# Social licence to operate in the Beetaloo Basin and Northern Territory

## Citation

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# Executive summary

This report provides an overview of social licence to operate (SLO) in the context of the Northern Territory (NT) gas industry and the deployment of hydraulic fracturing ('fracking') technologies. The report is structured to provide:

- A brief review of literature relevant to SLO
- NT specific data from a 2016 national survey of citizen attitudes toward the extractive industries conducted by CSIRO
- A 2006-2016 comparative analysis of family income inequality (calculated as a gini co-efficient) based on NT census data
- A summary of conversations with industry, community and government stakeholders in the NT gas industry detailing key issues and challenges
- A discussion regarding approaches for measuring and monitoring SLO in the NT

Research presented in this report details the key drivers of trust and acceptance for the extractive industries in the NT, and across other jurisdictions and commodities. These include feeling heard, respected and involved in decision making processes (procedural fairness), feeling that the benefits (and impacts) of extraction are shared fairly (distributional fairness), that government has the capacity and will to ensure public interests are protected and industry held to account (governance capacity), that physical and social impacts are managed effectively and appropriately, and that interactions between company personnel and community members is a positive experience (contact quality).

Analysis of family income inequality for the NT, calculated using 2006 and 2016 census data, revealed that the NT has declining family income equality. This is a baseline measure that allows for reflection on how the development of the gas industry may assist in redressing this trend, while the risks of exacerbating it were also discussed.

Engagement with industry, community and government stakeholders in the gas industry in the NT revealed that uncertainty about how the industry would look and fracking as a technology was a locus of attention for all of these stakeholders. There is a broad recognition that these technologies are not well understood beyond those that have been directly engaged by industry or have technical background. Reducing this uncertainty in a framework supported by government

appears to be of real interest to most of those spoken with. And extending this, that government plays a more active and creative role in the discussion and engagement of these issues and the development of the industry itself.

A measurement and modelling framework for SLO is described, focusing on the following principles for its development:

- *The engagement of a trusted third party* – CSIRO's Gas Industry Social and Economic Research Alliance (GISERA) offers one such model

- *Protection of community rights and safety* – ethical and privacy standards are applied under the National Statement on Ethical Conduct in Human Research (2015), placing the safety of participants first

- *Longitudinal design* – placing the experiences of community at the centre of the process, and to identify issues before they become conflicts

- *Accessibility of data* – transparency of process and data provision back to community and other stakeholders in central to building trust that this is a vehicle for community voice

- *Inclusiveness of process* – it is important that vulnerable, marginalised and special status groups are included in SLO research using appropriate methods.

# 1 Introduction and structure of this report

There are few more (socially) controversial issues in the extractive industries than hydraulic fracturing ('fracking') to facilitate the exploitation of gas and oil reserves. The perceived and potential consequences from the application or proposed application of this mature technology is material in state based Australian moratoriums on the gas industry as a whole, Commonwealth intervention (through the Environment Protection and Biodiversity Conservation Act 1999 'water trigger' provisions), and industry efforts to engage and reassure government and communities of interest regarding potential impacts. More specific to this report, the potential impacts of fracking have been a locus of community based push back against the onshore gas industry in Australia, as it has been in other jurisdictions.

This report will focus on the community perspectives regarding the extractive industries, and where available, the onshore gas industry in the Northern Territory. The concept of social licence to operate (SLO) will be used a framing device and mechanism for exploring the influence of community sentiment on development trajectories and what research in this area indicates is effective and required to build and maintain a SLO. Conversely, the issues that erode SLO and lead to rejection of extractive industries will also be discussed.

As per the scope of works defined by the inquiry, this report will:

- Provide context for SLO in the Northern Territory through a literature review
- Introduce current, independent community survey data regarding attitudes toward the extractive industries in the Northern Territory
- Introduce socio-economic analysis of the Beetaloo Basin with a Northern Territory context
- Discuss local level community engagement data collected through field work for this report
- Outline mechanisms for measuring and monitoring SLO in the Beetaloo Basin and NT more broadly

- Discuss key considerations in this area that should inform how future work takes place to ensure the rights and welfare of community members are of primary concern in any future work
- Provide guidance on a proposed framework for measuring and monitoring SLO in the Beetaloo Basin and Northern Territory.

# 2 Social licence to operate and the extractive industries: a brief review of literature

The influence of community members in development trajectories is the topic of considerable writing and discussion. While the gas industry has technology and development characteristics that are unique, there are lessons to be understood from research conducted across a range of extractive industries. Increasingly, community concerns strongly influence the way the extractive industries operate, how governments regulate them, and the manner in which broader development responsibilities are met. It is now increasingly understood that the voice of citizens must be heard if extractive developments are to achieve broad social acceptance. This has largely been brought about by changing societal expectations over recent decades, which have fundamentally influenced the way the extractive industries conduct operations around the world.

The shift toward more socially acceptable extractive development has emerged, in part, as a result of the increasing pressure and scrutiny these industries face regarding their environmental impacts and social performance. For example, throughout the 1990s, there was a fundamental shift in the way that the environmental and social impacts of the mining industry were perceived, with highly publicised tailings dam failures, chemical spills, and conflicts with communities impacting negatively on the industry's reputation (Schloss, 2002; Thomson & Boutilier, 2011). More recently, resistance to the extraction of gas has been articulated through effective use of social media platforms, popular culture mechanisms such as film, and 'grassroots' campaigns involving diverse communities of stakeholders.

Given the term 'social licence to operate' originated in the mining industry in the mid 1990's, coined by a senior mining executive (Thomson & Joyce, 2000), the development of the concept in this industry is instructive. At the same time as the mining was under pressure for its physical impacts through the mid 1990's, societal values and attitudes toward the natural environment and the industries impacting negatively on it were changing (Joyce & Thomson, 2000). Increasingly, the concerns of society were also being translated into direct action against mining projects at a local level. Such conflict with communities has

been shown to have high financial, opportunity, and personal costs to mining companies and their personnel (Franks et al., 2014).

These pressures on industry also signalled that communities were becoming more active in challenging the nature and fairness of the impacts and benefits associated with mining developments (ICMM, 2012). This was further reflected in communities demanding more involvement in decision-making around such operations, having clear expectations about receiving a greater share of the benefits from these operations, and requiring assurances that the industries involved were being appropriately regulated (Prno, 2013). Thus, not only have community expectations about the performance of the minerals industry increased over time, so too has the direct involvement of citizens in decision-making about industry development (Harvey & Brereton, 2005). This has seen community relations and participation now recognised as a strategic part of managing risk and opportunity (Humphreys, 2000). This combination of increasing pressures on industry performance and the associated social acceptance of mining operations has been widely referred to as the industry's 'social licence to operate'. However, the drivers of acceptance for the mining industry and the gas industry are complex and operate across scales.

*Social acceptance at multiple scales*

At the local scale, an extractive operation is said to have a social licence when it achieves ongoing acceptance or approval from the local community and other stakeholders who can affect its profitability (Graafland, 2002). Without this social acceptance, it is very difficult for a mine or gas development to operate effectively or profitably. At this local scale, it is well understood that social (or community) acceptance of an operation is a reflection of the quality of the relationship a company has with their host community (Thomson & Boutilier, 2011; Lacey & Lamont, 2014; Parsons et al., 2014; Moffat et al., 2015a; Cooney, 2017). Community relations are an integral part of successful operations and where these interactions are effective, they tend to foster mutual understanding, trust and support between a company and the host community (Kemp et al., 2006; Holley & Mitcham, 2016). Research further demonstrates that where such interactions are perceived to be procedurally fair, the increased trust created in these company-community interactions tends to lead to higher levels of acceptance of mining and gas operations (Moffat & Zhang, 2014; Lacey et al., 2017).

Similarly, at a national scale, social acceptance of the extractive industries reflects the distribution, and perception of distribution of risks and benefits arising from the industries' activities. Frequently, the acceptability of operations at the local and regional scales can be affected by what happens at national or even international scales. For instance, local rejection of some mining projects has been fundamentally strengthened by the involvement of 'outsiders' or distal communities across national and even international boundaries, leading to the loss of support in a number of projects (e.g. Kirsch, 2007; Prno & Slocombe, 2014). Hence, local acceptance of an extractive project cannot be obtained and maintained in isolation from what happens at national and international scales (Zhang et al., 2015). Similarly, what takes place at the local scale can also impact perceptions of and attitudes toward extraction at the national and international scales. The performance of a particular project, either positive or negative, can affect the reputation of the industry it belongs to and shape the general public's perceptions of and attitudes toward extraction more generally.

In many ways, the drivers of social acceptance of mining across these scales reflects the evolving nature of the relationships between industries and their communities and other stakeholders. The variables operating at these multiple scales are intertwined, effectively influencing both the acceptance of extractive projects at the local scale and of the extractive industries at the state and national scale. Hence, there is real value in understanding how the general public's attitudes toward extraction can influence the local conditions for acceptance of an operation, and how local issues influence decision-making by companies and governments at the national scale. It is also critical to be able to bring citizen voice into decision-making about resource development, which has traditionally been the domain of industry and government alone.

*Applied research to identify the drivers of social acceptance*

Applied research can play a critical role in developing the evidence-base for a detailed knowledge of the drivers of trust and social acceptance (i.e. SLO) of the extractive industries across scales and how they operate. For example, research to date has quantified the critical role of trust for social acceptance including how the relational aspects of stakeholder interactions can influence this. Key findings to date have already identified that:

- As stakeholder expectations and experiences of mining impacts converge, acceptance and approval of an operation increases (i.e. when companies do what they say they will do acceptance is high)
- Procedural fairness (i.e. influence over decisions made by company, respect shown to community) is a strong predictor of trust
- Relationship quality rather than the amount of contact with company personnel is key to building trust.

Such insights can assist industry, communities and governments understand what drives increased trust and, in turn, support stronger relationships between these stakeholders that will lead to better outcomes for all parties and more sustainable and efficient industry. The remainder of this review draws on surveys of more than 14,000 community members conducted in eight countries, summarising recent applied research to measure and model the drivers of trust and social acceptance of extractive industries across scales, how these variables interact, and identifies implications for improved practice.

**The drivers of social acceptance of the extractive industries**

There is significant qualitative research documenting processes of community relations practice and the successes and failures of citizen engagement around extractive sites. Such failures can arise even where communities are explicitly involved in consultation processes around new or existing resource development, where the potential for mismatched expectations among the stakeholders in these operations is high (Kapelus, 2002; Prno & Slocombe, 2012; Bice, 2013; Kemp & Owen, 2013). For example, in a study of mining affected communities in Australia, Cheney et al. (2001) found that local communities often felt marginalised in what was perceived to be a pre-determined development trajectory defined together by government and mining companies.

Community members have also reflected that companies and communities tend to hold distinctly different value sets and worldviews. This is even more likely in the context of negotiations with Indigenous peoples on whose land extractive project development may be taking place (Banerjee, 2000), particularly where a stakeholder approach which involves 'providing a seat at the table' may reduce a radically distinct and prior historical claim to one among a series of other interests to be traded off, effectively limiting the possibility of

reaching understanding with key cultural and community groups. This difference in values and worldviews between companies, communities and government may also lead to fundamental misalignment of expectations regarding the terms of their relationship with each other and what is deemed socially acceptable to each party (Thomson & Joyce, 2006). While Nelson and Scoble (2006) see the path to social acceptance through industry maintaining positive corporate reputation and educating local stakeholders about a project, Thomson and Joyce (2006) point out that community members, in their experience, tend to be more concerned about whether they are respected, listened to, and whether they are allowed to participate in the development of an operation. These criteria summarise the distinctly relational aspects of procedural fairness in company-community interactions but these differences also bear out the powerlessness that Cheney et al. (2001) observed among community members, and reflect a more general disconnect between a key company driver to 'make a deal' and that of community to establish an equitable relationship of exchange (Joyce & Thomson, 2000).

Thus, even when all key stakeholders are explicitly invited into a conversation regarding the nature and shape of extractive development, asymmetric power relations between parties, and differences in values, worldviews and perspectives are still likely to create opportunity for mistrust and conflict. As Swain & Tait (2007) observe, creating and sustaining trust among parties with conflicting goals and deeply different underlying values remains one of the major challenges of effective participatory processes, and this equally relates to the engagement and dialogue that underpins the social acceptance of extractive resource development. What emerges from this is that it is most often the relational factors that play a critical role in determining the quality of the interactions and relationships between companies, communities and other stakeholders in minerals development. Put another way, very often, the physical and financial impacts (positive and negative) of extractive development are less important to a social licence than these relational characteristics. The importance of these relationships underpins how communication take place and how negotiations can be reached.

There is little doubt that operations and communities vary widely across contexts and industries. This diversity of experiences with extraction means that the nature of stakeholder interactions can also look very different based on differences in local priorities

(for a company, a community or both), the nature of the extractive activity and its history in a place, or even the demographic profile of a community and the mix of other industries comprising the economy. For example at the local scale of impact, mining developments can create adverse environmental and amenity impacts associated with increased noise, dust, pollution or other disturbances. While these negative impacts are often managed through formal instruments such as Environmental and Social Impact Assessments and other regulatory instruments, it is has been demonstrated that a community's experience of those localised social, environmental and economic impacts of extraction and a company's ability to reduce those impacts voluntarily in response to community feedback plays a role in determining their acceptance of mining operations (Moffat & Zhang, 2014). For the NT, its particular set of largely unique characteristics also make generalisation of lessons learned in other jurisdictions challenging. A relatively sparse and unevenly distributed population, a very strong emphasis on the role of water in livelihoods and connection to place, the importance of Indigenous peoples and their connection to country (and legal rights to refuse consent), and the role of pastoralism in local and state based economies, add complexity and nuance to considerations of the nature of social acceptance in that place, and how to understand it.

Similarly, these contextual differences can influence how extractive operations are perceived at the national scale. For example, extractive industries tends to be associated with a range of costs and benefits. The nature and extent of these costs and benefits play a role in the level of acceptance of mining. For example, in a national survey of Australian citizens' attitudes to extraction industries (Moffat et al., 2014a), the three main areas of impact and benefit, respectively, were found to be:

- Impacts on the environment (including climate change), costs of living, and negative impacts on other sectors (including manufacturing, agriculture and tourism)
- Employment and other regional benefits, general economic benefits (personal, family and national wealth), and development of regional infrastructure.

Routinely, similar research in different contexts around the world tends to find similar patterns in how citizens assess the impacts and benefits of the extractive industries (Moffat et al., 2014b; Zhang et al., 2015) (i.e. environmental impacts are routinely perceived as the

most negative impact associated with extraction whereas the economic contributions of the sector are considered to be the most positive benefit).

The way citizens perceive these impacts and benefits does influence their acceptance of extraction, such that the more negative citizens believe the impacts are, the less inclined they are to accept the industry; and the more positive citizens perceive the benefits to be, the higher their acceptance of the industry. While these large scale surveys of citizen attitudes provide an evidence base for confirming how such impacts and benefits are perceived, what tends to be more revealing is assessing the strength of the relationships between them. For example, in the 2014 Australian national survey, citizens were also asked to consider whether they felt the benefits of mining (including gas extraction) outweighed the impacts (i.e. was it worthwhile having a mining industry in Australia?), to understand how this influenced their acceptance of the extractive industries. The results from this analysis revealed that weighing up the impacts and benefits was a strong positive predictor of social acceptance over and above the other individual impact and benefit measures. This suggests that citizens hold a nuanced view of the impacts and benefits of extraction and that where the balance of benefits is seen to outweigh the impacts, acceptance will likely be higher (Moffat et al., 2014a & 2014b; Lacey et al., 2017).

However, what is more interesting is that the most significant predictors of trust in the industry and acceptance of the industry have tended not to be related to impacts and benefits at all. Rather, at both the local and national scales and in diverse extractive contexts around the world, what has emerged is that strong acceptance tends to be about building trust between industry, government and society. There is a growing understanding that the way people are treated in decision-making processes, the ways that benefits are distributed from mining and the role of governance in setting the rules for mining, are most important for developing strong trust and acceptance (Moffat et al., 2014a; Zhang et al., 2015). This confirms the observations of Joyce and Thomson (2000). Despite differences in the experiences and conditions of extraction around the world, research conducted over several years has now identified a common set of relational variables that underpin social acceptance, or social licence, at local, state and national scales. These critical relational variables (i.e. focusing on stakeholder interactions) include: (i) contact quality between company personnel and community members, at the local scale; (ii) distributional fairness

(particularly in relation to benefits), across scales; (iii) procedural fairness, across scales; and (iv) citizen confidence in the governance arrangements around extraction, at the national scale. Each of these variables is summarised below.

*Contact quality between company and community members*

At the local scale, the quality of contact between company personnel and community members can have a significant influence on the quality of company-community interactions. Extensive research demonstrates that positive contact or interactions between groups can improve intergroup relations and increase trust between those groups (Pettigrew & Tropp, 2006; Tam et al., 2009; Hewstone & Swart, 2011). This has been shown to be equally true when tested in mining contexts. For example, in a longitudinal survey of community attitudes to coal seam gas extraction in Queensland, Moffat and Zhang (2014) found that the quality of contact between CSG company personnel and community members was a significant predictor of trust in the company and acceptance of its operation. What made no difference to trust and acceptance was the amount of contact between the company and community. Their findings corroborate those of Kemp et al. (2011) who also found that the nature and quality of the interface between individuals, plays a key role in mitigating social conflict in mining contexts.

*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 (Kemp et al., 2011; Zhang et al., 2015). Empirical studies have also shown that people express greater satisfaction when they believe that they receive a fair share of the benefits in a given situation, or they will tend to reject the arrangement (McComas & Besley, 2011; Siegrist et al., 2012). 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, more broadly (Moffat et al., 2014a). For example, communities may benefit through direct compensation, royalty payments or participation in joint ventures (O'Faircheallaigh, 2002). Other benefits may include the industry's contribution to employment and training opportunities (Measham & Fleming, 2014) or investment in local and regional infrastructure (Michaels, 2011). At the national scale, such benefits may be

reflected in macroeconomic consequences such as increased revenues resulting from export markets or taxation regimes (Battelino, 2010).

*Procedural fairness*

Procedural fairness can be achieved in many ways but it routinely requires the implementation of processes that are considered to be fair by all involved, are transparent and inclusive of diverse perspectives and priorities, allow the public to access information and debate, and to feel respected and listened to in that process (Lacey et al., 2017). Procedural fairness also refers to whether individuals believe that they have had a reasonable voice in decision-making processes (Tyler, 2000; Besley, 2010). Perceptions of fairness in processes leading to decision outcomes increase trust between those who are involved in negotiating decisions and ultimately, the acceptance of the outcomes of those decisions, even among those who may be disadvantaged by such outcomes (Lind & Tyler, 1988; Tyler, 2015). Given the increased participation of communities in decision-making about how mining operations will be developed, designing and implementing fair processes has become a critical part of creating equitable participation, creating meaningful dialogue among stakeholders, diffusing conflict and achieving sustainable resource management decisions (Kemp et al., 2011; Holley & Mitcham, 2016; Lacey et al., 2016).

*Governance*

At the national scale, governments around the world play a major role in regulating the extractive industries and stipulating how extractive activities should be conducted in their jurisdiction. The regulations are often introduced in the form of legislation, and approval and reporting processes. This also includes regional and national laws governing environmental assessment and public participation processes (MMSD, 2002; Solomon et al., 2008). From the public's perspective, these are the major formal mechanisms for managing the social and environmental impacts of extractive activities. When the public believe that the governance arrangements in place are not capable of ensuring responsible resource development, their attitudes toward extraction tend to be less favourable. Indeed, research has shown that public perceptions of the governance arrangements around extraction moderate the relationship between their concerns over environmental impacts and their acceptance of the industry (Zhang & Moffat, 2015). More specifically, when citizens strongly believe that existing regulation and legislation has the capacity to hold the extractive

industries to account for their actions (i.e. 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 (Zhang et al., 2015).

**How the drivers of social acceptance interact in practice**

There is clear evidence that the interactions between these relational drivers of social acceptance can be systematically modelled and measured at local and national scales by conducting large scale surveys of citizen attitudes (Moffat & Zhang, 2014; Moffat et al., 2015b; Zhang et al., 2015).

*Social acceptance at the local scale*

At the local operational level, for example, Moffat and Zhang (2014) have developed an integrative, quantitative model to understand the paths to community acceptance of extractive operations. Their analysis reveals that building trust with local communities is crucial for resource companies to obtain and maintain support and acceptance of those operations. This trust is fundamentally shaped by the contact quality (but not quantity) and procedural fairness through which companies deal with communities, as well as perceptions of how fairly the benefits of extraction are distributed in the community.

Figure 1 illustrates how these relational variables interact in practice at the local scale, with positive relationships between the three relational variables indicating that the more distributional fairness, contact quality and procedural fairness perceived by communities, the greater the level of trust in and acceptance of operations is realised. The model and the relationships illustrated in Figure 1 have been developed based on a range of theoretical and applied research (e.g. Kemp et al., 2006 & 2011; Thomson & Boutilier, 2011; Kemp & Owen, 2013; Lacey & Lamont, 2014; Moffat et al., 2014a & 2015a; Moffat & Zhang, 2014; Zhang et al., 2015; Lacey et al., 2017) and empirically validated in multiple contexts including Australia, New Zealand, and South Africa, and in multiple commodity contexts including gas extraction. The arrows represent the predicted interactions between the variables that can be measured and modelled using structural equation modelling (an advanced statistical modelling technique). A positive symbol indicates that increased levels in one variable is expected to lead to increased levels of another (e.g. increased procedural

fairness predicts increased trust). The strength of these predictive relationships often varies between contexts but the elements themselves have been found to remain unchanged across highly differentiated contexts. These three relational variables were also found to be strongly correlated with each other suggesting that increased procedural fairness can positively influence perceptions of contact quality and distributional fairness, and vice versa.
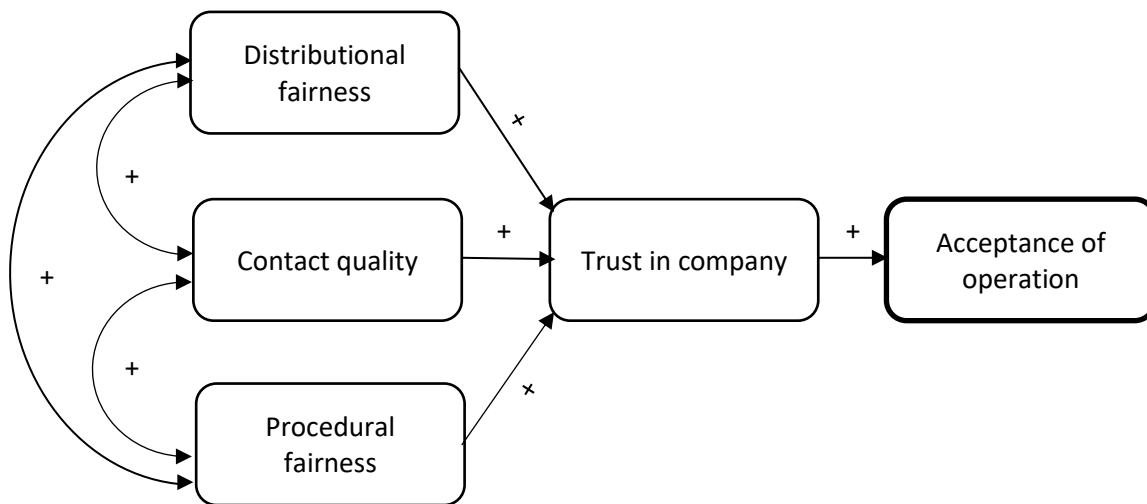


**Figure 1 Conceptual model of the drivers of trust and acceptance of local extractive operations**

This model challenges some key assumptions about the drivers of trust in company-community relations. For example, all communities surveyed tend to express the view that the environmental and social impacts of mining matter a great deal to them. However even though these concerns are important across all contexts, they are rarely found to be the main predictors of trust or acceptance of a company or its operations. This is significant because it highlights that the relationships between the stakeholders needs to be strong and supported to enable effective negotiations around matters such as the social and environmental impacts of extractive operations.

*Social acceptance at the national scale*

Similarly, large scale survey research at the national scale assessing citizen attitudes towards the extractive industries (as opposed to localised impacts) also reveal the key predictors of trust in industry, and in turn, the drivers of social acceptance of extraction. Figure 2

illustrates an empirically validated model of social acceptance that highlights procedural fairness, distributional fairness and confidence in governance as the three most significant predictors of trust, and in turn acceptance of the industry (Zhang et al., 2015). This model was developed based on over 14,000 citizen responses testing attitudes to the mining sector (including gas extraction) collected in Australia, Chile, China and Zambia over a two year period.
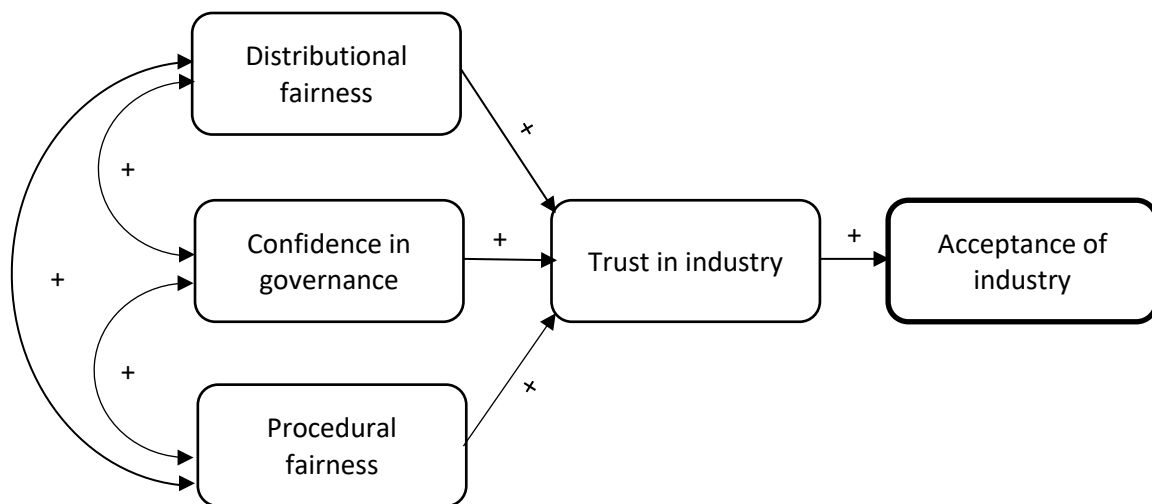


**Figure 2 Conceptual model of the drivers of trust and acceptance of national scale extractive industries**

At this scale, a measure such as contact quality ceases to become relevant (i.e. most citizens in a nation do not live near operations) but the citizenry's expectations of government tend to come to the fore more strongly as the drivers of trust in and acceptance of the industry. A key message from this research and its interpretation, is that in effect, social licence is everyone's business. The interrelationships between procedural fairness (determined in this work by industry behaviour), faith in governance (determined by government behaviour), and distributional fairness (what may be seen as an interaction between industry and government behaviours) are strong, even as each drives trust and acceptance individually. Neglecting one component erodes the relationship between the others and trust/acceptance. Equally, industry working with community to build faith in governance capacity, for example, improves the likelihood of greater trust and social acceptance for the industry as a whole.

**SLO and ownership of risk**

The work around SLO in the literature and by CSIRO speaks clearly to the direction of the risk associated with loss of community acceptance. Where SLO is degraded or lost such that a company or industry is rejected, the risk lies predominantly with that company or industry. As mentioned briefly above, conflict with communities leads to high financial, opportunity, and personal costs to mining companies and their personnel (Franks et al., 2014). Where communities do not have a constructive way to express concerns about the impacts and processes associated with large scale development, they may choose to exert influence on these development processes in more creative ways. Franks et al (2014) provide the most systematic and methodical examination of these risks in a mining context, demonstrating that apart from the significant financial costs of shutting down development, this conflict also impacts directly on the capacity of companies to conduct their core business. Executives in particular are required to manage the actual and reputational costs such rejection may bring, taking them away from their core roles and creating additional opportunity costs.

For communities that already see little local benefit from development, particularly in its early stages, the costs of rejection may be seen to be less severe. Conflict with companies is likely to lead to reduction or cessation of investment into communities, as has been the case in the Northern Territory during the moratorium. There are also opportunity costs for communities relating to local investment, investment uncertainty and fractures within communities that conflict creates or exacerbates. However, with respect to loss of social licence, the risk lies predominantly with the companies and industry(ies) that lose it.

# 3    Northern Territory specific data

In late 2016 and early 2017, a second national survey of citizen attitudes toward the extractive industries (including minerals and gas in a broad definition of 'mining') was conducted by CSIRO. The aim of this work was to provide a comparative dataset to that collected in 2014 and detailed in part above. For the purposes of this report, this 2016/17 data has been analysed to allow comparisons between states in Australia. Data was collected from communities where the extractive industries are present and operating, from non-extractive communities and from urban communities in Australia's capital cities (Table 1 describes the number of participants by location category, Table 2 describes location of respondents by state or territory and Figure 3 shows where participants were located spatially, by postcode). In total, 8,020 Australians completed the online survey, 227 of whom were in the NT.

**Table 1 Respondents by region: Mining, non-mining and metropolitan**

| Region | Freq. | Percent |
|---|---|---|
| Mining | 1,780 | 22.19 |
| Non-Mining | 2,384 | 29.73 |
| Metro | 3,856 | 48.08 |
| | | |
| Total | 8,020 | 100 |

**Table 2 Respondents by state and territory**

| State | Freq. | Percent |
|---|---|---|
| ACT | 70 | 0.87 |
| NSW | 2,470 | 30.86 |
| NT | 227 | 2.84 |
| QLD | 1,850 | 23.11 |
| SA | 762 | 9.52 |
| TAS | 266 | 3.32 |
| VIC | 1,612 | 20.14 |
| WA | 747 | 9.33 |
| Total | 8,004 | 100 |
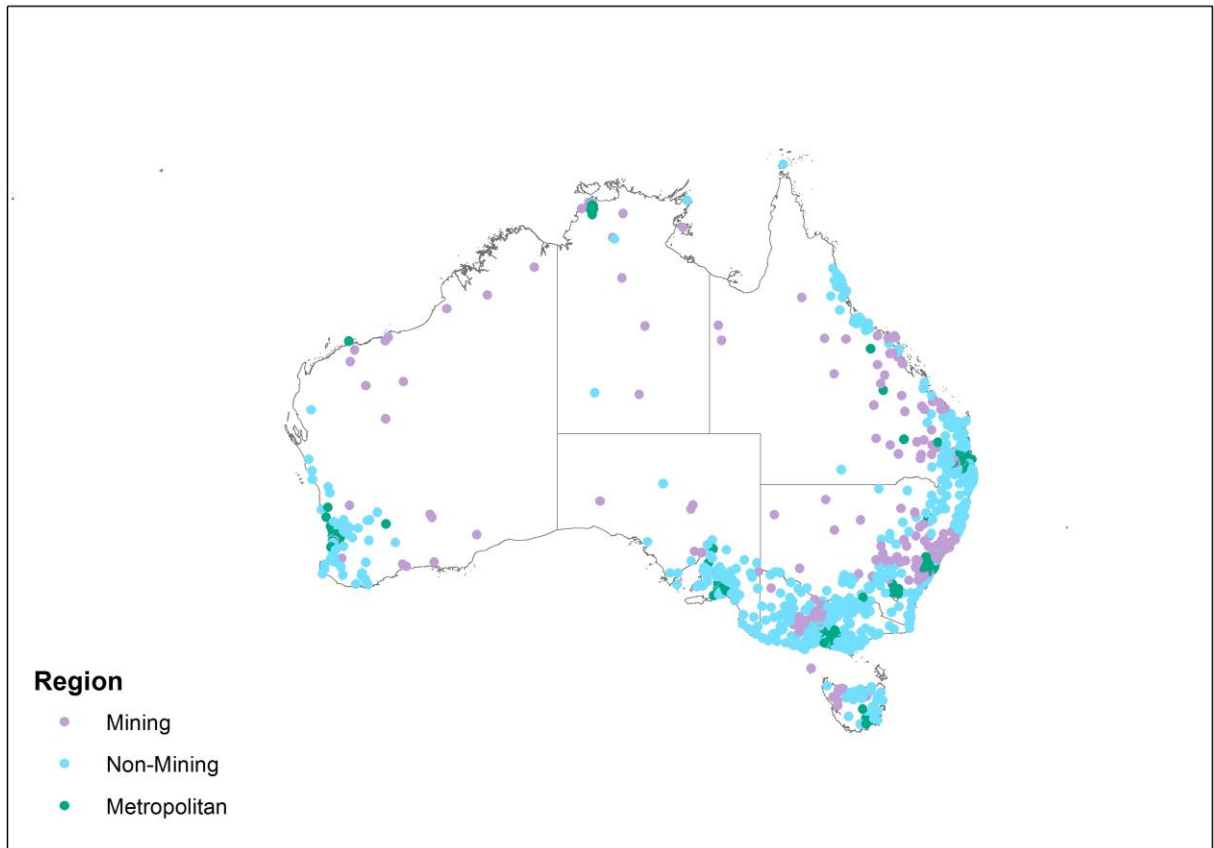
**Figure 3 Distribution of survey participants in 2016-17 across regions and states in Australia**

A broad range of topics was covered in the 2016/17 survey, including acceptance of extractive industries overall, acceptance at the local community level, and trust in a range of industry actors. Distributional fairness, procedural fairness and governance capacity were also assessed as per previous work in this area. Finally, for the purposes of this report, data relating to community perceptions of a range of benefits and negative impacts of the extractive industries are reported (Table 3 details the mean responses of community members overall for each item assessed, by state).

## 3.1 Descriptive data key findings

*Acceptance of extractives*

Mining (inclusive of gas) is generally accepted in the NT, though Western Australia (WA) has significantly higher levels of acceptance overall.  NT residents were, however, significantly less accepting of mining activity were it to be in their own local community. This

phenomena is consistent across states and territories, and acceptance of mining in one's own local community is around 3 on average (i.e. the mid-point of the scale, where 1 reflects very low acceptance and 5 reflects very high acceptance).

Acceptance was also mapped spatially by postcode across the NT. While this is a course method for representing a relatively small set sub-set of data, it illustrates a broader trend for the NT: that acceptance is higher in larger population centres than in less populated areas. In Figure 4, levels of acceptance around the mid-point of the scale used (3) can be seen as yellow. South of Tennant Creek acceptance can be seen to be lower than in several areas around Darwin.

**Figure 4 Spatial representation of NT acceptance data**

*Governance capacity*

Perceived governance capacity of governments at state/territory and federal levels is unfavourable across Australia, on 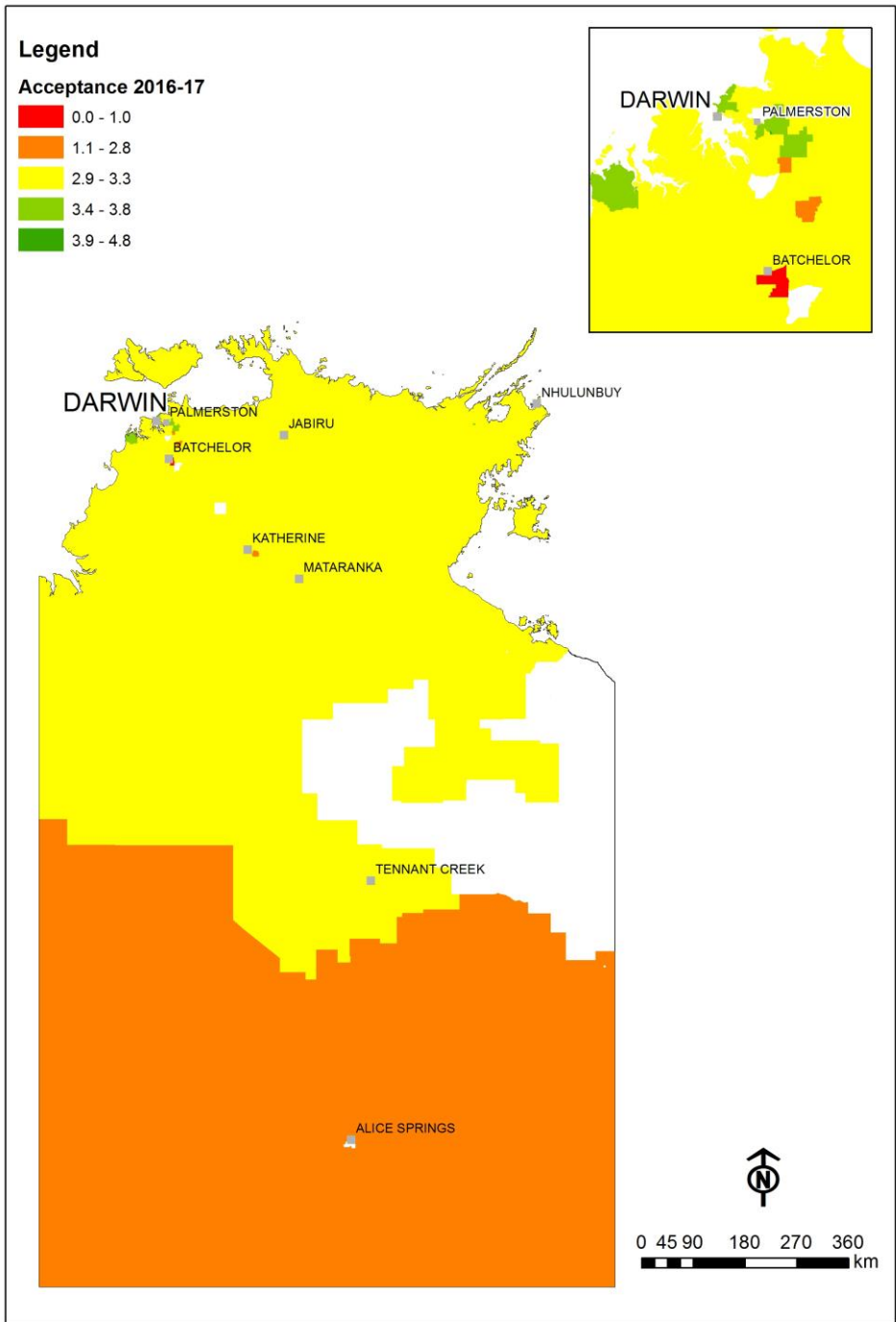average. This is particular the case among residents of the NT, who perceive governance capacity significantly poorer than those respondents from all

other states and territories.  This relates to being able to rely on legislation, regulations, and governments at the territory and federal levels to ensure mining companies do the right thing and are accountable.

*Trust*

NT residents also have low trust in the extractive industries and governments, marginal trust in advocacy groups, but higher trust in research organisations relative to residents in all other states. Low trust in 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 residents in other states.

There are marginal levels of trust in advocacy groups, which is common across states and territories, though this would vary between individual advocates and advocacy groups (the survey did not explore this issue by different advocacy groups).

*Procedural and distributional fairness*

Low trust perceptions are underpinned by low perceptions of procedural and distributional fairness (midpoint = 4). 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.

*Impacts, benefits and the value proposition for extractives*

Even though there is low trust in the extractive industries, and associated negative perceptions of procedural and distributional fairness, and even though there is low trust in government and associated governance, residents across the states and territories still see consider the balance of benefits over costs to be favourable on average. This was particularly the case in WA.

Regional infrastructure, employment and local community benefits were particularly favourably perceived in the NT, while financial benefits at the individual, family, and general public levels were less influential. This was also true in other states, though their residents generally rated higher employment and local community benefits flowing from extractives more positively.

Perceived environmental impacts were the most negatively viewed industry impact, with these views significantly more negative in the NT than in all other states and territories apart from New South Wales (NSW). This was followed by impacts on living costs in the NT, and then impacts on other sectors (e.g. tourism, manufacturing). Residents in other states also saw impacts on the environment as the most concerning for the industry, though were less concerned about impacts on living costs.

**Table 3 State based comparison of mean community responses**

|  | NT | NSW | VIC | QLD | SA | WA | TAS | Aus. | Mid-point |
|---|---|---|---|---|---|---|---|---|---|
| Acceptance of mining generally | 3.34 | 3.30 | 3.30 | 3.34 | 3.36 | **3.61** | 3.32 | 3.34 | 3 |
| Acceptance in local community | 3.07 | 2.93 | **2.87** | 2.96 | 3.00 | 3.22 | 3.06 | 2.96 | 3 |
| Governance capacity | 2.62 | **2.86** | **2.85** | **2.84** | **2.83** | **2.92** | **2.83** | 2.85 | 3 |
| Trust in state/territory government | 2.44 | 2.55 | **2.63** | 2.56 | 2.54 | **2.74** | **2.63** | 2.59 | 3 |
| Trust in federal government | 2.51 | 2.57 | 2.62 | 2.59 | 2.57 | **2.71** | 2.52 | 2.59 | 3 |
| Trust in research organisations | 3.74 | **3.51** | **3.52** | 3.46 | **3.53** | **3.50** | **3.53** | 3.51 | 3 |
| Trust in advocacy groups | 3.06 | 3.04 | 3.01 | 2.96 | 2.97 | 2.97 | **2.83** | 2.99 | 3 |
| Trust in mining industry | 2.42 | **2.67** | **2.70** | **2.68** | **2.69** | **2.86** | **2.65** | 2.69 | 3 |
| Procedural fairness | 3.32 | **3.74** | **3.75** | **3.72** | **3.83** | **3.86** | **3.75** | 3.74 | 4 |
| Distributional fairness | 3.12 | **3.74** | **3.74** | **3.66** | **3.75** | **3.65** | **3.75** | 3.69 | 4 |
| Balance of benefits over impacts | 5.00 | 4.93 | 4.89 | 5.04 | 5.12 | **5.29** | 5.00 | 5.00 | 4 |
| Impacts on living costs | 4.66 | **3.25** | **2.80** | **3.16** | **2.96** | **4.16** | **2.52** | 3.21 | 4 |
| Environmental impacts | 5.01 | 4.74 | **4.61** | **4.61** | **4.55** | **4.57** | **4.54** | 4.65 | 4 |
| Impacts on other sectors | 4.06 | 4.27 | 4.08 | 4.11 | 4.09 | 3.89 | 3.88 | 4.12 | 4 |
| Financial benefits | 3.79 | 3.61 | **3.46** | 3.56 | **3.48** | 3.85 | **3.41** | 3.57 | 4 |
| Regional infrastructure benefits | 4.85 | 4.73 | 4.68 | 4.77 | 4.78 | 4.93 | 4.79 | 4.76 | 4 |
| Employment and community benefits | 4.87 | 5.01 | 4.91 | **5.03** | 5.03 | **5.15** | 5.05 | 5.00 | 4 |

Note: Bolded means are significantly different from NT; the scale midpoint is 3 in the top half of the table up to and including 'trust in mining industry' and it is 4 in the rest of the table; comparisons with ACT are excluded due to the relative small mining industry and sample size.

## 3.2 Modelling social acceptance of extractives in the Northern Territory

While descriptive data (above) provide very useful comparisons of respondent views in the BY relative to other states on key variables related to SLO, it is also important to understand how these variables relate to each other. In other words, it is important to understand what

drives trust and acceptance of the extractive industries in the NT. A statistical technique called structural equation modelling was used to establish the relative importance of these key drivers in the NT data. To do this, a comprehensive model of trust and social acceptance of extractives was developed by CSIRO at the national level and then this model was applied to the NT data. At both the national and NT level, the model performed very well, predicting more than half the variation in 1) individual levels of trust in the mining industry, 2) perceptions of benefits over impacts, and 3) respondents' overall social acceptance of the industry in the Northern Territory (57%, 57%; and 67% respectively; see Figure 5 below).
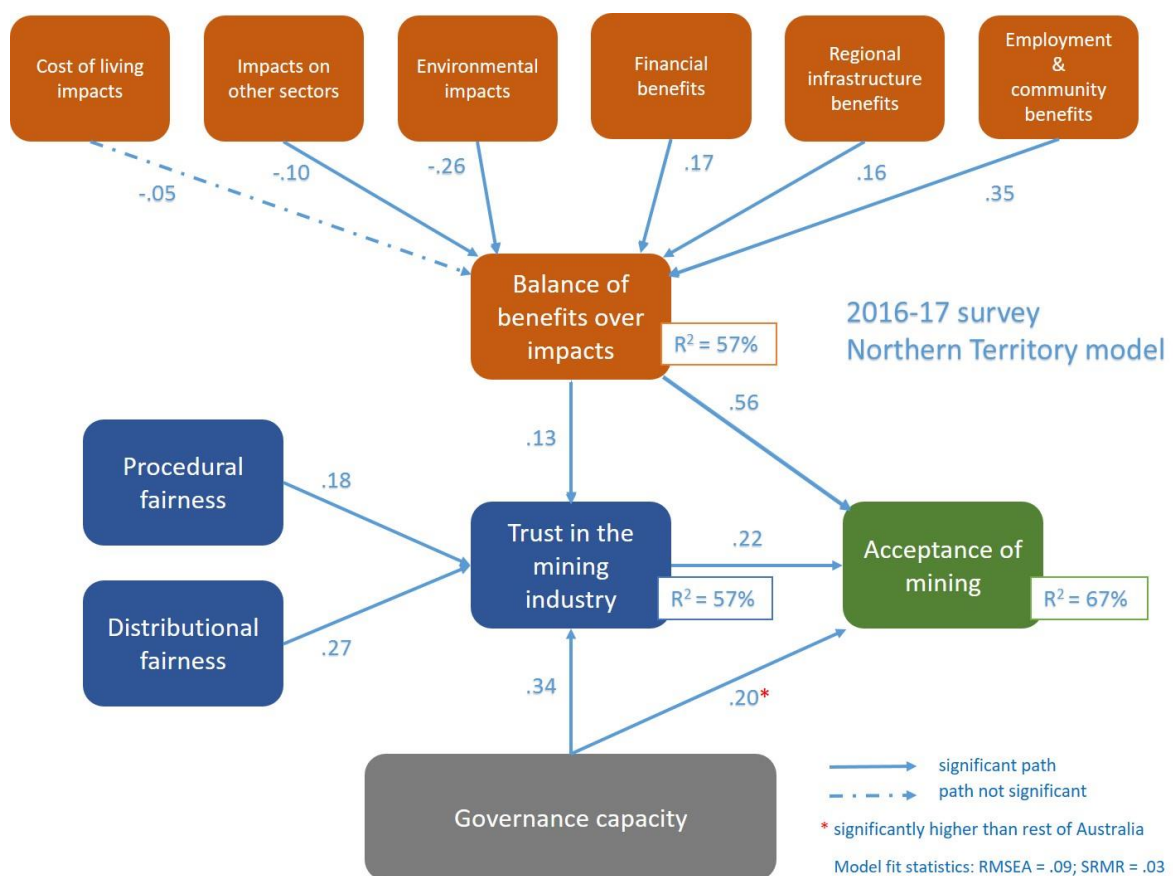


**Figure 5 Comprehensive model of NT data predicting trust and acceptance of the extractive industries** (higher numbers indicate stronger relationships, a positive value indicates more of one variable leads to higher levels of another variable)

For residents of the NT, good governance was significantly more important for social acceptance of the extractives than for residents in the rest of Australia. Governance was approximately as important as trust in the mining industry as a direct predictor of social

acceptance, and it was also an important predictor of trust in the mining industry. Thus governance has both direct and indirect effects on social acceptance of extractives.

Trust in the mining 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.

However, the most important predictor social acceptance was perceived balance of benefits over impacts of mining, or its value proposition for the Territory and its people. Like the rest of Australia, perceived employment from extractives and financial community benefits was the highest predictor of 'balance of benefits over impacts' variable. The balance of benefits over impacts with respect to extractives was viewed quite positively in the NT, in line with the national average. Only residents of WA rated this ratio of impacts to benefits significantly more positively than residents of the NT.

Regarding perceived costs, the impacts of mining on living costs was seen as relatively high in the NT, but it was not a significant predictor of the perceived benefits over impacts and so it is less important for overall social acceptance than other impacts. The most important negatively perceived impact related to the environment, which were also seen as relatively high in the NT. This means the environment is an important issue for social acceptance of mining in the NT.

## 3.3    Inequality in the NT

In addition to community sentiment analyses for the NT, CSIRO also calculated a measure of socio-economic inequality for the NT based on census data collected in 2006 and then 2016. The gini co-efficient is intended to represent the income or wealth distribution of a nation's residents, and is the most commonly used measure of inequality. With respect to SLO in the NT, the level of inequality across the Territory speaks to potential social divisions that may be exacerbated by resource development, or positively affected by it, depending on how development progresses. For those residents that already perceive low distributional fairness in the way the industry operates, low levels of community, family and personal economic benefit form extractives, and high levels of impact on the environment, for

example, high levels of general inequality may interact with these perceptions of the industry to undermine levels of acceptance of the industry (i.e. it's SLO).

For interpretation, it is important to note that there are no clear thresholds for what represents very high or low inequality and that the colours used in the following figures are used for illustration purposes only. Calculations of the gini co-efficient were based on total family income, regardless of employment status and includes both couple and one parent families with children.[1] The gini co-efficient varies between 0 and 1, where the closer to 1 the co-efficient is, the more unequal the income distribution is.[2]

Figure 6 illustrates the gini-co-efficient across the NT by Local Government Area (LGA) for the 2006 and 2016 census data sets. The Beetaloo Basin location is marked. It appears that across most of the NT, and for the LGA within which the Beetaloo Basin is located, has increased over the preceding six years.

Figure 7 reflects the change in gini co-efficient over this time. Only Katherine has seen little change in levels of inequality in this period, with all other LGAs in the NT experiencing growing levels of family income inequality in this time.

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[1] For the highest income bracket the open-ended class median is calculated based on the algorithm described by Parker and Fenwick (1983).  By using the Parker and Fenwick (1983) method, truncation error is avoided (c.f. Fleming and Measham, 2015).

[2] It is also important to note that calculations are based on available data, and census data collection methods disproportionately exclude Aboriginal Australians in remote Australia.

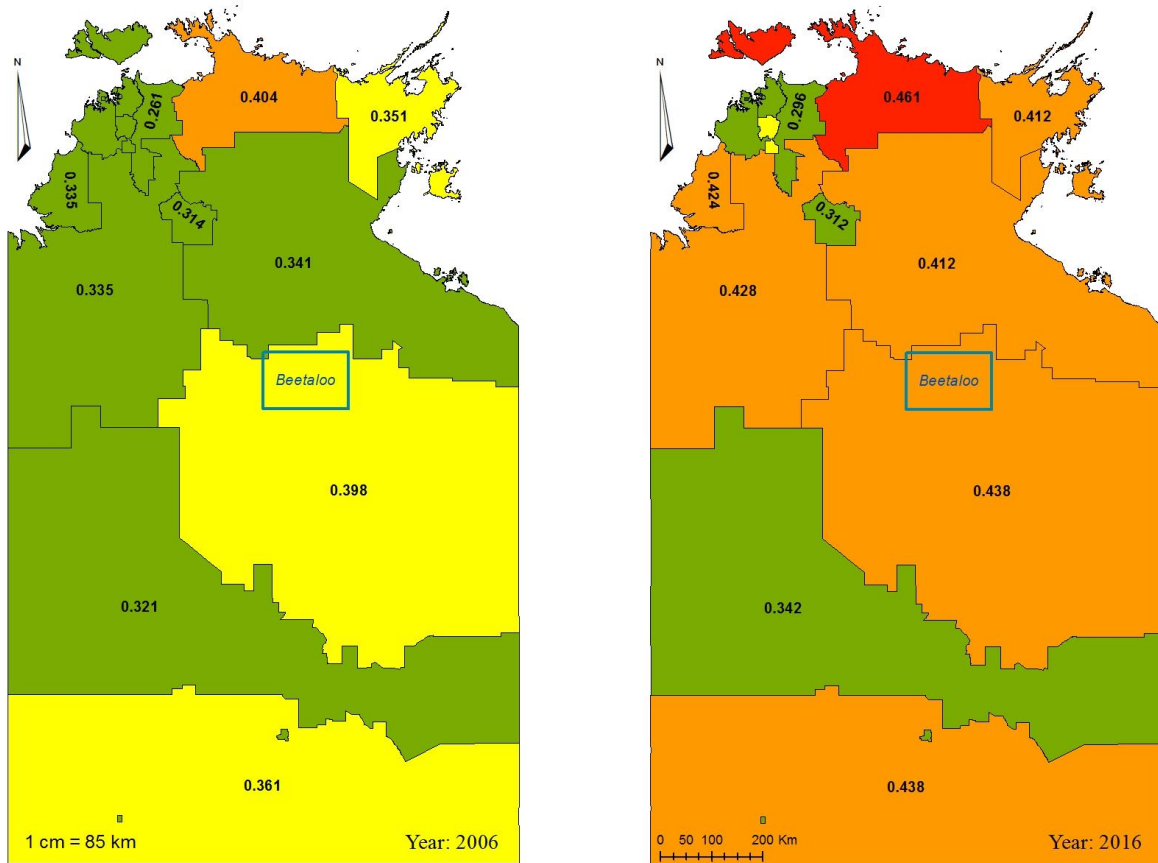**Figure 6 Local Government Areas coefficient of inequality in 2006 and 2016 (calculations based on 2016 Census data). Data sources: (Australian Bureau of Statistics, 2016; Geoscience Australia, 2017)**
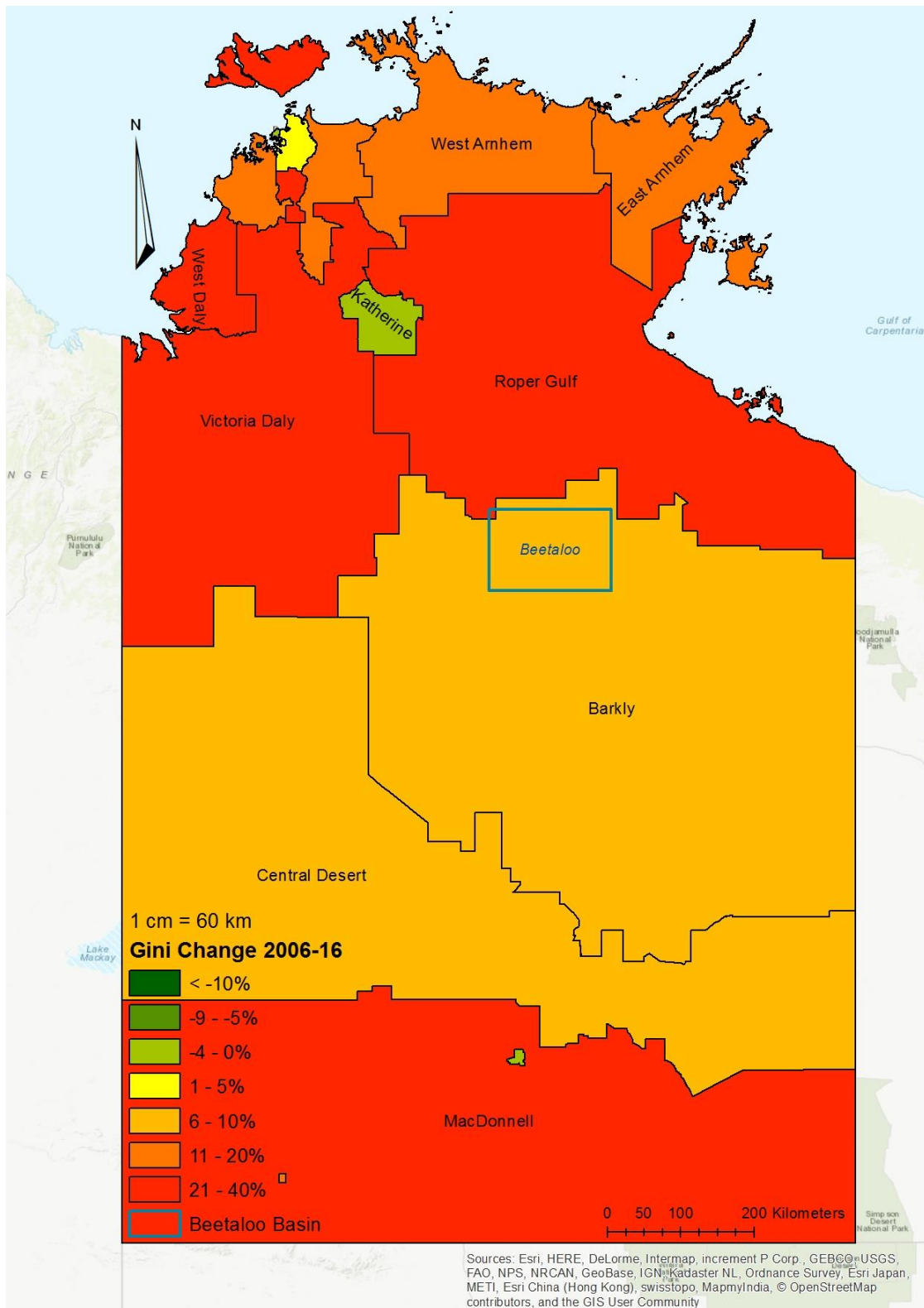
**Figure 7 Inequality (Gini) coefficient change in Local Government Areas, 2006 – 2016 (calculations based on 2016 Census 2016). Data sources: (Australian Bureau of Statistics, 2016; Geoscience Australia, 2017)**

## 3.4 Community and company perspectives: interviews and fieldwork

In order to ground the data presented above in a more local context, a range of stakeholder engagement activities were conducted as part of the broader scope of work that this SLO report sits within. The authors of this report conducted a limited number of interviews and discussions with industry and government stakeholders, and used the outputs from community engagement activities conducted in the NT by University of Queensland (UQ) researchers, to inform the following section. These data collection activities are limited, as reflecting the challenges of conducting primary research in remote Australia and the scope of CSIRO's component of work. The purpose of this section, therefore, is to provide some context for the data included above, while acknowledging the clear limitations of the engagement conducted within the scope of this project and development of this SLO report more specifically.

A consolidated list of groups consulted in the course of the whole project is contained in the Coffey Social Impact Assessment report (Coffey, 2017). To inform the current SLO report, seven detailed discussions of approximately an hour duration were conducted with industry and government department representatives (Table 4 details CSIRO discussants by sector). These were not formal interviews, but used by the lead researcher to gain context and perspective on issues that are evident in the survey and economic data presented above. In addition, detailed interview notes were made available for use in this report by UQ researchers who engaged community members and other stakeholders in Boroloola and Elliot during their field work component (Table 5 details the location of UQ interviewees, and Table 6 the Indigenous status of UQ interviewees). Notes from five interviews conducted in Boroloola and three in Elliot were used in this report.

**Table 4. Discussion participant sector and number of discussants**

| Participant | Organisations | Discussants |
|---|---|---|
| Industry company or representative body | 5 | 9 |
| State government department | 1 | 1 |
| Private sector company (non-gas) | 1 | 1 |
| **Total** | **7** | **11** |

**Table 5. Interviewee role by location**

| Interviewee | Borroloola | Elliot | Total |
|---|---|---|---|
| Small business employee | 2 | 2 | **4** |
| State government agency/service member | 3 | 0 | **2** |
| Local Indigenous leader | 0 | 1 | **1** |
| **Total** | **5** | **3** | **8** |

**Table 6. Indigenous status of interviewees by location**

| Interviewee | Borroloola | Elliot | Total |
|---|---|---|---|
| Indigenous | 4 | 3 | **7** |
| Non-Indigenous | 1 | 0 | **1** |
| **Total** | **5** | **3** | **8** |

In conversation with a range of industry, community and government stakeholders in a NT gas industry, several key themes emerged that are relevant to SLO. These include that existing social challenge and tensions within and between Indigenous and non-Indigenous communities in the Beetaloo Basin, and for the NT more broadly, risk being further exacerbated by large scale development that is not carefully planned and managed. For example, as the gini co-efficient data presented above indicates, there is increasing inequality in family income in the NT; any potential royalty payment scheme for new development must be designed carefully to ensure that an industry sharing economic benefit with local Traditional Owners doesn't exacerbate underlying trends in family income inequality in novel ways.

The potential benefits of the gas industry developing at scale were discussed. For industry these are self-evident, but for communities these benefits were less clear. At a Territory level, community benefit is well understood in terms of various revenues, employment, and industry and government investment in infrastructure, to name a few. However, at local levels the potential balance of impacts and benefits was less clear and perhaps less equitable. While jobs and training are desirable for these communities, and companies expressed commitment to working with local communities in traditional and creative ways to deliver local benefit, the reality is complex. Careful thought and planning as to how local communities may participate in extractive roles in culturally appropriate ways, develop foundational capacity from which to build

these skills, and considering opportunities that align with cultural interests and values (e.g. environmental management through the ranger scheme) are important. Local community members expressed the fact that despite previous development initiatives in the past, local benefit had not be realised to any large degree.

Uncertainty was a dominant theme of conversation in discussion of SLO. The process of resource exploration and development is inherently uncertain as to its outcome and the shape of future projects. Managing this uncertainty is a genuine challenge in all communities engaged by the extractives industry, but particularly where 'fracking' is employed. Community, industry and government contributors indicated that popular culture material and information (e.g. the film Gasland) relating to the deployment of similar technologies in other places was influencing how communities were thinking about fracking technologies and potential impacts in their own country. Uncertainty was seen to lead to anxiety, which in turn resulted in a 'better safer than sorry' approach to its deployment in the NT among some communities and individuals. This was particularly the case as the technology relates to water quality and quantity in the NT.

Community members themselves expressed strong interest in resolving or at least addressing their uncertainty through accessing information from industry and government regarding deployment of hydraulic fracturing technologies in the Beetaloo Basin, but some expressed frustration that there appeared to be no one to ask. In contrast, it is clear that the industry representative body has been providing an opportunity for the general public in more populated centres of the NT to access such information from technical experts. There seems to be a gap in who is actively seeking information to resolve uncertainty and where this information is being made available, however, based on the limited consultation summarised in this report.

Companies conducting exploration or preliminary work in the Beetaloo Basin reported strong engagement locally with potentially affected community members and Traditional Owners. Companies indicated that where they were able to meet regularly with community members, discuss and explore uncertainties together and opportunities for future benefit, relationships were sound. Reflecting the role of 'contact quality' in previous SLO research, this demonstrates that while resource intensive, such efforts are effective in building mutual understanding if not acceptance. However, comments from community regarding the lack of engagement in areas alongside or even overlaying company tenements also demonstrates the need for broader, more inclusive definitions of who is 'community' in this context.

All stakeholders engaged discussed the role of government as being critical to how the industry does or does not progress. There was a perception that government and its departments had been largely absent from the discussion about gas development in the NT for some time, but that greater involvement was not only welcome but vital to meet the challenges communities in particular face. This is again reflective of the NT specific data modelling described above, with articulated the role that faith in governance plays in directly and positively predicting acceptance of the extractive industries in the NT; without clear boundaries around development activity that reassures communities that the government is actively protecting their interests, community members indicated they would find it difficult to build trust in government, industry or the technologies it uses.

Constructively, many interviewees discussed ways in which government could be more effective for all stakeholders in the NT gas industry. First, that regulation should be creative, modern, and learn from the experiences of other jurisdictions to create a NT relevant framework for gas development. It should reflect the needs of stakeholders to articulate and share their perspectives without regulating too closely the process by which this takes place. Second, the need for careful and deliberate planning was expressed. 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 important here. What services will be required to build the capacity of community members for work and participation in new opportunities, services to support a potential influx of construction personnel, how community dynamics may change were all areas that were seen to be important in managing SLO issues through good planning. Third, there was a desire from community and from some industry participants, for government to play a more active role in engaging community. While trust needs to be established in government in this role for messages to be heard, the government was viewed as important in helping to manage perceptions of agenda-driven information provision by industry and also anti-development groups.

Clear in all of the conversations feeding into this report was a need to develop 'the NT way' in managing the gas industry should the moratorium be lifted. While there is much to be learned from the experiences of all actors and stakeholders in other jurisdictions that have experienced the growth of gas development, there was a clear feeling that the NT has some unique characteristics and cultural norms that mean these lessons are not able to be directly applied without reflection. However, research on SLO in many contexts around the world demonstrates

that there are usually many more similarities across contexts and commodities in the way community acceptance is developed and maintained over time, than there are differences. More likely, the issues of relevance to communities (e.g. water quantity and quality) and the factors that are known to be important in building trust and acceptance (e.g. procedural and distributional fairness, contact quality) will also be central in the NT, but how strategies for their development and engagement plans are executed would benefit greatly from contextualisation.

# 4 Limitations of this report

There are a number of limitations with the current report. Two of these are detailed below to provide a constructive context for future work around SLO in the Beetaloo Basin and NT more generally.

**Availability of data**

The national survey dataset held by CSIRO contains 8,020 responses yet only 227 of these come from the NT. While this is certainly enough data to conduct the analyses provided in this report, it lacks face validity when speaking to the broader social context of the NT. In addition, none of these 227 NT respondents reported their location as being in the Beetaloo Basin. This is not surprising given the CSIRO survey was not conducted to meet the needs of the NT Fracking Inquiry, it speaks to a broader issue of data availability from regional and remote Australia. It is very difficult and expensive to collect meaningful amounts of quantitative or qualitative data from the NT. However, SLO is about voice and agency of community, and gaps in data that allow meaningful research around SLO in specific regions are a denial of voice and agency for those that are excluded.

**Engagement of community members**

The number of community members engaged for this report is small. While in part this reflects the scope for this particular component of work, it also reflects the difficulty in engaging community members in remote Australia in meaningful ways. Genuine research regarding SLO involves placing the community member at the centre of the research process and ensuring that participation has real benefit and no greater risk for them than they experience in their day to day lives. For Indigenous community members, these concerns are even greater and must also be considered within a context of existing and past research of this group of Australians which is extensive. Any primary research in this area must reflect a longer term commitment to listen and respond to what is said by community, to be transparent about the purpose of the work and that the research framework they are being asked to participate in is worthy of their trust and time.

**Future research**

Future research or work in the area of SLO must consider these two critical areas if it is to be successfully conducted. A value proposition for participation should be established that reduces

the number of times community members are engaged to provide the same information to external actors, that reflects real and immediate benefit for them as participants, and is appropriate to culture and norms regarding sharing of information. The NT, however, is a place that would benefit strongly from high quality provision of data in different forms for the purpose of understanding SLO for the gas industry, and other industrial activities that intersect with community member's lives. Such a framework of research may also be deployed to explore the views of Territorians about a range of other issues that are important to their lives, like provision of government services, where voice and agency are also less than optimal for many people living outside of the major NT population centres.

# 5 Measuring and monitoring SLO in the Beetaloo Basin and NT

Measuring and monitoring community sentiment in the Beetaloo Basin, and the NT more broadly, regarding gas development in a meaningful way is critical. Such an activity has value for the straight forward reason that community voice is often largely absent from discussions and decision making processes that shape development trajectories in the extractive industries, and this lack of voice is at the heart of much community-company conflict. Legislated and 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 often regularly asking the same communities similar questions over time. Our own practice, supported by 'listening tours' conducted by the Queensland Resources Council (QRC, 2016), would 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 they themselves have little knowledge of. By successfully measuring and modelling the critical elements leading to social acceptance, companies can also prioritise their activities and investment in a way that maximises the creation of trust between an operation and the communities it works alongside. This also allows communities, companies and government stakeholders to engage with each other on the issues that matter before they reach a critical point and lead to conflict.

As requested by the panel, a process for measuring and monitoring SLO in the NT with respect to gas is detailed below, based on previous similar programs of work conducted by CSIRO:

## 5.1 Establishing trust in the framework

Measurement of SLO begins with understanding context and building trust in the measurement process. Establishing a trusted third party provider of this framework and measurement process is an important cue for community that the only interest being served by the collection of data is theirs; as a vehicle for their voice into the decision making context around gas development. To achieve this, funding arrangements and governance structures around collection and provision of community sentiment data must be established transparently, and any conflicts of interest (perceived or actual) explained, along with strategies to mitigate these.

Specifically, CSIRO conducts research activities with many companies, government departments and other actors in the resource extraction industry. How the organisation places the interests of community participants at the centre of its approach to human research is fundamental to the trust that it develops in new work that is initiated.

A chief mechanism for achieving this is having the independent CSIRO Human Research Ethics Committee review and approve the proposed research design. As with universities, CSIRO research that involves people can only proceed where it has ethical approval, and this approval comes with explicit conditions and provisions about the way that is must be executed that place the rights of participants first and ensures no harm will come to them. This is fundamentally important in building in establishing trust in the process. The ethics committee is then updated with any new information or developments as they arise through the initiation and execution of the research process to ensure that the conditions placed on the work are consistent with the needs of community members.

The boundaries of the measurement framework would also be established in this phase, determined ideally by the nature of the issues under investigation. In the case of SLO, this is a multi-scale issue. While members of communities in the Beetaloo Basin are clearly of central interest, community members in adjacent areas are important to include, as are residents in towns that will service the industry (e.g. Katherine, Tenant Creek), and Darwin. Sample sizes and emphasis may differ depending on location, but the social acceptance of the gas industry in the Beetaloo Basin is dependent on the views and experiences of people from all over the NT.

A CSIRO research team then works to understand the context in which this research is to be conducted in more detail. This stage involves:

- Meeting with key community stakeholders and understanding their value proposition for participating in the research process (i.e. why is it important to speak up about these topics? What do individuals and groups want in return for their participation? How can participation assist communities directly?)
- Building awareness of the intended program of work within the community more broadly through a range of communication channels (e.g. web site, radio, traditional media, social media, letterbox drops)
- Communicate how CSIRO does its work and protects the interests of community members that choose to participate

- Developing methodologies to ensure the research process is inclusive of all individuals and groups that choose to participate

## 5.2    Establishing the methodology

Once the context is understood clearly, the methodological tools required to provide voice to community members can then be developed. For the NT, this needs to be a mixed-methods approach. It is recommended that a survey methodology is used to collect most data within this framework, with the data collection method varied by social context.

Where literacy levels are sound and there is access to the internet, an online methodology may be used to collect the majority of data that will feed in to this SLO measurement and monitoring framework. The power of a survey methodology is that quality of data is generally higher and can be determined by researchers, data collection is more likely to be completed in private, and the data collected is quantitative allowing statistical analysis.

Where literacy levels are low and internet access is limited or non-existent, a different approach should be taken to ensure participants provide informed consent to participate, it is inclusive, and accurately reflects what people think. In this context then, two approaches are recommended. The first involves verbal completion of a stripped back survey instrument, facilitated by a trained researcher. This would involve the researcher asking questions of participants verbally, and inputting their response into a survey template using a tablet device. Data is then uploaded when the tablet comes into wifi range, or manually uploaded by the researcher. There are limitations in this approach and the selection of researchers and approach to data must be carefully conducted to reduce bias in its collection.

Where community members have little experience in completing surveys, low literacy levels or there are cultural reasons why survey methods are inappropriate or ineffective, a different approach must be taken. This approach should be developed with community members and not prescribed. For example, small group semi-structured discussions may be appropriate and effective to bring the voice of excluded and marginalised groups into a conversation about gas development. However, Aboriginal communities in particular are the subject of extensive research and engagement processes by many actors. A clear benefit for their participation must be developed in collaboration with these groups and a methodology for the inclusion of their voice developed by a trusted research agency, institution or other entity.

## 5.3    Conducting a benchmarking survey

It is important to understand not just what community members think about gas development but also why they think this way. As described in the literature review above, the mechanics of SLO are as important to understand as the baseline levels of each variable measured if an effective strategy for addressing concerns is to be developed. This requires the collection of a detailed baseline survey within the local and state populations, complemented by the more qualitative approach to groups where this is less appropriate.

In this survey, the following measures are recommended for inclusion:

- Demographic variables (age, gender, education, income, location, connection to place)
- Level of uncertainty around a range of potential positive impacts from gas development (e.g. employment, tax revenue, infrastructure development, local business benefits)
- Level of uncertainty around a range of potential negative impacts from gas development (e.g. impacts on ground and surface water, cultural heritage impacts, road traffic)
- (for local communities) experiences of interactions with existing companies in the gas industry, and other industries that also operate in the region
- Community wellbeing (e.g. life satisfaction, community suitability for a range of groups, affordability, amenity and liveability)
- Community expectations of companies operating in the gas industry
- Faith in governance institutions to protect the interests of community members
- Procedural and distributional fairness concerns
- Trust in a range of actors (e.g. the gas and other industries, government at different levels, small business owners, interest groups)
- Acceptance of a range of industries

It is recommended that key members of the community are supported to assist in encouraging members of their groups and networks to contribute their voices to this process. An incentive structure for participation that provides for community level rewards, rather than individual financial reward, should be strongly considered.

Data analysis may then be conducted, using an understanding of context developed through the engagement phase and the literature to guide the relationship tested. There are sophisticated methods available that allow the kind of analysis described in the literature review above that may be utilised in this process. The aim should always be to understand not just what community members think about particular topics or issues, but the mechanisms that underpin these perspectives. In SLO measurement and monitoring, the challenge is always to be thinking about

how data can continually and dynamically inform better practice rather than typical academic outcomes.

## 5.4    Accessing the data

The data collected is only effective in the context of SLO if it informs and supports better understanding within the relationships that constitute an SLO. To this end, feeding back results to community and other stakeholders in multiple ways, through multiple channels, in a language they can understand, is fundamentally important. Online platforms are very effective in providing data back to communities and stakeholders in an interactive and accessible form. The time between collection and provision should be as short as possible, even if that means staging the release of data as it is analysed. Other more traditional channels of communication are also effective and important, such as short graphical summaries of key themes in the data, bite sized segments of tailored for specific groups that may be designed as a postcard, or provision of embeddable charts for PowerPoint, are just a few examples of ways to enable community and stakeholders to access, digest and use the data collected. Examples of CSIRO work in this area are publicly accessible at https://research.csiro.au/localvoices/. This includes interactive data embedded in websites that allow community members to explore their own data for their area, explanation of key results in an accessible infographic format, and clear line of sight regarding who to contact if community have concerns or would like more information.

## 5.5    Reading the pulse of community

SLO exists in the dynamic everyday relationships that companies, government and citizens have with each other. Traditional forms of research in this area mismatch methodology to the phenomena being observed: A framework for measuring and monitoring SLO should seek to reflect the dynamism of these relationships through periodic data collection rather than static (i.e. yearly or biannually).

Depending on the nature of the issue or state of the relationship, this may vary between monthly and quarterly 'pulse' surveys. These pulse surveys should be much shorter than the baseline survey, taking less than five minutes to complete compared to best practice of around 20 minutes for a comprehensive baseline survey.

Pulse survey content is developed based on the key insights derived through the baseline survey, and may consist 8-10 items or questions completed online, by telephone or in person depending on group engaged and data collection processes employed.

Once enough pulse data has been collected over a period of time, longitudinal analysis of trends and patterns in the data may then be conducted to establish, for example, how effective government has been in building trust in the regulatory process, or the extent to which company engagement has increased reported knowledge of the industry and reduced local community uncertainty.

Typically, CSIRO conducts these types of measurement activities in a three-year cycle of activity, with a baseline survey followed by pulse surveys in the first year, continued pulse surveys for the balance of the three-year cycle and then a follow up baseline survey in year four.



## 5.6     Scaling data in a Territory based framework for SLO

For the NT, there is an opportunity to think about how a framework for SLO in gas may also be used as a framework for SLO across multiple industries and locations. Figure 8 illustrates how a system of scalable data collection may operate at a state or territory level. With consistent measures and methodologies, data collected at local community levels may be aggregated to provide basin or region level summaries, and then aggregated again to provide a Territory level summary of the current state of SLO. Integrating baseline and pulse data, this provides both the mechanism for improving SLO and the current level of each SLO attribute in close to real time to anyone that has an interest in it. Using contemporary technology platforms, these data may be made available in interactive dashboard formats through a secured or public web portal. By using the approach across multiple sectors, the per unit cost of data collected about gas may be reduced significantly.
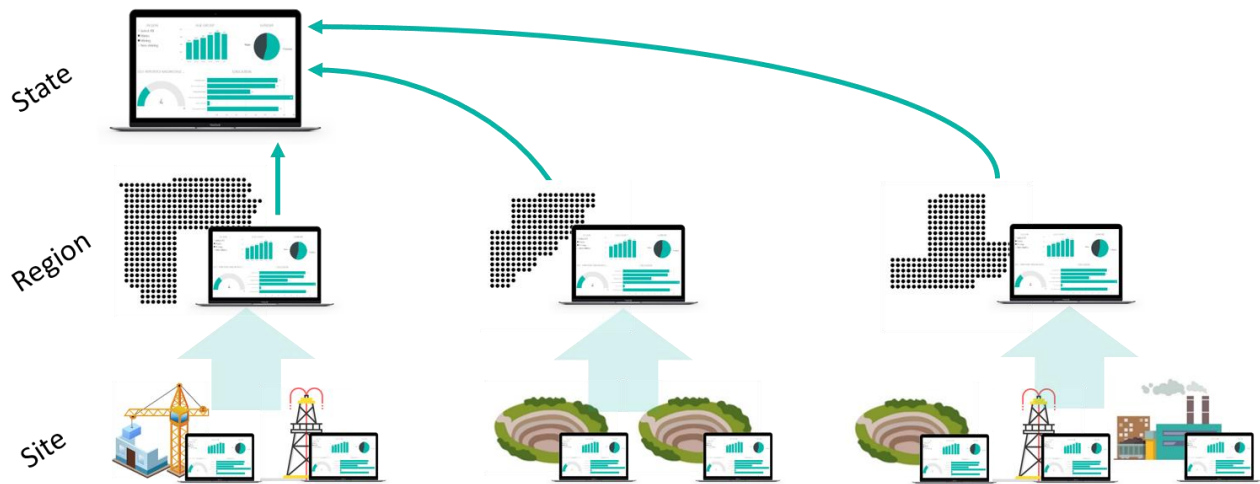
**Figure 8. Illustrative example of how scalable data may work for SLO in the NT**

## 5.7     Publication of results

Distinct from the publication of data for public and stakeholder consumption, the data itself should be published in a formal research output that is also available publically. This is important as it acts as a resource that sits behind the public facing measurement and monitoring framework, and provides confidence through peer review that the research is robust and has been tested independently.

## 5.8     The 'NT way'

Through establishing clear localised datasets, a NT framework for measuring and monitoring SLO, and Indigenous specific methods for reflecting the voices of remote and marginalised groups, it is then possible to create a context specific way of addressing SLO concerns. The information and importantly the process, of seeking and responding to community perspectives around gas development, provides the inputs required to create an 'NT way' for managing industrial development around gas and for other industries as well. There is a clear leadership role for the NT government here to establish this framework and support an agency or actor to conduct this work for the benefit and engagement of Territorians. This is challenging but required if trust in government is to be addressed meaningfully and the role that government may play in developing the gas industry in a manner that is acceptable to the citizens it represents. For industry, there is genuine challenge in making themselves somewhat vulnerable through such a framework and process. However, trust itself is dependent on vulnerability, and demonstrating that industry and

government is open to exploring and responding to challenging perspectives allows the establishment of an NT way for managing SLO that seeks to establish and develop trust between its key actors.

For regulators, this kind of framework provides invaluable input and guidance to provide to companies seeking to develop resources in the Territory and to inform a regulatory framework that is flexible and adaptive. It provides specific understanding about the mechanisms for building trust that engagement strategies should reflect (e.g. participation in decision making processes that affect communities), the issues that genuinely effect trust and acceptance of industry locally (e.g. it may be issues that are only evident through careful and sophisticated data analysis), and a way to determine the efficacy of regulated and suggested interventions by companies in their social context. These are not issues or processes that can be proscribed without sound data on which to base them, but through the collection of data across time in a framework such as the one described, this data is available to all and the rationale for action is clear and transparent.

# 6  Conclusion

Resources development is a complex and contested activity. Without local and broader community acceptance, or some kind of SLO, the development of an extractive industry is challenging. This is particularly the case for gas extraction utilising hydraulic fracturing technologies in a social context of uncertainty about the likely and potential impacts of these technologies on assets of significant community value, such as water quality and quantity in the NT. Yet there are clear markers in research examining SLO across multiple scales, commodities and jurisdictions that provide guidance around the issues that matter to communities and that drive the development of trust in an industry and its operators, and acceptance of their work.

Research presented in this report details the key drivers of trust and acceptance for the extractive industries. These include feeling heard, respected and involved in decision making processes (procedural fairness), feeling that the benefits (and impacts) of extraction are shared fairly (distributional fairness), that government has the capacity and will to ensure public interests are protected and industry held to account (governance capacity), that physical and social impacts are managed effectively and appropriately, and that interactions between company personnel and community members is a positive experience (contact quality). Analysis of family income inequality for the NT, calculated using 2006 and 2016 census data, revealed that the NT has declining family income equality. This is a baseline measure that allows for reflection on how the development of the gas industry may assist in redressing this trend, while the risks of exacerbating it were also discussed.

Engagement with industry, community and government stakeholders in the gas industry in the NT revealed that uncertainty about how the industry would look and fracking as a technology was a locus of attention for all of these stakeholders. There is a broad recognition that these technologies are not well understood beyond those that have been directly engaged by industry or have technical background. Reducing this uncertainty in a framework supported by government appears to be of real interest to most of those spoken with. And extending this, that government plays a more active and creative role in the discussion and engagement of these issues and the development of the industry itself.

Finally, there are well developed methods and models for measuring and monitoring SLO that may be applied to the NT. Key principles were described that should underpin such a framework,

including: independence and strong governance of any research, transparency of process and provision of data to all stakeholders, ensuring work is conducted under strict guidelines for ethical research practices, and that such research should aim to connect stakeholders through common understanding rather than isolate them in oppositional silos.

There is great opportunity for the NT to determine the conditions under which any future gas industry is developed, taking the best and most current lessons from other jurisdictions and defining 'the NT way' forward. With respect to SLO, an industry won't 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 to influence development trajectories. Without these constructive mechanisms, communities and interest groups will find creative ways to achieve influence.

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