

The FIFO Experience: A Gladstone Case Study

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Abstract

The aim of this article is to explore the historic and contemporary use of non-resident workers (NRWs) in the Gladstone region, how this has contributed to the region's development, and the economic and social impacts of the use of Fly-in Fly-out (FIFO) employment practices. Gladstone, in Central Queensland, is at the front and centre of Australia's evolving economic growth with some \$45 billion of investment being delivered in the region. Recently, the construction of three coal seam gas and liquefied natural gas (CSG and LNG) projects on Curtis Island in Gladstone harbour has placed enormous pressure on the region in terms of unprecedented labour and housing demands. It has seen the extensive use of FIFO and Drive-in Drive-out (DIDO) workers. An exploratory qualitative approach framed by key concepts in the literature on resource dependence and socio-economic well-being and, in particular, the fly-over effects of utilising large-scale FIFO labour practices is used in this study. A case study research design has been utilised involving archival and documentary analysis, and a series of qualitative semi-structured interviews with community stakeholders. Recent research into the socio-economic impacts on regional resource-dependent regions across Australia points to a shift away from the 'resource curse' hypothesis (Lawrie et al. 2011, Tonts et al. 2012). We argue that the Gladstone story is unique and is differentiated from the atypical story of the company-built inland mining town, due to a number of contextual variables. Key issues from multiple perspectives are identified and recommendations for future research are made.

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1. Introduction

Australia has been building up to the biggest mining and energy boom in its history, however with the majority of Australia's population living in and around capital cities, few people actually live within daily commuting distance of mine sites. Land and sea-based mining basins are usually in regional and remote areas and are more often than not located large distances from capital cities or large population bases. This creates staffing issues for resource companies, due to the lack of a local population available to work at construction, mine, and plant sites. Therefore, employees living in major cities or capital cities are used to fill the shortfall. These workers commute on a regular basis, for an extended period of time, and are unable to return to their permanent place of residence at the end of a shift. The terminology used to describe workers travelling to a site specifically for work has changed over time. Currently, the term NRW (Carrington et al. 2011) is used to encompass the following terms: FIFO; long-distance commuters (LDC); DIDO; bus-in, bus-out (BIBO); and ship-in, ship-out (SISO) workers (Moranbah Medical 2011, Carrington et al. 2011, Gillies et al. 1991, Houghton 1993, HORSC 2013).

As noted by the Australian Parliamentary Inquiry into FIFO and DIDO workers, there is very little research on this phenomenon, and information seems to be more anecdotal than evidence-based. Hence, there are several recommendations from the inquiry calling for research to be funded in the following areas: assistance to the Australian Bureau of Statistics to ensure data collections on FIFO and DIDO workers; research to examine the effect on children and family relationships of FIFO work practices; the economic and social impact of establishing FIFO source communities, and the impact of NRWs in regional towns on the provision of medical services. Several small-scale studies have been undertaken, the most notable being by Carrington and Pereira (2011), Clifford (2009), Haslam McKenzie (2011), Hoath and Haslam McKenzie (2013), Storey (2010), Torkington et al. (2011), and Lifeline (2013). The Kinetic Group (2012) and Energy Skills Queensland (2013) have provided substantial data on the numbers of workers in the Queensland mining industry and the distances that they are from mine sites. In addition, the Queensland Treasury and Trade Office has conducted three studies projecting NRW populations in three Queensland areas: Bowen and Galilee Basins, Surat Basin, and Gladstone (Government Statistician 2013a; 2013b; 2013c).

There is a small but growing body of literature and research which examines the economic and social impacts of mining on resource-dependent towns and resource-rich regions. Case studies focused on the social and economic impacts of mining have been undertaken by Marinova et al. (2010) in relation to the township of Leonora in Western Australia. Petkova et al.

(2009) conducted case studies in Queensland's Bowen Basin, and Lawrie et al. (2011) focused on three boomtowns in Western Australia (Kalgoorlie-Boulder, Port Headland, and Karratha-Dampier). More regionally based studies have been undertaken by Rolfe and Kinnear (2013) in relation to Central Queensland and by Rolfe et al. (2007) for the Bowen Basin region in Queensland. Peck (2013) studied the WA region of the Pilbara and Tonts et al. (2012) undertook a comparative analysis of 33 small mining towns across Western Australia. These studies are dominated by the fields of economics, geography, and rural sociology (Lawrie et al. 2011).

There are complex challenges when aligning a FIFO workforce and a residential community. Studies in the Bowen Basin (Petkova et al. 2009, Rolfe 2011) indicate that issues arise concerning community image, impacts on families and workers, loss of engagement in the local community, lack of economic benefits due to FIFO workers spending the majority of their income outside the region, the perception of higher wages for FIFO workers, increased social issues related to alcohol, crime, and violence as well as community expectation that companies employing FIFO workers will contribute both economically and socially to the local communities.

The loss of benefits to local communities which have substantial FIFO workforces has been termed the 'fly-over' effects of FIFO (Storey 2001). Terms used to describe the social and economic impacts of large mining operations on towns and regions include the 'resource curse' and the 'paradox of plenty' (Hajkowicz et al. 2011, Haslam McKenzie 2013). The 'resource curse hypothesis says that citizens of countries with natural resource abundance tend, ironically, to have lower rates of income growth and social well-being' (Hajkowicz et al. 2011, p. 31). Lawrie et al. (2011, p. 160) make several important points in relation to the uniqueness of each town or region with respect to the economic and social impacts from mining and resource projects, concluding that 'the experience of resource towns varies considerably according to their commodity base, location and socio-demographic structure'.

This article briefly discusses the key findings from the Parliamentary Inquiry into FIFO and DIDO workers and associated research into the impacts of FIFO and DIDO practices on host communities. The case-study methodology employed for this study is outlined, followed by the findings and discussion. The article concludes with recommendations for future research.

2. Parliamentary Inquiry into FIFO and DIDO Practices

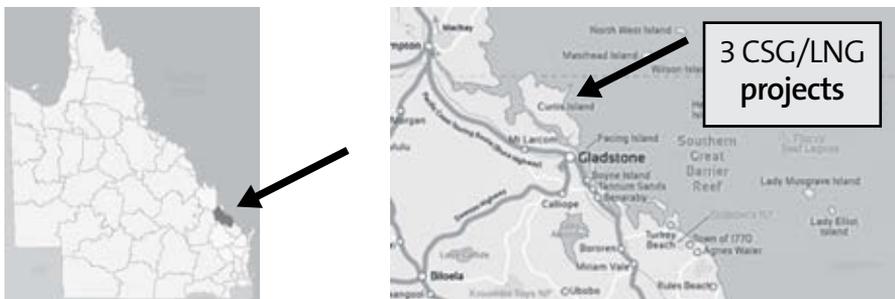
The Parliamentary Inquiry on the use of FIFO and DIDO practices in Australia received 232 submissions. The House of Representatives Standing Committee

on Regional Australia (HORSC 2013) made 21 recommendations as a result of the inquiry. These included recommendations for future research into the regional economic impacts of FIFO practices in terms of services and, in particular, health and medical services and affordable housing. Key issues identified by the inquiry included the lack of housing resulting in resource towns becoming unattractive to families, and thus the utilisation of FIFO work. This lack of housing also increases house prices and is the result of a lack of infrastructure planning by local governments. The report also highlighted some of the effects of isolation in FIFO camps for FIFO workers including alcoholism and violence. Some independent research has looked specifically at these issues (Clifford 2009, Torkington et al. 2011, Lifeline 2013).

The lack of investment in the host community by resource companies remains an issue at most FIFO work sites. Councils throughout Australia have been negatively affected, as they have had to bear the burden of the increased population without any commensurate compensation (HORSC 2013). In addition, planning and forecasting for an influx of FIFO workers is an area that has received scant attention and direct cost–benefit economic analysis of FIFO workers is lacking. Direct spending at the workplace site by FIFO workers is a contentious issue, as studies have reported that money is repatriated to where a FIFO worker’s family resides for them to spend, thereby providing very little direct financial benefit to the work-site community (Rolfe 2011). In addition, supplies for the camp sites are often purchased from capital cities and freighted to the worksite at a cheaper cost than local suppliers can match for the same goods.

The issues surrounding the use of FIFO work practices are complex. The primary focus of this case study is to explore the historic and contemporary use of NRW workers in the Gladstone region, how this has contributed to regional development, and the social and economic impacts this has had on the Gladstone community. Figure 1 indicates the Gladstone region in Queensland.

Figure 1: Map of Gladstone



Source: Gladstone Area Promotion and Development Ltd (GAPDL 2012).

As a consequence of the literature and research reviewed, the following research questions for this study are posited:

RQ1: To what extent have current FIFO employment practices affected the Gladstone regional economy?

RQ2: What are the social impacts of current FIFO employment practices on the Gladstone community?

RQ3: What strategies might be employed to minimise the negative impacts of the use of FIFO employment on regional communities?

3. Methodology

The research design employed for the study is a descriptive, single, case study. Case-study research allows for in-depth examination of an extensive amount of information over a set period (Neuman 2006). ‘The distinctive need for case study research arises out of a desire to understand complex social phenomena. In brief a case study allows investigators to focus on a “case” and retain a holistic and real world perspective’ (Yin 2014, p.4). ‘Case study research methodologists ... tend to be pragmatic and advocate the use of multiple methods and multiple data sources (that is, methods and data triangulation)’ (Johnson and Christensen 2012, p. 398). The strength of this approach is that the design allows for a variety of data-collection methods and, subsequently, the triangulation of data to provide multiple perspectives and thus gain greater insight into a single bounded case.

Table 1 summarises the data-collection methods and sources and includes archival and documentary analysis, secondary data sources, and primary data collected through qualitative semi-structured interviews with seven community representatives. Interviews were conducted face-to-face and by telephone and lasted anywhere between 30 minutes to an hour. Interviews were transcribed and analysed thematically using NVivo software.

Table 1: Data Collection Methods and Sources

Data collection method	Sources
Archival and documentary analysis	Gladstone Historical Society Historical accounts of the Gladstone region including auto-ethnographical material
Secondary data analysis	Census data 2011 Trade and Treasury QUEENSLAND GAPDL documentation
Primary data: semi-structured interviews	Community representatives (n = 7)

Ethics approval for this study was applied for and approved (Ethics Approval # H13/07-137).

Semi-structured interview sample

The interviewees (see Table 2) were chosen through purposive sampling and for their respective roles in community, employer, and worker organisations.

Table 2: Summary of Primary Data Sample

Code	Interviewee
01	Elected member of local government
02	Mentoring and counselling consultant
03	Representative of large local employer group
04	Staff member of local government body
05	President of volunteer-based community group
06	Gladstone Area Promotion and Development Ltd (State-funded regional promotional body)
07	Regional trade union representative

Limitations

Interviews were initially sought from representatives of the three CSG and LNG proponents, but our enquiries were redirected to the first-tier contractor for the three CSG and LNG projects on Curtis Island. This multinational company handles all the human resource issues for these projects including recruitment, retention, and training. Unfortunately, this first-tier contractor has a global policy of not releasing data or engaging in research of this type, and this is therefore a limitation of the study. Despite this setback the research team successfully recruited community stakeholders to participate in the study.

4. Gladstone Historical Perspective¹

The Gladstone region was home of the Baiali, Goereng, and Goreng Goreng Aboriginal tribes. The European settlement of Gladstone occurred in 1853, but its population increased with a gold strike at Calliope in 1861. Gladstone was a farming community which changed when the train line connected the town to surrounding areas in 1903. This saw diversification with a dairy factory in 1905, as well as sheep and cattle. Wool was shipped south and live horses were shipped from Auckland Wharves to Java and India for military purposes. A meatworks was established in 1896 (Roper 2007). In 1939 an export terminal for coal and oil was built. During the early 1950s, the Gladstone port was transformed from a declining primary-industry export base (handling cattle and so on) to the multi-million tonne export

¹ Parts of this section draw from material in: *Gladstone: Yesterday and Today*, Oxford Press, Rockhampton.

centre it is today. The Gladstone Port Authority pioneered bulk coal handling in Queensland in 1954. The meatworks increased the population from 3000 to 7000 in 1954. At its peak in 1960, 900 workers were employed at the meatworks, but Gladstone’s largest employer closed down in 1963.

In 1963, when Gladstone had a population of 7000, Queensland Aluminium Ltd (QAL) announced the construction of the world’s largest alumina refinery in Gladstone on the same site as the meatworks. Stage 1 of the construction of QAL took four years to complete. By 1968, the population had doubled to 14,000 with the influx of construction workers and their families who came from all over Australia as well as overseas. At its peak in 1966, QAL employed 2800 workers (McDonald 1988). By 2006, Gladstone had grown to 29,288 residents with QAL contributing \$200 million annually through wages as well as community grants and bursaries (Roper 2007).

The historical context of Gladstone’s development holds many clues to its ability to absorb changing industry bases and the power of location and geographic assets in assisting to create a diversified economy. Table 3 provides a timeline of European settlement and the commencement of the construction of major developments in the Gladstone region from 1853 to present.

Table 3: Gladstone Industry Timeline

Year started	Industry
1853	First European settlement
1896	Wool and horses shipped from port
1905	Dairy Factory
1914	Gladstone Harbour Board formed; now called Gladstone Ports Corporation
1925	Auckland Point coal terminal
1939	Export terminal for coal completed
1954	Meatworks (closed in 1963)
1963	QAL
1967	Queensland Aluminium Stage 2
1971	NRG Power Station
1975	Boyne Aluminium Smelter
1976	Clinton Coal facility now RG Tanna Coal Terminal
1981	Cement Australia
1992	Austick–closed in 2014
1993	Orica chemical plant
1997	Suncor Shale Oil plant
2002	Rio Tinto Alcan Yarwun Stage 1
2010	APLNG–coal seam gas terminal
2010	QGLNG- coal seam gas terminal

Not only does Gladstone have a diversified industrial economy but it has some of Australia's largest industries. Gladstone Ports Corporation in 2013 controlled the largest port in Queensland and the fourth largest in Australia. Queensland Aluminium is the third largest alumina refinery in the world; NRG Power Station is Queensland's largest power station; Boyne Aluminium Smelter is Australia's largest aluminium smelter; Cement Australia has Australia's largest cement kiln; Orica is one of the world's largest producers of explosives; and Rio Tinto Yarwun is the first greenfield alumina refinery to be constructed anywhere in the world since 1985.

5. Gladstone Contemporary Perspective

The Gladstone region is a major industrial hub as well as being Queensland's largest multi-commodity port. The (resident) population of Gladstone was 57,891 on August 9 2011, according to the 2011 Census (ABS 2013). The population of Gladstone rose 3.5 per cent in the year to June 2011, while in the previous year (to June 30 2010) the population increase was only 0.9 per cent (GAPDL 2012).

The region has major engineering, construction, and manufacturing sectors. In the 2010 financial year, the Gladstone region produced around \$2.5 billion of gross regional product, with \$2 billion of this coming from industry outputs. The manufacturing sector contributed almost 21 per cent of this industry output (GAPDL 2011). Labour force participation in the Gladstone region has been above both Queensland and Australian average rates. The Gladstone region non-resident populations were projected for 2012-2013 as follows:

Between June 2011 and June 2012, the number of NRWs on-shift in the study area nearly tripled from 1210 to 3610 people ... Ongoing construction of three major coal seam gas to liquefied natural gas (CSG and LNG) projects and port expansions will see the non-resident population of Gladstone peak at 4450 in 2013 ... and then decline over the years to 2019 (Government Statistician 2013b, p. 1).

There are three major CSG and LNG export-industry projects under construction in Gladstone (LNG conversion plants on Curtis Island) to be fed from CSG in the Surat Basin. The projects are: Australia Pacific LNG (APLNG), Gladstone LNG (GLNG), and Queensland Curtis LNG (QCLNG). A fourth CSG and LNG proponent (Arrow Energy) is awaiting the final approvals for its LNG plant and pipeline projects that would source gas from the Surat and Bowen Basins (Government Statistician 2013c). According to the General Manager Bechtel Gladstone, Kevin Berg, almost 9000 people are working

on Curtis Island. 'The company has installed three gyms, a 25m swimming pool, tennis court, beach volleyball court, golf nets, cricket nets, an open grass field, running circuit and undercover basketball court, and a tavern' (Gaynor 2013, p. 8).

The following discussion is based on the qualitative data collected and analysed from the semi-structured interviews of a representative group of community stakeholders.

6. Findings and Discussion

There was a degree of variance between interviewees on the current number and ratio of FIFO workers to local workers on the three CSG and LNG projects. Some interviewees had been informed that the total workforce on Curtis Island at the time of the interviews (September 2013) was between 10,000 and 10,500, with FIFO/DIDO worker ratios at approximately 52 per cent, and locals at 48 to 49 per cent. Estimates of those workers currently living on the island were approximately 4000 to 5000. The first-tier contractor Bechtel estimated in 2013 that the workforce contained 4744 local employees (residing within a 100-kilometre radius of Gladstone) from a total workforce of 10,554. The expected peak workforce would be 11,000 and the estimates of the total number of people expected to be employed on the CSG and LNG projects, over the life of their construction, would be 25,000 (Berg 2013). Figure 2 provides a visual depiction of the labour movements of workers on the CSG and LNG projects on Curtis Island. Many workers commuted by car from surrounding local government areas (LGA) and (or) towns such as Rockhampton in the north, Biloela in the west, and Bundaberg in the south. Workers residing in outlying areas within the LGA (for example Tannum Sands and Calliope) are bussed in, and all workers are shipped over to the island by ferry.

In addition to the Curtis Island accommodation there were 300 houses rented out by the tier-1 contractor and an additional 200 houses were being rented by the three gas proponents in Gladstone. Rental availability in Gladstone during 2012 reached drastically low levels:

rental availability is now at around 7 per cent, which is a big improvement from this time last year when it was 0.07 per cent. So we've gone from 1 to 2 houses available to 700 hundred houses available [03].

Figure 2: FIFO, DIDO, BIBO, and SISO Movements Gladstone CSG and LNG Projects

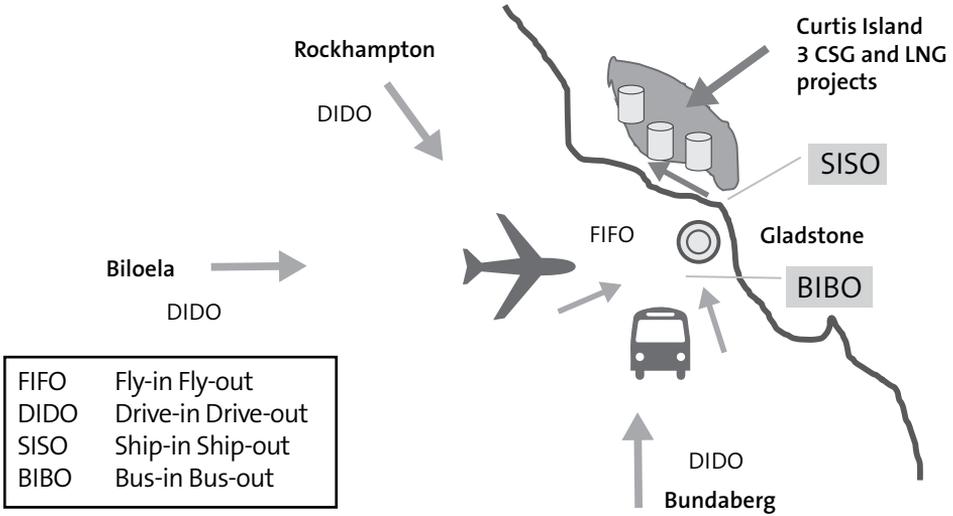
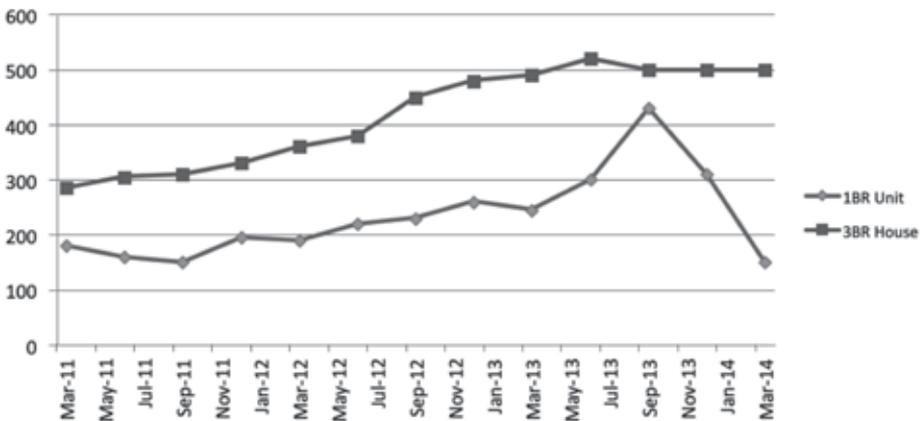


Figure 3 displays the rental prices for one-bedroom units and three-bedroom houses from March 2011 until March 2014. The median rental price for one-bedroom units climbed from \$150 per week in September 2011, to \$260 in December 2012, and up to a staggering \$430 per week in September 2013. Since then, the rental price for a one-bedroom unit has dropped significantly. For three-bedroom houses, rents started at \$285 per week in March 2011, peaked at \$520 per week in June 2013, and dropped slightly to \$500 for March 2014.

Figure 3: Median House Rental Prices (per week) 2011–2014



Source: Queensland Residential Tenancies Authority 2011

Interestingly, one interviewee referred to the concept of the 'gate start', whereby potential employees are informed that if they can supply a local address, their application will be looked upon more positively:

what you've got is what they call gate starts, where the company may say, 'Provide us a local address and we'll look favourably upon your application for employment', and so they're not true locals, they're people that have moved and are paying the ridiculous rents that you've got to pay in Gladstone ... you've got employers that are actually encouraging that process and what we call the gate start, where you've got a job, you've just got to show up at the front gate, and we're not going to put you in the camp, we're not going to pay you your living-away-from-home allowances. You front up here and you'll get a start. And so people end up, you know, living in caravan parks, living in their back of their ute until they find a house [07].

Every interviewee stated that FIFO employment practices were necessary to enable the construction of the three large gas plants, and that there were no realistic alternatives to FIFO:

the reality is that with the CSG and LNG construction, the region didn't predict three plants were going to approved for construction at the same time—at the same time of the construction of Yarwun 2 at Rio Tinto, at the same time as Wiggins Island, at the same time as the Southern Oil Refinery—so those are 120 billion dollars worth of construction projects going on over the past three years, and in the future, the next two years, there simply wasn't a skilled workforce large enough in the local, existing local region, to be able to service the industry, the construction boom that we're currently having. So the advantages are, and the reality is, that we had to find a workforce somewhere [03].

We now discuss the findings in relation to the three research questions posited. It would seem that overall there are both negative and positive impacts on the economy and the community and some strategies and solutions have been offered.

RQ1: To what extent have current FIFO employment practices affected the regional Gladstone economy?

Some local business have financially benefited from the influx of workers, in particular: retailing (clothing, hairdressing, chemists), hospitality (hotels, clubs, restaurants); accommodation services and local car dealers were all mentioned as benefiting economically from the influx of workers to the

region. Others noted that the FIFO workers living on the island would spend very little in the local community:

anyone on the island is earning anywhere from \$80,000 through to \$180,000, so they're earning big bucks but they're not spending it here, they're sending it all back to Brisbane or to Sydney, or to Melbourne, or to New Zealand. So in terms of that money and the economy, we are missing out on that because it's a fly-in, work on the island seven days, or work on the project seven days, or whatever it may be, fly back out, so we're lucky if we pick up a few dollars here and there with them [03].

\$20 billion [worth of] jobs over on Curtis Island, most of that is not coming back to Gladstone. So it's short-lived and while ever you've got fly-in fly-out workers that are taking their money home with them and buying big flash houses and Harley Davidson's and everything, away from Gladstone, that's a fairly obvious economic effect of it [07].

In contrast, other local businesses have been unable to tender successfully for supplies to the CSG and LNG companies, and others have seen the high rental costs force semi-skilled workers to leave the region. In addition, many skilled workers have left local employers to pursue the higher wages on offer on Curtis Island. Others point to little cash injection into local businesses from the FIFO workers:

Businesses had the expectation that they were going to get some benefit from the fly-in/fly-out workforce—very few businesses have actually received any cash injection into their business through fly-in fly-out. I know of one business that certainly has, but most businesses have received very little because of the nature of the fly-in/fly-out, and the huge demand that they place on food that they need—most of that food comes by semi from Brisbane every night, or every second night [05].

Many local employers have been forced to recruit FIFO and DIDO workers themselves due to having to sustain their businesses when workers have left to pursue work on the gas projects. Local workers have been attracted to the perception of higher wages on offer, however, some workers have returned to local employers due to the travel times, roster structures, and long shifts. This has been a major issue for local employers of all sizes in the region. Many employers were forced to backfill after turnover rates rose. Some local employers have had to resort to employing FIFO and DIDO workers and to subsidise employee accommodation at great cost to themselves and the

residents of Gladstone. Mention was made of how local employers were being used as stepping stones to the work on Curtis Island, which increased their turnover rates and the costs associated with recruiting and on boarding.

RQ2: What are the social impacts of current FIFO employment practices on the Gladstone community?

Positive effects

The positive impacts on the community include very good sponsorship of local organisations by the three gas proponents through their respective Social Impact Management Plans. In addition to this, the increase in cultural diversification and a greater understanding by the locals, and acceptance of other cultures have been seen as positive impacts:

we've gone from having a small multicultural community, to an extremely large multicultural community within a three to four-year span, and I think while 80 per cent of the community is embracing that, there's 20 per cent of the community that are in shock, so that's playing some effect in terms of social impacts of that acceptance within the community, and how to deal with that. I think that it's also that when you have such a large boost in cultures it's that cultural awareness, and educating the community on the different cultures that are here, and the different beliefs and religions and, you know, gatherings, etc, that occur [03].

A positive contribution has been the role of Gladstone Regional Council in taking a socially responsible role in the community by assisting new comers to settle and integrate into the Gladstone community. Gladstone Regional Council funds a Welcome Morning Tea every month to welcome newcomers to the region, and produces (through sponsorship) booklets for newcomers on services, sporting facilities, and community groups. The council also runs a yearly Multicultural Festival which celebrates the cultural diversity within the region:

key positive impact is the role that GRC, this Council, has played in this whole situation of welcome, integrate, and settle people. I think that that's one of the positives that local government has a role to play in this. That's one of the key positive issues in the social arena [04].

Those FIFO workers who have engaged with local sporting bodies and sporting facilities have affected the local community in a positive way.

Negative effects

The use of FIFO and DIDO workers seems to have increased the level of alcohol-related violence and drug abuse, particularly on weekend nights in the town centre; however, community intervention through increasing the police presence in the CBD on weekends, which was funded by the CSG and LNG proponents, greatly assisted with this. 'A comparison of the population statistics by Australian Mining showed that compared as total populations, a small number of workers from within the total Curtis Island population of around 6000 were responsible for 30 to 40 per cent of the alcohol-related incidents that took place in the Gladstone population of around 62,000' (Hagemann 2014). Operation Parasol was introduced in June 2012 to assist police to target alcohol-fuelled violence in Gladstone's CBD, with the gas companies on Curtis Island contributing between \$120,000 and \$150,000 to the initiative (Davis 2013, Irving 2013a; 2013b; 2013d). Operation Parasol cost \$3450 per night to run using five police officers on Friday and Saturday nights. It resulted in a decrease of 30 per cent in assaults (Irving 2013c). This operation finished in October 2013 due to lack of funding. However, the community decided that a similar initiative using volunteers might assist. Despite the community intervention of increasing the police presence, assisted by community members and night chaplains (Irving 2013a), the number of assaults in 2013 increased. This community intervention consisted of 24 volunteer male and female street chaplains, aged mainly in their 30s who patrolled the streets between 11 p.m. and 4 a.m. Importantly, one way to curb the drunken violence was instigated in the year following the completion of Operation Parasol. It resulted in 200 people being banned from licensed venues in the CBD, and between 2012 and 2013 Gladstone saw a 45 per cent increase in offences against the person (Irving 2013c, Queensland Police Service 2014).

Increased pressure on local infrastructure—such as increased traffic, including trucks and buses on roads, and boats and ships on waterways, especially in the harbour between the mainland and Curtis Island—was noted by several interviewees.

The 'us and them' mentality was also mentioned:

just the mentality of workers, you know, just not caring about their community, not having that pride in the community because this isn't where they live, but on the positive is also that those who do embrace the social aspects of the community have obviously helped with increasing sports numbers [03].

One interviewee claimed that the physical separation of the worker villages on Curtis Island helps to create this us and them mentality, and a disconnect between both the FIFO workers and community members.

RQ3: What strategies might be employed to minimise the negative impacts of the use of FIFO employment for regional communities?

Strategies are needed to combat the us and them mentality and to encourage integration of the FIFO workers into the broader community. Sport and sporting bodies were seen as very effective conduits for this. One interviewee spoke of the need for FIFO workers to get a sense of separation between work and time outside of work, as they tend to work and play with the same people. Better community-integration strategies could also work towards alleviating these types of issues. The structure of rosters and length of shifts also affect FIFO workers' ability to interact with local communities and contribute to the local economy.

I've never subscribed to this idea that fly-in fly-out workers are all big, rough and tough, and overrun the joint, and have no regard for a local community. I think that by and large you've got some decent people that are away from their home and just wanting to earn a quid, and return again, but that said, like in any cross-section of a community or of society, you're going to get a percentage that do the wrong thing. When you've got bulk numbers and an influx of thousands and thousands of workers, without doubt that's going [to be], that small percentage of society that do the wrong thing, that's going to be reflected in the thousands and thousands of workers that come into the town. Now that means you need better planning, that means you need to provide proper ways for them to spend their time when they're not at work, and productive and constructive forms of rest and recreation when they're not at work, rather than just burying your head in the sand and saying, well they can go to the pub [07].

Another interviewee gave an example of how this can be done with the representatives from a workers' accommodation village on the mainland joining a CBD-safety community committee which started some sporting activities on weekends for the camp workers:

the Calliope group came into Gladstone, joined the group, found out ... and started things like sporting games on the weekend, you know, on Saturday afternoon, inviting them down and saying, come on over and we'll have a camp versus Calliope rugby league match, and have a fun day [01].

Alternatives to FIFO employment practices for local employers were the utilisation of temporary skilled migration (457 visa holders) and accessing the retired workforce and stay-at-home mums:

I believe local employers and organisations have looked at all the alternatives. If FIFO and DIDO aren't for them they're using, like I said, they're using 457s or sponsor arrangements. They're also looking at tapping into the retired workforce, particularly in the service supply industry or retail industry... Well maybe our retired workforce don't want to work seven days or five days a week, but they may be happy to do a few hours, two days a week [03].

Others stated that they felt there were no real alternatives to the use of FIFO workers in the current situation in Gladstone. Some referred to it as a necessary evil, while others argued for better ratios of FIFO and DIDO workers and locals, and the need to train more locals for skills that are in demand:

it's going to be inevitable in the construction phase of a mega project, it's just the reality of the labour requirement on these jobs, but there should be better regulation of it, and there should be some stronger conditions imposed on the companies at the time of approval. There should be better enforcement of those conditions once they are imposed [07].

7. Conclusion

The findings from this study indicate that the main impacts on the Gladstone community of the use of NRWs (FIFO and DIDO) has been the increase in rental and housing prices, decreased housing availability, staff turnover and difficulties replacing staff for local employers, increased traffic, road and harbour congestion, drunken and unruly behaviour in the CBD on weekend nights, and the perceived lack of flow-on of the economic benefits of the construction of the CSG and LNG plants to the local economy—what Storey (2009; 2010) refers to as fly-over effects. Exceptions to this are with respect to some local businesses from the retail, hospitality, and accommodation industries and, in some cases, car dealerships, engineering support services and companies, and marine-related businesses which seem to have prospered. The region's workforce participation rates are above the state and national averages.

Fleming and Measham (2014) found that for CSG source regions (Surat and Bowen basins) there have been income and employment benefits from upstream CSG extraction. Hajkowicz et al. (2011, p. 30) in their study of the relationship between mining and socio-economic well-being in Australia's

regions found 'no evidence of a resource curse, at the local government area'. They found mining activity across local government regions is 'associated with better income, housing affordability, communication access, educational attainment, and employment' (Hajkowicz et al. 2011, p. 34). Nonetheless, the researchers acknowledge that other analysis has 'found negative socio-economic consequences for specific sub-groups within the local community and demographic profiles' (Hajkowicz et al. 2011, p. 35). Interestingly, Tonts et al. (2012, p. 288), in their study of 33 small mining towns in Western Australia, found 'socio-economic wellbeing in these towns is highly variable, and contingent on a range of factors including the nature of the particular commodity, company structure, and location'. Similarly, Lawrie et al. (2011, p. 159) conclude that 'the socio-economic trajectories of boomtowns are highly nuanced, and not always negative'; Petkova et al. (2009, p. 211) in a study of six towns in the Queensland Bowen Basin found that '[w]hile the mining boom has been generating social and economic impacts, the pattern of the impacts appears to vary across communities depending on the size of the impact, community structure and history, and the extent to which a non-resident workforce is involved'.

We argue that the Gladstone story is unique and differentiated from the atypical story of the company-built inland mining town. This is due to a growing diversification of its economic base, its coastal port location, proximity to Brisbane, dedicated State Development Area status, and the emergence of the new Australian CSG and LNG industry. Gladstone has experienced the construction of not one large resource project, but many in a short period of time. This has meant that the issues tabled in the Cancer of the Bush report (HORSC 2013) should have been experienced in Gladstone threefold. However, this does not seem to be the case with the exception of the rapid increase in rents and housing prices, low availability of rentals, and the ripple effect felt by local employers as workers left either due to rising rent prices or the lure of the wages on offer at the projects. It is argued that Gladstone has experienced these industrial development cycles for many years and has managed to weather these relatively well.

This study adds to a small but growing body of Australian literature and research which has focused on the socio-economic impacts of FIFO work practices in resource-dependent regions. The findings of this study confirm those of the Lawrie et al. (2011) study which concluded that 'the experience of resource towns varies considerably according to their commodity base, location, and socio-economic structure ... the combination of different commodities, markets, price cycles and technologies, as well as particular geographic contexts, mean that simply being "resource dependent" does not lead to linear or uniform development experiences'.

The findings point to a need for strategies which minimise the fly-over effects of FIFO work practices, such as better planning in terms of housing when these large projects are given the go-ahead, so that the impacts on local communities are minimised. Forward planning for skill sets from the local population is also needed to ensure that locals are gaining access to the employment opportunities on offer during the construction of these large projects. It is clear from the limited research, and the results from the Parliamentary Inquiry, that there is a need for much more research into multiple perspectives of the FIFO and DIDO work-practices phenomenon, and the complexity surrounding the so-called resource curse hypothesis. In addition to the research areas identified in the inquiry, future areas for research include: the investigation of forward-planning practices and capabilities for key community stakeholders; building business-planning capacity in small and medium enterprises (SME) to enable them to deal with the likely impacts and opportunities such developments can present; studying the impacts of these projects on Indigenous groups; investing in the training of locals with the skills sets that will be in demand and; the structure of rosters and shift lengths for FIFO workers. Strategies to combat the us and them mentality to encourage FIFO workers to engage with the wider community may have positive social impacts and also flow-on effects to local economies.

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