

# FIFO WORKFORCE IN THE CAIRNS REGION



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W S Cummings B Econ | 38 Grafton St (PO Box 2148) Cairns Q 4870  
P: 07 40312888 | M: 0418 871 011 | F: 07 40311108  
cumming@cumming.net.au | www.cumming.net.au  
Cummings Economics | ABN: 99 734 489 175

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# 1. INTRODUCTION

## 1.1 General

Cummings Economics was asked by Skills DMC to provide a brief research report on the extent and composition of fly-in/fly-out workforce to mining based in the Cairns region and flying to sites across northern Australia, and the potential FIFO workforce pool.

## 1.2 Methodology and Definitions

The report is based on a number of sources:

- 1) Queensland Resources Council economic impact research;
- 2) Census data;
- 3) Existing studies and especially surveys carried out for Skills DMC by James Cook University among:
  - o FIFO workers departing Cairns Airport;
  - o Persons who had registered an interest in FIFO work;
- 4) Direct information from:
  - a) Companies operating air services to mines.
  - b) Mining companies using the Cairns region as a source of FIFO workers:
  - c) Employment agents, labour hire firms;

Information collection is against a background of earlier work carried out by Cummings Economics in 2008 and with an update in 2010, "*Far North Queensland Mining & Industry Services Opportunity Study*". It is also against a background of research carried out by QRC for Skills DMC on the demand aspects of the Cairns Skills Project.

Some workers have been found to be long distance drive-in/drive-out workers to mines outside the Cairns and immediate hinterland region, eg. from Tablelands to Central Queensland coal fields. These are effectively equivalent to FIFO.

It should also be noted that FIFO workforce related to mining, do not always give their industry as mining. There can be significant elements classified as being in construction, transport, electricity, gas and water and elements of manufacturing and services.

## 1.3 Areas Covered

The source area covered is Cairns and the immediate regions covered by Cairns Statistical Area, Level 4, which includes Cairns, Douglas, Cassowary Coast, the Tablelands area but not the Dimbulah, Chillagoe and Mt Carbine areas of the former Mareeba Shire.

All this area is within a two-hour's drive of Cairns and most within a 90-minutes' drive. Earlier research has indicated that for every FIFO worker based in Cairns, there is of the order of one extra located in this area outside of Cairns.

Most would fly out via Cairns airport, a few via small services based on Innisfail and occasionally Mareeba airport. Some will drive to Townsville and fly from there.

While the task required investigation of FIFO destinations across northern Australia, from the Far North Queensland region south to Central Queensland and across the north to the Pilbara, for completeness of the total FIFO workforce, the research was extended to include Papua New Guinea and Papua Indonesia.

It is possible that FIFO workforce resident in Cairns travel beyond these limits on non FIFO designated air services, especially in highly skilled occupations. Two Cairns companies involved in the 'reline' business for mines regularly operate beyond these limits.

References to Cairns means the Australian Bureau of Statistics SA Level 3 Cairns North and Cairns South references to Cairns region are to ABS SA Level 4 Cairns.

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## 2. ESTIMATES OF CURRENT WORKFORCE SIZE & COMPOSITION

### 2.1 Queensland Resources Council Research

Queensland Resources Council commissioned an Economic Report from Lawrence Consulting who received data from 38 QRC member companies about the location of their employees, wages and salaries paid to them, and expenditure on goods and services in that area for the year 2011/12.

The survey was limited to QRC members of relevance to the Cairns and Immediate Region. It should be noted that:

- a) The members included Stanwell Power who have small employment in the region in hydroelectricity and wind-farms;
- b) No mining operations were included in the Far North Queensland region except Rio Tinto's Weipa operation.

This meant that operations at the time with a potential influence not included were:

#### Within FNQ

- Tungsten operation at Mt Carbine and Wolfram Camp
- Mt Garnet (Kagara)
- Georgetown
- Chillagoe (marble)
- Mareeba Perlite
- Cape Flattery
- Mt Surprise (silica)
- Georgetown (gold)

#### Outside FNQ

- Groote, NT
- Gove, NT
- Papua New Guinea

The figures thus represent something of a minimum base line.

**Table #1: QRC Estimates of Employment & Expenditure in Far North Qld by QRC Members**

	Wages	Numbers employed	Expenditure goods & services	Total wages, salaries & other
Cairns	\$63 m	501	\$146 m	\$209 m
Tablelands	\$28 m	223	\$46 m	\$74 m
Cassowary Coast	\$18 m	147	\$13 m	\$31 m
<b>Cairns &amp; Immediate Region</b>	<b>\$109 m</b>	<b>871</b>	<b>\$205 m</b>	<b>\$314 m</b>
Etheridge Croydon	-	-	-	-
Cook Shire	\$2 m	20	-	\$2 m
Weipa Town	\$165 m	1324	\$51 m	\$216 m
<b>Peninsula</b>	<b>\$167 m</b>	<b>1344</b>	<b>\$51 m</b>	<b>\$218 m</b>
<b>Total Far North Qld</b>	<b>\$276 m</b>	<b>2215</b>	<b>\$256 m</b>	<b>\$532 m</b>

Source: Cummings Economics from Queensland Resources Council information.

With no mines included in the immediate region, it can be taken that except for a few Stanwell Power employees, almost all the numbers included in the Cairns and Immediate Region would have been FIFO to distant mines.

The data also includes split up between mines and contractors for the Far North Statistical Division as follows.

<u>Employment in 2011/12</u>	
Coal/Bauxite .....	905
CSG/LNG .....	8
Metaliferous .....	429
Other .....	36
Contractors .....	877
<b>Total .....</b>	<b>2252</b>

<u>Total Non Contractors</u>	
2010/11 .....	1351
2011/12 .....	1388

The data indicates that average salaries paid per full time employee was \$125,000.

## 2.2 From Census Data

### 2.2.1 General

The 2011 Census provides data on workforce by 'place of residence' and by 'place of work' down to four-digit occupation levels and four-digit industry levels. It also provides information by fields of study of population and workforce.

Thus, 'place of work' of Cairns region residents classified by industry group and occupations can be traced through to the various statistical areas throughout the wider area defined.

Unfortunately the census structure does not allow for identification of Cairns region residents whose 'place of work' is outside Australia such as Papua New Guinea.

It should also be noted that the figures are understated because of a substantial proportion of residents not stating where they worked or giving no fixed 'place of work' response. From analysis of the data available, it seems likely that the figures for 'place of work' are understated by about 12% in the Cairns region.

### 2.2.2 Total Numbers of Cairns Region Residents Working in Other Regions

Analysis is restricted to the regions of northern Australia, south to Fitzroy region and across the Northern Territory to the Kimberley and Pilbara regions.

**Table #2: Numbers of Cairns & Immediate Region (Cairns SA4) Usual 'Place of Residence' Giving their 'Place of Work' Outside the Region**

Statistical Area	Number
Outback Qld Far North (SA3)	983
Outback Qld North (SA3)	702
Townsville (SA4)	302
Mackay (SA4)	253
Fitzroy (SA4)	109
Darwin NT (SA4)	59
Outback NT (SA4)	303
Kimberley WA (SA3)	35
Pilbara WA (SA3)	134
<b>Total</b>	<b>2880</b>

Source: Cummings Economics from ABS Census 2011 Workforce.

Allowing for understatement, the total is probably of the order of 3200.

### 2.2.3 Cairns Region Residents Working in Other Regions by Industry

Not all 'place of work' outside the region is generated by or related to mining activity. The following seeks to identify the importance of mining and mining related activity by industry.

#### Outback – Far North

The following table shows number of Cairns Region residents by industry by 'place of work' in sub areas of the Outback Far North area covering the:

- Croydon Etheridge – Gulf Area
- Mareeba Shire Northern and Western Fringe (Tablelands)
- Cape York (mainly Cook Shire)
- Weipa
- Other

The table highlights the importance of mining, construction and transport in generating work for Cairns residents in the area.

**Table #3: Number of Persons 'Usual Place of Residence' Cairns Region (SA4) with 'Place of Work' in Sub Areas of Outback Far North, Census 2011**

	Croydon Etheridge	Tablelands	Cape York	Weipa	Other	Total
Mining	50	50	33	3	0	136
Construction	7	70	34	8	20	139
Transport	0	8	5	3	17	33
Manufacturing	3	22	8	0	0	33
Agriculture	11	79	6	0	0	96
Other	14	305	76	14	134	543
<b>Total</b>	<b>85</b>	<b>534</b>	<b>162</b>	<b>28</b>	<b>171</b>	<b>980</b>

Source: Cummings Economics from ABS Census 2011 Workforce.

The table illustrates that this area is closely associated with the Cairns Region, especially with the Tablelands, with substantial numbers in non-mining activity including agriculture and manufacturing in the nearby Outback Tablelands area and community services including public administration, education and training, and health care, etc. Only those services provided to Weipa could be regarded as being related to mining and some of these services relating to the Chillagoe area and Croydon Etheridge.

Estimated number of jobs related to mining is estimated at:

Weipa (all) .....	10	10
Etheridge Croydon.....		65
Mining (all) .....	50	
Construction (part).....	5	
Other (part) .....	10	
Tablelands .....		165
Mining (all) .....	50	
Construction (part).....	55	
Other (part) .....	60	
Cape York.....		60
Mining (all) .....	33	
Construction (part).....	7	
Other (part) .....	20	
Other.....	Nil	Nil
<b>Total .....</b>		<b>300</b>

Allowing for understatement, total is probably of the order of 340.



Outback – North

Most of the economy of this area is related to mining including the provision of most services.

**Table #4: Number of Persons 'Usual Place of Residence' Cairns Region (SA4) with 'Place of Work' in Sub Areas of Outback North, Census 2011**

	<b>Carpentaria</b>	<b>Mt Isa &amp; Region</b>	<b>Nthn Highlands</b>	<b>Total</b>
Mining	153	239	67	459
Construction	42	18	6	66
Transport	3	3	4	10
Manufacturing	23	20	0	43
Agriculture	7	4	6	16
Other	42	54	8	-
<b>Total</b>	<b>270</b>	<b>338</b>	<b>91</b>	<b>699</b>

Source: Cummings Economics from ABS Census 2011 Workforce.

Total related to mining is estimated at

Carpentaria .....	240
Mt Isa & Mt Isa Region.....	330
Nthn Highlands .....	80
<b>Total .....</b>	<b>650</b>

Allowing for understatement, total is probably of the order of 730.

Townsville Region

Only a small amount of the work in this area would relate to mining. Many relate to government services in health, education and public administration.

**Table #5: Number of Persons 'Usual Place of Residence' Cairns Region (SA4) with 'Place of Work' in the Townsville Region (SA4), Census 2011**

<b>Townsville Region (SA4)</b>	
Mining	23
Construction	52
Transport	21
Manufacturing	35
Agriculture	7
Other	162
<b>Total</b>	<b>300</b>

Source: Cummings Economics from ABS Census 2011 Workforce.

Apart from directly in mining, some of the manufacturing, transport and construction could be related to mining. Estimated number for mining related is put at about 40 and allowing for understatement, total is probably of the order of 45.

Mackay Region

Most of Cairns Region resident jobs in this region are likely to relate to mining.

**Table #6: Number of Persons 'Usual Place of Residence' Cairns Region (SA4) with 'Place of Work' in the Mackay Region (SA4), Census 2011**

<b>Mackay Region (SA4)</b>	
Mining	125
Construction	49
Transport	12
Manufacturing	10
Other	57
<b>Total</b>	<b>253</b>

Source: Cummings Economics from ABS Census 2011 Workforce.

It is likely that most of the jobs recorded in construction, transport and manufacturing relate to mining and a substantial proportion of those in 'Other' related to mining or the mining centres. Estimated total related to mining is put at about 200 and allowing for understatement, total is probably of the order of 220.

.Fitzroy Region

Most of the jobs for Cairns residents in this region are likely to be related to mining.

**Table #7: Number of Persons 'Usual Place of Residence' Cairns Region (SA4) with 'Place of Work' in the Fitzroy Region (SA4), Census 2011**

Fitzroy Region (SA4)	
Mining	24
Construction	19
Transport	5
Manufacturing	3
Other	56
<b>Total</b>	<b>107</b>

Source: Cummings Economics from ABS Census 2011 Workforce.

Cairns resident workforce related to mining is estimated at about 70 and allowing for understatement, total is probably of the order of 80.

.Northern Territory

Most of the employment in this area would be related to mining, especially in East Arnhem (Groote and Gove ) and other.

**Table #8: Number of Persons 'Usual Place of Residence' Cairns Region (SA4) with 'Place of Work' in Sub Areas of Northern Territory Region, Census 2011**

	East Arnhem	Darwin	Other NT	Total
Mining	102	0	28	130
Construction	34	3	8	45
Transport	3	9	0	12
Manufacturing	26	0	0	26
Other	74	53	30	157
<b>Total</b>	<b>239</b>	<b>65</b>	<b>66</b>	<b>370</b>

Source: Cummings Economics from ABS Census 2011 Workforce.

Almost all the employment of Cairns residents in East Arnhem would be related to mining and the mining centres of Groote and Gove. Part of the employment in Darwin would relate to the offshore oil and gas. Most of the employment in 'Other' Northern Territory would relate to mining.

Estimated total related to mining is 320 and allowing for understatement, total is probably of the order of 360.

.Kimberley/Pilbara

Almost all the employment of Cairns residents would relate to mining, and the offshore gas and mining related centres.

**Table #9: Number of Persons 'Usual Place of Residence' Cairns Region (SA4) with 'Place of Work' in Sub Areas of Kimberley/Pilbara Region, Census 2011**

	Kimberley	Pilbara	Total
Mining	6	40	46
Construction	9	58	67
Transport	7	10	17
Manufacturing	0	12	12
Other	13	14	27
<b>Total</b>	<b>35</b>	<b>134</b>	<b>169</b>

Source: Cummings Economics from ABS Census 2011 Workforce.

Employment related to mining or mining centres is estimated at about 160 and allowing for understatement, total is probably of the order of 180.

.Total

Total employment of Cairns Region (SA4) residents in other regions across the north is estimated on the basis of the foregoing as follows.

**Table #10: Estimated Number of Persons (including estimate for not stated) 'Usual Place of Residence' Cairns Region (SA4) with 'Place of Work' across Northern Australia Related to Mining & Mining Centres, Census 2011**

Outback Qld Far North	340
Outback Qld North	730
Townsville Region	40
Mackay Region	220
Fitzroy Region	80
Northern Territory	360
Kimberley Pilbara	180
<b>Total</b>	<b>1950</b>

Source: Cummings Economics from ABS Census 2011 Workforce.

The numbers do not include mining related employment in Papua New Guinea which is estimated at around 400. In addition, as from August 2013, BMA will commence flights carrying FIFO workforce from Cairns to Moranbah that will build up over the coming months to an additional 250. Taking these factors into account, it is likely that total employment related to mining outside the Cairns Region by Cairns Region residents is of the order of 2350 and will increase to 2600 before the end of 2013.

Most of the movements involved could be expected to be using air transport except for Croydon Etheridge and Outback Tablelands that would be mainly drive-in.

**2.2.4 Growth**

Unfortunately the analysis of 'place of work' by 'place of residence' cannot be carried out easily for the 2006 Census.

The preceding estimate of the order of 2600 compares with an estimate prepared for the Far North Queensland region (Cairns and Immediate Region plus Outback Far North) of total mining related workforce in the 2010 update of the Mining and Industrial Services Opportunity Study, Cairns/Far North Queensland by Cummings Economics.

**Table #11: Estimates of Mining Employment Far North Statistical Division, 2010 & by Late 2013**

	<b>2010</b>	<b>2013</b>
Residential <sup>(1)</sup>	1150	<sup>(1)</sup> 1500
Fly-in/Fly-out	2150	2600
<b>Total</b>	<b>3300</b>	<sup>(1)</sup> <b>4100</b>

<sup>(1)</sup> *Note:* Includes a major increase in employment reported at Weipa as per QRC report (see Table #1), but a loss since 2011 of employment in the Immediate Cairns Region through loss of employment by Kagara.

Source: Cummings Economics.

## 2.3 From Information About Air Services

The following table gives details of flights known to carry mining related traffic.

<b>Table #12: Estimated Weekly Seat Capacity of Mining Related Flights from Cairns to Mines &amp; Mining Related Centres</b>		
		<b>cf 2010</b>
<b>Queensland</b>		
<b>Far North</b>	<b>1410</b>	<b>951</b>
Weipa	1330	740
Cape Flattery	80	80
Other (Kagara)	-	131
<b>North West</b>	<b>1540</b>	<b>1010</b>
Century	400	600
Cloncurry (Ernest Henry)	500	74
Mt Isa	430	136
Cannington	170	200
Eloise	40	-
<b>Central Queensland</b>	<b>230</b>	<b>12</b>
Mackay	<sup>(1)</sup> est (60)	-
Moranbah	<sup>(4)</sup> 150	-
Emerald	20	12
<b>Northern Territory</b>	<b>1040</b>	<b>900</b>
Groote	290	200
Gove	700	700
Darwin	<sup>(1)</sup> est (50)	-
<b>Papua New Guinea</b>	<b>860</b>	<sup>(2)</sup> <b>843</b>
Tabubil	110	<sup>(2)</sup> 108
Moro	70	36
Mt Hagen	-	88
Port Moresby	<sup>(3)</sup> <sup>(1)</sup> est (530)	est (521)
Rabaul	150	-
Lihir	-	90
<b>Papua Indonesia</b>	<b>150</b>	<b>220</b>
Timika	150	220
<b>Total</b>	<b>5400</b>	<b>3936</b>

<sup>(1)</sup> *Note:* Total seats to Port Moresby, Darwin and Mackay are much larger than shown here. Estimate is of number of seats to those centres that would be mining related.

<sup>(2)</sup> *Note:* Adjusted for over estimate of numbers in 2010 to Lihir mine.

<sup>(3)</sup> *Note:* Composed of 30% of seat numbers of 1772.

<sup>(4)</sup> *Note:* BMA will commence two weekly services to Moranbah from the second week of August. At some point in the future, this will double to four flights/week.

Source: Cummings Economics from Cairns Airport & industry information.

The indications are that there has been a substantial rise in seat numbers since 2010 to Groote/Darwin, Weipa, Mt Isa/Cloncurry and to Mackay/Moranbah. Papua New Guinea pattern has changed with Mt Hagen now going through Port Moresby and Lihir now going through Rabaul. A number of the services, especially those overseas but also to/from Weipa and to/from Gove, would not be carrying significant numbers of FIFO workers but general business traffic, mine staff transiting via Cairns to other centres in Australia and overseas and staff located at the mines coming to Cairns for R&R and other purposes.

It should be noted that there are daily flights to Perth from Cairns, including some which are direct, but as these are predominantly servicing markets other than mining, these are not included above. From the previous section however, it is evident that 110 residents in the Cairns region work in north-west Western Australia, and these would use a variety of flights both direct to Perth and via Brisbane, but would represent only a very small proportion of RPT seats available.

### 3. ESTIMATION OF THE POTENTIAL FIFO WORKFORCE

#### 3.1 General

Assessment of potential workforce available for mining related FIFO operations involves a number of different levels of analysis.

The following looks at the question at a number of levels.

- 1) The Skills/Occupations Composition of Mining and FIFO Workforces
- 2) Potential Availability for Specific Skills in Relation to Existing Skills Available.
- 3) Indications from James Cook University Survey and BMA Experience.
- 4) Region's Ability to Attract Workforce with Requisite Skills to Locate in Cairns Region.
- 5) Identification of Areas in which Special Training Initiatives might be Needed at Higher levels of Expanded Demand.
- 6) Potential Availability in Relation to Overall Workforce Availability.

### 3.2 The Skills/Occupations Composition of Mining and FIFO Workforces

The following table gives occupation composition of mining workforce by 'place of residence' for Cairns city (Gordonvale to Ellis Beach) in 2006 and 2011 and change, using data extracted recently for the QRC workforce study. While this would underestimate the total FIFO market of the Cairns region catchment (ie. within two-hours' drive of Cairns Airport, the increases and composition are likely to be similar to the broader geographical region..

**Table #13: Mining Employed Workforce by Occupation Profile (usual place of residence), Cairns (north & south), 2006 & 2011 Census**

		2011	2006	% increase
Managers	General	5	3	
	Advertising, PR, sales	4	4	
	Finance	6	7	
	HR	4	4	
	Construction	11	-	
	Production	37	20	
	Supply & distribution	8	4	
	Other	8	5	
	<b>Sub Total</b>	<b>83</b>	<b>47</b>	<b>+77%</b>
Professionals	Business marketing & HR	10	-	
	Accountants	-	8	
	HR	10	7	
	Training & development	7	7	
	Surveyors	7	-	
	Public relations	-	3	
	Civil engineers	-	4	
	Industrial mechanical engineers	4	6	
	Mining engineers	15	10	
	Environmental scientists	7	-	
	Geologists, etc.	16	15	
	Other natural science	3	-	
	Vocational education	6	5	
	Occupational & environmental health	13	5	
	Registered nurses	4	-	
	ICT professionals	4	-	
	<b>Sub Total</b>	<b>106</b>	<b>70</b>	<b>+51%</b>
Technical & Trades	Science technicians	10	4	
	Architectural building & surveying	5	4	
	Electrical & mechanical engineering drafts person	-	3	
	Other building & engineering	51	22	
	Auto electricians	-	4	
	Motor mechanics	3	5	
	Structural steel & welding trades	25	22	
	Metal fitter & machinists	103	71	
	Plumbers	3	-	
	Electro tech & telecommunications	6	-	
	Electricians	38	30	
	Chefs	7	-	
	Cooks	4	-	
	<b>Sub Total</b>	<b>255</b>	<b>165</b>	<b>+55%</b>
	Community & Service	Fire & emergency	5	-
Workers	Security officers & guards	4	3	
<b>Sub Total</b>	<b>9</b>	<b>3</b>	<b>+200%</b>	

<b>Table #13: Mining Employed Workforce by Occupation Profile etc Cont'd</b>			
Clerical & administrative	Contract & project administrators	7	3
	Office managers/secretaries	9	
	General clerks	17	
	Payroll/accounting clerks	9	
	Purchasing & supply logistics	16	
	Transport & dispatch	8	
	<b>Sub Total</b>	<b>66</b>	
Sales	Clerks	-	-
	Sales assistants	-	4
	<b>Sub Total</b>	<b>-</b>	<b>4</b>
Machinery operators & drivers	Machinery operators	22	12
	Industrial spray painters	5	-
	Drillers, miners & shot firers	237	78
	Other stationery plant operators	17	7
	Earthmoving plant operators	21	10
	Train drivers	7	-
	Truck drivers	50	10
	<b>Sub Total</b>	<b>359</b>	<b>117</b>
Labourers	Commercial cleaners	5	-
	Structural steel construction	9	10
	Other construction labourers	27	7
	Caretakers	4	-
	Other miscellaneous labourers	4	-
<b>Sub Total</b>	<b>49</b>	<b>17</b>	<b>+18%</b>
Inadequately described		12	-
<b>Overall total</b>	<b>959</b>	<b>477</b>	<b>+100%</b>

Source: Cummings Economics from ABS Census 2006 & 2011 Workforce.

The 100% growth in mining workforce in Cairns, 2006 to 2011, was particularly strong in the 'Machinery operators and drivers' category and especially in the category 'Drillers, miners and shot firers' that grew by 200% to be three times the 2006 level.

The following table compares the occupation profile of Cairns and Cairns region with the profile of the Moranbah Statistical Area and North West Queensland region (Queensland Outback – North SA3).

<b>Table #14: Comparison of Occupation Profiles of Mining Workforce – Moranbah, North West Queensland, Cairns City &amp; Cairns Immediate Region</b>				
	<b>Moranbah</b>	<b>North West</b>	<b>Cairns City</b>	<b>Cairns Region (SA4)</b>
Managers	5%	5%	9%	7%
Professionals	9%	15%	10%	10%
Technical & trades	31%	33%	28%	27%
(Metal fitters & machists)	(13%)	(11%)	(11%)	(11%)
(Other)	(18%)	(22%)	(17%)	(16%)
Community & service workers	0%	1%	1%	0%
Clerical & administration	5%	5%	7%	6%
Sales	0%	0%	0%	0%
Machinery operators & drivers	45%	36%	38%	44%
(Drillers, miners & shot firers)	(35%)	(25%)	(25%)	(28%)
(Other)	(10%)	(11%)	(13%)	(16%)
Labourers	4%	5%	5%	6%
Inadequately described	1%	1%	1%	0%
<b>Total</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>

Source: Cummings Economics from ABS Census 2011 Workforce.



The three profiles by occupation are very similar.

The James Cook University (JCU) Cairns Campus survey of FIFO workers at Cairns airport in 2012 for the Skills DMC FIFO coordinator indicated the following profile from a sample of 197.

	<u>JCU data</u>	<u>(cf ABS data)</u>
Technicians & trades .....	45%.....	(28%)
Machinery operators & labourers .....	43%.....	(42%)
Managers & professionals.....	17%.....	(19%)
Other .....	-.....	(11%)
<b>Total .....</b>	<b>100%.....</b>	<b>(100%)</b>

Although some of the JCU survey respondents would have been from outside of Cairns, there are obvious differences with the ABS figures. The JCU survey indicates much higher percentages of technicians and trades as opposed to machinery operators and labourers.

Possible reasons for the difference could be:

- That the ABS figures include Cairns non FIFO workers with a much higher proportion of machinery operators and drivers as opposed to technicians and trades;
- That descriptions recorded by survey respondents were different to the ABS data.

### 3.3 Potential Availability for Specific Skills in Relation to Existing Skills Available

As identified in the preceding Section 3.2, mining requires a definite range of skills.

The increased demand for workforce is of a type that overlaps especially with workforce needs of:

- Construction
- Manufacturing
- Electricity, gas and water
- Transport
- Agriculture

The following analysis of 2011 Census data for Cairns (north and south) gives areas of significant employment in mining in relation to total employment in those sectors.

The following table gives numbers in relevant occupations in the Cairns and Immediate Region and percent of total employment for those occupations.

**Table #15: Employment in Mining in Relation to Total Employment, Cairns & Immediate Region (SA4), 2011 Census**

	Mining	Total	% Mining of total
<b><u>Managers</u></b>			
Construction	6	840	0.7%
Supply & distribution	7	184	3.8%
* Production managers	63	271	<b>23.2%</b>
Other specialist	11	323	3.4%
<b><u>Professionals</u></b>			
Accountants	8	771	1.0%
* HR professionals	15	377	4.0%
* Training & development	9	185	4.9%
Marine transport professionals	9	505	1.8%
Surveyors & special scientists	13	156	8.3%
Industrial mechanics & production engineers	4	54	7.4%
* Mining engineers	21	27	<b>77.8%</b>
* Environmental scientists	14	336	4.2%
* Geologists & geophysicist	32	50	<b>64.0%</b>
Occupational & environmental health professionals	12	197	6.1%
* Registered nurses	3	2039	0.1%
* ICT professionals	4	52	7.7%
<b><u>Technicians &amp; Trades</u></b>			
Technicians & trades nfd?	4	248	1.6%
* Science technicians	16	186	8.6%
Architectural building & surveying	10	534	1.9%
* Other building & engineering technicians	92	182	<b>50.5%</b>
Motor mechanics	14	999	1.4%
Structural steel & welding trades	46	756	6.1%
* Metal fitters & machinists	208	1125	<b>18.4%</b>
* Electro technology & telecommunications	5	38	<b>13.2%</b>
Electricians	76	1349	5.6%
Chefs & cooks	12	1535	0.8%
<b><u>Community Services</u></b>			
Fire & emergency workers	5	197	2.5%
Security officers & guards	3	501	0.6%
<b><u>Clerical &amp; Administration</u></b>			
Contract program & project admin	14	1175	1.2%
Off ice managers	11	1178	0.9%
General clerks	25	2408	1.0%
Accounting clerks	11	968	1.1%
Purchasing & supply logistics clerks	18	473	3.8%
Transport & dispatch clerks	10	231	4.3%
Machinery operators & drivers nfd	26	123	<b>21.1%</b>
Machine operators nfd	11	154	7.1%
* Drillers, miners & shot firers	521	645	<b>80.8%</b>
Other stationery plant operators	34	246	<b>13.8%</b>
Earthmoving plant operators	56	556	<b>10.1%</b>
Tram & train drivers	10	170	5.9%
Truck drivers	111	1683	6.6%
<b><u>Labourers</u></b>			
Commercial cleaners	12	1624	0.7%
Structural steel workers	12	159	7.5%
* Other construction & mining labourers	51	103	<b>49.5%</b>

Note: Those percent highlighted are occupations where mining represented 10% or more of the workforce.

A doubling of mining demand would require of the order of the following estimated numbers in the following fields.

**Table #16: Major Additional Workforce Needed by Occupations for a Doubling of Mining Workforce**

		(% Mining)
Drillers, miners in shot firers	521	(81%)
Metal fitters & machinists	208	(18%)
Truck drivers	111	(7%)
Other building & engineering technicians	92	(51%)
Electricians	76	(6%)
Production managers	63	(23%)
Earth moving plant operators	56	(10%)
Other construction & mining labourers	51	(50%)
Structural steel & welding trades	46	(6%)

It is clear that even a doubling of demand for mining personnel seems unlikely to pose major strains on the labour market for truck drivers, electricians, structural steel and welding trades.

At the other end of the scale, there would be a need for workforce development of “Other construction and mining labourers”, “Drillers, miners and shot firers”, and “Other building and engineering technicians” with smaller sudden increases say up to 500.

Collaborative workforce development could be needed for “Metal fitters and machinists” and “Production managers” if sudden increases took place above 500 and certainly if a doubling took place.

### 3.4 Indications from JCU Survey, and BMA Experience

Responses to the survey carried out by the Cairns Institute of James Cook University help assess the background and skills of the potential workforce available.

Public information meetings were publicised and held in November 2012 in Cairns, Mareeba and Malanda with participants encouraged to go on-line and complete a survey. Some 200 responses were recorded.

Given the limited publicity and contact, this does not represent an indication of the scale of interest. Responses however give an insight into the characteristics of those showing interest.

Given the pattern of employment by mining by age and gender, it was appropriate that 75% of responses were by males and 82% were in the 30 – 59 year age group. Some 35% were single. Some 36% had children. Over a half were from Cairns (63%).

Some 77% were in current employment. Those unemployed at 24% were higher than current rate of about 7 – 8%. Only a few (15%) were not experienced in the workforce.

Major industry sectors currently working in were mining 16%, government administration/defence 16%, construction 16% and manufacturing 8%. Some 35% were professionals and managers, 32% technicians and trades, 18% machinery operators/drivers/labourers (total 85%). Some 70% were currently employed full time with most of the other part time/casual.

Most had already applied for FIFO jobs. While there was a preference for the Far North and North West, some 70% were happy to go as far as to central Queensland and Northern Territory and 55% to Western Australia.

Most 72% had trade certificate or lower with strong levels of holdings of qualifications, tickets and licenses. Almost a third had previous FIFO experience and 66% in remote communities.

Overall the survey indicated that most who responded had relevant qualifications and experience including in non-mining remote communities.

The BMA experience confirms that there is a substantial pool of potential workers in the region to easily accommodate strong expansion of workforce demand for mining FIFO. When BMA advertised for 250 positions, it was reported to have received over 9000 applications, and that was following one advertisement in the Cairns Post, a bit of media coverage around the launch, as well as on-line advertisements on BMA's own website and on SEEK..

### 3.5 Region's Ability to Attract Workforce with Requisite Skills to Locate in Cairns Region.

The Cairns region has a long history of being attractive for a workforce based in the region.

This has been evident in:

- a) High levels of self-employed;
- b) Running relatively high unemployment rates along with strong job creation rates;
- c) Acceptance of lower incomes to remain in the region;
- d) Lags in workforce responding to negative economic shocks resulting in episodes of very high unemployment levels.

The factor (c) above makes the higher remuneration from mining FIFO highly attractive compared with other alternatives.

A further factor should be noted. Most jobs in mining FIFO are for males. Cairns with its high level of service industries, including tourism, has a relatively high availability of work opportunities for female partners.

### **3.6 Identification of Areas in which Special Training Initiatives might be Needed at Higher Levels of Expanded Demand**

Section 3.3 highlights occupations where there is a strong demand for workforce for mining FIFO.

The question of meeting the skills needs of mining while meeting workforce needs of other industry sectors is addressed in the Cairns Skills Report being developed by Skills DMC and the Queensland Resources Council.

The situation highlights a need for:

- a) More training capability in the region for those skills that tend to be mining specific and in which the mining industry is the dominant employer;
- b) Collaborative efforts with other industry sectors to meet demand for skills and occupations where there are substantial overlaps;
- c) A need to be flexible in responses to an economy that has exhibited strong average growth, but accompanied by strong volatility over time.

### **3.7 Potential Availability in Relation to Overall Workforce Availability**

Current mining related FIFO workforce at about 2400 represents less than 2% of the region's workforce. A doubling would entail a 2% increase.

The region's workforce has expanded from about 113,000 in 2003 to 135,000 in 2013, an average growth over the past ten years of about 2200 or an average of 1.8% per annum.

The Current situation is that the region's unemployment level in the 7 – 8% range could absorb a reduction of 2% points and still be about or above national and state averages.

A reduction by about 4% points would be necessary (to levels well below national averages) before significant challenges developed at a macro level.

It is therefore a reasonable assumption that the Cairns region could expand its FIFO workforce by 2000 – 2500 without having major structural problems on the skills capacity of the region.

## 4. ESTIMATED VALUE OF FIFO ACTIVITY TO THE CAIRNS REGIONAL ECONOMY

### 4.1 General

FIFO activity can have major benefits to a community.

It can be expected that each FIFO worker will bring into the source community an income of the order of \$100,000 plus, with salaries in some specialist fields stretching up over \$200,000 and \$300,000 per annum.

Thus, for each 100 mining FIFO workers, it can be expected at least \$10m of additional income is brought into and spent in the community. In addition, activity generated at the airport per passenger will add to the benefits.

Apart from direct employment in mining companies, there can be employment of FIFO workers as:

- mining contractors;
- construction contractors;
- mine maintenance contractors, catering contractors, medical services contractors, a whole range of equipment installation and repair contractors, and government agency staff carrying out regulatory services.

The existence of the FIFO air services can also lead to supply of air freighted equipment, replacement parts and perishable items, as well as associated servicing and contractor activity.

A mining company that develops commercial links with a community for workforce and air freighted supplies and services, is also more likely to develop links with businesses in that community for supply of goods and services by road or sea transported services.

Against this background, communities supplying workforce and other services and air transported equipment, parts and perishables improves the chances of the mining companies establishing corporate management and administrative offices in that community.

In summary, the additional income generated in the community by the FIFO workers themselves is only the start of potential economic benefits. The existence of the FIFO air services has the potential to provide much wider business opportunities for the community.

### 4.2 Benefits to the Cairns Region

For the Cairns region, it is estimated that each FIFO worker will generate an income of the order of \$125,000 a year based on Queensland Resources Council information.

This calculates as an income generated by residents of the order of \$294m per annum.

This \$290m becomes available for household expenditure. Because of tax and savings, not all this income would be spent in the region and the following works on \$100,000 per employee a total of \$235m.

Based on North Australia Research Group Input/Output Models for the Far North Queensland region, it could be expected that \$235m would result in an addition to Gross Regional Product including flow-on effects of approximately \$270m and employment including flow-on effects of about 2700 jobs additional to the 2350 FIFO workers.

Analysis prepared for Cairns Airport indicates turnover is generated at the airport on average per passenger of \$120 per movement. Assuming week on/week off, total passenger movements generated is estimated at 175,000 and total expenditure generated about \$21m.

The amount of freight carried on FIFO and mining related flights is not known with any precision however latest figure for freight exports to Papua New Guinea was \$47m, much of which would be mining related, indicating the potential for follow on opportunities.

Associated with flight links between Cairns and Weipa and Cairns and Freeport's Papua Indonesia mine are shipping cargo movements estimated to carry cargo valued at over \$300m.

Corporate offices in Cairns associated with air-links include Interoil (PNG), Barrick Gold (PNG), Freeport (PI) with employment of over 100.

By way of comparison, over \$235m from FIFO earnings equates roughly with the current estimated total value of Japanese and Chinese tourism expenditure.



## 5. OVERALL CONCLUSIONS

Queensland Resources Council members indicate that their members employ 870 workers who live in the Cairns and immediate Cassowary Coast and Tablelands region, spend over \$100m in wages (\$125,000 per worker) and \$205m in goods and services.

Added to this would be the operation of a range of non-QRC member mines inside Queensland and mines in the Northern Territory, Papua New Guinea and Papua Indonesia who draw workforce and goods and services out of the region.

Australian Bureau of Statistics 2011 Census data indicates that the number of Cairns region residents who gave their 'place of work' in other regions across the north of Australia totalled 2880, and, with estimates of numbers 'not stated', was probably of the order of 3200. Those related to mining are estimated to be of the order of 2350 to increase to 2600 by the end of 2013 as BMA commences direct flights to Moranbah for 250 workers.

Estimated total mining related workforce in the Far North Queensland Statistical Division (Cairns and Immediate Region plus Far North Outback) including residential mining employment is 4100, up from 2010 estimate of 3300.

Cairns also has air services linking to mines in Papua New Guinea and Papua Indonesia. Much of the passenger traffic on these flights relates to corporate traffic linking to elsewhere via Cairns Airport, and PNG Nationals and mine workers visiting Cairns for R&R and other purposes. However there is a FIFO element involved that would take total mining related FIFO traffic of Cairns based workforce to around 2350.

Seats on mining related aircraft movements ex Cairns is estimated to now total about 5400, up strongly from that estimated for 2010 of about 4000, with strong growth especially to the Northern Territory, Weipa, Mt Isa, Cloncurry and Central Queensland where new routes are opening up in August 2013.

The census data indicates that the occupation structure of the mining workforce in the Cairns region is very similar to that in the Moranbah area and North West Queensland with high proportions of technicians/trades (30%), drillers, miners and shot firers (25%), machinery operators and drivers (13%) and professionals (10%).

Surveying by James Cook University of FIFO workers moving through Cairns Airport indicated a similar structure but with proportion of technicians and trades higher.

Current FIFO workforce at about 2350 represents less than 2% of total workforce in the Cairns region and with unemployment rates at about 2 – 3% more than the national average and the region's average annual growth of workforce over the past ten years of 1.8% per annum, a doubling of the current FIFO workforce would have the effect of bringing the unemployment rate down to national averages.

The mining workforce is heavily concentrated in a range of occupations. James Cook University's survey responses of 165 residents who showed interest in FIFO employment indicated that most who responded had relevant qualifications and experience including in non-mining remote communities.

BMA's decision to source 250 FIFO workers from the Cairns region resulted in 9000 applications confirming that there was a substantial pool of potential workers in the region to easily accommodate a major increase in demand.

The region is a desired place to live and has a long history of attracting and holding on to its workforce. Mining needs for predominantly male workers are complimented by strong availability of employment opportunities for female partners in service industries in the Cairns region.

The Cairns Skills Project report being developed by Skills DMC with Queensland Resources Council will identify needs for workforce training in some occupations that are predominantly mining based, and collaborative action with other sectors to meet training needs for some occupations.

It is estimated that current FIFO workforce of about 2350 based in the region brings back household incomes of the order of \$235m a year that is spent in the region and is estimated to generate an addition of the order of \$270m to Gross Regional Product and create additional employment of the order of 2700.

Additional benefits include expenditure on aviation services, parallel freight and other services, expenditure by transiting passengers, R&R expenditure by staff based at mines, corporate offices in Cairns, and in some cases, shipping services out of Cairns.