

Research Brief 201303

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# **Welcome to the Boomtown! Darwin and the ‘Boomtown Syndrome’**

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## Summary of the brief

The purpose of this research brief is to discuss impacts which might be expected from the development of Darwin as an international Liquid Natural Gas (LNG) 'hub'. In particular we examine research and literature from overseas which speaks of a range of positive and negative outcomes from the construction of large oil and gas processing facilities in Canada, Alaska and the Arctic Circle. One field is the 'Boomtown' literature which provides case studies documenting social and economic outcomes in small towns during construction and shortly thereafter. Commonly, local economic benefits fall short of predictions and negative social impacts have originated from the injection of large numbers of male construction workers into the community. The literature identifies several stages communities pass through during project inception, construction and operation. This has become known as the 'Boomtown Syndrome'. We describe the characteristics of the Boomtown Syndrome and postulate on whether Darwin's population size and economic basis might shield it from negative outcomes commonly seen overseas. We outline mitigating strategies employed elsewhere in light of the large expansion of the gas industry underway in Darwin from the construction of INPEX's Blaydin Point LNG plant.

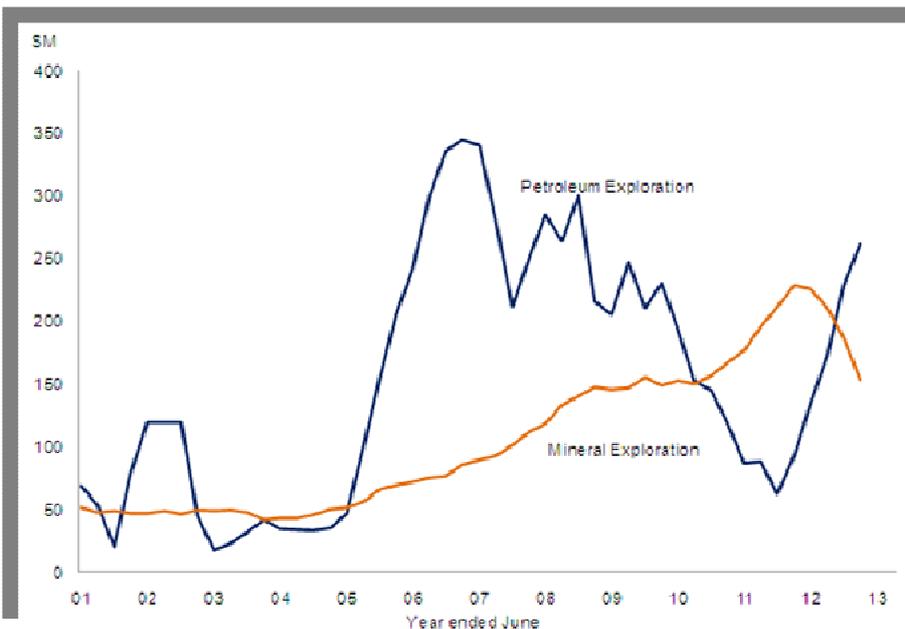
## Key Findings

- Darwin is being positioned as an international 'hub' for the Liquid Natural Gas industry and has secured the large INPEX LNG processing plant.
- Communities in rural and regional areas elsewhere have become 'Boomtowns' as a result of the construction of large oil and gas drilling or processing facilities.
- Boomtown literature describes stages communities pass through as they grapple with large projects including the arrival and ongoing presence of workers. This is known as the 'Boomtown Syndrome'.
- Oil and gas Boomtowns experience a range of positive and negative effects, most noticeably during construction.
- Boomtowns commonly face significant social issues from the presence of large numbers of male construction workers.
- Economic development from large projects rarely meets anticipated levels and wage and other inflation factors can create tensions between the community, the company and workers.
- Boomtown literature warns of a 'bust' which invariably accompanies the end of construction for large oil or gas plants.
- It is questionable whether Darwin's size will shield it from accentuated social issues during construction due to a higher male population bias, but it may mitigate the scale of these.
- Darwin can expect a mix of positive and negative economic impacts from the INPEX project and is well positioned to learn from the experiences of other communities to develop a coordinated response to potential social impacts.
- A need exists for longitudinal research which describes and tracks impacts from the INPEX project for the community, business and economy in Darwin.

# 1. INTRODUCTION: DARWIN BECOMES A 'BOOMTOWN'

The Northern Territory (NT or 'Territory') has actively pursued the development of its oil and gas industry in line with aspirations for the city of Darwin (population around 130,000) to become an international oil and gas 'hub' (for example, Sydney Morning Herald 2010; Northern Territory Government 2013). These aspirations currently focus on Liquid Natural Gas (LNG) processing and Darwin's role as a supply and service centre for this industry. The Conoco Phillips Darwin LNG facility, for example, has operated as the only LNG plant in Australia since being commissioned in 2006 (The Australian 2012). Indeed, petroleum exploration expenditure in the Territory (as well as mineral exploration) has grown significantly in recent years, albeit in a volatile fashion (Figure 1).

Figure 1 Petroleum and mineral exploration expenditure in the Northern Territory, 2001 to 2013



Source: Northern Territory Treasury 2013

In January 2012 the Japanese INPEX Corporation announced it had finalised arrangements to construct and operate a major LNG processing plant near Darwin (ABC 2012a). The project involves the extraction of natural gas from the Ichthys field, located offshore in the north-west of Western Australia (WA), and piping it sub-sea almost 900km to Darwin for processing at the Darwin facility. The plant is under now construction and will be located on Blaydin Point, a short distance from Darwin's city centre (Figure 2). The company originally sought to build the plant closer to the Ichthys field in WA but complications arose from negotiations with local Indigenous groups. At the time (2003) the Chief Minister of the Northern Territory Government, Clare Martin, proposed to the company that the processing plant could be located in Darwin to reduce uncertainty over land tenure and construction schedules (ABC 2008). After two years of lobbying INPEX announced in 2008 it had chosen to pursue a final investment decision based on construction of the plant in Darwin (The Australian 2008).

The final investment decision in January 2012 secured the plant and offshore infrastructure for Darwin. This was exalted by politicians and others as, among other things, signifying the dawn of a new era of economic prosperity for the Northern Territory, and particularly for Darwin. Chief Minister Paul Henderson said, 'The Territory has secured its economic future and is on the way to becoming the oil and

gas capital of Australia’ while the Australian Government Minister for Resources described it as a ‘game changer’ for Darwin and the north of Australia (ABC 2012a).

Figure 2 - Location of Ichthys field (left) and an artist’s impression of the Blaydin Point facility (right)



Source: INPEX 2012a

The INPEX decision will build on the Conoco Phillips Darwin LNG facility (commissioned in 2006) which processes and stores LNG sourced from the Bayu-Undan field 502 kilometres north-west of Darwin. LNG is sold to Tokyo Electric and Tokyo Gas in Japan under a 17 year agreement. The plant has a 3.7 million tonne per annum production capacity. Emphasising its size, the Blaydin Point plant will produce 8.4 million tonnes of LNG and 1.6 million tonnes of liquefied petroleum gas per annum (INPEX 2012a). The economic significance of the project is heightened by a hiatus in ‘mega projects’ which have, at various times during the past decade, driven large inflows of investment capital and workers to the city (Carson 2011). Other benefits have subsequently materialised including a \$AU91 million Community Benefits Package provided by INPEX. Part of this package establishes the North Australian Hydrocarbon Centre of Excellence at Charles Darwin University (Charles Darwin University 2011).

The total value of the Ichthys project (including establishing offshore infrastructure, pipeline construction, processing plant construction, dredging, environmental works, workers accommodation, village construction, and so on) is estimated at around \$AU34 billion, making it the biggest private sector funded project in Australia’s history. Construction of the onshore processing facility in Darwin is underway and is estimated to require between 3,000 and 4,500 workers, peaking in the fourth year of construction (INPEX 2012). The company is building a workers village at Howard Springs south of Darwin to house fly-in-fly-out plant construction workers.

The size of the workforce for construction of the INPEX plant in Darwin will vary during construction. Peak workforce ratios (with the peak workforce anticipated in year four) provided by economic modelling undertaken in 2008 (ACIL Tasman 2008) indicates the relative size of the workforce. These ratios are 66.9% (of the peak workforce) in 2012, 99.5% in 2013, 99.8% in 2014, 100% in 2015 and 73.1% in 2016 (ACIL Tasman, Appendix b-2). Taylor and Winter (2012) modelled the gendered effects from the injection of the INPEX construction workforce based on these peak workforce ratios. They identified that more than 90% of construction jobs are likely to be filled by males, leading to a significant rise in the male bias in Darwin’s population.

The scale of the INPEX project has elicited a new discourse around LNG led economic development for Darwin, featuring the words 'Boom' and 'Boomtown' (for example, Sydney Morning Herald 2012). In the international literature on towns who have secured large oil and gas projects, Boomtown has a particular meaning. Specifically, it is associated with studies and models describing common social and economic impacts for communities from the construction of large plants. In particular, the 'Boomtown Syndrome' describes the attitudes and issues communities develop and face from the inception of the project through to the end of construction when operations start and the large construction workforce is drawn down.

## 2. THE BOOMTOWN SYNDROME

A number of research initiatives examining the impacts of oil and gas projects in the western United States in the 1970's and 1980 articulated common economic and social consequences for small communities. This led to the development of the 'Boomtown Impact Models' (Gilmore 1976; Jacquet 2009). Broadly speaking these models proposed that communities become overwhelmed by the scale of construction worker arrivals and their impacts on community amenity, security and lifestyle. The literature documents a sequence of 'events' and attitudinal changes associated with the arrival of large oil and gas projects. Collectively these were labelled as the 'Boomtown Syndrome' (Jacquet 2009). The Syndrome is characterised by an initial period of community euphoria about the project as a result of the articulated and anticipated economic benefits for the town and its residents (Figure 3).

Once construction commences, the community observes large influxes of non-resident, mostly male workers, with accompanying social impacts and deteriorations in local services. Negative social impacts rapidly manifest during construction and include anti-social behaviours, increased crime, social isolation for residents and resentment over wage differentials:

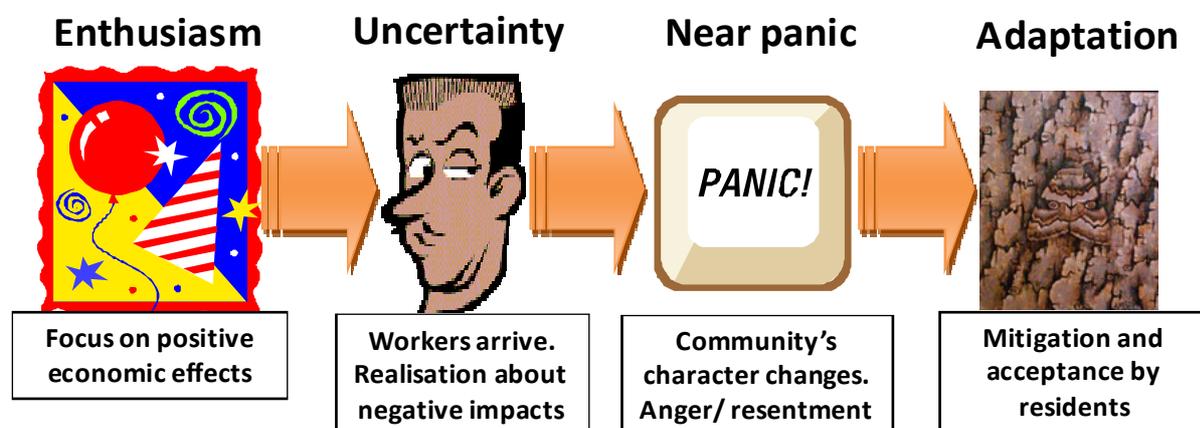
A significant body of literature shows that Boomtowns can harbor disproportionate increases in social problems such as crime, mental health problems, community dissatisfaction, education shortfalls, and other indicators. Research shows that certain groups of people will have different social reactions to rapid growth, depending on their stature in the community and whether they were residents before the growth occurred. (Jacquet 2009: 3)

The Syndrome describes a range of coping strategies employed by communities to mitigate or adapt to changes and negative consequences. These range from establishing a direct dialogue and information flows between the community and the company responsible for the project, to simply 'leaving town'. In the Boomtown models, social deterioration is prominent when the project 'bust' cycle commences. This occurs after the labour intensive construction period is over and the far less labour demanding operational phase begins. In many cases an economic 'bust' has been triggered by the sudden withdrawal of construction labour, leaving a legacy of inflationary effects and sudden declines in the demand for local goods, services and housing.

Large oil and gas projects are hallmarked by the arrival of disproportionate numbers of males for the construction phase (Freudenburg 1981). Their arrival represents a period of extraordinary population growth which stresses services and infrastructure that, in general, have not been established to accommodate such growth. Chang-i (1985) suggests that male arrivers fail to adjust well to their new

environment, creating loneliness and a situation where alcoholism, drug abuse and violence are pervasive, leading to crime and general social deterioration. Conflict between workers and locals may create worker alienation and mutual resentment. The literature emphasises that these outcomes develop rapidly and that authorities are rarely in a position to plan for and mitigate them (Jacquet 2009).

Figure 3 - Stages of the Boomtown Syndrome



Source: Adapted by the authors from Jacquet (2009).

Aside from the negative social impacts derived from the male dominated workforce, Boomtown Impact Models also denote a mix of other positive and negative impacts. Local governments, for example, are often unable to cope with the sudden growth in population and this places strains on services which must meet new levels of demand while being underfunded or experiencing a lag in funding (Jacquet 2009). Information flows between governments, the company and the community can be limited, creating a sense that the jurisdictional control of the local authority has been weakened.

In terms of economic benefits which are realised locally from large oil and gas projects, studies report mixed results. Two common themes emerge. Firstly, benefits vary substantially between towns, even those geographically proximate. Secondly, economic benefits are invariably smaller than were first anticipated. For example, economic growth rarely matches the expectations of local businesses because these tend to be unrealistically high, having been established from the espousal of the project by the company and governments. Businesses may suffer from wage and other inflationary effects due of the presence of a significant higher waged temporary workforce. Negative social impacts are underestimated and may also affect small business (for example tourism businesses).

A major issue for regional or remote towns who attract large oil or gas projects is that they rarely have a sufficient or appropriately skilled pool of labour to meet construction needs. This creates the need for non-resident workers to be sought from elsewhere. The wages of non-resident workers are invariably quite high but tend to leak out of the local economy to the place of residence of the worker and their family. Most non-resident workers will never become permanent residents of the town and so do not contribute to long-term local economic prosperity. A study by Fahys-Smith (1983) on those who do become residents suggests the main factors influencing this are time in the community, the tenure and security of the job, their age, housing opportunities and their satisfaction with facilities and services.

Perhaps the most disconcerting theme covered in the Boomtown literature is the existence of a 'bust' cycle as the project transitions to the production phase:

The spike of workforces needed for the construction or development phase of energy development relative to the much smaller production phase cannot be overstated. Many population growth estimates are created by researchers, developers, and local officials that assume growth rates predicated on an endless construction phase. (Jacquet 2009: 24)

The main problem with the bust is the over-provision of housing, services and infrastructure resulting from a 'catch up' with the demands created during the construction phase. The suggested approach to minimising the bust is to diversify the economy by attracting non-energy related private sector businesses during the construction phase. The literature also points to the costs of environmental impacts from projects which may be borne by local authorities and businesses.

Table 1 summarises the main themes found in the Boomtown literature from the perspective of local community's perceived impacts and consequences from large oil and gas projects.

Table 1 – Summary of community perceptions on impacts and consequences

Nature of community concern	Perceived impacts	Perceived consequences
Crime and anti-social behaviour	<ul style="list-style-type: none"> <li>• Increased vice activities (drugs, prostitution etc)</li> <li>• Increase in petty crime (DUI, assaults etc)</li> <li>• Increased alcohol consumption and alcohol related violence</li> <li>• Increased demand on health and other services</li> <li>• Increased costs for services and associated funding shortfalls</li> </ul>	<ul style="list-style-type: none"> <li>• Lifestyle 'crowding out'</li> <li>• Encourage out-migration of residents</li> <li>• Community cost and image</li> <li>• Negative effects on tourism</li> </ul>
Economic inequality and marginalisation	<ul style="list-style-type: none"> <li>• Limited local employment</li> <li>• Limited economic benefits to accrue locally</li> <li>• Lack of Indigenous benefits</li> <li>• Polarisation of incomes between residents and non-resident workers</li> <li>• Inflationary effects, especially housing</li> <li>• Increased housing stress</li> <li>• Crowding out of locals from housing market</li> <li>• Entrenchment of marginalisation</li> <li>• Social isolation of women</li> </ul>	<ul style="list-style-type: none"> <li>• Economic 'crowding out'</li> <li>• Out-migration of locals</li> <li>• Discouraging in-migration</li> <li>• Long-term social dysfunction</li> <li>• Recruitment and retention issues for local businesses</li> </ul>
Straining of core services	<ul style="list-style-type: none"> <li>• Wear and tear on infrastructure (roads etc)</li> <li>• Increased demands on health, education and emergency services</li> </ul>	<ul style="list-style-type: none"> <li>• Increased costs to local government and to residents</li> <li>• Deterioration of service quality for locals</li> </ul>
Marginalisation of local residents	<ul style="list-style-type: none"> <li>• Resentment of locals towards non-resident workers and the company</li> <li>• Little local workforce engagement</li> <li>• Money 'leaking' to other states and overseas through imported labour</li> <li>• Perpetuation of existing labour shortages faced by local businesses</li> <li>• Poor information flows</li> </ul>	<ul style="list-style-type: none"> <li>• Small business shut-downs</li> <li>• Resentment by locals</li> <li>• Limited local economic benefits</li> <li>• Weak economic multipliers</li> </ul>

Nature of community concern	Perceived impacts	Perceived consequences
Local government effects	<ul style="list-style-type: none"> <li>• Loss of control for local authorities</li> <li>• Land use conflicts</li> <li>• Lack of information for planning services and infrastructure</li> <li>• Development becomes uncontrolled</li> </ul>	<ul style="list-style-type: none"> <li>• Poor planning</li> <li>• Long-term institutional dysfunction</li> <li>• Ongoing financial costs</li> </ul>
Environmental	<ul style="list-style-type: none"> <li>• Permanent damage to bio-systems</li> <li>• Increased carbon emissions</li> <li>• General pollution and waste disposal issues</li> <li>• Re-vegetation and clean up costs</li> </ul>	<ul style="list-style-type: none"> <li>• Dangers to wildlife</li> <li>• Loss of species</li> <li>• Impacts on commercial ventures like recreational fishing and tourism</li> <li>• Diminished lifestyle amenity</li> <li>• Permanent disruption to ecosystems</li> <li>• Long-term climate effects</li> </ul>

### 3. HOW MIGHT DARWIN BE IMPACTED?

On the surface the Boomtown Syndrome suggest the net impacts from large oil and gas projects to be overwhelmingly negative for regional or rural towns. However, although it articulates impacts over the whole project cycle, the Syndrome says little about inter-community variations in the severity and timing of these based on starting conditions. This is because studies have predominantly examined small communities of less than 10,000 pre-existing residents. While this helps explain the overwhelming sense of change and social disharmony reported by locals there are a number of critical factors concerning the human geography of towns which will create spatial variations in the types and scales of Boomtown impacts experienced locally. These include variations in (pre-existing) population sizes and growth rates, gender structures, labour force characteristics, educational profiles, and household and family characteristics. These factors determine the extent of local engagement, who are affected, who benefits, how well services and infrastructure cope, and how the project affects long term population compositions.

Since European settlement in the late 19<sup>th</sup> Century, Darwin has had a male dominated population. By 2012 the gender ratio stood at 109 males per hundred females compared to 98 males per 100 females in the overall Australian population (ABS 2011a and 2011b). That is, compared to the rest of Australia, Darwin has 11 more males per 100 females. In addition there are significant variations in this ratio across age groups in Darwin. The highest ratio is at 20 to 24 years (127 men per 100 women), followed by 15 to 19 years (117 men for each 100 women). The ratio rises substantially in the pre and early retirement age groups (55 to 59 years and 65 to 74 years respectively) as a result of males migrating to Darwin (for employment) just prior to retirement in order to maximise their retirement benefits through high paying short term employment (see Martel et al 2012), and from the out migration of women who have retired or are about to retire, particularly from the health and public sectors (Voit and Carson 2012).

Demographers and sociologists have labelled such populations as ‘male biased’ (Griskevicius et al. 2012) or ‘unbalanced’ (Reed 2008). Male biased populations (particularly when there is bias among young

adults) experience higher levels of violence and crime, higher rates of drug and alcohol abuse and other social problems arising from the limited opportunities for partnering and family formation. Recent research has documented community concerns with these issues in Darwin (Instone 2009; Carson et al 2010; Carson 2011). There are also suggestions the male bias and a focus on preferences for urban development and planning have contributed to a stifling of economic diversification, in particular limiting the potential for further and more diversified tourism development (Schmallegger and Carson 2010).

The construction workforce for the INPEX plant in Darwin will be overlaid onto a pre-existing male biased population. A study by Taylor and Winter (2012) based on long-term Census data for construction in Darwin proposes around 92% of the INPEX construction jobs will be filled by males. This will be sufficient to create an even larger male bias in the population, even if substantial numbers of locals are employed in the plant's construction. Moreover, non-resident workers will rotate into and out of Darwin according to peak workforce demands and the phase of construction. It is difficult to argue this large, constantly churning and male dominated workforce will not accentuate social issues including anti-social behaviour as a result of the competition for mates (Griskevicius et al. 2012), higher crime rates (Hudson and Den Boer 2002) and other social costs associated with these (Dolan and Peasgood 2007).

A related and important consideration for Darwin are socially isolating effects for women from a larger male bias (Davidson 2005). As Jacquet (2009: 21) proposes 'Women and family members who arrive at a Boomtown (typically for their spouse's employment) face increased hardships.' In the context of Darwin, where women already experience some of the negative effects of social isolation (see our research brief [Why don't women like Darwin?](#)) the injection of large numbers of males is likely to accentuate female social isolation. Coupled with rising house prices, which for Darwin was evident in the data almost immediately following final approval for the INPEX project (Taylor and Winter 2012), along with other inflationary effects, there is potential for the social and economic 'crowding out' of women, particularly those who have or are about to start a family. This may encourage their out migration from the NT and perpetuate population turnover and retention issues over the longer term.

Importantly, social issues which inevitably accompany the injection of a large male dominated construction workforce may impact resident amenity such that some decide to leave Darwin altogether. Keeping abreast of tangential impacts such as these will require specific pieces of research and monitoring. Furthermore, INPEX may help re-enforce the focus and attention on Darwin as the hub for economic activity in the NT. Increasing economic and population concentration in Darwin are factors conducive to growing the size and extent of 'have nots' in the Territory (Taylor et al. 2011). It is far from clear whether and how the rest of the Northern Territory might benefit in meaningful ways, if at all, from LNG led development and this is a concern given that the population in some regions is in decline.

Conversely, the significant expansion of Darwin's LNG industry from the construction of the INPEX plant may not trigger the severity of issues commonly felt by smaller towns. The majority of Boomtown research has been conducted in communities which have had populations of just a few thousand. Darwin's size and economic base may shelter it from the overwhelming scaled effects which smaller towns have experienced. Gilmore (1976) noted that towns can typically deal with annual population growth rates of 5% but rates in excess of 15% lead to institutional breakdowns. Kohrs (1974) similarly points to 6% annual growth beyond which matters start to get out of hand. At the peak of INPEX's construction activities, Darwin is unlikely to experience population growth in excess of 3.5% (see our Research Brief [It's Raining Men: INPEX and Darwin's gender balance](#)).

Economically Darwin is not a single industry town and the size of its economy is large in comparison to towns examined in Boomtown studies. The Darwin economy has prominent non-energy sectors to help cushion impacts and dampen the potential bust after construction. In particular government and defence sectors are prominent. Other major projects are in the 'pipeline' which may extend 'boom' conditions including include other oil, gas and mineral developments as well as non-energy projects like the proposed new hospital to service Darwin's fast growing hinterland population. However, differentiating LNG related economic outputs from other activities and factors is difficult.

Perhaps the biggest question in relation to the INPEX plant is what might eventuate at the end of the construction period when the workforce is drawn down? Although the current Northern Territory Government is undertaking fiscal tightening, it may be that by the end of construction of the Blaydin Point facility it will be in a position to 'fill the hole' by financing another major construction or infrastructure project. In addition, if the Northern Territory can attract other private sector business, impacts from the withdrawal of INPEX construction workers and the finalisation of construction related contracts might be cushioned. A lack of certainty and understanding evident in these postulations are cause for expeditious longitudinal research in order to track the issues discussed here.

## **4. MITIGATING NEGATIVE IMPACTS**

Boomtown researchers have provided a range of ideas for communities to consider in mitigating negative impacts and maximising benefits from oil and gas led development. These focus on a mix of short and long term strategies. Jacquet (2009: 3) advises that

Communities need to define the historical patterns of service demand and identify capacities for growth, and then prepare mitigation strategies for when these thresholds are crossed. Perhaps most importantly, communities should prepare for the volatile nature of energy development and design long-term strategies that produce both short term mitigations and long term investments in their communities.

### **4.1. Organise Information and Enact Community Oversight**

Boomtown communities often suffer from a lack of clear information along with limited community based advocacy or oversight of the collection and distribution of information. Broadway (2000) suggests a two-stage process in planning for change. Firstly, a task force or study team should be established to learn from the experiences of other communities and develop a coordinated response to the expected changes. The team should consist of representatives from social service providers, business interests (including the incoming company) and local government officials. Once this function is completed, the task force should be disbanded, and the information garnered then incorporated into the town's existing planning structure. Members from local governments can help to establish communications identify jurisdiction and authority over certain issues and direct local officials towards better information sharing.

By creating a task force whose agenda is to sort through and prioritise information gathered on the social and economic impacts, the information can be organised and simplified for community leaders. Producing a socioeconomic or baseline profile can help to identify what is 'normal' for local communities, so that increases in demand for local government services can be noticed quickly. Such profiles can also identify the capacities and 'problem thresholds' for local government services, as well as

capacities and thresholds for private services ranging from ambulances to motel room capacities (Jacquet 2009).

#### **4.2. Pay Attention to Development Fluctuations and Scenarios**

Storey and Jones (2003) have commented that pre-project estimates often become inaccurate and/or irrelevant as a project gets underway and progresses. As a result, those charged with impact management need to recognise the inherent uncertainty in company and other forecasts on demographic and economic impacts. A task force can play an important role in devising and monitoring likely scenarios and this pro-active response is seen as preferable to having changes thrust upon communities by an industry whose main interest is perceived to be maximising profits.

#### **4.3. Produce Impact Projections and Mitigation Strategies**

Once baseline information has been identified, development has commenced and moved forward and the initial impacts have been observed, the projection of future impacts on demand for local services, effects on economic sectors, social and other impacts can be made. Quite often in these situations new staffing, new equipment, and new facilities or infrastructure are needed. Government departments can begin to plan for new growth and identify the resources required against those that are already available. The cost involved in dealing with increased demand can also be estimated along with the development of mitigation plans to offset negative or unforeseen effects.

#### **4.4. Plan for the Long-Term**

It is important to keep in mind that the construction or development phase of any large infrastructure project is temporary. Governments and communities are encouraged in the literature to consider long term diversification in the economy.

### **5. CONCLUSION**

This discussion highlights that, although the economic benefits which are realised for Darwin from LNG led developments such as the INPEX plant will be tangible, there are a range of externalities which are not costed into evaluations of net benefits. Boomtown Impact Models articulate the severe social issues commonly borne by small towns with such projects. The Boomtown Syndrome describes the suite of community perceptions and reactions in relation to these. Communities tend to move quickly from a euphoric state to trepidation once construction workers arrive. These are predominantly male workers who rotate into and out of the community because insufficient labour is available locally. Their high wages and behaviour generates resentment and anger, after which communities tend to seek and engage in mitigation and coping strategies.

The construction of the INPEX plant in Darwin represents a large scale injection of male construction workers. Given Darwin's pre-existing male bias in the population and the community's concern over existing social issues it is likely construction of the plant will exacerbate these. However, Darwin's size and economic base may shield it from the acute level of impacts felt by smaller towns who are the subjects in the boomtowns research. But unless purposeful strategies to minimise impacts and maximise local benefits are forthcoming, with construction now moving forward at a rapid pace, Darwin residents may be left scratching their heads once construction is finished, wondering where and why the 'Boomtown' went wrong.

Mitigation and amelioration strategies are proposed in the literature and these support the need for engagement between the community and the company around impacts and to facilitate information flows. The company can play a leading role by providing detailed information on the workforce size and composition ahead of time. In the longer-term policy makers would benefit from considering how Darwin might develop with a more balanced population structure and economic base so that negative impacts from major projects like INPEX are manageable and minimal and as an active pathway towards private sector diversification in the economy.

Given the ongoing commitment and active pursuit of resource led development in the Northern Territory, there is also a critical need to devise ways to attract women to Darwin and to make them feel more comfortable, valued and safe. Economically, Darwin is now, perhaps more so than ever, on the Boomtown pathway. The options are to continue to lock in this approach to development (requiring the next big project to be instigated) or to plan for something different. The former almost guarantees that Darwin will experience Boomtown consequences including a bust cycle after construction. The latter requires planning, innovation, entrepreneurship and, not least, concerted and considerable political will because Boomtown impacts are secondary in the thoughts of governments and investors when (on paper) economic growth and profits are on offer.

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