 Economic and social impacts of Bowen Basin mining

The Bowen Basin contains world-class mining resources. It produces most of Queensland's high-grade coking coal, and much of the export-traded thermal coal. In 2008–09, Queensland exported approximately 152 million tonnes of coal, with a gross sales value of about \$A16.4 billion. Most of this coal was exported from collieries in the Bowen Basin through the Central Queensland ports of Abbot Point, Dalrymple Bay, Hay Point and Gladstone. Consequently, mining and mineral processing industries make a vital contribution to Central Queensland's economic performance. OESR's estimates of gross regional product indicate that the value of output from the Bowen Basin area (Fitzroy and Mackay statistical divisions) in 2005–06 was almost \$28 billion or 15 per cent of gross state product.

Coal mining has generated considerable employment in the region and will continue to do so as world demand for Queensland coal continues to increase. In conjunction with the increase in employment, there has been a measurable increase in the population due to construction and operational workforces in coal mining and related industries. Monitoring and planning for social impacts arising from this growth is complicated by the increasing use of fly-in/fly-out and drive-in/drive-out (FIFO/DIDO) workers to meet the employment needs of resource communities. These non-resident workers are not included in official population estimates prepared by the Australian Bureau of Statistics (ABS).

In order to derive estimates of non-resident worker populations in resource areas, the former Planning Information and Forecasting Unit (PIFU) has conducted annual surveys of accommodation providers from 2006 and 2009. Results of these surveys inform estimates of the region's total population, including non-resident workers engaged in construction and mining activity. The participation of non-resident workers in Queensland's coal mining industry is slowly increasing, with these workers making up 13 per cent of Bowen Basin's full-time equivalent population in 2009 compared with 12 per cent in 2006.

Results from PIFU's annual surveys of accommodation providers in the Bowen Basin indicate how the region could develop if further expansion occurs in mining operations. For example, the combination of FIFO/DIDO workforces and non-private accommodation is now well established, and provides a flexible solution to meeting rapid workforce expansion. Even with the sudden increase in demand experienced in 2007–08, single persons quarters (SPQs) continued to house an increasing proportion of non-resident workers, due to expanding capacity and improvements in amenity. In July 2009, SPQs accounted for 90 per cent of all non-resident workers in the Bowen Basin, compared with 81 per cent in 2006.

Assessment of social impacts associated with growth in the mining industry has gained further prominence following Cabinet's endorsement of the Sustainable Resources Communities Policy on 7 July 2008. This policy will require assessment of cumulative population thresholds through a Social Impact Plan as a condition of granting tenure to all new mining projects. Effective implementation of the policy will require accurate, up-to-date monitoring of population growth, including the non-resident worker populations of current and future mining projects. Major growth arising from other sources, such as construction of major infrastructure and other projects, will also need to be considered.

## 5. LABOUR FORCE CONCEPTS

The following terminology and interpretations relate to concepts used in the context of this report (refer also to the Glossary).

**Labour force:** This term usually refers to the total number of persons who are aged 15 years or over and who are employed either full-time or part-time, or who are unemployed and actively seeking work. Note that the labour force statistics of industry and occupation cited in this report relate only to people who are actually *employed* on the day of the census collection—in other words, they do not include the number of people who usually work in that industry but who are *unemployed* at that time. The term ‘workforce’ is also used interchangeably with ‘labour force’.

**Labour force status:** Labour force status indicates whether a person was employed, unemployed or not in the labour force in the week prior to census night. It applies only to persons aged 15 years and over.

**Industry and occupation of employment:** Census labour force data can be derived for small areas according to industry and occupation groupings. Labour force information relates to the employment characteristics of an area’s population, and is available in two different forms—*Labour force by place of usual residence* and *Labour force by place of work*. Both forms of data are used in this report.

**Labour force by place of usual residence:** The number of labour force participants who *usually reside* in a particular area, irrespective of whether they work in that area or elsewhere. According to the definition used by ABS, a person who has lived or intends to live in an area for six months or more of the census year is regarded as a *usual resident* of that area (this excludes overseas visitors). However, not all people who are usual residents of an area work locally. Some commute to a place of work in a neighbouring area, whereas others may travel longer distances on a FIFO/DIDO basis.

**Labour force by place of work:** The number of labour force participants who *work* in a particular area, irrespective of the area in which they usually reside.

**Labour force containment:** Labour force containment represents the proportion of an area’s resident labour force that works within that area. A high labour force containment rate is interpreted as a measure of self-sufficiency in relation to local employment. A low labour force containment rate may indicate a poor match between local job opportunities and the skills of residents, in that many workers need to travel outside of the local area to seek appropriate employment.

**Job containment:** Job containment is the proportion of an area’s labour force that is resident within that area—or in other words, the proportion of local jobs performed by resident labour. The job containment measure may be used as an economic indicator, reflecting the extent to which the benefits of jobs located in the area are distributed back into the local population. An extreme example of an area with a low job containment rate would be a mining community with large numbers of FIFO/DIDO workers relative to local residents.

## 6. DATA SOURCES

This report draws largely upon data collected from the 2006 Census of Population and Housing conducted by the ABS. Tables in this report are summarised from unpublished data obtained from the ABS regarding employment, age, industry and occupation by local government area for place of work and place of usual residence. In order to minimise the size of the datasets required for this analysis and to simplify presentation, it was necessary to re-group the ANZSIC06<sup>1</sup> industry classifications used in the Census. The re-grouped industry classification is as follows:

- Agriculture, forestry and fishing
- Mining
- Manufacturing
- Construction
- Electricity, gas, water and waste services
- Administrative and support services
- Wholesale and retail trade
- Accommodation and food services
- Transport and storage
- IT, professional and financial services
- Public administration and safety
- Education and training
- Health care and other services
- Inadequately described /not stated.

The occupation categories shown in this report are the major groups used in published ABS tables, namely:

- Managers
- Professionals
- Technicians and trades workers
- Community and personal service workers
- Clerical and administrative workers
- Sales workers
- Machinery operators and drivers
- Labourers
- Inadequately described / not stated.

Standard ABS census output is reported on a 'place of usual residence' basis. For example, tables of persons in the labour force of an area include persons who were usual residents of the area at the time of the Census. Persons who travel to work in the area from their usual place of residence are excluded from the labour force estimate of the area in which they work. For this report, customised tables were ordered from the ABS on place of usual residence and place of work classified by age of the labour force, industry and occupation for selected geographical areas.

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<sup>1</sup> ABS, Australian and New Zealand Standard Industrial Classification (ANZSIC), 2006

## 7. LABOUR FORCE CHARACTERISTICS

### 7.1 Labour force status and participation

At the 2006 Census, some 38,200 people aged 15 years and over who were usual residents of the Bowen Basin were included in the regional labour force (Table 2). Almost 1,000 of these were unemployed, representing 3 per cent of the total. Almost two thirds (65 per cent) of the labour force lived in the LGAs of Central Highlands (R) and Isaac (R), where mining is the main industry. Labour force participation rates, which measure the proportion of the population aged 15 years and over engaged in the labour force, were also highest in these two LGAs. Unemployment in most areas of the Bowen Basin was lower than for Queensland. However, unemployment in the SLA of Bowen stood at 5 per cent in 2006 (Table 3). The largest industry in Bowen was agriculture, which is more affected by seasonal employment conditions than is the mining industry.

**Table 2. Labour force status, Bowen Basin LGAs and Queensland, 2006**

Local government area	Labour force			Unemployment rate	Not in the labour force	Not stated	Population 15yrs and over	Labour force participation rate
	Employed	Un-employed	Total					
	no.	no.	no.					
Banana (S)	7,560	177	7,737	2%	2,685	652	11,074	70%
Central Highlands (R)	14,101	335	14,436	2%	3,869	1,482	19,787	73%
Isaac (R)	10,186	219	10,405	2%	2,598	1,707	14,710	71%
Whitsunday (R) (a)	5,364	261	5,625	5%	3,125	1,218	9,968	56%
<b>Bowen Basin</b>	<b>37,211</b>	<b>992</b>	<b>38,203</b>	<b>3%</b>	<b>12,277</b>	<b>5,059</b>	<b>55,539</b>	<b>69%</b>
<b>Queensland</b>	<b>1,824,997</b>	<b>90,950</b>	<b>1,915,947</b>	<b>5%</b>	<b>971,828</b>	<b>210,220</b>	<b>3,097,995</b>	<b>62%</b>

(R) - Regional Council, (S) - Shire

(a) Only the SLA of Bowen is included. Whitsunday SLA is not in the Bowen Basin.

Source: ABS, 2006 Census, Table B41

With the exception of the SLA of Bowen, labour force participation rates in the Bowen Basin exceeded the figure for Queensland (62 per cent) (Table 3). In Bowen, 15 per cent of the population was aged 65 years and over and likely to be retired. Consequently, its participation rate was only 56 per cent.

**Table 3. Labour force status, Bowen Basin SLAs and Queensland, 2006**

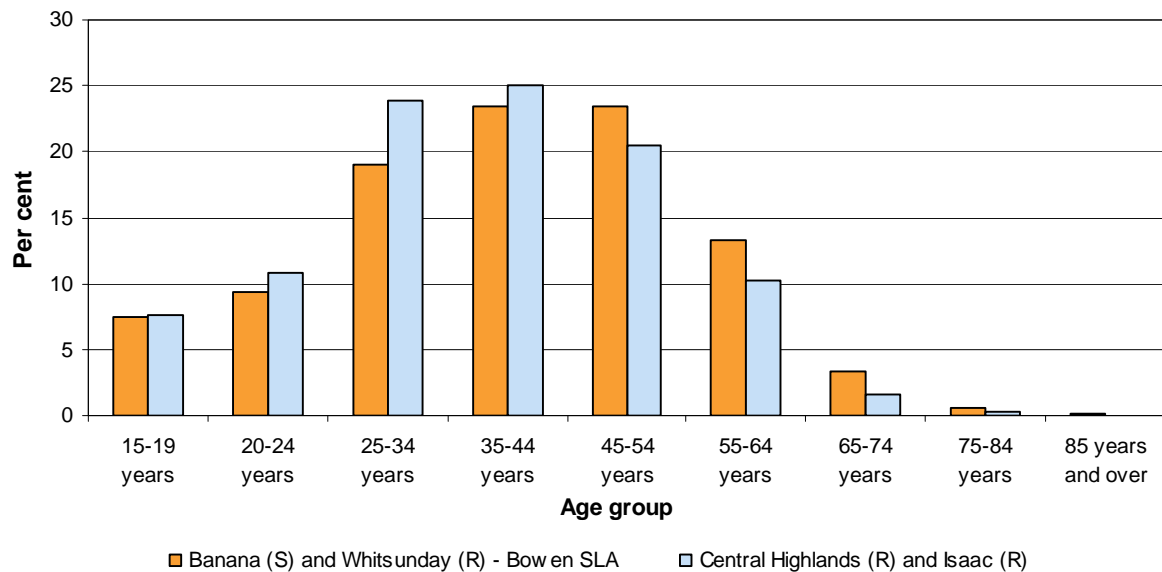
Statistical local area	Labour force			Unemployment rate	Not in the labour force	Not stated	Population 15 yrs and over	Labour force participation rate
	Employed	Un-employed	Total					
	no.	no.	no.					
Banana	6,889	168	7,057	2%	2,455	618	10,130	70%
Bauhinia	1,266	22	1,288	2%	335	65	1,688	76%
Belyando	5,626	112	5,738	2%	1,380	583	7,701	75%
Bowen	5,364	261	5,625	5%	3,125	1,218	9,968	56%
Broadsound	3,307	76	3,383	2%	975	694	5,052	67%
Duaringa	3,593	78	3,671	2%	858	495	5,024	73%
Emerald	7,607	206	7,813	3%	2,236	710	10,759	73%
Nebo	1,253	31	1,284	2%	243	430	1,957	66%
Peak Downs	1,635	29	1,664	2%	440	212	2,316	72%
Taroom	1,336	21	1,357	2%	431	79	1,867	73%
<b>Queensland</b>	<b>1,824,997</b>	<b>90,950</b>	<b>1,915,947</b>	<b>5%</b>	<b>971,828</b>	<b>210,220</b>	<b>3,097,995</b>	<b>62%</b>

Source: ABS, 2006 Census, Table B41

## 7.2 Age of the labour force

At the 2006 Census, Banana Shire and Whitsunday (R) - Bowen SLA, which have significant agricultural and tourism industries, had a slightly older labour force than Central Highlands (R) and Isaac (R) LGAs, where employment is based on coal-mining activity (Figure 2). The age groups from 20 to 34 years accounted for 28 per cent of the labour force in Banana (S) and Whitsunday (R) - Bowen SLA compared with 35 per cent of the labour force in Central Highlands (R) and Isaac (R). By contrast, mature workers in the 45 to 64 years age group accounted for 37 per cent of all workers in Banana (S) and Whitsunday (R) - Bowen SLA, whereas the proportion in the other two LGAs was lower at 31 per cent.

**Figure 2: Age distribution of the labour force, employed persons, Bowen Basin LGAs, 2006**



(R) - Regional Council, (S) - Shire, SLA - Statistical local area

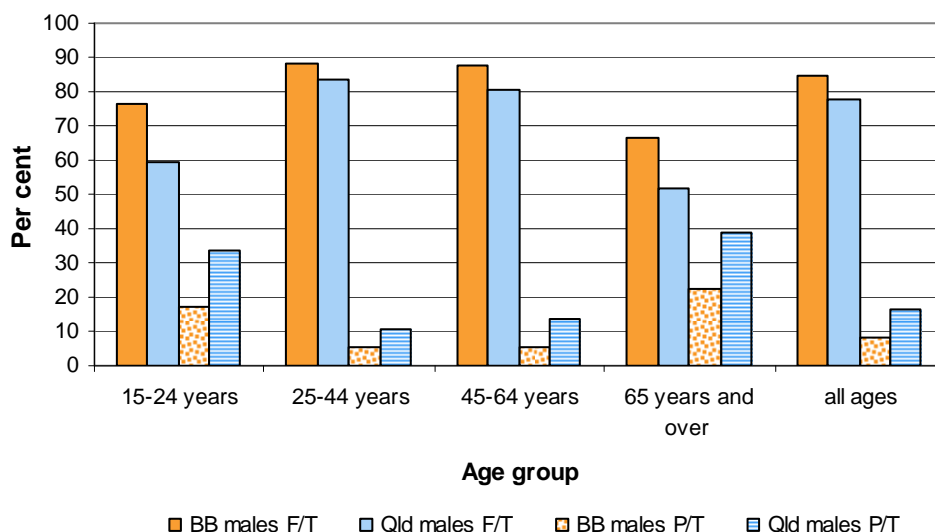
Source: ABS, 2006 Census, Table B41

## 7.3 Employment patterns

There were 22,800 males and 15,400 females in the Bowen Basin's resident labour force in 2006. This imbalance is explained by the much higher representation of males than females in the region's mining industry. Of the 8,582 employed people in mining, 7,633 were males and only 949 were females. Overall, the male to female sex ratio (60:40) of the resident labour force in the region was much higher than the equivalent ratio for Queensland (54:46).

Patterns of full-time and part-time employment at the 2006 Census showed distinct differences between the labour force of the Bowen Basin and that of Queensland as a whole. A higher proportion of employed males in the region worked full-time than employed males on average, for all age groups (Figure 3). In 2006, there were 20,800 employed males in the region who stated that they worked full-time or part-time, and an additional 1,600 males who were away from work or did not state their hours of work. Of all employed males in the Bowen Basin, 85 per cent worked full-time and 8 per cent worked part-time. By contrast, 77 per cent of employed males in Queensland worked full-time and 16 per cent worked part-time. These differences reflect the working patterns of industries in the Bowen Basin, where agricultural and mining industries predominate. In these industries, full-time work is the preferred mode of employment. Age group differences were most marked in the 15 to 24 years age group for males. In the Bowen Basin, only 17 per cent of males in this age group worked part-time, compared with 33 per cent of males across Queensland. Males and females in this age group who live in metropolitan areas are more likely to combine part-time work with tertiary studies.

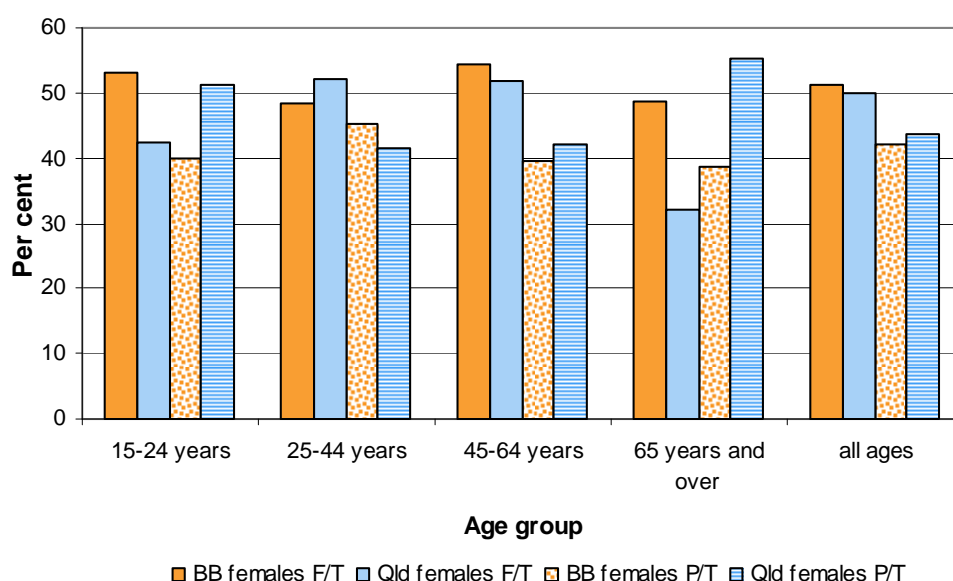
**Figure 3: Proportion of full-time and part-time employment by age group, employed males, Bowen Basin, 2006**



Source: ABS, 2006 Census, Table B41

Figure 4 shows that differences between female employment patterns in the Bowen Basin and those elsewhere were less marked than those for males. In 2006, there were 13,800 employed females in the region who stated that they worked full-time or part-time, and an additional 1,000 females who were away from work or did not state their hours of work. Of all employed females in the Bowen Basin, 51 per cent worked full-time and 42 per cent worked part-time. Similar percentages of women in Queensland worked full-time (50 per cent) and part-time (44 per cent). Full-time employment rates for females are usually lower than those for males on average because of the need to balance work with family commitments and also female employment is concentrated in industries where part-time employment is more common, namely retail trade and accommodation and food services.

**Figure 4: Proportion of full-time and part-time employment by age group, employed females, Bowen Basin, 2006**



Source: ABS, 2006 Census, Table B41

## 8. INDUSTRY

### 8.1 Employment by industry

At the 2006 Census, the mining industry accounted for almost one quarter (23 per cent) of employed workers who lived in the Bowen Basin (Table 4). An even higher proportion (39 per cent) was recorded in Isaac (R) where some of the largest coal mines are found. These include Goonyella Riverside, North Goonyella, Saraji and Peak Downs mines, with each one employing at least 500 workers in 2009<sup>2</sup>. In total, almost 8,600 people who lived and worked in the region were engaged in the mining industry.

The other large industry group of employment was agriculture, forestry and fishing, particularly in Whitsunday (R) - Bowen SLA and Banana (S) LGAs. In Whitsunday (R) - Bowen SLA, 1,134 people or 21 per cent of the labour force worked in agricultural industries such as horticulture, fruit growing and vegetable growing. In Banana Shire, beef cattle grazing is a valuable agricultural industry. Almost 1,500 people or 20 per cent of the total resident labour force was employed in agriculture in Banana (S) in 2006. In 2005–06, the value of livestock slaughterings in this LGA represented 5.4 per cent of the total value of Queensland livestock slaughterings<sup>3</sup>. A total of 5,284 people were employed in agricultural industries in the Bowen Basin, representing 14 per cent of the labour force.

Employment in agriculture, forestry and fishing, and mining industries in the Bowen Basin was much higher than in Queensland as a whole, where the corresponding proportions were 3 and 2 per cent respectively. By contrast, wholesale and retail trade employed 16 per cent of the Queensland labour force, a larger proportion than the figure (11 per cent) for the Bowen Basin. Nevertheless, this industry was the third largest employer in the region with more than 4,000 people involved at the 2006 Census.

Other industries which were under-represented in the Bowen Basin, in comparison with employment in Queensland as a whole, included public administration and safety, education and training, and health care and other services. For example, only 9 per cent of the Bowen Basin labour force was engaged in the health care and other services industry compared with 15 per cent of the state labour force. This difference is explained by the relatively low numbers of health care workers in the region and also by lower numbers of managerial and administrative staff than in regional and metropolitan cities where there are large hospitals and other health care establishments.

Only 17 per cent of the Bowen Basin labour force was engaged in other industries, compared with 31 per cent in Queensland. Other industries include manufacturing, administrative and support services, information media and telecommunications, and financial and professional services. The number of workers in other industries is greatest in major cities where the population is large enough to require the products and services these industries provide.

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<sup>2</sup> Department of Employment, Economic Development and Innovation, *Mines and Quarries Safety Statistics*, online

<sup>3</sup> OESR, *Queensland Regional Profiles*, online

**Table 4. Industry of the resident labour force, employed persons, Bowen Basin LGAs and Queensland, 2006**

Industry	No. and per cent	Whitsunday (R) - Bowen SLA	Central Highlands (R)	Isaac (R)	Banana (S)	Bowen Basin	Queensland
Agriculture, forestry and fishing	no.	1,134	1,646	1,016	1,488	5,284	61,810
	%	21	12	10	20	14	3
Mining	no.	367	3,144	3,960	1,114	8,585	30,728
	%	7	23	39	15	23	2
Construction	no.	397	1,223	649	455	2,724	164,941
	%	7	9	6	6	7	9
Wholesale and retail trade	no.	760	1,594	915	817	4,086	284,504
	%	14	11	9	11	11	16
Accommodation and food services	no.	372	867	623	377	2,239	127,636
	%	7	6	6	5	6	7
Public administration and safety	no.	195	675	280	310	1,460	122,424
	%	4	5	3	4	4	7
Education and training	no.	315	897	566	432	2,210	139,096
	%	6	6	6	6	6	8
Health care and other services	no.	593	1,226	667	694	3,180	279,331
	%	11	9	7	9	9	15
Other industries (a)	no.	1,024	2,335	1,138	1,629	6,126	565,854
	%	19	17	11	22	17	31
Inadequately described / not stated	no.	168	343	253	178	942	48,807
	%	3	2	3	2	3	3
<b>Total</b>	<b>no.</b>	<b>5,325</b>	<b>13,950</b>	<b>10,067</b>	<b>7,494</b>	<b>36,836</b>	<b>1,825,131</b>
	<b>%</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

(a) Includes Administrative and support services; Electricity, gas, water and waste services; Financial and insurance services; Professional, scientific and technical services; and Rental, hiring and real estate services.

(R) - Regional Council, (S) - Shire Council, SLA - Statistical local area

Source: ABS, 2006 Census, unpublished data

The SLA with the highest proportion (44 per cent) of mining workers at the 2006 Census was Broadsound, located in Isaac (R) (Table 5). Coal mines in Broadsound which employed more than 500 workers in 2009<sup>4</sup> include German Creek, Norwich Park and Saraji. Other SLAs with a large proportion of mining workers were Belyando (38 per cent), Peak Downs (37 per cent) and Duaringa (33 per cent). Belyando SLA is located in Isaac (R), and Peak Downs and Duaringa SLAs are located in Central Highlands (R).

<sup>4</sup> Department of Employment, Economic Development and Innovation, *Mines and Quarries Safety Statistics*, online

**Table 5. Industry of the resident labour force, employed persons, Bowen Basin SLAs and Queensland, 2006**

Statistical local area	Industry												Total employed persons aged 15 years and over
	Agriculture, forestry & fishing	Mining	Manufacturing	Construction	Wholesale & retail trade	Accommodation & food services	Public administration & safety	Education & training	Health care & social assistance	Other services (a)	Other industries (b)	Inadequately described / not stated	
	% of total												
Banana	18	16	8	6	11	5	4	6	6	14	4	2	6,889
Bauhinia	43	8	2	6	8	3	6	5	4	7	4	3	1,269
Belyando	9	38	2	6	10	6	3	6	5	10	4	2	5,626
Bowen	22	7	5	7	14	7	4	6	8	10	7	3	5,364
Broadsound	12	44	1	7	8	4	3	6	3	7	3	2	3,308
Duarina	11	33	3	8	8	7	3	6	3	10	6	3	3,593
Emerald	7	17	4	10	14	6	5	7	5	16	5	2	7,605
Nebo	12	32	3	7	7	11	4	5	2	7	7	3	1,256
Peak Downs	13	37	3	6	6	6	5	6	3	10	3	2	1,634
Taroom	54	1	2	3	7	3	7	6	6	5	3	2	1,338
<b>Queensland</b>	<b>3</b>	<b>2</b>	<b>10</b>	<b>9</b>	<b>16</b>	<b>7</b>	<b>7</b>	<b>8</b>	<b>10</b>	<b>20</b>	<b>7</b>	<b>3</b>	<b>1,824,996</b>

(a) Includes Administrative and support services; Electricity, gas, water and waste services; Financial and insurance services; Professional, scientific and technical services; and Rental, hiring and real estate services.

(b) Includes Transport, postal and warehousing; Information media and telecommunications

Source: ABS, 2006 Census, Table B42

It should be noted that the 2006 Census tables are based on the usual resident population, thus excluding people who travel to work away from their place of usual residence. This practice has been common in the mining industry in recent years because of an inadequate supply of local labour, housing shortages and the preference of some workers to live away from their place of work when not required for work. In 2006, there were about 10,800 non-resident workers in the Bowen Basin<sup>5</sup>, representing one quarter of the 43,200 people enumerated in the regional labour force (Table 6). Note that the total of enumerated persons includes people who were counted in the 2006 Census but were not usual residents of the Bowen Basin. The count of non-resident workers is based on a statistical collection of Bowen Basin accommodation providers, conducted annually by OESR. Due to conceptual differences and differences in the timing and scope of data collection, the number of non-resident workers (10,800 people) in the Bowen Basin counted in the 2006 accommodation providers collection is not equal to the number of people who worked in the region at the 2006 Census but lived elsewhere in Australia, as shown in Table 12 (10,300 people).

## 8.2 Changes in employment by industry, 1996 to 2006

Between 1996 and 2006, the enumerated population of the Bowen Basin aged between 15 and 64 years increased by 15 per cent from 52,900 to 61,100 people. However, the region experienced population decline between 1996 and 2001 due to loss of employment in some industries and resulting outward migration. In 2001, the number of people (51,600) in the 15 to 64 years age group was 1,300 fewer than in 1996. This trend was reversed between 2001 and 2006 mainly through expansion in the mining and construction industries. By 2006, the number of working-aged people counted in the region was almost 10,000 more than in 2001. It should be noted that these numbers relate to the enumerated population rather than the usually resident population. Between 2001 and 2006, the work practice of FIFO/DIDO became common in mining areas because of local labour shortages which occurred during

<sup>5</sup> OESR, *Bowen Basin population report, 2009*

the mining boom. FIFO/DIDO workers are included in the enumerated population of the Bowen Basin if they were present in the region on census night and were counted.

Table 6 shows gains and losses in employment by industry for employed people counted in the Bowen Basin on census night. Note that the total number of jobs (43,200) in 2006 differs from the number of people (42,388) who worked in the Bowen Basin in 2006, as shown in Table 14. Some employed people who were counted in the region on census night ('number of jobs') would have worked elsewhere. Also, some people who worked in the region (Table 14) lived elsewhere.

Between 1996 and 2006, gains in employment in some industries outweighed losses in other industries, with the result that the overall net employment gain was 6,000 jobs in the region. Gains in male employment (3,400 jobs) exceeded gains in female employment (2,600 jobs), and the distribution of these gains and losses by industry was usually consistent for male and female employment. Strong growth in mining and infrastructure projects, particularly between 2001 and 2006, led to large increases in mining jobs for males (+861) and females (+525). This industry provided the largest increase in job numbers for females; however, construction industries (+1,870) provided the largest job growth for males. Overall growth in male jobs occurred at the expense of jobs in agriculture, forestry and fishing (-741) and in education and training (-112) industries. By contrast, female job losses were limited to agriculture, forestry and fishing (-171). Hence much of the growth in female employment between 1996 and 2006 was in new jobs. Total employment in other services industries increased for males (+842) and females (+563) between 1996 and 2006. These industries include electricity, gas and water services, administrative services, financial services and professional services.

**Table 6. Gains and losses in employment by industry and sex between 1996 and 2006, based on employed persons counted (a) in Bowen Basin (b)**

Industry of employment (c)	Jobs – 1996			Jobs – 2006			Change 1996 – 2006		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
	—no.—								
Agriculture, forestry & fishing	4,662	2,224	6,886	3,921	2,053	5,974	-741	-171	-912
Mining	8,359	511	8,870	9,220	1,036	10,256	861	525	1,386
Manufacturing	1,173	387	1,560	1,499	412	1,911	326	25	351
Construction	1,926	246	2,172	3,796	507	4,303	1,870	261	2,131
Wholesale and retail trade	1,830	2,135	3,965	1,872	2,477	4,349	42	342	384
Accommodation and food services	523	1,384	1,907	712	1,732	2,444	189	348	537
Public administration and safety	876	433	1,309	968	619	1,587	92	186	278
Education and training	516	1,658	2,174	404	1,896	2,300	-112	238	126
Health care and social assistance	225	1,341	1,566	259	1,716	1,975	34	375	409
Other services (d)	1,889	1,681	3,570	2,731	2,244	4,975	842	563	1,405
Other industries (e)	1,527	428	1,955	1,505	487	1,992	-22	59	37
Inadequately described / not stated	771	475	1,246	777	357	1,134	6	-118	-112
<b>Total</b>	<b>24,277</b>	<b>12,903</b>	<b>37,180</b>	<b>27,664</b>	<b>15,536</b>	<b>43,200</b>	<b>3,387</b>	<b>2,633</b>	<b>6,020</b>

(a) Excluding overseas visitors.

(b) In this table, the Bowen Basin includes the whole of the former shire of Taroom.

(c) Based on the 2006 Australian and New Zealand Standard Industrial Classification (ANZSIC) edition, which replaced the 1993 ANZSIC edition. Data for 1996 and 2001 Census were concorded to the 2006 ANZSIC.

(d) Includes Administrative and support services; Electricity, gas, water and waste services; Financial and insurance services; Professional, scientific and technical services; and Rental, hiring and real estate services.

(e) Includes Information media and telecommunications; and Transport, postal and warehousing.

Cells that are shaded indicate most notable changes in employment numbers for males and females.

Source: ABS, 2006 Census, Table T25

### 8.3 Full-time and part-time employment by industry, 1996 to 2006

The distribution of full-time and part-time employment by industry in the 2006 Census showed marked differences from industry to industry (Table 7). Across Queensland, full-time employment ratios were highest in the coal mining industry (91 per cent), where work rosters for production staff are based on the rotation of full-time crews on a weekly, fortnightly or monthly basis. Full-time employment was also high in the electricity, gas, water and waste services industry, where full-time work is required of shift workforces to maintain continuous energy and water supplies to customers. Rates of full-time work were much lower in service industries and in retail trade. For example, in retail trade the proportions of full-time and part-time employment were equal (50 per cent each).

Rates of full-time and part-time employment in Mackay Statistical Division (SD) and Fitzroy SD were similar to those for Queensland. Mackay SD includes Central Highlands (R), Mackay (R) and Whitsunday (R) - Bowen SLA. The Bowen Basin LGAs of Isaac (R) and Banana (S) are in Fitzroy SD, which also includes Gladstone (R) and Rockhampton (R). In Mackay SD, the mining industry and the electricity, gas, water and waste services industry had the equal highest incidence of full-time employment (91 per cent). These industries also had the highest incidence of full-time employment in Fitzroy SD. In both SDs, full-time employment in manufacturing and construction industries was at least 84 per cent and the Queensland averages for both industries were also high (83 per cent and 80 per cent respectively).

**Table 7. Full-time and part-time employment, place of work by industry (a), employed persons, selected statistical divisions (SD) and Queensland, 2006**

Industry	Mackay SD		Fitzroy SD		Queensland	
	Part-time (%)	Full-time (%)	Part-time (%)	Full-time (%)	Part-time (%)	Full-time (%)
Agriculture, forestry and fishing	21	79	20	80	25	75
Coal mining	9	91	10	90	9	91
Mining balance	9	91	13	87	12	88
Manufacturing	14	86	12	88	17	83
Electricity, gas, water and waste services	9	91	13	87	12	88
Construction	16	84	15	85	20	80
Wholesale trade	16	84	18	82	21	79
Retail trade	47	53	50	50	50	50
Transport and storage	31	69	35	65	37	63
Finance and insurance	35	65	32	68	27	73
Property and business services	27	73	28	72	30	70
Government administration and defence	22	78	23	77	23	77
Health and community services	47	53	45	55	46	54
Personal and other services	42	58	37	63	39	61
Non-classifiable economic units	27	73	28	72	34	66
Not stated	39	61	46	54	49	51
<b>Total</b>	<b>42</b>	<b>58</b>	<b>42</b>	<b>58</b>	<b>41</b>	<b>59</b>

(a) Excludes the information media and telecommunications industry.

Source: ABS, 2006 Census, unpublished data

## 9. OCCUPATION

### 9.1 Employment by occupation

The dominance of the mining industry in the Bowen Basin is reflected in the distribution of occupations of the resident labour force. At the 2006 Census, almost one in five workers (19 per cent) were machinery operators and drivers (Table 8). The proportions were even higher in Central Highlands (R) and Isaac (R) LGAs, where mining is the main industry of employment. In Isaac (R), one quarter of all employed workers were machinery operators and drivers, much higher than the proportion of all employed Queenslanders in this occupation group (7 per cent). Of the 2,500 machinery operators and drivers who were usual residents of Isaac (R) in 2006, almost 1,900 worked in the mining industry<sup>6</sup>.

In Banana (S), agricultural industries are significant employers of labour. Hence, the managers category accounted for 22 per cent of the employed population, significantly higher than the regional proportion (16 per cent) or the state average (12 per cent). Most of the Managers in Banana (S) were employed or self-employed farm managers. At the 2006 Census, more than 1,500 people were managers and 1,100 of them worked in agricultural industries<sup>7</sup>. Labourers constituted 17 per cent of all occupations in Banana (S) in 2006, the second highest proportion in the Bowen Basin. Many of the total number (1,263 people) in this group were employed in agricultural industries (261) and in manufacturing (259). Many manufacturing workers were employed as labourers in meat processing industries in Biloela.

The labourers category accounted for the largest proportion (25 per cent) of employed usual residents in Whitsunday (R) - Bowen SLA. In Bowen SLA, which is the only part of the LGA included in the Bowen Basin, agricultural, forestry and fishing industries were the largest employer. More than 1,100 employed usual residents worked in these industries in 2006 and more than half (54 per cent) worked as labourers<sup>8</sup>. Bowen SLA has a large horticultural industry, as well as commercial fishing and aquaculture industries.

Technicians and trade workers were the second largest occupation group in the Bowen Basin, employing 18 per cent of all employed usual residents. A slightly higher proportion (20 per cent) was employed in this group in Isaac (R), where more than half (52 per cent) of the total number (2,054 people) were employed in the mining industry. Significant numbers in the technicians and trades workers group were employed in construction industries in 2006, in response to the demand for accommodation and infrastructure in the Bowen Basin at the time of the Census.

Table 8 shows that workers in 'white collar' occupations are under-represented in the Bowen Basin compared with other areas of Queensland. Professionals were the most under-represented occupation group: only 9 per cent of Bowen Basin workers were in this category compared with 17 per cent in Queensland. Other groups with comparatively low proportions of workers included community and personal service workers (6 per cent of the total) and clerical and administrative workers (10 per cent). These differences reflect the lower demand for administrative, professional and service workers in the Bowen Basin than in other areas of the state, which include the large population centres of South East Queensland. There may also be some unmet demand in the Bowen Basin for people with qualifications and skills not required by the mining and construction industries because higher living costs and lifestyle compromises dissuade them from moving there to live and work.

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<sup>6</sup> Source: ABS, 2006 Census, Table B43

<sup>7</sup> Source: ABS, 2006 Census, Table B43

<sup>8</sup> Source: ABS, 2006 Census, Table B43

**Table 8. Occupation of the resident labour force, employed persons, Bowen Basin LGAs and Queensland, 2006**

Occupation group	Local government area				Bowen Basin	Queensland
	Whitsunday (R) (a)	Central Highlands (R)	Isaac (R)	Banana (S)		
	% of total					
Managers	14	15	12	22	16	12
Professionals	7	10	10	9	9	17
Technicians and trades workers	14	19	20	16	18	15
Community and personal service workers	8	5	5	6	6	9
Clerical and administrative workers	9	11	8	9	10	15
Sales workers	8	6	5	6	6	10
Machinery operators and drivers	13	20	25	15	19	7
Labourers	25	12	12	17	15	12
Inadequately described / not stated	2	2	2	2	2	2
<b>Total employed persons aged 15 years and over</b>	<b>%</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
	<b>no.</b>	<b>5,325</b>	<b>13,956</b>	<b>10,061</b>	<b>7,497</b>	<b>36,839</b>

(R) - Regional Council, (S) - Shire Council

(a) Only the SLA of Bowen is included. Whitsunday SLA is not in the Bowen Basin.

Source: ABS, 2006 Census, unpublished data

## 9.2 Changes in employment by occupation, 1996 to 2006

Changes in the distribution of employment by industry in the Bowen Basin between 1996 and 2006 were reflected in the distribution of occupations of employed people counted there (Table 9). Growth in mining and construction industries led to large gains in the number of males employed as technicians and trades workers (+1,721) and machinery operators and drivers (+1,243). At the expense of these gains were small decreases in the number of clerical and administrative workers (-116) and managers (-49). Apart from a decrease in the number of inadequately described occupations between 1996 and 2006 (-113), the number of employed females increased in all occupation groups. The largest gains were in the clerical and administrative occupation group (+731) and professionals group (+472), in response to expansion in regional job opportunities in health care, public administration, education and service industries. In the clerical and administrative occupation group, female job growth was associated with losses of male jobs most likely caused by better opportunities in the mining industry.

**Table 9. Gains and losses in employment by occupation and sex between 1996 and 2006, based on employed persons counted (a) in Bowen Basin (b)**

Occupation (c)	Jobs – 1996			Jobs – 2006			Change 1996–2006		
	Males	Females	Persons	Males	Females	Persons	Males	Females	Persons
	—no.—								
Managers	4,325	2,132	6,457	4,276	2,264	6,540	-49	132	83
Professionals	1,579	1,652	3,231	1,888	2,124	4,012	309	472	781
Technicians and trades workers (d)	5,871	686	6,557	7,592	877	8,469	1,721	191	1,912
Community and personal service workers	374	1,422	1,796	366	1,769	2,135	-8	347	339
Clerical and administrative workers	665	2,488	3,153	549	3,219	3,768	-116	731	615
Sales workers	591	1,475	2,066	679	1,750	2,429	88	275	363
Machinery operators and drivers	6,756	375	7,131	7,999	560	8,559	1,243	185	1,428
Labourers	3,463	2,329	5,792	3,780	2,736	6,516	317	407	724
Inadequately described/ not stated	648	349	997	530	236	766	-118	-113	-231
<b>Total</b>	<b>24,272</b>	<b>12,908</b>	<b>37,180</b>	<b>27,659</b>	<b>15,535</b>	<b>43,194</b>	<b>3,387</b>	<b>2,627</b>	<b>6,014</b>

(a) Excluding overseas visitors.

(b) In this table, the Bowen Basin includes the whole of the former shire of Taroom.

(c) 'Occupation' was coded to the 2006 Australian and New Zealand Standard Classification of Occupations (ANZSCO), which replaced the 1996 Australian Standard Classification of Occupations (ASCO) Second Edition.

(d) In 1996 and 2001, technicians and trades workers includes engineering, information and communications technology, and science technicians and tradespersons.

Cells that are shaded indicate most notable changes in employment numbers for males and females.

Source: ABS, 2006 Census. Table T26

## 10. LABOUR FORCE CONTAINMENT AND JOB CONTAINMENT

### 10.1 Introduction

The following analysis presents 2006 Census labour force information for the Bowen Basin in two different formats:

- the number of labour force participants who *usually reside* in a particular LGA, according to whether they work in that LGA or elsewhere; and
- the number of labour force participants who *work* in a particular LGA, according to which LGA they usually reside in.

These data are then used to establish labour force containment rates and job containment rates for each LGA in the study area (refer to Glossary for further explanation of these concepts).

Not every employed person who lives within a given LGA works locally—some commute to their place of work in an adjoining LGA, while others travel even further between home and work. A variety of push–pull factors can cause people to live in a different place to where they work, including:

- a mismatch between local jobs and the skill sets of people who live there;
- a lack of suitable or affordable accommodation in the area of work;
- the availability of suitable work in other areas, and the ease of travelling to those areas from home;
- the use of FIFO/DIDO workforces, particularly common in the mining, gas and construction industries;
- seasonal employment patterns (particularly in the agricultural and horticultural industries); and
- lifestyle factors—choosing to live in an area with high environmental amenity, access to services and infrastructure, and proximity to family and friends.

### 10.2 Labour force containment

Table 10 illustrates the distribution of employment in the Bowen Basin classified by place of usual residence. Data in the columns represent the number of workers who live in the four LGAs of the Bowen Basin, according to where their place of work is located (rows). Cells shaded in grey represent the number of employed residents of the area who work in the designated area.

As Table 10 shows, most of the employed population of the Bowen Basin lived and worked within the area in 2006 (32,105 people), which represents 87 per cent of the regional workforce. Of those employed outside of the study area, almost all had jobs elsewhere in Queensland. These included 271 in Mackay (R), 146 in Rockhampton (R) and 109 in the South East Queensland region. Smaller numbers worked in the Townsville area, in the Wide Bay-Burnett region and on the Darling Downs. A total of 143 people worked in other parts of Queensland such as far north or north-west Queensland. A total of 1,761 employed workers such as tradespersons who do not work at a fixed location were included in the ‘No fixed address/undefined address’ category. Some 123 employed residents of the Bowen Basin worked interstate.

**Table 10. Place of usual residence by place of work, employed persons, Bowen Basin LGAs, 2006**

Place of work	LGA where workers usually reside				
	Whitsunday (R) - Bowen SLA	Central Highlands (R)	Isaac (R)	Banana (S)	Bowen Basin
	—no.—				
Whitsunday (R) - Bowen SLA	4,425	9	139	5	4,578
Central Highlands (R)	7	12,045	135	57	12,244
Isaac (R)	72	143	8,436	26	8,677
Banana (S) (incl. Taroom (S))	3	52	3	6,548	6,606
<b>Bowen Basin total</b>	<b>4,507</b>	<b>12,249</b>	<b>8,713</b>	<b>6,636</b>	<b>32,105</b>
Whitsunday (R) - Whitsunday (S) only	46	6	0	7	59
Mackay (R)	19	62	181	9	271
Gladstone (R)	0	27	6	29	62
Rockhampton (R)	0	45	39	62	146
Central West area	0	16	3	0	19
Townsville (C) (incl. Charters Towers (R))	36	3	6	5	50
Cairns (R)	3	0	6	10	19
Mount Isa (C)	0	9	0	0	9
Wide Bay-Burnett SD	6	15	6	15	42
Darling Downs (incl. Toowoomba (C))	0	9	0	12	21
South East Queensland	18	46	28	17	109
Other Queensland	26	60	22	35	143
No fixed address/undefined address	303	646	543	269	1,761
<b>Queensland</b>	<b>4,964</b>	<b>13,193</b>	<b>9,553</b>	<b>7,106</b>	<b>34,816</b>
Other Australia	39	39	21	24	123
Not stated	322	718	493	364	1,897
<b>Total</b>	<b>5,325</b>	<b>13,950</b>	<b>10,067</b>	<b>7,494</b>	<b>36,836</b>

(C) - City, (R) - Regional Council, (S) - Shire, SD - Statistical division, SLA - Statistical local area  
Source: ABS, 2006 Census, unpublished data

Table 11 summarises the data shown in Table 10 in terms of *labour force containment rates* (the proportion of an area's resident labour force that works within that area). A high labour force containment rate is considered to be a measure of self-sufficiency in relation to local employment. Overall, the Bowen Basin had a high labour force containment rate of 87 per cent in 2006. Individually, Banana (S) had the highest labour force containment rates (87 per cent), slightly higher than those for Central Highlands (R) and Isaac (R) (86 per cent and 84 per cent respectively). In Banana (S), main employment centres such as Biloela and Moura are more isolated from places of work outside the region than is the case in Whitsunday (R) - Bowen SLA and Isaac (R), so there is less likelihood that workers will travel outside their LGA to work. For example, only 88 employed people who lived in Banana (S) travelled to other LGAs to work, whereas 277 workers living in Isaac (R) travelled to other LGAs in the region for work. Many of these journeys would have been to work in mines located in adjoining LGAs. Work journeys to places outside the region occurred most frequently to adjoining LGAs or to more distant cities. For example, a total of 271 people from the Bowen Basin travelled to Mackay (R) to work and a further 146 worked in Rockhampton (R).

**Table 11. Labour force containment rates, employed persons, Bowen Basin LGAs, 2006**

Place of work	LGA where workers usually reside – labour force containment rate (per cent)				
	Whitsunday (R) - Bowen SLA	Central Highlands (R)	Isaac (R)	Banana (S)	Bowen Basin
	% of total				
Whitsunday (R) - Bowen SLA	83	0	1	0	12
Central Highlands (R)	0	86	1	1	33
Isaac (R)	1	1	84	0	24
Banana (S) (incl. Taroom (S))	0	0	0	87	18
<b>Bowen Basin total</b>	<b>85</b>	<b>88</b>	<b>87</b>	<b>89</b>	<b>87</b>
Other Queensland	3	2	3	3	3
No fixed address/undefined address	6	5	5	4	5
<b>Queensland</b>	<b>93</b>	<b>95</b>	<b>95</b>	<b>95</b>	<b>95</b>
Other Australia	1	0	0	0	0
Not stated	6	5	5	5	5
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

(R) - Regional Council, (S) - Shire, SLA - Statistical local area

Source: ABS, 2006 Census, unpublished data

### 10.3 Job containment

Table 12 illustrates the number of jobs in LGAs of the Bowen Basin in 2006 (columns), classified by the place of usual residence of the workers occupying those jobs (rows). Cells shaded in grey represent the number of jobs performed by people who live and work in the designated area.

As Table 12 shows, 32,105 jobs in the Bowen Basin were performed by usual residents of that area. A further 3,268 jobs in the region were held by people who lived in the nearby LGA of Mackay (R), 1,552 jobs were performed by residents of Rockhampton (R) and 1,183 jobs were held by workers who lived in South East Queensland. In total, 9,523 jobs in the Bowen Basin were performed by Queenslanders who lived outside the region, apart from 248 people who had no usual address in Queensland. Some 512 jobs in the study area were occupied by workers from other parts of Australia. The total number of regional jobs (10,283) which were performed by workers who were not residents of the Bowen Basin or had no usual address in Queensland was similar to the number of non-resident workers (10,763) counted by the OESR survey of accommodation providers in 2006. Between 2006 and 2009, the number of non-resident workers in the Bowen Basin grew to 12,228, an increase of 14 per cent over the four-year period.

Isaac (R) attracted the highest number (2,686) of non-resident workers in 2006, most notably from Mackay (R), the adjoining coastal LGA. It is likely that many of these were construction workers employed on major infrastructure projects, as well as FIFO/DIDO workers engaged in mining production. For example, many mining workers in Isaac (R) commute to work from homes in Mackay (R) on a daily basis or for the duration of their roster. Central Highlands (R) had a large number (981) of non-resident workers from Rockhampton (R), which adjoins Central Highlands (R). Unlike most centres in the Bowen Basin, Rockhampton (R) and Mackay (R) have large pools of skilled labour available to support the mining industry in the region as well as the necessary housing, infrastructure and services to support working families.

A total of 441 people who worked in Banana (S) (including Taroom (S)) travelled to work from Darling Downs. Almost all (409) of these people lived and worked in the former Taroom (S), part of which is now included in Banana (S). In Table 12, all of Taroom (S) is included with Banana (S) as a place of work but the southern part of the former LGA of Taroom (S) is now included with Darling Downs, rather

than Bowen Basin, as a place of usual residence. A further 901 people who worked in Banana (S) (including Taroom (S)) lived in 'Other Queensland', and almost all (863) of them worked in Taroom (S). It is likely that many would have lived in adjoining LGAs such as Roma (R) (part of 'Other Queensland') and were engaged in infrastructure work in Taroom (S) when the 2006 Census was held.

**Table 12. Place of work by place of usual residence, employed persons, Bowen Basin LGAs, 2006**

Place of usual residence	LGA where place of work is located				
	Whitsunday (R) - Bowen SLA	Central Highlands (R)	Isaac (R)	Banana (S) (incl. Taroom (S))	Bowen Basin
	—no.—				
Whitsunday (R) - Bowen SLA	4,425	7	72	3	4,507
Central Highlands (R)	9	12,045	143	52	12,249
Isaac (R)	139	135	8,436	3	8,713
Banana (S)	5	57	26	6,548	6,636
<b>Bowen Basin total</b>	<b>4,578</b>	<b>12,244</b>	<b>8,677</b>	<b>6,606</b>	<b>32,105</b>
Whitsunday (R) - Whitsunday (S) only	88	16	108	0	212
Mackay (R)	181	377	2,686	24	3,268
Gladstone (R)	12	150	66	147	375
Rockhampton (R)	12	981	319	240	1,552
Central West area	0	23	3	0	26
Townsville (C) (incl. Charters Towers (R))	85	168	202	6	461
Cairns (R) and Mount Isa (C)	15	10	19	3	49
Wide Bay-Burnett SD	26	252	123	194	595
Darling Downs (incl. Toowoomba (C))	7	89	48	441	585
South East Queensland	135	413	422	213	1,183
Other Queensland	86	110	120	901	1,217
No Usual Address - QLD	96	71	62	19	248
<b>Queensland</b>	<b>5,321</b>	<b>14,904</b>	<b>12,857</b>	<b>8,794</b>	<b>41,876</b>
Balance of Australia	100	176	171	65	512
<b>Total</b>	<b>5,421</b>	<b>15,080</b>	<b>13,028</b>	<b>8,859</b>	<b>42,388</b>

(C) - City, (R) - Regional Council, (S) - Shire, SD - Statistical Division, SLA - Statistical local area

Source: ABS, 2006 Census, unpublished data

Table 13 summarises the data shown in Table 12 in terms of *job containment rates* (the proportion of an area's workforce that is usually resident within that area). Overall the study area had a relatively low job containment rate of 76 per cent, indicating that almost one quarter (24 per cent) of jobs were occupied by people living outside of the region. By contrast, the Darling Downs region had a job containment rate of 95 per cent in 2006<sup>9</sup>. Unlike the industry composition in the Bowen Basin, the mining industry accounted for just one per cent of the resident workforce in the Darling Downs region<sup>10</sup>.

Of all four LGAs in the Bowen Basin, the job containment rate was lowest in Isaac (R), where only two jobs in three or 67 per cent of the total were performed by people who lived in the region. As Table 12

<sup>9</sup> Report three – Workforce analysis, *Background studies for Darling Downs/Maranoa area (Reports 1–3)*, 2009 OESR, online

<sup>10</sup> Report two – Demographic profile, *Background studies for Darling Downs/Maranoa area (Reports 1–3)*, 2009 OESR, online

shows, workers from Mackay (R) occupied most of the jobs in Isaac (R) which were performed by non-residents of the region.

**Table 13. Job containment rates, employed persons, Bowen Basin LGAs, 2006**

Place of usual residence	Place of work – job containment rate (per cent)				
	Whitsunday (R) - Bowen SLA	Central Highlands (R)	Isaac (R)	Banana (S) (incl. Taroom (S))	Bowen Basin
	% of total				
Whitsunday (R) - Bowen SLA	82	0	1	0	11
Central Highlands (R)	0	80	1	1	29
Isaac (R)	3	1	65	0	21
Banana (S)	0	0	0	74	16
<b>Bowen Basin total</b>	<b>84</b>	<b>81</b>	<b>67</b>	<b>75</b>	<b>76</b>
Other Queensland	12	17	32	24	22
No fixed address/undefined address	2	0	0	0	1
<b>Queensland</b>	<b>98</b>	<b>99</b>	<b>99</b>	<b>99</b>	<b>99</b>
Other Australia	0	0	0	0	0
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

(R) - Regional Council, (S) - Shire, SLA - Statistical local area

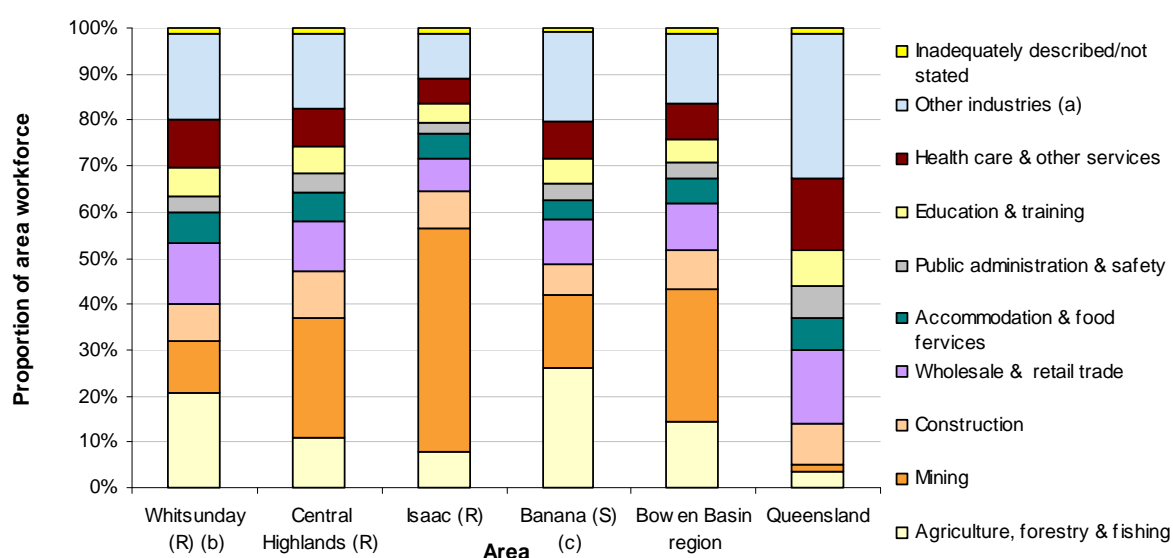
Source: ABS, 2006 Census, unpublished data

## 11. LABOUR FORCE BY AGE, INDUSTRY AND PLACE OF WORK

### 11.1 Industry by place of work

Figure 5 shows the proportional distribution of the working population of the Bowen Basin by industry in 2006. Table 14 shows the distribution of the working population according to the number of workers engaged in the main industries. Figure 5 shows that the mining industry was the dominant industry in the region, in terms of the proportion of workers engaged (29 per cent). In comparison, only 2 per cent of the state's working population was engaged in the industry. Mining was the main industry of the working population in Isaac (R) (49 per cent) and Central Highlands (R) (26 per cent). Agriculture, forestry and fishing was the main industry in Banana (S) (26 per cent) and Whitsunday (R) - Bowen SLA (21 per cent), a much higher proportion than the state average (3 per cent). 'Other industries' represented the largest proportion (31 per cent) of Queensland's working population. These industries include information media and telecommunications, and financial and insurance services, industries where demand for workers is greatest in metropolitan areas.

**Figure 5: Proportion of area workforces by industry, employed persons, Bowen Basin LGAs and Queensland, 2006**



(R) - Regional Council, (S) - Shire

(a) Includes Administrative and support services; Electricity, gas, water and waste services; IT, professional and financial services; Manufacturing; and Transport and storage

(b) Only the SLA of Bowen is included. Whitsunday SLA is not in the Bowen Basin.

(c) Includes the former LGA of Taroom (S).

Source: ABS, 2006 Census, unpublished data

Table 14 shows that a total of 42,388 people worked in the Bowen Basin in 2006, about 10,000 more than the number (32,105 people) who lived and worked there when the Census was held. A total of 12,336 people worked in the mining industry, which was the region's largest employer. More than half (52 per cent) of the region's mining industry workers held jobs in Isaac (R). The mining industry was the largest net importer of labour from outside the region as only 8,585 of the total number employed in the industry lived in the Bowen Basin (Table 4). Of all LGAs in the region, Isaac (R) imported the largest number of mining workers. A total of 6,365 workers in Isaac (R) worked in the mining industry in the LGA but only 3,960 were residents of the LGA.

Construction and agricultural industries were also net importers of labour, though not to the same extent as the mining industry. For example, a total of 6,049 workers were engaged in agricultural industries in the Bowen Basin and 5,284 of them were residents of the region.

**Table 14. Place of work by industry, employed persons, Bowen Basin LGAs and Queensland, 2006**

Industry	Place of work					
	Whitsunday (R) - Bowen SLA	Central Highlands (R)	Isaac (R)	Banana (S) (incl. Taroom (S))	Bowen Basin	Queensland
	—no.—					
Agriculture, forestry and fishing	1,123	1,616	1,008	2,302	6,049	59,582
Mining	613	3,954	6,365	1,404	12,336	29,008
Manufacturing	281	544	231	540	1,596	172,776
Construction	438	1,539	1,067	588	3,632	154,893
Electricity, gas, water and waste services	80	74	52	314	520	18,120
Administrative and support services	112	278	219	205	814	53,081
Wholesale & retail trade	718	1,653	896	860	4,127	275,013
Accommodation and food services	355	906	702	390	2,353	121,892
Transport and storage	289	691	396	265	1,641	87,938
IT, professional and financial services	257	866	392	377	1,892	215,234
Public administration and safety	198	661	305	330	1,494	118,699
Education and training	323	878	544	481	2,226	136,056
Health care and other services	574	1,244	720	726	3,264	271,545
Inadequately described / not stated	60	176	131	77	444	23,892
<b>Total</b>	<b>5,421</b>	<b>15,080</b>	<b>13,028</b>	<b>8,859</b>	<b>42,388</b>	<b>1,737,729</b>

(R) - Regional Council, (S) - Shire, SLA - Statistical local area

Source: ABS, 2006 Census, unpublished data

## 11.2 Usual resident workforce by age and industry

The age profile of the Bowen Basin's resident workforce showed minor differences compared with that for Queensland overall (Table 15). Of the 36,836 workers living in the study area in 2006, some 17,252 (or 47 per cent) were aged between 25 and 44 years, a higher proportion than for Queensland (45 per cent). Workers in the older age group (45 to 64 years) were slightly less represented in the study area (33 per cent) than for the state overall (35 per cent).

In contrast to the differences between the region and Queensland in the 45–64 years age group, the proportion of retirement-aged people who were still actively participating in the labour force was marginally higher in the Bowen Basin (3 per cent) than in Queensland (2 per cent). This difference is attributable to the number of workers who were engaged in agriculture and aged 65 years or more (570 people). Almost half of this number (247) lived in Banana (S), which had the largest number of people in the region who were working in agricultural industries.

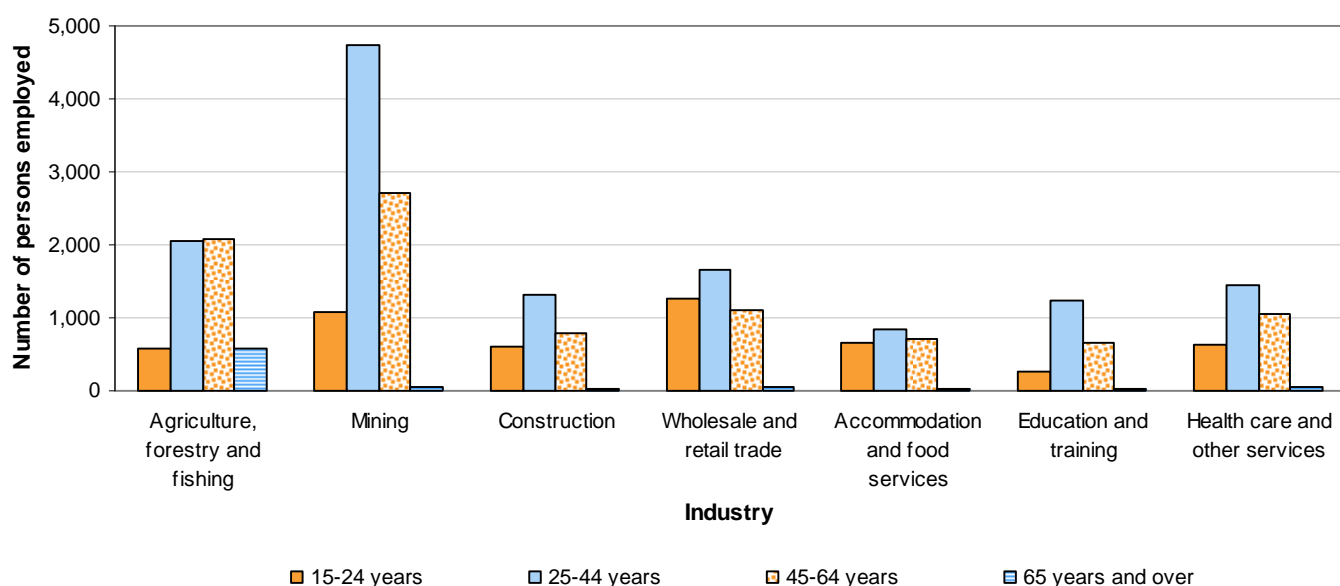
**Table 15. Age distribution of resident workforce, employed persons, Bowen Basin and Queensland, 2006**

Age group	Bowen Basin		Queensland	
	Persons in workforce	Proportion of total workforce	Persons in workforce	Proportion of total workforce
	no.	%	no.	%
15-24 years	6,440	17	330,801	18
25-44 years	17,252	47	819,148	45
45-64 years	12,114	33	634,547	35
65 years and over	1,030	3	40,635	2
<b>Total workforce</b>	<b>36,836</b>	<b>100</b>	<b>1,825,131</b>	<b>100</b>

Source: ABS, 2006 Census, unpublished data

As Figure 6 illustrates, there is considerable variation in the age profiles of different industry groupings in the Bowen Basin. It can be seen that agriculture, forestry and fishing industry grouping attracts most workers aged 65 years and over (55 per cent of that age group). In the main working age groups between 25 and 64 years, most employed residents of the region worked in the mining industry. Of the total number (8,585 people) employed in the mining industry, 4,746 people or 55 per cent were aged 25–44 years in 2006. In all industries except agricultural industries, the 25–44 years age group employed the highest proportion of workers (Table 16).

**Figure 6: Proportion of resident workforce working in major employing industries by age group, employed persons, Bowen Basin, 2006**



Source: ABS, 2006 Census, unpublished data

Table 16 provides a breakdown of the resident workforces of LGAs in the Bowen Basin by industry grouping and age of workers, and also comparisons with the Queensland average. It shows differences in the age profile of each LGA's workforce, which reflect the industry composition of each area. Younger workers (15 to 44 years) made up 63 per cent of the total Queensland workforce in 2006, and two of the four LGAs in the region exceeded this proportion: Central Highlands (R) and Isaac (R), both with 67 per cent. In Whitsunday (R) - Bowen SLA and Banana (S), the proportion of younger workers was slightly lower: 57 per cent and 60 per cent respectively.

Table 16 also shows that workers aged 65 and over made up 5 per cent or less of the workforces of four LGAs in the study area. In Banana (S), the proportion was exactly 5 per cent and more than twice the incidence of this age group across Queensland (2 per cent). Proportionally, the agriculture, forestry and fishing industry in Banana (S) had the highest representation of workers aged 65 years and over (17 per cent of group total). This LGA also had the largest number of workers in this age and industry group (247 people).

The age/workforce patterns for each LGA in the region by industry may be summarised as follows:

- **Central Highlands (R):** This LGA had the region's largest resident workforce (13,950 people) in 2006, which is the equal youngest with Isaac (R). In both LGAs, the proportion aged 15 to 44 years was 67 per cent. Largest industry group was mining (3,144 people), which was dominated by workers aged 25 to 44 years (56 per cent). Other large employers included agriculture, forestry and fishing (1,646) and wholesale and retail trade (1,594) industries. In agricultural industries, the proportion aged 65 and over was 10 per cent, much higher than the representation of this age group in other industries. Central Highlands (R) had the largest number of people (1,226) employed in health care and other services, which are largely based in the regional centre of Emerald.
- **Isaac (R):** The LGA had the second largest workforce in the region (10,067 people). One half (50 per cent) of the resident workforce in this LGA was aged 25 to 44 years, the highest of all four LGAs in the region. Only 2 per cent was aged 65 years and over. Largest industry group was mining (3,960 people), which was also the largest of all mining workforces in the region. It was dominated by workers aged 25 to 44 years (55 per cent). Agriculture, forestry and fishing (1,016) and wholesale and retail trade (915) also had large workforces.
- **Banana (S):** This LGA had the region's third largest workforce (7,494 people), which was relatively old compared with other areas. A further 35 per cent were aged 45 to 64 years, and 5 per cent were aged 65 years and over. Largest industry group was agriculture, forestry and fishing (1,488 workers), which was dominated by workers aged 45 to 64 years (43 per cent of group total). Retirement-aged workers in agricultural industries comprised 17 per cent of group total, the highest share of all four LGAs. Second largest industry grouping was mining with 1,114 workers, who were predominantly aged 25 to 44 years (55 per cent of group total).
- **Whitsunday (R) - Bowen SLA:** It had the smallest workforce in the region (5,325 workers), which was relatively old compared with other areas. A further 40 per cent were aged 45 to 64 years, and 3 per cent were aged 65 years and over. Largest industry group was agriculture, forestry and fishing (1,134 workers), comprised largely of workers aged 25 to 44 years (43 per cent of group total). Unlike Banana (S), the share of retirement-aged workers in this industry (6 per cent) was the smallest in the region. The younger age profile of the industry is attributable to the number of relatively young workers in the horticultural industry, in contrast to the industry in Banana (S), where many workers are older farm managers in cattle grazing enterprises.

**Table 16. Industry and age group of resident workforce, employed persons, Bowen Basin and Queensland, 2006**

Industry	Age group (years)	Place of usual residence					
		Whitsunday (R) - Bowen SLA	Central Highlands (R)	Isaac (R)	Banana (S)	Bowen Basin	Queensland
		<i>Proportion (%) employed by age group and number (no.) employed by industry</i>					
Agriculture, forestry and fishing	15-24 years	13	11	13	8	11	10
	25-44 years	43	41	39	33	39	35
	45-64 years	38	38	39	43	40	43
	65 years +	6	10	9	17	11	12
	<b>Total (no.)</b>	<b>1,134</b>	<b>1,646</b>	<b>1,016</b>	<b>1,488</b>	<b>5,284</b>	<b>61,810</b>
Mining	15-24 years	12	13	13	12	13	11
	25-44 years	50	56	55	55	55	55
	45-64 years	37	30	32	33	32	34
	65 years +	1	1	0	0	1	1
	<b>Total (no.)</b>	<b>367</b>	<b>3,144</b>	<b>3,960</b>	<b>1,114</b>	<b>8,585</b>	<b>30,728</b>
Construction	15-24 years	19	22	22	23	22	17
	25-44 years	42	50	51	44	48	49
	45-64 years	36	27	26	31	29	33
	65 years +	2	1	1	2	1	2
	<b>Total (no.)</b>	<b>397</b>	<b>1,223</b>	<b>649</b>	<b>455</b>	<b>2,724</b>	<b>164,941</b>
Wholesale and retail trade	15-24 years	31	30	30	32	31	30
	25-44 years	33	42	46	40	41	40
	45-64 years	35	26	24	26	27	29
	65 years +	2	1	0	2	1	2
	<b>Total (no.)</b>	<b>760</b>	<b>1,594</b>	<b>915</b>	<b>817</b>	<b>4,086</b>	<b>284,504</b>
Accommodation and food services	15-24 years	23	32	28	32	29	42
	25-44 years	40	37	39	35	38	34
	45-64 years	36	29	32	32	31	23
	65 years +	1	3	1	2	2	1
	<b>Total (no.)</b>	<b>372</b>	<b>867</b>	<b>623</b>	<b>377</b>	<b>2,239</b>	<b>127,636</b>
Public administration and safety	15-24 years	16	13	12	13	13	10
	25-44 years	40	48	39	45	45	52
	45-64 years	44	36	46	39	40	37
	65 years +	0	2	3	3	2	1
	<b>Total (no.)</b>	<b>195</b>	<b>675</b>	<b>280</b>	<b>310</b>	<b>1,460</b>	<b>122,424</b>
Education and training	15-24 years	9	12	14	11	12	9
	25-44 years	50	58	60	53	57	45
	45-64 years	39	29	24	34	30	44
	65 years +	1	1	1	1	1	2
	<b>Total (no.)</b>	<b>315</b>	<b>897</b>	<b>566</b>	<b>432</b>	<b>2,210</b>	<b>139,096</b>
Health care and other services	15-24 years	10	26	20	16	20	14
	25-44 years	40	47	49	43	45	45
	45-64 years	48	26	30	37	33	39
	65 years +	2	1	1	3	2	2
	<b>Total (no.)</b>	<b>593</b>	<b>1,226</b>	<b>667</b>	<b>694</b>	<b>3,180</b>	<b>279,331</b>
Other industries	15-24 years	14	17	16	16	16	14
	25-44 years	38	48	52	50	48	48
	45-64 years	45	33	31	32	34	36
	65 years +	3	2	1	2	2	2
	<b>Total (no.)</b>	<b>1,024</b>	<b>2,335</b>	<b>1,138</b>	<b>1,629</b>	<b>6,126</b>	<b>565,854</b>
Total (a)	15-24 years	17	19	17	16	17	18
	25-44 years	41	48	50	44	47	45
	45-64 years	40	30	31	35	33	35
	65 years +	3	2	2	5	3	2
	<b>Total (no.)</b>	<b>5,325</b>	<b>13,950</b>	<b>10,067</b>	<b>7,494</b>	<b>36,836</b>	<b>1,825,131</b>

(R) - Regional Council, (S) - Shire, SLA - Statistical local area

(a) Includes inadequately described and not stated.

Source: ABS, 2006 Census, unpublished data

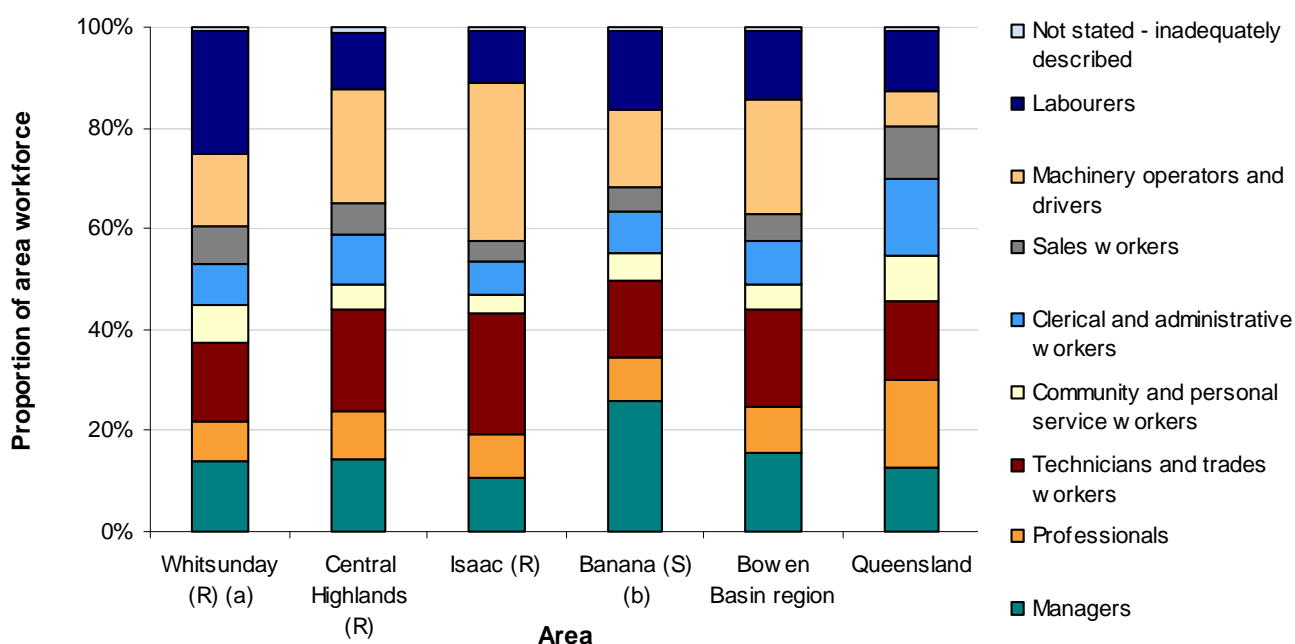
## 12. LABOUR FORCE BY AGE, OCCUPATION AND PLACE OF WORK

### 12.1 Occupation by place of work

Figure 7 shows the proportional distribution of the working population of the Bowen Basin by occupation in 2006. Table 17 shows the distribution of the working population by occupation according to the number of workers engaged. Figure 7 shows that machinery operators and drivers was the most common occupation group of people who work in the region. This group accounted for 9,580 workers or almost one quarter (23 per cent) of the working population. Most of these workers were engaged in the mining industry, which accounted for 29 per cent of the working population of the region (Table 14). The second largest occupation group was technicians and trades workers with 8,302 workers or one fifth of the working population. This occupation group is associated with the mining industry and also the construction industry, which was the third largest industry in the region (3,632 workers). The managers category was the third largest occupation group in the region (6,599 workers) with 16 per cent of the working population. Many people in this occupation group worked in Banana (S) as farm managers. The fourth largest occupation group was labourers, accounting for 5,754 people or 14 per cent of the working population. Many workers in this occupation group worked in agricultural industries and accommodation and food services industries.

Comparisons between Bowen Basin and Queensland reveal that the region was most under-represented in the professionals group. Only 9 per cent of the regional workforce was in this group compared with 18 per cent of the Queensland workforce. Also, the region was under-represented in the clerical and administrative workers group. This group comprised 9 per cent of the regional workforce, whereas it comprised 15 per cent of the state workforce. Demand for the services of people in these two occupation groups is strongest in capital cities and regional centres with large populations.

**Figure 7: Proportion of resident workforce by occupation, employed persons, Bowen Basin LGAs and Queensland, 2006**



(R) - Regional Council, (S) - Shire

(a) Only the SLA of Bowen is included. Whitsunday SLA is not in the Bowen Basin.

Source: ABS, 2006 Census, unpublished data

The machinery operators and drivers group was the largest in the Bowen Basin and Isaac (R) accounted for a total 4,055 workers, or 42 per cent of all the region's workers (9,580 people) in the group. Central Highlands (R), the other major coal-producing area in the Bowen Basin, had 3,409 workers in the machinery operators and drivers group. The number of people in the second largest group, technicians and trades workers, was also highest in these two LGAs. Together, they accounted for 6,128 workers or almost three quarters (74 per cent) of the total (8,302 people). The managers group was the third largest occupation group with 6,599 workers. The largest numbers in this group were found in Banana (S) (2,272 people) and Central Highlands (R) (2,197). Many people who worked as managers in these two LGAs were engaged in agricultural industries as farm managers.

**Table 17. Occupation by place of work, employed persons, Bowen Basin LGAs and Queensland, 2006**

Occupation	Place of work					
	Whitsunday (R) - Bowen SLA	Central Highlands (R)	Isaac (R)	Banana (S) (incl. Taroom (S))	Bowen Basin	Queensland
	—no.—					
Managers	756	2,197	1,374	2,272	6,599	219,741
Professionals	435	1,425	1,173	725	3,758	305,485
Technicians and trades workers	834	3,051	3,077	1,340	8,302	265,205
Community and personal service workers	397	695	483	454	2,029	158,530
Clerical and administrative workers	465	1,513	894	729	3,601	263,371
Sales workers	388	915	512	443	2,258	181,829
Machinery operators and drivers	790	3,409	4,055	1,326	9,580	124,156
Labourers	1,312	1,730	1,358	1,354	5,754	202,469
Inadequately described / not stated	47	156	112	68	383	16,849
<b>Total</b>	<b>5,424</b>	<b>15,091</b>	<b>13,038</b>	<b>8,711</b>	<b>42,264</b>	<b>1,737,635</b>

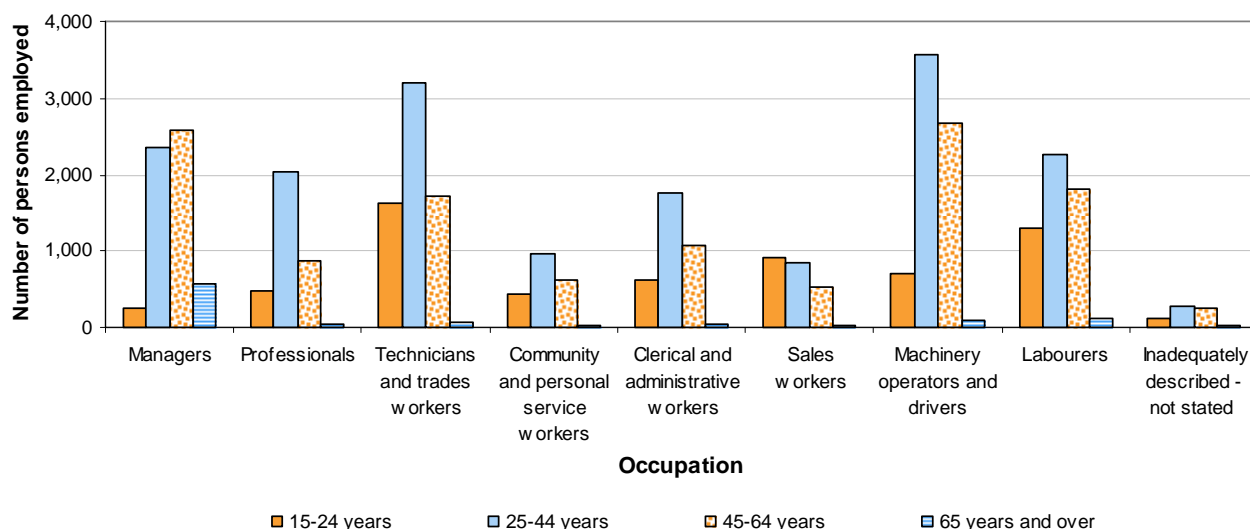
(R) - Regional Council, (S) - Shire, SLA - Statistical local area

Source: ABS, 2006 Census, unpublished data

## 12.2 Usual resident workforce by age and occupation

As Figure 8 illustrates, there is considerable variation in the age profiles of different occupation groupings in the Bowen Basin. It can be seen that the managers group attracts most workers aged 65 years and over (573 people, or around 55 per cent of that age group). The number of people in the managers group who were aged 45–64 years (2,578) was larger than in any other age group. In the sales workers group, the 15–24 years age group was the most dominant, but in all other occupation categories the largest number of employed people was in the 25–44 years age group.

**Figure 8: Number of resident workers by occupation by age, employed persons, Bowen Basin, 2006**



Source: ABS, 2006 Census, unpublished data

Table 18 provides a breakdown of the resident workforces of LGAs in the Bowen Basin by occupation grouping and age of workers, and also comparisons with the Queensland average. In the Bowen Basin, Machinery operators and drivers were younger than the average with most (51 per cent) aged 25–44 years. This age group held the largest proportion of Queensland workers also, but it was less than half (46 per cent) of all workers in the occupation group. Among other occupation groups in the region with relatively young workers were professionals. Nearly three quarters (74 per cent) of this group were younger than 45 years whereas only 61 per cent of professionals in Queensland were in this age group.

The age/workforce patterns for each LGA in the region by occupation may be summarised as follows:

- Central Highlands (R):** In 2006, this LGA had the region’s largest number (2,737 people) in the machinery operators and drivers group, which was the region’s largest occupation group (7,046 people). More than half (53 per cent) of the total was aged 25–44 years. The LGA also had the region’s largest number (2,644 people) in the technicians and trades workers group, the second largest regional occupation group (6,611 people). Almost half (49 per cent) the total in this group was aged 25–44 years. This LGA had the largest number (2,155) of managers, representing 38 per cent of the regional total. Workers in this group were relatively young compared with those in Banana (S), with almost half (45 per cent) aged 25–44 years.
- Isaac (R):** This LGA has the region’s second largest number (2,524 people) in the machinery operators and drivers group and also the second largest number (2,041 people) in the technicians and trades workers group. More than half (53 per cent) of the number in the latter group was aged 25–44 years.
- Banana (S):** Managers was the largest occupation group in this LGA, with 1,625 people and the second largest in the region, after Central Highlands (R). The proportion of retirement-aged people (65 years and over) in the managers group (15 per cent) was much higher than in other LGAs.
- Whitsunday (R) - Bowen SLA:** Labourers was the largest occupation group in the SLA, with 1,342 workers and 42 per cent were aged 25–44 years. The technicians and trades workers was the second largest occupation group with 753 workers, slightly more than the number (743) in the managers group. This area had the highest proportion (35 per cent) of people aged 45–64 years in the technicians and trades workers group and the lowest proportion (38 per cent) of people aged 25–44 years.

**Table 18. Occupation and age group of resident workforce, employed persons, Bowen Basin LGAs and Queensland, 2006**

Occupation	Age group (years)	Place of usual residence					
		Whitsunday (R) - Bowen SLA	Central Highlands (R)	Isaac (R)	Banana (S)	Bowen Basin	Queensland
		<i>Proportion (%) employed by age group and number (no.) employed by occupation</i>					
Managers	15-24 years	5	4	4	5	4	6
	25-44 years	38	45	46	33	41	45
	45-64 years	50	42	42	47	45	44
	65 years +	8	8	7	15	10	5
	<b>Total (no.)</b>	<b>743</b>	<b>2,155</b>	<b>1,244</b>	<b>1,625</b>	<b>5,767</b>	<b>225,683</b>
Professionals	15-24 years	11	14	15	15	14	9
	25-44 years	43	62	66	55	60	52
	45-64 years	44	24	19	28	25	37
	65 years +	3	1	0	3	1	2
	<b>Total (no.)</b>	<b>390</b>	<b>1,386</b>	<b>996</b>	<b>640</b>	<b>3,412</b>	<b>312,869</b>
Technicians and trades workers	15-24 years	25	27	22	24	24	22
	25-44 years	38	49	53	46	48	47
	45-64 years	35	23	25	29	26	30
	65 years +	2	1	1	1	1	1
	<b>Total (no.)</b>	<b>753</b>	<b>2,644</b>	<b>2,041</b>	<b>1,173</b>	<b>6,611</b>	<b>280,341</b>
Community and personal service workers	15-24 years	13	26	26	17	21	25
	25-44 years	48	48	48	46	48	44
	45-64 years	38	25	26	36	30	30
	65 years +	2	2	1	1	1	1
	<b>Total (no.)</b>	<b>408</b>	<b>721</b>	<b>470</b>	<b>433</b>	<b>2,032</b>	<b>166,405</b>
Clerical and administrative workers	15-24 years	15	18	18	18	17	15
	25-44 years	43	51	54	49	50	47
	45-64 years	40	30	27	30	31	37
	65 years +	2	1	1	2	2	2
	<b>Total (no.)</b>	<b>463</b>	<b>1,510</b>	<b>838</b>	<b>700</b>	<b>3,511</b>	<b>269,209</b>
Sales workers	15-24 years	40	41	36	41	40	39
	25-44 years	29	37	41	35	36	33
	45-64 years	29	20	22	23	23	26
	65 years +	1	1	1	1	1	2
	<b>Total (no.)</b>	<b>431</b>	<b>903</b>	<b>528</b>	<b>442</b>	<b>2,304</b>	<b>189,042</b>
Machinery operators and drivers	15-24 years	6	11	11	9	10	12
	25-44 years	44	53	50	50	51	46
	45-64 years	48	35	38	39	38	40
	65 years +	1	1	1	2	1	2
	<b>Total (no.)</b>	<b>682</b>	<b>2,737</b>	<b>2,524</b>	<b>1,103</b>	<b>7,046</b>	<b>132,123</b>
Labourers	15-24 years	20	27	26	23	24	25
	25-44 years	42	39	40	45	41	40
	45-64 years	36	33	33	29	33	33
	65 years +	2	2	1	3	2	2
	<b>Total (no.)</b>	<b>1,342</b>	<b>1,656</b>	<b>1,235</b>	<b>1,251</b>	<b>5,484</b>	<b>217,270</b>
Inadequately described / not stated	15-24 years	19	18	21	11	18	18
	25-44 years	36	44	40	36	40	40
	45-64 years	40	34	37	43	38	35
	65 years +	5	4	2	10	5	7
	<b>Total (no.)</b>	<b>113</b>	<b>244</b>	<b>185</b>	<b>130</b>	<b>672</b>	<b>32,094</b>
Total	15-24 years	17	19	17	16	17	18
	25-44 years	41	48	50	44	47	45
	45-64 years	40	30	31	35	33	35
	65 years +	3	2	2	5	3	2
	<b>Total (no.)</b>	<b>5,325</b>	<b>13,956</b>	<b>10,061</b>	<b>7,497</b>	<b>36,839</b>	<b>1,825,036</b>

(R) - Regional Council, (S) - Shire, SLA - Statistical local area

Source: ABS, 2006 Census, unpublished data

## 13. MINING INDUSTRIES

### 13.1 Occupation

Table 19, derived from published census tables, shows the distribution of the mining industry working population by occupation according to the number and proportion of workers engaged. Note that the numbers in this table differ slightly from those in Table 14, which are based on unpublished census data. In total, there were 12,342 workers engaged in the mining industry in the Bowen Basin in 2006, representing 43 per cent of the state mining workforce (29,006 workers). Isaac (R) had the largest mining workforce (6,368 workers) and accounted for more than half (52 per cent) of the total. In Central Highlands (R), the workforce of 3,957 people represented almost one third (32 per cent) of the regional total. The mining workforce in Banana (S) is concentrated in Moura and, with 1,406 workers, was much smaller than the workforces in Central Highlands (R) and Isaac (R). In Whitsunday (R) - Bowen SLA, Collinsville is the only mining centre, with just 611 people working there in 2006.

Machinery operators and drivers was the most common occupation group of people who work in the mining industry in the region. A total of 6,283 workers were in this group in 2006, representing more than half (51 per cent) of the workforce. By comparison, only 39 per cent of the Queensland mining workforce was in this occupation group. The next largest occupation group in the region was technicians and trades workers, with 3,435 workers or 28 per cent of the total. The proportion of this group in the Queensland workforce was marginally lower (25 per cent). The managers and professionals occupation groups were under-represented in the region compared with Queensland. In total, these two groups constituted 12 per cent of the regional industry workforce, but represented 21 per cent of the state mining workforce. Workers in these occupation groups are more likely to be located in head offices of mining companies than in regional areas. Very few workers in other occupation groups such as community and personal service workers were represented in the regional mining workforce.

**Table 19. Occupation of mining industry workforce by place of work, employed persons, Bowen Basin LGAs and Queensland, 2006**

Occupation	Number and per cent	Place of work of mining industry workforce					
		Whitsunday (R) - Bowen SLA	Central Highlands (R)	Isaac (R)	Banana (S) (incl. Taroom (S))	Bowen Basin	Queensland
		Number (no.) and proportion (%) employed by occupation					
Managers	no.	28	175	263	54	520	2,312
	%	5	4	4	4	4	8
Professionals	no.	41	269	555	127	992	3,648
	%	7	7	9	9	8	13
Technicians and trades workers	no.	160	1,052	1,824	399	3,435	7,228
	%	26	27	29	28	28	25
Community and personal service workers	no.	0	16	23	0	39	84
	%	0	0	0	0	0	0
Clerical and administrative workers	no.	22	207	285	66	580	2,480
	%	4	5	4	5	5	9
Sales workers	no.	0	3	9	0	12	104
	%	0	0	0	0	0	0
Machinery operators and drivers	no.	340	2,078	3,185	680	6,283	11,455
	%	56	53	50	48	51	39
Labourers	no.	20	121	171	67	379	1,393
	%	3	3	3	5	3	5
Inadequately described / not stated	no.	0	36	53	13	102	302
	%	0	1	1	1	1	1
<b>Total</b>	<b>no.</b>	<b>611</b>	<b>3,957</b>	<b>6,368</b>	<b>1,406</b>	<b>12,342</b>	<b>29,006</b>
	<b>%</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

(R) - Regional Council, (S) - Shire, SLA - Statistical local area

Source: ABS, 2006 Census, Table W12

## 13.2 Labour force containment

Of all industry groups in the Bowen Basin, the mining and construction groups are the most common employers of non-resident workforces (that is, people who work in an area but don't actually live there). Non-resident workers in these industries can belong to the construction workforce of a project (for example, in building a new power station, mine or railway), or alternatively be employed as part of the operational workforce. In the former case, the short construction period of the project and specialist skills required may dictate the use of imported rather than local labour. The use of FIFO/DIDO production workforces in the Bowen Basin is now common practice in mining production.

Comparison of Tables 4 and 14 shows that the number (12,336) of people who worked in the mining industry in the Bowen Basin (Table 14) greatly exceeded the number (8,585) of Bowen Basin residents who worked in the industry (Table 4). Similarly, the number (3,632) of construction workers who worked in the region exceeded the number (2,724) of resident workers in the industry. Table 20 shows that, of the 8,585 residents of the Bowen Basin who were employed in the mining industry, 7,584 or 88 per cent of the total actually worked in the area. Many (455 people) of the remainder had no fixed place of work, for example they were self-employed tradespersons or company representatives. Almost as many (414) people did not state their place of work. Very few people who worked in the mining industry reported that they worked outside the region, for example only 45 people worked in Mackay (R).

For Tables 20 and 22, shaded cells represent the number of jobs performed by people who live and work in the designated area. For Tables 21 and 23, the shaded cells show this information in terms of the percentage of jobs.

**Table 20. Place of usual residence of mining industry workforce by place of work, employed persons, Bowen Basin LGAs, 2006**

Place of work	LGA where mining workers usually reside				
	Whitsunday (R) - Bowen SLA	Central Highlands (R)	Isaac (R)	Banana (S)	Bowen Basin
	—no.—				
Whitsunday (R) - Bowen SLA	253	0	123	0	376
Central Highlands (R)	4	2,654	61	9	2,728
Isaac (R)	41	82	3,348	18	3,489
Banana (S) incl. Taroom (S)	0	10	0	981	991
<b>Bowen Basin total</b>	<b>298</b>	<b>2,746</b>	<b>3,532</b>	<b>1,008</b>	<b>7,584</b>
Whitsunday (R) - Whitsunday SLA	0	0	0	0	0
Mackay (R)	0	25	20	0	45
Gladstone (R)	0	12	0	0	12
Rockhampton (R)	0	6	3	3	12
Central West area	0	0	3	0	3
Townsville (C) incl. Charters Towers (C)	0	3	0	0	3
Cairns (R)	0	0	0	0	0
Mount Isa (C)	0	3	0	0	3
Wide Bay-Burnett SD	0	0	0	0	0
Darling Downs SD	0	0	0	0	0
South East Queensland	0	6	7	12	25
Other Queensland	11	3	0	6	20
No fixed address / undefined address	28	183	205	39	455
<b>Queensland</b>	<b>337</b>	<b>2,987</b>	<b>3,770</b>	<b>1,068</b>	<b>8,162</b>
Other Australia	3	3	3	0	9
Not stated	27	154	187	46	414
<b>Total</b>	<b>367</b>	<b>3,144</b>	<b>3,960</b>	<b>1,114</b>	<b>8,585</b>

(C) - City, (R) - Regional Council, (S) - Shire, SD - Statistical Division, SLA - Statistical local area

Source: ABS, 2006 Census, unpublished data

Table 21 shows the labour force containment rates for the mining industry group. No more than 12 per cent of the resident workforce worked outside the region. If the proportion of workers with no fixed address (5 per cent) and those who did not state their place of work (5 per cent) are excluded from the total in Table 20, the labour force containment rate for the mining industry in the region would be close to 100 per cent.

**Table 21. Labour force containment rates for mining industry workforce, employed persons, Bowen Basin LGAs, 2006**

Place of work	LGA where mining workers usually reside – labour force containment rate (per cent)				
	Whitsunday (R) - Bowen SLA	Central Highlands (R)	Isaac (R)	Banana (S)	Bowen Basin
	% of total				
Whitsunday (R) - Bowen SLA	69	0	3	0	4
Central Highlands (R)	1	84	2	1	32
Isaac (R)	11	3	85	2	41
Banana (S) incl. Taroom (S)	0	0	0	88	12
<b>Bowen Basin total</b>	<b>81</b>	<b>87</b>	<b>89</b>	<b>90</b>	<b>88</b>
Other Queensland	3	2	1	2	1
No fixed address / undefined address	8	6	5	4	5
<b>Queensland</b>	<b>92</b>	<b>95</b>	<b>95</b>	<b>96</b>	<b>95</b>
Other Australia	1	0	0	0	0
Not stated	7	5	5	4	5
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

(R) - Regional Council, (S) - Shire, SLA - Statistical local area

Source: ABS, 2006 Census, unpublished data

### 13.3 Job containment

Table 22 illustrates the number of jobs in the mining industry group for LGAs in the Bowen Basin (columns), classified by the place of usual residence of workers occupying those jobs (rows). The table shows that 7,584 mining jobs in the Bowen Basin were performed by usual residents of that area in 2006. A further 2,416 jobs in the study area were held by people who lived in Mackay (R); 876 jobs were performed by people who lived in Rockhampton (R); and 422 jobs in the Bowen Basin were held by South East Queensland residents. Only 129 jobs were held by people who lived outside Queensland.

With over half (6,365) of the total jobs (12,336) in the mining industry group, Isaac (R) also attracted the highest number of non-resident workers. Most came from the adjoining LGA of Mackay (R) (2,040), while some travelled to work from Rockhampton (R) (195) and South East Queensland (187). Central Highlands (R) had a significant number of non-resident workers from Rockhampton (R) (567) and South East Queensland (126).

**Table 22. Place of work by place of usual residence of mining industry workforce, employed persons, Bowen Basin LGAs, 2006**

Place of usual residence	LGA where place of work of mining workers is located				
	Whitsunday (R) - Bowen SLA	Central Highlands (R)	Isaac (R)	Banana (S) (incl. Taroom (S))	Bowen Basin
	—no.—				
Whitsunday (R) - Bowen SLA	253	4	41	0	298
Central Highlands (R)	0	2,654	82	10	2,746
Isaac (R)	123	61	3,348	0	3,532
Banana (S)	0	9	18	981	1,008
<b>Bowen Basin total</b>	<b>376</b>	<b>2,728</b>	<b>3,489</b>	<b>991</b>	<b>7,584</b>
Whitsunday (R) - Whitsunday SLA	28	4	70	0	102
Mackay (R)	124	237	2,040	15	2,416
Gladstone (R)	0	41	32	50	123
Rockhampton (R)	6	567	195	108	876
Central West area	0	14	0	0	14
Townsville (C) incl. Charters Towers (C)	37	32	124	0	193
Cairns (R) and Mount Isa (C)	3	0	9	3	15
Wide Bay-Burnett SD	0	92	59	98	249
Darling Downs SD	0	20	26	6	52
South East Queensland	15	126	187	94	422
Other Queensland	15	29	54	10	108
No usual address – QLD	3	18	26	6	53
<b>Queensland</b>	<b>607</b>	<b>3,908</b>	<b>6,311</b>	<b>1,381</b>	<b>12,207</b>
Balance of Australia	6	46	54	23	129
<b>Total</b>	<b>613</b>	<b>3,954</b>	<b>6,365</b>	<b>1,404</b>	<b>12,336</b>

(C) - City, (R) - Regional Council, (S) - Shire, (SD) - Statistical Division, SLA - Statistical local area

Source: ABS, 2006 Census, unpublished data

Table 23 summarises the data shown in Table 22 in terms of *job containment rates* (the proportion of an area's workforce that is usually resident within that area). Overall the study area had a relatively low job containment rate of 61 per cent in the mining industry, compared with the job containment rate (76 per cent) in all industries (Table 13). This indicates that 39 per cent of mining jobs were occupied by people living outside the region, including people with no usual address in Queensland.

Job containment rates in the Bowen Basin varied considerably from LGA to LGA. Whitsunday (R) - Bowen SLA had the lowest job containment rate (41 per cent) in the region, which indicates that this LGA had a higher reliance on non-resident labour than the other LGAs in the region. This means that 59 per cent of the jobs in the LGA were held by workers who lived elsewhere. More than one third (34 per cent) of the non-resident labour force in Whitsunday (R) - Bowen SLA lived in the adjoining LGA of Mackay (R). An additional 34 per cent of jobs in the SLA were performed by residents of Isaac (R). The Eastern Creek and Newlands mines in the south-east of Bowen SLA are located close to the urban centre of Glenden, which is in Isaac (R). Mining workers who live in Glenden would travel to work by road to reach these mines, about 25 kilometres away.

Table 23 shows that the highest proportion of the non-resident workforce in the region came from 'Other Queensland'. The two LGAs outside the Bowen Basin that accounted for the most non-resident labour were Mackay (R) and Gladstone (R). For example, a total of 2,040 workers or almost three quarters (72

per cent) of the workers in Isaac (R) who lived in 'Other Queensland' came to work from homes in Mackay (R). In total, 44 per cent of Isaac (R)'s workforce came from outside the region. In Central Highlands (R), almost one third (30 per cent) of the workforce lived outside the region. Rockhampton (R) accounted for 567 workers or almost half (46 per cent) of the number of workers who lived outside the region and worked in Central Highlands (R).

**Table 23. Job containment rates for mining industry workforce, employed persons, Bowen Basin LGAs, 2006**

Place of usual residence	Place of work – job containment rate (per cent)				
	Whitsunday (R) - Bowen SLA	Central Highlands (R)	Isaac (R)	Banana (S) incl. Taroom (S)	Bowen Basin
	% of total				
Whitsunday (R) - Bowen SLA	41	0	1	0	2
Central Highlands (R)	0	67	1	1	22
Isaac (R)	20	2	53	0	29
Banana (S)	0	0	0	70	8
<b>Bowen Basin total</b>	<b>61</b>	<b>69</b>	<b>55</b>	<b>71</b>	<b>61</b>
Other Queensland	38	30	44	28	37
No fixed address / undefined address	0	0	0	0	0
<b>Queensland</b>	<b>99</b>	<b>99</b>	<b>99</b>	<b>98</b>	<b>99</b>
Other Australia	1	1	1	2	1
<b>Total</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

(R) - Regional Council, (S) - Shire, SLA - Statistical local area

Source: ABS, 2006 Census, unpublished data

## GLOSSARY

### **ABS**

The Australian Bureau of Statistics.

### **Census**

The Census of Population and Housing is the largest statistical operation undertaken by the Australian Bureau of Statistics. It aims to accurately measure the number of people in Australia on census night, their key characteristics, and the dwellings in which they live. The scope of the Census is all people in Australia on census night, other than foreign diplomats and their families. Visitors to Australia are counted regardless of how long they have been in the country or how long they plan to stay. Australian residents out of the country on census night are not included. The 2006 Census was conducted on 8 August 2006. The next Census will be conducted on 9 August 2011.

### **Estimated Resident Population (ERP)**

The ABS prepares annual estimates of the resident population for Australia during intercensal years, which are based on the usual resident population measure derived from the previous Census. This ERP is derived from data on population indicators at the sub-state level, including dwelling approvals, Medicare change of address records and electoral enrolments.

### **Fly in/fly out or drive in/drive out (FIFO/DIDO)**

An arrangement whereby workers live for an extended period in an area removed from their usual place of residence while on-shift and commute by air or road between home and place of work. Flexible work schedules and accommodation arrangements in the mining industry have made FIFO/DIDO more feasible, to the point where it has now supplanted provision of local housing as a condition of employment for many operations. See also Non-resident workers.

### **Local government area (LGA)**

According to the Australian Standard Geographical Classification (ASGC), the local government area (LGA) is a spatial unit that represents the geographical area under the responsibility of an incorporated local government council, or an Aboriginal or Island Council. An LGA may be a City (C), Regional Council (R), Shire (S) or Town (T).

In the statistical geography current at the time of the Census in August 2006 (ASGC, 2006), LGAs were equal to or larger than statistical local areas (SLAs) and collection districts (CDs). In March 2008, LGA boundaries were changed as the result of administrative reforms in Queensland and the reformed LGA boundaries were included in the 2008 standard geographical classification (ASGC, 2008).

### **Non-resident workers**

Employees of mining companies, contractors and construction workers who live in an area for extended periods when working, but have a permanent place of residence in another area. This group includes workers engaged in FIFO/DIDO arrangements and who live locally in non-private dwellings such as single persons quarters (SPQs), hotels, motels, caravan parks and other forms of accommodation while on-shift. Although many non-resident workers may actually spend a total of more than six months of the year in their area of work, they are generally not regarded as being residents by the ABS and are omitted from estimates of the resident population. See also FIFO/DIDO, ERP.

### **Office of Economic and Statistical Research**

The Office of Economic and Statistical Research (OESR), a portfolio office of Queensland Treasury, is the principal economic, demographic and social research agency for the Queensland Government. OESR and the former Planning Information and Forecasting Unit (PIFU) were amalgamated in late 2009.

### **Resident population**

According to the ABS, the resident population is an estimate of the number of persons who are resident within a given area. For census years, the resident population is determined from responses given to questions in the census form regarding occupancy. People are regarded as residents of the area if they identified that they lived in the area for at least six months of the census year. The ABS collates all census results and redistributes resident persons who were absent on census collection night back into

their area of usual residence. This usual resident population, which is also adjusted for undercount, then forms the basis for estimating population change in the intercensal period.

### **Statistical local area (SLA)**

The statistical local area (SLA) is a defined area under the ASGC. In Queensland, many SLAs share the same boundaries as LGAs. In the Bowen Basin, many former LGAs became SLAs following local government reforms in 2008, without any further boundary changes. The exception was Banana Shire which was expanded in area following the addition of the northern part of the former shire of Taroom. The resulting LGA retained the name of the former LGA. The SLA of Banana Shire shares the same boundaries as the LGA of that name. SLAs cover, in aggregate, the whole of Australia without gaps or overlaps. See also Local Government Area.

### **Usual residence**

The ABS uses two concepts of usual residence—*usual residence in a dwelling* and *usual residence in a household or family home*. These concepts are defined differently:

- Usual residence in a dwelling applies to the dwelling where the person lives for the majority of the time, and is the definition used to estimate the usual resident (UR) population derived from the Census of Population and Housing. The Census establishes usual residence according to the place where the person has lived or intends to live for six months or more in the census year.
- Usual residence in a household or family home applies to the dwelling that the person considers to be their family home or place of usual residence, irrespective of the length of time that they actually live in the dwelling. This definition is used by the ABS for the Monthly Population Survey and other household surveys.

For most people, the family home is the place where they live for the majority of the time, and that dwelling may be considered to be their place of usual residence according to both definitions. An exception occurs in the case of mining and construction workers, who live for extended periods in non-private accommodation near the work site but fly or drive to their family home when off-roster. It is likely that many of these workers would consider the family home to be their usual place of residence, despite spending more than half of the given year at the location of their workplace.

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