



Surat Basin population report, 2008

Full-time equivalent (FTE) population estimates at 30 June 2008

Monitoring the size of the resident population and the number of non-resident workers in local government areas of Queensland's Surat Basin

Technical notes

Prepared by

Department of **Infrastructure and Planning**

For technical inquiries or further information contact:

Department of **Infrastructure and Planning**

Planning Information and Forecasting Unit

PO Box 15009 City East Qld 4002 Australia

tel +61 7 3237 1115

fax +61 7 3235 4071

pifu@dip.qld.gov.au

An electronic version of this report is available online at:

www.dip.qld.gov.au/publications/planning-information-and-forecasting-research.html

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Summary and key findings

Summary

The *Surat Basin population report, 2008* presents a contemporary snapshot of employment activity and accommodation matters for local government areas in the Surat Basin. It also provides full-time equivalent (FTE) population estimates for the region's Statistical Local Areas (SLAs) and localities as of 30 June 2008.

The FTE population measure has two components—the resident population and the number of non-resident workers (those who work in the area but are usual residents of a different area). Most of the Surat Basin's non-resident workers are employees and contractors of the resource development and construction industries who fly-in/fly-out (FIFO) or drive-in/drive-out (DIDO) between home and place of work. Unlike usual residents, non-resident workers are not included in resident population estimates released annually by the Australian Bureau of Statistics.

The report presents several significant findings that will benefit local and regional planning:

- (a) the FTE population measure, which provides a more reliable indicator of total demand for goods, services and infrastructure since it counts non-resident workers
- (b) an analysis of commercial accommodation availability and take-up by non-resident workers
- (c) comparisons of non-resident worker distribution and accommodation consumption in the Surat Basin with other resource areas of the state (the Bowen Basin and North West Region)
- (d) some indication of the areas where non-resident workers usually reside.

Findings of the report confirm that non-resident workforces play a small but significant role in the Surat Basin's current resources boom. Some of these workers fly directly to the mine from their home region and stay in on-site worker villages (termed single person quarters SPQs) while rostered on. Other non-resident workers are housed in or near to population centres, occupying SPQs, hotels/motels, caravan parks and leased dwellings for the duration of their stay.

The report identifies that accommodation and travel arrangements differ for non-resident workers across the study area. Workers in the Roma local government area (LGA) are more likely to travel between place of work and their usual place of residence by air, living in worker accommodation located on or near to the resource lease rather than in the town centres. By comparison, those in Dalby LGA tend to commute by road rather than air and have a relatively higher uptake of commercial and worker accommodation in town centres. Comparisons of the Surat Basin with other mining areas of Queensland suggest that such arrangements are influenced by location of the resource, industry characteristics and availability of local labour as well as worker preference.

While the report does not set out to provide a comprehensive analysis of population, workforce and accommodation issues, its value is that it establishes a baseline measure against which future development impacts in the Surat Basin can be assessed and projected.



Key findings

Non-resident worker population of the Surat Basin in June 2008 was 1,856 people

Some 1,856 non-resident workers were counted in the Surat Basin at 30 June 2008. This group includes FIFO/DIDO employees and contractors of resource sector and construction operations who live in the area while working. These are not included in the area's usual resident population.

FTE population of the Surat Basin was 45,248 people at 30 June 2008

The FTE population of the Surat Basin was estimated to be 45,248 people at 30 June 2008. Of these, some 43,392 people were usual residents of the LGAs of Dalby and Roma, while another 1,856 were non-resident workers.

One person in 25 living in the Surat Basin is a non-resident worker

Non-resident workers made up only four per cent of the Surat Basin's FTE population in June 2008. This proportion is low compared with other mining areas like the Bowen Basin and the North West Region, where non-resident workers represent 12 per cent of the FTE population.

Around two-thirds of all non-resident workers live in Dalby LGA

Dalby local government area had 1,208 non-resident workers, or 65 per cent of the regional total, at 30 June 2008. Most of these occupied SPQs or commercial accommodation in or near to the towns of Dalby (491), Chinchilla (318) and Miles (228). Another 171 people lived in accommodation located on resource leases.

Most non-resident workers in Roma LGA live on resource leases

Around 71 per cent of the 648 non-resident workers counted in Roma LGA lived in SPQ accommodation or work camps located on resource leases. Only 187 of Roma's non-resident workers occupied commercial accommodation located in towns.

SPQs house two-thirds of non-resident workers in the Surat Basin

SPQs and worker camps accommodated 1,217 non-resident workers or 66 per cent of the Surat Basin total in June 2008. Some 467 people (or 25 per cent of total) lived in hotels/motels, while another 172 people (or nine per cent) lived in caravan parks.

Table 1 Full-time equivalent populations for LGAs in the Surat Basin as at 30 June 2008

LGA	Resident population (a)	Non-resident workers (b)			Full-time equivalent (FTE) population
		Living in commercial accommodation	Living in SPQs or work camps	Total non-resident workers	
Roma (R)	12,828	157	491	648	13,476
Dalby (R)	30,564	482	726	1,208	31,772
Surat Basin	43,392	639	1,217	1,856	45,248

Sources: (a) PIFU, 2008 (calculated); (b) PIFU, Survey of accommodation providers, 2008 and company information. (R) – Regional Council (LGA)—Local government area



Part one—introduction

Purpose of study

The *Surat Basin population report, 2008* contains provisional full-time equivalent (FTE) population estimates for selected localities and local government areas within the Surat Basin, current as of 30 June 2008. The FTE population measure has two components—the resident population (people who live in the area permanently) and non-resident workers (those who work in the area for extended periods but are counted as usual residents of another area).

Unlike annual resident population estimates released by the Australian Bureau of Statistics (ABS), the FTE population measure counts an area's non-resident population as well as usual residents, so providing a basis for targeting the delivery of goods, services and infrastructure to the needs of each group. The FTE population established in this report will provide a baseline for projecting and monitoring future growth in the region.

Scope and objectives

The scope and objectives for this report relate to five key questions:

- What is the size of the region's current population, including non-resident workers engaged in construction and resource industry activities?
- How are non-resident workers accommodated while living in the region?
- Which population centres in the region play host to non-resident workers?
- Where do non-resident workers usually reside and how do they commute to the study area?
- Are there noticeable differences in the pattern of non-resident worker populations in the Surat Basin and other resource areas in Queensland, such as the Bowen Basin?

Non-resident workers defined

The term non-resident worker is used in this report to distinguish people who are not usual residents of the local area where they work¹. A non-resident worker differs from short term or casual visitors to the area in that:

- The duration of their stay in the area is extended and regular. This usually takes the form of a working shift followed by a rest interval at their place of usual residence.
- While living in the area the worker stays in commercial accommodation (hotels, motels or caravan parks) or in worker camps (often termed single person quarters (SPQs)², which may be located in town centres or on a mining lease.
- Non-resident workers are often categorised according to their means of travel between home and place of work, either FIFO or DIDO.

¹ This definition hinges on what is meant by the term 'local area'. For the purpose of this study, a local resident is one who normally resides within the defined LGA where the workplace is located and a non-resident worker usually lives outside of that area.

² Refer to glossary



The non-resident workforce can be further distinguished between those employed during the project's construction or expansion phase and operational workers. Examples of the former include the workforces of large infrastructure projects, such as power stations and transport networks and workers engaged in mine or gas field development. As a rule, the size of the construction workforce for a project generally exceeds that needed for ongoing operations. Appendix B provides a more complete examination of workforce characteristics.

Resource development and infrastructure projects in the Surat Basin adopt a range of employment and accommodation strategies. Many have a stated policy of using local labour and services where possible, to stimulate local employment and economic development. Other operations rely on a mix of local and FIFO/DIDO workers, particularly those that are distant from population centres or where specialised skills are not locally available.

A typical arrangement for FIFO operations³ in 24-hour mining or coal seam gas development consists of three rotating shifts of workers, with two shifts usually rostered on at the site and one resting. Workers commonly spend 14 days at the mine site when rostered on, working 12-hour shifts, then return to their usual place of residence for a seven-day rest period. Employees and contractors involved in construction projects generally work shorter daily shifts than those working in the resource sector, but are more likely to spend longer periods in the region without extended breaks.

Non-resident workers do not meet the ABS criteria for a usual resident of the area where they work, so are not included in the area's official resident population estimate. Nevertheless, the non-resident worker population creates additional demand for goods, services and infrastructure while living in the area, which must be planned for and provided by government and the private sector (Cook, 1996). To determine the full extent of that demand, it is necessary to take into account both the non-resident and resident populations—or in other terms, the area's FTE population.

Methodology and sources

The methodology for deriving the FTE population for the Surat Basin follows that used previously to derive similar measures for the Bowen Basin (DIP, 2008a).

- The non-resident worker population of the study area was established through primary data collections, most notably a survey of commercial accommodation providers conducted in mid-2008. Other information was obtained through interviews and surveys of key employers and stakeholders and analysis of data from the 2006 Census of Population and Housing.
- The second component of the FTE population measure represents the resident population of each area at 30 June 2008, based on a projection of the ABS estimated resident population for 30 June 2007.

A more detailed discussion of the FTE population methodology is available as Appendix A of this report.

³ This arrangement is common but not universal. Some companies adopt different work rosters, with variations in the number of days spent on-shift. Similarly, the duration of shifts worked by employees and sub-contractors during plant shutdowns and scheduled maintenance activities may vary according to the requirements of the task.



Planning and policy context

This report is one of a number of research inputs that can be used to inform the future development of state, local and regional plans, notably:

- local government planning schemes and priority infrastructure plans for Roma Regional Council and Dalby Regional Council
- the draft Maranoa and District Regional Plan, which incorporates Roma Regional Council
- background studies to inform development of a regional plan for local government areas in the Darling Downs, including Dalby Regional Council
- the Coal Infrastructure Strategic Plan
- preparation and assessment of environmental impact statements for mines and major projects in the Surat Basin.

In a policy context, the FTE measures developed in this report will support implementation of the Queensland Government's Sustainable Resources Communities Policy, which promotes the equitable and sustainable development of mining communities. Using the FTE population measure will enable a better understanding of the cumulative social impacts of mining development and will provide better information to guide the allocation of resources, services and infrastructure.

Related studies

This report forms the first of three separate but related studies relating to the Surat Basin that will be prepared by DIP in 2008-09:

- The *Surat Basin population report, 2008* provides a baseline FTE population measure for the area bounded by Roma and Dalby Regional Councils.
- The *Supplementary Surat Basin population report* (due early 2009) will build on these established FTE population measures by providing projections of the area's resident population and non-resident worker population.
- The *Background study for the Darling Downs/Surat Basin region* (also due early 2009) will provide a demographic profile of select local government areas and localities in the Darling Downs region. The study area for the *Surat Basin population report, 2008* forms part of the broader area to be examined in this later study.



Part two—Surat Basin overview

Background

Rapid expansion of resource industries, including coal seam gas, coal mining and underground coal gasification is occurring across the Surat Basin. At the same time, a large number of proposed industrial and public infrastructure projects, such as power stations, gas pipelines, dams, water reticulation and rail and power distribution networks are also under consideration or are in advanced stages of planning (Appendix C).

The Surat Basin contains large resources of thermal coal readily accessible by open-cut mining, making it attractive to domestic and overseas miners. The impending development of key infrastructure items, including the proposed Dawson Valley Rail Link from Wandoan to Banana and coal loading facilities in Gladstone, will open up the region for extensive export-oriented operations. Chief among these is XStrata's proposed mine at Wandoan, which will be capable of producing 30 million tonnes of coal per year (DIP, 2008b). Other large coal mines in the region's north are also planned to commence within the next 5 to 10 years.

The major achievement for resource development in the Surat Basin has been the exploration and development of the region's massive reserves of coal seam gas, which has accelerated since 2000. Expanded drilling programs saw the proven and probable reserves of coal seam gas increase from 847 petajoules in 2005–06 to 2,348 petajoules in 2006-07, with production over the same period increasing from 2 petajoules to 18 petajoules. These levels of production are set to rise in the next decade, boosted by the proposed development of several liquefied natural gas export facilities in Gladstone and associated pipeline networks (DME, 2007).

While this activity has created more jobs in the region, the resulting impacts on the local population have been slow to emerge and are difficult to gauge accurately. There are three reasons for this—firstly, the growth in the resident population has largely happened since the 2006 Census and reverses a long standing trend of population decline in some areas. Secondly, many of the new jobs have been taken up by non-resident workers who are unlikely to be included in the annual resident population estimates published by the ABS. Last and most importantly for planning, the full extent of resource development in the Surat Basin has yet to occur.

Assessment of potential social impacts associated with growth in mining areas will gain 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. Population growth influenced by other activities, such as construction of major infrastructure and other projects, will also need to be considered.

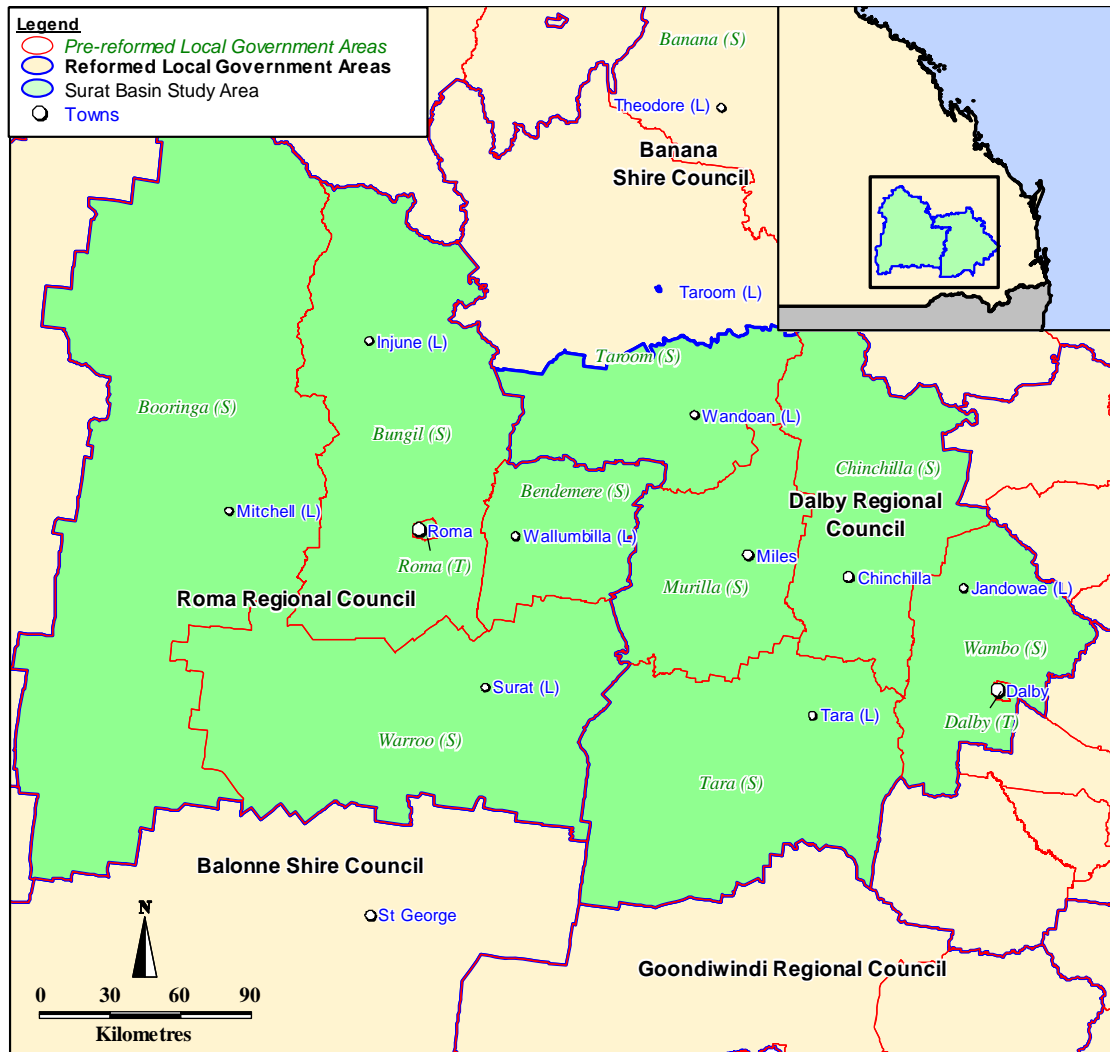


Study area

The area referred to as the Surat Basin in this report comprises the LGAs of Roma Regional Council and Dalby Regional Council, based on the boundaries formed by local government amalgamations in early 2008 (Figure 1). It should be noted that the boundaries of the area commonly referred to as the Surat Basin are not readily defined. The Surat Basin refers to the distribution of geological formations rather than to political or administrative borders. Other studies that refer to the Surat Basin Energy Resources Province have defined the area more broadly to include parts of the South Burnett region, the Darling Downs and border regions (DSD, 2007).



Figure 1 Surat Basin study area defined by 2008 local government area boundaries and 2006 Australian Standard Geographical Classification statistical local area boundaries



Source: PIFU, 2008.

As Figure 1 shows, the Surat Basin study area wholly incorporates 11 Statistical Local Areas (SLAs)⁴, which have similar names and boundaries to the pre-amalgamated LGAs of:

- Bendemere
- Booringa
- Bungil
- Chinchilla
- Dalby
- Murilla
- Roma
- Tara
- Taroom
- Wambo
- Warroo

The study area also includes part of the former Taroom Shire that was incorporated into Dalby Regional Council following amalgamation. This includes the township of Wandoan.

⁴ According to the 2006 Australian Standard Geographical Classification



The Surat Basin study area has been intentionally constrained in this report to include only the core activity areas of resource development and infrastructure construction. It is acknowledged that some key projects nominated for future development in the region will have population and workforce impacts occurring outside of these boundaries. Where these impacts occur in the adjoining Banana Shire the FTE population impacts will be addressed in the Bowen Basin report.

Settlement patterns in the Surat Basin

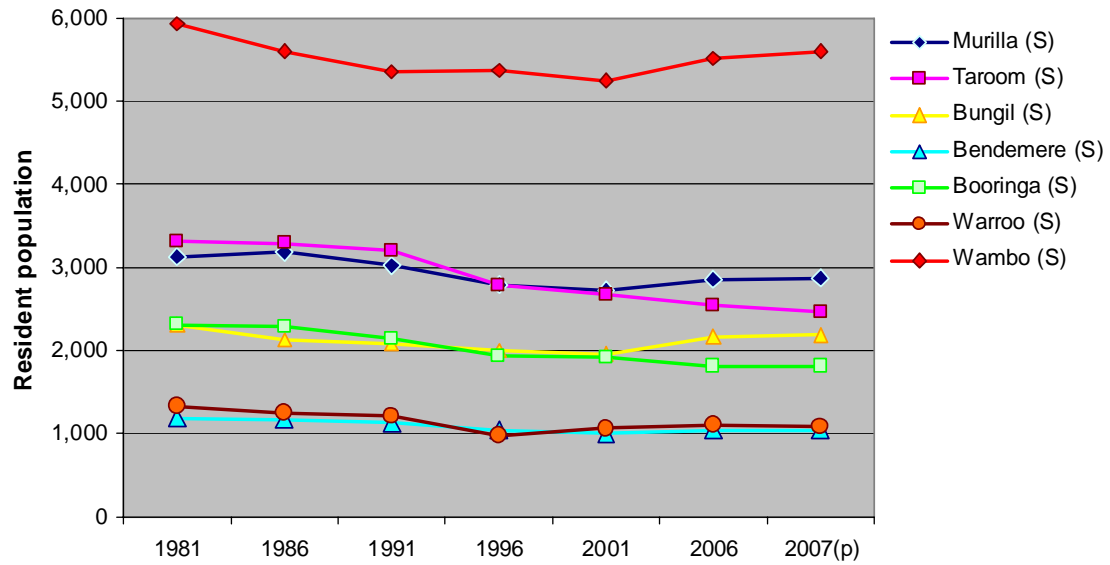
The Surat Basin study area contains three major centres with populations exceeding 4,000 people in June 2007—Dalby (10,423), Roma (6,372) and Chinchilla (4,007). Other large centres include Miles (1,265), Tara (858) and Jandowae (812). The towns of Surat, Wandoan, Injune, Kogan and Bell are service centres with populations of 250 to 500 people.

Unlike other resource areas of Queensland, the existing settlement pattern of the Surat Basin owes much to its agricultural heritage rather than to mining. Population centres in the area have long histories that pre-date modern transportation and communications networks and serve as community hubs for the rural catchment area as well as centres for administration and commerce. As a consequence, most of the towns in the region have established infrastructure and service delivery networks that reflect their past roles and population distributions.

Recent influences have had mixed impacts on the region's settlement pattern and population size. Prolonged periods of drought over the past two decades constrained farming yields, at the same time when rising fuel and labour costs reduced profitability. Many younger people left the area for larger urban centres to pursue professional careers, while others were attracted to better paid employment elsewhere, including the mining industry of Central Queensland. And like other areas of the state, a growing number of older people moved to coastal areas and centres such as Toowoomba seeking a retirement lifestyle. As a result, the size of the populations of most small SLAs of the study area fell between 1981 and 2007 (Figure 2).



Figure 2 Resident population of SLAs in the Surat Basin, 1981 to 2007 (a)

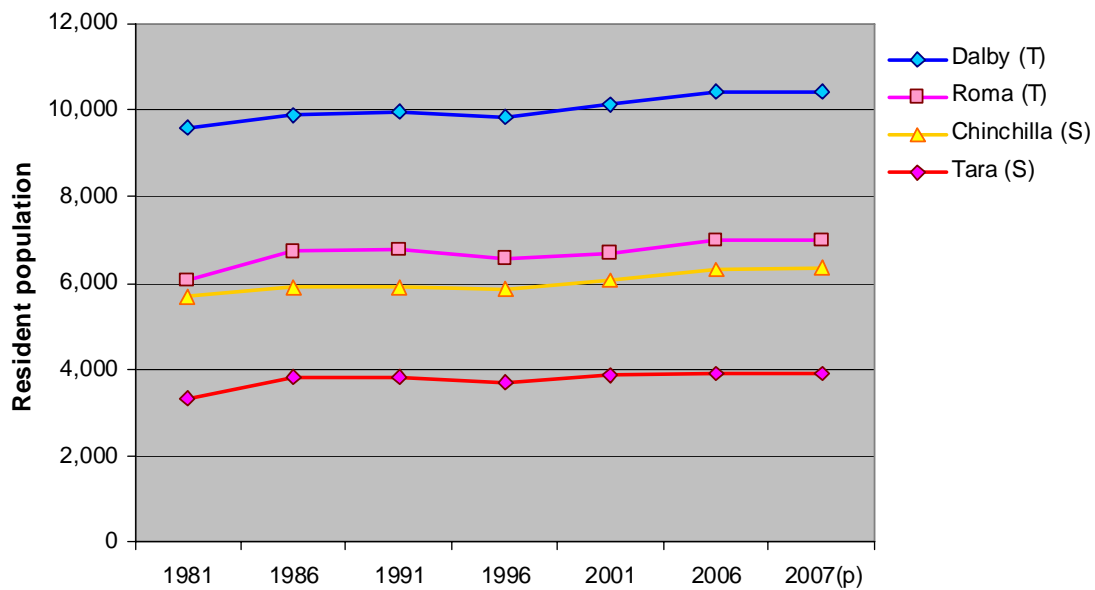


Source: ABS, *Regional Population Growth Australia*, cat. no. 3218.o. SLA boundaries are based on the 2006 ASGC. Note: (S) – Shire. Results for 30 June 2007 are provisional.

Balanced against this pattern of population decline and ageing, there has been a more recent influx of new people to the area, attracted by expansion of the mining, gas and petroleum industries. In addition, associated development of major infrastructure items such as new power stations and flow-on manufacturing projects has also contributed to population growth and new residential development in some of the region's larger centres. The trend of recent population growth in these SLAs of the Surat Basin is shown in Figure 3.



Figure 3 Resident population of SLAs in the Surat Basin, 1981 to 2007 (b)



Source: ABS, *Regional Population Growth Australia*, cat no. 3218.o. SLA boundaries are based on the 2006 ASGC. Note: (S) – Shire. (T) – Town. Results for 30 June 2007 are provisional.

The fluctuating size of the Surat Basin's resident population shown in Figures 2 and 3 does not completely reflect the extent of economic growth experienced in the region. An appreciable number of new jobs in the Surat Basin, particularly those associated with resource development or project construction, were taken up by FIFO/DIDO workers who lived outside of the area where they worked. In such cases, the population growth associated with these new jobs was recorded outside of the study area, particularly in larger population centres such as Toowoomba and Brisbane.

The number of non-resident workers living in the study area has previously been difficult to estimate, given that there is no systematic data collection that records the size of this group outside of the five yearly Census. For that reason, local perceptions of economic activity and population growth are frequently different to official accounts.

In the absence of a complete and contemporary data source, the size of the non-resident workforce can only be established through direct means, such as measuring its take-up of commercial accommodation and company-provided housing. This is the subject of the next chapter of this report.



Part three—findings of study

Survey of accommodation providers

A survey of accommodation providers across the Surat Basin was conducted to establish the size of the non-resident workforce living in commercial accommodation at 30 June 2008. Results from the survey were collated with information provided by the resource industry and local governments to build a picture of where and how non-resident workers are accommodated while working in the region.

The survey provided a head count of non-resident workers living in SPQs and worker camps, hotels/motels, caravan parks and other accommodation on an extended basis. Accommodation providers were asked to identify non-resident workers based on best knowledge of their tenants, in that they:

- lived in the accommodation for extended periods, combined with furloughs to home base
- were not usual residents (i.e. had not lived there continuously for six months or more)
- were not short-term visitors (lived there for less than two weeks), tourists or itinerants.

Some 94 accommodation providers volunteered written or telephone responses to the survey (Table 2), a response rate of around 93 per cent. The category of hotels/motels/other was the most common form of commercial accommodation surveyed (54 establishments), followed by caravan parks (19). A further 21 responses were received from operators of SPQ accommodation, including resource companies and contractors who provide worker accommodation of this type.

Table 2 Responses received to Survey of accommodation providers, 2008

LGA	SPQ and worker camps	Hotels/motels/other	Caravan parks	Total responses received	No response received	Non-response rate
Roma (R)	9	20	6	35	3	8%
Dalby (R)	12	34	13	59	4	6%
TOTAL	21	54	19	94	7	7%

Source: PIFU, *Survey of accommodation providers, 2008*

Results of accommodation survey

Compiled results from the *Survey of accommodation providers* and other sources identified that around 1,856 non-resident workers were living in SPQs and commercial dwellings at the end of June 2008 (Table 3). Dalby Regional Council had the largest population of non-resident workers (1,208 people), representing 65 per cent of the regional total, while Roma Regional Council had the remaining 648 non-residents.

Table 3 shows that SPQs were the largest providers of lodging for non-resident workers in both areas, catering for around 1,217 people or 66 per cent of the regional total. The category of hotels/motels/other accounted for 467 people or 25 per cent of the total, with caravan parks (172 people) accounting for only 9 per cent of the total.



Table 3 Non-resident workers living in the Surat Basin as at 30 June 2008

Local Government Area	Non-resident workers living in SPQs or worker camps		Non-resident workers living in commercial accommodation in towns		Total non-resident workers
	Located in or near to towns	Located on resource lease or private land	Hotels/motels/other*	Caravan parks	
Roma (R)	30	461	126	31	648
Dalby (R)	408	318	341	141	1,208
Surat Basin	438	779	467	172	1,856

Source: PIFU, *Survey of accommodation providers, 2008* and information from key stakeholders.

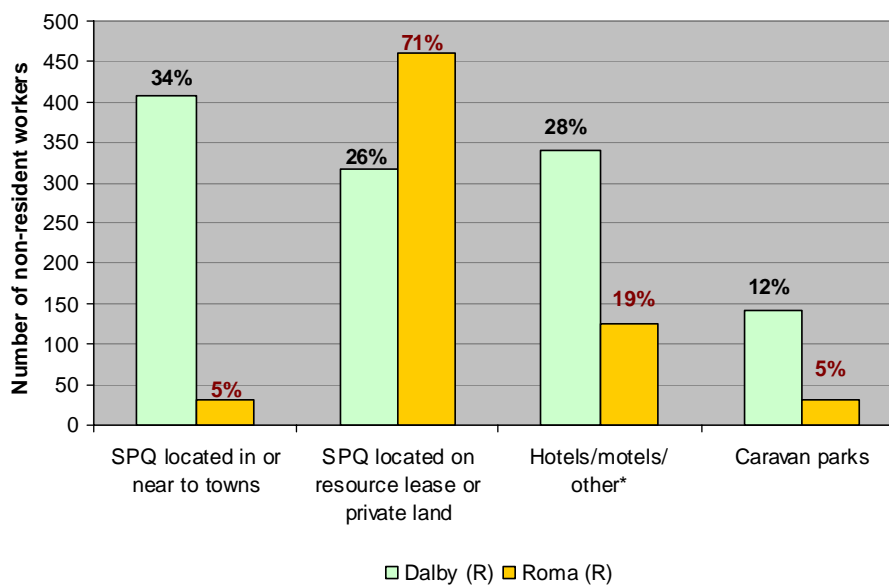
* other includes houses and flats head leased from the private market for company accommodation.

* Where SPQ accommodation is located on a mining lease or outside of designated localities, the non-resident worker occupants have been allocated to the nearest population centre.

There are significant differences between Dalby and Roma local government areas regarding the location and nature of accommodation for non-resident workers, as shown in Figure 4. Some 71 per cent of non-resident workers in Roma LGA lived in SPQ accommodation or worker camps located on private land or resource leases away from population centres, compared with just 26 per cent in Dalby LGA. By contrast, around 34 per cent of non-resident workers in Dalby LGA lived in SPQs located in or near population centres, compared with just 5 per cent in Roma LGA.

In total, 74 per cent of non-resident workers in Dalby LGA occupied commercial accommodation or SPQs in or near to population centres, compared with just 29 per cent in Roma LGA. This difference stems largely from the presence of several power station construction projects near Dalby, Miles and Chinchilla and the high number of non-resident workers in their workforces who live in large, purpose-built SPQs.

Figure 4 Location and nature of accommodation for non-resident workers



Source: PIFU, *Survey of accommodation providers, 2008* and information from key stakeholders.



Take-up of commercial accommodation

Survey results indicate that non-resident workers occupied around 28 per cent of hotel and motel bed spaces across the Surat Basin on 30 June 2008 (Table 4). While higher than the corresponding rate for the Bowen Basin (24 per cent), the average occupancy rate for the Surat Basin was well below that for the North West region (52 per cent).

Table 4 Take-up of hotel/motel beds for select localities in the Surat Basin, compared with the Bowen Basin and the North West Region, as at 30 June 2008

Locality	Capacity of hotels/motels (beds)	Beds occupied by non-resident workers	Take-up of beds by non-resident workers (% of total)
Wandoan	20	18	90%
Tara	55	35	64%
Injune	69	43	62%
Chinchilla	190	101	53%
Condamine	29	14	48%
Dalby	400	130	33%
Taroom	79	18	23%
Jandowae	51	10	20%
Roma	467	80	17%
Miles	113	14	12%
Regional totals			
North West Region (b)	751	392	52%
Bowen Basin (a)	3,549	835	24%
Surat Basin	1,661	467	28%

Sources: PIFU, Survey of accommodation providers, 2008 and information from key stakeholders. (a) DIP, Bowen Basin population report, 2007 (b) DIP, North West Region population report, 2008 (in preparation).

As Table 4 shows, some localities in the Surat Basin had an exceptionally high take-up of commercial accommodation by non-resident workers. Most notable was Wandoan (90 per cent occupancy), followed by Tara (64 per cent), Injune (62 per cent) and Chinchilla (53 per cent). These rates suggest that there is high demand and low supply of commercial accommodation in those centres. Centres with the lowest take-up of commercial accommodation were the towns of Miles (12 per cent) and Roma (17 per cent).

The differences between the accommodation patterns of Roma and Dalby LGAs are largely due to locality and the nature of the enterprises employing non-resident workers. Anecdotal information obtained from a variety of stakeholders supports the following observations:

- While both areas have large populations of non-resident workers employed in the coal seam gas industry, distances between the gas fields and major population centres are greater in Roma LGA than in Dalby LGA. Longer commuting times to work sites in Roma LGA mean that it is more convenient to accommodate workers in on-site accommodation for the duration of their shift, rather than to base them in the closest population centre.
- A greater number of non-resident workers FIFO to operations within Roma LGA compared with Dalby LGA. Survey results indicate that around 75 per cent of FIFO workers travelling to Roma usually reside in the SEQ region, with the remainder travelling from diverse localities in Central Queensland, the Wide Bay–Burnett Region and interstate.



- Many companies provide assistance to their FIFO staff in the form of subsidised air fares and bus travel from the airport to place of work.
- Non-resident workers in Dalby LGA are more likely to travel to the region by road from SEQ, Toowoomba and surrounding areas, rather than by air.
- A large proportion of non-resident workers in Dalby LGA are employed in the construction of the Darling Downs, Braemar and Condamine power stations. New SPQs for these projects have recently been constructed in or near to Dalby, Chinchilla and Miles. The full impact of these centres is not reflected in this survey, which was taken before they reached peak capacity.

The coal seam gas industry is engaged in extensive exploration and gas well development activity across the Surat Basin. Many of the non-resident workers counted in both LGAs are drilling teams of 20 to 25 people who live in transportable accommodation situated close to the work place. With ongoing expansion of the gas fields now inevitable, it is likely that the number of drilling and exploration teams in such living arrangements will increase significantly across the Surat Basin.

Comparison with other resource areas

While differences between the accommodation patterns of Dalby and Roma LGAs are currently noticeable, there is a question as to whether the Surat Basin's future development will follow patterns established in other resource areas. Previous research into FTE populations (DIP, 2008a and DIP, 2008c) makes comparisons possible between the Surat Basin, the Bowen Basin and the North West Region.

The Bowen Basin is dominated by open cut and underground coal mining, with a small coal seam gas industry. Coal mining has a comparatively large operational workforce requirement compared with coal seam gas production, which is more labour-intensive during the development and construction phases. Hence mines in the Bowen Basin have an ongoing requirement for large scale worker accommodation to house their production workforces, which usually takes the form of large SPQs operated by specialist providers. Owing to the high proportion of this type of accommodation across the Bowen Basin, non-resident workers have less need for other forms of commercial accommodation.

Environmental considerations, including dust, noise and light pollution normally preclude the use of on-site accommodation for coal mining operations, with some exceptions. In general, the relative proximity of coal mines to large population centres in the Bowen Basin usually means that SPQ accommodation is located in or near to those centres, rather than on the mine site. It is likely that similar considerations may apply to future coal mines in the Surat Basin.

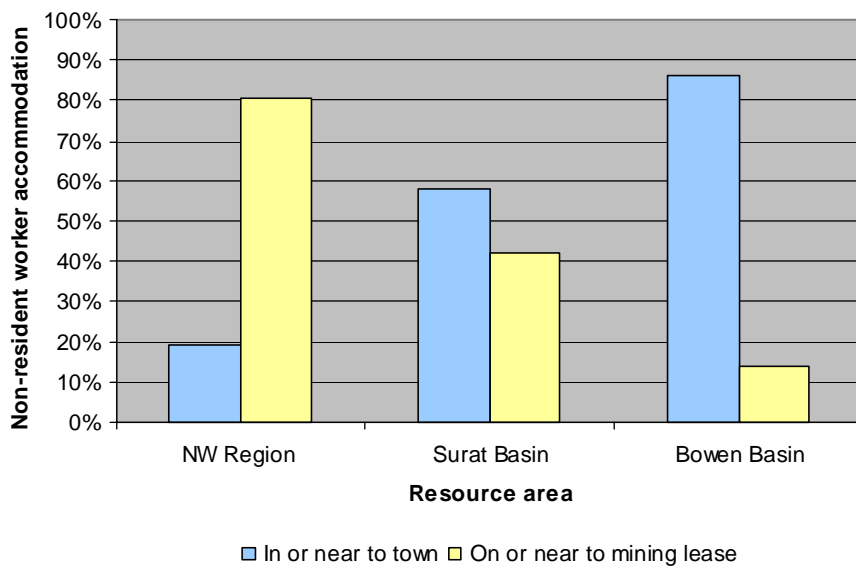
Like the coal industry, metalliferous mining operations in the North West Region have higher operational workforce numbers compared with those needed for exploration and development. Distance from population centres is also a critical factor in determining workforce and accommodation patterns for newer mines in the North West Region. The remoteness of these mines results in a higher incidence of FIFO workers living in on-mine SPQs rather than in towns,



much like the gas operations in Roma LGA. These operations tend to be relatively self-contained and have a low impact on demand for local services, including commercial accommodation.

The sum of these differences can be illustrated by comparing the location of accommodation used by non-resident workers in the Bowen Basin, the Surat Basin and the North West Region (Figure 5). The proportion of non-resident workers living in on-site accommodation is highest in the North West region (81 per cent) and lowest in the Bowen Basin (14 per cent), with the Surat Basin falling in between (42 per cent). By contrast, the Bowen Basin has the highest proportion of accommodation located in or near to population centres (86 per cent), leading the Surat Basin (58 per cent) and the North West Region (19 per cent).

Figure 5 Location of accommodation occupied by non-resident workers in the Bowen Basin, Surat Basin and North West Region



Sources: (a) PIFU, Survey of accommodation providers, 2008 and information from key stakeholders. (b) DIP, Bowen Basin population report, 2007 (c) DIP, North West Region population report, 2008.

In conclusion, observation of accommodation trends in the Bowen Basin and the North West Region provides some insights into how future development could happen in the Surat Basin. While the use of non-resident workforces is largely guided by company policy and the availability of alternatives, it is clear that the nature and location of accommodation required are closely related to industry characteristics and the distance of resource areas from population centres.



Part four—FTE population estimates

FTE population for the Surat Basin

Table 5 summarises the FTE populations for LGAs, Statistical Local Areas (SLAs) and select localities in the Surat Basin as of 30 June 2008.

Table 5 Full-time equivalent (FTE) population for the Surat Basin as at 30 June 2008

Local Government Area *	Statistical Local Area **	Locality***	Population as of 30 June 2008		
			Resident population (a)	Non-resident workers (b)	Full-time equivalent population
Roma Regional Council	Bendemere (S)	Total	1,041	33	1,074
		Booringa (S)	Total	1,813	0
		Injune	372	403	775
		Remainder	1,479	0	1,479
	Bungil (S)	Total	1,851	403	2,254
		Roma	6,438	209	6,647
		Remainder	608	0	608
	Roma (T)	Total	7,046	209	7,255
		Surat	474	3	477
		Remainder	603	0	603
Warroo (S)	Total	1,077	3	1,080	
Roma (R)	Total	12,828	648	13,476	
Dalby Regional Council		Chinchilla	4,067	318	4,385
		Remainder	2,386	65	2,451
	Chinchilla (S)	Total	6,453	383	6,836
		Dalby	10,546	491	11,037
		Remainder	0	0	0
	Dalby (T)	Total	10,546	491	11,037
		Miles	1,296	228	1,524
		Remainder	1,634	0	1,634
	Murilla (S)	Total	2,930	228	3,158
		Tara	858	35	893
		Remainder	3,032	5	3,037
	Tara (S)	Total	3,890	40	3,930
		Jandowae	815	10	825
		Remainder	4,837	4	4,841
	Wambo (S)	Total	5,652	14	5,666
		Wandoan	408	52	460
	Taroom(S) bal	686	0	686	
Taroom (S)#	Total	1,094	52	1,146	
Dalby (R)	Total	30,564	1,208	31,772	
Surat Basin	Total	43,392	1,856	45,248	

Sources:(a) PIFU, 2008.Projections based on 2007 ERP (b)Survey of accommodation providers, 2008 and information from key stakeholders. Notes: * Reformed LGA boundaries following amalgamations in 2008. ** SLA boundaries based on 2006 ASGC.*** Non-resident workers living on resource leases have been allocated to nearest town. # Balance of former Taroom Shire falling within Dalby Regional Council area following local government amalgamations in 2008.

It should be noted that the FTE population estimates shown in Table 4 allocate the non-resident worker population to the nearest town. As a result, the FTE populations of some towns such as Injune will reflect the presence of workers who are accommodated in the gas fields rather than in



the town centre. By contrast the FTE populations of other centres such as Roma, Chinchilla and Dalby will contain a mix of non-resident workers who are based in the town centre, as well as those located in work camps outside of the immediate urban area.

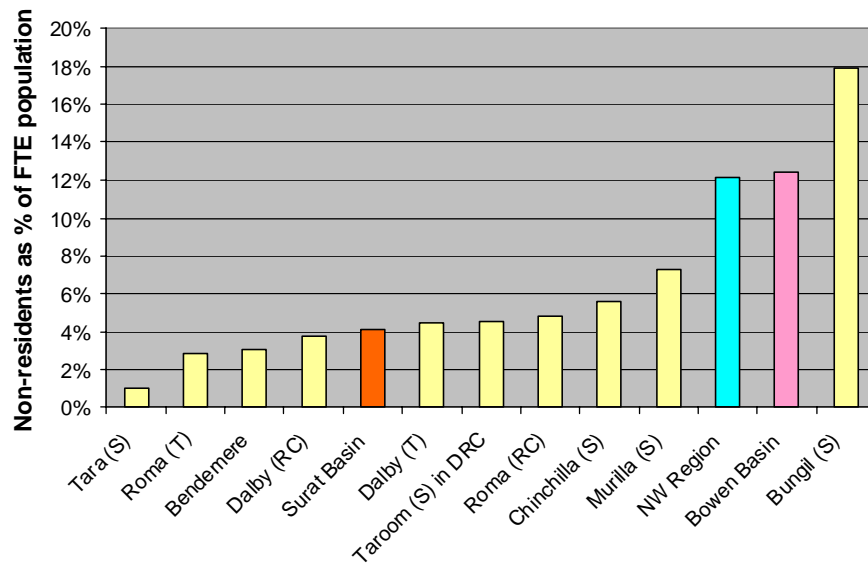
FTE population breakdown

Only 1 person in 25 or four per cent of the FTE population of the Surat Basin was a non-resident worker at 30 June 2008 (Table 4). This distribution varies from one area to the next, as Figure 6 illustrates. The proportion of non-resident workers is more apparent in areas with low resident populations such as Bungil (S), where non-resident workers make up 18 per cent of the FTE population. Apart from this area, the only SLAs to exceed the Surat Basin regional average were Chinchilla (six per cent), Murilla (seven per cent) and Taroom (five per cent).

On a proportional basis, the influence of non-resident workers on the Surat Basin's FTE population is relatively small (four per cent) compared with other resource areas, such as the Bowen Basin and the North West Region (12 per cent each). In part this reflects the diversity of the region's economy, in that the Surat Basin's working population is not as dominated by mining as those in other resource areas. It also suggests that much of the existing employment associated with the resource and construction industries is currently taken up by local residents rather than by non-resident workers.



Figure 6 Non-resident workers as a percentage of FTE population—comparison of SLAs in Surat Basin with Bowen Basin and North West Region



Sources: (a) PIFU, *Survey of accommodation providers, 2008* and information from key stakeholders. (b) DIP, *Bowen Basin population report, 2007* (c) DIP, *North West Region population report, 2008* (in preparation).
 Note: Excludes SLAs of Booringa (S), Wambo (S) and Warroo (S) which had scores of less than 1%.

Data gaps

There is some evidence to suggest that gaps exist in the data used to estimate non-resident worker populations in the Surat Basin. These gaps fall within two areas—the use of head leased private housing to accommodate non-resident workers and the number of overseas workers who are living in the region under the Commonwealth Government’s 457 Visa scheme.

Head leasing of private housing is an arrangement whereby an employer or their agent enters into a rental agreement with a provider, then sub-leases the dwelling to another party (usually an employee). While this is not in any sense improper, it does make it difficult to account for the actual occupants of the dwelling, particularly when it is used to house non-resident workers. While there is some anecdotal evidence of single non-resident workers sharing head leased dwellings in the Surat Basin, it is not possible to quantify their number.

The issue of 457 Visa workers is also difficult to resolve. Data obtained from the Commonwealth Government indicates that 310 overseas workers and dependants were living in the Darling Downs region (excluding Toowoomba) in 2007–08, an increase of 250 people since 2004–05. It is not clear whether all or any of these would have been accounted for as residents in the 2006 Census and whether they were included in subsequent ABS resident population estimates. If not, then the resident population component of the FTE population in areas where 457 Visa holders live may be underestimated. Local knowledge points to Dalby and Chinchilla as two likely localities where this may be the case, although hard evidence is not readily available.



Summary and implications

This report presents a contemporary snapshot of employment activity and population numbers for LGAs, SLAs and localities in the Surat Basin. The FTE population measure provides a breakdown of all people living in the area at 30 June 2008, irrespective of residency status, that can be directly applied to planning and policy development. It provides a tool for separately considering the needs of the resident and non-resident populations and for targeting the provision of services, goods and infrastructure to those groups.

The report identifies that workforces of the Surat Basin's resource and construction industries contain small but significant numbers of non-resident workers. While FIFO/DIDO work practices are less common in the Surat Basin than in other mining areas, it should be recognised that the full extent of resource development in the region has yet to occur. For that reason, the FTE population estimates for 2008 provide a useful baseline for monitoring future population, workforce and accommodation impacts.

Several features distinguish the Surat Basin from other resource areas of the state and have implications for its future development. First, the region has a greater degree of economic diversity through its long-running and profitable agricultural industry, leading to a lower reliance on the mining, gas and petroleum industries as the sole source of employment. Second, the settlement pattern for the region includes a number of large population centres with well established infrastructure and services, including commercial accommodation. Third, the proximity of the eastern region to major urban centres such as Toowoomba and the South East Queensland region gives a greater catchment area for locally based employment, lessening the need for FIFO/DIDO workforces.

Balanced against that is the fact that Toowoomba and its western hinterland are attractive to young people seeking a more urban and well-serviced lifestyle than that provided locally in the Surat Basin. Some will willingly choose to live there and DIDO to work if opportunities exist to do so. This represents a lifestyle choice versus the convenience of living locally and is not unlike the situation in the Bowen Basin, where many coal industry workers prefer to live in coastal centres such as Mackay rather than in towns local to the coal fields.

By comparison with the Bowen Basin, the western part of the Surat Basin is relatively distant from large population centres, except Roma and is more sparsely populated. This means that the region does not have a large pool of available local labour or commercial accommodation to meet the future expansion of resource industries. The region is more likely to rely on FIFO workforces to fill that requirement, at least in the short to medium term. The existing pattern of housing FIFO workers in an SPQ located on the resource lease is likely to continue for future resource developments in this area, reflecting similar trends for new mines in the North West Region.

FIFO mining operations are frequently criticised for contributing fewer social and economic benefits to resource communities than those that house their workers locally. These criticisms are most apparent where the SPQ is located some distance from the nearest town, limiting opportunities for interaction between its occupants and the local community. It is also common



for these SPQs to purchase and import supplies directly from regional centres rather than from local providers. On the other side of the equation, the self-contained nature of these operations also means that their consumption of local infrastructure and services is relatively low.

A different aspect of FIFO/DIDO operations occurs where the SPQ is located in or adjacent to a population centre rather than at a remote site. This situation places a more appreciable demand on local infrastructure and services than remote FIFO operations, but also adds tangible economic benefits to the local community in terms of spending on goods and services. This type of operation also allows for more interaction between non-resident workers and local residents, which can have both positive and negative consequences.

The future growth of towns such as Dalby, Roma and Chinchilla is linked to their development as hubs for support services and their capacity to attract and retain jobs beyond those provided directly by resource development and construction operations. The current uptake of commercial accommodation by non-resident workers suggests that some support services to these industries are currently performed by sub-contractors who are not usual residents. The ongoing development of new projects in the Surat Basin could improve continuity of employment for these sub-contractors and may provide sufficient incentive for some workers to become local residents.

In summary, the Surat Basin's capacity to sustain additional population growth will depend on the timely provision of essential infrastructure as well as the accommodation policies of key employment providers. Accommodating further population growth will also depend on being able to attract private investment for new housing and overcoming potential development constraints such as land supply.



Part five—guide to using FTE population estimates

Application to planning

There are several essential points to consider when applying FTE population estimates to planning for infrastructure and services:

- The characteristics of the resident and non-resident worker populations are quite different, so it follows that their needs are not always the same. For example, both the resident population and the non-resident working population require some services (water, sewage disposal, garbage disposal) provided by government agencies. There are other local services such as schools, libraries, sporting facilities and open space that are mainly used by the resident population.
- Applying the full FTE population may be appropriate when planning for common services such as sewage treatment or water provision, but using the resident population component may be more relevant for planning open space requirements. The user should carefully consider the characteristics of the two different groups and the extent to which their needs for a particular service differ or overlap, before deciding which measure is most relevant.
- The numbers of the non-resident working population will always fluctuate, making it difficult to estimate at any point in time. According to survey responses, the occupancy rate of accommodation in most locations surveyed in June 2008 was considered to be normal, so the non-resident working population can also be assumed to be typical for that point in time. Many accommodation providers identified that demand for accommodation was relatively constant throughout the year, with some slowing demand around the Christmas New Year period.

The FTE population figures do not in any way represent a reworking of the ABS resident population estimates or the PIFU population projections, nor are they intended to replace these measures. The resident population estimates published annually by ABS remain the official population figures for most applications and will continue to form the starting point for all LGA population projections.

Frequently asked questions about FTE estimates

What are FTE population estimates?

The FTE population estimate is a measure of the total number of persons thought to be living in a defined area at a given point in time, excluding overnight or short term visitors. This includes residents as well as non-resident workers (those who fly in/ fly out between their permanent place of residence and place of employment).



How does the FTE population measure differ from the ABS estimated resident population?

The ABS estimated resident population (ERP) refers to the total number of people who usually reside in an area. At any point in time, a number of these residents may be temporarily absent from the area due to holidays, work commitments, or boarding school arrangements. The ABS prepares annual ERPs for the year ending 30 June. However, the release of this data at LGA level does not usually occur until the first quarter of the following year. For that reason, the resident population component of the FTE population is a calculated projection based on the previous year's ERP and may differ from the ABS measure when it is released.

How is the resident population component of the FTE population measure calculated?

The resident population component of the FTE population is estimated from the preceding year's ERP, with the intermediate growth calculated using other data such as increase in resident job numbers, dwelling approvals data and area specific dwelling occupancy rates. This preliminary estimate is updated with ABS ERP data following its release.

How is the non-resident population component of the FTE population measure derived?

The non-resident FTE population component is based on the Survey of accommodation providers and a Survey of mining companies conducted by the Department of Infrastructure and Planning in late 2008. These surveys provide snapshots of the number of workers living in non-private accommodation (SPQs, hotels/motels, caravan parks and other forms of accommodation, such as houses leased from the private rental market). The non-resident FTE population component excludes people who are considered to be usual residents of this accommodation as well as overnight or short-term visitors.

How should FTE population measures be interpreted?

The FTE population measures consists of two different components—the resident population and the non-resident working population. The consumption characteristics and needs of the two groups may differ markedly, so it follows that they require different types and levels of services.

Do FTE population measures include dependants accompanying non-resident workers?

Generally not. The survey of accommodation providers has identified that some non-resident employees and contractors may be accompanied by dependants when working in the Surat Basin, although this appears to be limited to caravan parks. Where possible, families with children are excluded from consideration, since it is likely that they may be identified in the resident population estimates.



Glossary of terms and abbreviations

ABS

The Australian Bureau of Statistics.

Couple

Two people in a registered or de facto marriage, who usually live in the same household.

Couple family with dependent children

A one family household consisting of a couple with at least one dependent child. The household may also include non-dependent children, other relatives and unrelated individuals.

Donga

Colloquial term for a form of temporary accommodation that can be readily transported between locations. Dongas range in quality from well appointed cabins to converted shipping containers. They are distinguishable from SPQs, which include on-site arrangements for eating and bathroom facilities. Councils may permit the temporary placement of dongas on private land for short term worker accommodation where alternatives are not readily available.

Dwelling

A dwelling is a structure which is intended for people to live in. Private dwellings are occupied on a regular basis by an owner or a rental tenant and comprise dwellings that are other than commercial, tourist or institutional places of occupancy. Some examples of private dwellings are houses, flats, townhouses, units, caravans, tents, humpies and houseboats. Non-private dwellings include commercial accommodation such as hotels, motels, serviced apartments, hospitals, aged care, prisons, boarding schools and mining camps. Both non-private and private dwellings are itemised in the Census, but family and relationship data are only obtained from private dwellings. See also *non-private dwelling and occupied private dwelling*.

Estimated resident population (ERP)

The ABS prepares annual estimates of the resident population for Australia that are based on the number of usual residents derived from the previous Census. At the state level, the ERP is calculated from dwelling approvals data (lagged by six months), Medicare change of address records and electoral records. See also usual residence, resident.

Fly in/fly out or drive-in/drive-out (FIFO/DIDO)

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



Full-time equivalent (FTE) population

A measure derived by PIFU that estimates the total population living in an area at a given point in time, as applied to the local government areas of the Surat Basin included in this report. The FTE is based on two components—a survey of accommodation providers that counts the number of non-resident workers and the resident population component estimated to be present in the area at the time of survey. See also resident, non-resident workers.

Group household

A household consisting of two or more unrelated people where all people are aged 15 years and over. There are no reported couple relationships, parent-child relationships or other blood relationships in these households.

Head lease

A rental tenancy arrangement whereby contractual responsibility for one or more dwellings lies with one party (the head lessee, who is usually an employer or their agent). The accommodation covered by the head lease may be an entire building, multi-tenanted building, or more commonly a number of rented houses. Where the head leased property is used for worker accommodation, the employee may enter into a sub-leasing agreement with the head lessee for the duration of their employment. Head leasing arrangements differ from private rental arrangements, whereby each occupant enters into a direct agreement with a landlord or real estate agent.

Household

A group of related or unrelated people who usually live in the same dwelling and make common provision for food and other essentials of living or a lone person who makes provision for their own food and other essentials of living, without combining with any other person.

Intercensal period

The interval between successive Census collections. In Australia, the Census of Population and Housing is conducted every five years, with the latest collection being held in August 2006. Preliminary results are usually released around a year following the Census collection.

Local government area

According to the definitions adopted by the Australian Standard Geographical Classification, a local government area (LGA) is a geographical area under the responsibility of an incorporated local government council, or an Aboriginal or Island Council in Queensland. Larger LGAs incorporate smaller geographical areas, including statistical local areas.

Lone person household

A household consisting of a person living alone.



Non-private dwellings (NPDs)

NPDs are those dwellings that provide a communal or transitory type of accommodation. NPDs include SPQs, hotels, motels, guest houses, prisons, religious and charitable institutions, defence establishments, hospitals and other communal dwellings. See dwelling, SPQ.

Non-resident worker

Employees of mining companies, contractors and construction workers who live in an area for extended periods when working, but have a usual 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 SPQs, hotels/motels accommodation, 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 ABS and omitted from estimates of the resident population. See FIFO/DIDO, ERP, resident.

Occupied private dwelling

All private dwellings that are occupied when the Census is taken. Unoccupied private dwellings are also counted with the exception of unoccupied dwellings in caravan parks, marinas and manufactured home estates and units in accommodation for the retired or aged (self care). See also private dwelling.

Other dwelling

Includes caravans, houseboats, or houses or flats attached to a shop or other commercial premises.

Other landlord type

Where the household pays rent to the owner or manager of a caravan park, an employer (including a government authority), a housing cooperative, a community or church group, or any other body not included elsewhere.

PIFU

The Planning Information and Forecasting Unit, which became a division of the Department of Infrastructure and Planning in late 2007. Prior to that date, PIFU was part of the former Department of Local Government, Planning, Sport and Recreation.

Population projection

A projection of the future resident population of a given area. PIFU produces updated population projections for all LGAs within Queensland on a regular basis. The latest edition, which contains projections to 2026, was released in August 2008.

Private dwelling

See dwelling.



Private renter

A household paying rent to a landlord who is a real estate agent, a parent or other relative not in the same household or another person not in the same household.

Resident

The ABS considers that all persons who live within a given area for more than six months of a given year are resident within that area (2001 Census). See also resident population.

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 have lived in the area for 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. See also resident.

Service population

An estimate of the total number of persons within a defined area who use goods or services, but who are not necessarily residents of the area from which such goods or services are sought. The FTE population measure is a form of service population estimate for medium to long-term accommodation in the Surat Basin, based on non-resident workers living in non-private dwellings along with residents of private dwellings. The FTE measure does not include the other component of the total accommodation service population, namely short-term visitors.

Single persons quarters (SPQs)

A term used to describe a type of non-private accommodation, usually provided to accommodate unaccompanied mining non-resident company workers and associated contractors. Most SPQ accommodation centres are a form of hostel that typically consists of demountable dwellings (often referred to derogatively as dongas) arranged in a large camp, although some establishments also contain permanent and semi-permanent dwellings. SPQ accommodation is arranged with common eating, laundry and entertainment facilities and rooms that are cleaned and serviced by the operator. Occupants of SPQs are usually provided with all meals. See also non-private dwellings, dongas.

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 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 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. See also resident, resident population.



References and further information

Australian Bureau of Statistics (2008) *Regional Population Growth, Australia*, cat. no. 3218.0. ABS, Canberra.

Australian Bureau of Statistics (2007), *2006 Census of Population and Housing; Industry of Employment (ANZSIC) by Main ASGC (UR) by Place of Work* (custom Census table). ABS, Canberra.

Cook, T. (1996). *When ERPs aren't enough—a discussion of issues associated with service industry population estimation*. Demography Working Paper 96/4, Australian Bureau of Statistics, Canberra.

Department of Infrastructure and Planning (2008a). *Bowen Basin population report, 2007*. Department of Infrastructure and Planning, Brisbane. Online www.dip.qld.gov.au/publications/planning-information-and-forecasting-research.html

Department of Infrastructure and Planning (2008b). *Terms of reference for Wandoan Coal Project*. Department of Infrastructure and Planning, Brisbane. Online (downloaded 2 October 2008) www.dip.qld.gov.au/projects/energy/coal/wandoan-coal-project.html

Department of Infrastructure and Planning (2008c). *North West Region population report, 2008*. Department of Infrastructure and Planning, Brisbane (in preparation).

Department of Local Government, Planning, Sport and Recreation (2007). *Household projections – Queensland Local Government Areas 2007*. DLGPSR, Brisbane. Online (downloaded 21 April 2008) www.dip.qld.gov.au/publications/household-projections.html

Department of Mines and Energy (2007). *Queensland mining and petroleum industries 2007*. Department of Mines and Energy, Brisbane. Online (downloaded 3 November 2008) www.dme.qld.gov.au/mines/queensland_mining_and_petroleum_industries_2007.cfm

Department of State Development (2007). *Creating regional economic development by value adding the Surat Basin Energy Resources Province*. Department of State Development, Brisbane.

Appendix A—methodology

FTE population methodology

The FTE population measure used in this report was initially developed by the Queensland Government in 2006 to define population changes associated with mining growth in the Bowen Basin region. FTE population estimates have been adopted by local and state government agencies to inform planning across the Bowen Basin region, including the Moranbah Water Demand Study and the Sustainable Futures Framework for Queensland Mining Towns among other applications. The private sector has also found this information useful, particularly as a guide to planning residential development.

The concept of an FTE population estimate is readily understood, being similar to economic measures that equate casual and part-time employment to full-time equivalent jobs. In the case of the FTE population, the measure represents the total service population for goods and services required in an area, which cannot be estimated by considering the resident population alone. Accordingly, the FTE population measure contains two different components:

- people who live in the area on a permanent basis (the resident population).
- people who live and work in the area for an extended period but have a usual place of residence elsewhere (the non-resident worker population). This group is typified in the Surat Basin as FIFO workers.

A model of how the FTE population relates to all elements of the service population for accommodation is attached as Appendix D to this report. A more detailed discussion paper covering service population methodologies and appropriate data sources (*Towards estimates of service populations to inform planning in small areas*) is available for download from www.dip.qld.gov.au.

Non-resident worker population

The non-resident worker population was established through the *Survey of accommodation providers*, conducted in late 2008. The survey covered all non-private accommodation providers in Dalby and Roma LGAs, including single person quarters, hotels/motels and caravan parks. Accommodation providers were asked to identify non-resident workers based on best knowledge of their tenants, in that they:

- lived there on a medium term and/or regular basis
- were not usual residents (i.e. had not lived there continuously for six months or more)
- were not short term visitors (i.e. had lived there for less than two weeks)
- were not tourists or itinerants.

The survey of accommodation providers did not count workers living in SPQs located on mining sites, but was limited to other forms of accommodation located in or near to the major towns. The rationale for this split was that FIFO/DIDO workers who occupy on-mine SPQs often travel directly to the mines and do not use accommodation services such as private SPQs, hotels/motels,

caravan parks or rented dwellings. The number of non-resident workers living in on-mine SPQs was derived from information provided by resource companies, local governments and other sources.

Resident population estimates

The ABS resident population estimates for 30 June 2007 provide a starting point for estimating annual changes to the resident population. Growth in resident population between 2007 and 2008 has been estimated by applying the Census average household size per dwelling, to the new dwellings approved in the interim period (lagged by six months). Note that this method does not include changes attributable to natural increase (births less deaths) and is only an approximation of actual population growth. Revised 2008 FTE population estimates will be published by PIFU in the 2009 edition of the report, after ABS estimated resident population data for 2008 becomes available.

Appendix B—characteristics of non-resident workers

The characteristics of non-resident workers in the Surat Basin differ according to the nature of their employment and the types of accommodation that they occupy when living in the area. While most non-resident workers are company staff or contractors who are directly engaged in mining production, there are other groups of FIFO workers who fall outside of that narrow definition. These include maintenance contractors, exploration crews, project construction workforces and miscellaneous workers.

The most apparent differences between these groups are their accommodation arrangements. Many live in SPQ accommodation on the mine site for the entire duration of their shift and do not consume local accommodation services. Others are more reliant on non-private accommodation in population centres, such as hotel/motels, caravan parks and rental accommodation.

Non-resident production staff and contractors

In their day-to-day operations, many resource industries in the Surat Basin use a mix of company staff and contract workers. Depending on the resource location and the contractor's accommodation policy, production contract workers may be usual residents of the region or FIFO/DIDO from elsewhere. In most remote operations, all staff and contractors whether resident or non-resident in the area live in the on-site SPQ while rostered on. Where employed in mining operations close to service centres, non-resident contractors are also known to occupy non-private accommodation, including houses that are head leased from the rental market by their employers.

Maintenance contractors

There is a large group of regular maintenance contractors and sub-contractors who service the Surat Basin's plant equipment during shutdown periods. Operations in the region conduct scheduled maintenance on an ongoing basis, so that the demand for this group's services is ongoing. Many maintenance contractors live in Dalby LGA and Roma LGA as usual residents, while others FIFO/DIDO from outside of the region. Depending on the location of their current project, maintenance contractors may live in on-site SPQs for the duration of the shutdown, or in non-private accommodation.

Exploration crews

This group includes surveyors, geologists and drilling crews involved in mining and gas exploration. They usually live in temporary work camps or informal dwellings at remote locations and are likely to occupy non-private accommodation on a short-term basis. Where it has been possible to identify and quantify them, exploration crews are included in the count of non-resident workers.

Project construction workforces

Large projects such as new mines, plant extensions or major infrastructure usually employ a temporary construction workforce, which can vary in size and duration according to the scale of the project. Construction workforces are usually housed near the project in temporary work camps, but can also use existing non-private accommodation such as caravan parks or houses head leased from the private rental market. Where construction projects use FIFO arrangements, their workforce is included in the count of non-resident workers.

Miscellaneous workers

This group consists of those not directly employed by mining activities, mainly people who provide infrastructure and support services. They include employees of government agencies and government owned corporations, workers in the residential construction industry, professionals, para-professionals and service industry staff.

While this group uses non-private accommodation on a short to medium term basis, it is often difficult to identify their residency status. Some are regular FIFO workers whose costs are subsidised by employers and are included in the FTE population estimates as non-resident workers. Catering and service staff of SPQs and other non-private accommodation form a sub-group within this category.

Others include unaccompanied workers who have yet to find suitable private housing for their families in the region, regular visitors who stay for only a short time and those who work in the region for extended but irregular durations. These are likely to be classified either as usual residents or short term visitors and are not counted as non-resident workers in the FTE population estimates.

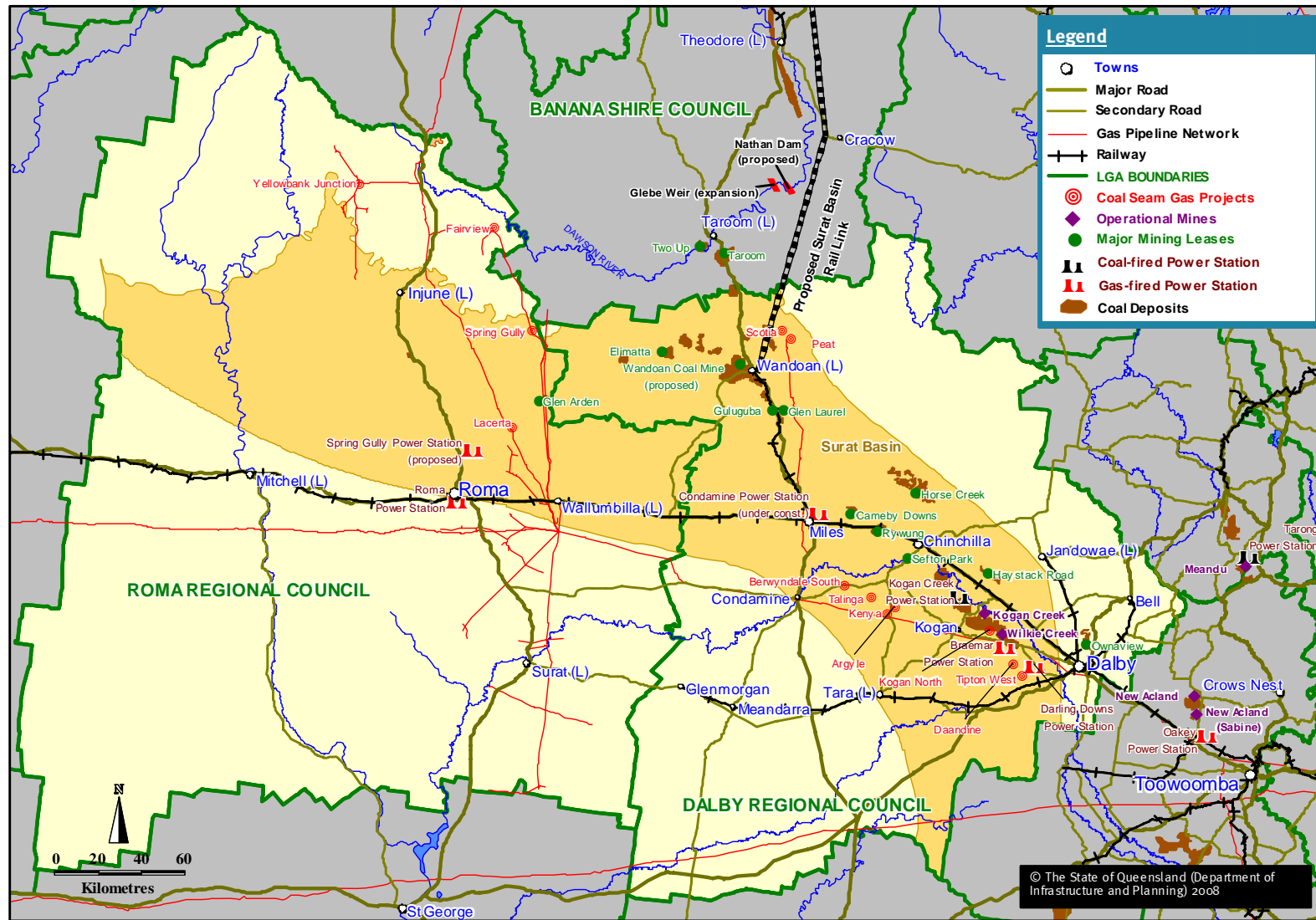
Appendix C—model for estimating FTE population

Elements	Population component	Accommodation	Dwelling type	Typical occupants	Data source for intercensal population estimate*
FTE population	Resident population	Private housing	Houses, flats, units, caravans (owned or rented), public housing tenants	ERPs include persons usually resident in the area for a period of six months or more and who identify this address as their usual place of residence.	ABS estimated resident population ; PIFU **
		Non-private accommodation	Single person quarters, hotels, motels, other institutions	Includes permanent live-in staff, school boarders, prisoners, nurses, aged care, retirement villages.	ABS estimated resident population; PIFU **
	Non-resident population (medium to long term) – includes fly-in/fly-out or drive-in/drive-out workers	Private dwellings	Rented private houses, flats, units, caravans	Mining company employees, contractors and associated tradespersons living in the area when working but resident elsewhere when off-shift.	ABS Survey of Tourist Accommodation (caravans only); PIFU **
		Non-private dwellings	Single person quarters, hotels, motels	Mining company employees, contractors and associated tradespersons living in the area when working but resident elsewhere when off-shift.	ABS Survey of Tourist Accommodation (larger premises only); PIFU **
Not included in the FTE population	Other non-resident population (medium to long term)	Private dwellings	Rented private houses, flats, units, caravans	Persons who have been living in the area for less than six months or who don't intend to live there for more than six months.	ABS Survey of Tourist Accommodation (some caravan parks); PIFU **
		Non-private dwellings	Hospitals, prisons, other institutions	Includes hospital patients, short term to medium term occupants of some institutions.	Not estimated. Census data only
	Short term visitors (non-resident) – includes tourists and overnight stays	Private housing	Private boarders, private guests, caravan parks	Includes tourists, day visitors normally resident elsewhere, maintenance operators, overseas visitors.	ABS Survey of Tourist Accommodation (larger caravan parks only.)
		Non-private acc.	Single person quarters, hotels, motels, bed & breakfast, backpacker hostels, holiday accommodation	Includes visiting company employees, tourists, business visitors, backpackers, maintenance operators, overseas visitors.	ABS Survey of Tourist Accommodation (larger premises only.)
	Itinerants (short term population)	Private dwellings	Caravan parks, farm homestays	Includes seasonal workers.	ABS Survey of Tourist Accommodation (larger caravan parks and premises.)
		Non-private dwellings	Hotels, motels, backpacker hostels	Includes seasonal workers.	
	Homeless	Private, non-private, informal dwellings	Staying with friends, community housing, camping, informal dwellings	Where definition of homelessness includes persons without a permanent place of residence.	Not estimated – Census data only.

Source: PIFU.

* Denotes data sources that may be used to estimate the populations of different groups in the five year interval between Census counts. ** PIFU – Data collected from PIFU's annual survey of accommodation providers, targeting the area's non-resident working population (solid shading) living in non-private dwellings. The survey may also inadvertently include some persons who are accounted for in other intercensal population estimates (diagonal shading), such as the ABS Survey of Tourist Accommodation and the ABS Estimated Resident Population.

Appendix D—Surat Basin resource and infrastructure development



Source: PIFU.

Department of Infrastructure and Planning
Planning Information and Forecasting Unit
PO Box 15009 City East Qld 4002 Australia
tel +61 7 3237 1815
fax +61 7 3235 4071
pifu@dip.qld.gov.au

www.dip.qld.gov.au