



# NORTHERN LAND COUNCIL

*Our Land, Our Sea, Our Life*

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5 February 2018

Ref: F2018/0197

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Dear Hon Justice Pepper,

## SCIENTIFIC INQUIRY INTO HYDRAULIC FRACTURING IN THE NORTHERN TERRITORY – DRAFT FINAL REPORT

We thank you for the opportunity to submit comments to the draft Final Report which was released for public comment on 12 December 2017. Officers of the Northern Land Council (NLC) have examined the document and have prepared a submission, which is attached.

The NLC's submission draws attention to a number of concerns in relation to the draft Final Report, primarily in relation to Aboriginal people and their culture, water and recommendations related to the timing of the Strategic Regional and Environmental Baseline Assessment (SREBA).

The NLC advocates that a SREBA be undertaken across the Beetaloo Sub-basin prior to the moratorium on hydraulic fracturing being lifted to ensure that all data relevant to the development of the onshore petroleum industry are adequately captured prior to any associated impacts being realised. The SREBA should be utilised to assess risks and impacts related to all proposed developments in the Beetaloo Sub-basin, including but not limited to the onshore petroleum, pastoral, agro-forestry, mining and horticultural sectors. The SREBA approach should also be implemented in other regions subject to potentially high-impact and/or large-scale development proposals. These concerns and other issues are further described in the NLC's submission.

Should you have any queries regarding our comments, please do not hesitate to contact [REDACTED] or via email [REDACTED]

Yours sincerely

**Joe Morrison**  
**CHIEF EXECUTIVE OFFICER**

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Northern Land Council Submission to the  
Draft Final Report of the Scientific Inquiry into Hydraulic  
Fracturing in the Northern Territory



5 February 2018

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## Preface

Strong associations with land, its care and protection for future generations lie at the heart of Aboriginal belief. 'Our land, Our sea, Our life', the Northern Land Council's (**NLC**) charter, is the poignant reflection of the beliefs, priorities and aspirations of the Aboriginal people it represents. It is the NLC's responsibility to support the informed decisions of Aboriginal people to manage their land, waters and seas, including when engaging with the onshore petroleum industry.

On 14 September 2016 the Northern Territory Government announced a scientific inquiry into hydraulic fracturing of onshore unconventional reservoirs in the Northern Territory (the **Inquiry**) under the *Inquiries Act (NT)*. On 12 December 2017 the Inquiry released a draft Final Report (the **Report**) which provides draft recommendations intended to mitigate risks the Inquiry's scientific panel (the **Panel**) has identified with regard to hydraulic fracturing in the Northern Territory. The NLC is pleased to provide a submission (the **Submission**) to the Inquiry in response to the Report.

The NLC believes that overarching reform is required to improve the regulatory regime and management of the risks associated with hydraulic fracturing and development of the onshore petroleum industry in the Northern Territory. Regulatory reform and the activities of the onshore petroleum industry must be conducted with the knowledge that Aboriginal people are key stakeholders in these processes. Aboriginal people are integral to the social, cultural and political fabric of the Northern Territory and as a group constitute the largest landholders in the region.

The NLC insists that leading practice standards and methodologies be employed when it comes to the implementation of regulatory reform and development of the Industry. Such an approach must have regard to scientific norms and relevant internationally recognised principles such as Free Prior and Informed Consent (**FPIC**), Ecologically Sustainable Development (**ESD**) and the United Nations Declaration on the Rights of Indigenous People (**UNDRIP**) and must be consistent with the Aboriginal Peak Organisations Northern Territory's (**APONT**) 'sustainable livelihoods' approach (APONT, 2011).

To ensure Indigenous values are accurately represented in any onshore petroleum development proposal across all types of land tenure in the Northern Territory, the goal of seeking FPIC from Aboriginal land owners should be applied to both Government policy making and conduct of the onshore petroleum Industry. The requirement to obtain informed consent would open the door for Aboriginal people to truly be a part of the decision making process for all development proposals that directly affect them and their country if the onshore unconventional gas industry were to progress in the Northern Territory. The requirement for FPIC currently only applies to land governed by the *Aboriginal Land Rights (Northern Territory) Act 1976 (ALRA)* in the Northern Territory.

Some Aboriginal people have significant concerns about the use of hydraulic fracturing, particularly in relation to social and cultural risks, the industrialisation of traditional lands (connection and access to country) and the overuse and contamination of water. To date the Northern Territory Government has not been able to allay those concerns. This is probably due to the poor regulatory regime that applies in the Northern Territory which is a concern shared by the NLC.

The Submission provides new evidence and responds to new information presented in the Report that was not previously communicated publically by the Inquiry. The Submission is made on behalf of the NLC's Indigenous constituents and provides information on the relevance of the Inquiry to the NLC and to Aboriginal people in the Northern Territory.

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APPENDIX 1: NLC-SIMP Inquiry SIA Assessment

## Chapter 4: Evidence and Risk Assessment Methodology

All of the NLC's previously submitted recommendations for improving chapter 3 from the interim report have been adequately accommodated in chapter 4 of the Report.

Further considerations are highlighted below.

**Recommendation:** *Residual risk assessment – where possible accommodate comments on aspects of mitigation which may be particularly susceptible for noncompliance (e.g., human error, remoteness, technological failure).*

**Recommendation:** *Considerations for ease in reading and logical flow:*

- *Follow Section 4.5.4 with the Section on Quantitative risk assessment;*
- *Break Section 5.5 into two: Mitigation Measures and Residual Risks;*
- *Mitigation measures – consider distinguishing measures which are in existence and those which require new regulation/capacity; and*
- *Conclude with Recommendations (in line with figure 4.1).*

## Chapter 5: Shale gas extraction and development

### 5.3 Extraction of onshore shale gas

#### 5.3.2.5 Well decommissioning and abandonment

The Report states:

for shale gas wells abandoned using current practices it is highly unlikely that if any of these leakage pathways were to develop they would allow large fluid flowrates. The small cross-sectional areas and long vertical lengths of the pathways will limit flow (p.45).

While it may be unlikely that wells will leak in the short to medium term there remains a question regarding the integrity of abandoned wells over the long term and about who will be responsible for mitigating any potential impacts post abandonment. It must also be noted that a small leak in a well could release large volumes of gas if that leak were to persist over a significant period of time.

Casing shear must also be considered if large volumes of gas are extracted from shale. Could hydraulic fracturing and the removal of gas from the shale source rock result in minor seismic events large enough to impact on casing and reduce or damage the integrity of the

annulus? It is also important to note the number of problems that have been recorded within the Western Australian onshore gas industry (see 5.4.4.3 Western Australia).

**Recommendation:** *Robust standards be developed that accord to leading practice for all materials used in well construction.*

The Report states “*the Panel has found that there is a paucity of information available on the performance of abandoned onshore shale wells. Indeed, it appears to be only recently that specific attention has been paid to this issue by regulators*” (p.47). The lack of quality data in this field is surprising given the extraction of onshore shale hydrocarbons has been ongoing around the world for many decades. For an unconventional gas industry to be approved in the Northern Territory without a clear understanding of how abandoned shale wells perform over time (and their potential impacts) would be irresponsible.

The Panel also states “*It is highly likely that well abandonment practices will experience innovation as the scale of abandonment activity increases globally*” (p.47); while this may be true, hoping that technologies will improve in the future does not in any way reduce the known and unknown risks associated with well abandonment. If there is a lack of data or clear results regarding how abandoned wells perform over time this should be clearly stated by the Panel and no assumptions made.

It is also stated on page 47 of the Report that “*Given the current moratorium in the NT, there is unlikely to be a substantial number of wells abandoned in the near future, which provides an opportunity to establish a long-term abandoned well program.*”

If the moratorium is lifted and the onshore gas industry proceeds, wells will be drilled and then abandoned, the timing of abandonment depends on the quantities of gas available at that site. This practice will occur during the time when there is a paucity of information available on the performance of abandoned onshore shale wells. Additionally, wells have already been drilled in the Northern Territory that will need to be abandoned at some stage. In this case the precautionary principle should apply. Assuming that it will all be fine without any long term data to support current abandonment procedures does not accord with the principles of Ecologically Sustainable Development (**ESD**).

**Recommendation:** *It needs to be clearly identified at the outset who is responsible for abandoned wells both now and in perpetuity and, if the Government is responsible, which agency?*

**Recommendation:** *It also needs to be determined in the case well integrity fails; what remedial action will be taken and who will undertake and pay for this work.*

## 5.4 Well Integrity

### 5.4.2.4 Long-term stability and integrity of cement

Page 53 of the Report states:

Given that extent of corrosion and cement degradation is likely to be much greater with CO<sub>2</sub> at high pressure than with methane, the Panel has concluded that if onshore shale gas wells are properly designed, installed and maintained, the risk of long-term leakage from the wells through degradation of the cement will be low.

As noted by the Panel on page 57 of the Report, casing corrosion has been identified in Western Australia and it is difficult to predict exactly how casing corrosion/failure may interact with cement within the annulus. For example, 'concrete cancer' or the cracking of cement due to rusting of steel bars used for reinforcement is common and while the cement used in gas wells is not reinforced, the rusting of casing metal may cause the casing to expand and thus place pressure on the cement and potentially impact on the integrity of the annulus seal.

There are a large number of incident reports from around the world that focus on well integrity for example, a summary of incidents published on the *Railroad Commission of Texas* website (<http://www.rrc.state.tx.us/oil-gas/compliance-enforcement/blowouts-and-well-control-problems/blowouts-and-well-control-problems-2016-2017>, accessed January 2018) and the *Alberta Energy Regulator's* website (<https://www.aer.ca/>, accessed January 2018) cite metal failure (including casing, tubing and well heads) as resulting in the uncontrolled release of hydrocarbons to the environment. Whilst the NLC appreciates that well operations and construction techniques differ according to the resource being extracted, these incidents do highlight the fact that steel is prone to a number of failure pathways and that it does deteriorate over time and so it should not be assumed that any part of a well will have an infinite life.

In light of this evidence, how can the Panel guarantee that future generations of Territorians will not have significant legacy issues to deal with due to abandoned wells and that the resources and technical expertise available to the regulators will be sufficient to deal with both the nature and potential scale of the problem?

### 5.4.2.5 Potential impact of hydraulic fracturing on well integrity

The Report states:

In the NT, the Baldwin 2HST-1 well experienced a shallow casing failure during the first stage of hydraulic fracturing in 2012 in this instance; the multiple casing design protected the shallow aquifer according to groundwater monitoring data, noting, however, that the fluid in use at the time had minimal chemical content (p.53).

Casing failure could become a significant problem if companies were to import steel products that did not conform to industry standards and/or from suppliers that do not have strict quality control regimes in place.

***Recommendation:*** All casing and tubing used in well construction in the Northern Territory should meet the legislated and/or leading practice standard and significant penalties should be imposed on any company that tries to circumvent the requisite standards.

#### **5.4.4.1 Review of international published data**

The Report provides the following statements:

Watson and Bachu demonstrated that well barrier failure rates reflect the geological conditions of the wells, the regulatory requirements in place during well construction and abandonment, the era of the well construction, the well type, the well purpose and history, and many other factors (such as oil price, equipment used, materials available, operators' technical competence in the well construction, and abandonment). They also found that occurrence of well barrier and well integrity failures decreased for newer wells (p.57).

However Table 5.1 (p.54) indicates an increase in well barrier issues for the period 2010 - Feb 2012 in Pennsylvania USA. Can the panel please clarify what is meant by the term newer wells and what date this term would apply from?

#### **5.4.4.3 Western Australia**

On page 57 of the Report the Panel comments:

Patel et al. reported a study on well integrity issues for all the oil and gas wells drilled onshore in WA, and including offshore wells in State waters, that have not yet been decommissioned. The study found that 122 out of 1,035 non-decommissioned wells (that is, 12%) had compromised well barriers. Tubing failure dominated well barrier failure occurrences. Of the 1,035 wells studied, 86 wells had tubing failure (or 8.3% of the total wells studied). Tubing leaks can occur through holes corroded or eroded by production and injected fluid inside the tubing or from the twisting of the tubing. Casing failure occurs predominantly in production casing due to corrosion, pressure differential, and thermal effects, causing the pressure behind the production casing to exceed the collapse resistance of the casing. Approximately 22 out of the 1,035 non-decommissioned wells had production casing failure (or 2% of the total wells studied).

These figures are concerning given that the Western Australian onshore oil and gas industry is relatively new. The figures presented above raise concerns as 12% of non-decommissioned wells have compromised barriers after a relatively short life. The Panel then

proceeds to report that “none of the 122 wells with single barrier failures had leakage to the external environment. That is, there was no failure of well integrity” (p.57). The NLC acknowledges that there was no leakage to the external environment but the rate of metal failure can only be described as deeply concerning as the condition of tubing emplaced within existing wells can only worsen over time.

Recommendation 5.6 on page 67 of the Report states:

that in consultation with industry and the community, the Government develop a wastewater management framework for any onshore shale gas industry. Consideration must be given to the likely volumes and nature of wastewaters that will be produced by the industry during the exploration and production phases [and] that the absence of any treatment and disposal facilities in the NT for wastewater and brines produced by the industry be addressed as a matter of priority.

The NLC submits that recommendation 5.6 be supplemented to ensure the construction and operational costs of the waste water treatment and disposal facility not be borne by the tax payer. Furthermore if the facility were to be managed by the Government it must operate on a full cost recovery basis where the amount paid by the user is calculated based on the lifetime costs to manage any waste deposited therein.

**Recommendation:** *The NLC submits that no hydraulic fracturing should be permitted until all of the recommendations made by the expert Panel, including the Strategic Regional Environmental and Baseline Assessment (SREBA), have been adopted and implemented. This should occur as soon as possible and **not** prior to production as recommended in the Report.*

## Chapter: 7 Water

### 7.1 Introduction

Water is both steeped in Aboriginal mythology and history and critical to the present day maintenance of life, culture and livelihoods. Water always has and always will be central to Aboriginal identity and, thus, to the continued maintenance of Aboriginal law and culture in this country. It is no wonder then that concerns about the potential detrimental impacts that an onshore shale gas industry may have on the Northern Territory’s water resources were prevalent during the Inquiry’s submission and community consultation process as noted by the Panel in the Report<sup>1</sup>. The fact that the basic characteristics of both ground and surface water resources are generally poorly understood in the Northern Territory, including across much of the Beetaloo Sub-basin itself, does little to allay the community’s concern for water.

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<sup>1</sup> Draft Final Report, page 90.

Given the critical importance of securing and maintaining water quality and quantity of supply for environmental, domestic and industrial use, the fact that water being named in the Report as the central community concern regarding the development of an onshore shale gas industry in the Northern Territory is not a surprise and is most certainly a view that is supported by the NLC and its constituents. The NLC lauds the application of the principle of ESD, including importantly the precautionary principle and intergenerational equity, in the Panel's analysis of the short and long-term risks associated with development of the onshore shale gas industry in the Northern Territory. It is another thing though to ensure that ESD principles are mandatory requirements of environmental assessment legislation in the Northern Territory.

In light of industrial, defence, residential, agricultural and other developments within the Tindall Aquifer system and concomitant per- and poly-fluoroalkyl substances (**PFAS**) contamination of that aquifer and the relatively high level of dependence on groundwater resources in the Northern Territory<sup>2</sup>, the potential impacts to these resources presented by any development proposal must be treated with the utmost caution. It is of some comfort to note the Panel promotes that a high degree of caution be adopted by the Northern Territory Government in its decision-making relevant to regulation of the onshore petroleum industry.

One clear deviation from this leading practice approach, however, is that the timing of some key recommendations related to water presented in the Report are tied to the grant of a production licence<sup>3</sup>. The NLC submits that the timing of critical reforms presented by recommendations 7.1 and 7.4 should be brought forward so as to occur prior to any hydraulic fracturing and groundwater extraction being permitted. The development of a regional groundwater model should not be exempt from this requirement or otherwise delayed; it is critical that baseline data underpinning this model is acquired prior to any further hydraulic fracturing being conducted. This indicates that in formulating its recommendations, the Panel has, unwittingly or otherwise, overlooked leading practice methodology and the recommendations of the report (commissioned by the Panel) by Huddleston-Holmes *et. al.* (2017) where it is stated that '*baseline studies to characterise the environment before shale gas activities commence...*' In its own comments the Panel has also acknowledged that predicting the likely impacts of any unconventional gas development on groundwater will require a detailed understanding of hydrogeological and hydrochemical characteristics under 'pre-development' conditions.

The NLC does not consider a representative baseline can be achieved in parallel with hydraulic fracturing and land disturbance activities being undertaken during the exploration and appraisal phases of development in those areas where such data is lacking, including the Beetaloo Sub-basin.

### 7.2.2 Groundwater Resources

On page 96 of the Report the Panel comment that:

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<sup>2</sup>Groundwater accounts for 90% of all of the Northern Territory's consumptive water supplies, a much higher proportion than for any other Australian jurisdiction, Draft Final Report, page 96.

<sup>3</sup> Recommendations 7.1 (p.106) and 7.4 (p.120).

Groundwater accounts for 90% of all of the NT consumptive water supplies, a much higher proportion than for any other Australian jurisdiction". The panel then goes on to comment that " Predicting the likely impacts of any unconventional gas development on groundwater resources in prospective shale basins requires a detailed understanding of their hydrogeological and hydrochemical characteristics under pre-development (baseline) conditions.

Given the Northern Territory is so reliant on groundwater resources, and given the Panel has identified that climate models predict a temperature rise in the coming years and that water use by plants is expected to increase (p.91), and given the paucity of information about regional surface and groundwater systems and the interaction between these systems in the Beetaloo Sub-basin and elsewhere in the Northern Territory, how can any activities associated with the onshore gas industry be permitted prior to fully understanding the hydrogeological and hydrochemical characteristics of a region under pre-development (baseline) conditions?

**Recommendation:** *The NLC recommends that no hydraulic fracturing activities be permitted prior to a full understanding of a region's hydrogeological and hydrochemical characteristics being achieved.*

Section 7.2.2 of the Report discusses two groundwater studies currently being undertaken on the Beetaloo Sub-basin. The Panel states Geoscience Australia has advised that, "there is reasonable data and understanding of the groundwater system north of Daly Waters, but very sparse data south of Daly Waters" (p.100). In addition to the above, the Panel identifies that "*Rivers, wetlands and other water-dependent ecosystems are a dominant feature of the northern (higher rainfall) region of the NT, and are also critical ecosystems in many parts of the central and southern more arid regions*" (p.100). The Panel has also identified that there is a "*limited understanding of the aquatic ecology of the temporary streams and waterbodies that dominate the semi-arid and arid regions of Australia*" (p101).

The NLC is concerned that insufficient data exists to accurately predict or model interactions between hydraulic fracturing activities on ground waters and aquatic ecosystems within the Beetaloo Sub-basin, particularly the southern region of that basin.

The Panel has identified on page 103 that increasingly Australian states are recognising stygofauna as globally significant due to "*high levels of endemism*" yet it appears as though very little (if any) data have been collected of this group as the Panel commented that is not aware of any studies undertaken on stygofauna in the NT (p.103).

Given that there will be a significant exploration focus in the southern section of the Beetaloo Sub-basin and that currently there is very little information of groundwater systems, aquatic ecology or stygofauna assemblages in this region, the NLC recommends that no further land disturbance activities (including drilling) be permitted until all the relevant pre-disturbance

baseline data can be collected, collated, analysed and results disseminated to local communities and the broader Northern Territory public.

**Recommendation:** *The NLC recommends that no further land disturbance activities, drilling or hydraulic fracturing be permitted prior to the collection, analysis and dissemination of pre-disturbance groundwater, aquatic ecology and stygofauna baseline data.*

#### **7.2.4.2 Application of the Water Act to petroleum activities**

In this section the Panel has identified that petroleum activities are currently exempt from the Water Act. Given the large volumes of water that will be utilised by the onshore gas industry the NLC supports the intent of Recommendation 7.1 (p.106), however, some amendments are proposed.

**Recommendation:** *The NLC proposes that Recommendation 7.1 be amended to read:*

*That prior to the lifting of the moratorium on hydraulic fracturing in the Northern Territory that the Water Act be amended to require gas companies to obtain water extraction licences under that Act in accordance with a Water Allocation Plan. That the Government introduce a charge on water in the NT for all onshore shale gas activities*

The Panel has identified that “Currently, the water trigger in the EPBC Act does not apply to shale gas developments despite water resources clearly being of environmental significance to these developments” (p.106). Given the large volumes of water that will be required by the onshore gas industry, the NLC submits that recommendation 7.2 be amended as follows:

**Recommendation:** *The NLC proposes that Recommendation 7.2 be amended to read as follows:*

*That prior to the lifting of the moratorium on hydraulic fracturing in the Northern Territory the Northern Territory Government request the Australian Government to amend the EPBC Act to apply the ‘water trigger’ to all onshore shale gas development.*

The NLC also proposes an additional recommendation that if this request is not accepted and implemented within two years of the release of the Final Report, then NT legislation should be amended to similar effect and that there be a legislative requirement for an Expert Scientific Committee to advise with respect to water and onshore gas development. This will

ensure that this level of environmental protection and independent advice applies in the NT in the absence of appropriate amendments to the EPBC Act.

### 7.3.1.3 Groundwater

The Panel has estimated that approximately 800 registered water bores exist within the Beetaloo Sub-basin with “most of this used for stock watering. This aquifer also provides domestic water for several Communities, including Elliott, Newcastle Waters, Daly Waters and Larrimah. Just north of the Beetaloo Sub-basin, the towns of Mataranka and Katherine access water from the same aquifer system” (p.112).

The NLC would like the Panel to also consider how much water is allocated and is being used for plantation timber within the region, as water usage by this sector seems to have been omitted from the data collected and reported on by the Inquiry.

**Recommendation:** *Include data on water use/allocation for the plantation timber industry within the region.*

## 7.4 Assessment of water-related risks

### 7.4.1 General

The Panel notes herein the Report that it is a requirement that an Environmental Management Plan (**EMP**) must be prepared and approved by the Minister for Resources “prior to commencing well stimulation (hydraulic fracturing activities)” (p.116). The Panel then proceeds to note that: “The EMP must include an environmental risk assessment to ensure:

- onshore oil and gas activities are carried out in a manner consistent with the ESD principles; and
- environmental impacts and risks associated with onshore oil and gas development activities are reduced to a level that is ALARP and, **therefore**, acceptable.” (p.116)

The NLC notes that just because a risk has been reduced to ALARP it does not automatically (*therefore*) become acceptable.

**Recommendation:** *Remove the word ‘therefore’ from this context in the Final Report.*

### 7.4.3 Strategic regional environmental and baseline assessment (SREBA)

As discussed above, the NLC has concerns about the timing and implementation of the SREBA as the Panel has recommended these studies take place “before any production licences are granted” (see Recommendation 7.4, p.120), rather than prior to hydraulic fracturing being permitted.

In addition the Panel states:

these SREBAs should focus on providing a baseline understanding of the surface and groundwater resources, hydrogeology, aquatic ecosystems and terrestrial ecosystems using data that is representative of the geographic, climatic, and hydrogeological characteristics of any prospective basin, and an assessment of the vulnerability of these systems to any hydrological changes associated with any onshore shale gas development (p.120).

The NLC supports the intent underpinned by Recommendation 7.4. However, the NLC submits that Recommendation 7.4 be amended to as follows:

**Recommendation:** *That Recommendation 7.4 be amended to read:*

*As That a strategic regional environmental and baseline assessment (SREBA), including a regional groundwater model, be developed and undertaken for any prospective shale gas basin before any hydraulic fracturing activities are permitted in that basin, commencing with the Beetaloo Sub-basin.*

Additionally the NLC believes that all land use should be considered as part of the SREBA. Pastoral activities, mining and more recently horticulture, forestry and agroforestry coexist within the Beetaloo Sub-basin and elsewhere in the Northern Territory and all have impacts on water and the broader environment. It will be essential to differentiate between the deleterious effects and the source of the impacts so that the onshore gas industry can accurately be held accountable for any actual negative impacts caused.

**Recommendation:** *As part of any SREBAs identify all existing and potential land uses within the study area so that hydrological and other impacts that may be caused by either petroleum, defence, mining, agricultural, forestry, urban development and other activities can be monitored and measured*

#### **7.5.2.1 Regional impacts**

It is acknowledged by the Panel that the lack of surface water and high rates of evaporation in arid and semi-arid regions (p.93) will essentially prohibit the use of such resources. The NLC supports the Panel's recommendations regarding surface water extraction in areas subject to these climatic conditions and lauds the Panel's recommendation (Recommendation 7.5, p.121) to prohibit the use of surface water resources for all onshore unconventional gas hydraulic fracturing in the Northern Territory.

The NLC agrees that much investigation is still required to be undertaken in areas not covered by water allocation plans (WAPs) and welcomes the Panel's recommendation

(Recommendation 7.6, p.123) to establish new Water Control Districts (WCDs) and WAPs in areas outside of the Inquiry's focus to ensure sustainable use is achieved. This must occur prior to any approvals for land disturbance activities, including drilling, are issued to avoid adverse impacts to Aboriginal and other stakeholders and the environment.

Page 123 of the Report notes that *"on the basis of the available evidence, the Panel has assessed the resultant risk in the northern part of the Beetaloo Sub-basin and other regions with similar or higher rainfall as 'low' (likelihood - 'low', consequences - 'low' to 'medium'), but notes that there is considerable uncertainty associated with this assessment"*.

The Panel has also commented that *"for the southern Beetaloo Sub-basin, and other semi-arid to arid regions, the Panel's view is that groundwater extraction for shale gas production should be prohibited until the groundwater resource is better understood"* (p.123).

The NLC believes that given the considerable uncertainty associated with the groundwater assessment in the northern Beetaloo Sub-basin and the fact that it is the Panel's view that groundwater extraction should be prohibited until results from SREBA have been obtained; the NLC makes the following recommendations:

**Recommendation:** *That no hydraulic fracturing be permitted until results from SREBA have been obtained, collated and disseminated to the public.*

**Recommendation:** *That the current moratorium on hydraulic fracturing be maintained so that SREBA can be conducted prior to any land disturbance activities being commenced.*

### 7.6.1 Unacceptable groundwater contamination due to leaky wells (pathway 1)

The Panel notes that *"the Amungee well was a Category 9 well with cement casing along the full length of the well casing to the surface"* (p.134). The NLC acknowledges that construction standards have improved; however, as previously commented in the Submission, there are still insufficient data on the long term performance of these wells post abandonment. Data presented in the Report from a survey conducted on Western Australian wells noted deterioration of tubing and casings over a relatively short period of time (see: 5.4.4.3, p.57). This and recorded incidents in other jurisdiction raise questions about long term integrity of wells.

#### 7.6.1.2 Contamination by methane

The Panel states that *"methane is not considered to be a toxic component in groundwater, however, the presence of methane can be an explosion hazard"* (p135). The NLC is of the opinion that any change to groundwater quality regardless of whether it is considered a 'toxic component' or a 'health risk' is unacceptable. Methane in water can have a strong odour and no one should be placed in a situation where their drinking water supply is tainted by methane.

Any changes to the perceived quality of ground water could be met with fear from residents and lead to stress, dissatisfaction and other negative impacts.

**Recommendation:** *All aquifers within granted onshore gas exploration permits should be tested for methane content as part of the SREBA processes prior to the commencement of drilling and hydraulic fracturing activities*

**Recommendation:** *Regular monitoring of aquifers used by remote communities and Aboriginal homelands should be undertaken at the expense of the gas industry.*

**Recommendation:** *Any detection of methane within an aquifer previously considered free of methane should trigger an automatic investigation by a non-industry affiliated (independent) scientific body.*

#### 7.6.2 Unacceptable groundwater contamination due to faulty abandoned wells (pathway 1)

The Panel has assessed the risk that groundwater could be contaminated from abandoned leaky wells and comments that “*even if well integrity degrades in abandoned wells over the long term, there is unlikely to be a hydraulic driver for leakage into groundwater supplies*” (p138). The Panel has commented to the effect that even if there is a well integrity issue fluid flow would be downwards towards the depressurised zone. While in principle the NLC would support this thinking, should casing fail within the groundwater zone and elsewhere, there is potential for groundwater to flow downwards within the well providing a link between surface and confined zones.

As it is unclear what will happen within geological formations for decades to come, and it is unclear if seismic activity will be induced as a result of removing large amounts of gas from shale zones, the NLC is concerned there is opportunity for groundwater contamination in the longer term, possibly as experienced in Pennsylvania, USA.

The NLC is also concerned that materials used may not meet the best available standards, thus facilitate deterioration of tubing and wells in the longer term. Page 47 of the Report states “*the Panel has found that there is a paucity of information available on the performance of abandoned onshore shale wells. Indeed, it appears to be only recently that specific attention has been paid to this issue by regulators*”. For reasons presented above, the NLC does not believe that the Panel can state with the requisite degree of certainty that “*the risk of contamination of aquifers due to faulty abandoned wells is ‘low’*” (p.139).

**Recommendation:** *That the Panel remove its statement that the risk of contamination of aquifers due to faulty abandoned wells is 'low' given the very low probability of this occurring with implementation of world leading practice design and at least current Category 9 construction standards being mandated and provided that the well passes a rigorous integrity test prior to being decommissioned.*

### 7.6.3 Unacceptable groundwater contamination due to surface spills of wastewater and fracking chemicals (pathways 2, 3 and 8)

On page 142 of the Report the Panel has recommended<sup>4</sup> that:

to reduce the risk of contamination of surface aquifers from on-site spills of wastewater:

- the EMP for each well pad must include an enforceable wastewater management plan and spill management plan, which must be approved prior to the commencement of hydraulic fracturing;
- enclosed tanks must be used to hold all wastewater;
- the well pad site must be treated (for example, with a geomembrane) to prevent the infiltration of wastewater spills into underlying soil and thence into to an aquifer; and
- a real-time publicly accessible monitoring program for each well pad must be established.

The NLC supports Recommendation 7.11 and would like the Panel to further consider adopting the following recommendation in the Final Report:

**Recommendation:** *that the cleared area for any drilling operation contain an impermeable bund to prevent pollution of the surrounding environment.*

## Additional Issues – Chapter 7 Water

It is important to note two further issues in the context of the NT Water Act.

First, the current Northern Territory Government has announced a Strategic Aboriginal Water Reserve Policy Framework in 2017. If implemented this will provide for the reservation of water for some Aboriginal people for consumptive uses and will have an impact on the availability of water for the onshore gas industry if it is required to comply with the Water Act and be subject to water allocation plans.

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<sup>4</sup> See: Recommendation 7.11.

This is a welcome development as it recognises in broad terms rights to the use of traditional waters for economic purposes in some circumstances. This should be a recommendation of the Inquiry.

It is proposed that varying percentages of the consumptive pool in future Water Allocation Plans be allocated for indigenous economic development depending on the percentage of land held by or on behalf of indigenous interests. The policy at this time only applies to:

- i. Aboriginal land (scheduled under the Aboriginal Land Rights Act);
- ii. Aboriginal land (Northern Territory enhanced freehold); and
- iii. Exclusive Possession Native Title Determination Areas.

It is notable that much of the land above the Beetaloo Sub-basin is recognised as non-exclusive native title land and therefore those Aboriginal people will miss out on the benefits of this important policy development. This should be remedied and it is the NLC's view that the Inquiry should also make a recommendation to this effect.

Second, as mentioned by the Inquiry in this Chapter, the NT Water Act is not compliant with the National Water Initiative. Compliance with this important national policy which goes to the sustainable use of water and the recognition of indigenous interests and needs in water planning and use should also be a recommendation of the Inquiry. The Northern Territory has been a signatory of the National Water Initiative yet not fully compliant since 2011.

## **Chapter 8: Land**

All of the identified potentials for unacceptable impacts have been assessed to have a low risk with mitigations implemented aside from: 'Unacceptable increase heavy vehicle traffic' which is deemed not acceptable.

The following provides comment on the risk assessment and or recommendations presented in the Report.

### **8.4.2 - Unacceptable increases in the spread or impacts of invasive species**

#### ***8.4.2.1 - Unacceptable increase in the spread or impact of weeds***

- Early detection and response for invasive species remains a high concern which cannot be readily mitigated in remote localities.

#### 8.4.2.3 - Unacceptable increase in the impact of feral animals

**Recommendation:** *That the Panel recommend the following actions be taken up by Industry to mitigate the unacceptable increase in the impact of feral animals:*

- *progressive rehabilitation of road networks.*
- *monitoring for the influence of road networks and feral cat predation – refer to comments below for roads and pipelines as ecological barriers and corridors.*

#### 8.4.3 - Unacceptable changes to fire regimes

- Increased ignition opportunity via an increased network of roads remains a high concern which cannot be readily mitigated. The existing road network stands as a testimony.

#### 8.4.4 - Unacceptable changes to native vegetation

Note the following existing studies for impacts of fragmentation for tropical savannas:

- Rankmore B, and Price O 2004 The effects of habitat fragmentation on vertebrate fauna on tropical woodlands, Northern Territory, Pages 452-473 in Lunney D, ed, Australian Forest Ecology (second edition). Royal Zoological Society of New South Wales, Mossman.
- Rankmore B, 2006, Impacts of habitat fragmentation on vertebrate fauna of the tropical savannas of Northern Australia; with special reference to medium-sized mammals, Phd thesis, Charles Darwin University, Darwin.
- Griffiths A.D, Stewart A.J., Calnan, T, Venn S, Brooks K, & Rankmore B 2009, Landscape design for maintaining ecosystem services in tropical agricultural landscapes: the response of fauna and flora to landscape mosaics and implications for land clearing policy. Report to Land and Water Australia. Department of Natural Resources, Environment, the Arts and Sport, Darwin

**Recommendation:** *Monitoring of threatened species at risk must accommodate studies (or at the very least refer to existing studies) which will enable external review of the power of any monitoring program to detect a significant change in population (e.g., a 30% decline in occupancy is the smallest decline necessary to trigger management action according to IUCN Red List criteria ).*

#### 8.4.5 - Roads and pipelines as ecological barriers and corridors

**Recommendation:**

- *Apply rigorous protocols for fauna spotting and retrieval plus data collection with any construction of trenches or disturbance which may act as fauna traps.*
- *Accommodate further monitoring investigating interactions between infrastructure corridors, fire and potential flow on impacts for increased predation pressure by feral cats and implementation of appropriate course of action if negative impacts are detected*
- *Road and pipeline design should accommodate safe crossing for threatened fauna where vulnerable or threatened populations detected or in absence of suitable data wherever suitable habitat present and within or nearby to known range.*

## Chapter 9: Greenhouse Gas Emissions

### 9.1.4 Global climate change

As reported by the Panel emissions of greenhouse gases (**GHG**) are:

known to be the major contributors to climate change. In 2015, Australia signed the agreement negotiated at the UNFCCC Paris Climate Conference (COP21). The Paris Agreement's central aim is to “strengthen the global response to the threat of climate change by keeping a global temperature rise this century well below 2 degrees Celsius above pre-industrial levels and to pursue efforts to limit the temperature increase even further to 1.5 degrees Celsius”. As part of the Paris 2015 Agreement, the Australian Government committed to reduce greenhouse gas emissions to 26 - 28% below 2005 levels by 2030. This will be a challenging task. The Australian emissions are projected to be 592 Mt CO<sub>2</sub>e in 2030, which will require a reduction of 990 Mt CO<sub>2</sub>e to 1055 Mt CO<sub>2</sub>e in cumulative emissions between 2021 and 2030 (p.194).

Given the Panel has demonstrated that proceeding with a domestic onshore gas industry in the Northern Territory will generate large volumes of GHG (particularly through downstream use, including for power generation and other consumptive purposes), how will proceeding with the industry and increasing global GHG emissions and Australia's GHG volumes impact on Australia's capacity to meet its obligations under the Paris Agreement?

The Panel has identified that the use of renewable technologies would greatly reduce GHG emissions, and thus help Australia to meet its obligations under the Paris Agreement. Therefore, shouldn't any onshore gas development be limited to producing enough gas over a finite period to support the transition to sources of renewable energy rather than add to the net tonnage of GHG emissions over an extended and undefined time period?

## Chapter 11: Aboriginal People and Their Culture

### 11.3 Laws protecting Aboriginal culture, traditions and sacred sites

#### 11.3.1 Land Rights Act

The NLC has a well-established practice of consulting with Aboriginal people whose land interests fall within, or are directly affected by<sup>5</sup>, a proposed mining or petroleum lease. The issues raised in the Report at page 252, around consultation with people who share common interests in water resources are complex in practice. The Report (p.252) appears to suggest that consultations designed under the ALRA to seek consent to an onshore petroleum proposal should be extended to include potentially affected people who share an aquifer.

If the Panel's suggestion in this respect is to be operationalised in practice, it must first be clearly demonstrated that a measurable impact or footprint will occur outside of a petroleum lease area. Equally, for such consultations to be meaningful, the physical reach of the potential impact and the likely measurable effects of it on people and their lands would have to be a known factor. On ALRA lands, for this to be considered to inform the Traditional Owners' decision making, all of this information would have to be provided to Traditional Owners at the stage of an exploration application proposal.

The management of petroleum projects' impacts outside of a lease area is typically a matter for government agencies to address and occurs within a broader regulatory framework. Meaningful engagement with all affected stakeholders should be sought as part of a wider approach to environmental regulation which includes analysis of environmental and social impacts. Local and regional level risks and impacts should rightly be considered prior to the granting of any onshore petroleum exploration permit or production licence. Where the burden of risks and impacts associated with such a proposal are unacceptably borne by Indigenous peoples, then such proposals should be adaptively managed or disallowed as part of an effective regulatory regime.

#### 11.3.3 Agreements under the Native Title Act and Land Rights Act

The NLC agrees with the statement made on page 253 of the Report that agreements are "a cornerstone of traditional owner informed consent and control over use of their land". The informed consent part of agreement making occurs during the application stage during consultations regarding the exploration application proposal where the draft terms and conditions of such agreements are presented to and discussed with Traditional Owners. Once Traditional owners approve the terms and conditions and the agreements executed, the implementation of that agreement is no longer a process of approval by Traditional Owners but rather one of consultation and participation with some control over the protection of sacred sites and other culturally sensitive areas.

On page 253 of the Report it is written "*The NLC submitted that gas companies' proposed activities for the year are discussed with, and approved by, traditional owners at annual work program meetings*". The NLC submits that the approval of Traditional Owners is not sought at these annual work program meetings. For the avoidance of doubt, the clearances

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<sup>5</sup> Including people who share principle interests in potentially affected ceremony or tradition

mentioned in the NLC submission referenced by the Panel (footnote 57, p.253) relate to sacred sites avoidance and not to the general approval of all proposed work program activities.

Under the terms of NLC agreements, Traditional Owners are consulted and their advice sought to ensure that sacred sites and other culturally sensitive areas will not be impacted by a proposed works program. Amendments to the proposed works can be requested by the Land Council if it is apparent that such sites are likely to be impacted, however this should not be interpreted as a broad approval process. The control that Traditional Owners have over exploration activities through such agreements is limited and the presentation of the annual work program consultation process on page 253 of the Report is misleading. The NLC requests that the reference to its submission made at footnote 57 on page 253 be either amended to reflect the reality of these annual work program meetings (i.e. for consultation and not approval purposes); alternatively the reference should be removed from the Report.

### **11.3.5 Environmental assessment legislation**

The NLC notes and agrees with the Panel's view (p.258) that, while critical and important for the protection of sacred sites, the Authority Certificate process alone "...*does not ensure that cultural matters are adequately addressed*" within the Environmental Impact Assessment (EIA) process.

The Authority Certificate process is critical to ensuring protection for sites and as such, the Panel's recommendation (11.2, p.258) that AAPA be provided adequate and detailed technical information in respect of proposals and be provided sufficient time and opportunity to consider, consult and comment on such proposals is a positive and important recommendation, and has the full support of the NLC.

We note, however, that this recommendation alone does not address the inadequacies of the EIA process that are identified on page 258 of the Report. To properly address what the Panel has identified as a shortcoming of EIA process, full and proper consideration needs to be given to social and cultural impacts within the Environmental Impact Statement (EIS) in accordance with recognised leading practice methodologies. This is further discussed in chapter 12 of the Submission.

## **11.4 Risks to Aboriginal culture and traditions**

### **11.4.1 Sacred sites**

#### ***11.4.1.2 Groundwater must be protected***

Commentary in this section of the Report has an unnecessarily limited focus and attempts to draw generalisations about the particular significances Indigenous peoples attach to water (e.g., fertility and health, p.260). It may be more effective and appropriate to couch this important discussion around water resources in the well-established academic diction of cultural ecosystem services, and refer to leading practice methodologies on risk and impact analysis.

## 11.4.2 Traditional Aboriginal owners and native title holders

### 11.4.2.1 Consultation under land rights and native title legislation

The NLC supports recommendation 11.4 underpinned by the Central Land Council's (the **CLC**) position that the consultation and agreement making process under the *Native Title Act 1993 (Cth.)* (the **NTA**) can be strengthened (p.263). The NLC submits the NTA can be further strengthened in accordance with the principle of Free Prior and Informed Consent (**FPIC**) with the addition of a moratorium or 'veto' provision for native title holders over certain types of Future Acts, including for onshore petroleum exploration applications. A veto provision currently applies to the ALRA for onshore petroleum exploration but not the NTA; this matter is discussed further under section 14.6.1.4 below.

The NLC considers that the principle of FPIC, including a moratorium or "veto" provision, should apply to onshore petroleum production applications. The NLC considers it problematic that ALRA requires the negotiation of a conjunctive agreement during the exploration phase as a company has only limited generic information concerning production at this early stage where no resource has been discovered.

The last paragraph on page 262 of the Report describes the NLC's consultation process under the NTA (ref: footnote 134). It is standard NLC practice that a minimum of 2 native title meetings are held at the exploration application stage prior to grant of the exploration permits. Additional meetings would be held prior to commencement of production. We request the Final Report of the Inquiry be updated in line with this supplementary information to more accurately describe the NLC's consultation and negotiation process. This paragraph is followed by a reference to the CLC's recommendation to strengthen the NTA (p.263). The inclusion of the word 'but' as the opening to the first paragraph on page 263 presents the CLC's position as a counter argument to the NLC's described consultations process (footnote 134), whereas the two matters mentioned are mutually exclusive. The NLC submits that the word 'but' as mentioned above be removed from this context in the Final Report.

### 11.4.3 The broader Aboriginal community

We note that the part of this section contextualises a description of some Indigenous people's opposition to hydraulic fracturing in the setting of discussions about misinformation and politicisation of information about hydraulic fracturing<sup>6</sup> (p.264). The placement of these direct assertions by stakeholders in this context in the Report potentially belittles them and their beliefs.

These are important statements about opposition and resistance to industrial development, as part of a broader struggle for cultural and economic independence in the context of colonisation: These comments should be included elsewhere in the Final Report, and should be understood on their own merit. Some Indigenous people may be opposed to an industry on their country not necessarily because of misinformation; they may hold a valid opinion based on their analysis of all relevant information, and its relevance to their lived experience.

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<sup>6</sup> "They said that their opposition to hydraulic fracturing occurring on their country was analogous to their ancestors' armed resistance to colonisation in the 1900s, and therefore, central to their traditional identity."

### *Comments on Recommendation 11.6 – Broader consultation with the wider affected Indigenous population*

We note that the Report adequately describes the functions of Land Councils and differentiates Land Council functions, in respect of land use proposals under the NTA and ALRA, from a broader necessity to distribute relevant information to the interested Indigenous public. The responsibility for the latter rests with government and civil society, and in so far as this responsibility is recognised by the full accommodation of all costs associated with the task, the NLC is prepared to assist in consultation with Aboriginal people across lands with the potential to be impacted by the onshore petroleum industry in the NLC region. Provision of adequate funding to achieve the task is a critical proviso in this undertaking, as it is important that the NLC's organisational resources and capacity to fulfil statutory functions under the NTA and ALRA are not compromised.

In respect of recommendation 11.6 (p.266), Government should seek the advice of Land Councils about the costs associated with effective community consultation on the scale proposed, including but not necessarily limited to;

- i. The rendering of technical information about the industry in plain English and translation to relevant Aboriginal languages;
- ii. the development of appropriate consultative visual media and associated technology;
- iii. the engagement and training of professional interpreters;
- iv. the employment of specialised project management and support staff;
- v. the operationalisation of regional resources to organise and host many remote meetings attended by large numbers of people; and
- vi. the administrative costs associated with the delivery of above services.

Concurrent advice about realistic timeframes for the delivery of such information across those areas of the Land Council's regions covered by onshore petroleum permits should also be sought. This information should be used to develop a project plan and schedule which fully accommodates the implementation of the proposed task.

It is further noted that Land Councils should be provided full independence both in the development of relevant materials and the delivery of consultations. With reference to page 265 of the Report (the final sentence of the last paragraph), the NLC notes and rejects the Panel's suggestion that the Land Councils' consultation work should be conducted "*in collaboration with both Industry and Government*" (p.265).

The independence of the information provided by Land Councils to our constituents and clients is central to the NLC's impartial consultative process. The provision of accurate and understandable information in an impartial and accessible way is key to the concept of FPIC, and should not be compromised by any requirement to work collaboratively with either pro- or anti- onshore petroleum industry interests. This work should rightly be funded by Government, either on a cost recovery basis or through general revenue, and any community consultations managed entirely independently by Land Councils.

### *Comments on recommendation 11.7 – Confidentiality*

The NLC will not make a broad undertaking to make onshore petroleum agreements publicly available as suggested in recommendation 11.7 of the Report (p.266), because the privacy and confidentiality of an agreement is a matter for the parties of any given agreement to negotiate. The rationale for making agreements public utilised in this Report is flawed. Whether or not signatories understand the agreements they sign will not be made clear by reading an agreement. Understanding and informed consent is built throughout consultative processes.

### *Comments on benefit distribution*

The Panel has noted that injection and distribution of financial benefits can cause social and cultural impacts (p.266). The Panel goes on to state that this is a matter for Land Councils, who are cognisant of the associated risks. It is correct that this matter directly affects Land Councils, as a result of being instigated by one of our core statutory functions: the distribution of financial benefits to Traditional Owners. It is incorrect to assume, however, that the Land Councils have capacity to redress or mitigate all the attendant impacts and effects of the distribution of such benefits. This should be the subject of consideration by social and cultural impact assessment specialists and as part of the EIA process during a targeted analysis of the impacts of any given proposal. The cumulative impacts of the distribution of benefits (including financial, employment and other benefits) could be best assessed if the underlying financial, employment and other relevant baseline data were adequately captured as part of the proposed SREBA.

### *Comments on Recommendation 11.8 – Cultural Impact Assessment*

This is a notable and positive recommendation. While inviting requests for advice on matters relating to potential cultural impacts, the NLC notes that impact assessment is a specialised field; impact assessment should be designed and undertaken by suitably qualified experts with experience in matters of relevance to Indigenous people in the Northern Territory.

Recommendation 11.8 states that a cultural impact assessment be undertaken prior to the grant of any production licence. On lands subject to the ALRA, at this stage consent will necessarily have already been granted by traditional land owners. In addition to recommendation 11.8 cultural impacts should also be assessed during the exploration permit application stage so that Traditional Owners can give full consideration to the potential cultural impacts of any development when making a decision about whether or not to consent to an exploration proposal and to better inform the agreement negotiation process in the case consent is granted.

## Chapter 12: Social Impacts

### General comments to Chapter 12

We note that this chapter was authored largely in the absence of a completed SIA. In the NLC's opinion, insufficient time was provided for public comment on the SIA reports authored by Coffey, CSIRO and CSRSM (the **SIA Reports**), notwithstanding the limited timeframe allowed for public comment. The NLC is pleased to present an expert report (the **SIMP-NLC Report**) at Appendix 1 for the Panel's consideration. The SIMP-NLC Report provides an independent expert review of the full body of SIA Reports commissioned by the Panel, including the Social Licence to Operate (the **SLO**) material.

Meaningful public engagement is achieved by processes and timeframes that enable such engagement and, in this case, clearly these processes have failed. The NLC and other stakeholders have not been provided opportunity to develop properly informed responses to Chapter 12 and the SIA Reports.

**This failure should be rectified by the publication of another draft Chapter 12** (which properly considers the full body of SIA Reports commissioned by the Panel) **for public comment prior to the finalisation of the Final Report of the Inquiry.**

The NLC considers Social Impact Assessment critical to properly inform the Panel's contemplation of the interests of Indigenous Territorians, who constitute (by all standard measures) the most vulnerable communities likely to be affected by a growing petroleum industry and the application of hydraulic fracturing technology.

The NLC provides the following observations in respect of the SIA Reports commissioned by the Panel:

1. SIA, as a tool for understanding communities, guiding social plans and improving host community welfare, has limitations. Leading practice SIA should (in the first instance) be about empowering local people to influence how projects will impact their lives. These limitations of what SIAs can achieve are not alluded to in the reports, and alternative theory and method simply not disclosed. These omissions have the effect of impoverishing the SIA processes proposed by the authors, and further create a risk that suboptimal SIA will be seen as an adequate "fix" to the challenges posed by hydraulic fracturing.
2. Regulatory legislation will not keep abreast of industry standard and leading practice in SIA, so trying to build Territory specific or petroleum industry specific SIA process into the NT regulatory framework will not be effective. A better approach is to build a regulatory environment wherein recognised SIA practitioners with expertise are engaged to undertake leading practice SIAs. This has not occurred to date, and is not reflected in the Inquiry's (or their consultant's) work to date.

3. Social Licence to Operate (SLO) is simply one approach to understanding how constituencies respond to development. SLO is highly susceptible to subjective interpretation. Internationally recognised leading practice now leans towards an alternative Free Prior and Informed Consent (FPIC) model (which has been applied in other countries outside of the ALRA context, for example in PNG). Performance standards such as those of the IFC do not require SLO, but rather compliance with a FPIC framework. Government and industry standards across the world are slowly converging to standardise legislation and protocols with these principles. These reports fail to examine FPIC in sufficient detail and fail to provide a balanced discussion of such alternatives to SLO.
4. In respect to methodology applied in the SIA and SLO work undertaken by consultants to the Panel, we make the following points:
  - a. The practitioners have failed to; i) incorporate consideration of gender, cultural heritage, health impacts assessment or ecosystem services; ii) incorporate the results of any social mapping research; and iii) to apply established sampling and analysis strategies. These omissions render the body of work below par as an example of leading practice social science.
  - b. The practitioners have failed to provide baseline data in both referenced reports, and fail to provide transparent methodologies used for interpreting or rendering data. This is standard practice in social science and ensures understanding of how conclusions were arrived at. These omissions render the body of work below industry standard. Further, this omission limits the utility of the work – we cannot analyse the findings drawn, so as to check whether the process was competently done, whether good science was used to draw findings, and whether the raw data may allow alternative interpretations.

It is difficult to provide comment on Chapter 12 of the Report because the reader must assume that much of the discussion in Chapter 12 may be significantly revised in light of the recently released documentation and prior to the release of the final report (or, ideally, the release of another draft Chapter 12 for comment as per our suggestion above).

For example, examining specific recommendations may be of limited utility, because the recommendations address risks and impacts that were not identified in the course of a completed SIA study. The risks and impacts so considered therefore may well have been imagined through an ad-hoc or substandard process of scoping for risks and impacts. In respect of those impacts identified in Chapter 12 which accord with those identified in the SIA works undertaken by Coffey, we revert to the arguments summarised above and evidenced at Appendix 1 to the Submission, and our assessment that the body of work commissioned by the Panel in respect of SIA and SLO does not accord with leading practice and as such will fail to produce results that are relevant to Indigenous stakeholders in the Northern Territory.

In the absence of opportunity to comment on a more considered draft Chapter 12, the NLC makes the following recommendations:

**Recommendation:** *The Panel commission suitably qualified expert practitioners to provide advice in respect of Social Impacts, SIA, SLO and FPIC in accordance with leading practice prior to completing the Final Report; and*

**Recommendation:** *The appropriate regulatory agency commission suitably qualified experts to undertake SIAs in accordance with leading practice, in respect of petroleum industry developments, prior to the lifting of the moratorium on hydraulic fracturing in the Northern Territory.*

## Specific comments to Chapter 12

Recommendation 12.10 does not provide a mechanism to mitigate risks associated with community cohesion, but rather provides an aspirational statement or goal that cannot be effectively measured or regulated. This recommendation has no practical value. The relationships between gas companies and local stakeholders will necessarily vary within and between communities, and be influenced by an enormous number of variables. Company and stakeholder descriptions of such relationships will inevitably be subjective. Binding arrangements in respect of these relationships, such as agreements, MOUs and liaison committees, can be negotiated as appropriate on a case by case basis, but these will be most effective if they are built from the application of the established methodologies discussed throughout this submission in respect of SIA and FPIC.

Recommendation 12.11 provides for project specific Social Impact Management Plans but there is not further explanation of how the particular SIA process/es which inform such management plans might fit within a broader regulatory framework, or how it will be clearly established that the plans address the issues raised in the assessment. Participatory SIA should provide the entire life-of-project model by which impacts are managed.

Recommendation 12.12 provides again for Social Impact Management Plans without explanation of when (or at what level) SIA will be generated to inform the plan, or how the quality of such SIAs might be regulated. As per the discussion above and at Appendix 1, a leading practice FPIC process should underscore the mechanism by which companies engage with local communities. The SLO model proposed in the Report at the moment provides no measurable or objective means by which community responses to developments and companies can be understood or their interactions regulated.

The statement in recommendation 12.12 that communities need to be allowed time to adapt to changes is an inversion of the apparent goals of the Inquiry in respect to Industry and SIA. The NLC understood the intention of this body of work to be the modification and management of the effects of the industry, in the best interests of the community. Nonetheless the NLC acknowledges that communities will still adapt for better or worse to such developments and the effects should be assessed and planned for to the extent possible.

## 12.3 Social licence to operate and the Beetaloo Sub-basin

There is adequate discussion of the deficiencies of SLO above and at Appendix 1. Section 12.3 does trigger some further discussion and differentiation of the roles of government and industry bodies in respect of community relationships.

It can be argued that SLO is best understood as a risk factor that industry and companies manage, to protect their interests. This is evidenced by the language around “achieving” or “improving” social licence. Such language does not describe a process by which constituencies are informed and engaged per se, but measures whether or not a project is accepted (which may happen as a result of being informed and engaged, but could also happen as a result of other things and in the absence of information and engagement).

Agencies of government, on the other hand, have responsibilities to regulate the effect of industry on Territorians, and to oversee the development of an industry that optimises positive impacts and eliminates, mitigates or manages negative impacts on Territory communities. There are known impacts and effects that manifest as a result of failure to achieve consent by informing and engaging constituencies.

SLO and FPIC are two distinct concepts which inform very different processes, each attached to particular responsibilities and interests that best remain differentiated between Government and Industry. Should agencies of government take a role in managing industry risks associated with SLO within their jurisdiction? Could government involvement in industry SLO appear to obscure otherwise clear distinctions between regulatory and advocacy functions? Government and regulatory agencies should be mindful of SLO within their jurisdictions, but it could be argued that there is little utility and some risk associated when a process of understanding SLO appears to blur into achieving or improving SLO, in respect of an industry.

## 12.4 Social impacts and SIA

Detailed comment on this section is withheld because discussions of Social Impact are provided in opening comments above, and further detailed in Appendix 1.

In respect of section 12.4.2.1 around Strategic Assessment, we note that the modelling appears to reflect a stakeholder engagement (educative) framework - rather than a participatory (partnership-based) framework - by which negative impacts are minimised or managed. Conversely, life-of-project participatory models seek to work with communities from inception, and are modelled to grow projects through planning, implementation and closure stages in meaningful partnership with communities. The latter models present real opportunities to grow a petroleum industry that benefits Territorians and particularly Indigenous Territorians.

Recommendation 12.14 reveals that the SIA models being considered are not leading practice. Participatory methodologies applied in leading practice SIA involve affected communities throughout SIA project development, rather than informing them of the project findings.

In respect of 12.15, all leading practice SIA will necessarily address cumulative impacts. **The responsiveness of government to cumulative impacts should be more clearly stipulated as the target of this recommendation.**

In respect of the detailed recommendation 12.16;

- The NLC notes that there is no evidence that a proposed participatory monitoring framework will be built on a sound participatory practice and utilise leading practice methodologies, as the methods described in the preceding sections do not align with leading practice participatory methodologies.

## Chapter 13: Economic Impacts

Scientific methodology and principles appear to have been applied less rigorously to the Panel's presentation of economic impacts compared to the topics addressed by other sections of the Report. When discussing non-economic aspects of the onshore shale gas industry in other chapters of the Report, the Panel has sought to rely on reputable data using a scientifically valid approach in discussing issues, likelihood and risk ratings relating to the potential impacts of an onshore gas industry development in the Northern Territory. The Economic Impacts chapter falls well short of this standard and is potentially misleading to the reader on the matter of economic benefits relevant to a domestic onshore gas industry in the Northern Territory.

On page 309 of the Draft Report (section 13.3) the Panel comments that:

It should be noted that all economic modelling involves applying a set of assumptions to quantitative models, and is therefore subject to uncertainty and should be treated with caution, ACIL Allen advises that the modelling undertaken for the Inquiry is subject to higher than usual uncertainty because the development of any onshore shale gas industry in the NT is at a very early stage.

The NLC believes that the Panel's comment above grossly simplifies the disclaimers that ACIL Allen advises in relation to its Economic Impacts Report (the **ACIL Allen Report**) as commissioned and made available to the public by the Inquiry (Appendix 16).

On page 157 (*Interpreting this report*) of the ACIL Allen Report the following disclaimers are made:

ACIL Allen considers the modelling presented in this report is subject to higher than usual uncertainty. This is because of the unusual nature of the task ACIL Allen has undertaken... [and] ACIL Allen advises those who read this report to treat the results with higher than usual caution. The modelling prepared and results presented in this report should be treated as what they are – ***an estimate of the economic impacts of a shale gas industry development*** – and not

for what they are not – an assessment of the commercial viability of a shale gas industry development in the Northern Territory.

**Recommendation:** *The NLC recommends the Panel clearly state that the economic Impacts presented within the report are hypothetical; and*

**Recommendation:** *The disclaimers provided by ACIL Allen should be included and repeated verbatim in the Final Report whenever the economic modelling conducted by ACIL Allen is referenced.*

The economic impacts section of the Report is based purely on assumptions and scenarios that are not supported by scientifically accepted standards for data modelling and statistical analysis (i.e. sample size too small, margin of error too large, confidence level too small, etc.) and do not align with the petroleum industry's standards for Gas Reserve Classifications. Any modelling commissioned by the Panel should have been based on the classification system jointly employed by the Society of Petroleum Engineers (**SPE**), the American Association of Petroleum Geologists (**AAPG**) and the World Petroleum Council (**WPC**) and categorised by uncertainty, instead of being based on speculative forecasts about whether the industry proceeds and at what speed and scale, especially as the gas reserves within the Beetaloo Sub-basin are entirely unproven beyond the single Amungee NW-1H well.

**Recommendation:** *The NLC recommends the Panel clearly state that the assumptions made and scenarios presented in the Report do not align with the industry standard of SPE/WPC/AAPG Classification and categorised by uncertainty.*

In section 13.5 of the Report the Panel compares the ACIL Allen modelling with that carried out by Deloitte on behalf of Australian Petroleum Production and Exploration Association (**APPEA**) and notes, the "ACIL Allen assumptions and modelling represent a much more realistic approach to estimating the economic impacts of any onshore shale gas industry in the NT". The NLC does not believe that it is appropriate to use the term realistic in this context given the admitted high degree of uncertainty around ACIL Allen's modelling. Furthermore, any statement promoting the virtues of ACIL Allen's models should be qualified by an explicit acknowledgement of the lack of data that underpins the modelling and hence the higher than usual uncertainty associated with the model's outputs.

**Recommendation:** *The NLC recommends the Panel remove the term 'realistic' from this context in the Final Report.*

In section 13.1 (p.305) the Panel comments on Falcon Oil and Gas Australia (**FOG**), which holds a 30% interest in exploration permit numbers 76, 98 and 117. FOG submitted to the Inquiry that “*economic benefits cannot be quantified due to the infancy of the discovery and the need for further appraisal*” (p.304). The NLC believes this statement to be accurate and in line with the petroleum industry’s reserve classification guidelines given that exploration is in its infancy within the Beetaloo Sub-basin the potential resource can be described as poorly defined at best and no reserve classification assigned.

**Recommendation:** *The NLC recommends the Panel state in the introduction section of 13.0 Economic Impacts that economic benefits cannot be quantified due to the infancy of the discovery and the need for further appraisal.*

On page 327 of the Report the Panel concludes by stating that “*ACIL Allen’s economic impact assessment modelling reports that lifting the moratorium on hydraulic fracturing in the Northern Territory will deliver tangible economic benefits in the form of increased income, output, employment and taxation revenue, and stronger population growth*”. Given ACIL Allen’s strong disclaimer statements (as discussed above) the NLC believes this statement (p.327) to be misleading. Given the fact that the potential reserves have not been adequately defined and noting that ACIL Allen themselves provide advice to treat their modelling results not as an ‘assessment’ but as an “*estimate of the economic impacts of a shale gas industry development*” (Appendix 16, p.157), the NLC requests the Panel’s statement quoted above (p.327) be removed from the Final Report in its entirety.

**Recommendation:** *The NLC recommends the Panel remove the above statement from the Final Report as it is potentially misleading and raises community expectations with regard to the degree of certainty that can be applied to the economic modelling and the anticipated benefits of an onshore gas industry.*

## Chapter 14: Regulatory Reform

The NLC agrees with the conclusion expressed in the Introduction (14.1) that there is an ‘acute lack of confidence in the current NT regulatory framework’; further, that this lack of confidence is completely warranted and is also held by the NLC.

It is the NLC’s view that the moratorium should not be lifted until comprehensive reform of the regulatory framework is finalised, consistent with this draft Report and the joint NLC – CLC submission to the NTG on the *Environmental Regulatory Reform Discussion Paper* dated June 2017.

The exceedingly slow pace at which the NTG is pursuing this reform process and the 'phasing out' of the Schedule (Schedule of Onshore Petroleum Exploration and Production Requirements – see 14.3.3.3 ) is symptomatic of the lack of confidence that the community has with the NTG in this regard. These facts support the proposition that the moratorium should not be lifted until this reform process is satisfactorily completed, funded and implemented in the Northern Territory.

The table presented on page 335 of the Report (Figure 14.3) does not accurately portray the application of the NTA nor the rights of native title holders. For example at Step 3 there is no mandatory legal requirement for an applicant to come to an agreement with native title holders, although industry practice is generally, but not always, to do so. The right to negotiate provisions of the NTA do apply but do not guarantee an agreement that goes to access and compensation. Contra the Land Access Guidelines requiring the gas company to reach an agreement with the pastoral lessee, although this is not legally required also.

Any recommendations made to mandate compensation and access arrangements with a pastoral lessee should apply equally to native title holders whom have a co-existing title on the same area of land and waters. A pastoralist is not a land owner.

#### **14.4.5 – Regulatory Fees**

##### *Recommendation 14.1*

The NLC agrees that a full cost recovery system from the industry be implemented for the regulator of the onshore petroleum industry in the Northern Territory. It is noted that this should not displace the responsibility of the Northern Territory Government to ensure an appropriate budget allocation is made if necessary to provide for the independent regulator to perform its functions and powers comprehensively.

#### **14.5.1 – Reserved Blocks**

There should be more transparency in the criteria for declaring an area a “reserved block”. Reserved blocks may be declared for areas of cultural significance; however this should be done following extensive consultation with indigenous stakeholders, native title holders and traditional Aboriginal owners. Further, Recommendation 14.4 should be legislated and the legislation should clearly define the categories detailed in Recommendation 14.4 to provide clarity and certainty.

##### *Recommendation 14.4*

The NLC agrees with Recommendation 14.4, with the addition of Indigenous Protected Areas where requested by relevant traditional owners and native title holders (subject to above comments).

#### ***14.6.1.3 – The land access regime does not facilitate a cooperative relationship between pastoralists and gas companies***

The Report considers the interaction between onshore shale gas activities and pastoral land. In section 14.6.1.3, it is stated that “*There is an undeniably strong relationship between*

*pastoralists and ‘their’ land, notwithstanding the absence of freehold title.”* Throughout section 14.6 there is little mention of the fact that land access and other matters relating to pastoral land affect not only pastoralists, but also native title holders.

Many of the concerns raised in relation to the rights of pastoralists such as “limited access to independent and affordable legal advice, limited political influence, limited technical knowledge, and limited time to negotiate agreements”, apply to native title holders.

The discussion in section 14.6 is almost entirely focussed on the interaction between onshore shale gas activities and pastoral land. Given the native title rights and interests in the Beetaloo Basin area, the Report should also consider and address the impacts of onshore shale gas activities in that area will have on native title holders.

#### ***14.6.1.4.- Pastoralists should not have a statutory right of veto***

In the NLC’s previous submission it was stated that *“A viewpoint often expressed to the NLC is that the NTA does not afford strong protection to traditional Aboriginal land interests; under the NTA there is no right to veto petroleum or other development proposals.”*

Section 14.6 of the Report sets out arguments against providing pastoralists with a statutory right of veto for access to land covered by pastoral leases. A majority of the arguments contained in the Report do not apply to native title holders. For example, only native title holders have native title rights and interests and foreign entities are not involved. Further, Traditional Owners under the ALRA have a statutory right of veto against exploration activities on Aboriginal land, and traditional Aboriginal owners who are native title holders, have raised concern as to why they are not afforded the same right under the NTA.

#### ***14.7.1.3 – Consideration of a ‘fit and proper person’ test***

The NLC supports the position that the Petroleum Act should be amended to require an applicant be a fit and proper person to hold a tenement. The NLC agrees that in considering whether an applicant is a fit and proper person to hold a tenement, regard should be had to the applicant’s history of regulatory compliance environmental management.

#### ***14.7.3.1 – Environmental Approvals***

The current recommendation, Recommendation 14.14, recommends that *“all draft EMPs for hydraulic fracturing must be published and available for public comment prior to ministerial approval.”*

Recommendation 14.14 fails to provide that Petroleum Environment Regulations (**Regulations**) should be amended to specifically require:

1. meaningful and appropriate engagement with traditional Aboriginal owners and other Indigenous stakeholders; and
2. the incorporation of Aboriginal traditional knowledge,

as mandatory measures required as part of the process for the development of environment plans for any petroleum activities. This was part of the NLC's previous submissions to the Inquiry submitted in September 2017 in relation to the "petroleum environment regulations."

The NLC repeats its previous submission on this matter which is set out below.

### *Meaningful Community engagement*

Culturally appropriate consultation is essential and lacking in the present system, where there is no requirement for on-country consultation in the stakeholder engagement process. Currently, crucial data is often not released until late in the process, and there is not sufficient time for it to be adequately reviewed, let alone communicated to Indigenous stakeholders who are directly affected. Documentation should at minimum include a plan outlining culturally appropriate consultation to be undertaken on-country prior to conclusion of the engagement process, and ongoing throughout the term of the project.

As outlined above, traditional knowledge can make a valuable contribution to environmental outcomes and the engagement process. In keeping with modern best practice principles, it is essential that the environmental planning processes consider social and cultural impacts alongside environmental. History has shown that in the Northern Territory, during 'consultation' with Aboriginal people, project developments are presented as *fait accompli*, with little opportunity to input any changes that might be necessary to protect sensitive areas having cultural values.

A survey of Recent Terms of Reference and Environmental Impact Statement guidelines issued by the Northern Territory Environment Protection Agency (NTEPA) does not demonstrate a consistent or in-depth approach to engaging Aboriginal people on questions regarding the risk a project might pose to traditional knowledge and/or Aboriginal culture. The main focus continues to be on protecting past aspects of culture (i.e. heritage) and not the more relevant living aspects that define the values of current Aboriginal society. The focus for environmental planning should be shifted to structured gathering, management and use of traditional knowledge via participatory engagement.

A fully participatory engagement and planning process that carries Aboriginal people through project development from initial planning to project closure, encompassing environmental impact assessments, risk analysis and management at all phases of the project would represent the gold standard for consultation. Participation at this level offers the opportunity for Aboriginal people to manage their cultural estate and apply traditional knowledge across the whole of the project's life in a practical and meaningful way (Smith 2016)<sup>7</sup>.

Both the CLC and NLC have recommended that environmental assessment and approval legislation should include an obligation on proponents to consider how they engage with Aboriginal communities and Traditional Owners and that they:

- work with the community during planning and conducting its research;
- seek the prior and informed consent of the community prior to acquisition of information;

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<sup>7</sup> Smith, HD (2016): Life of Mine Planning and Cultural Sustainability on Aboriginal Land, *First International Congress on Planning for Closure of Mining Operations*, Santiago, Chile.

- collect traditional Aboriginal knowledge in collaboration with the community;
- respect traditional Aboriginal knowledge and Aboriginal intellectual property rights; and
- bring traditional Aboriginal knowledge and scientific knowledge together.

The same obligations should be placed on proponents in relation to engagement and planning for environmental plans under the Regulations.

A key element of the engagement plan needs to involve engaging with Aboriginal communities and should be conducted in accordance with guidelines on matters such as:

- a presumption of on-country consultation;
- the need for plain English and local language versions of documents, or parts of documents;
- the importance of culturally appropriate practices;
- who is to be consulted, including Traditional Owners and affected Aboriginal communities; and
- resources provided to facilitate engagement

Failure to complete consultation reports and engagement plans adequately (for example, in accordance with the above guidelines) should ultimately be part of the review and assessment of the adequacy of environment plans by the Minister.

### *Incorporation of traditional knowledge*

The significance of fully integrating traditional knowledge into the environment planning process should not be underestimated. Aboriginal traditional knowledge has developed over millennia and is key to management of a variety of specific environments, yet it remains largely ignored by industry and environmental scientists and managers. This is the outcome of ineffective policies that have been implemented without consideration of the value of traditional knowledge, and how it can be respectfully acquired and utilised to improve conservation of the Northern Territory environments.

Currently, recognition of traditional knowledge in the environmental planning process in the Northern Territory is not enshrined in law. There are very limited examples where the knowledge is being used to its full effect. As a consequence of the lack of a formal framework that defines how traditional knowledge should be used, in most cases it is simply being catalogued, categorised and stored in databases, but not being used in a meaningful, rational or scientific way in the Northern Territory.

Incorporation of traditional knowledge into legislation and through every stage of the environmental planning process would address this.

***Recommendation:*** *Regulations should specifically require that meaningful and appropriate community engagement occurs with traditional Aboriginal owners and other Indigenous stakeholders prior to:*

- a) *the development of environment plans that are required under the Regulations; and*
- b) *the Ministerial approval of environment plans.*

**Recommendation:** *Regulations should specifically require the incorporation of Aboriginal traditional knowledge in environment plans developed under the Regulations.*

#### 14.7.3.2 – Operational Approvals

Recommendation 14.16 of the Draft Final Report states:

*“The Schedule be repealed and replaced with legislation to regulate seismic surveys, drilling, hydraulic fracturing, and well abandonment prior to the grant of any production licence for the purpose of any onshore shale gas development.”*

The NLC submits that additional activities, including well activities, should be regulated by legislation. It is vital that well reporting, incidents and testing are legislated as they help to inform whether a company is a good operator. The NLC submits that leading practice should be the standard adopted and incorporated into legislation (to the extent that there is any difference between the Petroleum Schedule and leading practice).

#### 14.7.4 – Minimum standards and codes of practice

The NLC agrees with Recommendation 14.17 which provides that *“the Government develop and implement enforceable codes of practice with minimum prescriptive, standards and requirements to give clarity to the regulatory framework.”*

The NLC agrees with Recommendation 14.17 and repeats its September submissions and recommendations. The Regulations “operationalise the “*as low as reasonably practicable*” (ALARP) test in the decision-making process”. The Regulations provide that the Minister will approve an environmental plan if satisfied that certain approval criteria have been met. Reference is made to a reduction of “environmental impacts and risks associated with the activity to levels that are ALARP and acceptable”.

The terms ALARP and acceptable are not currently defined in legislation. There is an argument that an acceptable level of risk will vary depending on the type of activity being undertaken and the environment in which such activity will occur. The NLC acknowledges that the type of activity and environment can affect what is acceptable or ALARP. However, it is important to ascertain how an activity may or will affect the environment in which it is proposed to occur, and to make decisions based on reliable data.

Baseline environment data (including, but not limited to, air quality and water quality) should be ascertained and included in environment plans, together with data reflecting the expected impacts (which data should be based on accurate scientific modelling) from the proposed activity. There needs to be clarity around the definition of ‘acceptable’ and ‘ALARP’ and this can be achieved by defining the terms in legislation. The environment plan should highlight any changes that will occur to baseline measures and specifically detail whether these risks

are acceptable (in accordance with the definition). The environment plan should also detail how risks will be managed and reduced bearing in mind the principles of ALARP and acceptability.

**Recommendation:** *The terms 'acceptable' and 'ALARP' should be defined in legislation.*

**Recommendation:** *Baseline data should be obtained from the environment in which the proposed activity is to occur and be included in the environment plan together with projection data which shows any changes that will occur to baseline measures.*

**Recommendation:** *The data included in the environment plan should be used to assess whether the proposed activity presents acceptable/unacceptable risk and detail how risks will be managed and reduced having regard to the principles of ALARP and acceptability.*

#### **14.9.2.2 – Merits review**

Recommendation 14.22

**Recommendation:** *Recommendation 14.22 is supported but to ensure a comprehensive coverage of Indigenous interests it should also include a Registered Native Title Prescribed Body Corporate and registered claimants pursuant to the Native Title Act.*

#### **14.10.2.2 – Reversal of the onus of proof**

Footnote 308 in Chapter 14 should make reference to NLC submission 441, p.29.

**Recommendation:** *The NLC submits that Recommendation 14.29 be amended to read:*

*that the Government enact provisions that reverse the onus of proof or create rebuttable presumptions for pollution and environmental harm offences for all regulated onshore shale gas activities.*

## 14.12 Towards a new regulatory model

### 14.12.2.2 – Option 2 – “One-Stop-Shop” bespoke regulator

The NLC agrees with views expressed by the Panel on page 385 of the Report that:

the... main concern with the current regulatory framework is that the Minister for Resources and DPIR have responsibility for both the promotion and regulation of the industry... [and] Therefore, to ensure that environmental decisions are being made independently from the promotion of any onshore gas industry, the Panel proposes that the regulation of the industry be the responsibility of an entity that does not also have responsibility for promoting the industry.

The NLC supports the adoption of Option 2 for reform of the regulator. As presented in the Draft Report, this involves the creation of a bespoke regulator (the Unconventional Shale Gas Regulator) which is responsible for all assessments and approvals for any onshore shale gas industry except those with respect to land release, promotion of the resource and water.

The NLC submits that this new agency should be responsible for the regulation of the entire onshore petroleum industry in the Northern Territory, not only the onshore unconventional shale gas sector.

## Chapter 15: Strategic Regional Environmental and Baseline Assessment

Page 394 of the Report states:

Without an adequate pre-disturbance baseline, the magnitude of any post-development change cannot be effectively predicted or its impacts assessed. Comprehensive regional baseline datasets are essential to underpin modelling of the possible impacts of any new industry and to inform the site specific quantitative impact risk assessments (for example, water quality or public health) that are being conducted by industry and being submitted to regulators for assessment.

The NLC supports the above statement; however recommendation 15.1 “*that a strategic regional environmental and baseline assessment (SREBA) be undertaken prior to the grant of any production licence for onshore shale gas*” (p.395) does not meet the critical requirement of being pre-disturbance. The implementation of baseline studies should be conducted prior to any further ground disturbance and hydraulic fracturing being permitted. If recommendation 15.1 is adopted as it currently stands then land disturbance could occur as numerous wells over multiple locations were drilled and hydraulically fractured and many areas cleared for roads and infrastructure, prior to the grant of any production licence and critically prior to the gathering of any baseline data. If this SREBA were allowed to proceed in

line with recommendation 15.1 the quality of the baseline data collected would likely be compromised from the outset and the scientific validity and social value of any SREBA significantly impaired.

For example, Jones (2000) establishes a causal link between the upgrade of Cradle Mountain Road in Tasmania and the local extinction of a population of eastern quolls (*Dasyurus viverrinus*), demonstrating the devastating impacts that roads can have on populations of threatened wildlife. Furthermore numerous authors including Forman and Alexander 1998, How and Dell 2000, Jackson and Griffin 2000, Stenhouse 2004, Dique et al. 2003, Ramp et al. 2005, Klöcker et al. 2006 and Bond and Jones 2008 have all demonstrated the negative impacts of roads on wildlife.

The NLC requests the Panel to consider the effects of roads on wildlife as an example of how ground disturbing activities could impact on the quality of data that will be required to understand the impacts of the onshore shale gas industry in the Northern Territory prior to the industry proceeding with such ground disturbing works.

As the Cradle Mountain road upgrade example demonstrates, unforeseen consequences can arise through minor alterations in the environment. Should hydraulic fracturing be permitted prior to the collection of baseline water data, it may be extremely difficult (in the event of contamination or disturbance) to identify the source and scale of events.

As the Panel has expressed a view that currently there is little understanding of the relationship between surface and ground waters within the Beetaloo Sub-basin (p.394), moving ahead with hydraulic fracturing operations prior to gaining that understanding goes against the concept of pre-disturbance baseline data gathering.

***Recommendation:*** *The NLC proposes that Recommendation 15.1 be amended to read:*

*that a strategic regional environmental and baseline assessment (SREBA) be undertaken prior to the lifting of the moratorium on hydraulic fracturing in the Northern Territory.*

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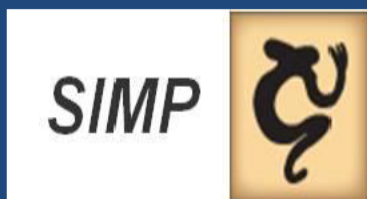
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# ASSESSMENT REPORT OF NORTHERN TERRITORY HYDRAULIC FRACTURING INQUIRY SIA STUDIES

February, 2018



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# Abbreviations

ADB	Asian Development Bank
CSRSM SMLI	Centre for Social Responsibility in Mining – Sustainable Minerals Institute
ESHIA	Environmental, Social and Health Impact Assessment
ESPA	Ecosystems Services Project Area
FEED	Front-End Engineering and Design
FPIC	Free, Prior and Informed Consent
FSC	Forest Stewardship Council
GRI	Global Reporting Initiative
HDI	Human development Index
ICMM	International Council of Mining and Metals
IFC	International Finance Corporation
IPIECA	International Petroleum Industry Environmental Conservation Association
MCA	Multiple Correspondence Analysis
MPI	Multidimensional Poverty Index
NLC	Northern Land Council
NT	Northern Territory
PCA	Principle Component Analysis
SIA	Social Impact Assessment
SLO	Social License to Operate
TOR	Terms of Reference
WB	World Bank
WRI	World Resources Institute

# Introduction

On 14 September 2016 the Chief Minister of the Northern Territory, the Hon Michael Gunner MLA, announced a moratorium on hydraulic fracturing of onshore unconventional reservoirs in the Northern Territory.

In January 2018 it was confirmed that the moratorium would remain until the results of a Scientific Inquiry into Hydraulic Fracturing of Onshore Unconventional Reservoirs in the Northern Territory (the Inquiry), established by the Chief Minister, were finalized after public comment and input.

The final Terms of Reference for the Inquiry and the composition of the panel undertaking the Inquiry (the Panel) were announced on 3 December 2016 by the Northern Territory Government. The Panel was tasked with determining the nature and extent of the risks of hydraulic fracturing of onshore unconventional shale reservoirs and its associated activities on water, land and air conditions in the Northern Territory, as well as on the social, economic and cultural conditions in the Northern Territory.

As part of the process to realise the above outcomes the scientific panel commissioned a two-part scope of work to assist its deliberations on the social impacts of an unconventional gas industry in the Northern Territory. The scope of work comprised:

## Part A: Social Impact Assessment

- (i) Develop a leading practice framework for the identification, assessment and management of the social impacts associated with the development of onshore unconventional gas in the Northern Territory.
- (ii) Undertake a high-level social impact assessment (SIA) as a case study that describes “the type of potential social impacts, issues, concerns, risks and benefits that may arise from the development of the unconventional gas industry in the Beetaloo sub-basin on the Affected Communities”.

## Part B: Social Licence to Operate

- (i) Describe and assess the concept, elements and issues surrounding a ‘social license to operate’ (SLO), as it applies to the onshore unconventional gas industry in the Northern Territory. Broadly speaking, a ‘social license to operate’ is a measure of the acceptance of an industry within society.

Following tender applications, the Inquiry engaged Coffey (Coffey) and its partners, the University of Queensland Centre for Social Responsibility in Mining (CSR) and CSIRO, to undertake these three component social impact reports.

As described in the Inquiry Background and Issues Paper<sup>1</sup>, exploration for onshore unconventional gas is at an early stage in the Northern Territory, scenarios for any future development in relation to location, scale and timing are uncertain, and thus at this juncture assessments will remain high-level

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<sup>1</sup> <https://frackinginquiry.nt.gov.au/background-and-issues-paper>

and indicative of potential impacts. Once the risks are identified, the Panel will determine whether or not those risks can be reduced to acceptable levels and, if so, what the government and industry can do to ensure those levels are achieved.

# 1 Assessment Report—Terms of Reference

The Northern Land Council commissioned SIMP on 25 January 2018 to undertake a review of various SIA reports submissions publicly available on the Inquiry website. The review was to be undertaken from 26 January to 2 February 2018 for a period of six working days in accordance with the following Terms of Reference:

1. Review the SIA submissions in **Table 1-1**:

**Table 1-1: Inquiry SIA Reports**

Agency	Report Title	Authors & Date
CSIRO	<i>Social licence to operate in the Beetaloo Basin and Northern Territory.</i>	Moffat, K., Lacey, J., McCrea, R., & Poruschi, L. (2017)
CSRM (UQ)	<i>A framework for Social Impact Assessment of shale gas development in the Northern Territory</i>	Witt, K., Vivoda, V., Everingham, J., Bainton, N. (2017)
Coffey	<i>Beetaloo sub-basin Social Impact Assessment Case Study</i>	Coffey Services Australia (January 2018)
Coffey	<i>Beetaloo sub-basin Social Impact Assessment Summary Report</i>	Coffey Services Australia (January 2018)

Assess the above reports in the context of host community issues detailed in the NLC report submissions (**Table 1-2**) with special reference to the nominated sections:

**Table 1-2: NT Inquiry Submissions**

Agency	Report Title	Authors & Date
NLC	<i>A submission by the Northern Land Council to the 2017 Scientific Inquiry into Hydraulic Fracturing in the Northern Territory</i>	NLC 2017 - Sections 2, 7, 8 and 10
NLC	<i>Northern Land Council Response to the Interim Report of the Scientific Inquiry into Hydraulic Fracturing in the Northern Territory</i>	NLC 2017 -Chapter 11 and 12

The Consultant was requested to provide comment and advice on the SIA reports with reference to relevant leading practice and industry standards, and any further comments he/she may have in respect to the adequacy of the SIAs in addressing the particular interests of Indigenous peoples in the Beetaloo Basin.

The Consultant also had reference to two other documents (**Table 1-3**):

Table 1-3: Subsidiary Inquiry Documents

Agency	Report Title	Authors & Date
Inquiry	Request for Quotation document (RFQ Q17-0240)	Inquiry 2017
Inquiry	<i>Background &amp; Issues Paper</i>	Inquiry 2017 – <a href="http://www.frackinginquiry.nt.gov.au">www.frackinginquiry.nt.gov.au</a>

The sole purpose of this assessment is to provide a due diligence on the report submissions<sup>2</sup> listed above in Tables 1-1 and 1-2. The report does not seek to offer any views, either in support of or against hydraulic fracturing other than to indicate that all ecosystem service impacts are inevitably ‘social’, because the physical environment hosts indigenous and non-indigenous peoples who maintain a dependency and relationship to the landscape.

## 2 The SIA Context and International Standards

The intention behind the Inquiry’s commission of three SIA studies was no doubt:

1. To attempt to construct an integrated approach to understanding how a new form of resource extraction and intervention such as fracking might impact project affected communities, and
2. To ascertain whether there was an imperative to undertake appropriate legislative change for the region that would serve all future and similar project ventures.

Even the most cursory reading of the submissions indicate that they were produced in silos—written and conceived in isolation of each other—with little cross-referencing other than *post facto* citation in the final Coffey summary report. Both the CSRSM and CSIRO documents are high-level macro discussions intended, it is assumed, to provide a ‘scaffold’ for the more micro SIA endeavours of field research in the Beetaloo Basin. However, time and resource constraints are cited by Coffey as having thwarted intentions to utilise the full CSRSM framework, and there was no attempt in this conceptual resource context to assess SLO by way of ground-truthing any field-based enquiries.

The CSRSM and CSIRO reports provide lengthy overviews for readers of the relevant discipline literature, but in general what is presented appears highly selective, unbalanced, and offers few clues as to the field tools a practitioner requires to undertake the indicated tasks. The following types of consideration are simply not addressed in the respective submissions:

- (i) Are there alternative models and approaches to understanding and obtaining community consent for resource developments? What are the merits of, or how does SLO align with, a

<sup>2</sup> The Coffey Summary Report is a synopsis of the other three submissions. To avoid repetition no separate discussion of that report is provided.

*free, prior and informed consent* (FPIC) framework widely used across the mining, forestry and petroleum sectors as, for example, articulated by the IFC<sup>3</sup>?

- (ii) What are the shortcomings, constraints and drawbacks inherent in all SIA undertakings, and what aspects of the methodologies required for both SLO and SIA—coding and counting, inferences, questionnaires, interviews, etc., produce suboptimal results? The reports make no reference to the considerable ‘critiques’ of these enterprises. Because neither the Coffey nor the CSIRO reports provide access to the primary data of their so-called “meetings, discussions, and brainstorming sessions”, the reader cannot assess the level of competence displayed, or inferential processes used, but rather has to accept the findings as an article of ‘blind faith’.
- (iii) Is the objective of constructing or recommending an ‘NT-specific’ (regional or otherwise) SIA framework, guidelines or legislation ill-conceived because (a) leading practice SIA theory and methodologies are established, generic and applicable despite project specific variables; and (b) legislative gaps in other countries (eg Papua New Guinea) have not thwarted the production of international standard SIAs which adhere to best practice protocols.

These questions and considerations are discussed in more detail below—suffice to say at this juncture that they receive scant attention in the reports which do a disservice to the readership seeking a balanced understanding of the field of inquiry through provision of alternative approaches and perspectives. Point (iii) above merits some further discussion here because the assessment explains and lays the groundwork for views expressed elsewhere in this report.

Both the CSIRO and CSRSM reports identify objectives to build a “*specific framework for conducting SIA...[and]...measuring and monitoring SLO in the NT*” in view of the “absence of such guidelines, requirements for cumulative impact assessment, and the uniquely high proportion of Aboriginal people and interests”.

These objectives are at best aspirational; this is evidenced by the very literature referenced in the reports which define **generic** models of SIA and SLO capable of being applied to any resource extraction industry and in any national or international context. The CSRSM processual diagrams are no different from those published by IPIECA or found in any SIA textbook or manual. Succinctly stated, the SIA processes, procedures, scaffolds and theory are implicitly ‘generic’—there are no SIA models developed specifically for the extraction of gold vs gas, oil, water, copper, etc. Similarly, international industry and finance institution guidelines do not reflect some ‘industry’ specific strategic process that somehow differs between petroleum and mining. The data provided below illustrate a common sub-set of SIA phases, e.g., *screening, scoping, baseline profiling* and *assessment*, that are adapted in to reflect the nuances of specific situations. The blueprint is invariant, the architects known, it is simply the masons which change from locale to locale.

In the above respects an SIA for the NT is therefore not fundamentally different from an SIA produced for a group or region in Papua New Guinea, Africa or Brazil; the locale merely offers up a unique set of social conditions which requires adaptation of the research tools, not the framework. These conventional truths and wisdoms underscore the IFC set of performance standards and guidelines which were developed so that they can be applied and adapted across the world,

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<sup>3</sup> International Finance Corporation (IFC) (2012). IFC performance standards on environmental and social sustainability. World Bank Group.

irrespective of country-specific conditions or project type precisely because they articulate a common framework or scaffold of principles/processes.

If an SIA is undertaken in conformance with international best practice the reflection of those principles in any governing legislative regime is a redundant consideration, even though it may be desired. Whilst then it is correct for the reports to indicate legislative gaps (e.g., no guidelines for SIA or cumulative impact) this absence in other jurisdictions or countries has not been a barrier to ensuring the SIA incorporates such parameters. Legislation will always lag behind the development of advances in SIA and SLO theory, if only because constantly changing these legal provisions to reflect changes and evolution of more contemporary concepts or theory is time-consuming and pedestrian. The Inquiry, Panel and NLC (or any other agency) can take comfort in the knowledge that if a Commission/TOR for an SIA proscribes performance to reflect, for example, IFC sensitivities and saliences, the report will incorporate cumulative impact considerations, reflect community participation, *notwithstanding* any prevailing legislative provisions.

For all of the above reasons—and others identified further below—the aim of developing some specific ‘NT Fracking’ frameworks in SIA/SLO appears misguided and belied by the proponents’ claims of model applicability across regions and jurisdictions. The NT should be seeking alignment with international trajectories which have pursued convergence of national guidelines, laws and safeguards with international UN, Equator, and IFC standards that already protect the human rights of indigenous peoples, vulnerable constituencies and require detailed consideration of critical ecosystem services in indigenous social contexts.

## 2.1 The SIA promise

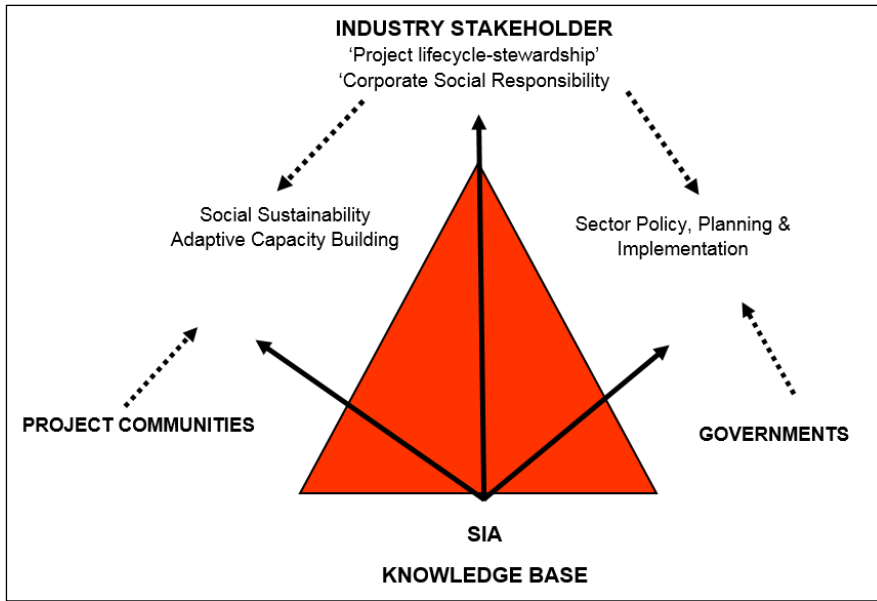
There is consensus on what ‘good’ SIA practice is: it is participatory; it supports affected peoples, proponents and regulatory agencies; it increases understanding of change and capacities to respond to change; it seeks to avoid and mitigate negative impacts and to enhance positive benefits across the life cycle of developments; and it emphasises enhancing the lives of vulnerable and disadvantaged people (Esteves, Franks and Vanclay 2012:34<sup>4</sup>; see also Goldman & Baum 2000:1<sup>5</sup>).

The primary concern of the NLC as expressed in its two report submissions is to ensure the SIA process and outcomes underscore and inform all investigations, planning and development in the area beyond the temporal frame of when the work is undertaken or the project(s) commence. The vision of the NLC is captured and reflected in [Figure 2-1](#) below.

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<sup>4</sup> Esteves, A. Franks, D., Vanclay, F. (2012) Social impact assessment: the state of the art. *Impact Assessment and Project Appraisal* Vol. 30, No. 1, March 2012, 34–42.

<sup>5</sup> Goldman, L. and Baum, S. (2000) Introduction. In *Social Impact Analysis*, ed L. Goldman p1-31, Berg:London.



**Figure 2-1: The role of SIA**

The 2003 International Principles referenced by CSRSM defined SIA as including *‘the processes of analysing, monitoring and managing the intended and unintended social consequences, both positive and negative, of planned interventions (policies, programs, plans, projects) and any social change processes invoked by those interventions. Its primary purpose is to bring about a more sustainable and equitable biophysical and human environment.’* Contemporary SIA objectives have thus moved orientation from predicting and mitigating the negative social consequences of projects towards facilitating positive social development outcomes.

This *‘social well-being of impacted communities’* is the unified objective and convergence point for a myriad of value systems, charters and agendas often encapsulated under Corporate Social Responsibility (e.g., International Organization for Standardization’s ISO 26000 Guidance on Social Responsibility 2010) or Human Rights (e.g., The Universal Declaration of Human Rights [<http://www.un.org/en/documents/udhr> - both the [International Covenant on Civil and Political Rights](#) and the [International Covenant on Economic, Social and Cultural Rights](#) covenants). There is now a burgeoning literature (e.g., the Natural Resource Charter (2010)<sup>6</sup> of resource related ‘first principles’.

All of these protocols and guidelines variously preach the importance of ethical, accountable, transparent and respectful behaviours which promote enhancement of the position of women, minority groups and other disadvantaged or marginalised members of society; development of capacity building; alleviation of all forms of dependency; increase in equity; and a focus on poverty reduction. The role of a good SIA thus goes far beyond the prediction of adverse impacts and the determination of who wins and who loses—it must also encompass empowerment of local people.

<sup>6</sup> [www.naturalresourcecharter.org](http://www.naturalresourcecharter.org)

## 2.2 International Conventions and Protocols

International best practice principles which are most usually referenced in international SIAs include the **Equator Principles**, the International Finance Corporation (IFC) **Procedure for Environmental and Social Review of Projects** (2013), IFC **Performance Standards and Guidance Notes** on Environmental and Social Sustainability (2012), **International Principles for Social Impact Assessment** (Vanclay, 2003), International Association of Impact Analysis (IAIA <http://www.iaia.org>), IFC **Good Practice Note: Addressing the Social Dimensions of Private Sector Projects** (2003)<sup>7</sup>; and the Global Reporting Initiative (GRI) Framework and Guideline.

Developers who seek project financing from any of the major world banks confront stringent environmental and social policy accountability. The **Equator Principles (2013)**<sup>8</sup> are a risk management framework, adopted by financial institutions, for determining, assessing and managing environmental and social risk in projects which is primarily intended to provide a minimum standard for due diligence to support responsible risk decision-making. In the context of specific levels of project risk, Environmental and Social Assessments should seek to address some of the following listed issues<sup>9</sup>:

- (a) assessment of the baseline environmental and social conditions
- (b) consideration of feasible environmentally and socially preferable alternatives
- (c) requirements under host country laws and regulations, applicable international treaties and agreements
- (d) protection and conservation of biodiversity (including endangered species and sensitive ecosystems in modified, natural and Critical Habitats) and identification of legally protected areas
- (e) viability of Project operations in view of reasonably foreseeable changing weather patterns/climatic conditions, together with adaptation opportunities
- (f) cumulative impacts of existing Projects, the proposed Project, and anticipated future Projects
- (g) respect of human rights by acting with due diligence to prevent, mitigate and manage adverse human rights impacts
- (h) consultation and participation of affected parties in the design, review and implementation of the Project
- (i) socio-economic impacts
- (j) impacts on Affected Communities, and disadvantaged or vulnerable groups
- (k) gender and disproportionate gender impacts
- (l) land acquisition and involuntary resettlement
- (m) impacts on indigenous peoples, and their unique cultural systems and values
- (n) protection of cultural property and heritage
- (o) protection of community health, safety and security (including risks, impacts and management of Project's use of security personnel).

<sup>7</sup> No 3, Good Practice Note (2003)

<sup>8</sup> See <http://www.equator-principles.com>.

<sup>9</sup> We have included only those Equator Principles directly and conventionally addressed by SIA studies.

Similarly, the International Finance Corporation (IFC—[www.ifc.org](http://www.ifc.org); 2012) has produced a number of screening criteria, guidelines and safeguard policies for Environmental and Social Sustainability that define best practice. These include:

- Performance Standard 1: Assessment and Management of Environmental and Social Risks and Impacts
- Performance Standard 4: Community Health, Safety, and Security
- Performance Standard 5: Land Acquisition and Involuntary Resettlement
- Performance Standard 6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
- Performance Standard 7: Indigenous Peoples
- Performance Standard 8: Cultural Heritage.

In addition to the above, SIAs may demonstrate cognisance of a number of guides:

- IFC Good Practice Note: Addressing the Social Dimensions of Private Sector Projects<sup>10</sup> (2003);
- Good Practice Manual: Doing Better Business Through Effective Public Consultation and Disclosure (1998)
- World Resources Institute, Weaving Ecosystem Services into Impact Assessment (2011)
- IFC Cumulative Impact assessment & Management: Guidance for the Private sector in Emerging Markets. Good Practice Guide (2013)
- IFC Guide to Human Rights Impact Assessment & Management (2010)
- IPIECA and ICCM<sup>11</sup> Voluntary Principles on Security and Human Rights (2012)
- Natural Resource Charter (2010<sup>12</sup>)
- Oxfam Guide to Free Prior & Informed Consent (2010)
- FSC guidelines for the implementation of the right to free, prior and informed consent (FPIC, 2012).

The TOR for this report requires an assessment then against these types of standards. As a consequence, any assessor of the Coffey SIA submission—and to a lesser extent of the CSR and SLO reports—will look for demonstrated assimilation of these standards and frameworks which explicitly require analysis of **ecosystem services, gender and ethnicity nuanced** findings in the databases, and evidence that the research has been undertaken by qualified social scientists— anthropologists, human geographers, sociologists, etc., with expertise in relevant theory and practice.

Most importantly, if the claim to ‘good science’ is to be taken seriously it is critical that at least some of the primary data utilised as a basis for inference and analysis are provided so that readers can assess how conclusions were drawn, have the opportunity to perhaps challenge or critique the outcomes, and /or provide alternative scenarios. The SLO and Coffey SIA reports fail to do this, presenting their approaches, categories and statistics as ‘ready-made, self-evident’ phenomena. What is sorely missing then is any allusion to limitations, alternatives, or examples of how they engendered their findings from a raw data baseline.

<sup>10</sup> No 3, Good Practice Note.

<sup>11</sup> ICCM (2010) *Good Practice Guide: Indigenous Peoples and Mining*. London: International Council on Mining and Metals.

<sup>12</sup> [www.naturalresourcecharter.org](http://www.naturalresourcecharter.org).

In prioritising the countable over the contestable, prediction over problem, the reports expose the risk that an SIA will lead to ‘*charitable medicines...to be applied on sore spots*’ (Escobar 1991:667<sup>13</sup>), the very outcome that the NLC and host communities will seek to avoid.

SIAs form part of corporate wish-fulfillment to optimise the positives and minimise the negatives of any project by undertaking risk management assessment and recommending risk mitigation programs. Extractive industries, including oil and gas, have for many decades engaged with the paradigm of **sustainable development (SD)**<sup>14</sup>. This is achieved for the most part through responsible policy, planning and project implementation. What is thereby recognised is a form of social contract between corporates and their consumer communities to ensure their wellbeing. But blind faith in the capacity of SIAs to materially affect the wellbeing of stakeholders—i.e., to go beyond a mere compliance tick in the project’s ESHIA process—is often misguided.

SIA as a calibrated tool of measurement in any development paradigm has **no indigenous analogue** in Australia or PNG. There is no evidence, for example, that the Aboriginal world-view sees culture as a linear journey from backwardness to modernity. Time was horizontal, made up of cyclical periods of ‘good and bad’ susceptible to influence by ensuring relationships between humans and spiritual agencies were balanced. There was no need for any SIA fertility ritual.

The development paradigm with its durable visions of destiny and painting-by-numbers social engineering inevitably comes to realise that the transformations wrought by resource projects are not so much **ideological** in nature—about changing beliefs, rationales and world-views—as **idiomatic**—helping people do the same things, achieve the same objectives, as they always did before and for the same reasons, but just in different ways and with different tools. I say this to simply bring awareness about the limitations of SIAs. The SIA is ultimately an analytic tool of modernity, and the SIA consultant is supposed to be someone who can penetrate to the truth, and get to the essence of what is going on in a world which someone wants to change. When this fails to happen in accordance with a predetermined script indigenes are often blamed as architects of their own unsustainability.

It is clear that the CSIRO, CSR and Coffey reports fail to provide any critique of the limitations of SIA and the problems that can arise in the application of ideal or non-ideal SIA processes. All the benign lip-service to cultural sensitivity, empowering indigenous voices and identity with the new vocabulary of *participation, engagement, participatory community planning* and *mutually constructed dialogues*, cannot change the international lessons learned that what eventuates from development situations is a reworking, reconfiguration, re-assemblage of whatever institutions are imposed or erected. Indigenes produce their own counter-work to not simply dismember what is put in place, but re-create them in their own image—to reflect local politics, practices and realities. Cultural blueprints come to underwrite commercial bricks and mortar. What really unfolds in project situations is a locally nuanced institution and set of practices. Awareness of these contextual constraints is critical even though one may hold the view that SIAs should proceed regardless.

<sup>13</sup> Escobar, Arturo. 1991. “Anthropology and the Development Encounter: The Making and Marketing of Development Anthropology.” *American Ethnologist* 18(4):658–82.

<sup>14</sup> The phrase ‘sustainable development’ is understood in two distinct senses: (i) *resource sustainability*— issues of eco-efficiency in mining, processing and manufacturing, waste efficiency, recycling, and project life-cycle performance; and (ii) *social sustainability*— which is often synonymous with adaptive capacity building, institutional strengthening and independent wealth creation in the project communities. The accepted definition of SD from the World Commission on Environment and Development (WCED) is ‘development that meets the needs of the present without compromising the ability of future generations to meet their own needs’.

## 3 CSRМ SIA Framework Report

### 3.1 Introduction

The CSRМ report was tasked to:

1. review current literature on best practice social impact assessment
2. review the current regulatory environment for social impact assessment in the NT
3. review case studies of similar onshore unconventional gas development, and
4. develop a ‘fit for purpose’ leading practice SIA framework for shale gas development in the NT.

Amongst the raft of recommendations, one key contribution is the recognition that where one has an incremental increase in drill sites over a large physical landscape undertaken by many perhaps independent projects, it makes eminent sense to standardise the set of impact tools and objectives, and share baseline data rather than continually reinventing ‘new schemes’ of assessment.

- The rationale behind this is that it allows subsequent projects to cross-reference and tabulate their data—be it about households, income or expenditure, etc., against a ground-zero baseline (cf p.44 of CSRМ report).
- This does not preclude the evolution of new and better tools or analytic models, but it standardises to some degree the kind of information collected and thought relevant to make cross-project comparison meaningful, assists integration of risk mitigations and management plans, and may help prevent duplication of discretionary projects which aim to improve the welfare of project affected persons. The transmission of ‘lessons learned’ is anchored to statistical trends and data gleaned from a region-wide baseline. Whilst these sentiments are perhaps not explicitly teased out by or in the CSRМ report, I am confident they underlie the recommendations made for a ‘strategic regional’ approach.

Whilst such a provision is not legislated for, say in the Papua New Guinea context of oil and gas, where the same proponents have been joint venture partners they have used the same independent research companies to achieve these goals of data comparison both cross-project, regionally and longitudinally within the various resource hub and spokes. For an equally diverse indigenous context then (i.e., by comparison with NT), it has been possible for agencies to develop more efficacious plans because of the ease with which longitudinal trends can be observed and adaptations of programs thereby made to accommodate predicted scenarios.

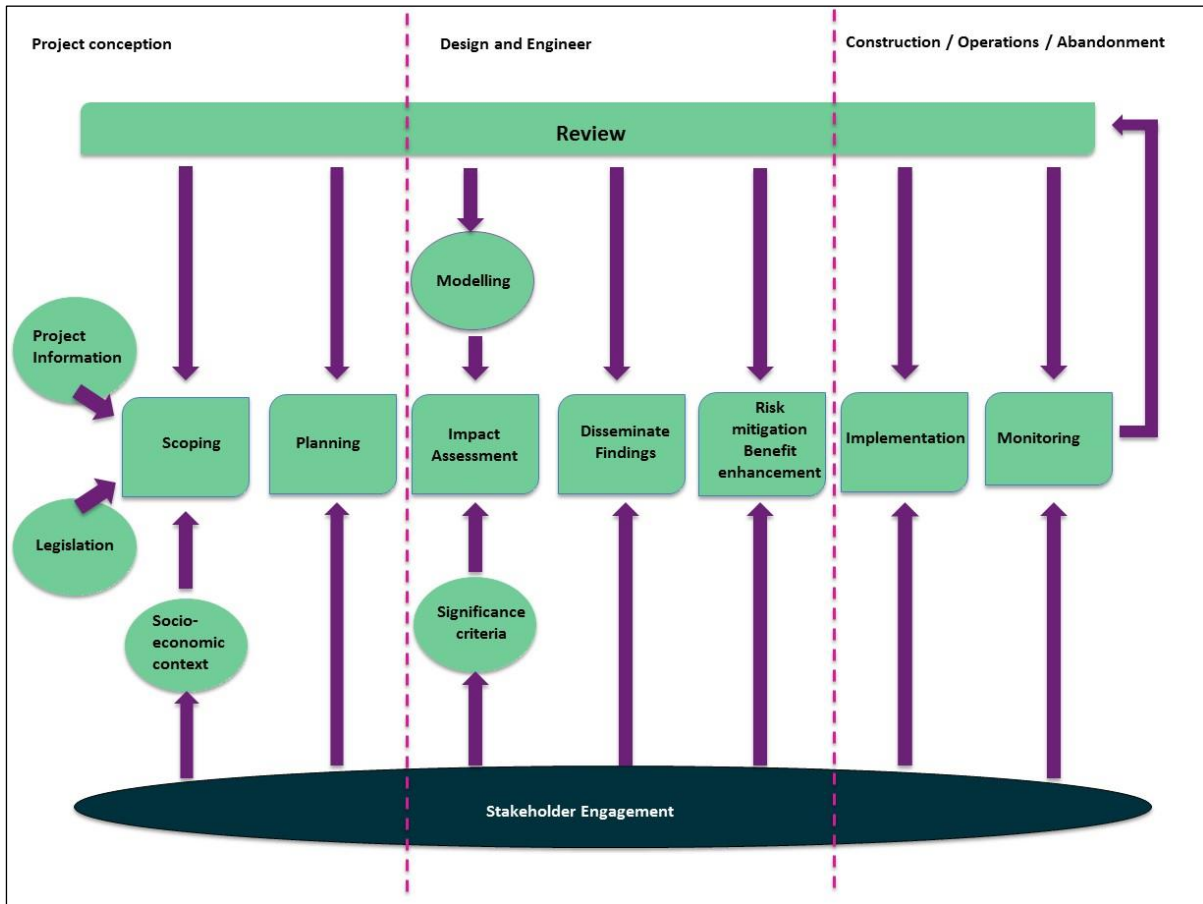
Notwithstanding the recognition that social data and profiles quickly become obsolete and are not contemporary after a period of perhaps three-years, the recommendation for a **single established databank** for the NT region has merit and is further implied by “The SIA framework should contribute to an **open data policy**..” (CSRМ p.4).

The CSRМ report also identifies what they term ‘gaps’ in the current NT regulatory environment for SIA and indicate:

- (i) While generic guidelines exist, there are no industry specific guidelines for conducting an SIA in the NT where there is a uniquely high proportion of Aboriginal people and interests (p.4)

(ii) There are currently no requirements or guidelines for cumulative impacts assessment (p.4).

Whilst these statements may indeed reflect present circumstances, I was somewhat perplexed at the weighting given to them. For reasons explained above, the structure of SIA undertakings—screening, scoping, legislative anchoring, baseline collection and analysis, findings and risk mitigation—remains invariant irrespective of country context or resource type. Indeed, the first twenty pages of the CSRSM report traverses conventional ground on how SIAs should be conducted, and their Figure 2 (CSRSM p.16) replicates the IPIECA model shown below in [Figure 3-1](#).



**Figure 3-1: IPIECA (2004) SIA MODEL**

Most certainly each SIA has to reflect local nuances and situational specifics; however, one does not thereby entertain the need for an ‘industry specific’ set of SIA guidelines beyond those easily available and referenced in the CSRSM report just because there happen to be Aboriginal people. There are ‘aboriginal and indigenous’ peoples across the Asia-Pacific region but one does not require separate SIA regimes and protocols for each of these areas. The intent of the IFC standards and guidelines was very much to try and standardise how one deals with a multitude of project sites, circumstances and presence of indigenous peoples.

Similarly, whilst NT will present with a unique set of social circumstances and history, the types of identified ‘issues’ (p.16) —incremental expansion, legacy issues, project sponsored infrastructure— would be common to the majority of extraction projects world-wide. In profiling the receiving environment the analyst examines the present status of much the same social variables—settlement, education, health, etc., and for both a with-and-without project scenario. Again, there is nothing that

changes in the SIA process because one is dealing with Aboriginal people or because it is a fracking project.

Similarly, all projects have the potential to be a catalyst for a cascade of cumulative impacts and the **Equator Principles (2013)**<sup>15</sup> recognized long ago the need for analysts to consider:

*(f) cumulative impacts of existing Projects, the proposed Project, and anticipated future Projects.*

So any competent professional SIA practitioner who seeks conformity with World Bank and IFC protocols, as recommended by the NLC, would in any event have built cumulative impacts into their matrix of parameters (e.g., **Figure 3-2** below)<sup>16</sup>.

**Figure 3-2** captures cumulative impacts under **Nature—Direct, Indirect, Cumulative**: —whether the identified change has a causal proximity in time and space to the intervention (direct), or causal distance (indirect). The cumulative effects of an activity/intervention may be either: (a) *additive*—incremental accumulation; or (b) *synergistic*—produced by the interaction or combination of effects in the past, present and reasonably foreseeable future. Cumulative impacts are the successive, incremental and/or combined impacts of one or more activities on society. They may aggregate linearly, exponentially or reach ‘tipping points’ after which major changes in environmental, social and economic systems may follow’.

Nature	Duration	Extent	Magnitude	Likelihood	Manageable	Valence
<b>Direct</b>	Construction	Localised	High	Uncertain	H	<b>Positive</b>
<b>Indirect</b>	Operation	Regional	Medium	Probable	M	<b>Negative</b>
<b>Cumulative</b>	Closure	National	Low	Confident	L	

**Figure 3-2: Example SIA Impact Assessment Matrix**

### Recommendation

For all the reasons provided above, this analyst does not agree with the CSRSM requirement for remedial action through changed legislation to address so-called ‘gaps’. Cumulative impact assessment should be undertaken and anticipated as part of any conventional SIA which claims conformity with international best practice. Similarly, the view that there is a need for some ‘fracking industry specific’ SIA framework or guidelines belies the very literature referenced by the CSRSM report which is non-industry specific and generic in nature. Legislative analogues from other nearby countries with mining and petroleum developments have more recently followed a trajectory of standardising requirements to ensure that the same research processes of social mapping, landowner identification and SIA are aligned and integrated, and conform with IFC performance standards.

<sup>15</sup> See <http://www.equator-principles.com>.

<sup>16</sup> All of the above are coincidentally equally absent from the legal or regulatory regimes of Papua New Guinea but that has not precluded SIAs or EIS studies from cumulative impact consideration, and that includes Coffey generated reports.

Much of what is contained in the CSRSM report I found uncontroversial and generally well written and researched. However, there appeared to me several areas where the report was found lacking in respect to international standard practices that might have (or should have) been alluded to and/or incorporated. These are identified as follows:

1. The word '**gender**' does not appear **even once** in the document and this seems aligned, perhaps coincidentally (?), with the Coffey and CSIRO reports where tables of findings and collated statistics similarly fail to disaggregate the data for gender nuances. Contemporary SIAs, and most especially those undertaken amongst indigenous populations, ensure special attention is given to understanding the roles, aspirations and status of women often because high levels of domestic violence exist or can be triggered by resource developments that cascade sudden and newfound cash windfalls.
2. The CSRSM document does not discuss the issue of whether *Health Impact Assessments* (HIA) and/or *Human Rights Impact Assessments* (HRIA)<sup>17</sup> should be stand-alone undertakings or incorporated within wider social risk evaluations. Given the NT socio-cultural context, the declared task of developing an 'SIA for the NT hydraulic fracturing industry', this surely deserved some discussion. There are numerous strands of debate on the merits of both positions but the **Panel in concert with the NLC** should ensure adequate understanding of these ventures and take a position that can stand as a precedence for subsequent SIA undertakings.
3. More seriously, there is no discussion or mention of **Ecosystem Services** (cf IFC Performance Standards 4, 6, etc.) and the international development of these analyses within SIA frameworks. This was a startling omission given the known intimate relationship of Aboriginal people to their land and dependence on its resources for sustainable livelihoods. I have noted above that the Coffey SIA document similarly fails to identify ecosystem services as an area of analysis.

## 3.2 Ecosystem Services Framework

**Ecosystem services** are the many benefits—large and small, direct and indirect—that ecosystems provide to people. These consist of the natural products and processes that contribute to beneficiary wellbeing, as well as the personal and social enjoyment derived from nature. For example, forests provide wood products and a host of non-timber products and act as a venue for recreation and spiritual renewal; they also help to mitigate climate change by sequestering carbon.

In essence, an ecosystem service analysis is about understanding what the present landscape provides to the potentially impacted host populace—both as current usage and future potential—so as to determine what it is that is being lost (permanently or temporarily) by a change in land use consequent on a given intervention. The assessment of this loss has also to be made with respect to alternative livelihood sources available—what is called 'replaceability'—and the wellbeing of

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<sup>17</sup> See discussion pp.12-21 in IPIECA **Integrating human rights into environmental, social and health impact assessments** A practical guide for the oil and gas industry (2013)( <http://www.ipieca.org/resources/good-practice/integrating-human-rights-into-environmental-social-and-health-impact-assessments-a-practical-guide-for-the-oil-and-gas-industry/>).

beneficiaries because of any consequential deprivation. At the local level, ecosystem services are frequently the basis for rural livelihoods and subsistence, particularly for the poor.

Many SIA documents broadly follow the methods outlined in WRI (2013a). The proposed NT Gas Project is viewed as a **direct driver** of ecosystem change by virtue of its agency in instigating a transformation in **land use and land cover**—footprint facilities, proposed plantations, possible changes in anthropogenic grasslands and grassy biomes, etc. For these reasons most SIAs will circumscribe both an IFC ‘area of influence’ (IFC 2012; i.e., where impacts will be experienced on a physical landscape) and the ‘ecosystem services project area’ (WRI 2011:16<sup>18</sup>)—ecosystem services upon which affected communities’ livelihoods and project are dependent and which may be impacted by the resource development. The ecosystem services project area (ESPA) is the area relevant to the assessment of project impacts and dependence on priority ecosystem services. Ecosystem services can be divided into the following four categories (WRI 2013):

**Provisioning services**—the goods and products people obtain from ecosystems, such as agricultural products, food, timber, fibre, construction materials and water for drinking.

**Regulating services**—the benefits people obtain from the ecosystems control of natural processes, such as climate and disease control, purification of water and air, control of pests, natural hazard mitigation and water flow regulation.

**Cultural services**—the non-material benefits people obtain from ecosystems, such as benefits obtained from spiritual and sacred sites and aesthetic enjoyment.

**Supporting services**—the natural processes that maintain the other services, for example, nutrient capture and recycling, primary production, and pathways for genetic exchange.

The NLC in its submissions has already identified the need to attend to impacts “on the aesthetic and cultural integrity of natural water sources by hydraulic fracturing and by rapid development of an oil and gas industry” (NLC p.29) —a concern captured by ‘*cultural services*’ within the ecosystem framework. The argument is made then that the NLC recommendations would be captured in any IFC compliant SIA. **Tables 3-1, 3-2, 3-3 and 3-4** provide reference guides and examples of impact matrices undertaken for an ecosystem service analysis **within** an overarching SIA document.

In the opinion of this assessor both the Coffey and CSRMs reports would have benefited from some discussion and incorporation of the above issues to show alignment with international best practice SIA methodology and expectations. The topics are fundamental ‘101’ requirements for SIAs—and especially those which self-proclaim ‘leading practice’ credentials. They need articulating both within a ‘framework’ as well as in any resultant SIA study. Whilst acknowledging that the CSRMs document is a high-level overview—and does not engage with the granularity of SIA methodology—the extensive rehearsing of conventional SIA literature could well have been sacrificed for discussion of the above issues pertinent to the NT context where there is cultural diversity, high dependence on ecosystem services, and a landscape

<sup>18</sup> WRI (2011) Landsberg *et al* Ecosystem Services Review for Impact Assessment: Introduction and Guide to Scoping; WRI (2013) Weaving Ecosystem Services into Impact Assessment, World Resources Institute, 2013.

infused with spirituality. Succinctly stated, they could have forsaken the window dressing and exposed more of the mannequin bones.

**Table 3-1: Ecosystem Services Performance Standards, Notes and Protocol**

Protocols	Item	Title
International Finance Corporation’s (IFC) Performance Standards on Environmental and Social Sustainability 2012	Performance Standard (PS) 6 (also elements of PS 3, 4,5,7,8)	PS6: Biodiversity Conservation and Sustainable Management of Living Natural Resources
International Finance Corporation’s (IFC) Guidance Notes: Performance Standards on Environmental and Social Sustainability 2012	Guidance Note 6	Biodiversity Conservation and Sustainable Management of Living Natural Resources
Oil Search Limited	Policy Statement Appendix 2 & <a href="http://socialresponsibility.oilsearch.com/approach/responsible-operator/">http://socialresponsibility.oilsearch.com/approach/responsible-operator/</a>	Social Responsibility Policy
FSC FSC PNG	Generic Protocols FSC PNG Standards	2010 – FM Standards 2015 – Generic Standards

**Table 3-2: Ecosystem Service Guides referenced**

ES Guides	Item, No.	Title
World Resources Institute (WRI)	Ecosystem Services Review for Impact Assessment:	Introduction & Guide to Scoping (2011)
World Resources Institute (WRI)	Weaving Ecosystem Services into Impact Assessment	Step-by-Step Method Version 1.0 (2011)
<i>The Economics of Ecosystems and Biodiversity (TEEB)</i>	Integration the Ecological & Economic Dimensions in Biodiversity & Ecosystem Service Valuation	Chapter 1
<i>The Economics of Ecosystems and Biodiversity (TEEB)</i>	Biodiversity, Ecosystem, & Ecosystem Services	Chapter 2
<i>Millennium Ecosystem Assessment</i>	Ecosystems and Human Wellbeing A Framework for Assessment	Linking Ecosystem Services and Human Wellbeing: Chapter 3
<i>IPIECA (2011)</i>	Biodiversity and ecosystem services checklists. International Petroleum Industry Environmental Conservation Association	Ecosystem services guidance

Table 3-3: ESPA provisioning and cultural services for baseline investigation

Ecosystem service category and services	Examples	Description of Importance to beneficiary	Broad habitats/ ecosystems potentially impacted in ESPA	Specialist responsible for recording data	Description of Replaceability
<b>MODIFIED HABITAT</b>					
<i>Provisioning</i>					
Food	Wild game: boars, bandicoots, cuscus, birds, bats, possums	Moderate subsistence contribution and low commercial inputs	Woodland, woody grassland and open grassland	Dr Mike Lowe, Dr Mike Bourke SIMP – inputs from ecosystem survey questionnaires	<ul style="list-style-type: none"> <li>Open grasslands usually too hot for wild pig which prefer moisture and shade; near rivers and forest</li> <li>Secondary forest also used for same purposes</li> <li>Extent of hunting probably overstated as a subsistence staple but informants said hunting averaged 7 days a month</li> <li>Survey for food eaten in last 24 hours indicated wild game contribution to diets</li> <li>Subsistence bush-meat hunting in rural areas is an important source of affordable protein and the local bush-meat trade is a source of income for some households. The cost of farmed meat is extremely high and wild meat is considered more desirable.</li> </ul>
	Crop cultivation: Subsistence and short term commercial agricultural by many farmers observed in gardens studied	Essential inputs and especially to poorer farmers	Woodland, woody grassland and open grassland, and riverine swamps	Dr Mike Lowe, Dr Mike Bourke SIMP – inputs from ecosystem survey questionnaires	<ul style="list-style-type: none"> <li>Those farmers with land area challenges in particular have made short term gardens in poor grassland areas</li> <li>A good amount of cultivatable land is available in the ESPA. Available land may be of even lower quality and more distant for some farmers than existing farmland and would require additional inputs to reach equivalent productivity</li> <li>Replaceability of cultivated land is therefore considered to be moderate for some but high on average</li> <li>Intercropping will assist for some periods until tree crowns block out light</li> </ul>

Ecosystem service category and services	Examples	Description of Importance to beneficiary	Broad habitats/ ecosystems potentially impacted in ESPA	Specialist responsible for recording data	Description of Replaceability
	Animals raised for domestic or commercial consumption such as poultry or pigs	Low-moderate as abundant foraging areas	Woodland, woody grassland and open grassland	Dr Mike Lowe, Dr Mike Bourke SIMP – inputs from ecosystem survey questionnaires	<ul style="list-style-type: none"> <li>• Average pigs per household #3</li> <li>• Cattle ownership very low</li> <li>• In general there is sufficient good quality land available for grazing in the area and, feeding cattle is not a factor limiting growth</li> <li>• Replaceability is therefore rated High for the ESPA as a whole, but may vary at the village level</li> </ul>
	Fruits, vegetable, shoots, fungi, mushrooms	Moderate	Secondary forest	Dr Mike Lowe, Dr Mike Bourke SIMP – inputs from ecosystem survey questionnaires	<ul style="list-style-type: none"> <li>• If areas not used then abundant</li> <li>• If areas used then will be impacted but all foods abundant and unlikely to run out of alternative sources</li> <li>• Will depend on how much and what types of land are committed to project for plantations as replaceability will vary with these two factors but moderate level of replaceability</li> </ul>
Biological raw materials	Timber species used for construction or trade; kunai grass used for walls and roofs; poles; sago leaves; flooring; ropes, rafters	Moderate	Secondary forest	SIMP – inputs from ecosystem survey questionnaires	<ul style="list-style-type: none"> <li>• Average visits less than 1 per year</li> <li>• Posts will be provided by plantations</li> <li>• Abundant alternatives</li> </ul>
Biomass fuel	Timber and charcoal for cooking and lighting	Essential	Secondary forest	SIMP – inputs from ecosystem survey questionnaires	<ul style="list-style-type: none"> <li>• Increased use of solar, only 13% used biomass for lighting</li> <li>• No shortage of firewood but 98% people using for cooking</li> <li>• Will depend on how much woody grassland areas committed to project as to whether harvesting of fuel-wood proves a problem because of distance</li> </ul>

Ecosystem service category and services	Examples	Description of Importance to beneficiary	Broad habitats/ ecosystems potentially impacted in ESPA	Specialist responsible for recording data	Description of Replaceability
<b>Animal products</b>	Tusks, bones, feathers	Low	Woodland, woody grassland and open grassland, forest	SIMP – inputs from ecosystem survey questionnaires	<ul style="list-style-type: none"> <li>• 54% reported less abundant pre-project</li> <li>• Effect on hunting unquantifiable</li> <li>• 56% said sold items in market</li> <li>• Will depend on impacts on wildlife presence in grasslands and woody areas</li> </ul>
<b>Natural medicine</b>	Wild plants used for medicinal purposes.	Low	Forest	SIMP – inputs from ecosystem survey questionnaires	<ul style="list-style-type: none"> <li>• Gathering plants for use in traditional medicine is generally a sustainable use of the resource. Harvesting for monetary purposes is not uncommon and pressure on medicinal resources is believed to be minimal at this time</li> <li>• Respondents indicated collection on average once a month</li> <li>• Herbs, ginger, all rated as ‘abundant’</li> <li>• Likely to have high replaceability</li> </ul>
<b>Cultural</b>					
<b>Recreational</b>	Hunting with dogs	Moderate to High	Woodland, woody grassland and open grassland, Forest	SIMP – inputs from ecosystem survey questionnaires	<ul style="list-style-type: none"> <li>• 89% continued to hunt</li> <li>• Averaged 7 days a month</li> <li>• Has a high value culturally both in terms of ‘quality of life’ and as a context for education about the physical landscape, flora and fauna</li> </ul>

Table 3-4: Ecosystems Impact Mitigation and Residual Impact Assessment

Impact	Risks	Proposed Mitigation and Management Measures	Residual Impact Magnitude	Residual Impact Likelihood
<b>Gardens/Crop cultivation</b>	<ul style="list-style-type: none"> <li>Loss of food gardens</li> <li>Loss of potential land</li> <li>Loss of crop income</li> <li>Shortage of land/land types</li> <li>Inter-generational and intra-clan disputes</li> </ul>	<ul style="list-style-type: none"> <li>Ensure robust <i>Land Use Policy &amp; Program</i> are in place which defines maximum land areas and types which can be leased as a ratio of total land holdings of each leaseholder</li> <li><i>Resettlement Policy Framework</i> needs to be in place and reflect formula for land lease</li> <li>Resettlement implementation team (RIT) required to undertake leaseholder acreage and usage assessments to ensure no land shortages occur</li> <li>Leasing entity needs to ensure adequate alternative garden land available to landowners who sacrifice garden/commercial crop land for plantations</li> <li>Leasing entity needs to keep electronic records of all lands program data and audits should occur on monitoring exercises by external diligence agency with knowledge of PNG agriculture, land, land use and subsistence gardening</li> <li>All project personnel and stakeholders involved in plantations need to be educated about 'land types' that can be used and which cannot be used, and this needs to be in Community Engagement materials disseminated in English, local language and pidgin</li> </ul>	Low	Probable
<b>Wild game &amp; animal products</b>	<ul style="list-style-type: none"> <li>Loss of game (pigs, birds, bandicoot) from changed land use</li> <li>Loss of recreational enjoyment</li> <li>Loss of cultural knowledge about hunting because contexts for transmission altered and/or diminished</li> </ul>	<ul style="list-style-type: none"> <li>Ensure robust <i>Land Use Policy &amp; Program</i> are in place which defines maximum land areas and types which can be leased as a ratio of total land holdings of each leaseholder</li> <li>Monitoring of community perceptions after 6-12 months concerning hunting frequency and abundance/shortage of game by project environment officers</li> </ul>	Low	Probable
<b>Wild foods</b>	<ul style="list-style-type: none"> <li>Loss of woody grassland and secondary regrowth areas</li> <li>Loss of foraging resources</li> </ul>	<ul style="list-style-type: none"> <li>Ensure robust <i>Land Use Policy &amp; Program</i> are in place which defines maximum land areas and types which can be leased as a ratio of total land holdings of each leaseholder</li> <li><i>Resettlement Policy Framework</i> needs to be in place and reflect formula for land lease</li> <li>Resettlement implementation team (RIT) required to undertake leaseholder acreage and usage assessments to ensure no land shortages occur</li> <li>All project personnel and stakeholders involved in plantations need to be educated about 'land types' that can be used and which cannot be used, and this needs to be in Community Engagement materials disseminated in English, local language and pidgin</li> </ul>	Low	Certain

Impact	Risks	Proposed Mitigation and Management Measures	Residual Impact Magnitude	Residual Impact Likelihood
<b>Building materials, fibres, resins etc</b>	<ul style="list-style-type: none"> <li>• Loss of woody grassland and secondary regrowth areas</li> <li>• Loss of access to close resource abundant areas</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure robust <i>Land Use Policy &amp; Program</i> are in place which defines maximum land areas and types which can be leased as a ratio of total land holdings of each leaseholder</li> <li>• All project personnel and stakeholders involved in plantations need to be educated about 'land types' that can be used and which cannot be used, and this needs to be in Community Engagement materials disseminated in English, local language and pidgin</li> </ul>	Low	Certain
<b>Natural medicines</b>	<ul style="list-style-type: none"> <li>• Loss of woody grassland and secondary regrowth areas</li> <li>• Loss of access to close resource abundant areas</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure robust <i>Land Use Policy &amp; Program</i> are in place which defines maximum land areas and types which can be leased as a ratio of total land holdings of each leaseholder</li> <li>• All project personnel and stakeholders involved in plantations need to be educated about 'land types' that can be used and which cannot be used, and this needs to be in Community Engagement materials disseminated in English, <i>local language</i> and pidgin</li> </ul>	Low	Certain
<b>Biomass fuel</b>	<ul style="list-style-type: none"> <li>• Loss of woody grassland and secondary regrowth areas</li> <li>• Loss of access to close resource abundant areas</li> </ul>	<ul style="list-style-type: none"> <li>• Ensure robust <i>Land Use Policy &amp; Program</i> are in place which defines maximum land areas and types which can be leased as a ratio of total land holdings of each leaseholder</li> <li>• All project personnel and stakeholders involved in plantations need to be educated about 'land types' that can be used and which cannot be used, and this needs to be in Community Engagement materials disseminated in English, local language and pidgin</li> </ul>	Low	Certain

The CSRSM report to its credit addresses issues of monitoring and suggests ‘participation’ by affected stakeholders which we feel is also important. However, to some degree there is a tendency for the report authors to lapse into prolix terminology that is unhelpful to their cause.

‘**Strategic**’ becomes a key word in phrases such as ‘strategic assessment’ (p.39) but when unpacked for what it alludes to appears no more than standard SIA orthodoxy for the phases of scoping, etc., discussed above and in the report pp.39–40.

‘**Adaptive participatory management approach**’ exhibits the same proclivity to making complex the simple concept of ‘learning as we go along and changing focus to adapt to circumstances’. These redundant terms and jargon seem unnecessary. All SIA analysts have and consider a range of datasets gleaned from the use of various methodologies and tools, including case analogues in other regions, which they analyse through a process of ‘triangulation’ (cross-referencing) —captured also in the report on p.20.

The other areas of the CSRSM report that might raise eyebrows concern recommendations 7, 9 and 11. There is no doubt that enhancing or at least maintaining the **wellbeing of potential beneficiaries** will require management of a number of risks:

- The **level** of community dependency on certain ecosystem services to maintain their livelihoods and cultural identity and therefore their vulnerability to impacts from any ‘land-use’ change.
- The formation of a business entity or Landowner Company can often exacerbate divisions and obtaining a working consensus often proves intractable or inimical to sustainability.
- The potential for some **induced land conflict** given the size of the project land uptake, land tenure principles, dependency on ecosystem services and pre-existing disputes.
- The problem of ensuring affected project landowners will gain **equitable, transparent, sustainable** and **mandated** cash incomes/royalties from the project and the need to ensure no division between haves/have-nots, and that distribution does not inadvertently impact kin groups and kin group structures.
- Risks flowing from cultural miscommunication and **free, prior and informed consent** (FPIC). It is critical the land-use/compensation agreements are processed in an appropriate language and form that is culturally acceptable, and that there are independent third-party legal or para-legal witnesses to all agreements to certify assent and understanding.

However, the CSRSM proposals appear to me to be better left until after an SIA is performed to gauge, incorporate and reflect affected host views/opinions. The funding of SIA baseline work, maintenance of the profiling data, arrangements for royalty payments, business development, etc., are emergent topics often planned **after** (*post-factum*) SIA, precisely because their consideration demands expert inputs from scientists who can ‘predict’ likely scenarios based on cultural patterns, history and experience. This point requires some fleshing out and context for understanding.

Quite appropriately, CSRSM is concerned to ensure the ‘social-economic impacts’ of projects do not play second fiddle to the ‘environmental’ lemma—that often reported tendency for social impacts to become overshadowed in the literature by emphasis on physical landscape changes. Notwithstanding this, what is not indicated or referenced in the CSRSM or Coffey reports are the significant problems attendant on all SIA ventures and recommendations.

Mitigation programs need to focus on what can realistically be progressed by stakeholders given certain context sensitivities. In this respect, ‘context’ for an NT SIA includes the understanding that introduced forms of institutional or infrastructure arrangements are subject to adaptation by project landowners to reflect local political and economic realities. When new forms of organisational structures and institutions are introduced or legislated, often local behavior patterns reconfigure them. What results is a hybrid institution where western ideological values of gender equity and/or financial transparency are sometimes marginalised. Indigenous values rework and regulate practices to more appropriately reflect their own entrenched politics. Cultural experts are thus necessary to help those putting together ‘management plans’ (CSRSM p.21) understand what the ‘context’ is, and how it will interplay with good-intentioned recommendations to produce outcomes that may be judged ‘unwanted or unacceptable’.

### **Cultural blueprints will shape commercial bricks and mortar**

### **Social illiteracy can be viral, impact bottom-lines, and pose reputation risks**

The importance of **social literacy**, i.e., informed of the principles of social organisation, structure and cultural behavior of host/target populations, lies precisely in the understanding that survey design and administration, social management plans and recommendations need to be adapted and responsive to socio-cultural circumstances and project-specific conditions.

Section 4.2 (p.44) of the CRM report briefly describes baseline building recommending a number of their ‘in-house’ tools and programs which the NLC has independently assessed in its reports<sup>19</sup>. There are alternative tools used widely in the SIA realm which appear to us as perhaps worthy of consideration given the context of indigenous peoples. This is a large topic and only brief coverage can be given below.

## **3.3 Sampling and Analysis Strategies**

Household surveys are frequently used for collection of detailed and varied socio-demographic data pertaining to livelihoods, population, perceptions and social change. Whilst we cannot enter here into an expansive discussion of methodology (see UN publication *Designing Household Survey Samples: Practical Guidelines*, 2005)<sup>20</sup> our preference is for the use of a range *surveys* (see separate attachment *Surveys*) capable of being adapted to the variability found in the NT rural and urban hubs. A sampling strategy would be required, weightings given according to probability assessment, and with options such as:

- *Area sampling* – Selection of geographical area units that comprise sampling frame (may include selection of area segments, defined as mapped sub-divisions of administrative area).
- *Compact cluster* – Sampling in which next-to-last stage is a geographically-defined unit such as census enumeration areas or units.

<sup>19</sup> A thorough report on these frameworks is outside the scope of this assessment given the time constraints.

<sup>20</sup> Department of Economic and Social Affairs Statistics Division Studies in Methods Series F No.98.

- *Non-probability sampling* – quota, judgmental, purposive, convenience, random walk sampling.
- *Probability sampling* – selection methodology whereby each population unit (person, household, etc.) has known, non-zero chance of inclusion in the sample.

The stratification characteristics of the potentially affected communities would be used to determine relative relevance of *Probability sampling*—the requirements for probability sampling are (1) that each element must have a known mathematical chance of being selected; (2) that chance must be greater than zero; and (3) it must be numerically calculable to allow inference that the selection is representative of the total population; and *Non-probability sampling* presents cost and convenience benefits and may repose on, (i) judgmental criteria (expert opinion on candidate villages); (ii) random walks (entails either selecting every  $n^{\text{th}}$  household or screening each one along the path of travel); and/or (iii) convenience samples (accessible and known to be cooperative).

What modes of analysis are utilised clearly depends on what it is we want to show by way of patterns, clusters, or baseline status. For international due diligence agencies and loan institutions, there is a preference for indexation along, for example, the **Multidimensional Poverty Index (MPI)** or **Human Development Index (HDI)**. In other cases a type of ‘wealth analysis’ index which allows for gross comparisons between sites, and between urban and rural enclaves, can be more useful.

### 3.4 Wealth Analysis

Traditional methods of wealth analysis rely on an examination of expenditure data. However, consumption expenditure analysis suffers from several problems that make it impractical as an analytic tool in the context of remote indigenous communities.

In order to avoid the complexities of expenditure data collection in developing country settings, researchers have looked for simpler surrogate metrics. Asset analysis provides the researcher with a relatively simple and reliable proxy for wealth. Rather than rely on a household’s spending over a given month, as is done in expenditure analysis, asset analysis looks at the accumulation of durable goods that exist at the household level (e.g., [Table 3-5](#) below).

**Table 3-5: Asset List for Wealth Comparison Analysis**

ASSETS UTILISED			
House Type	Bank Account -Y/N	Radio-Y/N	Cash Crop Sago-Y/N
Iron Roof-Y/N	Shared Bank Account -Y/N	TV-Y/N	Cash Crop Betel nut-Y/N
Cooking Area Location	Gas Cooker-Y/N	Computer-Y/N	Pigs-Y/N
Cooking Fuel	Mobile Phone-Y/N	Fridge/Freezer-Y/N	Chickens-Y/N
Lighting Source	Mosquito-Net -Y/N	Sewing Machine-Y/N	Cows-Y/N
Toilet Type	Motor Boat-Y/N	Vehicle-Y/N	Cassowary-Y/N
Water Location	Canoe-Y/N	Generator-Y/N	Fishpond-Y/N
Water Treated Status	Cash Crop Coffee-Y/N	Water Availability	Cash Crop Vanilla-Y/N

**Principle Component Analysis (PCA) and Multiple Correspondence Analysis (MCA)**

**Principle component analysis (PCA)** has frequently been used to determine the relative wealth of households by looking at their asset mixture. Households that are relatively wealthy will have a larger number of assets in both count and value. Certain assets will group together and will have a large impact on whether or not an individual household is considered poor or wealthy, while other assets will have minimal effect.

An important drawback to using PCA is that it requires all variables in the calculation to be on ordinal numerical scales. PCA allows us to say that a household with 2 televisions, 1 refrigerator, and 5 cell phones is *wealthier* than a household with only 1 television and 3 cell phones; however, it cannot make the distinction as to who is better off once categorical variables such as toilet facility (communal latrine, bush, indoor facility), water source (indoor, borehole, river/stream), use of electricity, and housing structure type (bush materials, brick, tine) are considered. These types of categorical variables are particularly important as they are highly correlated with positive health outcomes for rural landowners.

In order to account for the potential predictive power of categorical variables, we use a discrete variable analogue of PCA, i.e., **Multiple Correspondence Analysis (MCA)**. MCA is analogous to PCA in that it bases one’s relative wealth on household level asset mixture. However, MCA is able to use categorical variables; therefore, it is more suitable for analysis with variables such as water quality, housing structure type and toilet facility. The assets used in the overall analysis are grouped according to how they relate to one another in describing relative wealth. This grouping is known as a component. Each component explains some amount of the overall variance in the data.

Figure 3-3 below shows the distribution of scores for two catchments, whilst Figure 3-4 illustrates the distribution of assets criteria.



**Figure 3-3: MCA Analysis of Household Wealth in Two Catchments**



local populations, Aboriginal groups, and other interested parties. Capturing such views, coding and counting them, weighting their significance and deciding how many and much of each component variable will combine to define ‘consent’ remains an inexact science because of the DNA flaws in the interpretive process.

Behavioural manifestations of SLO may range from absence of opposition to vocal support or even advocacy, and these various levels of social licence (as well as, of course, the absence of social licence) may occur at the same time among different project-affected constituencies. What makes measurement problematic is not simply intangibility, but variability in the levels of consent during the life-cycle of any project—which requires constant monitoring and testing—and the subjectivity inherent in a translation and interpretation process handling cross-cultural data from interviewees who are non-English speakers.

The point is thus made that measures and measuring SLO is a hybrid process, multi-factorial in nature, always partially subjective, and in all cases the ease of the optical presentation should not obscure the complexity of the narrative explanations and fieldwork processes which scaffold and underpin the exercise.

The sister concept of ‘*free, prior and informed consent*’ (FPIC; IFC 2012) is similarly an ethical expression of a human right and now uncontroversial. While several international organisations<sup>21</sup> have developed policies stating their commitment to or interpretation of FPIC, there is presently no commonly agreed industry position or model for the achievement of FPIC, though examples now abound.

Whilst then acknowledging differences about how to operationalize this framework, the FPIC concept has additional merits over the analogue SLO because it highlights, or makes explicit, requirements (e.g., *being informed*) which are otherwise implicit or absent in the SLO catchphrase.

For example, FPIC compliance for being:

**Informed**, means that there is full disclosure by project developers of their plans in the language acceptable to the affected communities, and that each community has enough information to have a reasonable understanding of what those plans will likely mean for them, including the social impacts they will experience.

An SLO procedure that might simply capture a respondent statement such as ‘*I consent to development x to go ahead; or the company shows respect for us people*’ for its coding and counting baseline, without first having tested the respondent for comprehension of the project prospectus, improperly distorts this ‘consent’ for statistical and report convenience.

## Recommendation

There is a good argument to suggest that developers, impact practitioners and regulatory agents who wish to secure compliance with international standard SIA protocols and requirements concentrate efforts on defining the critical pathways to FPIC (rather than SLO) as

<sup>21</sup> FSC Guidelines for the implementation of the right to free, prior and informed consent (FPIC) (2012); Oxfam Guide to free, Prior & Informed Consent (Hill *et al* 2010).

a more embracing framework for understanding stakeholder acceptance and assent. Beyond compliance, the shift has the merit of focusing attention away from vague understandings of governance and trust to loggable behaviours - efforts expended to align host indigenous communities/stakeholders through information sharing, ‘on the ground’ road-shows, ledgers of interaction episodes and tests of project comprehension that mitigate cross-cultural misunderstandings. This would have the further benefit of being more closely aligned with expectations and protocols of international funding agencies like the IFC. There would be a convergence of NT fracking requirements with industry-standard practices elsewhere in the region.

## 4.2 CSIRO Objectives

The prime objectives of the CSIRO report are to provide an opening onto the how, what and why of SLO, and the potential for their model to be utilized within the NT environs across a range of extractive industries. In this vein, a high-level overview of the relevant literature is provided (with due deference to the more seminal works of Boutilier and Thomson<sup>22</sup>).

CSIRO details the key drivers of **trust** and **acceptance** for the extractive industries which 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).

The CSIRO report provides some crude indications, i.e., high and/or low, levels of state-wide trust and acceptance of ‘mining’ based on data obtained through an online survey. Utilising an implicit ranking system CSIRO feels confident in reporting that in the NT certain of their drivers are more significant than others in the gestalt that is ‘social acceptance’<sup>23</sup>. Further ‘context’ is given to such findings by a series of 7 one-hour informal ‘discussions’ with stakeholders.

## 4.3 Detailed Comments

1. We are told that the report provides *“a summary of conversations with industry, community and government stakeholders in the NT gas industry detailing key issues and challenges”* (p.iv).
  - (i) In line with comments below on the shortcomings of the Coffey SIA, the reader is not offered any insight into the primary data from which findings are made. There is thus no opportunity for checking or reanalysis, but rather we are asked to accept as an article of ‘blind faith’ that good science and method have been used.
  - (ii) The suite of documents from Coffey and CSIRO pay lip service to the need for an ‘*open data policy*’ and yet the report does a disservice to its constituent stakeholders by its failure to provide even a sample of the information that presumably exists.

<sup>22</sup> <https://sociallicense.com/publications/A%20dozen%20statement%20for%20measuring%20the%20social%20license.pdf>

<sup>23</sup> E.g., ‘the most important predictor of social acceptance was perceived balance of benefits over impacts of mining’ (p.28).

- (iii) Any SLO practitioner who has to go out into the field to collect relevant data will ask themselves the following question: *“Having read the CSIRO document, am I better informed and able to go out and undertake the SLO work proscribed”*. Beyond general statements such as, *“it is important that vulnerable, marginalised and special status groups are included in SLO research using appropriate methods”*, the report offers nothing by way of step-by-step guidance to such aspirant practitioners.
- (iv) CSIRO informs us that they initiated an online survey by 8,020 Australians, 227 of whom were in the NT which included topics such *“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”* (p.22). Again, no insight is provided into how these topics and reactions were elicited, or aspects of gender, class and ethnicity in the respondent responses. If one is trying to convince an audience of the merits of an approach then providing some insight into the process of research and derivation of findings is paramount, however limited such insight might be due to space constraints. Succinctly stated, not providing primary data access is simply ‘bad social science’.

2. *‘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’* (p.33).

It would have been useful for the reader to understand the ‘interpretive’ process utilised that allowed the researcher to infer from “*x said y*” to “*therefore issue z is real for that person/group*”. Often constituencies offer views as part of a strategy to promote desired outcomes, reflect ‘acceptance’ amongst peers and skew answers to gain approval from conversation leaders. Did this happen? We do not know and are not encouraged by the CSIRO report to ‘ask’.

In this respect, most social scientists would assess the ‘*conversations*’ alluded to above as having as much credibility—or as exemplars of ‘cutting edge/state of the art’ scientific processes—as the ‘*brainstorming exercises*’ cited in the Coffey report p.12. By all means camouflage the ineptitude with a standard ‘unstructured’ or ‘random focus group interview’ gloss, but it insults a readership to pretend it adheres or reflects some rigorous scientific methodology.

- (i) In general, the report presents as suboptimal social science though it is open to speculation that the referenced baseline data may actually be good social science.
  - (ii) What challenges the model from my perspective is that we are dealing with Aboriginal indigenous peoples in the NT social landscape and that therefore how ‘culture’ intrudes into the interpretative process must be accounted for. In other words, we both want and need to know how being a person of ‘culture x in the NT’ with their history and experience models the responses to ‘discussions’ or ‘questionnaires’.
  - (iii) *“It is important to understand not just what community members think about gas development but also why they think this way (p.42)”*. CSIRO proposes to elicit this by way of baseline data which captures a standard array of demographic variables conventionally part of Household Survey questionnaires (see p.42). This is a critical admission that SLO will ultimately depend on precisely the kind of surveys utilised in SIA which seek consistency with and assist operationalise FPIC.
3. *“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”* (CSIRO p.44).

- Conversely, there is equally a unique opportunity to conform to international guidelines on FPIC utilised across mining, petroleum and extractive resource industries worldwide. If the research tools and procedures are wholly or in part the same for SLO and FPIC because of the NT socio-cultural circumstances, there seems consequently less of an imperative to develop an SLO framework in preference to FPIC protocol adherence.

In other words, why SLO when FPIC has advantages? Resource extraction everywhere presents a generic set of fundamentally similar problems requiring similar approaches—gauging stakeholder reaction whether one mines oil, gas, gold or copper presents an invariant set of challenges. Beyond the specific recommendations made for NT, the SIA framework that forms part of the CSRSM report is wholly generic, and the vast literature referenced (Franks, Vanclay, Esteves, etc.) applicable to anywhere in the world for any intervention project. In this respect, the NT fracking industry aims are equally served by operationalising a FPIC framework.

What the CSIRO report fails to illuminate, provide or explicitly reference is the simple fact that SLO assessment depends on *verbal indicators*. The investigator enters the community and listens carefully to the way in which people describe the company, project or their attitudes to process. The range of social interview procedures need not detain us here but may and will at some juncture rely on acceptable questionnaires. In most cases, though apparently not for the CSIRO report(?), the conversations or responses to questions are coded to conform to pre-set/determined categories which can be ‘counted’ numerically and subjected to statistical analysis. A factorial loading may be assigned to the coding as part of the model which can then derive a ‘measure’ of SLO.

Tables 4-1 and 4-2 below, drawn from the works of Boutilier<sup>24</sup>, provide examples of both the coding and/or questions utilised which would change according to the lifecycle phase of the project.

**Table 4-1: Statements that measure SLO and factor loadings**

[Company] shares information on matters that affect us	0.858
[Company] contributes to regional wellbeing	0.828
[Company] takes account of our interests	0.795
[Company] respects our way of doing things	0.791
We're satisfied with our relation with [Company].	0.747
We have similar vision for future as [Company].	0.741
[Company] treats everyone fairly	0.739
We can gain from a relationship with [Company].	0.738
[Company] listen to us	0.734
The presence of [Company] is a benefit	0.731
[Company] gives more help to those who it affects more	0.682
[Company] shares decision-making on matters that affect us	0.680

**Table 4-2: Potential Questions for SLO Measurement**

**Q.1** Our community/organization believes that mining would be a positive direction for the future.

<sup>24</sup> A measure of the SLO for Infrastructure and Extractive Industries (2017).

- Q.2 As of now, the proposed project has met its commitments to our community/organization.
- Q.3 We believe that project management will take the initiative to inform us about things that could affect our community/organization.
- Q.4 We are satisfied with the relationship we have with the proposed project.
- Q.5 Our community/organization and the management of the proposed project have a similar vision for the future of this region/state/country.
- Q.6 Our community/organization believes that a mine would bring more benefits than problems for us.
- Q.7 Our community/organization wants mining in this region.
- Q.8 The management of the proposed project is concerned about the interests of our community/organization.
- Q.1 We in our community/organization know that we can believe what the management of the proposed project says.
- Q.9 The management of the proposed project respects our way of life/doing things

The argument made here is that this SLO process does not fundamentally differ from the way in which information is elicited, interpreted and analysed for FPIC. As noted above, there is no accounting for how ‘informed’ the respondents are when answering questions and thus what the analyst can and cannot ascertain at face value. SLO advocates here swim against the international tide of FPIC.

In the judgement of this assessor, what was clearly needed and would have been more useful to a wider audience was a practical example of, and guide to, obtaining stakeholder consent with appropriate levels of detail, primary data and transparent analysis. The CSIRO report presents as mired in a rehearsal of a literature (accessible online), and myopic in regard to possible alternative ‘consent’ frameworks that appear to align more closely with other extractive industry models.

The CSRSM report tells us that *“The reliability of SIAs can be jeopardised by suboptimal baseline data caused by the lack of rigour with respect to methodology, sources and assumptions”* (CSRSM p.19). We have indicated in this report that an assessment of this ‘reliability’ cannot reasonably be made of the CSIRO report where these data and processes are less than transparent.

#### 4.4 What would a FPIC process actually look like?

The final destination point for most SLO/FPIC inquiries is the knowledge that there is acceptance of a project, project continuation, or qualified acceptance for distinct phases. Responses to an SIA Household Survey Question (Q): *Do you want the project to proceed?* might provide a simple graphic (Figure 4-1) to show there is overwhelming support amongst the potentially project-affected persons provided it is accompanied by an explanation (i.e., a narrative of what is says), some disaggregation for gender, class, ethnicity, age, etc., and temporal qualification.

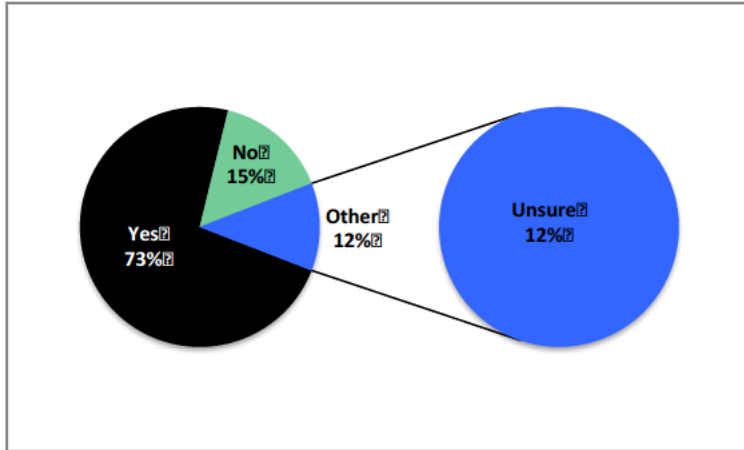


Figure 4-1: High-Level Project Acceptance Graphic

The required narrative might explain that across this region there are similar levels of responses to project proposals prior to construction which co-vary with the history of project experience in that area. Usually host stakeholder endorsement reflects both a lack of experience of major developments as well as the wish of respondees to skew their answers in a way they assume will hasten, or not delay, any development scenario where they wish to maximise cash benefits. The degree of expressed uncertainty may also reflect both the existence of alternative commercial options for land use in the area, and the pre-FEED (i.e., front-end engineering and design) status of the project that had yet to mount a robust program of informed consultation and participation.

For most indigenous people, underlying social, economic and political conditions tend to be a matter of overwhelming concern because these conditions are always in their view completely unacceptable and constitute a fundamental problem. For these reasons, one has to be careful not to draw the inference *simpliciter* that such responses are tantamount to providing ‘consent’—they merely communicate a level of willingness to be engaged on the part of the project affected peoples.

The point being made here—and one masked by the various report submissions—is that survey respondents look prospectively to the impact of their answers; they fear becoming targets of blame and censure should the results of the survey be seen to somehow rebound negatively on the community (i.e., the rationale of “we didn’t get x because I answered y”). There is comfort in consensus.

In many instances where pilot surveys have preceded the main baseline questionnaires, answers given have reflected a community view of “the right answer” to a question. Responses are skewed to what people think the interrogator wants to hear or what they think will maximise their anticipated benefits. Professional assessment and interpretation requires the analyst to triangulate experience, direct observation, and various data sources to form a *best professional judgment*.

To fully operationalise the concept of FPIC, a further subset of questions about the levels of engagement, comprehension, understanding of impacts, etc., is required to produce the collage of the FPIC compliance picture<sup>25</sup>. This further sub-set of FPIC questions allows some inference as to levels of understanding about project components and can be matched to registered engagements

<sup>25</sup> An example in an indigenous context has been separately submitted to NLC - see *Household Survey*.

undertaken by outside agencies (e.g., [Table 4-3](#) which can be further expanded to show gender, age, locale nuances).

**Table 4-3: Awareness of the consultation process**

QUESTION NO. (SECTION- NUMBER)	QUESTION POSED	YES (%)	NO (%)	UNSURE (%)
I1	Did you attend the information road-show about the proposed Project?	72	27	1
I2	Have you read any information sheets provided by the Project during the road-show?	24	73	3
I3	Do you think you understand the Project Plan?	29	43	28
I4	Would you like the Project to explain the Plan to you again?	79	14	7

However, as with SLO, it cannot be inferred that a FPIC gauge provides a one-time irrevocable permission; the ‘licence’ needs to be constantly tested throughout the project. It is an ongoing process of engagement and meaningful consultation with indigenes and with the explicit objective of disclosing relevant information, identifying impacts, accommodating their rights and interests and obtaining their continued consent.

As stated above, the suite of questions will evolve and change over the course of the project phases. Clearly, if ‘physical and social impacts management’ (CSIRO p.iv) is one contributor to ‘consent’ it cannot be ascertained, let alone coded and counted, in a pre-project phase.

## 5 Coffey Beetaloo Sub-Basin Social Impact Report

### 5.1 Introduction

The Coffey report was conceived to reflect and incorporate the frameworks developed in the CSR and CSIRO reports but acknowledges that time-constraints (i.e., 6-month research period) precluded full integration and execution. The report assessed the impacts of a conceptual shale gas development on communities in the Beetaloo sub-basin identifying four catchments circumscribed by factors such as location and economic activity, etc.

Coffey inform us that they isolated ‘social values’ through stakeholder engagement and consultation captured in [Table 5-1](#) below (Table E1;Coffey p.vi).

**Table 5-1: Stakeholder consultation effort**

Stakeholder category		
	No. of meetings	%
Government agencies and statutory authorities	7	10
Businesses and peak business organisations	11	16
Local Governments	6	9
Non-government organisations	6	9
Community organisations and residents	39	56

My initial reaction to the above Table was that it would have been preferable to have had more information regarding dates, audience composition, locales, and team participants as per, for example, Table 5-2 below. No primary data are provided regarding the consultations so the analyst cannot assess how far the findings reflect other situational variables such as gender, etc. This omission to allow the readers access to at least some of the raw data used means again we have to accept as a matter of ‘blind faith’ that Coffey has performed a good analysis. They may indeed have done so but how do we know if we cannot examine the data or working out processes?

**Table 5-2: Project Information Road Show Schedule of Visits and Attendance**

PSA VILLAGE	DATE	MALE	FEMALE	CHILDREN	TOTAL	TEAM PARTICIPANTS
Sw,	7.4.2013	18	20	27	65	MSEL, SIMP
Mf.	7.4.2013	40	21	15	76	MSEL, SIMP
Mt.						
Wi.	25.6.2013	23	5	18	46	MSEL, SIMP
<b>TOTAL</b>						

Precisely the same criticism is levelled at Figure E1 (p.vii) which is a graph of issues elicited (somehow?) from the referenced consultations.

- What is the process used by Coffey to code and count what they heard?
- Why aren't the issues correlated with and disaggregated for ethnicity, gender, etc., in table E2?
- Were the issues presented back to the audiences for reaction and input?

The Coffey report relies on terms such ‘perception, concern, anxiety’—so for ‘anxiety’ what were the indicators (verbal or other behavioural) used to code for this quasi-psychological/psychiatric ‘state of mind’? The Coffey report betrays the dangers of not utilising a multi-disciplinary team, and it otherwise appears as if the authors assume the mantle of psychologists. When reports include phrases such as ‘psycho-social’, ‘increased levels of anxiety’ or ‘heightened perceptions’, these signal red flags for most social scientists. Such assessments need to be scientifically grounded in professional models and measurements derived from relevant discipline studies and experts in

related spheres of human behavior. For example, would increases in levels of domestic violence during project construction and/or operation be interpreted by Coffey as an indicator of increased anxiety?

The Coffey report is then very much a tale of two halves.

The first part and main discussion is an analysis of issues and the ‘risk assessment’ matrix utilised to describe impacts on the social values; this is conducted in extreme generality. A range of threats and impacts, typical of unconventional gas development were identified as consequential on construction parameters, predicted influx scenarios, workforce and employment levels, and benefit distribution regimes. In the context of the population numbers provided these impacts would be considered relatively benign (e.g., a 250 person workforce) though with incremental project creep a cumulative impact might be more significant.

The second part – the Appendices - contains community profile data gleaned from existing national databases, not from primary research tools. The key finding for this assessor is that just as there is little engagement with the CSRM and CSIRO reports beyond token references, there is little inclusion and meaningful digestion of the profiling data in ways that would aid and illuminate analysis of ‘impacts and issues’. In simple words, how far do the distinct cultural beliefs and practices of the Aboriginal stakeholders attenuate and define the ‘values’ elicited or imposed by Coffey?

## 5.2 The ‘top down’ Coffey model

Coffey are wedded to a particular model which looks to provide a range of indicators that ‘unpack’ what they call key ‘social values’. They tell us that ‘*experience in other jurisdictions and communities*’ provides the following four key social values:

1. SV1 Liveable community (access to services, effective local government, etc.)
2. SV2 Affordable lifestyle.
3. SV3 Community identity and spirit.
4. SV4 Capacity for sustainable economic activity.

So a social value “*is regarded as a quality of the area, potentially subject to project effects, for which community members have high regard, and that is conducive to individual or community well-being into the future*” (Coffey p.6).

- This is very much a top-down way of conceptualising the saliences of people. It has not ‘emerged’ by way of inference from the baseline data in the specific Beetaloo study, but rather borrowed from other studies and then justified/articulated/fitted by way of ‘indicators’ supposedly provided by stakeholders. Again, because the primary data are not provided they could well have been conjured into existence so far as the reader is concerned. For this assessor, an inductive process of going from data-to-finding/gloss is a more preferred way of going about an impact analysis.
- The second problem with this methodology is that the ‘values’ V1–V4 are glosses by the analysts—they are not necessarily actual phrases/terms used by the respondents/interviewees and this translation process may well distort the primary data (but we cannot judge that without the data). All we are told is that ‘*secondary baseline information and information and*

*opinion sourced during community consultation*’ (p.6) and **‘brainstorming exercise’** (p.12) were used.

- To fit/align the Coffey value scheme to other models used by CSRM a table (Table 2.2 p.6) of cross-referenced capital types is contrived—if the aim of the report is to promote wider discussion and show accessibility to audiences, this is more confusion than clarification.
- An attempt is made to cross-tabulate the Urban:Rural catchment divides against the values and indicators. Whilst this effort is laudable, **surely, one asks, there must be differences within the rural/urban enclaves between values espoused by women vs men, by vulnerables vs non-vulnerables, by elder vs younger persons?** What is provided is at too high a level of generality to claim best practice, but it is as if again the catchments of people are simply one undifferentiated homogeneous class without variations of opinion or values—unlikely!!

We are informed the Panel required the SIA case study to assess social impacts on ‘the people or groups of people that are most likely to be impacted by the development of unconventional gas resources in and around the Beetaloo sub-basin... which may include, without limitation, community members, pastoralists, Aboriginal organisations and local businesses’. This guideline/requirement was not meant to limit the analysts from indicating social differentiation characteristics of these groups, of which **gender** and **ethnicity** would be key in the NT context.

Utilising the above model, Coffey then describes a number of ‘threats’ to the values which in effect represent impact analogues, and these are the usual set of suspects:

- influx
- unequal benefit distribution
- traffic and accidents
- housing supply
- inflation in prices and rents
- loss of traditional knowledge and ‘outback’ identity
- fly-in-fly-out and wage inequity.

These are then subjected to the standard matrix operations of significance assessment, probability, culling and residual impact after mitigation.

- In a real as opposed to hypothesised project scenario, one suspects the impacts and threats are not equally distributed and weighted for all communities to the same extent but rather some might apply in some areas and not in others. For example, remote rural areas may not have the ‘traffic’ threats. Largely, such considerations will be assessed against the *social mapping* reports available to the SIA team. These would inform about the distribution of groups on the ground as well as their social compositions and land tenure systems.
- The weight of anthropological opinion in Australia is that *social mapping* requirements should be legislated for across the country for all resource extraction projects regardless. This is the case for petroleum and mining in Papua New Guinea. These reports could then attenuate and inform impact assessment including, but not limited to, the following:
  - Disintegration of social structures
  - Migration patterns
  - Law and Order issues
  - Historical, archaeological and cultural issues
  - Existing socio-economic services and infrastructure

- Health Issues
- Educational Status
- Economic status and land use patterns
- Resource utilisation patterns
- Participation of women
- Loss of cultural heritage
- Unequal distribution of project-related benefits
- Mismanagement and misappropriation of benefits to landowners
- Breakdown of traditional social control mechanisms and institutions
- Measurable damage by development to the local resource base
- Exclusion of landowners from measuring/monitoring environmental damage
- Excessive expectations and demands by local stakeholders
- Social disruption through in- or out-migration
- Project dependency by local community.

The question is asked as to why some of the threats, for example:

- a) **ID3D Concern with increased access to, and development risks on, traditional country,**
- b) **ID4A Concern that long-term access to quality groundwater may be restricted due to industry development,**
- c) **ID3A Significant change in land use and industry development**

were not analysed with the **ecosystem services framework** discussed elsewhere in this report. Whilst then no argument is taken with identification of many of the ‘threats’ in and of themselves, what was needed was more reference to Appendix A data to ascertain likely changes in social conditions consequent upon project establishment. For example, if one takes **D1A Rapid workforce influx to urban areas**, it is clear the numbers are no more than 150 which, in the context of communities numbering 13,000, is almost negligible.

In-migration/influx invariably poses problems for development projects because of rapid rises in population. Amongst the many commonly identified problems are the added pressures on land, health and education infrastructure, unchecked inflation, rapid environmental degradation as well as inter-group tensions.<sup>26</sup> These changes carry the potential to overwhelm local systems of support, i.e., the *assimilative capacity* of an area.

Where rapid population growth overwhelms the resilience of impacted communities to absorb change it can result in the development of squatter settlements, adverse health conditions and strains on social service delivery and infrastructure. At the same time, in-migration is a phenomenon and not *per se* a problem; there is potential for both negative and positive changes, e.g., introduction of new skills, knowledge and technologies, import of different food types, etc.

In *Appendix A: Affected Community Profiles*, Coffey provided a repetitive and bland sequential data presentation style for each of the identified catchments.

An alternative way of presenting the same profiles on say *education, health, literacy, incomes, etc.*, would have been to create a simple Excel table where the columns represented the communities and

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<sup>26</sup> Other potential impacts include: increased competition for training and employment; increased crime and violence in host communities; increased prostitution and substance abuse; problems with STI (sexually transmitted infections), cholera and other diseases; pregnancies outside of established relationships.

the rows the social characteristic and frequency as a number or per cent. An example of this are the data pages in the 2017 Biomass SIA provided to the NLC and the extract **Table 5-3** below.

**Table 5-3: Raw Statistical Counts Table Example**

Attending school now																			
Village	Bampu						Chivasing						Kokok						
Attendance	#Male	#Female	#Total	% Male	% Female	% Total	#Male	#Female	#Total	% Male	% Female	% Total	#Male	#Female	#Total	% Male	% Female	% Total	
1=Yes	10	3	13	34.48	15.79	27.08	54	41	95	28.57	21.69	25.13	7	1	8	22.58	4.17	14.55	
2=No	19	16	35	65.52	84.21	72.92	133	145	278	70.37	76.72	73.54	23	21	44	74.19	87.50	80.00	
3=Don't know	0	0	0	0.00	0.00	0.00	2	3	5	1.06	1.59	1.32	1	2	3	3.23	8.33	5.45	
Total	29	19	48				189	189	378				31	24	55				

This presentational format has the merit of allowing both the analyst and reader to more easily see and extract relevant differences for highlighting—reading across the columns makes for easier comparison.

The manner in which the Coffey report presents the profile data provided in the main by the Australian Bureau of Statistics makes it extremely difficult for the reader to compare, say, Dunmarra with Newcastle waters, or constituency *x* vs constituency *y*. If we want to pick up the local nuances and variations across the landscape so as to cross-reference impacts, issues and threats as well as likely residual impacts after mitigation, we need to at least reference these demographic and social circumstance baselines to our analyses. This is rarely executed in the Coffey report. In other words, Appendix A is largely disengaged from the main SIA report, and underutilised for predictive modelling purposes.

## 6 Final Considerations

It will not have escaped the attention of the NLC that each of the report agencies (CSIRO, Coffey and CSRM) takes the opportunity in their reports to spruik their own models, tools and commercial credentials. This is both understandable and simply part of ‘doing business’.

However, it should be noted that a successful SIA requires professional *social mapping and landowner identification* as a precursor to all SIA work. The social mapping allows the SIA to circumscribe a ‘project impact area’ precisely because it can identify non-resident groups of landowners often living far from the hub of project construction.

Equally, a competent SIA requires a multi-disciplinary team capable of assessing subsistence livelihoods and land use, human geography, gender, business development, legislation, governance and government, health, educational status, cultural heritage and anthropology, as well as a mixed gender team of survey assistants capable of undertaking a raft of questionnaire surveys. This kind of social profiling demands expertise, transparency, and guarantees there are no conflict of interests by survey agents.

International protocols for best practice in *social impact assessment* (SIA) reinforce that only ‘accredited’ social scientists employing social science methods should undertake SMLI and social

impact research (cf also CSRM p.51). For example, the *UNEP Environmental Impact Assessment Training Resource Manual* (UNEP 2002:471<sup>27</sup>), under the heading ‘Principles of SIA Good Practice’, states that ‘trained social scientists employing social science methods will provide the best results’. The International Finance Corporation *Good Practice Note—Addressing the Social Dimension of Private Sector Projects* advises that ‘professional staff with relevant training and skills in social science research should manage baseline studies’ and identifies ‘**social mapping**’ as a key method for obtaining information on ‘characteristics of social organization’ (IFC 2003:8,24). The International Council on Mining and Metals’ *Good Practice Guide—Indigenous Peoples and Mining* notes that ‘**social mapping** is normally undertaken at an early stage of a project by anthropologists, social geographers or other specialists’ (ICCM 2010:47).

There is no evidence such a team worked on the Beetaloo SIA either in the field or in the report production process—that anthropological expertise and resources in the potentially affected Aboriginal communities were requested or relied upon to provide insights and inputs to enhance report findings.

## Recommendation

In this vein it is absolutely critical the agency chosen to conduct SIAs engages with those accredited anthropologists in Australia (and elsewhere) with long-term experience of, engagement with and fieldwork amongst, the potentially affected NT ethnic groups. Information strip-mining by inexperienced but perhaps less expensive interlocutors is a recipe for disaster and the surest route to suboptimal SIA results. What can be gained by the inputs of and reliance upon social scientists with prior research experience in the impact area produces long-term gains that far exceed the short-term cost benefits of available alternatives.

There is no accreditation board which regulates registration of SIA practitioners. Ensuring one engages with professional and competent researchers is then a process that demands close scrutiny of past performance and experience of similar endeavours in broadly similar social contexts. It would in our view be important that a commissioning agency be made of representatives from industry, partner research institutions and community leaders to ensure leading practice requirements are part of the contract *terms of reference*.

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<sup>27</sup> <http://unep.ch/etb/publications/EIAman/IntroManual.pdf>