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A framework for Social Impact Assessment of shale gas development in the Northern Territory

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The Centre for Social Responsibility in Mining (CSR) is a leading research centre, committed to improving the social performance of the resources industry globally.

We are part of the Sustainable Minerals Institute (SMI) at the University of Queensland, one of Australia's premier universities. SMI has a long track record of working to understand and apply the principles of sustainable development within the global resources industry.

At CSR, our focus is on the social, economic and political challenges that occur when change is brought about by resource extraction and development. We work with companies, communities and governments in mining regions all over the world to improve social performance and deliver better outcomes for companies and communities. Since 2001, we have contributed to industry change through our research, teaching and consulting.

Executive Summary

Background

This report is one component of a larger task to develop and pilot a framework for social impact assessment specifically relating to potential shale gas development in the Northern Territory (NT). The task was commissioned by the Independent Scientific Panel (the Panel) for the Inquiry into Hydraulic Fracturing in the Northern Territory and awarded to Coffey Services Australia (Coffey). Coffey engaged the team at the Centre for Social Responsibility in Mining (CSRSM) at the University of Queensland's Sustainable Minerals Institute to:

- a) review current literature on best practice social impact assessment;
- b) review the current regulatory environment for social impact assessment in the NT;
- c) review case studies of similar onshore unconventional gas development; and
- d) develop a 'fit for purpose' leading practice SIA framework for shale gas development in the NT.

This report presents the work undertaken by CSRSM.

Purpose

The purpose of this report to provide to the Panel a framework for SIA specific to shale gas development in the NT that is based on leading practice and lessons learned from similar developments elsewhere. The SIA framework presented in this report also informs the accompanying Beetaloo sub-Basin case study report, which is produced separately by Coffey.

Methods

CSRSM conducted a review of academic and leading practice literature on SIA, a review of the regulatory environment for SIA in the NT, and distilled lessons learned from case studies of similar developments elsewhere. From these reviews, CSRSM developed a conceptual model for a SIA framework that addresses the specific circumstances of shale gas development in the NT. This conceptual model was internally peer-reviewed by senior CSRSM researchers, who have substantial international experience in SIA, indigenous agreements and community relations in relation to extractive industries. The conceptual model was then distilled to show the steps involved in implementing the approach. The models are presented and explained further in Section 4 of the report.

Key findings

Key components of a leading practice SIA Framework for shale gas in the NT

1. **Strategic assessment** is needed for a program of development. The strategic assessment would clearly identify the objectives of the program and define the scale (and staging) of development in terms of balancing economic, social and environmental impacts at local, Territory and national scales.
2. A **strategic regional approach** is needed that aligns individual projects and their outcomes with the objectives of the NT Economic Development Framework, regional planning objectives and community values and aspirations.
3. **Coordination and collaboration between multiple projects** is needed in order to minimise negative cumulative impacts, minimise the 'footprint' of the industry in the placing of

associated infrastructure (including workers' accommodation) and maximise long term social and economic benefits to local and regional communities.

4. Particular attention to **human rights issues**, and the rights and vulnerabilities of all Aboriginal peoples, (not only those recognised as Traditional Owners).
5. Particular attention to **psycho-social impacts**, in recognition of the interconnectedness of personal, cultural and environmental integrity for Aboriginal peoples. Also, in recognition of the potentially stressful nature of land access agreements for pastoralists.
6. An **independently led social baseline assessment**, using 'agreed indicators' to measure impacts, ongoing social performance of the industry and sustainability outcomes (the indicators should be selected in consultation with local people and stakeholders).
7. An **independently led community engagement** program with affected stakeholder groups to discern the significance of impacts and to co-develop acceptable and appropriate mitigation and enhancement strategies.
8. The SIA framework should contribute to an **open data policy** with **regular reporting** on the social, economic and environmental performance of the shale gas industry.
9. Each additional project should provide an adaptive SIA risk assessment that specifically addresses **cumulative impacts** and its contribution to the development program's objectives.

Gaps in the current NT regulatory environment for SIA

1. There are currently no mechanisms for strategic assessment (including strategic SIA) under NT regulations, although implementing strategic assessment has been accepted as a recommendation in a review of environmental assessment policy (the 2015 Hawke Report).¹
2. There is scope for a strategic assessment under the *Environmental Protection and Biodiversity Conservation Act (EPBC Act) 1999 (CW)*, where matters of national environmental significance (MNES) may be affected. A [map of protected matters](#)² shows there are few matters that would trigger the EPBC Act in the NT. However, if the current 'water trigger' for coal seam gas and large coal projects was to be amended to include shale gas development (as water from underground aquifers is intended to be used) by the Commonwealth government, all NT projects would be required to gain EPBC Act approval.
3. SIA is required only as a subset of an environmental impact assessment, and as such, has the potential to be undervalued in the approvals process.
4. 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.
5. There are currently no requirements or guidelines for cumulative impacts assessment.

Lessons learned from similar developments elsewhere

1. The scale and pace of development determines the significance of social impacts. So too does the pre-existing / pre-project social, economic, political and cultural environment.
2. The terms of 'co-existence' between shale gas and agricultural (or other industries) need to be negotiated on a business-to-business, case-by-case basis.

¹ Hawke (2015)

² Australian Government, Department of the Environment and Energy, (2017) Protected Matters Search Tool <http://www.environment.gov.au/webgis-framework/apps/pmst/pmst.jsf>

3. Social impact mitigation strategies should not be bilateral agreements (e.g. government placing conditions on operators), nor overly prescriptive (e.g. operator must construct 50 new houses). Instead they should involve local communities (and other key stakeholders who have a role to play), be aligned with their aspirations and needs, and be 'outcomes-focussed'.
4. The social impacts of shale gas development are unevenly distributed. Those with capacity and information can prosper while inflexible or vulnerable groups can be negatively affected.
5. Social impacts, such as impacts on local social cohesion, and psycho-social stress, arise well before there is 'a project', and these are often not adequately addressed in SIA processes.
6. There is low trust in the onshore unconventional gas industry worldwide. Trust is time-consuming and difficult to earn but quickly and easily lost. In developed countries like Australia, mass media can have a large influence on the process. But not to lose sight of the importance of managing relationships at the ground level, especially in remote areas.
7. Local institutions need to be strengthened (ideally prior to development occurring) to address the challenges and harness the benefits that the industry can bring. SIA needs to identify existing levels of capacity within these institutions and those that would need attention
8. Underlying much of the public concern about hydraulic fracturing (fracking) and the shale gas industry generally has been a lack of engagement of affected people in meaningful ways (particularly prior to the current Inquiry). Aboriginal people particularly require detailed information about the proposed activities and likely impacts of the industry to make informed decisions about their land.

Recommendations

1. Initiate mechanisms for strategic environmental assessment of a specific program of shale gas development (e.g. Beetaloo sub-Basin) in either NT regulations (as recommended in the 2015 Hawke Report), or in partnership with the Commonwealth government in a Strategic Assessment Agreement under the *EPBC Act 1999*.
2. The Terms of Reference for strategic environmental assessment should include various specialist assessments, including cultural impact assessment. Due to the interconnectedness of Aboriginal peoples and their culture with environmental condition, predicting the significance of social (cultural) impacts (particularly for Aboriginal people, but also pastoral leaseholders) requires the integration of social, environmental, economic and cultural assessments.
3. Consult with the Commonwealth Department of the Environment and Energy in relation to possible amendments to the 'water trigger' under the *EPBC Act* to apply to shale gas projects, as it does for all coal seam gas and large coal projects. If the 'water trigger' were also to apply to shale gas projects, then Territory assessment processes must align with Commonwealth assessment requirements to avoid duplication.
4. Establish or enhance an independent authority (separated from government decision making) for the oversight of the strategic assessment, baseline studies and ongoing monitoring and reporting, as well as for social and environmental compliance auditing. This could be the existing NT Environmental Protection Agency to avoid structural complexity and the fragmentation of decision making that has confounded the effective regulation of the industry in other jurisdictions.

5. Collaboration and coordination between projects, and between gas companies, government and community organisations is necessary for effective identification, assessment and responses to cumulative impacts. A platform for such collaboration (such as a multi-stakeholder working group) would ideally be linked with the ongoing monitoring platform and come under the jurisdiction of the same independent Authority.
6. Third parties should be able to report grievances, or perceived breaches of conditions to the independent Authority where grievances relate to cumulative impacts and issues beyond the scale of project-level grievance mechanisms.
7. The costs of undertaking independent baseline studies (usually conducted by project proponents) should be recovered to an extent from project proponents (who would no longer have to do them individually, but who would use the available data in their risk assessments) by increasing the cost of the petroleum production license (PPL) for operators and/or by charging an annual levee or fee for use of the baseline data and ongoing monitoring and reporting platform.
8. Produce clear guidelines and simple fact sheets for negotiating Land Access Agreements in different tenure types that outline the rights of both the landholder and the project proponent. Considerable stress and negative impact has been associated with misunderstood land rights and perceived disrespect for attachments to, and interests in land.
9. Identify strategies to build local institutional and business capacity early. To best capture the potential economic benefits of shale gas development, adequate lead-time and institutional, business and individual capacity is required.
10. Negotiations with Aboriginal Traditional Owners (TOs) should be inclusive and transparent (on agreement). General informed consent is insufficient. Details of activities should be negotiated in recognition of rights to self-determination and to ensure these groups fully understand the terms of the project and the impacts, benefits and management strategies. The placement of each well and associated infrastructure should be negotiated on a case-by-case basis with local TOs to avoid any culturally sensitive places, and 'sacred sites' as identified by the Aboriginal Areas Protection Authority (AAPA). The process for such negotiations should be fully documented.
11. Royalty payments should not be exclusive to TOs, but a community benefits trust, or other fund designed to distribute economic benefits to regions should be established. (e.g. 'Royalties for Regions' schemes such as in Queensland and Western Australia).
12. Perceptions or evidence of negative impacts on the spiritual wellbeing and social cohesion in Aboriginal communities should be given high priority in risk assessment, as personal safety could be at risk.

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1. Social Impact Assessment

1.1 What are Social Impacts?

Social impacts are the changes experienced by people and communities, as a result of projects and activities that impact on the way they live work, relate to one another, relax and organise themselves.³ Social impacts can be both positive and negative as illustrated in the Table 1. They include “changes to the norms, values and beliefs that guide and rationalise their cognition of themselves and their society”.⁴ Social change is not an impact until it has an effect on people. Because social impact is conceived as being anything linked to a project that benefits, affects or concerns any impacted stakeholder group, almost any change can potentially have a social impact so long as it affects something that is valued by or important to a specific group of people.⁵ Consequently, it is difficult to pre-emptively narrow the scope of analysis.

Major resources projects can generate multiple impacts and/or contribute to existing stresses within social systems.⁶ Project-specific social impacts vary greatly in their nature, causation, magnitude and other characteristics (see Table 1 for classification). Depending on the context, different receiving environments (such as a social group or geographic region) may experience the same impacts differently.⁷ It is the responsibility of the proponent, in consultation with project-affected peoples and other stakeholders, to ensure that all the relevant issues and impacts are identified and considered.

Table 1: Classification of social impacts⁸

Category	Descriptor	Examples and explanation
Nature	Tangible	Improved access to health services, better living standards, shortage of affordable housing options
	Intangible	Breakdown in social cohesion due to population movement
	Perceived	People’s subjective perceptions or experiences of impacts
Directionality	Positive	Improved access to health services, new recreational areas, upgrades to community facilities and improved education and employment opportunities
	Negative	Increased crime rates, higher cost of living and increased health risks caused by pollution
	Mixed	The impact of some changes is positive in some respects and negative in others; e.g. population increase
Causation	Direct	Directly connected (in space and time) to the activity; e.g. resettlement, project-related employment and road construction

³ Burdge & Vanclay (1996).

⁴ The Interorganizational Committee on Principles and Guidelines for Social Impact Assessment (2003), p. 231.

⁵ Vanclay et al (2015), p. 2.

⁶ Franks et al (2010a).

⁷ Ibid.

⁸ Adapted from Initiative for Responsible Mining Assurance (2016); Burdge & Vanclay (1996); Franks et al (2010b); and Joyce & MacFarlane (2001).

	Indirect	Impacts that occur due to actions resulting from direct impacts; usually less obvious, later in time or further away from the source of direct impact; e.g. increased income to tradespeople as project employees upgrade houses
	Induced	Cause is several times removed from project activities; e.g. loss of access to land due to market speculation
	Cumulative	Successive, incremental and combined impacts of one or more projects on society, the economy and the environment; can arise from the compounding activities of a single project or multiple projects and from the interaction with other past, current and future activities; the overall effect being larger than the sum of the parts ⁹
Magnitude	Intensity	The scale of change from the existing condition as a result of the impact; e.g. major/critical, high, moderate, minor, negligible
	Geographic extent	Spatial concentration (e.g. site-specific, local, regional, widespread); ¹⁰
		Distribution (e.g. localised, dispersed, contained)
	Duration	Short term (e.g. the noise arising from the operation of equipment during construction), medium term, long term (e.g. the inundation of land by a dam)
		Temporary (e.g. during construction), fixed term, permanent
	Frequency	Intermittent (e.g. blasting), continuous (e.g. electromagnetic fields caused by electricity lines)
Rate of change	Immediate, delayed, incremental, rapid, gradual	
Reversibility	Reversible, irreversible/residual	
Probability	Likelihood	Unlikely, possible, likely, certain
	Confidence	The level of reliability in the estimates of likelihood and consequences

1.2 What is Social Impact Assessment?

In general terms, social impact assessment (SIA) is a framework of analysis for the evaluation of impacts on humans and on the ways in which people and communities interact with their socio-cultural, economic and biophysical surroundings.¹¹ SIA is also a field of research and practice consisting of a body of knowledge, techniques and values.¹²

As a methodology, SIA is used by governments, companies and communities to identify, assess and manage the social impacts of project activities, and ensure that projects are conducted in a socially responsible manner. It is best understood as the process of analysing, monitoring and informing the management of intended and unintended social consequences of planned interventions, and any social change processes invoked by those

⁹ The word “cumulative” anticipates a consideration of not just the development the subject of the application, but the development in combination with other development in the locality and the effect that the accumulation of such development and successive development of a similar type, will have on the community.

¹⁰ Project-specific SIA is more focussed on potential social impacts on site-specific, local and regional as opposed to widespread (state-level, national and international) levels of analysis.

¹¹ Vanclay (2003).

¹² Ibid.

interventions, on affected communities, from the earliest stages of the planning process to future generations.¹³ The objective of the SIA process is to identify, measure, predict and assess the effects of a project on the surrounding population's quality of life, culture, health, social interactions and livelihoods. It involves processes for analysing, monitoring and managing the intended and unintended consequences of a project.¹⁴

SIA is widely practised internationally as a predictive study that is part of the regulatory approval process for resources projects. Many resource-rich jurisdictions have a regulatory regime in place to ensure that the social impacts of resources projects are assessed and managed. This includes statutory requirements in place to undertake SIAs, either as a separate procedure, or as part of a broader environmental impact assessment (EIA). According to a 2012 survey, some form of EIA is mandated in 191 of the 193 nations of the world.¹⁵ Despite the widespread and longstanding practice, in most cases SIA remains included as a component of EIA. Initially, SIAs were narrowly conceptualised and, as such, applied mainly at the project level, and were limited to prediction of the negative consequences of projects. This understanding of SIA continues to dominate policy, regulation and procedures in many jurisdictions.¹⁶

1.3 Leading Practice

SIA has the potential to contribute to sustainable development if it is implemented to the standard recommended in the literature as best or leading practice.¹⁷ This growing body of literature provides detailed guidelines and benchmarks for the management of the social impacts of major resource developments. Several influential publications, mainly commissioned and published by the International Association for Impact Assessment (IAIA), have had the greatest impact on SIA practice.¹⁸ Their most recent publication, [*Social Impact Assessment: Guidance for Assessing and Managing the Social Impacts of Projects*](#),¹⁹ published in 2015, provides detailed advice on leading practice in the undertaking and appraisal of SIA and the adaptive management of projects to address the social ramifications. The guidance serves as the definitive standard on leading SIA practice.²⁰

¹³ Vanclay (2003); Franks (2012), p. 6.

¹⁴ Vanclay (2003).

¹⁵ Morgan (2012).

¹⁶ Vanclay (2006).

¹⁷ Esteves et al (2012). The term "best practice" means cutting edge or leading, and thus good to advocate, but cannot be expected in all circumstances.

¹⁸ The IAIA is the global authority on the leading practice in the use of impact assessment for informed decision-making regarding policies, programmes, plans and projects. The association provides an international forum for advancing innovation and communication of leading practice in impact assessment.

¹⁹ Vanclay et al (2015).

²⁰ It is widely used by SIA practitioners, social performance teams, government regulators, the international finance community, NGOs and affected community representatives to benchmark performance in relation to the management of social issues arising from projects.

1.3.1 Key assumptions and elements

Box 1 outlines the key assumptions about SIA practice which are fundamental to the effective assessment and management of impacts.

Box 1: Underlying assumptions of SIA²¹

- **Prediction:** Many of the potential social impacts of planned developments can be anticipated.
- **Modification and alternatives:** Alternatives of any planned developments can be considered or plans modified to reduce their negative social impacts and enhance their positive impacts.
- **Mitigation:** Full consideration of potential mitigation measures is appropriate in all cases.
- **Sustainable Development:** SIA can be an integral part of the development process ensuring sound development alternative(s) rather than merely trading off costs and benefits.
- **Action oriented:** Findings of a well-conducted SIA can be used to provide practical guidance and recommendations to proponents and governments.
- **Alignment and coordination:** Considering impacts holistically in relation to community and government planning and preferred futures and the activities of other developers in a region can identify synergies and opportunities to coordinate with others or jointly manage, monitor and mitigate where appropriate.
- **Proportionate:** Effort and resources invested into the SIA should be commensurate with the risks and potential impacts.
- **Rigor:** Accepted social science methods, used appropriately by suitably qualified professionals and, where practicable using multiple data sources, provide well-substantiated results that are a valid basis for informed decision-making.
- **Intangible impacts:** Unlike many economic and environmental impacts, social impacts cannot be fully quantified and measured as they have intangible and subjective dimensions which must also be assessed.
- **Transparency:** Project affected people need full information about the proposed development, methodology and data sources to understand the basis for SIA findings.
- **Varied forms of knowledge:** Local knowledge and experience and acknowledgement of various local cultural values provide important input to any assessment.
- **Non-coercive:** There should be no use of violence, harassment, or intimidation in connection with the SIA or implementation of a planned project.

Leading SIA practice includes systems and strategies to both minimise adverse impacts and enhance the benefits associated with major developments for project-affected communities (see Box 2 for a summary of key elements of leading SIA practice).

Box 2: Elements of leading SIA practice²²

Leading practice SIA is based on systems and frameworks that include the following elements:

- **Inclusiveness:** identifying and involving the full diversity of potentially affected people
- **Equity sensitivity:** fundamentally considering equity issues with particular attention paid to impacts on vulnerable and under-represented groups

²¹ Franks (2012), p. 8.

²² Adapted from Franks (2012) and Kemp et al (2013).

- **Lifecycle approach:** identifying and proposing responses to social impacts at all stages of development projects from inception to completion
- **Long term legacy:** outlining long-term development outcomes that reach beyond the life of the project and consider future generations
- **Human rights due diligence:** identifying, preventing, mitigating and accounting for project impacts on legal, traditional and human rights of local communities.
- **Ongoing engagement:** regularly engaging with project affected people, communities and government, seek active community participation in decision-making, fostering coordination, and partnering with local stakeholders to address issues of concern and mutual interest
- **Materiality:** prioritising issues and public concerns that are of most significance and relevance
- **Social investment and community development:** building the capacity of communities to minimise dependency on major projects and face future changes resiliently.
- **Coordination of cumulative impacts and social investment strategies:** jointly coordinating with multiple proponents and government in a region the management, monitoring and mitigation of cumulative impacts of development and associated social investment activities.
- **Continuous improvement, adaptive management and flexibility:** systems for actively responding to changing circumstances and increased knowledge of impacts and updating predictions

1.3.2 Cumulative Impacts

The alignment of activities with regional and/or community planning objectives, consideration of cumulative impacts of multiple projects and meaningful community participation in decision-making are important elements of leading SIA practice. The aim of cumulative impact assessment and management is to keep the total effects of all stresses at what are generally considered to be ‘acceptable’ levels (although defining ‘acceptable’ can be problematic in itself, as this can vary between stakeholder groups) and to enhance opportunities through multi-party co-ordination.²³ Depending on the scale and significance of the project, cumulative impacts can be identified and assessed as part of environmental impact assessments (EIA), SIA, regional or strategic assessments, or may be the subject of a focused study devoted to identifying and responding to cumulative impacts.²⁴

Stakeholder participation and decision-making in the SIA process is crucial for improving the quality of the assessments and, ultimately, achieving social acceptance. The SIA process will bring most benefits to local communities and project-affected people when it is supported by a participatory engagement approach (see Box 3 for definitions and key differences between communities, stakeholders, rights-holders and project-affected people).²⁵

²³ Franks et al (2010a), p. 2; IFC (2013).

²⁴ Franks et al (2010a), p. 23.

²⁵ Kemp & Owen (2013).

Box 3: Communities, stakeholders, rights-holders and project-affected people

Community refers to a grouping of people who have some sense of shared identity, beliefs and values, some shared interactions and some common social and political institutions.²⁶ The concept can be defined geographically, by proximity to an operation and political or resource boundaries, or socially, as a grouping of people with common interests.²⁷

The general assumption is that people live and work in communities, which are therefore a primary focus in SIA.²⁸ Local communities are groups of people who live and/or conduct activities in close geographical proximity to the operation or within a surrounding area defined by a political or resource boundary. Regional communities live and/or conduct activities in wider geographic areas that may be impacted by the development.

Stakeholders are persons or groups who are directly or indirectly affected by a project, as well as those who may have interests in a project and/or the ability to influence its outcome, either positively or negatively.²⁹

Rights-holders are individuals and groups whose legal or traditional rights may potentially be impacted by a development. For example, in the Australian context the Native Title Act gives native title holders a right to access and use their traditional lands and to negotiate over future use of these lands. Arguably, rights holders are entitled to a greater voice in the assessment and approval process than those whose rights and interests are unlikely to be directly affected by a development. All people are rights-holders under international covenants and are entitled to a certain standard of well-being.³⁰

Project-affected persons/people encompass any person, group or organisation that is directly (or in some significant way) affected by a project's activities.³¹

The above groups are not mutually exclusive and a person can belong to any combination of them simultaneously.

1.3.3. Components of leading practice SIA

The SIA process is a composite of numerous activities or tasks. The selection of activities to be undertaken should be tailored depending on the requirements of each project (see Figure 1 for a list of 26 activities).³² Activities are carried out using a wide range of qualitative and quantitative social research methods and tools devised for SIA practice.³³ The selection of methods is dependent on what needs to be measured and on the broader SIA objectives. An integrated approach that combines several methods and tools provides

²⁶ Vanclay et al (2015), p. 76; IFC (2014), p. 137.

²⁷ IFC (2014), p. 137.

²⁸ Vanclay et al (2015), p. 76.

²⁹ IFC (2007); Kemp et al (2013); Vanclay et al (2015), p. 86.

³⁰ Kemp et al (2013); Vanclay et al (2015), p. 92; Boesen & Martin (2007).

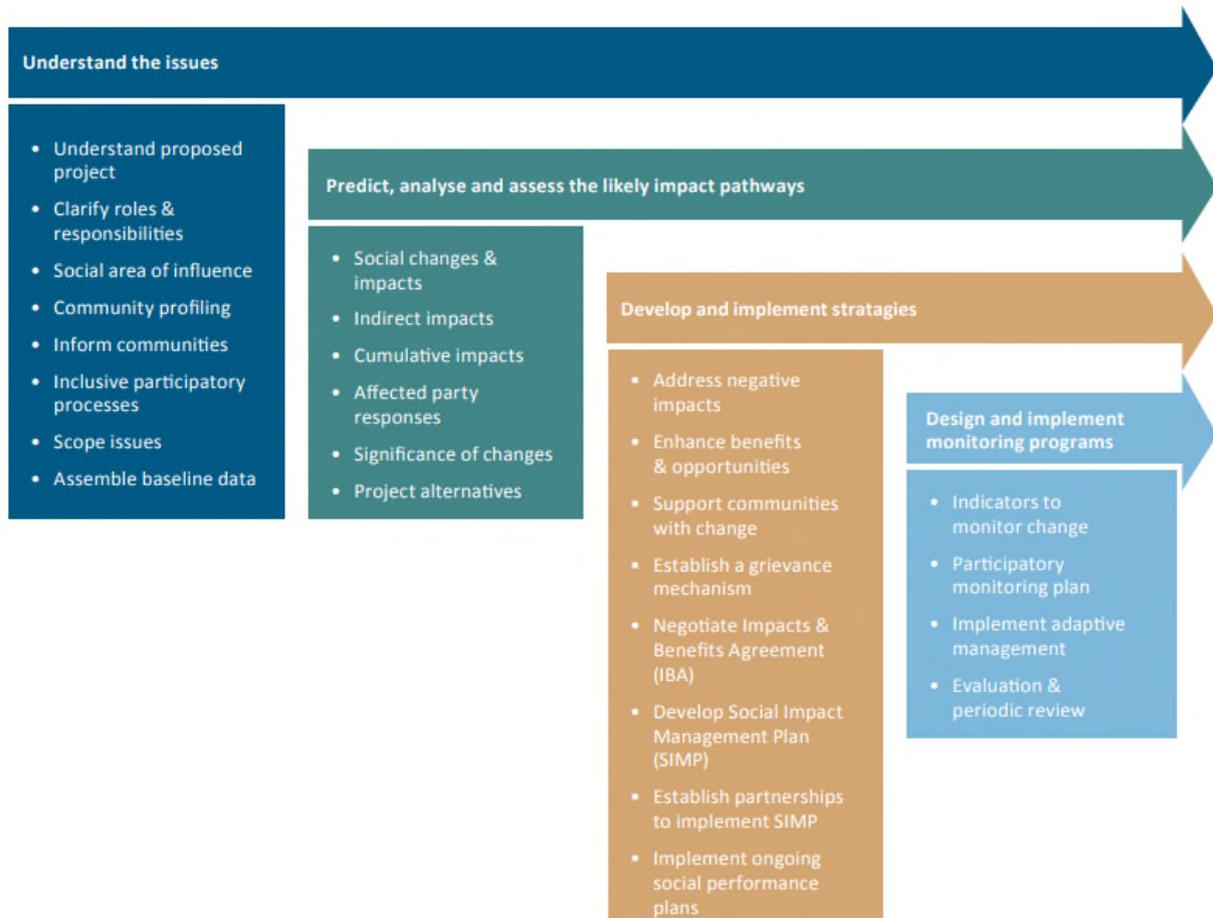
³¹ The World Bank (2012); Vanclay et al (2015), p. 91.

³² For further detail on each activity, see Vanclay et al (2015), pp. 36–63.

³³ A kit of social assessment tools and methods, published by the World Bank, provides additional detail and comprehensive guidance on tools and methods in SIA. See Rietbergen-McCracken & Narayan (1998).

the most comprehensive and reliable prediction of impacts and associated mitigation and management strategies. Trained social scientists employing social science methods often provide the best results.³⁴

Figure 1: The phases and activities of SIA³⁵



SIA is most effective as an iterative process across the lifecycle of developments, rather than a one-off activity at the outset of project development.³⁶ Leading practice involves the application of management systems and strategies to monitor, report, evaluate, review and proactively respond to change throughout the life of the project which, in the case of resources projects, extends to closure.³⁷ Under the adaptive participatory management approach, SIA is considered to be a learning process, in which initial assumptions and preliminary understandings need to be regularly updated based on new data and analysis. It requires update and validation informed by on-going consultation with project proponents

³⁴ Sustainable Business Initiative (2015).

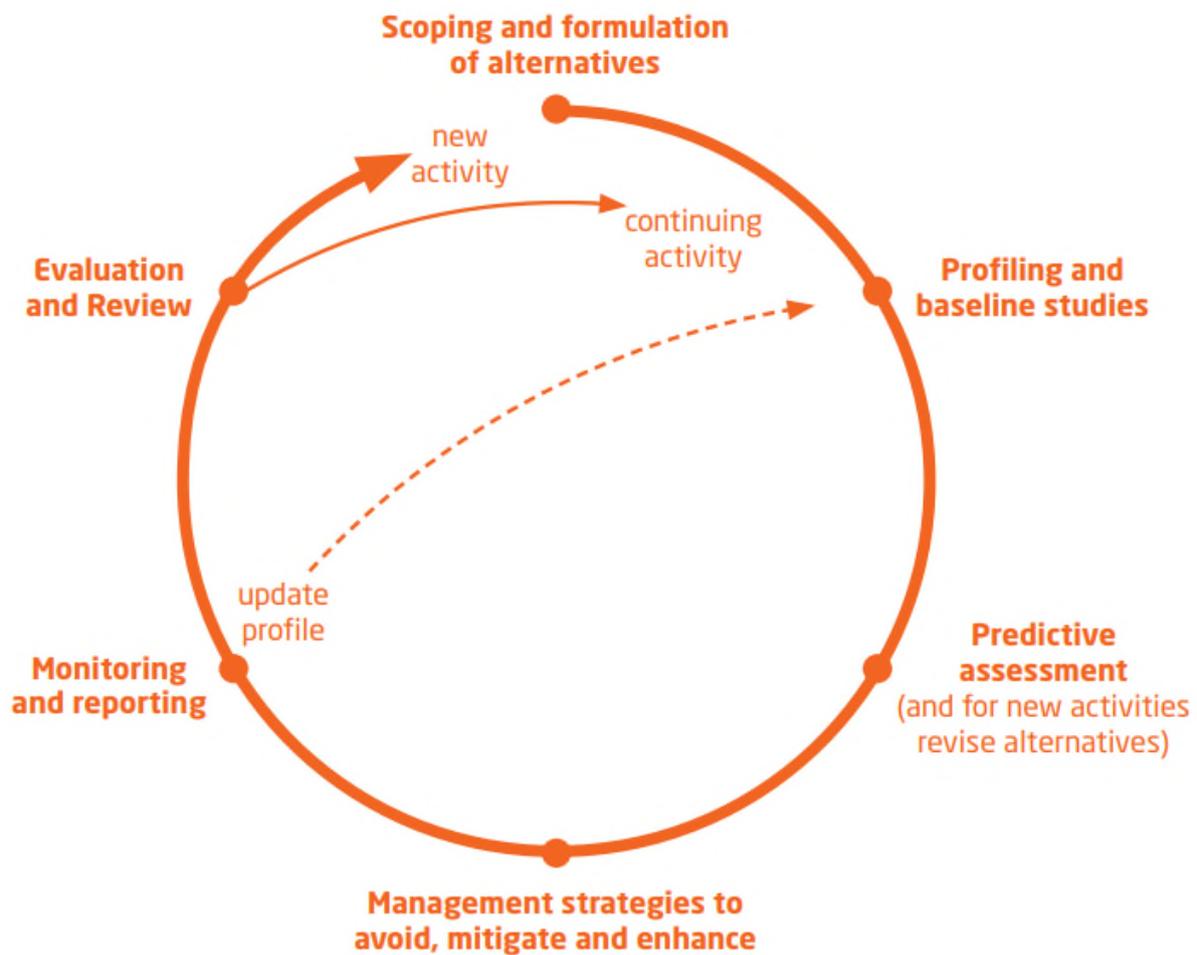
³⁵ Vanclay et al (2015), p. 7.

³⁶ Franks (2012).

³⁷ Franks et al (2009).

and other stakeholders. The SIA process, based on an adaptive participatory management approach, can be arranged conceptually into distinct but iterative phases (see Figure 2).³⁸

Figure 2: The phases of SIA within an adaptive participatory management approach³⁹



1.4 Issues Specific to Shale Gas Development

Hydraulic fracturing of shale gas is a form of unconventional gas mining. The Northern Territory’s (NT) onshore gas is predominantly shale gas trapped in shale rock, which requires hydraulic fracturing. Assessing the social impacts of hydraulic fracturing requires an examination of the ways in which social, psychological, health and political change processes associated with shale gas developments are impacting, and are likely to impact, the daily lives, beliefs, values and community dynamics of the residents in this region.

The social impacts of shale gas development have been studied. Evidence from North America suggests that despite the different technologies used in shale gas development and evolving characteristics of natural resource extraction, communities are experiencing many

³⁸ Franks (2012).

³⁹ Franks (2012), p. 6.

of the same social impacts documented in earlier 'boomtown' studies that focussed on different resource commodities, including conventional gas.⁴⁰

Extractive projects (mining and oil & gas) have common features which set them apart from other large-scale development projects. In particular, these projects:

- are very sensitive to market volatility with boom and bust cycles causing rapid up and downscaling;
- involve many uncertainties about the projects with the size and configuration of the project emerging progressively and incremental expansion of the project as additional resources are discovered or accessed, which can substantially change the characteristics of impacts;
- are often associated with significant impacts over an extended period; and impacts changing across the project lifecycle (exploration, construction, operation, closure);
- often create significant legacy issues related to post-closure landscapes and other socio-economic legacies such as the ongoing maintenance of project-sponsored infrastructure, an oversupply of housing, and where there has been economic dependence on the project, a narrow skills base; and
- are increasingly located in rural and remote areas meaning that small communities and Indigenous people are particularly vulnerable to negative impacts.

There are also unique sets of features associated with different types of extractive projects. Whereas mining activities are geographically contained in the vicinity of a deposit, and the mine operator has legal rights over the lease area, onshore oil and gas extraction is geographically dispersed, and surface rights holders may use land in co-location with oil and gas production. For example, gas well pads can be located on grazing properties or farms.

Although not exclusive to extractive projects, some social changes generated by major developments are particularly pronounced (in part because of the characteristics of the 'receiving environments') and warrant detailed assessment of impacts. While this is not comprehensive list, these generally include changes in:

- population, housing and/ or land availability and affordability;
- social division between 'newcomers' and 'old-timers'
- unemployment and income levels;
- traffic flow and patterns;
- noise levels, the quality and quantity of water, and air quality; and
- the character and identity of a community and people's well-being that can have a more significant impact than any material or tangible changes.⁴¹

⁴⁰ Schafft et al (2014); Council of Canadian Academies (2014).

⁴¹ Franks (2012).

While shale gas development may provide significant, albeit varied economic benefits, it can also place stress on communities in relation to:

- community services - such as policing, health and emergency preparedness due to the 'boomtown' effect;
- quality of life and well-being - due to the combination of diverse factors related to the alienation of land, construction of new infrastructure, perceived threat to water quality, additional truck traffic and noise, loss of rural serenity and anxiety about unknown impacts;
- health and safety - issues related to truck traffic and the sudden influx of a large (predominantly male) transient workforce.
- psychological impacts - from physical stressors, such as noise, and non-physical stressors such as disempowerment, perceived lack of trust in the industry and government.

These factors are particularly relevant to the NT context and the ability of Aboriginal people to maintain their traditional way of life. In Canada, for example, several First Nations have expressed concerns about the possible impacts of shale gas development on their quality of life and their rights.⁴² In the NT, proposed shale gas development may occur largely in the traditional territories of Aboriginal people who depend on the local environment for food and water and whose culture may be particularly affected. Specific monitoring of impacts on Aboriginal peoples' physical and mental health, social well-being, quality of life and ecological systems on which they depend, is therefore essential. This includes not only direct impacts of shale gas development on health, communities and cultures, but also indirect and long-term impacts of intrusion into traditional territories and economic and social activities.

The type, frequency, and severity of social impacts are highly dependent on the scale and pace of different phases of development and on the physical, economic and social environments in which shale gas development takes place. People living in proximity to areas that experience rapid and large-scale development of gas production using fracking are particularly at risk in terms of social impacts. Research on the social impacts of fracking highlight the importance of having a robust and comprehensive monitoring system in place *before* significant shale gas development occurs. SIA should also evaluate short-term, cumulative and long-term social impacts, and consider mechanisms for addressing social needs of vulnerable populations.⁴³

⁴² Ibid.

⁴³ Council of Canadian Academies (2014), p. 150.

1.4.1 Industry standards

The International Petroleum Industry Environmental Conservation Association (IPIECA) is the peak international body for sustainability issues in the oil and gas industry. Its membership includes: the Australian Institute of Petroleum, the World Petroleum Council, BHP Billiton, BP, Shell, ConocoPhillips, Inpex, Petronas, Santos, and Woodside among others. [*A Guide to Social Impact Assessment in the Oil and Gas Industry*](#) provides managers of existing oil and gas operations or new projects with an understanding of how to make the best use of SIAs.⁴⁴

IPIECA members are committed to:

- Contribute to sustainable development by providing safe and reliable energy in an environmentally and socially responsible manner
- Conduct their operations and activities in accordance with applicable law related to environmental and social issues and ethical business practices
- Seek to improve their performance in addressing environmental and social issues
- Develop, share and promote implementation of sound practices and solutions with others in industry
- Engage with stakeholders, taking into account their expectations, concerns, ideas and views, and work with government and nongovernment organizations (IPIECA, 2008).

1.5 Complementary Documents, Plans and Strategies

Leading SIA practice is supported by jurisdictional benchmarks and guidelines, and complemented by plans, strategies and processes that are typically undertaken as part of, or in parallel with, the SIA process.

1.5.1 Social baseline assessments

Leading SIA practice is based on rigorous, methodical and detailed social baseline assessment of the social environment before the project. The baseline data become a reference point, along with other benchmark values, against which potential impacts can be anticipated, change measured and future situations compared. The baseline study should include conditions and trends at the project site and along the supply chains including places where the associated service activity is located. It often includes secondary data but should be supported by both quantitative and qualitative primary data from recent on-the-ground research.⁴⁵ The reliability of SIAs can be jeopardised by suboptimal baseline data caused by the lack of rigour with respect to methodology, sources and assumptions.⁴⁶ Inconsistencies

⁴⁴ IPIECA (2004).

⁴⁵ The Queensland Government (2013).

⁴⁶ Pope et al (2013).

in methodology, scope and depth of SIAs are most pronounced in jurisdictions which lack specific terms of reference, such as guidelines or benchmark standards.⁴⁷

Quantitative data can be accessed from the Australian Bureau of Statistics, longitudinal census data, various government agencies and online data portals. Qualitative data may be sourced from stakeholder engagement activities, community development strategies, plans and other research. The type of information required in a baseline assessment includes:

- community history and culture;
- population;
- workforce participation, employment and diversity profile;
- housing and accommodation;
- education and training;
- business, industry and economy;
- income and cost of living;
- social infrastructure;
- technology and communication services;
- community health and safety;
- transportation and access; and
- other, including socio-economic advantage and resilience, relevant economic modelling and cumulative impact data.

Quantitative and qualitative data captured in the development of the social baseline study should be compared, aligned and analysed using appropriate social science research methods like triangulation, and cause and effect analysis.⁴⁸

1.5.2 SIA guidelines

The scope of SIA differs from country to country, depending on the institutional arrangements that are in place. Some governments publish SIA guidelines, which usually outline the underlying principles and purpose of an SIA and the role of the stakeholders; followed by a description of the SIA process along with detailed guidance for preparing the SIA. Examples from several jurisdictions can be accessed via the following links: The European Commission ([guidelines](#), [guidance](#)), [Greenland](#), [New South Wales](#), [Northern Territory](#) and [Queensland](#).

SIA guidelines often provide detailed technical guidance that addresses the application of SIA at the project level and at all project phases. They can improve the quality and utility of SIAs for these projects and related processes (e.g. social baselines and social management plans) by providing:

- criteria for the inclusion of the interests and values of stakeholder groups in the planning process;
- information to project proponents about SIA process and expectations;

⁴⁷ Howitt (2011); Michella & McManus (2013).

⁴⁸ The Queensland Government (2013)

- assistance to all parties – proponents, community, regulators and key decision makers – to enable more effective use of SIA information and processes; and
- assurance that community engagement and participation are enshrined as important features of all SIA-related activities.

The availability of a guidance document does not necessarily correlate to leading or good practice.⁴⁹ In fact, there is concern in many jurisdictions over the poor quality of impact assessment guidance information and over the difference between guideline requirements and actual practice (e.g. how well is SIA actually regulated). The tendency in some guidelines to advise that appropriate tools and processes should be selected by practitioners to suit context and circumstances may be inadequate for practitioners who lack the experience and expertise to make such judgments. In those instances, more detailed operational guidance is needed on how to make sound methodological choices and select the best available methods.⁵⁰ There is also a need for regulators to have sufficient level of expertise in order to understand what they are looking for in an SIA.

1.5.3 Social management plans

Social management plans (SMPs) describe management actions that can be taken at each stage of a project to avoid or mitigate social impacts and maximise benefits.⁵¹ Over the past decade, SMPs have emerged as a vital link between impact assessment, ongoing management and proactive response to social and community issues. SMPs may be developed in partnership with regulatory agencies, investors and community, and identify the responsibilities of each party in the management of impacts, opportunities and risks. Governments and finance institutions, such as the IFC, increasingly use SMPs as requirements for project approval and finance.⁵² SMPs are usually supported by management plans that outline how specific impacts of a project, such as resettlement, community health and safety or cultural heritage, will be managed.⁵³

SMPs provide the facility to coordinate project activities with service and infrastructure planning by government. They also provide an opportunity to link activities with local and regional planning processes and, if developed with reference to the management plans of other operations, can assist in predicting and managing cumulative impacts, a key component of any consideration of impact assessment effectiveness.⁵⁴

⁴⁹ Morgan (2012); Adelle & Weiland (2012).

⁵⁰ Noble et al (2012).

⁵¹ SMPs are also referred to as social impact management plans, environmental and social management plans, social and labour plans and environmental and social action plans.

⁵² See IFC Performance Standard 1. International Finance Corporation (2012).

⁵³ Vanclay et al (2015).

⁵⁴ Franks et al (2009).

1.5.4 Strategic and regional assessments

Over the past two decades considerable progress has been made by extractive companies in improving the environmental and social track record of large extractive projects, and the tools available to plan and manage them in a sustainable manner. Traditionally EIA and, more recently, SIA, has been the mechanism of choice to address these issues at the planning stage. However, while EIA/SIA provides a clear practical framework for evaluating the environmental and social effects of specific projects, it is typically focused on a single proposed development rather than an analysis of the wider environmental and social impact of development activity throughout a region. It is not designed to address strategic decisions which often influence the actual development of a country or a region or decisions related to a project entry. Increased attention has thus been given to new assessment types more suited to address strategic environmental, social and economic issues at national and regional level.⁵⁵

Strategic assessments are assessments done at the scale of a policy, plan or program, while regional assessments may be at the scale of a minerals or resource province, catchment, or political jurisdiction. Strategic and regional assessments may be undertaken during, or prior to, the establishment of a new type of industry, extraction method, or exploitable resource. The advantage of such approaches is that they:

- facilitate the early identification and resolution of potential issues when there is the flexibility to make changes;
- provide an opportunity for longitudinal and comparative research;
- may more effectively identify existing and potential cumulative impacts;
- may explicitly link assessment to regional planning and reporting; and
- can establish baseline and regional datasets that assist the development of region-wide monitoring efforts.⁵⁶

A strategic assessment can be the most appropriate form of assessment for regions involving multiple stakeholders or complex, large-scale actions. Strategic assessments are often promoted as a method to more effectively account for cumulative impacts because they are:

- broader in spatial and sometimes temporal extent;
- they may make explicit regional standards, thresholds, and links to land use planning; and

⁵⁵ Wagner & Jones (2004).

⁵⁶ Franks et al (2010a).

- they often establish regional databases, protocols, management systems and tools for implementation (e.g. the definition of thresholds and methods for allocation within limits).⁵⁷

In some jurisdictions, government-led strategic and regional assessments may establish the conditions for future development and reduce or remove the requirements for project-specific impact assessments prior to regulatory approval, if the proposals meet the conditions outlined in the assessment. Such an approach has obvious benefits for business as it can:

- lead to better delivery of social infrastructure and services, as well as better environmental outcomes;
- provide certainty for development proposals;
- reduce the potential for consultation fatigue;
- reduce the regulatory burden and shorten the approvals process;
- avoid the duplication of project level assessments; and
- inform developers about the environmental and social context in which they operate.⁵⁸

In Australia, a lack of legislation enabling or requiring strategic assessment may explain a lack of widespread practice ⁵⁹

2. Regulatory Framework in the Northern Territory

2.1 Social Impact Assessment

SIA is widely practised internationally (usually as part of EIA) as a contributing study that is considered as part of the regulatory approval process for extractive projects. In federal systems of government, oversight and enforcement of compliance with environmental and SIA regulation is commonly at the sub-national (e.g. state or provincial) level. Under the Australian federal system, the regulation and development of natural resources (including project approval and assessment) are primarily the responsibility of state and territory governments. Consequently, SIA is almost exclusively defined under state and territory based schemes.

In the Australian context, there are significant differences between the approaches taken by the various states and territories, although assessments in all cases form part of the EIA process. As a component of EIA, SIA retains aspects of its earliest conceptualisation as a subset and subordinate form of EIA in which social issues are often not adequately

⁵⁷ Ibid.

⁵⁸ Ibid.

⁵⁹ Marsden 2013

addressed (see Box 4 for more detail).⁶⁰ Similar to other Australian jurisdictions, SIAs in NT are focused on predicting impacts related to a specific project and are integrated within EIA, as part of the project approval process.

Box 4: key issues to consider when SIA is a subset of EIA

When SIA is included as a subset of EIA as commissioned by the proponent, a common objective is to produce a document for the EIA that will warrant that development consent is granted. Such practice can be characterised by a lack of integration between SIA and the ongoing and adaptive management of social and economic issues once a project commences and after an operation closes.⁶¹ A recent study demonstrates that the role of the SIAs in the EIA programmes and reports is minor: measured in number of pages, the assessments account for three to four per cent of the total.⁶²

When integrated within EIA, SIA tends to focus on the predictive aspects rather than incorporate the participatory component.⁶³ In the NT, as in many other jurisdictions, a requirement for community engagement only applies *after* an initial development application has been submitted. Research shows that this approach is generally procedural and often lacks substantive impact.⁶⁴ A once-only snapshot of the social environment as a baseline does not address the requirement for ongoing social relations, nor for adaptive management of issues as they arise throughout the life cycle of the project.

The *Environment Protection and Biodiversity Conservation Act 1999 (EPBC Act)* is the Commonwealth's key environmental legislation. The *EPBC Act* is focussed on the protection of matters of national environmental significance (MNES). MNES of most relevance to the NT include listed threatened species and communities, listed migratory species, Ramsar wetlands and national heritage places. Protected matters also include water resources in relation to large coal mining and coal seam gas developments (the 'water trigger'),⁶⁵ but *not shale gas developments*. Thus, shale gas developments currently do not require approval under the *EPBC Act* (unless there are other protected matters involved) and are currently only subject to approvals under relevant state or territory legislation.

Environmental (and social) approvals in the NT are regulated under the *Environmental Assessment Act (EA Act)* and the *Environmental Assessment Administrative Procedures (EA Administrative Procedures)*.⁶⁶ The *EA Act* and associated procedures commenced in 1984 and have not been subject to significant amendment since that time. The *EA Act* and the *EA Administrative Procedures* establish the framework for the assessment of potential or anticipated environmental impacts of proposed developments. The *EA Act* defines 'environment' as "all aspects of the surroundings of man including the physical, biological,

⁶⁰ Esteves et al (2012); Prno & Slocombe (2012).

⁶¹ Franks et al (2009); Esteves et al (2012).

⁶² Suopajärvi (2013).

⁶³ O'Faircheallaigh (2010); Gillespie & Bennett (2012).

⁶⁴ João et al (2011).

⁶⁵ Power & Tomaras (2016).

⁶⁶ See http://www.austlii.edu.au/cgi-bin/viewdb/au/legis/nt/consol_act/ea294/.

economic, cultural and social aspects.”⁶⁷ The NT Environmental Protection Authority (NT EPA) administers the *EA Act*. The NT EPA is an independent authority established under the Northern Territory *Environment Protection Authority Act*. The NT EPA consists of a Chairperson and four appointed members who can provide expert advice in relation to a range of environmental, economic and social issues. The roles and functions are set out in the *EA Act*, the *Environment Protection Authority Act (EPA Act)* and the *Waste Management and Pollution Control Act (WMPC Act)* and these include compliance and enforcement activities.

Proponents are required to develop assessments commensurate with the scale and complexity of their proposals as determined in the NT EPA terms of reference for an Environmental Impact Statement (EIS) or Public Environmental Report (PER).⁶⁸ The assessment of projects under the *EA Act* may require the preparation of an Economic and Social Impact Assessment (ESIA) and an accompanying Economic and Social Impact Management Plan (ESIMP). An ESIMP generally forms one component of a broader Environmental Management Plan (EMP).⁶⁹

The generic NT [*Guidelines for the Preparation of an Economic and Social Impact Assessment*](#) provide a basis for proponents to prepare assessments of social impacts of development proposals and accompanying ESIMP. The guidelines provide advice to proponents on the NT EPA’s expectations for the assessment and management of social impacts of development projects assessed under the *EA Act*. The guidelines are aimed at assisting proponents in achieving the following objectives:

- documenting the economic and social impacts of a proposed development on the locality and region;
- mitigating negative economic and social impacts on the locality and region;
- encouraging development of new and/or expansion of existing businesses in the locality; and
- fostering sustainable development and community wellbeing.

The guidelines are limited to generic matters relating to economic and social assessment and do not address sector or proposal-specific issues that may be of significance. The guidelines require that social assessment is based on consultation with and involvement of the community, and that it includes:

- a description of local and regional social environment;

⁶⁷ Ibid.

⁶⁸ A decision on the appropriate permitting process for new project proposals is initiated by the proponent’s submission of a Notice of Intent (NOI) to the NT EPA. If the NT EPA determines that assessment under the EAA is required, the agency must also determine the appropriate level of assessment (EIS or PER).

⁶⁹ The Northern Territory Government (2015), p. 5.

- a development proposal;
- potential social impacts;
- measures for maximising social benefits and minimising social costs; and an ESIMP, which establishes the roles and responsibilities of the proponent, government, stakeholders and the community in mitigating and managing impacts throughout the life of a project.⁷⁰

2.2 Key Gaps and Recommendations

The current regulatory framework for SIA in the NT does not match leading practice standards outlined in Section 1 (Box 2). This section addresses three key identified gaps in the NT's current SIA framework and outlines recommended reforms which may lead to improved regulatory system (see Table 2).

Table 2: Summary of key gaps and recommended reforms in the NT's SIA framework

Gaps	Recommendations
The EPA's roles and functions are set out in three separate pieces of legislation.	While retaining the NT EPA's independent role, setting out its roles and functions in one piece of legislation would reduce uncertainty and ambiguity, and would strengthen the regulatory system.
Cumulative impact assessment remains under-developed.	Strategic assessment should be utilised as a method to more effectively account for cumulative impacts and improve the approval pathway for potential shale gas developments.
ESIA guidelines are generic and lack industry relevance and sector-specific guidance.	Guidelines should be developed specifically for mining, petroleum production and extractive industry development, which can lead to better quality and utility of SIAs for these projects and related processes.

1. Setting out the EPA's role, function and objectives in three separate pieces of legislation has contributed to a degree of uncertainty about its core remit. Communities usually have greater confidence in environmental assessment outcomes and approval processes when there is independent authority acting as a check and balance against capture by sectoral interests in the system. Reducing ambiguity, while retaining the EPA's independent role, would strengthen the environmental regulatory system by increasing clarity and certainty. It would also increase system efficiency without undermining the environmental standards.⁷¹

2. Cumulative impact assessment remains under-developed in the NT, as in most jurisdictions in Australia and elsewhere. Cumulative impact assessment requires greater cooperation between proponents operating in the same area, and the involvement of

⁷⁰ Ibid.

⁷¹ Hawke (2015).

regional authorities.⁷² In both New South Wales and Queensland, impact assessment procedures require proponents to address cumulative impacts. In practice these requirements are specified in the terms of reference or assessment requirements of the impact assessment. Strategic assessment (see section 1.5.4) should be utilised in the NT as a method to more effectively account for cumulative impacts and improve the approval pathway for potential shale gas developments.⁷³ An independent agency, in this case the EPA, would be best suited to administer and regulate strategic assessment of shale gas development in the NT. Well executed strategic assessment of shale gas development at the planning stage would be beneficial in the NT context, as it can:

- remove the need for further environmental impact assessment later in the development approval process;
- resolve high level trade-offs between development, environmental and other values in a transparent way;
- provide certainty about which areas are suitable for development;
- establish the performance requirements and outcomes to be achieved from multiple developments in a region;
- establish clear requirements that projects need to meet and remove the need for detailed assessment of particular issues at the project level;
- be a useful means for improving baseline data and making it available to Governments and proponents; and
- facilitate future Commonwealth accreditation under the *EPBC Act* strategic assessment provisions, which if achieved, would streamline Commonwealth/Territory decision making.⁷⁴

3. The NT ESIA guidelines provide a basis for project proponents in the NT to prepare estimations of social impacts of development proposals and accompanying ESIMP. However, the guidelines are generic and, as such, lack industry relevance and sector-specific guidance. Some leading practice jurisdictions (e.g. New South Wales) have developed SIA guidelines specifically for mining, petroleum production and extractive industry development.⁷⁵ Sector-specific ESIA guidelines for proponents should be developed in the context of broader strategic assessment process. Sector-specific SIA guidelines can take into account the different phases of exploration, development, production and post-production in the life cycle of the industry. If developed, such guidelines can lead to better quality and utility of SIAs for these projects and related processes (see section 1.5.2).

⁷² Morgan (2012); Esteves et al (2012).

⁷³ Hawke (2015).

⁷⁴ Ibid.

⁷⁵ The New South Wales Government (2017).

3. Developing a SIA framework for shale gas development in the Northern Territory- key considerations

3.1 Macro-factors

3.1.1 Australian natural gas in the global market

Australia is divided into three natural gas markets due to the geographical isolation of the western and northern markets from the large eastern market. Natural gas production is therefore either consumed within each market or exported as liquefied natural gas (LNG).⁷⁶ In 2015, Australia became the world's second-largest LNG supplier after Qatar, supplying 12% of globally traded volumes. In 2016, Australia's share in global LNG supplies increased to 17%.⁷⁷ Australian LNG exports increased by 52% in 2016 and will continue to increase throughout 2017 and 2018 as new projects are brought on line. Australia is forecast to rival Qatar as the world's largest LNG exporter by 2021.⁷⁸

LNG accounts for the bulk of recent resources and energy investment in Australia. It is Australia's third-highest goods and services export behind iron ore and coal. Australia was the first country to have had seven LNG projects under construction at the same time since the A\$200 billion investment boom entered its full swing in 2007 and 2008. However, the global LNG industry has changed dramatically over the past decade. Most of the projects were commissioned at the height of the commodities boom, when the oil price was near the US\$100/barrel mark and demand showed no sign of easing. The overriding sentiment, which has been exacerbated by the decline in the price of oil since 2014, is that most of Australia's new LNG projects are not competitive globally and are costlier than competitors in North America or Africa.⁷⁹ While record-breaking, the simultaneous construction of seven new LNG projects with a combined capacity equal to 25% of current global LNG demand has been described as "one of the worse investment cases of the last decades in the oil and gas sector."⁸⁰

The future sustainability and profitability of Australian LNG exports are predicated on a high oil price and a voracious appetite for natural gas in Japan, China and South Korea, Australia's major current and future customers. Global LNG export capacity is forecast to increase by 45% between 2015 and 2021, and 90% of additional capacity will come from the US and Australia. The oversupply in global LNG markets is already causing fierce competition among suppliers as substantial volumes of lower-cost LNG move into Asian markets. As a consequence, Australian projects at the high end of the supply curve are increasingly

⁷⁶ Vivoda (2017).

⁷⁷ GIIGNL (2017).

⁷⁸ Vivoda (2017).

⁷⁹ McKinsey & Company (2013).

⁸⁰ Maugeri (2014).

vulnerable.⁸¹ Moreover, since oversupplied market conditions are likely to persist well into the next decade, it is unlikely that any undeveloped natural gas resources, such as in the Beetaloo Sub-basin, will become economically viable.

3.1.2 Boom-bust cycles and resource dependency

Research has found that dependence on extractive industries as the primary economic driver can affect a region's longer term economic growth. Extractive industries can have a 'crowding out' effect on resources (both physical and human) which may limit opportunities for growth in other industries. A review of literature found that resource-intense economies also tend to have greater income inequality and higher levels of conflict or social division.⁸² Expanding extractive industries will draw labour and resources from other industries and from other places. This period of rapid growth usually includes an influx of workers, new infrastructure to accommodate them and upgraded local services and is sometimes referred to as a 'boom' period. In a 'boom' period, local prices for goods and services are often inflated, placing additional strain on those not participating in the extractive industries. Many of the most visible social impacts are experienced in the 'boom' period.

Extractives industries, and particularly the petroleum sector, are characterised by price volatility arising in international markets. When prices fall, extraction can be slowed and infrastructure 'moth-balled' until the prices rise again. Workers' contracts may be terminated or renegotiated for lesser wages and local content spending may fall. The industry response to a drop in commodity price can be swift and communities may feel the economic effects quickly. This 'bust' period can be associated with an oversupply of housing and services as the high level of demand experienced during the 'boom' drops off. 'Bust' scenarios can be mitigated. There are increasing examples of businesses, communities, states and nations who have successfully avoided the full effects of a 'bust' period. This involves planning ahead, deliberately saving a proportion of the proceeds that may accrue for future use, and using the period of growth to foster alternative industries and economic diversity.

3.1.3 Native Title and Land Tenure

Australia's First Nations peoples have common law rights to their traditional land and waters established by the commonwealth *Native Title Act* in 1993. Where it has been legally recognised, native title gives Traditional Owners (TOs) the right to live and camp in an area, conduct ceremonies, hunt and fish, collect food, build shelters and visit places of cultural importance. Shale gas development activities in NT are likely to occur on land that is subject to the *Aboriginal Land Rights Act (ALR Act)* or *Native Title Act*, making TOs and other Aboriginal people who live on this land, key and direct stakeholders in any SIA.

⁸¹ IEA (2016).

⁸² Stevens (2003)

The *Native Title Act* is likely to affect most applications for petroleum titles due to the extent of native title interests in land in the NT. Aboriginal people who hold, or have claimed, native title rights over land will have to be consulted about proposed activities on the land. In the NT, fracking is labelled as petroleum mining and regulated by the NT *Petroleum Act*. As stipulated in the *Petroleum Act*, all petroleum exploration permit applications are subject to the right to negotiate process, which requires negotiation with registered native title holders or claimants in order to obtain consent for future activities.⁸³

There are four main types of land tenure in the Northern Territory:

- Crown land;
- Freehold;
- Aboriginal freehold; and
- Pastoral leasehold.

As elsewhere in Australia, crown land in the NT refers to all land which is “remaining” that is not freehold title and is still held by the Crown. Crown land is regulated by NT Crown Lands Act and is vested in the NT government. The government may give another person the ability to manage or control that land. Freehold land implies that the government has passed all interest in the land, other than sub-surface resources and water, onto the owner. An example of freehold land is the average house block in a city or town. Crown land and freehold land are not affected by native title.⁸⁴

Most land in the NT, outside of townships, is either pastoral leasehold or Aboriginal freehold land over which native title rights can exist. Pastoral leasehold is land which is owned by the government and leased to a private individual or company for pastoral purposes. This may include cattle grazing, crop growing or pastoral based tourist activities. Pastoral land is subject to native title.⁸⁵ Aboriginal freehold land is unique to the NT as it does not exist in any other state or territory in Australia. It came into being in 1976 when the *ALR Act* was passed, converting former Aboriginal reserves into permanent Aboriginal freehold. Aboriginal freehold land is inalienable freehold title, meaning it cannot be sold. It is referred to as 'schedule one' land, and is formally held by an Aboriginal land trust. Any application to explore for petroleum on Aboriginal freehold land has to be negotiated through the process laid out in the *ALR Act*. Grant of an exploration licence or permit on Aboriginal freehold land can only go ahead after consultation with the TOs through their representative land council, and an agreement reached. The TOs have the right to refuse access to their land or refuse permission for exploration.⁸⁶

One problem with this approach is that only TOs who have been formally identified and validated (i.e. 'qualified') and whose ownership of land has been formally recognised under the *Native Title Act* have rights to negotiate the terms of an agreement with a resource

⁸³ The Northern Territory Government (2017a).

⁸⁴ The Northern Territory Government (2017b).

⁸⁵ The Northern Territory Government (2017c).

⁸⁶ The Northern Territory Government (2017d).

company. They too, are the only people who have rights to royalty payments or other benefits arising from the agreement. Additionally, unlike under *ALR Act*, the *Native Title Act* does not give TOs powers to stop development taking place. The social impacts of a shale gas industry are geographically spread (in comparison to those associated with a discrete mine site) and are likely to affect a number of different Aboriginal groups and families. Not all of these will have formal TO representation, or for various reasons, they may not be included in a share of the benefits. Thus under the current consent mechanisms, particularly those based on the *Native Title Act*, there is the potential for significant inequality between those affected and those receiving compensation and benefits. This in turn could lead to increased social unrest and potentially conflict, both intra-community and conflict aimed at other entities, such as the company or government. The strategic and participatory approach to SIA recommended in this report is an attempt to address this inequality, as there is a focus on community benefits and capital building, with the process of developing strategies to mitigate negative impacts and enhance positive impacts being open to all.

The main consideration surrounding land tenure is that different tenures require different forms of ‘consent’ in order for project activities to proceed without interference or interruption from dissatisfied stakeholders. Types of ‘consent’ range from broader community acceptance to individually negotiated agreements with pre-identified, or ‘qualified’ communities (see Table 2).⁸⁷

In the NT, a ‘shared land use’ policy is in place, which supports the exploration and mining of minerals on all land tenures, including pastoral land. The strategic approach recommended in this report emphasises regional planning and it may be that this policy should be reviewed to allow the designation of high value agricultural lands, areas of heightened sensitivity (such as where there may be conflict over land ownership and recognition) and ‘no go zones’ for shale gas development

Table 3: Land tenure in the NT and types of ‘consent’

Land tenure	Type(s) of ‘consent’	Principles/Pathways	Challenges
Crown Land (about 50% of land mass - which includes 44% pastoral lease)	‘Contingent’ consent ⁸⁸ Often (mis)understood as a ‘social license to operate’ ⁸⁹ .	Community acceptance on the basis that net social benefits outweigh the harms. As long as the balance is such, the project is more likely to be supported by the public and their representatives in the public service and government.	Relies on estimation of <u>net</u> benefit or harm when impacts are known to be unevenly distributed. The ‘voice of many’ can over-ride the voice of those directly impacted.

⁸⁷ O’Faircheallaigh (2007). ‘Qualified’ communities are those who have been through a formal process of identification and verification as being Traditional Owners of land under the *Native Title Act* 1993 (Cth).

⁸⁸ Levi (1997, p.8) in Owen and Kemp (2012).

⁸⁹ Owen and Kemp (2012).

Freehold (0.5% of land mass)	Land Access Agreements Includes a right to object to the granting of an exploration permit through written submission - no right to refuse access to permit holders	Over-riding public good Fair compensation for surface rights holders Not within 200m of dwelling	Capacity to negotiate a fair compensation package varies between individuals. Landholder unaware of rights and obligations
Aboriginal freehold (about 50% of land mass)	Exploration and Mining Agreements with relevant Land Council Free Prior Informed Consent	Includes a right not to permit activities Indigenous Land Use Agreement UN Declaration on the Rights of Indigenous Peoples	Excludes those not identified as 'qualified' from benefit sharing ⁹⁰ A bilateral agreement not conducive to cumulative impact assessment or collaboration with other 'development' partners
Pastoral leasehold (44% of land mass)	Land Access Agreements Includes a right to object to the granting of an exploration permit through written submission - no right to refuse access to permit holders Indigenous Land Use Agreement- where land held under Native Title	Negotiation of compensation and conduct agreements	'Compensation' for damages in excess of normal operations only

3.1.4 Historical context: unique to the NT

Any attempt to understand social impacts or social change in NT communities as a result of shale gas development must consider the complex and fraught history of government interventions and policies designed to bring about social change and economic development in these communities. This includes awareness of an ongoing legacy of trauma, grief and loss among Aboriginal people - the cumulative impacts of colonisation, dispossession of and removal from traditional lands, discrimination and paternalistic social policies. Particularly, the expulsion of Aboriginal people from cattle stations in the 1960s concentrated the Aboriginal population of a large area onto the traditional country of a few, and this has brought with it social complexity as family groups strive to both maintain their individual cultures and identities and live harmoniously together.⁹¹

Additionally, in order for Aboriginal families to claim rights to traditional land and water, and have those rights recognised under the Commonwealth *Native Title Act* 1993, they must be able to demonstrate a continuous connection with the land through regular access and traditional cultural practices, from one generation to the next. Commonwealth Native Title policy, while having the objective of empowering Aboriginal people by granting legal rights of traditional ownership, has the additional effect of encouraging Aboriginal families to live in very remote areas, or 'on country', mostly without access to treated water, energy or

⁹⁰ Stevens (2003)

⁹¹ Ross (1990)

sanitary services and with very few opportunities for employment. Being able to access, utilise and care for 'country', thereby maintaining a connection to traditional land and practices is vitally important to many Aboriginal people (regardless of whether they are formally recognised as TOs). Any fragmentation or degradation of the landscape translates directly into social and cultural impacts.

Despite recent approaches to social and economic policy that are more holistic and inclusive of Australian Aboriginal and Torres Strait Islands people and culture, there remain significant inequalities in health and well-being between Aboriginal and other Australians, most of which are shaped by the disadvantaged social and economic conditions in Aboriginal communities.⁹² The implication for SIA is a learned mistrust of projects that promise improved social and economic outcomes. For SIA and social performance practitioners, impact mitigating and social investment strategies must be developed with active involvement by Aboriginal people.

3.1.5 Social (non)-acceptance and lack of trust in the oil & gas industry

In 2014, a global survey of perceptions of corporate social responsibility (CSR) in business found the oil and gas industry to be one of the least trusted sectors, second only to the tobacco industry. Of 24 countries surveyed, Australia had the highest level of mistrust of the oil and gas industry (equal with France, which in 2011 became the first country to ban 'fracking').⁹³ Correspondingly, a high proportion of Australians thought that the oil and gas industry needs more regulation (only China had a higher proportion of people who think this).⁸⁶ To some extent, this widespread mistrust is influenced by a growing global 'anti-fracking' sentiment, found to be prevalent in Australia and Canada, although 'loudest' in the UK.⁸⁶

In the 2014 global survey, the issues that people were most concerned about in relation to the oil and gas industry were prices and affordability, closely followed by environmental impacts. An accompanying media analysis found high levels of concern about environmental impacts, particularly in relation to fracking.⁸⁶

Despite oil and gas companies in Australia mostly reporting good relations with the communities in which they operate, and the industry has co-existed with both agriculture and tourism industries in Australia for decades, there appears to be a rising wave of mistrust in the onshore oil and gas industry at the national (and international) level.

⁹² Osborne, Baum and Brown (2013)

⁹³ Globescan (2014)

3.2 Localised factors- the unique circumstances of the NT

A fit for purpose SIA framework has to consider localised factors such as:

- the remoteness of communities;
- cultural diversity;
- the time and cost involved in travelling long distances to consult with communities;
- sparse populations (can create problems for anonymous participation, data collection);
- mostly undeveloped, natural/cultural landscapes;
- the under-representation of Aboriginal people in Census and statistical data; and
- seasonal access only to some places.

The NT is unique in relation to several social and economic parameters. The NT, which is about one sixth of the Australian land mass is home to only 1% of the Australian population (about 245,000 people). Around 60% of the NT population lives in the capital city of Darwin, 20% of the population live in regional centres such as Alice Springs, Katherine and Tenant Creek, with another 20% living in remote communities. Access to some remote communities can be limited by road and weather conditions. Almost a third of the NT population is Aboriginal, compared to the national average of 3%.⁹⁴ About 50% of land in the NT is held in Aboriginal freehold (see Table 2) which includes a right to permit or not to permit access and resource development.

Without the population and associated development pressures of other jurisdictions, Northern Territory landscapes have remained in a mostly 'natural' state, and therefore have important 'wilderness' and amenity values. More importantly, in terms of SIA, NT landscapes are embedded with cultural meaning for Aboriginal peoples (both Traditional Owner groups and others), and the significance of this meaning is often not documented or captured in the domain of science. For example, 'song lines' are believed to be unseen pathways across the landscape that tell and reinforce Aboriginal stories of creation and place, as well as individual identity. The interruption of song lines is believed to have tangible consequences to those connected to the story it tells. This cultural interconnection with the biophysical landscape places Aboriginal people at potentially greater vulnerability to the impacts of shale gas development, as environmental impacts can also be felt as social and cultural impacts.

A description of the Beetaloo Sub-basin as a case study region, and the challenges these unique NT factors presented in developing a social risk assessment, are contained within the Beetaloo Sub-basin Case Study Report.

⁹⁴ The Northern Territory Government (2017e)

4. SIA Framework for Shale Gas Development in the Northern Territory

Leading practice SIA involves identifying and managing the social issues that arise from development activities. This includes the effective engagement of potentially affected communities in participatory processes of identification, assessment and the development of strategies to manage social impacts. Although SIA is still used as an impact prediction mechanism and as a decision-making tool in regulatory processes to consider the social impacts of a project in advance of a permitting or licensing decision, it has an equally important role in contributing to the ongoing management of social impacts throughout the whole life-cycle of the project (in this case, the development of a new industry), from conception to post-closure.⁹⁵

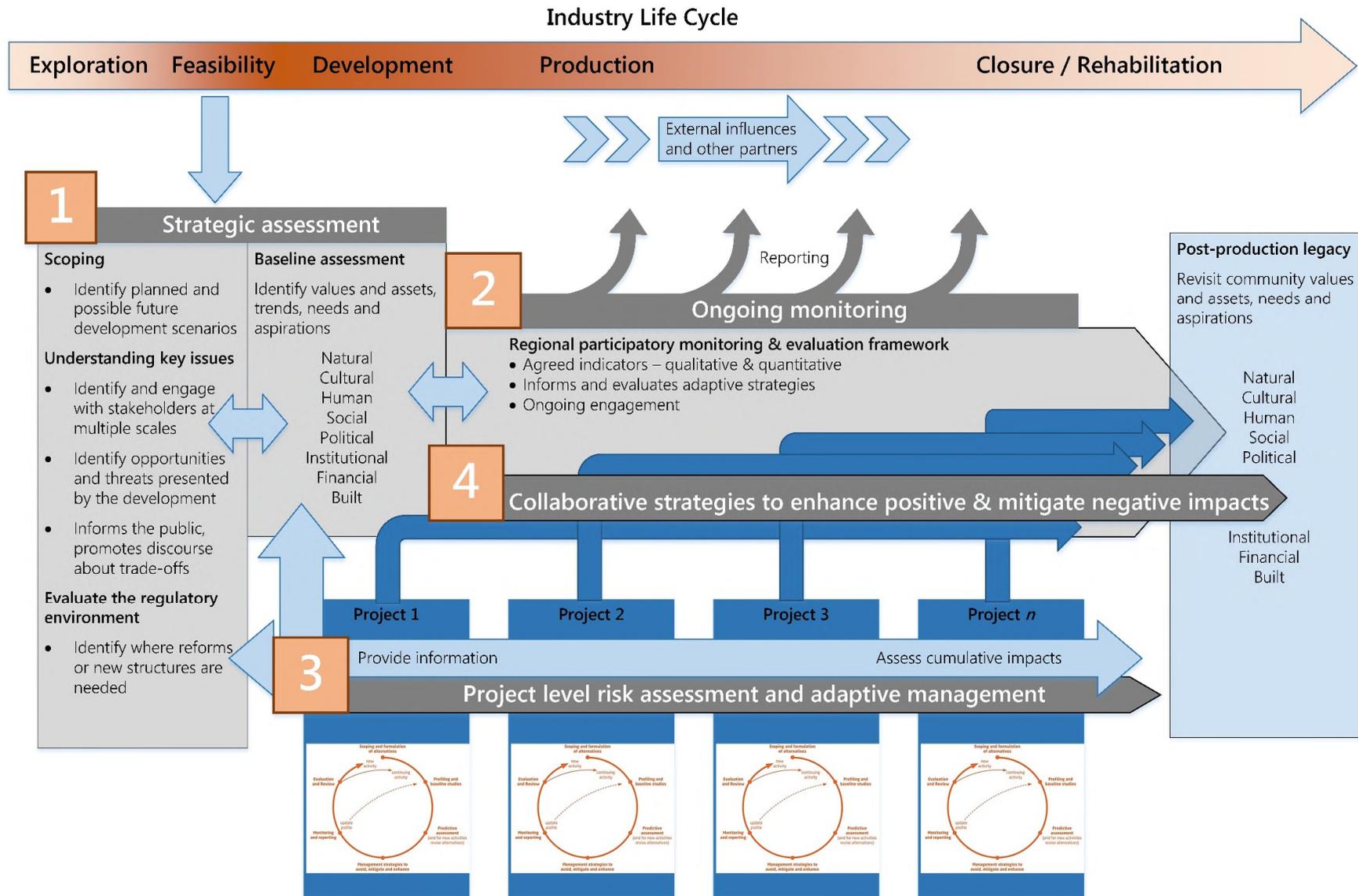
The shortcomings of relying on project-based SIAs as a subset of an EIS process have also been discussed. Project-based SIAs rarely adequately account for cumulative impacts that arise after the main construction period is over, or for the impacts of several projects or several industries operating in the same region.⁹⁶ The following sub-sections describe a fit-for-purpose SIA framework for shale gas development in the NT that takes into account the life-cycle of the industry, the likelihood of multiple projects, and the complex and data-poor nature of the receiving environment.

A conceptual model of the framework is shown in Figure 3 on the following page and explained in the following sections.

⁹⁵ Vanclay *et al.* (2015).

⁹⁶ Witt *et al.* (2017).

Figure 3: Conceptual model of a Framework for social impact assessment for a shale gas industry in the Northern Territory, Australia.



4.1 SIA Framework: An industry life-cycle approach

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

It is recognised, however, that social impacts can begin as soon as new information becomes available, as various actors begin to compete to define, influence and respond to the opportunities and threats that may be presented by the project.⁹⁷ Impacts can also continue after the development or activity has ended, particularly where former 'booming' communities face a downturn, and local businesses must adjust to a smaller and changed clientele, as is now the experience in some Queensland towns. What is needed is a framework that:

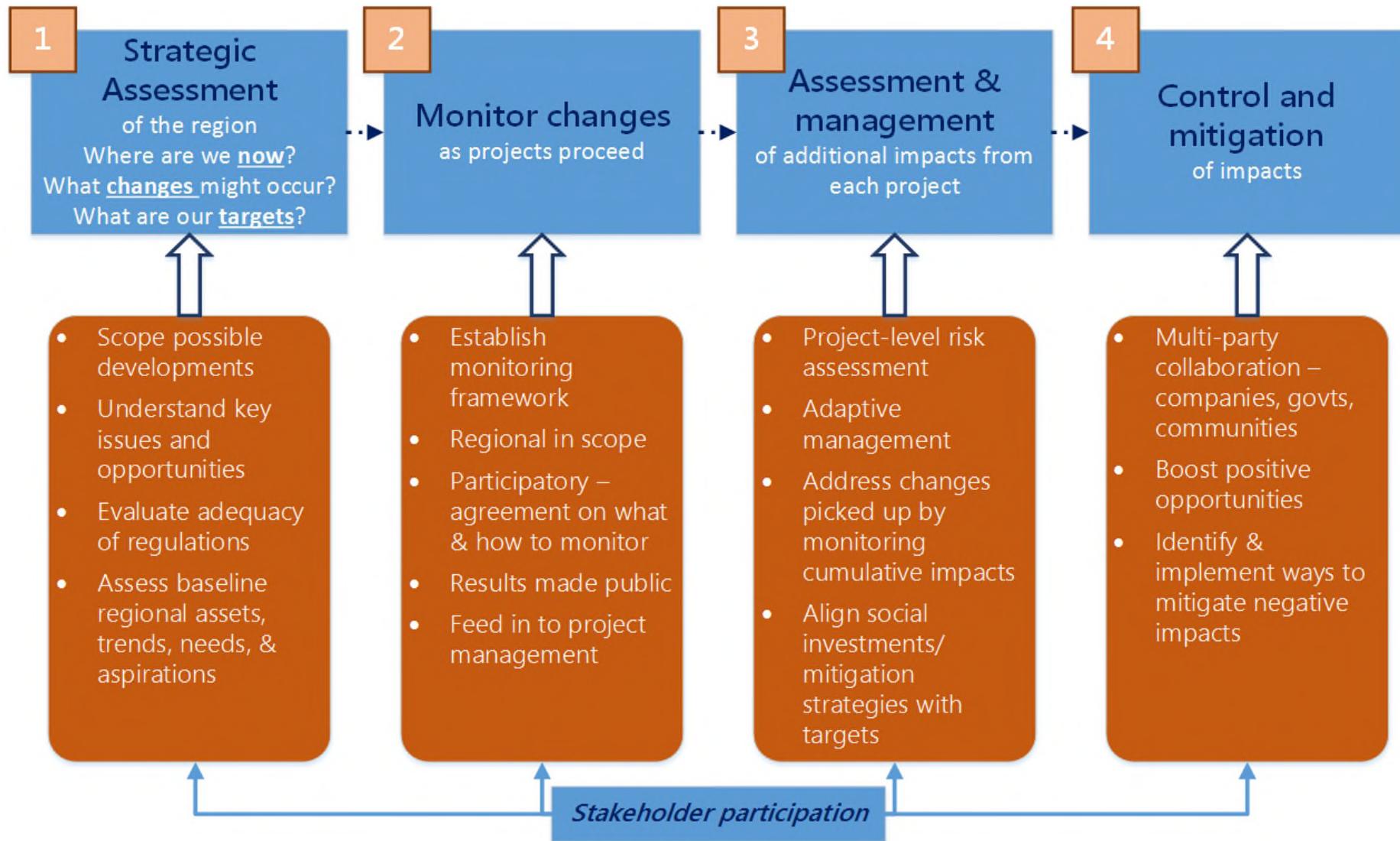
- can identify and respond to impacts that occur across different stages of development;
- can account for a paucity in statistical social and economic data in remote and Aboriginal communities;
- is culturally sensitive;
- can identify strategies to maximise benefits and minimise disturbance that are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

The conceptual framework presented in Figure 3 holds all the components of a leading practice SIA framework for shale gas development in the NT. The figure shows details of what is needed within each component. Figure 4 is a distilled version of the conceptual framework emphasising the four key steps needed for its implementation.

The steps are explained further in the following sections.

⁹⁷ Gramling and Freudenburg (1992).

Figure 4: The implementation steps of the SIA framework



4.2 Step 1- A strategic approach

The SIA framework developed here places project-level SIA within a strategic context. We recommend a NT government- led strategic assessment be conducted in the early stages of industry development, once feasibility has been established (that is, an adequate resource base has been proven and considered economically viable), acknowledging that even before then, social impacts will have been felt. This strategic SIA could be done as part of a larger Strategic (Environmental) Assessment, under the Terms of Reference for a Commonwealth/Territory *Strategic Assessment Agreement* under the Commonwealth *Environmental Protection and Biodiversity Conservation (EPBC) Act 1999* or from within NT processes if reforms were made. Such assessments are currently underway for [offshore gas development in the Northern Territory](#) and in South Australia, and were completed for the terminated [Browse LNG project in Western Australia](#). The latter included a strategic social impact assessment, with specialised assessments of cultural and economic values. Strategic assessment is a single overarching assessment that allows for the integration of social, economic and environmental considerations. Given that environmental values and conditions are linked strongly with Aboriginal culture, pastoral production, tourism and social values in the NT, this type of assessment seems most relevant.

The first strategic challenge that a government faces is whether to allow the industry to go ahead and develop the resource or to leave it in the ground. This is a decision that needs to be arrived at through a transparent and inclusive process, which will improve the quality of decision making as well as build community acceptance for the industry. There may also be occasions where the environmental or social and cultural context is too sensitive, or where insufficient scientific evidence exists on the potential negative impacts of development. In these cases, the choice is made more complex by the high levels of uncertainty involved (see lessons from the South African shale gas strategic assessment in section 5.3).

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

While there will be a high degree of uncertainty at this early stage, there is a clear need to gather and provide relevant and reliable information about the industry and its potential impacts, to reduce uncertainty to a socially acceptable level. It is important not to ‘pretend to know everything’ or to try and ‘buy’ social acceptance through the promise of jobs, infrastructure and economic benefits, but to promote a measured and informed public discourse about the changes the industry could bring. The strategic assessment stage involves four key components: (1) **scoping** - identifying possible future development scenarios and their trade-offs; (2) **understanding key issues** - identifying opportunities and

threats presented by the development to a range of stakeholders, and stakeholders' concerns; (3) **evaluating the regulatory environment** - identifying any regulatory reform, or new governance structures needed; and (4) **baseline assessment** - identifying values and assets, trends, needs and aspirations for potentially affected regions.

In the context of NT's shale gas industry, much of this work has been initiated and carried out by the Independent Scientific Inquiry Panel. The strategic assessment would ensure a transparent and inclusive process (as the Inquiry has sought to). The substantial body of information gathered in this initial step then becomes the starting block for an ongoing, open-access repository of social and industry-related data that is updated and expanded regularly as monitoring and project-level reports come in (Step 2).

4.2.1 Scoping and boundary setting

Firstly, the strategic assessment would seek to understand the scale and scope of proposed development. This would be done by collating information from the individual companies about where and how they intend to proceed, and how they might respond under different circumstances. The body overseeing the strategic assessment (who may be an independent unconventional gas regulatory Authority or the existing NT EPA) could have powers to request such information (similar to the GasFields Commission in Queensland). Companies are hesitant to report this information publicly in the early phases of development as development scenarios can change. They may also not wish to divulge their strategies to other gas companies for loss of competitive advantage. The industry-specific information will inform the setting of meaningful and practical geographic boundaries for the subsequent studies, which might be in terms of geological basins or sub-basins, administrative boundaries, or by 'impact' zones. The industry information is also used to identify planned and possible future development scenarios.

4.2.2 Understand the key issues

With an understanding of what the proposed development might 'look like', the next step is to identify and understand the issues and trade-offs involved under different development scenarios, including identifying the people and organisations who may be affected.

The stakeholder engagement component of this step is critical, and should follow leading practice stakeholder engagement methods with skilled personnel. We recommend using a 'nested' approach to identifying directly and indirectly affected stakeholders, stakeholders with standing, and interested parties, as illustrated in Figure 4. Information about the concerns and interests of these stakeholders could be organised at local, basin, Territory, National and global scales.

Figure 5: Stakeholder identification by nature of interest and impact.



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

In the US, the National Wildlife Federation prepared a series of documents to help people engage in decisions about the oil and gas industry. [*Fuel for Thought: a citizen's guide to participating in oil and gas decisions on your public lands*](#) outlines the life cycle of a well, environmental impacts, the legal framework in place, the roles and responsibilities of regulating bodies, as well as how to be 'an effective advocate'.⁹⁸ While this document takes a clearly anti-fracking perspective, it nevertheless provides a good example of the type of information people require in order to hold an informed opinion about shale gas industry in their local area.

⁹⁸ National Wildlife Federation (2008), p.30.

4.2.3 Regulatory assessment

A strategic assessment of the industry would also evaluate the regulatory and approvals processes in place and identify reforms that may be needed. In the NT, such an exercise has been done in the 2015 Hawke Review and by the Environmental Defenders Office (EDO) Report to the Inquiry Panel. Challenges remain in gaining different types of ‘consent’ (outlined in Table 2), and especially those relating to ‘fairness’ in Land Access Agreements and benefit sharing arrangements⁹⁹. The emphasis on setting a robust regulatory regime is deliberate. Previous parliamentary and scientific inquiries into the impacts of a shale gas industry (using hydraulic fracturing) in Australia have concluded that the risks are manageable *provided the industry is properly regulated*.

This component would also look at and consider existing and new governance structures. The NT EPA is an independent Authority that already oversees the project approvals process. This structure could be enhanced to provide it with capacity to perform additional roles in compliance, performance monitoring and reporting as well as providing independent facilitation services to aggrieved landholders and gas companies. In Queensland, the [GasFields Commission](#) was established in July 2013 (during the peak of the construction phase of the projects) with powers and functions set out under new regulations, the [Gasfields Commission Act 2013](#). Its main functions were to act as an intermediary to facilitate better relationships between landholders, communities and the onshore gas industry. It also plays a key advisory role and has powers to request information from both government departments and gas companies. In 2017, the role of the Gasfields Commission was reviewed, and in light of ongoing disputes between landholders and gas companies, the [Land Access Ombudsman Bill 2017](#) was passed to establish an independent, impartial body to facilitate the resolution of disputes in relation to land access, conduct and compensation, and make good agreements, where alleged breaches or additional impacts have occurred.

The enhanced or new structure would oversee the ongoing monitoring program, the repository of data (with powers to request data as required) and facilitate the necessary industry collaboration in relation to cumulative impacts. They may also request that companies work together when engaging with local communities in order to reduce the impacts of ‘consultation fatigue’.

4.2.4 Baseline Assessment

Possibly the largest component of the strategic assessment is the collation of baseline data (as this report is about SIA, we focus on social and economic baseline data, but the same approach would be taken for environmental baseline data, particularly where they relate to environmental values with social and cultural significance, possible health impacts, or those

⁹⁹ Note that in Queensland, the majority of land access issues were in relation to freehold land, but that is likely to be quite different in the NT where Aboriginal Freehold Land and Pastoral leases are the main land tenures

over which there is widespread concern). Baseline data would usually be collected by consultants as part of a project-based EIA-driven SIA. The shortfalls of this approach for a shale gas industry in NT have been discussed in section 2.3. However, for this step to be taken by a governing body and not by a project proponent is a new development and would require new governance structures and an enduring funding model, linked to the life-cycle of the industry.

The initial baseline data collected would be for regions and/or local communities where development is imminent and would involve significant participation by local residents. Regional baseline data would also be collected. This baseline data would include identification of stakeholder values, and current assets in different types of capital 'stocks', as well as assessing trends, and aspirations for these stocks. We recommend using the Community Capitals Framework (CCF), which is well-established in community development literature and practice.¹⁰⁰ The CCF measures community development in relation to seven types of capitals including:

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

It may also be useful to add:

- **institutional** - e.g. community organisations, the effectiveness of local and regional institutions.

As census and other statistical data is limited or flawed for many of NT's remote communities (they tend to under-represent the Indigenous population), the collection of baseline data for these capitals must be a participatory process. Another leading practice model developed by CSRSM and the UQ Centre for Coal Seam Gas is of relevance in this context: the [UQ Boomtown Toolkit](#) and its supplementary [Annual Reports on Queensland's Gasfields Communities](#). The UQ Boomtown Toolkit outlines a tested approach to identifying community assets and values, and importantly, for identifying indicators for measuring those values that are meaningful and relevant to multiple stakeholders. For example, using collaborative methods to identify indicators that the industry needs for compliance and monitoring social impacts, that the community agree represent their concerns, values and aspirations and that government want to track in order to monitor cumulative impacts and regional development outcomes. For remote NT communities, social indicators may need to be 'bespoke', and more qualitative. They may require local 'data stewards' to report

¹⁰⁰ Emery and Flora (2006).

changes in bespoke indicators on a regular basis. For example, an indicator of household wealth might be how many funerals/cultural events are attended in a year, rather than economic measures of disposable income. This ‘shared measurement’ approach is being promoted as leading practice in program evaluation and has clear relevance to impact assessment in data-poor regions.

The baseline assessment would identify initial stocks of capitals, but also trends, where possible and importantly identify local and regional goals and aspirations in relation to these capitals. This information can be used by project proponents, who would still need to submit a comprehensive social risk assessment for the approvals process that outlines how their proposed activities would impact either positively or negatively on the community capitals stocks, and the strategies they propose to take to either enhance or mitigate them.

4.3 Step 2: Regional participatory monitoring & evaluation framework

In 2009 CSRSM identified leading practice in SIA as having in place regional and systems level monitoring for resource regions, particularly where social and economic impacts extend well beyond the geographic location of a single operation, and where there are interacting impacts from multiple extraction activities.¹⁰¹ In late 2016, the Queensland Government released the draft [Queensland Gas Action Plan](#) which attempts to translate ongoing community concerns about and challenges within the gas industry into actionable items.¹⁰² A key action item is the development of an online, open-access data repository for a range of industry-related information, including monitoring and compliance data. This is seen as a positive action for building trust in the industry, which is essential for building and maintaining public acceptance.

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

The idea of the online database is that it becomes an open-access resource for information. Each project-level risk assessment would be uploaded and any new indicators and data about communities would be added to the database. Ideally, communities themselves could provide data and upload data updates to the relevant indicator timeline. This would give communities ownership of the data. As the [UQ Boomtown Toolkit](#) has demonstrated, the

¹⁰¹ Franks *et al.* (2009)

¹⁰² Queensland Government, Department of Natural Resources and Mines (2016).

data can also be used by communities for funding applications, to allocate resources, to argue a need for investment, or purely to advocate themselves and their assets.

In addition to the open-access resource, there would ideally be a mechanism for periodic reporting out of key information, with accompanying analysis and interpretation of findings. This is important for industry transparency and to build and maintain trust in the industry as reported in the accompanying Report on a Social Licence to Operate. This reporting work is best done by an inter-disciplinary and purpose-specific research institution, such as the University of Queensland's Centre for Coal Seam Gas (CCSG), or CSIRO's Gas Industry Social and Environmental Research Alliance. UQ's CCSG already produces [Annual Reports for Queensland's Gasfields Communities](#), which are widely used by local and state governments, CSG companies and community groups.

The identification and management of cumulative social and economic impacts remains a key issue in Queensland gas fields communities. A comparison of social impacts of CSG development as predicted in an individual company's EIS/SIA and those identified in a study of cumulative socioeconomic impacts in the Surat Basin highlighted the importance of coordination across impact assessment studies in the region so that strategies contribute to an overarching monitoring framework.¹⁰³ A strategic and regional approach to cumulative impact assessment enables gas companies to form partnerships with other companies, service providers and communities, for negotiated and agreed community development outcomes. Strategies for social impact mitigation or enhancement can then align with existing community development programs and be targeted toward the needs and aspirations of local communities. The monitoring framework is designed to enable adaptive responses. Each project would provide information about their intentions for future development. This would allow industry forecasting and amendment to the initial development scenarios generated in the strategic assessment. The lifespan of the monitoring framework should last throughout the lifecycle of the industry, which is about 40-50 years. However, the frequency of data updates would be flexible and determined by institutional capacity, sequential development of projects, and transitioning of projects to another phase.

While this is an ideal model, it is recognised that it places additional burden on government resources, particularly in the early phases of strategic assessment, before any royalties from resource production have been generated. A lower cost version may be to create the online data repository, have all data from project-based EIS/SIAs uploaded, with conditions in place for any future projects in the region to collaborate and adapt to new information. The monitoring framework would set the agreed indicators to be monitored, with flexibility to be able to adapt to emerging issues as they arise, but responsibility for the data updates,

¹⁰³ Witt *et al.* (2017)

once the baseline is established, would be shared by the gas companies and local communities (similar to the [UQ Boomtown Toolkit](#)).

Additionally, the NT government could recover costs for the strategic assessment/fund ongoing assessment by increasing the cost of a petroleum license (PL). Currently, a company applies for an exploration permit under the *Petroleum Act 1984* (NT), administered by the Department of Primary Industry and Resources, Energy Directorate, at a cost of [A\\$5,280](#).¹⁰⁴ Once a resource is found, even if still being assessed for commercial viability, the gas company can apply to convert the exploration permit into a production-retention license (PL) (valid 5 years) at a cost of [A\\$3,967](#).⁹⁷ Increasing the cost of a PL for companies would ensure that gas companies contribute to the up-front costs of initial and ongoing impact assessment.

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

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

Under the SIA framework proposed here, each project would still submit an SIA with a comprehensive risk assessment that would consider:

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

An industry-specific project life-cycle SIA risk assessment might resemble the example in Table 4. Strategies for enhancing positive outcomes and mitigating negative impacts should be targeted towards the aspirations and needs of communities identified in the strategic

¹⁰⁴ Australian Government, Department of Industry, Innovation and Science (nd). Australian Business Licence and Information Service (ABLIS), Petroleum - Exploration Permit - Northern Territory

assessment and should be in partnership with community organisations and institutions. This approach to risk assessment is demonstrated in the Beetaloo Sub-basin Case Study Report.

Table 4: An example of an industry specific, life-cycle approach to social risk assessment

Phase	Activities	Groups affected	Positive and negative impacts		Likelihood/Significance		Strategies	Residual risk	Indicators
Exploration	Permits Land Access	Landholders TOs	Stress, time burden Inequity Misuse of royalty	Compensation Royalty payments	High,	High	Code of conduct, clear legislation, fact sheets	low	Number of complaints
	Roads Well pads Construction	Landholders TOs Tourists/camper	Traffic, dust, noise, light, visual amenity Workers	Road upgrades Local spending Housing/services	High, low		Water trucks Consultation on placement of roads	low	Traffic counts
	Roads	Commuters Travellers Landholders Transport	Disruption to travel Disruption to stock	Better connectivity Better access, improved roads Job opportunities	high	mod			
	Drilling, fracking	Landholders Local residents	Noise, light, stress	Provide sand, services	high	mod			
Development	Construction Pipelines Well pads Water treatment		Influx of workers Traffic- HVs	Job opportunities Additional housing	high				
Operations	Stimulation Some drilling Waste mgt. Infrastructure maintenance		Light, noise Dust Traffic	Local content					
Closure	Rehabilitation		Loss of employment						
Post-project/ Legacy									

The social baseline data would be used from the strategic assessment baseline data and updated or expanded to suit the EIS/SIA requirements. This minimises the need to collect baseline data multiple times directly from communities, which contributes to consultation fatigue. At the same time, stakeholder engagement processes will be critical in prioritising concerns and developing workable agreements for mitigation or enhancing strategies. Indicators for measuring the community capitals, as recommended in Section 4.2.4, would have been established in the strategic assessment. All project-based EIS/SIAs should use the same set of indicators to assess impacts and monitor change.

The SIAs here should follow leading practice as shown in Figure 2 where the phases of SIA, including profiling, impact assessment and strategy development are developed within an adaptive participatory management approach.

4.5 Implementation of the SIA Framework in the Northern Territory

4.5.1 Strategic Assessment

The NT is considered to have significant shale gas reserves¹⁰⁵ that could potentially generate a number of shale gas development and related infrastructure projects, including infrastructure (such as roads, pipelines and waste facilities) and processing. There are currently no regulatory requirements or provisions for undertaking a strategic SIA in the NT, although the need for an overarching strategic assessment of the industry has been proposed in current NT regulatory reforms (the 2015 Hawke Report), and by the Environmental Defenders Office (EDO) in their submission to the current Independent Inquiry into Hydraulic Fracturing by the Panel.

There are two possible pathways for initiating a strategic assessment. One pathway is for the NT government to approach the federal Minister for the Environment to consider entering into a Strategic Assessment Agreement with the NT under Part 10 of the *EPBC Act*, or other assessment under a bilateral agreement or Part 8 of the *EPBC Act*. The Commonwealth Environment Minister has a broad discretion to allow a Strategic Assessment and regarding its content. The NT government would first need to define a specific development area (such as the Beetaloo Sub-basin) and outline a 'program' for shale gas development in that area. The federal Minister will consider whether there are matters of national environmental significance (MNES) as defined in Part 3 the *EPBC Act* potentially affected, as these are the only triggers for Commonwealth government involvement. In the NT, there are few listed MNES, and there is very little scope for social or cultural impacts to trigger the *EPBC Act*.

If the Minister decides that the proposed program would require multiple approvals under the *EPBC Act* or that the program would potentially impact landscape scale MNES, then the Territory and Commonwealth governments enter a Strategic Assessment Partnership and

¹⁰⁵ APPEA (2017)

negotiate appropriate Terms of Reference for social, environmental and other specialist impact assessments (such as cultural impacts assessment).

Once the strategic assessment has been completed and if the 'program' for development has been approved by the federal Minister, then this would include 'approved actions' (such as individual gas projects, waste treatment facilities, associated infrastructure) that can begin without the need for further *EPBC Act* approvals.

The main limitation on Strategic Assessment under Part 10 of the *EPBC Act* is that it is limited to the impacts on matters of national environmental significance MNES protected under Part 3 of the Act. There are currently few listed MNES in the NT. While matters of national cultural heritage significance can also trigger the *EPBC Act*, places of significance need to be listed on the National Heritage List. Traditional Owners can apply to have their significant places included on the list, with no changes to the ownership of those places. The Australian Heritage Council makes an assessment of the nominated places and advises the Minister for the Environment whether or not the Council assesses that it has national heritage values. The Minister makes the final decision about which places are included in the National Heritage List.¹⁰⁶

If at some stage the *EPBC Act* was to be amended to extend the application of the 'water trigger' (see Section 2.1) from coal seam gas to shale gas projects, then all projects would need to be assessed to the requirements of the *EPBC Act* and a Commonwealth strategic assessment would be warranted.

Another limitation of a Commonwealth led strategic assessment and approvals process is that the current federal government has clearly stated its position as being in favour of shale gas development in the NT, to the point of putting pressure on the NT government to lift the moratorium. The strong and public pro-shale gas development position of the federal government could be seen to influence the Minister's discretion in relation to the approvals process.

The second and more flexible pathway is to amend existing NT legislation to provide for strategic assessment of proposed development, where a specific area and program for development has been identified. An NT led strategic assessment would not be limited to impacts on MNES. The Terms of Reference for a strategic assessment could be decided on a case by case basis and could give more weight to the outcomes of social and cultural impact assessments. The main benefit of this approach is that it could enable an independently led

¹⁰⁶ Indigenous heritage is also protected through the Commonwealth's *Aboriginal and Torres Strait Islander Heritage Protection Act 1984* and the *Protection of Movable Cultural Heritage Act 1986*.
<http://www.environment.gov.au/epbc/publications/epbc-act-indigenous-stakeholders>

impact assessment, thus mitigating the potential for issues of perceived bias, such as we identified as a limitation of the Commonwealth led strategic assessment.

Under the strategic assessment approach, baseline studies for impact assessment are no longer undertaken by project proponents or their subcontractors but are overseen either under the *EPBC Act* Strategic Assessment management body (a group within the NT Government) or, if NT legislation is reformed to include a strategic assessment mechanism, the process would likely be overseen by the existing NT EPA. Having baseline studies conducted and overseen by an independent, or government body (and not the proponent, with a vested interest in having their project approved, or the government, gives legitimacy to the baseline studies and helps build trust in the approvals process. However, this also places the burden of cost onto the public purse. Proponents should contribute to the costs of these studies and the government can recover costs by placing a levee or additional fees onto the cost of a petroleum production license (PPL).

Social baseline assessments should be undertaken by trained and experienced social scientists/SIA practitioners, who also have an understanding of the industry activities associated with the different phases of shale gas development. Such specialised expertise can be found in at least two existing research institutions, including the Centre for Coal Seam Gas at the University of Queensland (UQCCSG) and CSIRO's Gas Industry Social and Environmental Research Alliance (GISERA). While both these research institutions rely partly on gas industry funding, researchers work under strict organisational codes of conduct and national guidelines for the ethical conduct of research. A similar centre could be established in the NT at Charles Darwin University or other local institution.

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

The ongoing participatory monitoring program outlives the strategic assessment and approvals stage and so needs a more permanent governance structure than can be provided for in the Commonwealth *EPBC Act* Strategic Assessment Agreement. However, the NT EPA already has an ongoing role in compliance auditing of approved projects, and could take on

the oversight of the ongoing monitoring program, as well as providing regular independent updates on the social (and environmental, economic) performance of the industry. The NT EPA is also well placed to receive complaints about cumulative impacts that go beyond the scope of any single project or company.

4.6 Reforms needed to enable the NT Shale gas SIA Framework

To be operational, the proposed framework would require some structural innovations. These include:

- introduction of mechanisms for strategic assessment, either through reforms proposed in the 2015 Hawke Report, or possibly a Strategic Assessment Agreement under the *EBPC Act 1999*; a strategic assessment is needed to decide if the industry should go ahead and if so, under what conditions;
- establishment of an independent authoritative body, which can include enhancement of the existing NT EPA, or the National Offshore Petroleum Safety and Environmental Management Authority (NOPSEM), with powers to request information from and to facilitate the collaboration between individual gas companies, and between gas companies, government agencies (including local government), communities and landholders;
- establishment of a long-term participatory regional monitoring framework, overseen by the independent authoritative body, with secure funding (raised from industry levies, costs of PPLs) and able to endure multiple election cycles; and
- periodic and standardised reporting out to communities on the social, economic and environmental performance of the industry through an independent source, either the independent body or a specialised research institution; this includes information from the monitoring of key indicators, an industry-wide complaints and escalation process (the experience of CSG in Queensland was that each of the CSG projects reported complaints under different themes, that made it impossible to gauge industry performance).

5. Lessons learned from SIA experiences in Queensland and elsewhere

5.1 The Queensland experience

The Queensland GasFields Commission recently published a report outlining their key learnings from the Queensland experience of coal seam gas development.¹⁰⁷ While we emphasise the distinction between coal seam gas (CSG) and shale gas technologies, the lessons learned about social and economic impacts from the development of an unconventional gas industry in Queensland are relevant in the NT context. These are outlined below and discussed in relation to associated research findings.

¹⁰⁷ QGFC (2017).i8

5.1.1 Lessons about Land Access

A key lesson from Queensland is to have a clear legislative framework for Land Access in place that clearly outlines the rights and obligations of land and tenure holders, and the rights and obligations of gas companies. This may not be a salient issue in the NT as most of the land issues in Queensland arose on freehold land. However, to avoid potentially high levels of confusion and anxiety among rural landholders, as misunderstandings may arise over private property rights and the rights of gas companies, clear Land Access legislation is recommended.

Queensland's [Land Access Code](#), published in 2010 and amended in 2016, provides best practice guidelines and specifies mandatory (i.e., minimum) conditions for the conduct of petroleum lease holders (i.e., gas company personnel) on private property. The Code aims to establish compensation arrangements and support effective communication and working relationships, such as entry notices provided to the landholder by the gas company, the need for conduct and compensation agreements (CCAs) or an agreed alternative, the right of the landholder to restrict access to certain areas, a dispute resolution process, and compensation for costs incurred in negotiation of a CCA. The Queensland Government has also recently announced that the position of a Land Access Ombudsman will be created in 2018. The development comes from an independent review of the Queensland Gasfields Commission that identified the need to improve the negotiation of agreements and resolution of disputes between landholders and gas companies.

5.1.2 Lessons about coexistence

The ability to farm productively and sustainably on a property where gas operations are occurring has been referred to as 'co-existence'. The term has been popularized by the CSG industry, but many landholders do not agree that the term 'co-existence', which infers consent and mutualism, properly describes their circumstances. Researchers at UQ's Centre for Coal Seam Gas studied the relationship between agriculture and the gas industry with the dual focus of understanding 'co-existence' and how to facilitate it, and measuring the impacts of gas industry operations on agricultural businesses. The study identified three elements that are crucial for successful and improved co-existence:

- interactions between landholders and companies should be characterized as business to business interactions, (that implies a more level playing field than the traditional business to individual conception) and as such, be guided by a business ethic of respect, cooperation and adaptation;
- that adequate information is accessible to inform negotiations, and
- that third parties such as government representatives and professional advisors play an important role in building capacity and ensuring consistency.

5.1.3 Lessons about strategic planning for industry lifecycle

In Queensland, four major players were simultaneously exploring the feasibility of developing their gas tenements for LNG export, three of which went ahead with it within months of each other. This is similar to the NT where multiple companies are at different stages of exploration and feasibility testing. While the prospect of developing shared infrastructure was canvassed in Queensland, the different projects' timeframes, along with the underlying competition to be the world's first CSG-to-LNG exporter, meant that collaboration between the different projects did not materialise.¹⁰⁸ In terms of social impacts:

- some landholders had multiple pipelines crossing their land and had to negotiate with different companies;
- communities were being consulted in relation to four different EIS processes;
- SIA strategies were not well linked with local government planning; and
- local governments did not have the capacity to review multiple EIS documents, or the time to review their local planning documents.⁹⁷

The lessons learned from Queensland point clearly towards the need for greater industry collaboration in relation to SIA and particularly the management of cumulative impacts arising from multiple projects. The management of social impacts needs to be more responsive so that the significant social investment by gas companies can be better coordinated and aligned with local community needs and aspirations. Such lessons have been captured in the SIA Framework proposed here, where individual SIA risk assessments and social investment strategies are integrated within a regional, collaborative monitoring and evaluation instrument. This includes clear planning for gas field closure and rehabilitation, and legacy planning that leaves communities with assets and strengths to transition to a new economy once the industry has exited the region.

5.1.4 Lessons about workforce accommodation and housing

One of the most far-reaching social impacts arising from CSG development in Queensland's Surat Basin occurred in relation to housing supply and demand, associated price fluctuations and subsequent responses by homeowners, investors, developers, governments and companies. This issue may not be as relevant for some of the smaller NT communities, where housing supply and demand as determined by free market forces. However, the larger centres that act as regional 'hubs', and where gas-related activities may be centred, could be subject to the same types of fluctuations in demand for housing, if accommodation for the construction phase workforce is not managed early and well.

As workers initially arrive in communities, they occupy temporary accommodation (motels, company -provided camps, campgrounds and sometimes rental housing), preferably those

¹⁰⁸ Queensland Gasfields Commission (2017)

that provide house-keeping and meals. The 'second wave' of workers, associated with company staff in regional offices (who are more likely to stay for longer time periods), tends to occupy rental houses, or may choose to purchase property. Rents are driven upwards as demand grows, placing financial stress on lower and fixed income families who may be pushed to smaller, or lesser quality housing, or forced to move away altogether. Higher rents trigger property investor interest and house sales and sale prices are also pushed upwards. New housing developments proceed to capture the demand for housing, from investors and renters. This can result in an oversupply of housing once the temporary workers have left. The switch from a relatively stable rural community of long-term residents to one which has high rental accommodation and a more transient population can be distressing for those who remain.

The lesson is for local governments to be proactive and prepared, and take a long-term view on the issue of housing development, so as not to be responding to short-term fluctuations only. The construction workforce is temporary and requires short-to-mid-term accommodation, not permanent housing - unless population growth is anticipated and housing development is a long-term goal.

5.1.5 Lessons about opportunities for local businesses

Local businesses will vary in their capacity to service the gas industry. The speed at which the industry can progress can be an obstacle for some businesses unable to respond quickly. Communicating information to local businesses about pre-qualifications and other requirements for contracting, should be done early in the life-cycle of the industry to allow local businesses time to prepare. A single registry of contractors/suppliers should be established for the industry with standardised procurement processes. Local businesses must be prepared to meet the high occupational health and safety (OH&S) and accreditation standards required by multinational companies in the industry- for some local businesses, this will require a 'different way of doing things'. Some local businesses in Queensland found this 'cultural shift' initially difficult, but also personally as well as financially rewarding.

Businesses based in larger regional centres could be expected to be more capable of handling the rapid rise and rapid decline of the industry's construction period in a given area. Businesses in more rural areas can tend to lack the necessary connectedness and ability to adapt, and innovative problem-solving skills.

In Queensland, hiring and retaining staff was also difficult for local businesses as employees moved to the high-paid jobs in the gas sector. High rents also meant it was difficult to recruit people from other areas unless accommodation was part of the employment package.

5.1.6 Lessons about cumulative impacts

Current regulatory guidelines in Queensland state that the SIA must assess cumulative impacts resulting from the proposed project and other developments regionally. However, proponents are only required to mitigate impacts that are directly attributed to their own project. Furthermore, the guidelines state that mitigation measures are not required for existing issues and legacy issues that are not attributed to the project in question.¹⁰⁹ The cumulative impact assessment sections of SIAs and SIMPs from the Surat Basin projects state that there is no common, accepted method for conducting a cumulative impact assessment. A study by UQ's CCSG/CSRM was commissioned to specifically design a methodology for assessing and addressing cumulative socioeconomic impacts of CSG development. This study culminated in collaborative and participatory regional assessment framework that has been internationally acclaimed (see the [UQ Boomtown-Toolkit](#)). The UQ Boomtown Toolkit methodology forms the basis for the ongoing participatory monitoring component of the SIA Framework proposed here as leading practice for cumulative SIA.

5.2 The US shale gas experience

The US shale gas 'revolution' was characterised by its rapid pace of development and provides a cautionary tale. In the over-riding agenda to become self-sufficient in energy supply as quickly as possible, social impacts of development were largely overlooked (until there was local backlash) and regulatory frameworks were largely insufficient (until they were challenged and amended).¹¹⁰ A review of the risks posed to communities from shale gas development in the US identified four key areas of risk:

- rapid industrialisation of communities (boom and bust);
- uneven distribution of costs and benefits from the development;
- community conflict; and
- social-psychological stress and disruption.¹¹¹

The most effective responses to the negative social impacts of shale gas development were led from the community-county level. These required the development of community-scale consensus-based decision making processes.¹¹² The need to assess local institutional capacity was identified in the proposed SIA framework baseline assessment. In the NT, local governments may need to establish participatory planning processes and prepare planning documents that reflect the views and aspirations of local residents if development were to go ahead.

¹⁰⁹ Queensland Government, Department of State Development, Infrastructure and Planning (2013).

¹¹⁰ Brasier *et al.* (2014)

¹¹¹ Jacquet (2014)

¹¹² Environmental Law Institute and Washington & Jefferson College, Center for Energy Policy and Management (2014)

5.3 South Africa's Strategic Environmental Assessment for shale gas development- building trust

South African government, through Cabinet and various other decision-making institutions, has made high-level public commitments to shale gas exploration. The potential future economic and energy security benefits of a large resource of natural gas in South Africa could be substantial; as are both the positive and negative social and environmental issues of establishing a domestic gas industry in the Karoo region. In order to make well-informed decisions and help ensure that decisions will be broadly accepted by stakeholders as credible and legitimate, the government commissioned a Strategic Environmental Assessment (SEA) for shale gas development. The key aim of the project was to develop an integrated decision-making framework which will enable South Africa to establish effective policy, legislation and sustainability conditions under which shale gas development could occur.

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

- *The Conceptualisation and Methodology Phase.* The objectives were to set-up and implement all project management structures, convene the project governance groups, recruit authors and experts to the Multi-Author Teams and release a Draft Approach Report at the end of Phase 1 for expert review. This document was also made available to the public on the website.
- *The Scientific Assessment Phase.* This was the component of the study where the scientific assessment by the Multi-Author Teams for all Strategic Issues took place. At the end of this phase Draft and Final SEA reports were released for expert and public review. The expert review included peer-reviews from international experts.

The Decision-Making Framework Phase. The final phase translated the outputs from Phase 2 into operational guidelines and decision making frameworks. It was undertaken by the Project Team in close consultation with the various affected Departments. It commenced with initial drafts after the delivery of the first draft of the Assessment report, and ended with final drafts after the delivery of the final Assessment report.

The Project Teams were separated between Phase 2 and 3. The experts involved in Phase 2 were not asked to make decisions about the development of shale gas. Rather, they were asked to give an informed opinion on the consequences of different options. The decisions were to be made by mandated government authorities, who have contracted the science councils to help them in formulating the framework and content of such decisions. The assessment process culminated in November 2016, with the publication of a 1,400-page final report entitled [*Shale Gas Development in the Central Karoo: A Scientific Assessment of the Opportunities and Risks*](#).¹¹³

¹¹³ Scholes et al (2016).

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

Building public trust remains a key issue for the industry to ensure it has community acceptability, both in South Africa and in other jurisdictions. It is too early to determine whether the exercise resulted in greater trust in government and industry and broader public acceptance of shale gas development in South Africa. However, the scientific rigour, detail and transparency associated with the assessment exercise, without a doubt, provided a significant contribution to that effort.

5.4 Lessons learned from Canada

The Council of Canadian Academies was asked by the federal Minister of Environment to assemble an expert panel to assess the state of knowledge about the impacts of shale gas exploration, extraction and development in Canada. In response, the Council recruited a multidisciplinary panel of experts from Canada and the United States to conduct an evidence-based and authoritative assessment supported by relevant and credible peer reviewed research. In 2014, the Expert Panel on Harnessing Science and Technology to Understand the Environmental Impacts of Shale Gas Extraction (the Panel) published a 292-page report entitled [*Environmental Impacts of Shale Gas Extraction in Canada*](#).¹¹⁴

One of the Panel's main findings was that, relative to conventional gas, the greater scale of development and concentration of infrastructure required to produce shale gas imply increased land impacts and land use conflicts; the only effective way to manage such cumulative effects is at the regional, not local, scale.¹¹⁵ The Panel noted that management of cumulative effects requires effective implementation of strategic impact assessment processes. At the same time, the implementation of a regional strategic impact assessment to reduce cumulative effects of shale gas development requires a significant investment in human and financial resources.¹¹⁶

The Panel also found that shale gas development poses particular challenges for governance because the benefits are mostly regional whereas adverse impacts are mostly local and cut across several layers of government. Engagement of local citizens and stakeholders was identified as a key element of an effective framework for managing risks posed by shale gas development. Accordingly, the Panel stressed that public engagement is necessary not only to inform local residents of development, but to receive their input on what values need to be protected, reflect their concerns and earn their trust.¹¹⁷ As experience in several U.S. states and Canadian provinces has shown, the manner in which local people are engaged in

¹¹⁴ Council of Canadian Academies (2014).

¹¹⁵ Ibid, p. 205.

¹¹⁶ Ibid, p. 128.

¹¹⁷ Ibid, p. xix.

decisions concerning shale gas development is an important determinant of their acceptance of this development. Moreover, public acceptance is situation-specific: practices that are acceptable in one situation may not be in another. Therefore, the Panel recommended that a public engagement strategy needs to reflect these differences and be oriented to local context, capacity and concerns.¹¹⁸

In the Canadian social and political context, shale gas development must recognize the importance of addressing First Nations' treaty rights, interests and concerns. The legal relationship between the Crown and First Nations is defined by the courts through clarification of the existing Aboriginal and treaty rights. Many First Nations are uncomfortable with tripartite negotiations between the provincial, federal and First Nations governments because they see such negotiations as a derogation of the bilateralism established when the treaties were first negotiated. First Nations argue that the cumulative impacts of past authorisations for resource development in Canada have infringed on their Aboriginal and treaty rights. Specifically, they point to instances in which the Crown assigned certain procedural aspects of consultation to proponents and asked for amendments to project plans to avoid impacts on Aboriginal and treaty rights.¹¹⁹ The Panel stressed that the impact of First Nations' opposition to other major resource development in Canada indicates that the effect that Aboriginal resistance or support on future shale gas development cannot be overemphasised.¹²⁰ As many of the known commercially accessible shale gas deposits in Canada are in accepted or claimed traditional territories, the Panel recommended that First Nations need to be consulted meaningfully and early in any shale gas development process, in full respect of their Aboriginal and treaty rights.

5.5 Lessons about Good Practice Agreement Making and Free Prior Informed Consent (FPIC)

5.5.1 Good Practice Agreement Making

In the NT, with large areas of land held in Aboriginal freehold tenure, the concept of free, prior and informed consent (FPIC) provides leading practice standards for negotiating with Indigenous people. There are few cases in the world where the full FPIC process has been undertaken successfully with associated positive outcomes. In the Australian context, one resource company experienced in negotiating agreements on Aboriginal land is Rio Tinto, who work by the following principles for good practice.

¹¹⁸ Ibid, p. 208.

¹¹⁹ Ibid, p. 31.

¹²⁰ Ibid.

Box 5: Rio Tinto's Guidelines for Successful Indigenous Agreements¹²¹

A successful Agreement:

- Is perceived by all parties as voluntary and not imposed on the parties;
- Involves all of the people who can demonstrate themselves to be the land-connected peoples;
- Has been negotiated by legitimate representatives;
- Sustains implementation and performance over time, even when there are changes in company personnel and leadership;
- Acknowledges potential price fluctuations of commodities over the life of the agreement;
- Stands the test of time and is reviewed and amended as necessary, with the full support of all parties;
- Is able to be changed and improved (if all parties agree) when things are not working and supports joint adaptation and problem-solving when challenges arise;
- Has clear commitments and benefits for both parties and focuses on long-term rather than short-term goals;
- Delivers on agreed commitments and builds in incentives for all parties to ensure that agreement commitments are upheld;
- Involves agreement-making processes, content and implementation approaches that are consistent with human rights principles;
- Proactively considers future generations;
- Is based on a genuine relation of trust between parties so that the agreement implementation is driven by its spirit and intent, not the legal references;
- Provides flexible frameworks for working together rather than rigid formulas for individual action;
- Acknowledges the importance of cultural heritage and an understanding of legacy and historical issues and their effect on religious responsibilities, spirituality and culture;
- Benefits the community as a whole rather than particular individuals.

5.5.2 Lessons from Papua New Guinea

One example of an effective ([and documented](#)) agreement process is the Ok Tedi copper and gold mine in PNG. While the context was highly contentious and problematic (communities had to choose between the mine closing with no alternative income to support development and the mine continuing to pollute the river, but with an income stream), an agreement was negotiated with Indigenous people that is generally thought to provide positive outcomes. The mine was continually polluting the river after a tailings dam collapsed in 1984 and is known as an environmental disaster. There were a series of legal challenges over the environmental impacts. An FPIC process was entered into to decide whether the mine should continue or not. The outcome was the Community Mine Continuation Agreements. The lessons from this process were that it was a consultative and inclusive process in a very difficult context, but the process was also transparent in that it was well documented.

¹²¹ Rio Tinto (2016)

6. Conclusions and Recommendations

CSRM conducted a review of academic and leading practice literature on SIA, a review of the regulatory environment for SIA in the NT, and distilled lessons learned from case studies of similar developments elsewhere in order to develop a leading practice SIA framework for potential shale gas development in the NT. From these reviews, we have identified the key components needed in a leading practice SIA framework for shale gas development in the NT, gaps and opportunities in the current NT regulatory environment for leading practice SIA and lessons learned from similar developments elsewhere that are relevant for the NT.

Key Findings

Key components of a leading practice SIA Framework for shale gas in the NT

1. **Strategic assessment** for a program of development that clearly identifies the goals of the program and defines the optimum scale (and pace) of development in terms of balancing economic, social and environmental impacts at local, Territory and national scales.
2. A **strategic, adaptive, industry life-cycle approach** that aligns individual projects and their outcomes with the long term objectives of the NT *Economic Development Framework* and enables adaptive responses to community values and aspirations.
3. A **platform for communication, coordination and collaboration between multiple projects** in order to identify and respond to cumulative impacts, minimise the 'footprint' of the industry in the placing of associated infrastructure (including workers 'accommodation) and maximise long term social and economic benefits to local and regional communities.
4. In recognition of the unique circumstances of the NT, an inclusive and participatory process that pays particular attention to **human rights issues**, and the rights and vulnerabilities of Indigenous peoples
5. An **independently led, participatory** social baseline assessment, using 'agreed indicators' to measure baseline values and assets (we recommend using the community capitals framework). The indicators should be selected in consultation with local people and stakeholders. Proponent-led collection of baseline data for their prospective area of operation and the wider region tend to emphasise snapshots and predictions. It is less attuned to the monitoring and tracking of trends that are essential to adaptive management, especially in a region with scant information about the receiving social environment. This is especially concerning where multiple projects may proceed.

6. **Participatory, ongoing monitoring** of changes in the indicators. This includes periodic (annual or biennial) ‘ground-truthing’ of indicator data through interviews with local people to understand the lived experience of impacts and sustainability outcomes.
7. An **independently led community engagement** program with affected stakeholder groups to discern the significance of potential impacts and to co-develop acceptable and appropriate mitigation and enhancement strategies.
8. The SIA framework should contribute to an **open data policy** with **regular reporting** on the social, economic and environmental performance of the shale gas industry
10. Each additional project should provide an adaptive SIA risk assessment that specifically addresses **cumulative impacts** and its contribution to the development program’s objectives.

Gaps in the current NT regulatory environment for SIA

1. There are currently no mechanisms for strategic assessment (including strategic SIA) under NT regulations, although implementing strategic assessment has been accepted as a recommendation in a review of environmental assessment policy (the 2015 Hawke Report).
2. There is scope for a strategic assessment under the Commonwealth *Environmental Protection and Biodiversity Conservation Act (EPBC Act) 1999*, where matters of national environmental significance (MNES) may be affected. A [map of protected matters](#)¹²² shows there are few matters that would trigger the EPBC Act in the NT. However, if the current ‘water trigger’ for coal seam gas and large coal projects was to be extended to include shale gas development by the Commonwealth government, all NT projects would be required to gain EPBC Act approval.
3. SIA is required only as a subset of an environmental impact assessment, and as such, has the potential to be undervalued in the approvals process.
4. 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.
5. There are currently no requirements or guidelines for cumulative impacts assessment.

¹²² Australian Government, Department of the Environment and Energy, (2017) Protected Matters Search Tool <http://www.environment.gov.au/webgis-framework/apps/pmst/pmst.jsf>

Relevant lessons from similar developments elsewhere

1. The scale and pace of development determines the significance of social impacts, so too does the pre-existing / pre-project social, economic, political and cultural environment.
2. The terms of 'co-existence' between shale gas and agricultural (or other industries) needs to be negotiated on a case by case basis.
3. Social impact mitigation strategies should not be bilateral agreements (e.g. government placing conditions on operators), nor overly prescriptive (e.g. operator must construct 50 new houses). Instead, they should involve local communities (and other key stakeholders who have a role to play) and be aligned with their aspirations and needs and be 'outcomes-focussed'.
4. The social impacts of shale gas development are unevenly distributed. Those with capacity and information can prosper while inflexible or vulnerable groups can suffer.
5. Social impacts, such as impacts on local social cohesion, and psycho-social stress, arise well before there is 'a project', and these are often not adequately addressed in SIA processes.
6. There is low trust in the onshore unconventional gas industry worldwide. Trust is time-consuming and difficult to earn but quickly and easily lost. In developed countries like Australia, mass media can have a large influence on the process. But not to lose sight of the importance of managing these relationships at the ground level, especially in remote areas.
7. Local institutions need to be strengthened (ideally prior to development occurring) to address the challenges and harness the benefits that the industry can bring. SIA needs to identify existing levels of capacity within these institutions and those that would need attention.
8. Negotiations with Aboriginal Traditional Owners (TOs) should be inclusive and transparent (on agreement). General informed consent is insufficient. Details of activities should be negotiated in recognition of rights to self-determination and to ensure these groups fully understand the terms of the project and the impacts, benefits and management strategies. The placement of each well and associated infrastructure should be negotiated on a case-by-case basis with local TOs in avoid any culturally sensitive places, and 'sacred sites' as identified by the Aboriginal Areas Protection Authority (AAPA). The process for such negotiations should be fully documented.

Recommendations

1. Initiate mechanisms for strategic environmental assessment of a specific program of shale gas development (e.g. Beetaloo Sub-basin) in either NT regulations (as recommended in the 2015 Hawke Report), or in partnership with the Commonwealth government in a Strategic Assessment Agreement under the *EPBC Act*.
2. The Terms of Reference for strategic environmental assessment should include various specialist assessments, including cultural impact assessment. Due to the interconnectedness of Aboriginal peoples and their culture with environmental condition, predicting the significance of social (cultural) impacts (particularly for Aboriginal people, but also pastoral leaseholders) requires the integration of social, environmental, economic and cultural assessments.
3. Consult with the Commonwealth Department of the Environment and Energy in relation to possible amendments to the 'water trigger' under the *EPBC Act* to apply to shale gas projects, as it does for all coal seam gas and large coal projects. If the 'water trigger' were also to apply to shale gas projects, then Territory assessment processes must align with Commonwealth assessment requirements to avoid duplication.
4. Establish or enhance an independent Authority (separated from government decision making) for the oversight of the strategic assessment, baseline studies and ongoing monitoring and reporting, as well as for social and environmental compliance auditing. This could be the existing NT Environmental Protection Agency to avoid structural complexity and the fragmentation of decision making that has confounded the effective regulation of the industry in other jurisdictions.
5. Collaboration and coordination between projects, and between gas companies, government and community organisations is necessary for effective identification, assessment and responses to cumulative impacts. A platform for such collaboration (such as a multi-stakeholder working group) would ideally be linked with the ongoing monitoring platform and come under the jurisdiction of the same independent Authority.
6. Third parties should be able to report grievances, or perceived breaches of conditions to the independent Authority where grievances relate to cumulative impacts and issues beyond the scale of project-level grievance mechanisms.
7. The costs of undertaking independent baseline studies (usually conducted by project proponents) should be recovered to an extent from project proponents (who would no longer have to do them individually, but who would use the available data in their risk assessments) by increasing the cost of the petroleum production license (PPL) for operators and/or by charging an annual levee or fee for use of the baseline data and ongoing monitoring and reporting platform.

8. Produce clear guidelines and simple fact sheets for negotiating Land Access Agreements in different tenure types that outline the rights of both the landholder and the project proponent. Considerable stress and negative impact has been associated with misunderstood land rights and perceived disrespect for attachments to, and interests in land.
9. Identify strategies to build local institutional and business capacity early. To best capture the potential economic benefits of shale gas development, adequate lead-time and institutional, business and individual capacity is required.
10. Negotiations with Aboriginal Traditional Owners (TOs) should be inclusive and transparent (on agreement). General informed consent is insufficient. Details of activities should be negotiated in recognition of rights to self-determination and to ensure these groups fully understand the terms of the project and the impacts, benefits and management strategies. The placement of each well and associated infrastructure should be negotiated on a case-by-case basis with local TOs to avoid any culturally sensitive places, and 'sacred sites' as identified by the Aboriginal Areas Protection Authority (AAPA). The process for such negotiations should be fully documented.
11. Royalty payments should not be exclusive to TOs, but a community benefits trust, or other fund designed to distribute economic benefits to regions should be established. (e.g. 'Royalties for Regions' schemes such as in Queensland and Western Australia).
12. Perceptions or evidence of negative impacts on the spiritual wellbeing and social cohesion in Aboriginal communities should be given high priority in risk assessment, as personal safety could be at risk.

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