



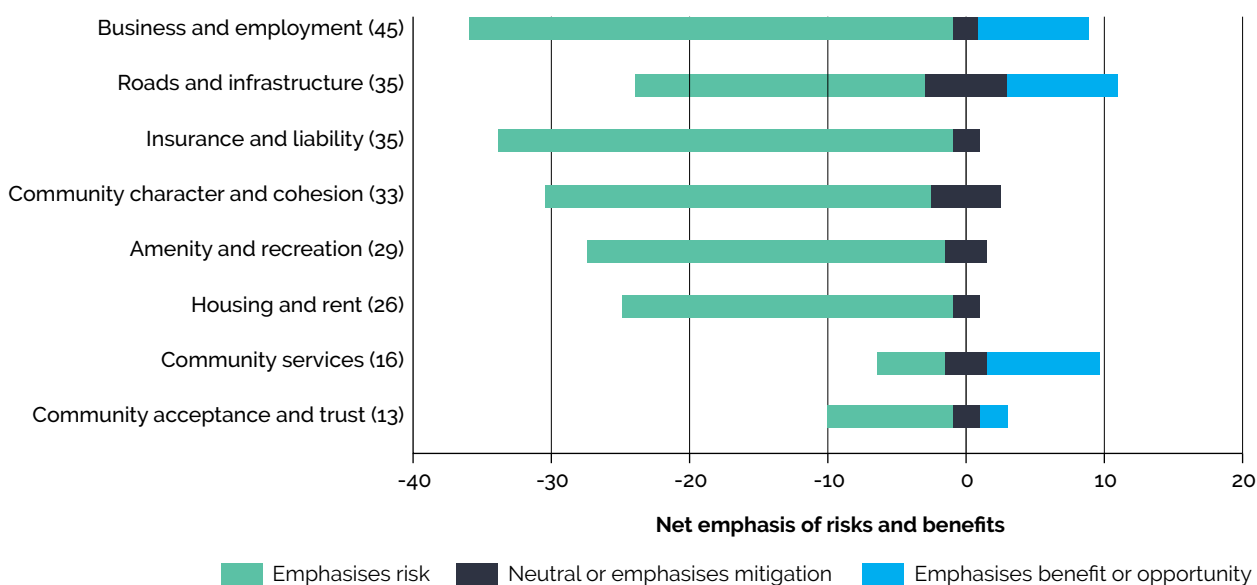
SOCIAL IMPACTS

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12.1 Introduction

The Background and Issues Paper listed 13 possible social impacts from the associated activities of hydraulic fracturing of onshore unconventional shale reservoirs on communities across the NT (see Appendix 2). Discussions of social impacts, both positive and negative, featured in at least 140 of the written and verbal submissions.¹ A content analysis was performed using a computational technique called Latent Dirichlet Allocation.² While the issues raised were diverse, several overarching themes and concerns were identified, as shown in **Figure 12.1**. Although a number of submissions were duplicates of the same document, they have each been counted for the purpose of these tallies as a separate submission. For each impact, the graph shows how many submissions emphasised the positive or negative aspects of the impacts, and how many emphasised the mitigation aspect (that is, acknowledging the risk but saying it can be managed). In this regard, it should be observed that the latter category was predominantly from the industry proponents. This analysis assisted in focussing the discussion in this Chapter on the social impacts of most concern to Territorians of any onshore shale gas industry in the NT.

Figure 12.1: Number of submissions emphasising risks and benefits relating to social impacts.



In addition, in June 2017, the Inquiry engaged Coffey Services Australia Pty Ltd (**Coffey**) to prepare a social impacts assessment (**SIA**) (see Appendix 15 for the scope of services). The SIA comprises two parts. In Part A, Coffey is requested to develop a leading practice framework for the identification, assessment and management of the social impacts associated with the development of an onshore shale gas industry in the NT and, using the Beetaloo Sub-basin as a case study, to conduct a baseline SIA of that area to identify the likely risks and benefits of any industry and to make recommendations as to the best way to mitigate, manage, measure and monitor these risks and benefits across identified affected communities. In Part B, Coffey has been asked to describe the concept of a social licence to operate (**SLO**) as it applies to any onshore shale gas industry in the Northern Territory and the measures required by industry and the Government to ensure an SLO for unconventional gas in the NT (see Appendix 15 for the scope of works for the engagement).

Due to improper consultation undertaken by a sub-contractor engaged by Coffey to assist it (see Community Updates 22 and 25) all of the delivery of the Coffey work has been delayed. The Panel

¹ For the purposes of this Chapter, a submission was counted if it included at least 150 words about, or devoted at least 25% of its content to, social impacts.

² Blei et al. 2003.

now anticipates that the Coffey work will be completed by mid-January 2018. While not included in this Report, it will be included in the Final Report. However, its absence means that the likely social impact of any unconventional shale gas industry on the NT is only partially reflected in this Chapter.

Accordingly, the analysis in this Chapter predominantly focusses on the issues covered in submissions, public hearings, and community consultations. It presents findings from a literature review undertaken by the Panel and explains in greater detail important considerations for identifying social and cumulative impacts, and what constitutes an SLO in the context of the NT. Several of the social impacts identified in the submissions overlap with other Chapters and are therefore covered in that Chapter rather than detailed here (for example, Aboriginal people and their culture, public health and regulatory reform). Nevertheless, it is necessary to acknowledge the unique demographics of the Territory to better understand which impacts are more likely to be a priority for those living in the NT. The key statistics are summarised below.

12.1.1 Population statistics

At the most recent census, the NT reported a population of 245,740 people, of which 51.8% were male and 48.2% were female. The proportion of the population who identify as Aboriginal or Torres Strait Islander is the highest in the NT, at 25.5%, or 58,247 people. The NT is sparsely populated, with a population density of 0.02 people per hectare.³ Managing this vast landscape are 17 district councils, ranging in population size from approximately 209 people in the regional council of Belyuen, to more than 140,000 people in the urban council of Darwin.⁴ The NT also contains four Aboriginal land councils: the NLC, the CLC, the Tiwi Land Council and the Anindilyakwa Land Council.⁵

Comparisons of economic performance to other jurisdictions shows that the NT has consistently low rates of unemployment (on average) and high rates of economic growth and construction work but poor forward-looking indicators relating to population growth, business investment and housing finance.⁶ The majority of Territorians are employed in the greater Darwin region, an estimated 61.5% of employees. The fastest growing industries are in agriculture, retail and utility services, while the largest sectors for employment are public administration and safety, construction, healthcare, education and retail.⁷

The Territory's average rate of unemployment is low, at 5.3%, but these statistics differ between regional and urban areas, and between non-Aboriginal and Aboriginal people. For example, the unemployment rate of Aboriginal people in the NT is higher, at 24.4%. This is significant when looking at the labour force participation rates, or the proportion of people in the population engaged in the workforce, either employed or looking for work. This was most recently reported at 48.7% for Aboriginal people, compared to 85.5% for non-Aboriginal people.⁸ Aboriginal people were also more likely to be employed if they were living in an urban centre, rather than a remote region, with 49% employment in urban areas compared to 36% in remote areas. This is particularly relevant in the NT where 79% of the Aboriginal population reside in remote areas.⁹ The statistics suggest that there is a lack of employment opportunities for those living in remote areas, particularly for the Aboriginal population. These populations could therefore benefit from the introduction of, and involvement with, employment opportunities in remote regions of the NT.

3 ABS 2017.

4 ABS 2017.

5 NT Government 2017a.

6 CommSec 2017.

7 NT Government 2017b.

8 ABS 2016a; ABS 2016b.

9 ABS 2016a.

12.2 Summary of social impacts

12.2.1 Impacts on public infrastructure and services

The submissions identified a variety of ways in which any onshore shale gas industry could both positively and negatively affect infrastructure and services in the NT. There was general agreement that increases in population and industrial activity would place pressure on many types of existing infrastructure and services, for example, by increasing the amount of heavy vehicle traffic on public roads, or the demand on health services and schools. Views differed, however, about whether such pressures presented a threat or an opportunity for communities in the NT.

Some submissions emphasised the potential improvements to infrastructure and services that can flow from resource developments, whether as a result of direct investment from resource companies, or through royalties that add to public revenue. Among these submissions were several from pastoralists or pastoral service providers, who described the challenges of conducting business in remote areas with minimal public infrastructure and utilities. As Mr David Armstrong, the Managing Director of Terrabos Consulting explained:

"Key infrastructure developments that pastoralists are always asking me about are road upgrades, mobile phone coverage, improved internet service and mainstream power. Currently the cattle industry is a world leader in beef production operating in third world conditions.

I would encourage any business owner to imagine their life without mobile phone coverage, generating their own power at a cost upwards of \$200 per day, with very poor internet connection, roads that can become inaccessible for a number of months of the year."¹⁰

Similarly, Mr Tom Stockwell and Ms Tracey Hayes from the Northern Territory Cattlemen's Association (**NTCA**) noted that while pastoralists have a variety of views about hydraulic fracturing, they are united on the need for better roads and other supply chain infrastructure.¹¹ As well as benefiting pastoralists, there is a view that improvements to roads and other infrastructure would stimulate the development of industries and ultimately be of benefit to remote communities and, therefore, all of the Territory.

Some submissions expressed the belief that onshore shale gas development is the best, if not the only, chance for these utilities and services to be improved. This belief is founded, in some cases, on the perception that such improvements had rarely occurred in the past without investment from mining companies.¹² Widely cited as an example of what onshore shale gas development could deliver in the NT was the sealing of the Western Creek Road, a project that Pangaea had planned to complete prior to the moratorium being announced.¹³ In relation to services, APPEA and other gas industry proponents highlighted contributions that CSG companies had made to health and education services in Queensland, for example, by funding healthcare initiatives and emergency services, and investing in school-based traineeships and apprenticeships.¹⁴

Many submissions, however, expressed doubt that the potential benefits to services and infrastructure would materialise, or that they would be sustained beyond the initial stages of development. Much of this scepticism derives from accounts of impacts of the CSG industry on regional communities in Queensland, especially in the Darling Downs. These accounts include peer-reviewed research from the University of Queensland (**UQ**) and CSIRO, as well as news stories and personal anecdotes. For example, submissions from the Lock the Gate Alliance and The Australia Institute cited findings from UQ researchers suggesting that built capital, including transport and communications infrastructure, has deteriorated in regions in southern Queensland where the CSG industry is present.¹⁵

Taking a broader economic perspective, the written and verbal submissions from The Australia Institute note that mining royalties account for a relatively small proportion of revenue in the NT,

10 Mr David Armstrong, Terrabos Consulting, submission 180 (**D Armstrong submission 180**).

11 Northern Territory Cattlemen's Association, submission 261 (**NTCA submission 261**).

12 Mr Bill Sullivan, Sully Pty Ltd submission 160 (**B Sullivan submission 160**).

13 Mr Rohan Sullivan, Cave Creek Station and Birdum Creek Station, submission 243 (**R Sullivan submission 243**); B Sullivan submission 160.

14 APPEA submission 215; Santos submission 168; Origin, submission 153.

15 Lock the Gate submission 171; Australia Institute submission 158.

and that allowing unconventional gas development would not substantially change the amount of funds available for improving services and infrastructure.¹⁶ Mr Rod Campbell of The Australia Institute also cautioned against depending on the mining industry to build public infrastructure, noting that in his observation, “*State governments end up building things for resource industries rather than the other way around*.”¹⁷

Other submissions questioned the likely public benefit of infrastructure built by gas companies. Ms Helen Bender's submission noted that new roads would service the locations used by gas companies and not those most used or most needed by the public.¹⁸ With new roads, and the increasing use of existing roads, also comes increased maintenance costs, which, as the Central Desert Regional Council noted, the industry cannot presently be compelled to pay for.¹⁹ The issue of road maintenance and upkeep was raised when the Panel visited communities in Queensland. As well as increased maintenance costs, concerns were expressed that increased traffic use could lead to a higher rate of road accidents, increased pollution, noise, and impacts to wildlife.²⁰ Road use and safety was also an issue present with the expansion of the CSG industry in Queensland. Issues acknowledged by the Queensland Gasfields Commission included that:

*“significant increases in traffic flows, truck movements on school bus routes, large/wide transports on regional highways and the generation of dust and noise on unsealed roads. Many existing roads in the Surat Basin required upgrading to withstand the change in traffic type and frequency.”*²¹

Although these impacts are relevant to the NT, given the remote location of many of the roads and the lack of built up areas in much of the Territory, it will depend on the location of any onshore shale gas development as to what the actual negative impacts might be.

Early in the development of the CSG industry in Queensland there were experiences in relation to company employees and contractors exhibiting a lack of safe driving behaviours. For example, not complying with speed restrictions, driving long distances without adequate breaks and noise from employees reversing from their homes early in the morning. These risks were mitigated by companies implementing a number of initiatives including 'In Vehicle Management Systems', which monitored the speed at which vehicles were being driven, as well as mandated rest periods every two hours. It is noted in the submissions from several gas companies that they propose to implement “Traffic Management Plans”²² as part of any development to ensure adequate preparation for potential high or increased traffic.

The Academy of Medicine, Engineering and Science of Texas (**TAMEST**) also reported an order of magnitude increase in road traffic (not only trucks) and road accidents, as well as clearly observed degradation of roads and roadside infrastructure.²³ TAMEST noted that in the Texas:

*“Not only have there been considerable increases in truck traffic across the state, other modes of transportation have also experienced a surge in traffic, as evidenced by the significant increase in energy-related activities at transportation facilities such as ports, railroads, and pipelines.”*²⁴

TAMEST also acknowledged that the level of funding allocated to address the impact on road infrastructure and traffic safety was low when compared to the magnitude of impact. This mirrors findings from Queensland where the upkeep and maintenance of roads over the longer term fall to local government. Concerns were expressed about its ability to cover all of these necessary costs in a sustainable way (see also the discussion in Chapter 8 in Section 8.3.2.1 and Chapter 10 in Section 10.3.3 and **Recommendation 10.3**).

16 The Australia Institute, submission 158 (**Australia Institute submission 158**); The Australia Institute, submission 322 (**Australia Institute submission 322**).

17 Australia Institute submission 322.

18 Ms Helen Bender, submission 144 (**H Bender submission 144**).

19 Central Desert Regional Council, submission 76 (**CDRC submission 76**).

20 P Cass submission 192; Lock the Gate Alliance Submission 171..

21 Queensland Gasfields Commission 2017, p 80.

22 Pangaea submission 427, p 17; Origin submission 433, p 63; Armour Energy Ltd, submission 23 (**Armour Energy submission 23**), p 2; Santos submission 168, p 66.

23 TAMEST 2017.

24 TAMEST 2017, p 22.

A number of recommendations arose from the Texan and Queensland studies that are directly relevant to the NT and should, in the Panel's opinion, be implemented.

Recommendation 12.1

That as part of any strategic SIA, early and adequate consultation be undertaken on road use and related infrastructure requirements that result in realistic road upgrade and work schedules to support the required transport infrastructure for any unconventional shale gas industry and other users.

Recommendation 12.2

That gas companies ensure the provision of adequate and sustainable funding to ensure the identified infrastructure requirements are met and maintained appropriately.

Recommendation 12.3

That consideration be given to the development of road use agreements between gas companies and local councils that include safety considerations and ensure monitoring for compliance, including reporting requirements.

The literature also cites both potential positive and negative impacts on services in the community. Research has shown that rapidly increased population can bring a variety of new services and businesses to a region. These might include new restaurants and hairdressers, as well as an increased range of retail goods.²⁵ A negative effect, however, can materialise in increased pressure on health services,²⁶ a service that is often already strained in regional and remote areas. Several studies report increased wait times for hospitals and doctors' services, an impact that was exacerbated in several south-west Queensland regions by an increase in mental health issues in connection with the CSG development throughout that region.²⁷

These findings were also recognised in the recent Queensland Gasfields Commission report on lessons learned.²⁸ The report noted, however, that impacts around health and emergency services can be further exacerbated through cumulative impacts arising not only from a growth in the gas industry but also combined with significant weather related events or downturns in other industries. It also acknowledged that it is not just local communities that are impacted but also the FIFO workers. Several gas company employees reported mental health issues as a direct result of living away from their families.

The reverse of the negative impacts was that communities were seen to benefit through company funds directed to local hospitals, the introduction of mobile health clinics and increased emergency response and aeromedical services such as 'CareFlight'.²⁹ However, the report identified that companies were unprepared for "government expectations that they must fund a range of community, health and other services."³⁰ Managing such expectations from the beginning is an opportunity arising from this Inquiry.

Studies conducted in the US suggest additional challenges for education services, such as accommodating higher intakes of students as populations increase or updating curricula in a way that increases job opportunities in the gas industry for students. Managing these challenges was reported to be difficult, and US schools reported no significant beneficial impacts from the resource development.³¹ Conversely, anecdotal evidence in the Surat Basin suggests that investment by some gas companies in local school science programs has had positive impacts, resulting in an over subscription to senior science programs at the high school level, which is unprecedented in many schools around Australia. Another benefit that emerged in Queensland was that some local children who left to obtain university degrees were able to return to their home towns where their qualifications made them perfect candidates for jobs with some of the gas companies.³² Reversing the exodus of young people from rural communities is again unique, with many rural towns in decline due to a lack of employment opportunities for youth.

25 SA Report, p 20.

26 Bec, Moyle and McLennan 2016.

27 Hossain, Gorman, Chapelle et al. 2013; Bec, Moyle and McLennan 2016; Lai, Lyons and Kyle et al. 2017.

28 Queensland Gasfields Commission 2017, p 82.

29 Queensland Gasfields Commission 2017, pp 84-85.

30 Queensland Gasfields Commission 2017, p 82.

31 Schafft, Borlu and Glenna 2013.

32 Queensland Gasfields Commission 2017, p 69.

Recommendation 12.4

That gas companies be required to work closely with the Government and local communities early in any onshore shale gas development projects to ensure that any potential impacts on services are mitigated.

12.2.2 Impacts on housing and rental prices

The potential for rents and housing prices to rise and fall sharply with a 'boom and bust' cycle was noted in several submissions.³³ Also flagged was the potential for council rates to increase.³⁴ Citing experiences in Queensland, and other places where unconventional gas development had occurred, these submissions expressed fear that the initial rise in prices would squeeze out many local residents, while the subsequent fall could leave houses vacant and/or worth less than before the boom. However, housing issues in the NT are not uniform across the Territory. Some remote communities already suffer from a lack of adequate housing. Therefore, housing impacts will be location dependent. Potential impacts on housing and rent were acknowledged in submissions from industry, and cited as a major reason for the use of FIFO/DIDO workers and temporary housing.³⁵

The literature provides examples of increased pressure on housing availability in communities experiencing 'boom and bust' development. The large demand on housing can dramatically raise prices, both for buyers and renters.³⁶ Those who are employed locally may be forced out of a market that they can no longer afford, especially if they are not receiving comparable salaries to those in the gas industry. In some cases, this results in the displacement of local residents to the outskirts of town, or further, in search of more affordable living, as was reported in the town of Roma in Queensland.³⁷

Conversely, research showed that in Queensland individual property owners are able to profit from a temporary demand increase in accommodation, but also risk economic loss if the demand is not sustained.³⁸ These effects can be mitigated by gas companies ensuring that a temporary shortage does not arise. Ensuring temporary accommodation in various camps is adequate before the need for a construction workforce will assist with easing potential housing pressures,³⁹ although it should be acknowledged that mining camps bring their own challenges, both for the workers who stay in them and also the communities nearby. Finding the balance can be challenging. Gas companies need to take a proactive and responsible approach to solving the housing needs of its workforce to ensure adequate coverage of all housing requirements.⁴⁰ Although this may increase construction time and, therefore, reduce future profits, it will help to mitigate the risk of over inflated prices for real estate arising in communities.

Recommendation 12.5

That any strategic social impact assessment anticipate the long-term impacts and requirements for housing (not just through construction phase) to adequately mitigate the risk of inflated real estate prices and shortages within a community.

Recommendation 12.6

That in consultation with local communities, Aboriginal Land Councils, local government, and the Government, gas companies be required to provide accommodation, whether temporary or permanent, which must be completed prior to the construction/development phase.

Valuation of agricultural properties can also be affected, depending on how the activities are perceived in the region. In an industry such as agriculture or pastoralism, where land holdings tend to be intergenerational, this creates concern for landholders. If the value of the property is perceived to decrease due to gas activity, it is likely that the younger generation will be reluctant to take over properties because they see less potential value. This may result in them being

33 Lock the Gate submission 171; P Cass submission 192; H Bender submission 144.

34 G McCarron submission 53.

35 APPEA submission 215.

36 Benham 2016.

37 Bec, Moyle and McLennan 2016.

38 Benham 2016.

39 Hossain, Gorman, Chapelle et al. 2013; Morrison, Wilson and Bell 2012.

40 Morrison, Wilson and Bell 2012.

more inclined to move from the region for other employment opportunities.⁴¹ The most effective way to mitigate such concerns is by ensuring the gas companies are operating in a responsible way. In Queensland, legislation exists to ensure that landholders are compensated for a range of activities including loss of property value and other uses that may have occurred on the land.⁴² Chapter 14 outlines a number of considerations and recommendations for land access that, if implemented, will help to ameliorate these concerns.

12.2.3 Impacts on employment and businesses

As with impacts on infrastructure and services, the submissions expressed a wide range of views about the potential impacts on employment and businesses. Several submissions were positive about the potential jobs and economic activity that additional gas developments would generate in the NT. The Urban Development Institute of Australia (NT), for example, suggested that, *"becoming a gas hub offers the Northern Territory the greatest chance of achieving the economic growth we currently need"*.⁴³ According to Ms Teresa Cummings, the Corporate Director of North Australian Rural Management Consultants Pty Ltd (**NARMCO**):

*"The exploration activity generated by the Natural Gas Industry using hydraulic fracturing methods, to date has seen a range of local businesses being engaged, both in Katherine and Mataranka. Transport operators, civil construction companies, environmental consultants, accommodation and hospitality providers, engineers, and many more types of businesses have already benefited."*⁴⁴

Contrary to fears about the 'boom and bust' nature of the industry, the submissions from NARMCO suggest that any onshore shale gas development will have a stabilising economic influence in the NT:

*"The seasonal nature of some of the key local industries creates significant economic challenges for local businesses. ... It is extremely difficult for many employees to remain in the seasonal industries long term, as there are limited opportunities for stable career path. ... A shale led Natural Gas Industry ... will provide stable contract options for local business and provides real potential for local businesses to overcome their seasonal volatility."*⁴⁵

NARMCO also noted the potential for employment benefits in remote and Aboriginal communities:

*"I'm convinced that allowing natural gas industry to develop in the remote areas in the NT will bring many economic and social benefits to indigenous people. There aren't many local opportunities out there. When you start talking about remote regions like Elliott, it's extremely limited, and this will be one industry that will actually have strong potential to overcome that."*⁴⁶

APPEA's submission cited increases in employment and business expenditure that were attributable to CSG development in Queensland as a reason to expect positive outcomes in the NT.⁴⁷ However, other submissions drew on the same comparison to portray a less optimistic outlook. A submission from Mr Tom Measham of CSIRO noted, from his own study of the Surat Basin in Queensland, that, *"while net employment increases overall, there can still be reductions in some sectors as people move out of one sector (e.g. agriculture) into another"*, furthermore, that the number of jobs flowing to local residents varies on a case-by-case basis.⁴⁸ The same submission also claimed that job-creation effects claimed by industry have often been exaggerated, a finding also cited by several other submissions to the Panel.⁴⁹

The written submission from The Australia Institute also expressed scepticism about purported benefits to business and employment. Citing a study by UQ researchers about the impacts of

41 Hossain, Gorman, Chapelle et al. 2013.

42 Queensland Gasfields Commission 2017, p 42.

43 Urban Development Institute of Australia (NT), submission 436 (**UDI submission 436**).

44 North Australian Rural Management Consultants Pty Ltd, submission 186 (**NARMCO submission 186**).

45 NARMCO submission 186; Ms Teresa Cummings, submission 249 (**T Cummings submission 249**).

46 T Cummings submission 249.

47 APPEA submission 215.

48 Mr Tom Measham, Commonwealth Scientific and Industrial Research Organisation, submission 77 (**T Measham submission 77**).

49 Lock the Gate submission 171; P Cass submission 33; H Bender submission 144.

CSG in the Darling Downs in Queensland, it noted that, “far from mining and unconventional gas providing economic benefits, local businesses felt that it had reduced financial capital, human capital, infrastructure, social capital and natural capital”. In addition, it stated that:

“Local businesses have to compete with inflated gas industry wages in order to recruit and retain staff and they experience increased rent and competition for services (particularly trade and mechanical repairs).”⁵⁰

The potentially short-term nature of positive employment impacts was also observed in several submissions.⁵¹ Citing job figures from Queensland Treasury, the Lock the Gate Alliance argued that, “the scale of the ‘bust’ after the short unconventional gas construction period ends is severe, and long-term job opportunities are extremely limited”.⁵² The recently released economic modelling report prepared by ACIL Allen for the Panel (see Chapter 13) suggests that a number of jobs will be generated, but that this will vary depending on the size of any onshore shale gas industry:

“economic activity will generate employment opportunities for Territorians, with an estimated 2,154 FTE jobs (BREEZE), to 6,559 FTE jobs (WIND) to 13,611 FTE jobs (GALE) generated by the various development scenarios over the forecast period – over and above the existing employment growth ACIL Allen has forecast in its base case (Figure ES 4). This equates to between 82 FTEs, 252 FTEs, and 524 FTEs of net employment growth in each year on average. This includes indirect employment generated by the local spending of the industry.”⁵³

Jobs will be created, but the exact number will be heavily influenced by the size and pace of any industry roll out.

Also raised was the concern that hydraulic fracturing for onshore shale gas would harm tourism, fishing and other long-term businesses that were dependent on the amenity, environmental health and natural image of the NT.⁵⁴ As Ms Petrena Ariston from Top Didj Cultural Experience and Art Gallery explained:

“An extensive line of oil fracking wells dotted throughout the outback could undermine the tourism brand that Tourism NT and tour companies market nationally and internationally. ... I think, as a tourist, the very presence of well-drilling sights and flares burning gas will not only disfigure the beauty of the NT and its small communities, but will definitely discourage them to come back or recommend us as a destination.”⁵⁵

The literature similarly presents many discussions around the effect on jobs and economic development, although less so regarding the effects on tourism. Economic activity can be accelerated due to the higher salaries of gas company employees being injected into local communities.⁵⁶ However, this can also generate challenges for a community as some local businesses may find it hard to compete with those higher salaries, and a shortage in skilled workers can result. This was noted as an issue in Roma where one local business owner remarked: “we had a small business in town that closed because of mining and the gas. Firstly, they took the workers, then they cranked all the rental properties up and it killed it. We’ve just closed it down.”⁵⁷

While there tends to be a net increase in employment, skill shortages can have a negative effect on pre-existing industries, particularly in agricultural regions. These effects were recognised in the Marcellus shale development in Pennsylvania in the US.⁵⁸

50 Australia Institute submission 158.

51 K Marchment submission 438; Barkly Landcare submission 241; H Bender submission 144; P Cass submission 33.

52 Lock the Gate submission 171.

53 ACIL Allen 2017, p vi.

54 P Cass submission 192; Ms Jean McDonald, submission 186 (**J McDonald submission 186**); Ms Monica O’Connor, submission 3 (**M O’Connor submission 3**); Amateur Fishermen’s Association of the Northern Territory, submission 190 (**AFANT submission 190**).

55 Ms Petrena Ariston, Top Didj Cultural Experience and Art Gallery, submission 269 (**P Ariston submission 269**).

56 Bazilian, Brandt and Billman et al. 2014.

57 Bec, Moyle and McLennan 2016.

58 Schafft, Borlu and Glenna 2013.

But the literature has also showed that the increased demand for workers can provide unique opportunities for the younger generation and remote Indigenous communities.⁵⁹ There have been instances of economic support for training and development programs through the local Technical and Further Education institutions. For example, there was support of a Certificate II in Plant Operations, supported by Santos in Roma to provide additional opportunities for local employees.⁶⁰ These financial contributions tend to be seen as positive development. It was also acknowledged that this investment can prevent the younger generation from moving away from the community toward urban centres, as it provides them with an opportunity for employment stability and career development within the gas industry.⁶¹ This can be particularly beneficial for younger remote Aboriginal populations, as was observed by Buru Energy in Western Australia:

*"Our experts looked at Buru's plans and let us know this is a safe activity if it is done properly. We trust Buru to do this properly. It has been great to see our young people work closely with Buru and we have that connection."*⁶²

However, it has been acknowledged that there are risks that the number of jobs can be overestimated. This is particularly so if the majority of the workforce is sourced externally through a FIFO or DIDO arrangement.⁶³ This type of workforce creates its own unique set of challenges, and requires thoughtful mitigation. The transient workforce can affect the feeling of community cohesion, and can contribute to the loss of community cohesion if workers are unable to positively contribute towards the community.⁶⁴ Understanding exactly what the implications might be for businesses and employment will be a critical component of any SIA conducted in advance of the industry roll out and by project proponents themselves.

There can also be overestimations in relation to the economic benefits available to local businesses within a community. Smaller towns in Queensland reported no positive impact as a result of the increased activity, as the companies tended to rely on larger regional centres, like Toowoomba, to provide project supplies.⁶⁵ More recent analysis by the University of Queensland has shown that although there was some downturn after the major construction phase and a drop in the commodity price, overall local businesses have experienced a net positive step change in their average income since the gas industry was established.⁶⁶

Critical for maximising the benefits that return to local communities is to ensure all companies implement a 'buy local' strategy. This can range from everything to supporting the local supermarket and newsagents (assuming one exists within a community) to working with local business groups and chambers of commerce to identify ways that local businesses might be considered as suppliers for various contracting and other work. One finding from Queensland is the importance of companies working with local businesses to ensure that they have the skills, pre-qualifications, and other requirements needed early in the process to allow local businesses time to prepare.⁶⁷ Again, although many NT communities are very different from Queensland communities the findings that have emerged reflecting upon how the CSG industry developed in Queensland are helpful for businesses and communities in the NT who may potentially benefit from any emerging unconventional shale gas industry. Accordingly, the key findings are replicated below:

1. *"Find out about projects and the local market;*
2. *Know the rules of engagement for your tier level;*
3. *Understand how work packages will be advertised and awarded;*
4. *Work with others;*
5. *Promote your business capabilities;*
6. *Be ready to adapt to change in the industry; and*
7. *Prepare for contractual negotiations."*⁶⁸

59 Norman 2016.

60 SA Report, p 24.

61 Brasier, Filteau and McLaughlin et al. 2011.

62 WA Report, p 173.

63 Fleming and Measham 2015.

64 Haswell and Bethmont 2016; Vojnovic, Michelson and Jackson et al. 2014; Bec, Moyle and McLennan 2016.

65 Bec, Moyle and McLennan 2016.

66 UQ Boomtown Toolkit 2016; Queensland Gasfields Commission 2017, p 70.

67 Queensland Gasfields Commission 2017, p 67.

68 Queensland Gasfields Commission 2017b.

Recommendation 12.7

That there be a minimum standard set for gas companies to source goods, services and workers from local communities. This should include ensuring training programs are developed for Aboriginal and other local workers to develop the necessary skill sets and to improve their opportunities for local employment in any onshore shale gas industry.

Recommendation 12.8

That gas companies use a range of mediums to proactively work with local businesses to ensure they are able and adequately skilled to compete for contracts. They should follow the steps outlined above by the Queensland Gasfields Commission to assist them to be ready to participate in any economic opportunities that may emerge.

12.2.4 Insurance and 'make good' agreements

Several submissions expressed concern that landholders are unable to obtain insurance against damages caused to their property due to onshore shale gas operations, including damage to infrastructure and livestock as well as contamination of soil, surface water and groundwater resources.⁶⁹ The submission from Lexcray Pty Ltd, a cattle business in Daly Waters upon which Origin wants to conduct exploration activities, provided a first-hand account of this difficulty, while other submissions cited similar cases in Queensland and NSW.⁷⁰ As well as citing the need for more comprehensive pollution liability insurance, some submissions called for the establishment of an "eternal insurance fund"⁷¹ or "orphan well trust fund"⁷² to cover the remediation or repair of any legacy damages to water and other resources. In Queensland, legislation exists to ensure that landholders are compensated for a range of activities including any damages or losses to property or from conducting activities on the land.⁷³ In this regard Chapter 14 discusses and makes recommendations in respect to land access agreements and compensations that reinforce these requirements (see Section 14.6).

Recommendation 12.9

That the Government regulate to ensure that existing and future users of land can continue to enjoy their rights and interests in the land, including a mechanism to compensate for, among other things:

- *loss of use of surface area where infrastructure is installed;*
- *diminution of the use made or that may be made of the land or any improvement on it;*
- *severance of any part of the land from other areas of the landholder's property; and*
- *any cost, damage or loss arising from the carrying out of activities on the land.*

12.2.5 Community cohesion

A number of submissions expressed concerns that the development of an onshore shale gas industry in the NT could affect the overall character and cohesion of communities, and that it may also affect people's relationships, mental health, and sense of identity and place.⁷⁴ Citing studies and anecdotes about unconventional gas development in Queensland, as well as overseas, these submissions caution that the nature and pace of changes brought about by unconventional gas development can lead to feelings of anxiety, anger, injustice and betrayal within communities:

"Production ramps up with drilling and fracking, with its 24-hour lights, noise, privacy invasion, odours, tree clearing and truck movements - causing some people to feel a deep sense of loss of control, loss of place and loss of peace and a feeling of being trapped and unable to escape. All of these phases present risks of depression, anxiety and increased use of alcohol and other drugs for coping."⁷⁵

69 ALEC submission 88; Mr Daniel Tapp, Big River Station, submission 242 (**D Tapp submission 242**); Ms Katherine Marchment, submission 2 (**K Marchment submission 2**).

70 Lock the Gate submission 171; Australia Institute submission 158.

71 Ms Charmaine Roth, submission 191 (**C Roth submission 191**).

72 S Bury submission 189.

73 Queensland Gasfields Commission 2017, p 42.

74 PHAA submission 107; Ms Rachel Tumminello, submission 187 (**R Tumminello submission 187**); Lock the Gate submission 171; Y Doecke submission 25.

75 Prof Melissa Haswell, submission 183 (**M Haswell submission 183**).

The potential for people to experience solastalgia (a sense of powerlessness and lack of control amid change) that has been observed in other communities affected by resource booms, was highlighted in several submissions.⁷⁶ A related issue raised in a number of submissions is the perception that negotiations between gas companies and communities or individuals generally do not take place on a level playing field (see the discussion at Section 14.6).

As Mr Warwick Giblin, representing North Star Pastoral, explained:

"There is a power imbalance, unequivocally, and this is the root cause of the angst. I really can't say it more plainly than that, but this is the fundamental issue that the broader community and broader society has. And in the case of pastoralists, but at the same goes for all stakeholders, we don't have the time, the technical knowledge, the economic capacity, or the political clout compared to the gas companies."⁷⁷

A similar point was also made in relation to Aboriginal communities, which often have little or no knowledge about hydraulic fracturing (see Chapter 11).⁷⁸ Notably, however, positive relationships between gas companies and pastoralists were reported in some submissions, including from pastoralists themselves.⁷⁹

Many observed that the debate about fracking in the NT has itself been a source of division within the community. People on both sides of the debate have reported feeling intimidated or unwelcome within certain businesses or social circles as a result of the position they had taken towards hydraulic fracturing.⁸⁰ Many submissions also reveal high levels of distrust about individuals' motivations or levels of understanding in debates about hydraulic fracturing. In particular, a large number of submissions that were neutral or supportive towards the industry expressed the view that anti-fracking activists were spreading misinformation in order to create fear, or that they lacked understanding of basic technical facts.⁸¹ Some also noted that many opponents were not locals but "**FIFO activists**" affiliated with environmental groups from interstate.⁸²

Examples of these effects are reinforced by the literature. With a large FIFO workforce, it can be difficult to integrate employees into the community. Residents in a range of regions experiencing gas development report feeling a loss of community following rapid change and the influx of FIFO workers.⁸³ Landowners have reported feeling emotional stress regarding their lack of rights in providing land access. Being forced to allow exploration and development has resulted in landowners feeling helpless and has resulted in a heightened risk of mental health issues.⁸⁴

These negative impacts have contributed to an anti shale gas sentiment, which has also contributed to tension and division within a community. Many people appreciate the economic benefits unconventional gas developments can bring and, therefore, view gas development as a good thing for the region.⁸⁵ This can create tension among those groups who are not supportive, particularly as they may resist the industry fearing for their own health and wellbeing, increasing the emotional strain of the issue.⁸⁶ This has led to the complete loss of social acceptance in a community, such as in Gloucester in NSW.⁸⁷ The division between those who oppose, and those who support, leads to tension within different groups and can further disrupt community cohesion.

Another potential impact on community cohesion is an increase in crime based on observed correlations between crime and CSG development in Chinchilla, Queensland, and in shale gas development areas in the United States.⁸⁸ There have been increases in petty crime and public nuisance related arrests, which tend to be associated with the increase of a typically young and

76 R Tumminello submission 187; Lock the Gate submission 171.

77 North Star Pastoral, represented by OzEnvironmental Pty Ltd, submission 260 (**North Star submission 260**).

78 Mr Tony Hayward-Ryan, submission 54 (**T Hayward-Ryan submission 54**).

79 Ms Helen Armstrong, Gilnockie Station, submission 48 (**H Armstrong submission 48**); D Armstrong submission 180; Mr Mark Sullivan, Flying Fox Station, MS Contracting, submission 166 (**M Sullivan submission 166**).

80 Ms Annette Raynor, submission 67 (**A Raynor submission 67**); Ms Teresa Cummings, submission 249 (**T Cummings submission 249**).

81 The Norwood Resource Inc, submission 114 (**Norwood submission 114**); Oilfield Connect submission 174; Mr Geoff Farnell, submission 444 (**G Farnell submission 444**).

82 B Sullivan submission 160; Central Petroleum submission 99.

83 Brasier, Filteau and McLaughlin et al. 2011; Curran 2017; Bec, Moyle and McLennan 2016; Haswell and Bethmont 2016.

84 Bec, Moyle and McLennan 2016.

85 Fleming and Measham 2015.

86 Norman 2016.

87 Lai, Lyons, Kyle et al. 2017.

88 H Bender submission 144; Lock the Gate submission 171.

single male workforce of transient nature. An increased police presence is usually necessary, which may place a strain on services.⁸⁹ Women may report feeling less safe in this environment, although there is no significant statistical increase in cases of sexual assault.⁹⁰ One explanation for this may be that women in the community are venturing out less, due to their decreased feeling of safety in the community.⁹¹

However, there are examples of successful management of this issue that are best demonstrated in a CSIRO study of Chinchilla, Queensland.⁹² A community group was established, with assistance from the police, with the intent of solving drug and alcohol related issues. The group worked proactively with the gas company and their contractors, with whom they had a well-established relationship, to facilitate terms within employment contracts that would result in the employee losing their job if they were arrested for any public disorder offences. A co-regulation and zero tolerance approach was also adopted by all publicans in the town so that an offending individual could be banned for three months from all hotels. The gas company also contributed funds towards the re-establishment of a youth-focussed alcohol education program. This approach was found to be highly effective in managing alcohol-related issues.⁹³ This highlights how increasing community cohesion and participation can be encouraged alongside an emerging unconventional gas industry.

Recommendation 12.10

That gas companies be required to establish a relationship with communities to determine how to best facilitate community cohesion on an individual and collective level. This should be done in consultation with Aboriginal land councils and local councils, to ensure that the needs of all parties are accommodated.

Recommendation 12.11

That gas companies must develop and implement a social impact management plan to communities, which details how they will optimise the relationship with the community prior to any onshore shale gas development. This plan must be developed in consultation with Aboriginal land councils and local councils to ensure that it meets community needs and be presented to the regulator for approval prior to any production approval being granted.

12.2.6 Gaining and maintaining a social licence to operate

As discussed in the Interim Report, the concept of an SLO relates to community acceptance or approval of a project, company, or industry. Several submissions discussed explicitly the concept of an SLO and the question of whether the shale gas industry has, or could gain, an SLO in the NT. Most submissions discussing this issue were of the view that industry presently lacked an SLO. As the submission from Mr Daniel Leather put it:

"Industry, regulators and governments of all levels have both failed in their responsibilities of maintaining and presenting any valid argument for gaining, let alone maintaining community consent, as the industry is viewed as potentially being worse than coal or even nuclear, a perception that should have been impossible."⁹⁴

For some, the lack of trust also extended to a lack of faith in the Government's capacity to regulate any such industry.⁹⁵ Given this, many felt that industry would only gain acceptance if it was overseen by an independent body tasked with aspects of the industry's governance such as handling public enquiries and concerns, reviewing performance, collecting and analysing scientific data, and administering funds to address legacy impacts.⁹⁶

Also perceived as a major obstacle to gaining an SLO is the manner in which industry engages with, and relates to, the community. Formal engagement processes have been described as

89 Brasier, Filteau and McLaughlin 2011.

90 Benham 2016.

91 Benham 2016.

92 Walton, Mccrea and Leonard et al. 2013.

93 Walton, Mccrea and Leonard et al. 2013.

94 Mr Daniel Leather, submission 40 (**D Leather submission 40**).

95 Environmental Defender's Office (NT) Inc, submission 253 (**EDO submission 253**).

96 Lock the Gate submission 437; Mr Rod Dunbar, submission 297 (**R Dunbar submission 297**); DR Johns, submission 154; A Raynor submission 67; Armour Energy submission 23.

tokenistic and one-sided, one-to-one negotiations as intimidating or unfair, and discourse with opponents as dismissive and adversarial.⁹⁷ Gas companies in the NT were criticised for being impersonal in their dealings with the community, principally as a result of not having a single point of contact. The practice of interfacing with the community through contractors or rotating personnel was also perceived as a way of hiding from risk and responsibility.⁹⁸

Not all submissions took a negative view of industry's acceptance by the community. The submission from Central Petroleum describes a range of positive and arguably successful efforts by that company to accommodate and benefit the local community. It concluded that the company had earned the community's trust and gained an SLO.⁹⁹ Pangaea also highlighted their successes in engaging pastoralists and the broader community.¹⁰⁰

The most effective way to mitigate the risk of negative social impacts, according to the literature, is by successful and thoughtful community engagement. The region of Chinchilla presents a case study of early and continuously developing engagement that has significantly increased levels of trust.¹⁰¹ This engagement was driven as much by the community as by the gas company. The community formed several interest groups, which were able to come together and present their concerns in a respectful format, and which allowed the company to provide responses and solutions to the concerns presented. The engagement was also assisted through so-called 'enterprise evenings', where local businesses could interact with the larger contracting firms and identify shared business opportunities.¹⁰²

Similar levels of engagement were cited as successful examples of acceptance by a spokesperson for Santos, reporting to the South Australian Fracking Inquiry. Commenting on the behaviour in the communities of the Cooper Basin, he stated the following:

*"We establish a physical presence, open shopfronts in town, contribute to the local causes in the town and employ local people to make sure that, through the informal contact that those people have with their schools, sporting clubs and other activities in town, we become part of that community and that we are understood and accepted. We think that is the framework that enables us to succeed in building our business."*¹⁰³

The employment of local community members, particularly in roles related to land and environmental management, also builds trust and acceptance. This was demonstrated in a CSIRO study of the Bowen and Surat Basins in Queensland, where a survey participant noted: "I mean, the landholder relation officers they are using are local graziers. I mean, they are smart with who they have chosen to do this."¹⁰⁴ As the community already knew and trusted these people it felt assured that the gas company was 'doing the right thing', which further contributed to the successful development of the relationship.

Resilience of a community can also be a large determinant of the acceptability of gas developments and the community's ability to manage any challenges that arise as a consequence. In the literature, 'resilience' has been described as the ability of a community to build up strength to deal with external shocks and changes that may occur in and around it.¹⁰⁵ Resilience is built and developed through engagement between different groups within the community, and between those groups and government and industry. Industry can help to build this resilience through support for community development and by ensuring a respectful and informative discourse, which enables and integrates community feedback. Industry can assist by ensuring adequate planning is in place, and development occurs at a rate that can be managed by the community without negative consequences. By enabling a genuinely vested interest in the long-term wellbeing of the region, any onshore shale gas developer can ensure the provision of a wide range of social and economic benefits for a community.

97 Dr Errol Lawson, submission 216 (**E Lawson submission 216**); North Star Pastoral, submission 155 (**North Star submission 155**).

98 Coomalie Council submission 15; E Lawson submission 216.

99 Central Petroleum submission 99.

100 Pangaea submission 220.

101 Walton, Mccrea and Leonard et al. 2013.

102 Walton, Mccrea and Leonard et al. 2013.

103 SA Report, p 35.

104 Parsons and Moffat 2014.

105 Barr and Devine-Wright 2012.

Recommendation 12.12

That gas companies be required to develop a social impact management plan that outlines how they intend to develop and continue their SLO within each of the communities they will operate in. This should be developed in conjunction with any SIA, and introduced as early as possible, preferably in the exploration phase, to ensure that any potential changes can be flagged in advance to allow communities time to adapt and prepare for the changes.

12.2.7 Intergenerational equity issues

Intergenerational equity was a priority for many of those attending the consultations, both Aboriginal and non-Aboriginal. Many stressed that allowing any onshore shale gas extraction was contrary to urgently needed climate change mitigation and they did not accept that industry cared about the interests of future generations. These issues were highlighted in the submissions of the Arid Lands Environment Centre, which observed that:

"Intra- and inter-generational equity, public participation, precautionary principle and the polluter pays approach should be embedded in the process of identifying and assessing the scientific material on the risk of hydraulic fracturing. The decisions taken now in this panel will impact communities for many generations to come and their rights to a healthy environment and sustainable development are just as important as the needs of current generations."¹⁰⁶

12.3 Social licence to operate and the Beetaloo Sub-basin

As summarised above, an SLO is critical for any successful onshore shale gas industry. The origins of the concept of an SLO trace back to the mining sector around the mid 1990s, where it emerged in response to a number of highly publicised conflicts with communities over failures of chemical spills and tailing dams.¹⁰⁷ Although it has no agreed formal definition, the concept is known as *"the ongoing acceptance or approval of an operation by those local community stakeholders who are affected by it and who can affect its profitability"*.¹⁰⁸ Due to the intangible nature of an SLO, many suggest that it is often easier to know when an industry or project does not hold an SLO than when it does.¹⁰⁹ A failure to gain or hold an SLO can often lead to political intervention and sometimes project failure.¹¹⁰

Trust is a critical element of an SLO. While trust takes time to be established, it can very easily and very quickly be eroded if it is not well managed. Trust is built through open and transparent communication between all parties. There is a recognition that to gain trust, cognisance of the cultural differences and the requirements of different stakeholder interests involved, or intersecting with the project, must exist in some way.¹¹¹ As part of building trust, the context in which a project is operating, including any legacy issues, has been shown to strongly influence how new projects are accepted.¹¹² If historical evidence suggests that poor regulatory conditions have prevailed, or there is a track record of industry failure to uphold explicit commitments to stakeholders and the environment, it will result in low trust in both the government and the associated industry. Subsequently, it limits the ability of those project operators, and often the associated government, to gain an SLO.¹¹³

12.3.1 SLO in the Beetaloo Sub-basin and the NT

Research conducted over several years has now identified a common set of relational variables that underpin social acceptance, or SLO, at local, State and national scales. These critical relational variables (that is, focussing on stakeholder interactions) include: contact quality between gas company personnel and community members at the local scale, distributional fairness (particularly in relation to benefits) across scales, procedural fairness across scales and citizen confidence in the governance arrangements around extraction at the national scale. Each of these variables is summarised below.¹¹⁴

106 ALEC submission 88.

107 Thomson, Boutilier and Darling 2011.

108 Moffat and Zhang 2014.

109 Parsons, Lacey and Moffat 2014.

110 Prno and Slocombe 2012.

111 Serje 2017.

112 Bradbury et al. 2009.

113 Gallois, Ashworth et al. 2016.

114 Moffat 2017.

12.3.1.1 Contact quality between gas companies and community members

At the local scale, the quality of contact between gas company personnel and community members can have a significant influence on the quality of interactions between a gas company and a community. For example, in a longitudinal survey of community attitudes to CSG extraction in Queensland, the quality of contact between gas company personnel and community members was a significant predictor of the community's trust in the company and acceptance of its operation.¹¹⁵ What made no difference to trust and acceptance was the amount of contact between the gas company and the community.

12.3.1.2 Distributional fairness

Distributional fairness refers to the extent to which the benefits of an extractive operation are perceived to be distributed fairly within a community or society more broadly.¹¹⁶ In the extractive context, the fair distribution of industry related benefits has been shown to be a significant predictor of trust and acceptance of both local operations and the industry.¹¹⁷ For example, communities may benefit through direct compensation, royalty payments or participation in joint ventures.¹¹⁸ Other benefits may include industry's contribution to employment and training opportunities,¹¹⁹ or investment in local and regional infrastructure.¹²⁰

12.3.1.3 Procedural fairness

Procedural fairness, in a non-legal sense, routinely requires the implementation of processes that are considered to be fair by all involved, are transparent, are inclusive of diverse perspectives and priorities, and allow the public to access information and debate and to feel respected and listened to in that process.¹²¹ Given the increased participation of communities in decision-making about how extractive resource operations and other large infrastructure projects will be developed, designing and implementing fair processes (including reasonable access to justice: see Chapter 14 for further discussion) has become a critical part of creating equitable participation, creating meaningful dialogue among stakeholders, diffusing conflict and achieving sustainable resource management decisions.¹²²

12.3.1.4 Governance

When the public believes that the governance arrangements in place are not capable of ensuring responsible resource development, its attitude toward extraction tends to be less favourable. Research has shown that public perceptions of the regulatory arrangements around extractive industries moderate the relationship between their concerns over environmental impacts and their acceptance of the industry.¹²³ More specifically, when citizens strongly believe that existing regulation and legislation has the capacity to hold the extractive industries to account for their actions (that is, strong governance), there is an increased likelihood to accept industry compared to those who perceive governance arrangements as being weak, irrespective of their views on the environmental impacts of industry.¹²⁴ Chapter 14 discusses how the current regulatory framework can be strengthened to increase the community's trust in industry and the Government.

12.3.2 NT results of a national survey

CSIRO conducted a survey in late 2016 and early 2017 across Australia that focussed on attitudes toward the extractive industries. The following summarises the findings of the 227 participants that participated from across the NT. With such small numbers, particularly in those areas that are likely to be most affected by any onshore shale gas industry, drawing any conclusions from the survey needs to be treated with extreme caution. However, the data does provide some insights into issues of concern that government, regulators and gas companies need to be mindful of when considering the implementation of any onshore shale gas industry.

115 Moffat and Zhang 2014.

116 Kemp, Owen and Gotzmann et al. 2011; Zhang, Moffat and Lacey et al. 2015.

117 Moffat, Zhang and Boughen 2014.

118 O'Faircheallaigh 2002.

119 Measham and Fleming 2014.

120 Michaels 2011.

121 Lacey, Carr-Cornish and Zhang et al. 2017.

122 Kemp, Owen and Gotzmann et al. 2011; Holley and Mitcham 2016; Lacey, Edwards and Lamont 2016.

123 Zhang and Moffat 2015.

124 Zhang, Moffat and Lacey et al. 2015.

In general, residents of the NT perceive governance capacity significantly poorer than those respondents from all other States and Territories. This was something that the Panel heard repeatedly both in submissions and at the various hearings and community forums. NT residents also have low trust in the extractive industries and in governments, marginal trust in advocacy groups, but higher trust in research organisations relative to residents in all other States. Low trust in the Government is a common phenomenon across States, as is low trust in the extractive industries. NT residents, however, trust the extractive industries significantly less than do residents in other jurisdictions.

Low trust perceptions are underpinned by low perceptions of procedural and distributional fairness. Perceptions of procedural fairness (feeling heard, respected and included in decision making processes) and distributional fairness (that the benefits of extractive industries are spread fairly) were significantly lower in the NT when compared to all other States.

Although trust and perceptions of extractive industries is low, impacts and benefits relating to regional infrastructure, employment and local community benefits were particularly favourably perceived in the NT. However, financial benefits at the individual, family, and general public levels were less influential. Perceived adverse environmental effects were the most negatively viewed industry impact, which was followed by impacts on living costs, and then impacts on other sectors (for example, tourism and manufacturing).

Good governance was significantly more important for social acceptance of the extractives in the NT than for residents in the rest of Australia. Governance was approximately as important as trust in the petroleum industry as a direct predictor of social acceptance, and it was also an important predictor of trust. Governance, therefore, has both direct and indirect effects on social acceptance of extractive industries. Trust in the petroleum industry is also influenced by perceptions of procedural and distributional fairness. Since both of these are rated unfavourably in the NT, improving these perceptions of fairness are also opportunities for improving trust in, and social acceptance of, extractives in the NT, including any onshore shale gas industry.

However, the most important predictor of social acceptance was perceived balance of benefits over the impacts of the petroleum industry, or its 'value proposition'. The perceived employment from extractive industries along with financial community benefits were the highest predictors of the 'balance of benefits over impacts' variable. This is particularly important in the NT, which is experiencing increasing inequality in family income. Any potential royalty payment scheme for new development must be designed carefully to ensure that sharing economic benefits with local traditional owners does not exacerbate underlying trends in family income inequality in novel ways (see Chapter 11).

12.3.3 Improving SLO

Discussed below are findings from CSIRO research interviews and fieldwork with representatives from a range of industry, community and government stakeholders in the NT. While no detail was provided as to the extent of individuals spoken to, included are some of the more relevant findings, which will be updated upon receipt of the final Coffey work.

The conversations identified a number of concerns and areas for improvement relating to social licence. Community members expressed strong interest in resolving, or at least addressing, their uncertainty through accessing information from industry and the Government regarding the use of hydraulic fracturing technologies in the Beetaloo Sub-basin, but some expressed frustration that there appeared to be no one to ask.¹²⁵ By contrast, it is clear that industry representative bodies have been providing an opportunity for the general public in more populated centres of the NT to access relevant information from technical experts. There appears, therefore, to be a gap in who is actively seeking information to resolve uncertainty and where this information is being made available.

The gas companies conducting exploration or preliminary work in the Beetaloo Sub-basin that were interviewed by CSIRO researchers, reported strong engagement locally with potentially affected community members and traditional owners. Gas companies indicated that where they were able to meet regularly with community members to discuss uncertainties together and explore opportunities for future benefits, relationships were sound. However, comments from the community regarding the lack of engagement in areas alongside, or even overlaying, the exploration tenements demonstrate the need for a broader and more inclusive definition of who is the 'community' in this context.

125 Moffat 2017, p 35.

All stakeholders engaged discussed the role of Government as critical to how any onshore shale gas industry will, or will not, progress.¹²⁶ There was a perception that Government had been largely absent from the discussion about onshore shale gas development in the NT for some time, but that greater involvement was not only welcome, it was necessary to meet the challenges that communities might face with the introduction of any new industry.

Constructively, interviewees from CSIRO fieldwork discussed ways in which the Government could be more effective for all stakeholders with respect to any onshore shale gas industry in the NT. First, regulation must be creative, modern, and learn from the experiences of other jurisdictions to create a relevant framework for any shale gas development. Second, the need for careful and deliberate planning was expressed as important. While planning around infrastructure and regional industry capacity is well developed within governments generally, skills around planning for social infrastructure and capacity are less well developed but are nevertheless as important. What services will be required to build the capacity of community members for work and participation in any new onshore shale gas industry opportunities, to support a potential influx of construction personnel, and to support changing community dynamics, were all areas that were seen to be important in managing SLO issues by good planning. Third, there was a desire from community and from some industry participants, for Government to play a more active role in engaging the community.

The need to develop any new shale gas industry 'the NT way' was emphasised in all of the community consultations. While there is much to be learned from the experiences of all actors and stakeholders in other jurisdictions that have experienced the growth of unconventional gas development, there was a clear feeling that the NT has unique characteristics and cultural norms that mean that these lessons are not able to be directly applied without reflection. However, research on SLO in many contexts around the world indicates that there are usually many more similarities in the way community acceptance is developed and maintained over time than there are differences. The issues of relevance to other communities (for example, water quantity and quality) and the factors that are known to be important in building trust and acceptance (for example, procedural and distributional fairness, contact quality) will also be central in the NT. But how strategies for their management are executed will benefit greatly from contextualisation.



Communities demonstrated a range of views on hydraulic fracturing during public consultations in March 2017.

126 Moffat 2017, p 35.

12.3.4 Measuring SLO in NT communities

Measuring and monitoring community sentiment has value because community voice is often largely absent from discussions and decision making processes that shape development trajectories in the extractive industries. This lack of voice is at the heart of much community and gas company conflict. Less formal consultative processes are often felt by communities to have pre-determined outcomes, while communities also express concerns about 'survey fatigue', with multiple companies or governmental agencies often regularly asking the same communities similar questions over time.

Critically, community members must be reassured that any research is being conducted under conditions that protect them as participants. This can be managed through provisions around informing participants about research purpose, seeking informed consent, limiting the use of incentives for participation, incorporation of culturally sensitive methods, assurances that participants can withdraw from the research at any time without consequence, and reassurances that any personal information or data that may identify them is appropriately managed and secured. Proper mechanisms for seeking more information about the work and/or lodging a grievance are also important in building trust in the process that community is invited to participate in.

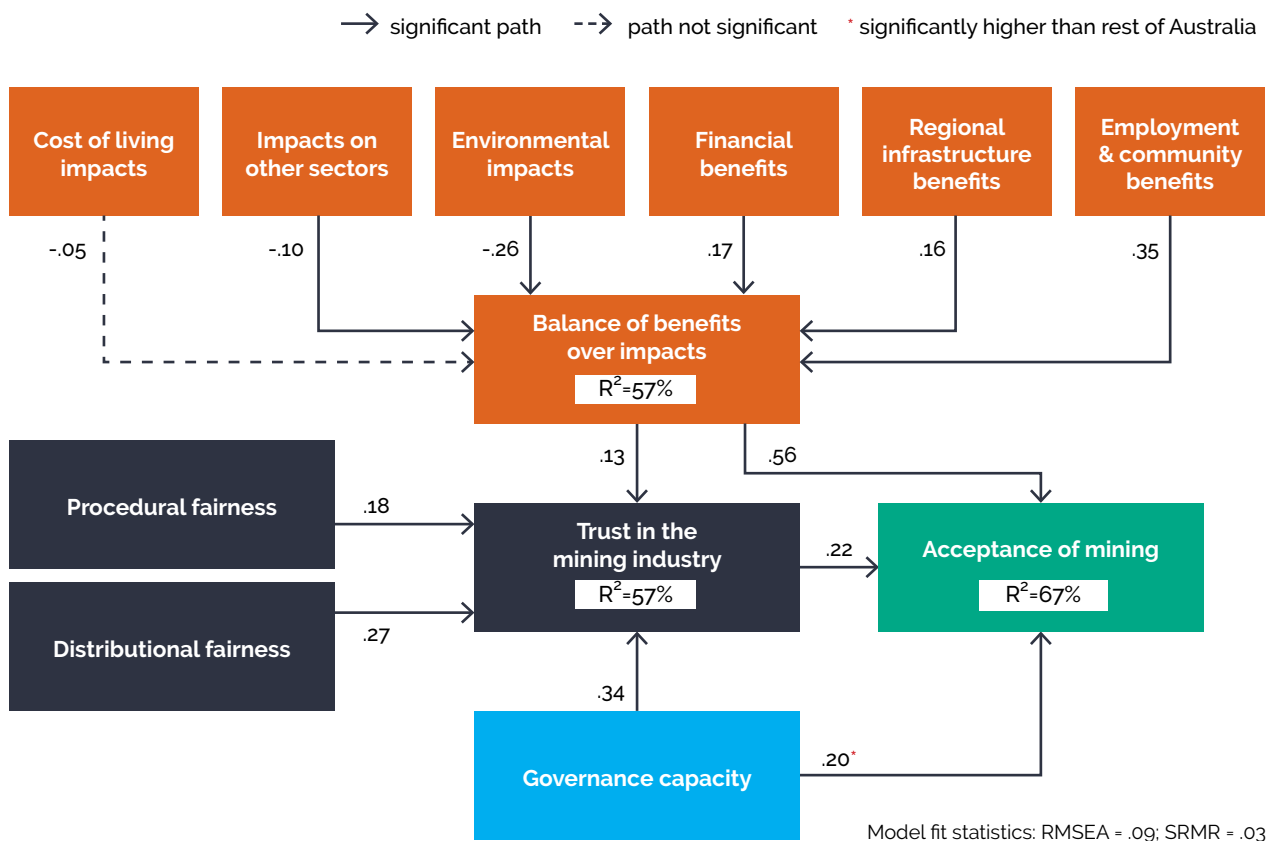
CSIRO's own practice, supported by 'listening tours' conducted by the Queensland Resources Council,¹²⁷ suggest that it is not fatigue with participating in survey research that communities are frustrated by, but the lack of even basic feedback or transparency about the way their data is used and how it has, or has not, affected decision-making processes about which they have little knowledge of. By successfully measuring and modelling the critical elements leading to social acceptance, gas companies can also prioritise their activities and investment in a way that maximises the creation of trust between its activities and the communities affected by those activities.

What may be more helpful in this context is a measurement and monitoring framework that seeks to understand and reconcile the multiple perspectives that are held. For research focussed on SLO to be seen as relevant to all stakeholders, it is advantageous to also consider the role of a trusted third party.

In the CSIRO study, a statistical technique called 'structural equation modelling' was used to establish the relative importance of key drivers of trust and acceptance in the NT. To do this, a comprehensive model of trust and social acceptance of extractives was developed by CSIRO at the national level and this model was applied to the NT data. At both the national and NT level the model performed well, predicting more than half the variation in individual levels of trust in the mining industry, perceptions of benefits over impacts, and the respondents' overall social acceptance of the industry in the NT (57%, 57%, and 67%, respectively; see **Figure 12.2** below).

127 Queensland Resources Council 2016.

Figure 12.2: Comprehensive model of NT data predicting trust and acceptance of the extractive industries. Source: Moffat et al. 2017.¹²⁸



There is great opportunity for the NT to determine the conditions under which any future onshore shale gas industry is developed, taking the best and most current lessons from other jurisdictions and incorporating 'the NT way'. With respect to SLO, any new shale gas industry will not be possible without achieving some level of acceptance in local communities and the Territory more broadly. But SLO is not a tangible, one-off requirement; SLO is about relationships, sharing decision making power and supporting communities to have constructive ways of influencing development trajectories.

12.4 Social impacts and SIA

The discussion below will be expanded upon once the Panel receives the final Coffey report and Beetaloo Sub-basin case study.

In the Interim Report social impacts were described as, *"any change that arises from new developments and infrastructure projects, that positively or negatively influence the preferences, wellbeing, behaviour or perception of individuals, groups, social categories and society in general."*¹²⁹ A UQ Centre for Social Responsibility in Mining (**CSR**M) report; DRAFT A framework for social impact assessment of shale gas development in the Northern Territory (**CSR**M Report)¹³⁰ proposes a similar definition describing social impacts as the changes experienced by people and communities as a result of projects and activities that affect the way they live, work, relate to one another, relax and organise themselves.¹³¹ Social impacts can be both positive and negative. They include *"changes to the norms, values and beliefs that guide and rationalise their cognition of themselves and their society"*.¹³² Social change is not recognised as an impact until it has an effect on people. Because social impact is conceived as being anything linked to a development that benefits, affects, or concerns any impacted stakeholder group, almost any change can potentially have a social impact so long as it affects something that is valued by, or important to, a specific group of people.¹³³ Consequently, it is difficult to pre-emptively narrow the scope of any analysis.

128 Moffat et al. 2017.

129 Geurs, Boon and Van Wee 2009; Vanclay 2003.

130 Witt et al. 2017.

131 Burdge and Vanclay 1996.

132 IOGCP 2003, p 231.

133 Vanclay et al. 2015, p 2.

Major resource projects can generate multiple impacts and/or contribute to existing stresses within social systems.¹³⁴ Project-specific social impacts vary greatly in their nature, causation, magnitude and other characteristics (see **Table 12.1** below). Depending on the context, different receiving environments (such as a social or cultural group, or geographic region) may experience the same impacts differently.¹³⁵ As such, it becomes the responsibility of the gas company, in consultation with affected people and other stakeholders, to ensure that all the relevant issues and impacts are identified and considered.

Table 12.1: Classification of social impacts.¹³⁶

Category	Descriptor	Examples and explanation
Nature	Tangible	Improved access to health services, better living standards, shortage of affordable housing options.
	Intangible	Breakdown in social cohesion due to population movement.
	Perceived	People's subjective perceptions or experiences of impacts.
Directionality	Positive	Improved access to health services, new recreational areas, upgrades to community facilities, and improved education and employment opportunities.
	Negative	Increased crime rates, higher cost of living and increased health risks caused by pollution.
	Mixed	The impact of some changes is positive in some respects and negative in others, for example, population increase.
Causation	Direct	Directly connected (in space and time) to the activity, for example, resettlement, project-related employment and road construction.
	Indirect	Impacts that occur due to actions resulting from direct impacts. These are usually less obvious, later in time or further away from the source of direct impact, for example, increased income to tradespeople as project employees upgrade houses.
	Induced	Cause is several times removed from project activities, for example, loss of access to land due to market speculation
	Cumulative	Successive, incremental and combined impacts of one or more projects on society, the economy and the environment. These can arise from the compounding activities of a single project or multiple projects and from the interaction with other past, current and future activities. The overall effect being larger than the sum of the parts. ^[1]
Magnitude	Intensity	The scale of change from the existing condition as a result of the impact, for example, major/critical, high, moderate, minor, negligible.
	Geographic extent	Spatial concentration (for example, site-specific, local, regional, widespread) and ^[2] distribution (for example, localised, dispersed, contained).
	Duration	Short term (for example, the noise arising from the operation of equipment during construction), medium term, long term (for example, the inundation of land by a dam). Temporary (for example, during construction), fixed term, permanent.
	Frequency	Intermittent (for example, blasting), continuous (for example, electromagnetic fields caused by electricity lines).
	Rate of change	Immediate, delayed, incremental, rapid, gradual.
	Reversibility	Reversible, irreversible/residual.
Probability	Likelihood	Unlikely, possible, likely, certain.
	Confidence	The level of reliability in the estimates of likelihood and consequences.

[1] The word 'cumulative' anticipates a consideration of not just the development the subject of the application, but also the development in combination with other developments in the locality and the effect that the accumulation of such development and successive developments of a similar type will have on the community.

[2] Project-specific SIA is more focussed on potential social impacts on site-specific, local and regional, as opposed to widespread (State level, national and international) levels of analysis.

To evaluate the impacts of projects on humans and on the ways in which people and communities interact with their socio-cultural, economic and biophysical surroundings, SIA is the usual framework of analysis.¹³⁷ SIA is also a field of research and practice comprised of a body of knowledge, techniques and values.¹³⁸ As a methodology, SIA is used by governments, companies

134 Franks et al. 2010a.

135 Franks et al. 2010a.

136 Adapted from IRMA 2016; Burdge and Vanclay 1996; Franks et al. 2010b; Joyce and MacFarlane 2001.

137 Vanclay 2003.

138 Vanclay 2003.

and communities to identify, assess and manage the social impacts of project activities, and to ensure that projects are conducted in a socially responsible manner. It is best understood as the process of analysing, monitoring and informing the management of intended and unintended social consequences of planned interventions, and any social change processes invoked by those interventions, on affected communities, from the earliest stages of the planning process to future generations.¹³⁹ The objective of the SIA process is to identify, measure, predict and assess the effects of a development on the surrounding population's quality of life, culture, health, social interactions and livelihoods.¹⁴⁰

SIA is widely practised internationally as a predictive study that is part of the regulatory approval process for resources projects. Many resource-rich jurisdictions have a regulatory regime in place to ensure that the social impacts of resources projects are assessed and managed. This includes statutory requirements in place to undertake SIAs, either as a separate procedure, or as part of a broader EIS. According to a 2012 survey, some form of EIS is mandated in 191 of the 193 nations of the world.¹⁴¹ Despite this widespread and longstanding practice, in most cases SIA remains included as a component of an EIS. Initially, SIAs were narrowly conceptualised and, therefore, applied mainly at the project level, and were limited to prediction of the negative consequences of development. This understanding of SIA continues to dominate policy, regulation and procedures in many jurisdictions.¹⁴²

12.4.1 A social impact framework for the NT

Leading practice SIA involves identifying and managing the social issues that arise from development activities. This includes the effective engagement of potentially affected communities in participatory processes of identification, assessment and the development of strategies to manage social impacts. Although SIA is still used as an impact prediction mechanism, and as a decision-making tool in regulatory processes to consider the social impacts of a project in advance of a permitting or licensing decision, it has an equally important role in contributing to the ongoing management of social impacts throughout the whole life cycle of the project (in this case, the development of any new onshore shale gas industry), from conception to post-closure.¹⁴³

Project-based SIAs rarely adequately account for cumulative impacts that arise after the main construction period is over, or for the impacts of several projects or several industries operating in the same region.¹⁴⁴ A more detailed description of a fit-for-purpose SIA framework for any onshore shale gas development in the NT that takes into account the life cycle of the industry, the likelihood of multiple projects, and the complex and data-poor nature of the receiving environment is briefly expanded upon below. More details of how best to implement such a framework and its application to the Beetaloo Sub-basin will follow upon receipt of the Coffey report.

12.4.2 An industry life cycle approach

SIA is generally required by regulators to assess the potential impacts of a project before implementation. The primary focus of SIA to date has generally been on predicting impacts that will occur in response to a distinct project, activity or other proposed action. As governments and gas companies are bound to deal first with impacts of most significance or urgency, impact assessment has often focussed on the impacts that occur in the most intensive phases of development, namely, the 'construction' phase.

However, it is recognised that social impacts can begin as soon as new information about a potential project becomes available, as various actors begin to compete to define, influence and respond to the opportunities and threats that may be presented by the project.¹⁴⁵ Impacts can also continue after the development or activity has ended, particularly where former 'booming' communities face a downturn, and local businesses must adjust to a smaller and changed clientele, as is now the experience in some Queensland towns. What is needed is a framework that:

- can identify and respond to impacts that occur across different stages of development;

139 Vanclay 2003; Franks 2012, p 6.

140 Vanclay 2003.

141 Morgan 2012.

142 Vanclay 2006.

143 Vanclay et al. 2015.

144 Witt et al. 2017a.

145 Gramling and Freudenburg 1992.

- can account for a paucity in statistical social and economic data in remote and Aboriginal communities;
- is culturally sensitive;
- can identify strategies to maximise benefits and minimise disturbance that are aligned with the needs and aspirations of affected stakeholders;
- can inform a more strategic and collaborative approach to development of the region; and
- can engage affected individuals and communities in identifying and managing the impacts without placing undue burden on them.

12.4.2.1 Step 1: a strategic assessment

An SIA framework should place project-level SIA within a strategic context. A Government led strategic SIA should be conducted in the early stages of any industry development, once feasibility has been established (that is, an adequate resource base has been proven and considered economically viable). Such an assessment is currently under way for offshore gas development in the NT and in SA, and was completed for the terminated Browse LNG project in WA. Given that environmental values are linked strongly with Aboriginal culture, pastoral production, tourism, and social values in the NT, this type of assessment should be undertaken.

The first strategic challenge that any government faces is whether to allow industry to develop the resource or to leave it in the ground. This is a decision that needs to be arrived at through a transparent and inclusive process, which will improve the quality of decision making as well as build community acceptance for the industry. There may also be occasions where the environmental, social, or cultural context is too sensitive, or where insufficient scientific evidence exists on the potential negative impacts of development. In these cases, the choice is made more complex by the high levels of uncertainty involved.

The objective of the strategic assessment proposed is to generate and disseminate the information needed to make a decision about allowing development that is consistent with the public interest. That information will also enable a planned approach to development, rather than allowing market forces to predominantly determine the scale and pace of development, as has been the case in Queensland and in the US.

While there is a high degree of uncertainty at this early stage, there is a clear need to gather and provide relevant and reliable information about the industry and its potential impacts to reduce uncertainty to a socially acceptable level. It is important not to 'pretend to know everything' or to try and 'buy' social acceptance through the promise of jobs, infrastructure and economic benefits.

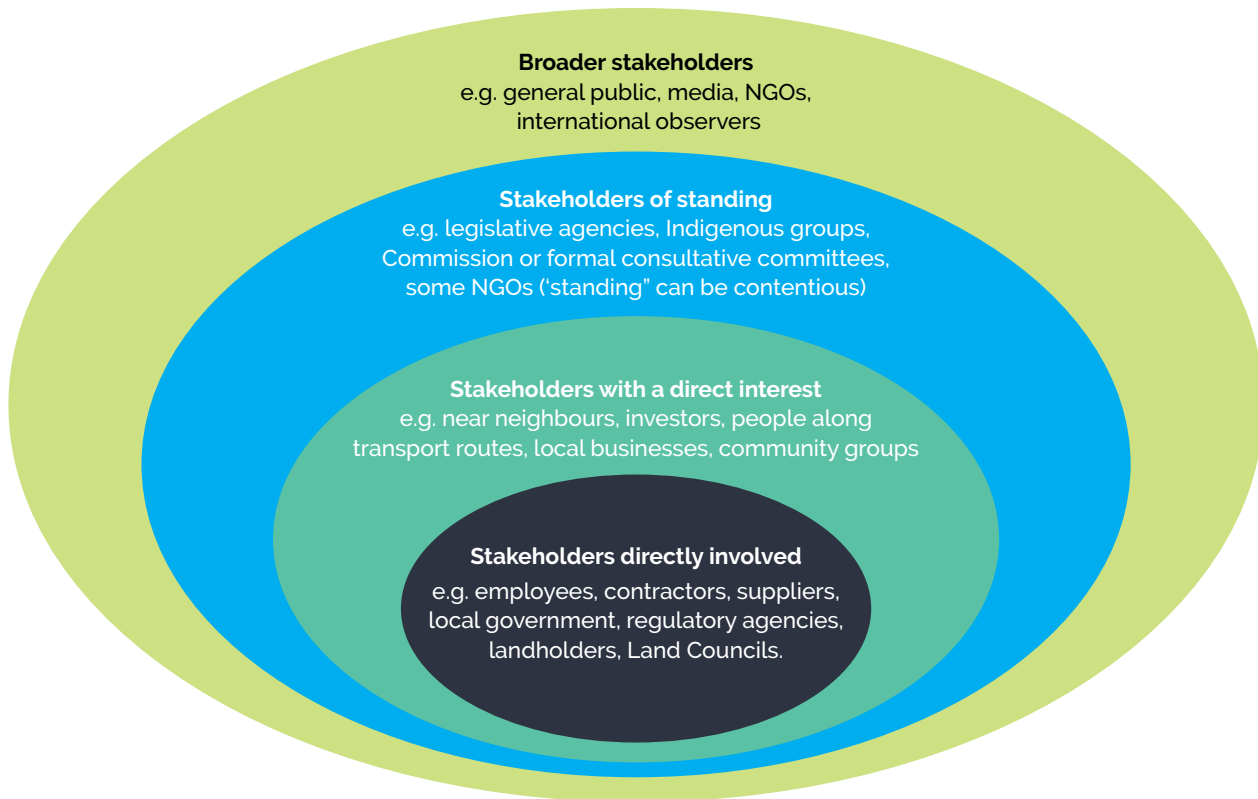
The strategic SIA stage involves four key components: (1) scoping - identifying possible future development scenarios and their trade-offs; (2) understanding key issues - identifying opportunities and threats presented by the development to a range of stakeholders, and stakeholders' concerns; (3) evaluating the regulatory environment - identifying any regulatory reform, or new governance structures needed; and (4) baseline assessment - identifying values and assets, trends, needs and aspirations for potentially affected regions.

The strategic assessment ensures a transparent and inclusive process. The body of information gathered in this initial step is the starting block for an ongoing, open-access repository of social and industry-related data that is updated and expanded regularly as monitoring and project-level reports are generated (step 2). The suggested stages include:

- **scoping and boundary setting:** first, the strategic assessment seeks to understand the scale and scope of proposed development. This is done by collating information from the individual gas companies about where and how they intend to proceed, and how they might respond under different circumstances. The body overseeing the strategic assessment should have powers to request such information (similar to the Queensland Gasfields Commission). Companies are hesitant to report this information publicly in the early phases of development as development scenarios can change. They may also not wish to divulge their strategies to other gas companies for loss of competitive advantage. Industry-specific information will inform the setting of meaningful and practical geographic boundaries for the subsequent studies, which might be in terms of geological basins or sub-basins, administrative boundaries, or 'impact' zones. Industry information is also used to identify planned and possible future development scenarios;

- **understand the key issues:** with an understanding of what the proposed development might 'look like', the next step is to identify and understand the issues and trade-offs involved under different development scenarios, including identifying the people and organisations that may be affected. The stakeholder engagement component of this step is critical, and follows leading practice stakeholder engagement methods with skilled personnel. A 'nested' approach to identifying directly and indirectly affected stakeholders, and interested parties should be used. Information about the concerns and interests of these stakeholders can be organised at local, regional, Territory, national and global scales.

Figure 12.3: Stakeholder identification by nature of interest and impact. Source: Witt et al., 2017¹⁴⁶



Providing information and promoting discussion about the industry, its activities and the trade-offs involved is of crucial importance in the early stages of any development. In Queensland, a lack of freely available, trusted information about the onshore unconventional gas industry in terms of the technology used, its requirements for labour, services and resources, and the types of opportunities and impacts it could generate, created a discursive space for controversy and conflict, despite multiple lengthy EIS and regulatory reports. With the paucity of locally relevant information, those who wanted to know more about the industry looked to experiences and practices from elsewhere, often with little regard to important contextual differences, such as geology and hydrology, technological advances, institutional arrangements and population characteristics.

In the US, the National Wildlife Federation prepared a series of documents to help people engage in decisions about the oil and gas industry. *Fuel for Thought: a citizen's guide to participating in oil and gas decisions on your public lands* outlines the life cycle of a well, the environmental impacts, the legal framework, the roles and responsibilities of regulating bodies, as well as how to be 'an effective advocate'.¹⁴⁷ While this document has an 'anti-fracking' perspective, it nevertheless provides a good example of the type of information people require in order to hold an informed opinion about shale gas industry in their local area;

¹⁴⁶ Witt et al. 2017.

¹⁴⁷ National Wildlife Federation 2008, p 30.

- **regulatory assessment:** a strategic assessment of any onshore shale gas industry must also evaluate the regulatory and approvals processes in place and identify reforms that may be needed. This includes addressing the challenges faced in gaining different types of 'consent', and especially those relating to 'fairness' in any land access agreements and benefit sharing arrangements.¹⁴⁸ The emphasis on setting a robust regulatory regime is deliberate. Previous inquiries into the impacts of an unconventional gas industry in Australia have concluded that the risks are manageable provided the industry is properly regulated.¹⁴⁹

The EPA is an agency that oversees project approvals. It could be enhanced to provide it with capacity to perform additional roles in compliance, performance monitoring and reporting as well as providing independent facilitation services to aggrieved landholders and gas companies. Alternatively, a new wholly independent regulatory body could be established such as the AER or the BC Oil and Gas Commission. In Queensland, for example, the Gasfields Commission was established in July 2013 (during the peak of the construction phase of the projects). Its main functions are to act as an intermediary to facilitate better relationships between landholders, communities and the onshore gas industry. It also plays a key advisory role and has powers to request information from both government departments and gas companies. In 2017, the role of the Gasfields Commission was reviewed, and in light of ongoing disputes between landholders and gas companies, a Land Ombudsman was created as an independent, impartial body to facilitate the resolution of disputes in relation to land access, and compensation and make good agreements, where alleged breaches or additional impacts have occurred;

- **baseline assessment:** arguably the largest component of the strategic assessment is the collation of baseline data. Baseline data is usually collected by consultants as part of a project based, EIS driven, SIA but there are a number of shortfalls with this approach for any unconventional shale gas industry in the NT. For this to be undertaken by a regulator and not a gas company would require new governance structures and an enduring funding model linked to the life cycle of the industry.

The initial baseline data collected is for regions and/or local communities where development is imminent and would involve significant participation by local residents. Regional baseline data would also be collected. This baseline data includes identification of stakeholder values, and current assets in different types of capital 'stocks', as well as assessing trends, and aspirations for these stocks. The Community Capitals Framework (CCF) is well established in community development literature and practice.¹⁵⁰ The CCF measures community development in relation to seven types of capitals, including:

- **natural:** the condition of place-specific elements, biodiversity, amenity, beauty;
- **cultural:** traditional knowledge and languages, rituals and festivals, heritage;
- **social:** networks, trust, norms of behaviour, giving, neighbourliness, cooperation;
- **human:** skills, knowledge, health, abilities, leadership;
- **political:** influence, having a voice, self-determination;
- **financial:** credit, savings, income, assets; and
- **built:** infrastructure, housing, roads, sewerage, sports facilities, lighting.

In addition, it has been recommended that institutional capital be included (for example, community organisations), that is, the effectiveness of local and regional institutions as another important consideration for any SIA framework.

As census and other statistical data is limited or flawed for many of the NT's remote communities (they tend to under-represent the Aboriginal population), the collection of baseline data for these capitals must be a participatory process. A leading practice model developed by the University of Queensland CSR and the CCSG is of relevance in this context, namely, the UQ Boomtown Toolkit and its supplementary annual reports on Queensland's gas fields communities. The UQ

¹⁴⁸ Note that in Queensland the majority of land access issues were in relation to freehold land. This is likely to be quite different in the NT where Aboriginal land and pastoral leases are the main forms of land tenure.

¹⁴⁹ Witt et al. 2017.

¹⁵⁰ Emery and Flora 2006.

Boomtown Toolkit outlines a tested approach to identifying community assets and values, and importantly, for identifying indicators for measuring those values that are meaningful and relevant to multiple stakeholders. For example, it uses collaborative methods to identify indicators that the industry needs for compliance and for monitoring social impacts, that the community needs to represent their concerns, values and aspirations, and that the Government wants in order to monitor cumulative impacts and regional development outcomes. For remote NT communities, social indicators may need to be 'bespoke', and more qualitative. They may require local 'data stewards' to report changes in bespoke indicators on a regular basis. For example, an indicator of household wealth might be how many funerals/cultural events are attended in a year, rather than economic measures of disposable income. This 'shared measurement' approach is leading practice in program evaluation and has clear relevance to impact assessment in data-poor regions.

The baseline assessment identifies initial stocks of capital, but also trends, where possible, and, importantly, identifies local and regional goals and aspirations in relation to this capital. This information is then used by gas companies, who still need to submit a comprehensive social risk assessment for the approvals process that outlines how the proposed activities will affect, either positively or negatively, the community capital stocks and the strategies proposed to either enhance or mitigate them.

Recommendation 12.13

That a strategic SIA, separate from an Environmental Impact Statement (EIS), be conducted in advance of any onshore shale gas development, during the exploration phase. Such SIAs must be conducted holistically to anticipate any expected impacts on infrastructure and services, and to mitigate potential negative impacts, and be funded by industry.

Recommendation 12.14

That early engagement and communication of the findings of the strategic SIA be systematically undertaken with all potentially affected communities and with all levels of government to ensure that unintended consequences are limited and shared understanding of roles and responsibilities, including financial responsibilities, can be developed.

Recommendation 12.15

That ongoing monitoring and measurement of social and cumulative impacts be undertaken with the results publicly available.

12.4.2.2 Step 2: regional participatory monitoring and evaluation framework

Leading practice in SIA has regional and systems level monitoring for resource regions in place, particularly where social and economic impacts extend well beyond the geographic location of a single operation, and where there are interacting impacts from multiple extraction activities.¹⁵¹ Developing an online, public, open-access data repository for all industry-related information, including monitoring and compliance data, is a positive action for building trust in the industry, which is essential for building and maintaining public acceptance and an SLO.

An additional value of the ongoing, participatory regional monitoring and evaluation database is that it reduces the risk of 'consultation fatigue' as multiple gas companies seek information to inform their social risk assessments. In Queensland's CSG communities, multiple and extensive consultation events (from EIS/SIA consultants, resource companies, various levels of government, media and researchers) have placed high demands on people's time and caused additional stress at a time of rapid change and mixed emotions. As the 'boom' period ended, so did the outside interest. Unsurprisingly, local people reported feeling 'forgotten' and 'abandoned' by many of the consulting agencies.

The online database becomes an open-access resource for information. Each project-level risk assessment is uploaded, and any new indicators and data about communities are added to the database. Ideally, communities themselves can provide and upload data updates to the relevant indicator timeline. This gives communities ownership of the data. As the UQ Boomtown Toolkit has demonstrated, the data can also be used by communities for funding applications, to allocate resources, to argue a need for investment, or purely to advocate for themselves and their assets.

In addition to the open-access resource, ideally there should be a mechanism for periodic reporting out of key information, with accompanying analysis and interpretation of findings. This is important for industry transparency and to build and maintain trust in the industry as indicated in the accompanying report on an SLO. This reporting work is best conducted by an inter-disciplinary and purpose-specific research institution, such as CCSG, or GISERA. CCSG already produces annual reports for Queensland's gasfields communities, which are widely used by local and State governments, CSG companies and community groups.

A strategic and regional approach to cumulative impact assessment enables gas companies to form partnerships with other companies, service providers and communities, for negotiated and agreed community development outcomes. Strategies for social impact mitigation or enhancement can then align with existing community development programs and be targeted toward the needs and aspirations of local communities. This monitoring framework is designed to enable adaptive responses. Each development will provide information about intentions for future development. This allows industry forecasting and amendment to initial development scenarios generated in a strategic assessment. The lifespan of the monitoring framework should last throughout the life cycle of the industry, approximately 40-50 years. However, the frequency of data updates must be flexible and determined by institutional capacity, sequential development of projects, and the transitioning of projects to another phase.

While this is an ideal model, it is recognised that it places additional burden on government resources, particularly in the early phases of strategic assessment, before any royalties from resource production have been generated. A lower cost version is to create an online data repository, have all data from project-based EIS/SIAs uploaded, with conditions in place for any future projects in the region to adapt to new information and facilitate collaboration. The monitoring framework sets the agreed indicators to be monitored, with sufficient flexibility to adapt to emerging issues as they arise. Responsibility for the data updates, once the baseline is established, is shared by the gas companies and local communities (similar to the UQ Boomtown Toolkit).

The Government could recover costs for the strategic assessment/fund ongoing assessment by increasing the cost of petroleum approvals or moving towards a full regulatory fee recovery model (see Chapter 14 for further discussion). Increasing the cost of petroleum approvals for gas companies would ensure that companies contribute to the up-front costs of initial and ongoing impact assessment.

151 Franks et al. 2009.

The main function of the ongoing collaborative monitoring framework is to provide a structured mechanism for collaboration and adaptive management, and to facilitate processes for capturing learning that leads to continuous improvement (lacking in most other jurisdictions). Importantly, it also allows for coordinated responses to other influencing factors, both from within any onshore shale gas industry, such as price fluctuations, and externally, such as biosecurity alerts.

12.4.2.3 Steps 3 and 4: project-level risk assessments and collaborative strategies

Under the proposed SIA framework, each development will submit an SIA with a comprehensive risk assessment that considers:

- the whole life cycle of the project and the types of activities involved in each phase;
- the people or groups of people likely to be affected (with attention to vulnerable groups);
- the likely social impacts - both positive and negative;
- the significance of the impacts in terms of likelihood, severity, and ability to be mitigated or enhanced;
- the likely effects of mitigation and enhancement strategies (in relation to baseline assessment of capitals and aspirations for these capitals, but also in relation to strategies that may already be in place by other projects in the region);
- the assessment of residual risks; and
- standardised reporting.

Strategies for enhancing positive outcomes and mitigating negative impacts should be targeted towards the aspirations and needs of communities identified in the strategic SIA and should be in partnership with community organisations and institutions. The social baseline data will be used from the strategic SIA baseline data and updated or expanded to suit the EIS/SIA requirements. This minimises the need to collect baseline data multiple times directly from communities, which contributes to consultation fatigue. Stakeholder engagement processes are critical in prioritising concerns and developing workable agreements for mitigation or enhancing strategies. This approach will be further detailed in the Beetaloo Sub-basin report from Coffey.

12.5 Implementation of an SIA for the Northern Territory

12.5.1 Strategic assessment

There are currently no regulatory requirements or provisions for undertaking a strategic SIA in the NT, although the need for an overarching strategic SIA of the industry has been proposed in prior reports (see, for example, the 2015 Hawke Report), and by the EDO. One pathway for such an assessment is to define a specific development area (such as the Beetaloo Sub-basin) and outline a program for onshore shale gas development in that area. Where MNES are potentially affected, the Australian Government Minister for the Environment can be approached to enter into a Strategic Assessment Agreement with the NT under the EPBC Act, as part of a bilateral agreement. The strategic assessment process is flexible and is designed to be a collaboration between partners.

The process involves initial strategic assessment of a 'policy, plan or program' (in this case, a program for onshore shale gas development in a specified area) and its endorsement. If the 'program' for development is approved, there are 'approved actions' (such individual gas projects, waste treatment facilities, associated infrastructure) that can be undertaken without the need for further EPBC Act approvals.

Strategic assessments are undertaken by the organisation responsible for implementing the program (the Government) in partnership with the Commonwealth. They are designed to be a collaborative process that delivers positive outcomes for both parties.

To initiate a strategic assessment under the EPBC Act requires the development of a program or scenario for onshore shale gas development. This development program is submitted to the Australian Government Minister for the Environment, who decides if the proposal warrants a strategic assessment. Currently there are few listed threatened communities in the NT. There may, however, be matters of national cultural heritage significance that have not been documented and may trigger the EPBC Act process. A strategic assessment may identify such values. Additionally, Aboriginal groups can nominate to have significant places listed on

the National Heritage List, with no changes to the ownership of those places. The Australian Heritage Council makes an assessment of the nominated places and advises the Minister for the Environment whether or not the Council assesses that the place has national heritage values. The Minister makes the final decision about which places are included in the National Heritage List.¹⁵²

If the Minister decides that the proposed program would require multiple approvals under the EPBC Act, or that the program would potentially have an impact on landscape scale protected matters, the Territory and Commonwealth enter a Strategic Assessment Partnership and negotiate appropriate Terms of Reference for social, environmental and other specialist impact assessments (such as cultural impacts assessment). To avoid duplication with State and Territory processes, the Commonwealth has initiated a 'one-stop-shop' for approvals under the EPBC Act, where Commonwealth approvals processes are meant to sit within existing bilateral agreements.

Under the strategic assessment approach, baseline studies for impact assessment are no longer undertaken by gas companies but are overseen either under the EPBC Act strategic assessment management body (a group within the Government) or another regulatory agency. If the NT regulatory framework is reformed to include a strategic assessment mechanism, this should be overseen by an independent regulator. Having baseline studies conducted and overseen by an independent body (and not a gas company, with a vested interest in having its project approved) gives legitimacy to baseline studies and builds trust in the approvals process. However, this also places the burden of cost onto the public purse. Gas companies should therefore contribute to the costs of these studies, and the Government should recover costs by placing a levy or additional fees onto the cost of petroleum approvals. Ensuring that the regulator is adequately resourced is further discussed in Chapter 14.

Social baseline assessments should be undertaken by trained and experienced SIA practitioners who also have an understanding of industry activities associated with the different phases of onshore shale gas development. Such specialised expertise can be found at CCSG at the University of Queensland and GISERA. While both these research institutions rely partly on industry funding, researchers work under strict codes of conduct and national guidelines for the ethical conduct of research. A similar centre could be established in the NT at Charles Darwin University or another local institution.

The baseline assessments for the SIA framework proposed here most closely resemble those undertaken by the CCSG or CSRSM for cumulative social and economic impact assessment, insofar as they involve generating timeline charts for a tailored set of locally meaningful indicators. This approach is most relevant to the NT because it allows Aboriginal communities to choose their own set of indicators rather than relying on census data, which may be of little relevance to their specific circumstances. Using this method, communities are able to participate in the development of indicators, data collection and reporting, and the design of mitigation strategies that are 'outcomes-focussed' for their needs and aspirations. This requires some local institutional capacity and leadership, which may need to be fostered. Local governments and Land Councils should have participatory community planning documents prepared that outline local values and assets that people would like to see protected, those they would like to see enhanced, and issues they would like to see resolved.

12.5.2 Reforms required to enable a shale gas SIA framework in the NT

For the proposed steps in an SIA to be operational, a number of structural innovations are required. These include:

- introducing mechanisms for strategic assessment, either through a Strategic Assessment Agreement under the EBPC Act, or through reforms proposed in the 2015 Hawke Report. A strategic SIA is needed to decide if any onshore shale gas industry should go ahead, and if so, under what conditions. The SREBA recommended in Chapter 15 is central to this reform;
- establishing or enhancing an independent authoritative body, such as the EPA or a newly established independent regulator (see Chapter 14) with powers to request information from, and to facilitate the collaboration between individual gas companies, and between gas companies, government agencies (including local government), communities and landholders;

¹⁵² Aboriginal cultural heritage is also protected through the Commonwealth's *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* (Cth) and the *Protection of Movable Cultural Heritage Act 1986* (Cth).

- establishing a long-term participatory regional monitoring framework, overseen by the EPA or the independent regulator, with secure funding (raised from industry levies) and able to endure multiple election cycles (see Chapter 14); and
- periodic and standardised reporting to communities on the social, economic and environmental performance of the industry through an independent source, either the independent regulator or a specialised research institution. This includes information from the monitoring of key indicators and an industry-wide complaints and escalation process (the experience of CSG in Queensland is that each of the CSG projects reported complaints differently, which made it impossible to gauge industry performance).

Recommendation 12.16

That in order to operationalise an SIA framework in the NT the Government should make the following structural reforms:

- ***introduce mechanisms for strategic assessment, either through a Strategic Assessment Agreement under the EBPC Act, or through reforms proposed in the 2015 Hawke Report. A strategic SIA is needed to decide if any onshore shale gas industry should go ahead, and if so, under what conditions;***
- ***establish or enhance an independent authoritative body, such as the EPA or a newly established independent regulator (see Chapter 14), with powers to request information from, and to facilitate the collaboration between individual gas companies, and between gas companies, government agencies (including local government), communities and landholders;***
- ***establish a long-term participatory regional monitoring framework, overseen by the EPA or the independent regulator, with secure funding (raised from industry levies) and able to endure multiple election cycles; and***
- ***establish periodic and standardised reporting to communities on the social, economic and environmental performance of the industry through either the independent regulator or a specialised research institution. This includes information from the monitoring of key indicators, and an industry-wide complaints and escalation process.***

12.6 Lessons learned from SIA experiences elsewhere

In addition to the Queensland experience, there are a number of lessons that have emerged in other countries that provide useful consideration for the NT. These will reassure Territorians, notwithstanding the unique nature of the NT, that there is experience to inform and guide the best way forward if any onshore shale gas industry is to proceed. Some of these are summarised below.

12.6.1. The US shale gas experience

As stated in the Interim Report, the US shale gas 'revolution' was characterised by its rapid pace of development and provides a cautionary tale. In the overriding agenda to become self-sufficient in energy supply as quickly as possible, social impacts of development were largely overlooked (until there was local backlash) and regulatory frameworks were largely insufficient (until they were challenged and amended).¹⁵³ A review of the risks posed to communities from shale gas development in the US identified four key areas of risk:

- rapid industrialisation of communities (boom and bust);
- uneven distribution of costs and benefits from the development;
- community conflict; and
- social-psychological stress and disruption.¹⁵⁴

The most effective responses to the negative social impacts of shale gas development were led at the community level. These required the development of community-scale consensus based decision-making processes.¹⁵⁵ The need to assess local institutional capacity was identified in

¹⁵³ Brasier et al. 2014.

¹⁵⁴ Jacquet 2014.

¹⁵⁵ McElfish and Stares 2014.

the proposed SIA framework baseline assessment. In the NT, local governments will need to establish participatory planning processes and prepare planning documents that reflect the views and aspirations of local residents if any onshore shale gas development were to go ahead.

12.6.2 South Africa's environmental assessment for shale gas development

The South African government has made a high-level public commitment to shale gas exploration. The potential future economic and energy security benefits of a large resource of natural gas in the Karoo region of South Africa could be substantial. But so too could the negative social and environmental impacts. In order to make well informed decisions and to ensure that decisions are broadly accepted by stakeholders as credible and legitimate, a Strategic Environmental Assessment for shale gas development was commissioned. The key aim of the project was to develop an integrated decision-making framework to enable South Africa to establish effective policy, legislation, and sustainability conditions, under which shale gas development could occur.

There were three project phases over the 24-month period:

- **the conceptualisation and methodology phase:** the objectives were to set up and implement all project management structures, convene the project governance groups, recruit authors and experts to the multi-author teams and release a draft approach report at the end of Phase 1 for expert review. This document was also made available to the public on the website;
- **the scientific assessment phase:** this was the component of the study where the scientific assessment by the multi-author teams for all strategic issues took place. At the end of this phase, draft and final Strategic Environmental Assessment reports were released for expert and public review. The expert review included peer-reviews from international experts; and
- **the decision-making framework phase:** the final phase translated the outputs from phase 2 into operational guidelines and decision-making frameworks. It was undertaken by the project team in close consultation with the various affected departments. It commenced with initial drafts after the delivery of the first draft of the assessment report and ended with final drafts after the delivery of the final assessment report.

The project teams were separated between phase 2 and 3. The experts involved in phase 2 were not asked to make decisions about the development of shale gas. Rather, they were asked to give an informed opinion on the consequences of different options. The decisions were to be made by mandated government authorities, who have contracted the science councils to help them in formulating the framework and content of such decisions. The assessment process culminated in November 2016, with the publication of a report entitled *Shale Gas Development in the Central Karoo: A Scientific Assessment of the Opportunities and Risks*.¹⁵⁶

The extensive report identified a number of potentially significant social risks, particularly those relating to increasing social division and inequity between already marginalised populations and those better positioned to capture opportunities from the shale gas industry.

Building public trust remains a key issue for the industry to ensure it has community acceptability in South Africa. It is too early to determine whether the exercise resulted in greater trust in government and industry and broader public acceptance of shale gas development in South Africa. However, the scientific rigour, detail and transparency associated with the assessment exercise has undoubtedly provided a significant contribution in this respect.

12.6.3 Lessons from Canada

The Council of Canadian Academies was asked to assemble an expert panel to assess the state of knowledge about the impacts of shale gas exploration, extraction and development in Canada. In response, the Council recruited a multidisciplinary panel of experts from Canada and the United States to conduct an evidence-based and authoritative assessment supported by relevant and credible peer-reviewed research. In 2014, the Expert Panel on Harnessing Science and Technology to Understand the Environmental Impacts of Shale Gas Extraction published a report entitled *Environmental Impacts of Shale Gas Extraction in Canada*.¹⁵⁷

¹⁵⁶ Scholes et al. 2016.

¹⁵⁷ Council of Canadian Academies 2014.

One of that panel's main findings was that, compared with conventional gas, the greater scale of development and concentration of infrastructure required to produce shale gas meant increased land impacts and land use conflicts, and that the only effective way to manage such cumulative effects was at the regional, and not local, scale.¹⁵⁸ The panel noted that management of cumulative effects requires effective implementation of strategic impact assessment processes. At the same time, the implementation of a regional strategic impact assessment to reduce cumulative effects of shale gas development requires a significant investment in human and financial resources.¹⁵⁹

The panel also found that shale gas development poses particular challenges for governance because the benefits are mostly regional, whereas adverse impacts are mostly local and cut across several levels of government. Engagement of local citizens and stakeholders was identified as a key element of an effective framework for managing risks posed by shale gas development. Accordingly, the panel stressed that public engagement is necessary not only to inform local residents of development but to receive their input on what values need to be protected, reflect their concerns and earn their trust.¹⁶⁰ As experience in several US states and Canadian provinces has shown, the manner in which local people are engaged in decisions concerning shale gas development is an important determinant of their acceptance of the development. Moreover, public acceptance is situation-specific: practices that are acceptable in one situation may not be in another. Therefore, the panel recommended that any public engagement strategy needed to reflect these differences and be oriented to local context, capacity, and concerns.¹⁶¹

In the Canadian social and political context, shale gas development must recognise the importance of addressing First Nations' treaty rights, interests and concerns. The legal relationship between the Crown and First Nations is defined by the courts through clarification of the existing Aboriginal and treaty rights. Many First Nations are uncomfortable with tripartite negotiations between the provincial, federal and First Nations governments because they see such negotiations as a derogation of the bilateralism established when the treaties were first negotiated. First Nations argue that the cumulative impacts of past authorisations for resource development in Canada have infringed on their Aboriginal and treaty rights. Specifically, they point to instances in which the Crown assigned certain procedural aspects of consultation to proponents and asked for amendments to project plans to avoid impacts on Aboriginal and treaty rights.¹⁶² The panel stressed that the impact of First Nations' opposition to other major resource development in Canada indicates that the effect that Aboriginal resistance or support on future shale gas development cannot be overemphasised.¹⁶³ As many of the known commercially accessible shale gas deposits in Canada are in accepted or claimed traditional territories, the panel recommended that First Nations need to be consulted meaningfully and early in any shale gas development process, in full respect of their Aboriginal and treaty rights.

12.7 Key findings from the CSRSM report

There are a number of key findings that arose from the CSRSM report that provide useful insights around the necessary considerations for monitoring and assessing the social impacts of any onshore shale gas industry. The principal findings are listed below for consideration.

12.7.1. Key components of a leading practice SIA framework for shale gas in the NT

The key components of a leading practice SIA framework for any onshore shale gas industry in the NT are as follows:

- **strategic assessment:** to develop a program of development that clearly identifies the goals of the program and defines the scale (and staging) of development in terms of balancing economic, social and environmental impacts at local, Territory and national scales;

¹⁵⁸ Council of Canadian Academies 2014, p 205.

¹⁵⁹ Council of Canadian Academies 2014, p 128

¹⁶⁰ Council of Canadian Academies 2014, p xix.

¹⁶¹ Council of Canadian Academies 2014, p 208.

¹⁶² Council of Canadian Academies 2014, p 31

¹⁶³ Council of Canadian Academies 2014, p 31

- **strategic approach:** that aligns individual projects and their outcomes with the objectives of the NT Economic Development Framework and community values and aspirations;
- **coordination and collaboration between multiple projects:** in order to minimise negative cumulative impacts, minimise the 'footprint' of any development in the placing of associated infrastructure (including workers 'accommodation') and maximise long-term social and economic benefits to local and regional communities;
- **human rights issues:** attention to human rights and the rights and vulnerabilities of Aboriginal people;
- **independently led social baseline assessment:** using 'agreed indicators' to measure impacts and sustainability outcomes (the indicators should be selected in consultation with local people and stakeholders) with participatory, ongoing monitoring of impacts and outcomes;
- **independently led community engagement program:** with affected stakeholder groups to discern the significance of impacts and to co-develop acceptable and appropriate mitigation and enhancement strategies;
- **open data policy:** with regular reporting on the social, economic and environmental performance of the shale gas industry; and
- **cumulative impacts:** each additional project should provide an adaptive SIA risk assessment that specifically addresses cumulative impacts and its contribution to the development program's objectives.

12.7.2. Reflections on similar developments elsewhere

The CSRSM report also made the following relevant observations based on similar shale gas development in other jurisdictions, namely, that:

- the scale and pace of development determines the significance of social impacts. So does the pre-existing/pre-project social, economic, political and cultural environment;
- social impact mitigation strategies should not be bilateral agreements (for example, government placing conditions on operators), nor overly prescriptive (for example, operator must construct 50 new houses). Instead they should involve local communities (and other key stakeholders who have a role to play), be aligned with their aspirations and needs and be 'outcomes-focussed';
- the social impacts of shale gas development are unevenly distributed. Those with capacity and information can prosper while inflexible or vulnerable groups can be negatively affected;
- social impacts, such as impacts on local social cohesion, and psycho-social stress, arise well before there is a project, and these are often not adequately addressed in SIA processes;
- there is low trust in the onshore unconventional gas industry worldwide. Trust is time-consuming and difficult to earn but quickly and easily lost. In developed countries like Australia, mass media, including social media, can have a large influence on the process. But sight must not be lost of the importance of managing relationships at the ground level, especially in remote areas;
- local institutions need to be strengthened (ideally prior to development occurring) to address the challenges and harness the benefits that the industry can bring. SIA needs to identify existing levels of capacity within these institutions and those that would need attention;
- underlying much of the public concern about hydraulic fracturing and the shale gas industry generally has been a lack of engagement of affected people in meaningful ways. Aboriginal people particularly require detailed information about the proposed activities and likely impacts of the industry to make informed decisions about their land;
- a single strategic assessment should include various specialist assessments. However, due to the interconnectedness of Aboriginal people and their culture with country, predicting the significance of social (cultural) impacts (particularly for Aboriginal people, but also pastoral leaseholders) requires the integration of social, environmental, economic and cultural assessments;

- collaboration and coordination between projects, and between gas companies, government and community organisations is necessary for effective assessment and responses to cumulative impacts. A platform for such collaboration (such as a multi-stakeholder working group) should be linked with the ongoing monitoring platform and come under the jurisdiction of the independent regulator;
- clear guidelines for negotiating land access agreements should be produced that outline the rights of both the landholder and gas company. Considerable stress and negative impact has been associated with misunderstood rights and perceived disrespect for attachments to, and interests in, land;
- identify strategies to build local institutional and business capacity early. To best capture the potential economic benefits of any onshore shale gas development, adequate lead-time and institutional, business and individual capacity is required;
- negotiations with Aboriginal traditional owners should be inclusive and transparent. General consent is insufficient. Details of activities should be explained to ensure that these landholders fully understand the terms of the consultations and its impacts, benefits and management strategies. The placement of each well and associated infrastructure should be negotiated on a case-by-case basis in order to avoid any culturally sensitive places and sacred sites. The process for such negotiations should be fully documented; and
- perceptions or evidence of negative impacts on the spiritual wellbeing and social cohesion in Aboriginal communities should be given high priority.

12.8 Conclusion

From the submissions and the information shared with the Panel at the consultations it is clear that many Territorians hold a range of concerns in relation to the social impacts of any onshore shale gas industry. However, what is clear, but not surprising, is that different stakeholder groups do not always share the same concerns. Similarly, many of the concerns are locations specific, while others relate to the whole of the NT. Key issues important for any SIA undertaken in the NT include impacts on housing and infrastructure, employment, business income, education and skills development, community cohesion, crime rates, transport, and the transient nature of the workforce.

What is critical to ensure that the social impacts are adequately (or acceptably) mitigated is the need for strong regulatory structures that include the necessary consultation and engagement with all affected stakeholders. Through open and transparent processes and strict governance structures, the social impacts can be mitigated to an acceptable level. This will be analysed in more detail when the Coffey report is presented to the Panel in January 2018.

To ensure an SLO and to gain ultimate support for any onshore shale gas industry in the NT, considerable resources, both time and money, will be required when planning the implementation of an SIA and its ongoing monitoring. At the same time, and to reiterate, extensive participation and engagement of all stakeholders is critical. Fortunately, because there are a number of useful resources that have emerged from earlier unconventional shale and gas consultation, the NT is not starting afresh.

A Government led strategic SIA with specific attention to social, cultural, economic values and environmental values is an essential starting point.

Critical for success is ensuring that any engagement is well managed and coordinated across any development to mitigate the potential for cumulative impacts and consultation fatigue. Similarly, the creation and maintenance of an open and shareable database of the information collected over time will help to build trust in how the projects are being monitored.