S

Social Impact Assessment

ARAFURA RESOURCES

Social Impact Assessment

Nolans Project

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Table of Contents

1. EXECUTIVE SUMMARY 5
    1.1 The SIA as a two-way process 6
    1.2 Summary of findings 10
    1.3 Summary of social impacts 16
    1.4 Mitigation and management strategies 17
2. OVERVIEW 18
    2.1 The project 18
    2.2 Purpose of a Social Impact Assessment 22
    2.3 Goal 23
    2.4 Objectives 23
    2.5 Scope 24
    2.6 Standards 25
    2.7 Methodology 26
    2.8 Community Engagement 30
    2.9 Structure of this report 31
3. EXISTING SOCIAL ENVIRONMENT 32
    3.1 The region 32
    3.2 History of the region 34
        3.2.1 Aboriginal traditional owners 34
        3.2.2 Pastoralists 35
        3.2.3 Alice Springs 38
        3.2.4 Ti Tree 39
        3.2.5 Aileron 39
    3.3 Governance and key institutions 40
        3.3.1 Australian Government 40
        3.3.2 NT Government 41
        3.3.3 Central Land Council 42
        3.3.4 Central Desert Regional Council 42
4. IMPACT ASSESSMENT 44
    4.1 Population and communities 44
        4.1.1 Description of the current population and communities 45
        4.1.2 Potential social impacts identified 55
        4.1.3 Analysis and prediction of impacts on populations and communities 55
        4.1.4 Management and mitigation on impacts on people and communities 60

4.2 Employment and economies 61
4.2.1 Bachground on the Territory's economy and educational outcomes 62
4.2.2 Key potential impacts 71
4.2.3 Prediction and analysis of impacts on economies and education 71
4.2.4 Mitigation and Management 79
4.3 Services and infrastructure 81
4.3.1 Background on services and infrastructure 82
4.3.2 Key potential impacts 88
4.3.3 Prediction and analysis of impacts on services and infrastructure 88
4.3.4 Mitigation and Management 94
4.4 Health, safety and wellbeing 95
4.4.1 Background on health, safety and wellbeing 95
4.4.2 Key potential impacts 99
4.4.3 Prediction and analysis on health 99
4.4.4 Mitigation and management 102
4.5 Natural resources and the environment 103
4.5.1 Background on natural resources and the environment 103
4.5.2 Potential key impacts 105
4.5.3 Predicted social impacts relating to the environment and natural resources 105
4.5.4 Management and mitigation 107
4.6 Culture and way of life 108
4.6.1 Overview of culture and way of life 108
4.6.2 Potential impacts on culture and way of life 109
4.6.3 Prediction and analysis of potential impacts 109
4.7 Human rights 111
4.7.1 Overview of human rights 111
4.7.2 Potential impacts on human rights 113
4.7.3 Analysis and prediction of impacts on human rights 113
4.8 Cumulative impacts 115
5. SUMMARY 117
6. NOTES 119
6.1 Note regarding limitations 119
6.2 Qualifications of the SIA consultant 119
6.3 Discussion about the impact of doing a social impact assessment 120
7. GLOSSARY 121
8. REFERENCES 123

Table of Figures

Table 1-1: Summary of content and key findings against Environment Protection Authority (EPA) Terms of Reference and SIA Guidelines 10

Figure 2-1: Map of project area and immediate surrounds 20

Figure 2-2: Map of project site and land ownership 21

Table 2-1: Risk rating assessment: categorisation of likelihood and consequence levels to assess impacts for study 26

Table 2-2: Outline of methodology 29

Figure 3-1: Map showing Alice Springs and the project area 33

Figure 3-2: Map showing elements of the project and land ownership 37

Table 4-1: Key findings for Population and Communities and how they address Terms of Reference and EPA Guidelines 44

Table 4-2: Overview of key comparative ABS data 46

Table 4-3: Table indicating growth in migrants to Australia who have moved to Alice Springs 48

Table 4-4: 2011 Census summary data at a community level (www.censusdata.abs.gov.au, viewed 18 May 2015) 50

Table 4-5: Potential social impacts in relation to population and communities 55

Table 4-6: Key findings on Employment and Economies and how they address TOR and SIA Guidelines 61

Table 4-7: Enrolment, attendance and outcomes in a selection of schools in the study area 68

Table 4-8: Potential social impacts in relation to employment and economies 71

Figure 4-1: Summary of suggestions to improve Aboriginal employment 80

Table 4-9: Key findings on Services and Infrastructure and how they address TOR and SIA Guidelines 81

Table 4-10: Public housing applications as at 31 March 2014 84

Table 4-11: Key statistics on public housing in Alice Springs 84

Table 4-12: A summary of the capacity of schools in the Anmatyerr region 86

Table 4-13: Potential social impacts in relation to services and infrastructure 88

Table 4-14: Key findings on health, safety and wellbeing and how they address TOR and SIA Guidelines 95

Table 4-15: Potential social impacts in relation to services and infrastructure 99

Table 4-16: Key findings on natural resources and the environment and how they address TOR and SIA Guidelines 103

Table 4-17: Potential social impacts in relation to natural resources and the environment 105

Table 4-18: Key findings on culture and way of life and how they address TOR and SIA Guidelines 108

Table 4-19: Potential social impacts in relation to culture and way of life 109

Table 4-20: Key findings on human rights and how they address TOR and SIA Guidelines 111

Table 4-21: Potential social impacts in relation to natural resources and the environment 113

1. EXECUTIVE SUMMARY

The purpose of this Social Impact Assessment (SIA) is to map likely change from Arafura Resources Limited's (Arafura) Nolans Rare Earths Project (Nolans project), predict and assess consequent beneficial and detrimental impacts on people and communities and outline how these impacts will be enhanced, mitigated and managed over the life of the project.

The steps for preparing this SIA began with scoping key areas for study based on a desktop study and literature review to identify likely issues, then develop a risk and opportunity matrix that informed an initial grouping of impacts. A key element of the SIA is adopting the International Association of Impact Assessment's (IAIA) guidelines for social impact assessment released in April 2015, which considers how projects impact on people's lives, livelihoods and lifestyles. The IAIA Guidelines for Social Impact Assessment (2003) were used to group the potential positive and negative impacts into the following categories:

- population and communities
- employment and economies
- health and wellbeing
- services and infrastructure
- natural resources and the environment
- culture and way of life
- human rights.

The next step was to gather quantitative baseline data, such as the 2011 Census, and develop profiles of the area under study. This data was then tested against more recent sources of information and qualitative insights from Arafura's community consultation and 36 specific SIA interviews.

The findings were further tested in a cross-disciplinary risk workshop which rated some of the initial predicted impacts as lower risk or immaterial. Given the high level of uncertainty about any impacts relating to people and perceptions, these remain in the SIA as potential impacts but are not analysed in detail.

The SIA then draws on this qualitative and quantitative research, stakeholder feedback, the literature review, risk assessment and subjective judgement to analyse and predict the likely change and positive and negative impacts of the project, both intended and unintended, and how beneficial impacts might be augmented and detrimental impacts mitigated or managed.

Social risks are necessarily harder to quantify than technical risks because of these high levels of uncertainty and because many are based on perceptions, or human emotions, which suggests the importance of a precautionary approach and mechanisms in the Social Impact Management Plan (SIMP) that allow for adaptive management of emerging issues.

Indicators by which impacts can be tracked against baseline data are expanded on in the SIMP, along with a series of management plans and commitments to guide continued engagement with the community, monitoring and reporting.

The SIA and SIMP should give the regulators confidence that Arafura has carefully considered the impacts of its project on people and communities, has prioritised them adopting a risk-based approach, aims to be a good

corporate citizen and will hold managers accountable for commitments given. The desired outcome is that the SIMP guides the company's social performance over the life of a project, well beyond the regulatory process.

The SIA acknowledges the concept of free, prior and informed consent when considering the social impacts of a project on vulnerable, marginalised or disadvantaged peoples and the study draws on insights gained through meetings with the traditional owners coordinated by the Central Land Council (CLC) and independently by Arafura. However, limitations on this engagement include the risk of the SIA process of itself creating the impact of heightened expectations and reservations by the CLC on the extent of engagement at this stage of the project. Therefore, the SIMP recommends mechanisms, such as a community reference group, to ensure good ongoing communication and engagement once the project has greater certainty of proceeding.

In addition, the SIMP should give the community confidence that Arafura, as the proponent of the Nolans project, gives equal weight to both its social and regulatory licences to operate, will do its best to realise benefits from the project, is realistic, honest and transparent about the potential negative impacts and will do its best to avoid, reduce or manage these impacts.

1.1 The SIA as a two-way process

A key element of preparing this SIA is the high level of uncertainty about aspects of the project definition outside Arafura's control – mainly workforce issues and other social and economic influences in the area of study - which in turn make predictions of impacts a subjective and qualitative process. A valuable aspect of preparing the SIA has been two-way communication with Arafura, with results of the research informing aspects of the project description, in particular workforce and community benefits issues, and highlighting risk early.

Some of the issues raised will be significant challenges for Arafura, or any other proponent operating in a sparsely populated area with high socioeconomic disadvantage. Mitigation measures and management commitments will help realise opportunities and mitigate risks but the SIA findings would suggest that it is important to acknowledge the high levels of uncertainty relating to the project's social impacts, manage expectations about the likely success of turning opportunities into actual benefits, acknowledge that many factors are outside Arafura's control and that the cumulative impacts of other projects could change the risk ratings.

AN ILLUSTRATION OF UNCERTAINTY IN PREDICTING SOCIAL IMPACTS

The primary example of how a big project brings major change to a relatively small community is potential workforce scenarios. None can be determined with certainty and all have positive and negative direct and indirect impacts. The purpose of this analysis is to help guide decision-making about an appropriate and realistic workforce mix and measures that may be required to maximise the potential benefits.

Scenario 1

Arafura exceeds its goal of employing traditional owners and Aboriginal people living in nearby communities such as Ti Tree and Laramba: This is good for the economy, creates a flow of higher wages, supports ranger programs and good environmental outcomes, a compensation package improves the quality of life of traditional owners and local residents and there is kudos for Arafura. However:

- while on the face of it there should be a logical fit between available jobs and high levels of unemployment, the scarcity of a work-ready labour pool and the frustrations of other proponents trying to employ local workers (Aboriginal and non-Aboriginal) suggests it will be challenging to employ and retain Aboriginal workers, particularly in the short-term
- an influx of Aboriginal people back to the region because of jobs at the mine could compound pressures on overcrowded public housing in communities such as Laramba, Six Mile and Alyuen
- should an influx of Aboriginal workers create a need for additional accommodation (including when not working), there is negligible public or private housing in nearby communities or towns such as Ti Tree and any permanent or temporary accommodation solutions in these communities will put pressure on other services such as power, water, police and the health clinic
- higher paid jobs at the mine could mean positions are filled by workers leaving existing jobs, particularly with the Regional Council, with limited net increase in local employment and pressures for existing employers in backfilling the positions and continuing to deliver services
- potential conflict between families over who gets jobs and new power structures created by jobs at the mine
- pressure on families, grandparents and childcare if one or both parents get work at the mine and lives at the workers' village
- transport considerations to ensure people can get to work, include low private ownership of cars and the need to get licences (which may in turn offer transport business opportunities)
- some people may want to commute daily, if they live close to the mine, others to spend their roster at the workers' accommodation
- workers are 'humbugged' (pressured) by family for their wages or spend money on alcohol and gambling
- dashed expectations for those who fail to get or retain jobs.

Scenario 2

Arafura employs Aboriginal people from Alice Springs, which may include traditional owners who have moved away from their country but also many non-Anmatyerr people. This is good for wages and the economy. There are likely good links to local schools and trade skills, in turn increasing net Aboriginal employment at a time when a large cohort is entering the Central Australian workforce. Wages are invested in private home ownership. However, potential impacts include:

- a potential loss of good workers from other jobs, creating pressure on government departments and private employers to find replacement workers
- jealousy if the workers are seen by the local community as outsiders and winning jobs over local people

- because of their shifts, people are no longer available to volunteer in organisations or play sport
- pressure on families while workers are away.

Scenario 3

Arafura employs other Central Australian residents to work at the mine. While labour force statistics suggest negligible unemployment amongst the work-ready and an apparent decline in the Alice Springs' non-Aboriginal population, an interesting finding is the large number of migrants who have settled in Alice Springs since the 2011 Census mainly for work. It may be that a large proportion of Arafura's workforce is drawn from these migrants who encourage friends and family to come to Alice Springs for work at the mine. Their employment will be good for wages and give people new skills. Good jobs will keep many of these people in Central Australia where they will contribute to the local economy and multicultural blend of the town. Potential challenges include:

- pressure on families and the need for childcare
- the need to take account of any cultural needs
- potential jealousy by local Aboriginal people if they don't win jobs
- potential inflationary pressures from higher mining wages
- a loss of skilled labour from other employers.

Scenario 4

Arafura recruits families to come and live in Alice Springs, the key regional centre servicing the Nolans project, including managers, mine workers and people working for Alice Springs-based suppliers: This scenario is good for the town, brings in families who become part of the community, retains wages in the local economy and builds the capacity of the town to service resource projects. It is more likely to occur in operational stages of the project. The Government advises that there is capacity in the education system and private housing market to absorb newcomers. Overall, this is a positive scenario but potential issues are:

- other resource companies report that it is hard to recruit people to live in Alice Springs
- while there could be a collaborative recruitment campaign, the cumulative impacts of several large projects happening at once would alter current predictions of low impacts on the cost of living and service delivery in Alice Springs
- bus-in, bus-out workers may find it hard living away from their extended families, particularly if one breadwinner is working shifts at the mine
- there could be fears that the influx of a new demographic will change the character, or cohesion, of the town.

Scenario 5

Arafura relies on fly-in, fly-out workers, particularly during the construction phase, takes them direct to the Nolans project workers' accommodation and quarantines them from nearby communities to reduce the impact of largely young, single men. This reduces negative impacts on Alice Springs and Anmatyerr communities, but could lead to:

- a leakage of economic benefits to workers' home communities, with few benefits to Alice Springs
- complaints about limited local employment and spending in Alice Springs
- social impacts from worker behaviour, particularly if they abuse alcohol or drugs and frequent licensed premises on their days off (including predicted large numbers staying at the Aileron Roadhouse during peak construction)
- the need to enforce strict codes of behaviour for workers, such as protection of cultural sites, staying out of communities, not bringing alcohol, guns or pets to site
- potentially a lack of cultural empathy with local people

- managing the health and welfare of fly-in, fly-out workers away from their extended families, including suicide and depression
- pressure on the affordability and availability of airline seats and hotel rooms in Alice Springs and crowding out tourists
- additional costs for the company
- community jealousy at locals not getting jobs
- complaints that the character of the town has changed, due to an influx of single, young males in mining clothes.

Other options explored include the use of workers on 457 visas if other workers can't be found, labour hire companies and the Sentenced to a Job program that provides prison labour. (Given the current downturn in the resource industry, it is predicted that any FIFO workforce would come from other parts of Australia, rather than overseas.)

1.2 Summary of findings

Summary of key issues for study from EPA's Terms of Reference (July 2013) and Economic and Social Impact Assessment Guidelines (May 2013).

These and other issues raised during consultation, research and risk assessment for the project are addressed in chapter summaries, along with suggested management strategies.

Table 1-1: Summary of content and key findings against Environment Protection Authority (EPA) Terms of Reference and SIA Guidelines

Requested in Nolans Project TOR or EPA's ESIA guidelines	Key findings	Where addressed in EIS studies and SIA
4.2 Risks to historic and cultural heritage, including: • identification of heritage of cultural sites • outline of consultation with traditional owners for areas potentially affected, use of project area and any spiritual or cultural significance of potentially affected areas.	Impacts on cultural and historical heritage include perceptions of impacts on the landscape and cultural sites and perceptions of cultural practices, such as hunting and food gathering. It is predicted that, based on work done with the Aboriginal Areas Protection Authority, Central Land Council and traditional owners to understand and manage impacts, the likelihood of disturbance is low but community concerns need to be addressed through good communication and engagement.	Indigenous and Historic Cultural Heritage Assessment Appendix U; Consultation report (Appendix H); SIA Section 4.6
4.5 Socio-economic risks (most issues stipulated in the TOR are economic not social)		
• Summary of the project's economic feasibility	Project description Economic study	Economic study at Appendix T
• Details of financial capacity to implement the project, significance of potential risk to implementation and proposed mitigation measures, including the capacity to cost for mine close and care and maintenance activities	Arafura	Economic study at Appendix T
• Opportunities available to regional centres based on the activity generated by the project (construction, rehabilitation, operation)	Arafura Economic study ACIL Allen The SIA suggests that the regional centre of Alice Springs is likely to benefit from the project by providing services such as accommodation and supplies to the project. Alice Springs will also benefit if workers can be recruited to live in the town with their families, increasing expenditure in the local economy.	Economic study at Appendix T SIA Section 4.2
• Current and projected availability of goods and services to existing users in the region, e.g. availability of accommodation, emergency medical services, tradespeople and transport services	The SIA discussed issues such as whether Alice Springs businesses will have the capacity to supply the project and the need for good communication to enhance preparedness. The potential impact on the local workforce is addressed, including competition for labour and inflationary impacts. The impact on short-term and tourist accommodation is addressed, as well as the potential impact on the labour force and crowding out of tourism if all rooms are taken by FIFO workers. The impacts on a range of government and municipal services are addressed under Services and Infrastructure.	Economic Study at Appendix T SIA Section 4.2 Section 4.2 Section 4.3
• Outline of the net economic benefits of the project	The project is likely to generate both opportunities and risks, depending on whether expectations of local business participation can be met and the extent to which a local	Economic study Project description of EIS

Requested in Nolans Project TOR or EPA's ESIA guidelines	Key findings	Where addressed in EIS studies and SIA
	workforce can be engaged. It is likely that Alice Springs will be a key service and supply centre for the project and economic benefits will be generated from company activities, particularly if families can be encouraged to relocate to the town. Expectations of the project will be heightened by a decline in economic activity in Central Australia, particularly in the mining sector. Fully realised, the benefits to the local economy are substantial and highly likely, but there is uncertainty based on the history of other major projects trying to procure workers and supplies in the Alice Springs economy. Arafura will work with the local Chamber of Commerce, Northern Territory Government and Industry Capability Network to communicate opportunities and package work in a way to enhance local opportunities.	SIA Section 4.2
ESIMP to include		
Describe how the proponent proposes to manage any identified risks of economic, social or cultural impacts (include tourism) from the project or workforce	These are all included in the SIMP	SIMP at Appendix 1 of SIA Summary at 1.3 of SIA
Describe how potential local and regional business and employment opportunities will be identified and managed		As above
Include measures to mitigate negative economic and social impacts on the locality and region		As above
Provide outcome and assessment criteria that will give an early warning of measures not working		As above
Provide a stakeholder communication strategy, including identification of and ongoing consultation with all relevant stakeholders		As above
Include a mechanism for monitoring and reporting any identified potential socio-economic and cultural impacts		As above

Additional requests in ESIA guidelines (Nov 2013)	Key findings	Where addressed in EIS studies
**** Note that many additional impacts were identified in the risk assessment process so impacts are not grouped in the same way as listed here but according to IAIA Social Impact Assessment guidelines.*		
5.1.1 Economic Assessment, impacts: Contribution to the NT and Australian economy	Economic study With some qualitative research and assessment based on local interviews	Mainly Economic Study at Appendix T SIA Section 4.2
5.1.2 Contribution to business development, including value of business supplies	Arafura project description Economic study and modelling Industry Participation Plan Plus qualitative feedback from SIA interviews	Economic study SIA Section 4.2
5.1.3 Contribution to employment and training, Indigenous employment and	Arafura has a key goal of maximising local employment and training, including opportunities for Indigenous people.	SIA Section 4.2

Additional requests in ESIA guidelines (Nov 2013)	Key findings	Where addressed in EIS studies
expected level of overseas recruitment	However, quantitative and qualitative analysis suggests other employers have struggled to find work-ready staff (as above)	
5.1.4 Contribution to Regional Development, including value of community benefit arrangements, overall regional benefits, other contributions to local communities, community value of residual infrastructure	This is covered ACIL Allen's quantitative data and qualitative feedback from SIA interviews. Details to come from Arafura about agreement with CLC. The services and infrastructure section of the SIA examines potential impacts on services and infrastructure in the project area and Alice Springs. It refers to potential benefits from the project, which include regional economic development should the mine and horticultural projects lead to development of Ti Tree and the potential for enhanced telecommunications in the region. Arafura's road infrastructure is unlikely to contribute to local use.	Economic study at Appendix T SIA Section 4.3
5.2 Economic assessment to use standard risk assessment procedures	Arafura risk assessment	Risk assessment at Appendix G Economic study at Appendix T
6. Social Assessment: to be based on consultation with and involvement of the community. To be independent of proponent and based on IAP2 spectrum of public participation.	There was extensive consultation for this project, both generally for Arafura, and specifically for the SIA. The consultant is an experienced IAP2 practitioner and consultation was based on a strategy that incorporated a thorough stakeholder identification and analysis, objectives that reflect IAP2 core values and the spectrum of participation. A further round of consultation is proposed, including community meetings.	Consultation Report at Appendix H Summary at 2.8 of SIA
6.1 Document to include description of the local and regional social environment, including:	Contained in the existing social environment section of the SIA, which describes the region, its history, governance, key institutions and communities including Aboriginal and pastoral history.	SIA Section 3
• population density and distribution	The project is planned for a sparsely populated region of the Northern Territory.	Section 4.1 of the SIA, including Table 4-2
• demography and social characteristics	Census data from 2011 shows that 18.6% of the Alice Springs population is Aboriginal, compared with 26.8% for the Territory and 80% for the Central Desert Local Government Area that includes communities nearest the project. The Aboriginal population of Alice Springs and communities near the project are characterised by high levels of unemployment and socioeconomic disadvantage, higher levels of overcrowding, a lower age profile and lower completion rates for school. There is low unemployment amongst the non-Aboriginal population of Alice Springs and 61.4% of Alice Springs Local Government Area residents aged over 15 had post-school qualifications in 2011, compared with 56.5% for the Territory and 38.7% for the Central Desert Local Government Area. A key finding is that since the 2011 Census there has been an influx of migrant families from countries such as India, the Philippines and Sudan coming to Alice Springs to work which is changing the demographic composition of Alice Springs, while there has been an outflow of other non-Aboriginal residents. The town of Ti Tree is largely a town providing municipal, government and retail services to surrounding Aboriginal communities, which provides for an unusual demographic	Section 3 of the SIA Section 4.1 provides an outline of the communities covered by this study including Census summaries See in particular Tables 4-2 and 4-3

Additional requests in ESIA guidelines (Nov 2013)	Key findings	Where addressed in EIS studies
	profile. Although half the town is non-Aboriginal, there are almost no non-Aboriginal children recorded in the 2011 ABS Census data and there was 0% unemployment. No non-Aboriginal children were attending Ti Tree School in mid-2015. Other nearby communities contain mainly Anmatyerr residents, with smaller numbers of Warlpiri.	
• native title holder/ traditional owner groups	This is covered in both the SIA and the Indigenous and Historic Cultural Heritage Assessment (IHCHA). Native Title holders are Anmatyerr people who live in nearby communities such as Alyuen, Ti Tree, Laramba, Pmara Jutunta and Alice Springs.	SIA 3.2.1 IHCHA at Appendix U
• other landholders	This is covered in background of the social environment of Alice Springs and pastoralists in the project area and the population and communities section of the SIA.	Sections 3 and 4.1 of the SIA
• local government	Governance and key institutions, including Central Desert Regional Council, are covered in the existing social environment section, with references to other issues relevant to local government throughout the SIA	Section 3.3 in particular
• towns and residential communities	A description of Alice Springs and communities near the project is covered in the section on the existing social environment, with specific elements covered throughout the report	Section 3
• transience (e.g. tourist numbers and distribution)	An analysis of population composition and mobility is covered in the Population and Communities section of the report, while tourism data is contained in the Employment and Economics Section.	Section 4.1 Section 4.2
• major industries, sources of income and employment	A description of key communities in the study area includes 2011 Census data on incomes. The Economic and Employment Section f the SIA provides an outline of key economic sectors.	Economic Study at Appendix T Section 4.1 Section 4.2
• community infrastructure and services	Existing infrastructure and services in Alice Springs and communities near the project are discussed in Services and Infrastructure, which also analyses the potential impacts of these by the project.	Section 4.3
• housing availability and affordability	There is detailed discussion of public and private housing affordability and availability under Services and Infrastructure. The study finds there is a severe shortage of public housing in Alice Springs and communities near the project. This is less likely to be an issue in Alice Springs but there could be pressure on housing availability in communities near the mine if there is an influx of Anmatyerr people wanting to work with the project. The project may also generate demand for public and private housing in Ti Tree where there is currently no excess capacity, with flow-on effects for services such as power and water.	Section 4.3
• community cohesion and inclusion, including patterns of social interaction and social foci	The Population and Communities Section covers issues such as community cohesion and resilience in Alice Springs and communities nearer the project and potential impacts from an influx of workers, either to live in these places or as FIFO workers interacting in local communities. In general, the level of likely employment with the project suggests impacts will be minimal in Alice Springs. However, an influx of Aboriginal and non-Aboriginal workers, higher wages and any royalty payments has implications for	Section 4.1 of the SIA

Additional requests in ESIA guidelines (Nov 2013)	Key findings	Where addressed in EIS studies
	alcohol consumption and conflict, impacting on community cohesion and resilience in communities near the project. This was a frequent issue raised in interviews for the SIA.	
• places appreciated/used for cultural, recreational and aesthetic reasons	The key impacts on cultural and recreational facilities is covered under the Natural Resources and Culture and Way of Life Sections of the SIA and in the Indigenous and Historic Cultural Heritage Assessment (IHCHA). The SIA does not predict significant impacts on areas such as Annas Reservoir Conservation Reserve and valued water resources. The IHCHA covers a number of archaeological sites and sites of significance in or near the project site.	Section 4.5 Section 4.6 IHCHA Report at Appendix U
• attitudes to the project held by various socio-economic groups	Attitudes towards the project are mainly covered in the consultation report, with some reference to academic discussion of the impact of resource projects on Aboriginal populations.	Consultation Report at Appendix H
6.2 Development proposal – to document: • recruitment policy • likely additions to the population • demographic characteristics of the additional population • accommodation arrangements for the additional population • services to be provided to the additional population by the proponent	Project description provides an outline of likely workforce. The characteristics of the workforce population is uncertain but the population and communities section makes an attempt to predict worker characteristics based on desk research, analysis of the Alice Springs and Anmatyerr communities and experiences of other projects. The SIMP includes a commitment to develop a Workforce Development Plan.	Project Description
6.3 Potential Social Impacts – using standard risk assessment. To cover:	Arafura risk assessment SIA risk and opportunity assessment done as part of scoping process.	
• safety	Key topics discussed in the SIA include: • road safety • community cohesion and safety	Risk 37 (from general risk assessment table)
• employment opportunities	Discussed in Employment and Economies section, which also includes impacts of the project decreasing the available labour force for other sectors	Social threat 3 Opportunity 19 Threat 5
• training opportunities	As above	As above
• housing availability and affordability	Covered under Government Services in the SIA. In the communities near the project, there is little capacity to provide additional public housing or meet any demand for private home ownership or rental. Any increase in the workforce would put pressure on current levels of overcrowding. Alice Springs has the capacity to absorb any likely increase in local workers. Given the likely high proportion of FIFO workers, there is not likely to be a major impact on housing affordability and availability. Arafura will build a workers' accommodation village for 400.	Threat 7
• amenity	Impacts on amenity from environmental impacts is covered under Environment and includes the impact of additional traffic	Threat 13 Threat 15

Additional requests in ESIA guidelines (Nov 2013)	Key findings	Where addressed in EIS studies
	on Aileron station, the scale of the project, presence of an accommodation village on the property and impacts of dust, noise and additional roads on Aileron Station. Amenity includes fears about impacts on public health, such as radiation effects on workers or nearby communities. Other aspects of amenity are addressed under community cohesion and resilience.	
• service provision	Covered under Services and Infrastructure	Opportunity 21
• recreational and cultural opportunities	The project is unlikely to have any impact on recreational and cultural opportunities, except through community benefits and sponsorship.	Threat 16
• community cohesion and inclusion	Impacts on community cohesion and resilience are discussed under Population and Communities. A large influx of workers could impact on the cohesion and resilience of Alice Springs, however this is unlikely given the scale of the project. Community cohesion and resilience could be impacted in Anmatyerr communities near the project through an influx of Aboriginal workers wanting to live in the community for jobs at the mine, or if distribution of benefits and higher wages leads to in-migration of families, substance abuse and community conflict.	Threat 1 Threat 2 Threat 11
Economic and Social Impact Management Plan To include: • an overall summary of the ESIMP • stakeholder engagement strategies now and for the life of the project • prioritisation of predicted impacts • mitigation and management strategies for identified risks, including register of agreed activities and commitments • monitoring, reporting and review mechanisms • mechanisms to resolve new and emerging issues as they transpire and amend the ESIMP • a communication strategy	All these items are covered in the Social Impact Management Plan	SIMP at Appendix 1 of SIA See summary of mitigation and management strategies at 1.3 of SIA
Qualifications of the SIA consultant		6.2 of SIA

1.3 Summary of social impacts

Research and analysis for the Nolans project SIA suggests that the biggest likely changes, and consequent social impacts, will flow from the large workforce likely to descend on a relatively sparsely settled area with a high level of disadvantage and a broader economy that is highly susceptible to fluctuations caused by the ebb and flow of government and private sector activity in Central Australia.

The key opportunities of the Nolans project will be the sustainable growth of local economies, the chance for Anmatyerr people to get real work on their own country, reduced levels of disadvantage, Indigenous enterprises and community development. However, for sustainable growth – which leaves a positive legacy for future generations – change needs to happen at a pace the community can absorb while maintaining a delicate equilibrium of social, natural, economic and community capitals.

Potential detrimental impacts include rapid growth exceeding the community's capacity to absorb change, the risk of local people feeling side-lined by the project, community and family conflict arising from changed populations and higher disposable incomes, change in vulnerable populations from an influx of newcomers, pressure on services and other economic sectors such as tourism, and sudden changes to culture and amenity in a region where Aboriginal and non-Aboriginal residents alike have strong links to their heritage, history, culture and land.

Community perceptions of these impacts are referred to throughout this SIA and in the attached Consultation Report (Appendix 1).

The SIA complements and cross-references to the Economic Study for the project at Appendix T.

1.4 Mitigation and management strategies

Management strategies and policies that could help address or mitigate the risks or enhance the potential benefits of the Nolans project are captured in the Social Impact Management Plan (SIMP). The SIMP will guide the company's social performance and management of impacts throughout the life of the proposal. These include:

- suggested mechanisms for good community relations and communication
- an employment and workforce development plan to maximise local jobs, including work experience, scholarships, working with schools and organisations that promote leadership and work-readiness skills
- sponsorships
- a local industry participation plan, including local content strategies in procurement
- a worker code of conduct and two-way cross-cultural awareness programs
- support of workers, including mentoring, money management, literacy and numeracy programs, life skills, health programs, accommodation, rosters and working with families to improve retention rates
- a short-term accommodation plan to avoid crowding out of other economic activities such as tourism and cater for a largely temporary workforce near the mine site
- grievance mechanisms to ensure issues can be raised and resolved (UN Guiding Principles on Business and Human Rights 2011 are based on a framework of protect, respect and remedy)
- a community benefits package (through agreement-making with the CLC, including an Indigenous Land Use Agreement that covers jobs, community development, capacity building and, where possible, minimal cash royalty payments)
- participatory land management and monitoring plans, including use of ranger programs
- governance arrangements to put the SIMP into action, including a local community reference group
- a social impact monitoring program, including indicators to measure and report against, a community report card, mechanism to capture and respond to emerging issues and a mechanism to report to (such as the community reference group).

Appendices supporting the SIA and SIMP are:

- Appendix H – community consultation report
- Appendix 1 to this SIA – Social Impact Management Plan.

2. OVERVIEW

2.1 The project

Arafura's Nolans project covers a rare earths open cut mine, a concentrator, processing plant, permanent and temporary accommodation villages, ancillary plant and supporting infrastructure near Aileron, 135 km north-west of Alice Springs.

Arafura plans to mine, concentrate and chemically process rare earths at the Nolans Site (Figure 1-1) then transport an intermediate product to a separate offshore plant for final processing into high-value rare earth products.

The project is on Aileron Station, one of many pastoral properties owned by pioneering Central Australian families, and the traditional land of the Anmatyerr people who live in the nearby Alyuen outstation, Pmara Jutunta (Six Mile), Laramba 50 kilometres to the west, other camps and communities around the town of Ti Tree 55 km to the north and in the regional centre of Alice Springs.

It is proposed to start construction in 2017, with a peak construction workforce of between 400 and 500, leading to operations three years later with an estimated workforce of 250 to 300. Based on the predicted work-ready workforce, it is likely that 70 per cent of workers will be fly-in fly-out (FIFO) from other parts of Australia and 30 per cent will come from local communities, Alice Springs or other parts of the Northern Territory (including families who relocate to Alice Springs to work at the project). FIFO workers will be flown to Alice Springs and bussed to site. Alice Springs and other local workers will be bussed to site to reduce the use of private vehicles.

Arafura will build an accommodation village to accommodate 400 workers, with some additional contractors and visitors likely to stay at the Aileron Roadhouse, 10 km east of the project site.

Key elements of the project include:

- an open cut mine with an initial mine life of 43 years, producing 20,000 tonnes a year (tpa) of rare earth products
- a concentrator that crushes, grinds and concentrates the mined ore and pumps impurities to a tailings dam
- a slurry pipeline from the concentrator at the mine site to the processing plant
- a sulphuric acid plant, residue storage facilities and evaporation ponds
- a gas offtake pipeline from the Amadeus Basin to Darwin high pressure gas pipeline and an 18 MW gas-fired power station
- bores at Reaphook Hills, with water pumped to a desalination plant and demineralisation plant
- a sealed road from the Stuart Highway to the mine
- trucking rare earth concentrate to Alice Springs and railing it to the Port of Darwin for export to an offshore chemical processing plant.

The area of study primarily covers the project site, nearby communities likely to experience positive and negative social impacts, Ti Tree as the closest town to the Nolans project, Laramba as the closest site to the borefield and the regional centre of Alice Springs. The Economic Study (Appendix T of the EIS) models likely economic benefits for the region, Northern Territory and Australia.

Figure 2-1: Map of project area and immediate surrounds

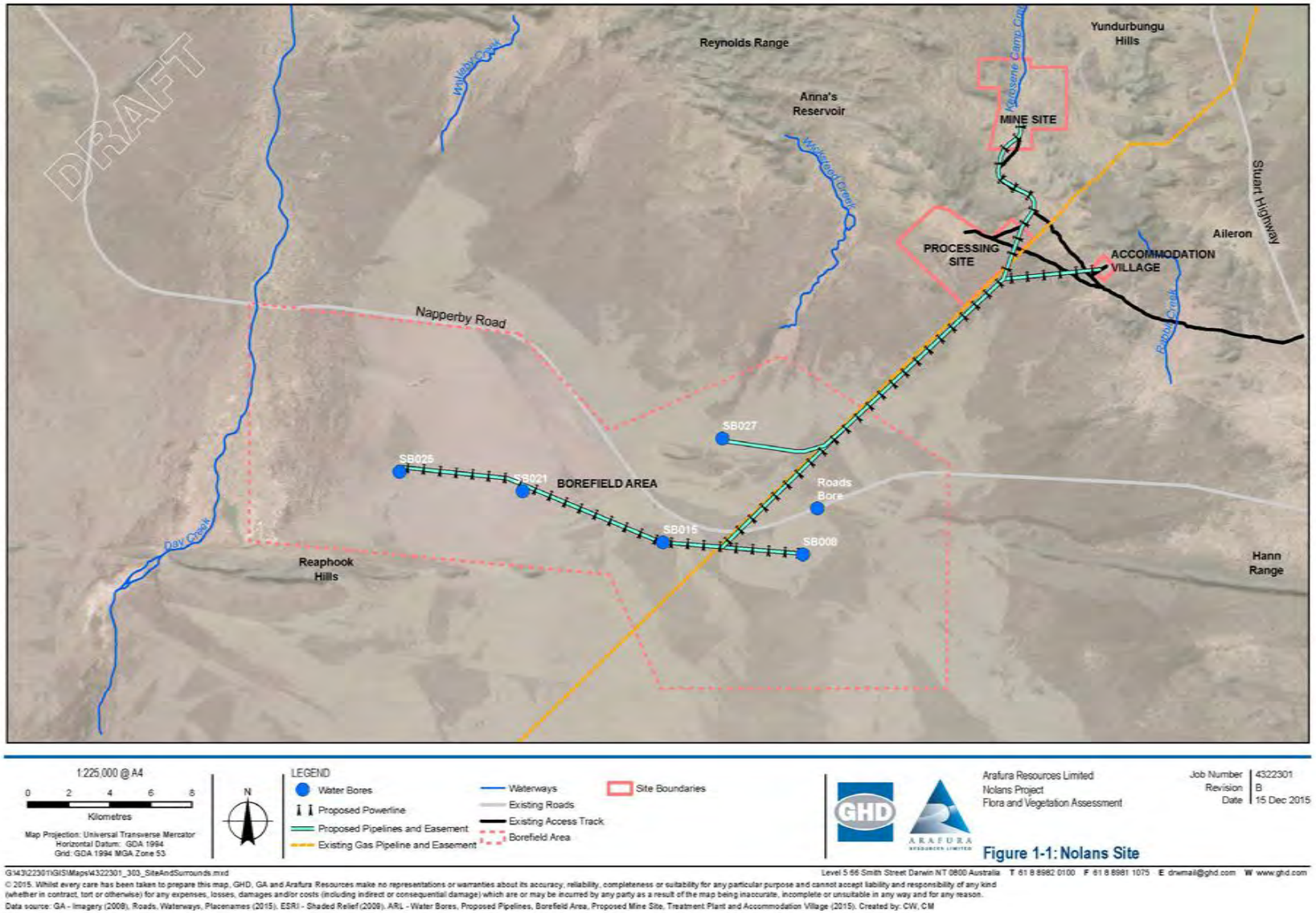
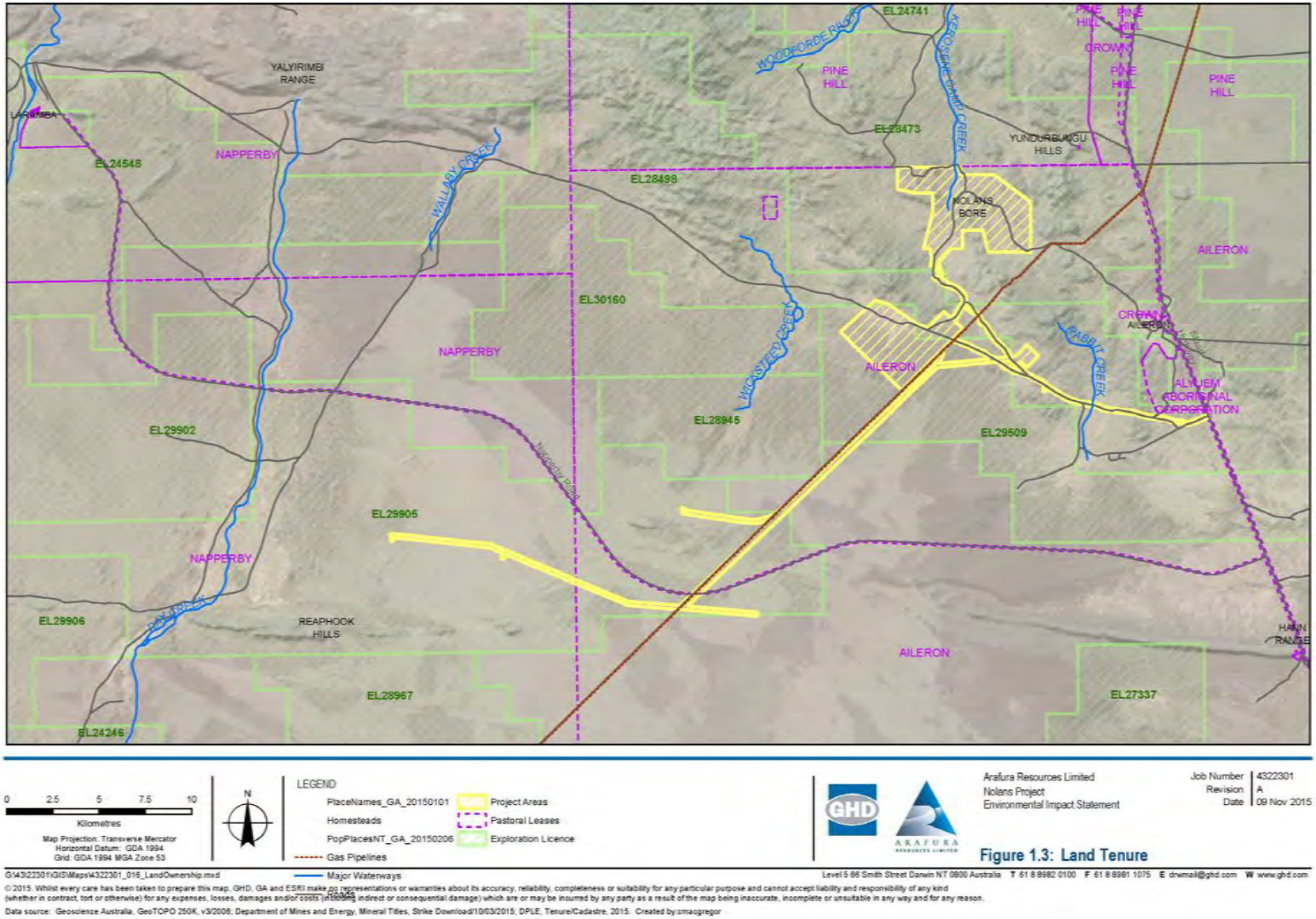


Figure 2-2: Map of the project site and land ownership



2.2 Purpose of a Social Impact Assessment

The purpose of this Social Impact Assessment (SIA) is to map likely change from the Nolans project, predict and assess consequent impacts, prioritise these impacts based on a risk assessment, give the regulators confidence this has informed management plans and provide guidance to Arafura on its future social performance to ensure a positive legacy from the project.

Mining in remote parts of Australia can be a 'stepping stone' to sustainable economies or a 'curse' that compounds disadvantage and creates unintended consequences (Langton 2012; O'Faircheallaigh 2009; 2012) for Aboriginal people. Most companies aspire to be the 'stepping stone' that generates long-lasting benefits. However, the sheer scale of mining activities can create such dynamic change that some communities are rejecting the benefits in order to maintain the status quo and avoid the 'curse' of rapid changes to culture, kin and country.

Understanding the ripples of direct and indirect impacts in sensitive social environments entails some scientific rigor, by collating baseline data and conducting risk and opportunity assessments. However, analysing impacts on people is necessarily a subjective process that draws on perceptions and insights gained through consultation, working through likely scenarios of change and applying informed judgement to likely positive and negative risks and opportunities.

This is particularly important when predicting impacts on remote Aboriginal communities, and even regional centres such as Alice Springs, where Census data may be out of date, not reflect current reality or miss the nuances of mobility, disadvantage, community aspirations and possible unintended consequences of even the best-intentioned project.

So the SIA should:

- provide both insights and data that guide realistic decision-making and commentary on the potential benefits of the project
- provide an early warning system of potential impacts that need to be managed, and
- demonstrate to the regulators that a proponent understands, is sensitive to and has plans to manage the social impacts of its activities.

2.3 Goal

A comprehensive Social Impact Assessment (SIA) that carefully considers all socioeconomic impacts, positive and negative, immediate and long-term, direct and indirect to guide well-informed planning for the Nolans project and the best possible social and economic outcomes from both the community and company's perspective.

2.4 Objectives

Key objectives of this SIA are to:

- describe the socioeconomic environment then identify and assess the positive and negative socioeconomic impacts of the Nolans rare earths mine and processing plant on Anmatyerr country near Aileron;
- predict and describe the extent, duration, intensity and scope of these impacts and extent to which they are cumulative;
- outline measures to help avoid, mitigate or manage the negative primary and secondary impacts and enhance the positive impacts of the project;
- produce a concise and relevant report that informs regulatory decision-making and Arafura Resources' ongoing social performance;
- produce a Social Impact Management Plan that provides a practical blueprint for monitoring, managing and reporting on social impacts during planning, construction, operations and mine closure;
- incorporate the principles of community engagement to understand community perceptions of impacts, learn from traditional and local knowledge and allow ongoing community input to an adaptive management approach to delivering good social performance.

2.5 Scope

The scope of this study covers communities and people most likely to experience change and consequent positive and negative impacts from the Nolans project. These impacts will be experienced in different ways, depending on where people live, their ability to absorb impacts and stage of the project. Scoping of impacts covers geographic, population and temporal parameters, paying particular attention to vulnerable communities.

- **Spatial footprint.** The SIA focusses on two key areas of local impact:
    - **around the project site**: the Aileron and Napperby cattle stations, Aileron Roadhouse, nearby Anmatyerr communities such as Alyuen, Laramba and Pmara Jutunta and the town of Ti Tree;
    - **the main regional administrative and service centre** of Alice Springs, 135 km to the south, which is likely to be a major source of services and supplies, the home base of many workers and a transit centre for fly-in fly-out workers.
- The broader area under study includes other nearby cattle stations and Aboriginal communities, important environmental and conservation areas that could be affected by the project's use of water and impact on cultural values (e.g. Anna's Reservoir Conservation Reserve, the Ti Tree Aquifer and Southern Basins) (see Figure 1.1).
- **People:** the SIA will explore economic and social impacts on people, families and communities of the region, including impacts on lifestyles, way of life, livelihoods, culture, amenity, demographic composition, community cohesion, services and community infrastructure.
- **Economic:** direct and indirect economic benefits for Central Australia and more widely for the Northern Territory and Australia will be drawn from the economic study and modelling prepared for the project (see Economic Study at Appendix T).
- **Temporal:** the study covers planning, construction, operations and mine closure/rehabilitation and varying impacts according to stages of the project. Given the likely 40-year life of the project, particular attention is paid to the more immediate impacts during construction and initial operations.

2.6 Standards

Key industry standards have guided preparation of the SIA and associated community engagement:

- International Association of Impact Assessment (IAIA), Social Impact Assessment Principles (2003)
- IAIA, Social Impact Assessment: Guidance for assessing and managing the social impacts of projects (2015)
- International Association for Public Participation Core Values and Spectrum of Participation (www.iap2.org.au)
- Enduring Value: The Australian Minerals Industry Framework for Sustainable Development, Minerals Council of Australia, 2005 (Investments in mining projects should be financially profitable, technically appropriate, environmentally sound and socially responsible)
- Guiding Principles on Business and Human Rights, United Nations Human Rights, Office of the High Commissioner, 2011
- Guidelines for the Preparation of an Economic and Social Impact Assessment, Northern Territory Environment Protection Authority, November 2013
- Socio-Economic Impact Assessment Guidelines, Mackenzie Valley Environmental Impact Review Board, March 2007
- Equator Principles (2013)
- International Finance Corporation performance standards
- AS/NZS ISO 31000:2009 Risk Management – Principles and Guidelines.

The concept of free, prior and informed consent (FPIC) is considered particularly important for vulnerable and disadvantaged communities, recognising an unequal power relationship:

- **free**: no coercion, harassment or retribution
- **prior**: before any activity starts
- **informed**: full disclosure
- **consent**: that communities have a real choice (Vanclay et al. 2015).

2.7 Methodology

The aim of the SIA is to describe the existing social environment, including recent change, then analyse and predict change from the project against baseline conditions and consequent impacts.

The initial scoping of the project drew on insights from Arafura's community engagement over the past eight years, desk research and local knowledge of people, institutions and likely impacts. This phase determined the scope, goals and objectives of the SIA and the primary communities for study.

To scope the predicted impacts for study, a risk and opportunity assessment was prepared. This was a subjective analysis in line with the *AS/NZS 120 31000:2009 risk management –principles and guidelines.* Some of the initial ratings were relatively high, taking into account high levels of uncertainty and the consequence of a major project in a remote area where the order of magnitude of change is far greater than if the project were to occur in a large city or industrialised area.

Table 2-1: Risk rating assessment: categorisation of likelihood and consequence levels to assess impacts for study

		Consequence Level				
		1	2	3	4	5
Likelihood	Descriptor	Insignificant	Minor	Moderate	Major	Extreme
A	Almost certain	A1	A2	A3	A4	A5
B	Likely	B1	B2	B3	B4	B5
C	Possible	C1	C2	C3	C4	C5
D	Unlikely	D1	D2	D3	D4	D5
E	Rare	E1	E2	E3	E4	E5

Key:	Low	Moderate	High	Extreme

It should be noted that risk assessment considers risk as events that might 'create, enhance, prevent, degrade, accelerate or delay the achievement of objectives' or 'the effect of uncertainty on objectives' (AS/NSZ guidelines) whereas impact assessment considers how impacts are felt, experienced or perceived by people at the receiving end of these risks. While there should be correlation between the two, the grouping of impacts for this assessment was based on International Association of Impact Assessment (IAIA), *Social Impact Assessment Principles* (Vanclay 2003) and *Social Impact Assessment: Guidance for assessing and managing the social impacts of projects* (Vanclay et al 2015) which consider social impacts as those on people's lives, lifestyles, livelihoods. This informed the grouping of impacts as follows:

- population and communities
- employment and economies
- health and wellbeing
- services and infrastructure
- natural resources and the environment
- culture and way of life
- human rights.

The scoping phase was followed by an extensive literature review to gather insights into the history and social context of the region and develop community profiles relevant to understanding the people, institutions and communities in which Arafura will be operating. The literature review drew on research into how mining and major projects can impact on remote communities with high levels of social disadvantage and contribute to their social and economic development.

The initial prediction of impacts (positive and negative) informed the gathering of baseline data and desk research to describe the existing social environment and pre-existing change that needed to be considered in assessing likely actual and perceived impacts. Baseline data was gathered against identified indicators, including economic data from the project's economic study (see Appendix T), the Northern Territory Government's 2015 Budget Papers and 2011 Census data on populations, household incomes, education levels, language groups and occupations. Other data was gathered from Land Council, Regional Council and Northern Territory Government annual reports.

This baseline data was tested in more detailed research and interviews that provided community context, predictions and perceptions of potential impacts and community aspirations and expectations. In many cases, the most recent official data remains the 2011 Census so interviews for the SIA sought to verify the currency and accuracy of this data. For example, interviews and more recent data suggested significant changes since 2011 in business confidence, the costs and occupancy levels of housing and demographic composition of Alice Springs. Feedback was also used to guide key aspects of Arafura's project description and planning, such as the most likely employment mix.

Given the lack of mining or industrial activity in the project area, interviews also sought the views of other resource companies and local employers to learn from their experiences of operating in Central Australia, in particular their insights into employing Aboriginal people and maximising local content.

The initial assessment of impacts was further refined as part of a cross-disciplinary risk workshop that assessed some social risks as highly unlikely, immaterial or duplications of risks considered elsewhere. This guided further

prioritisation of significant impacts for in-depth analysis. Lower ranked potential impacts are listed in this report but not discussed in detail.

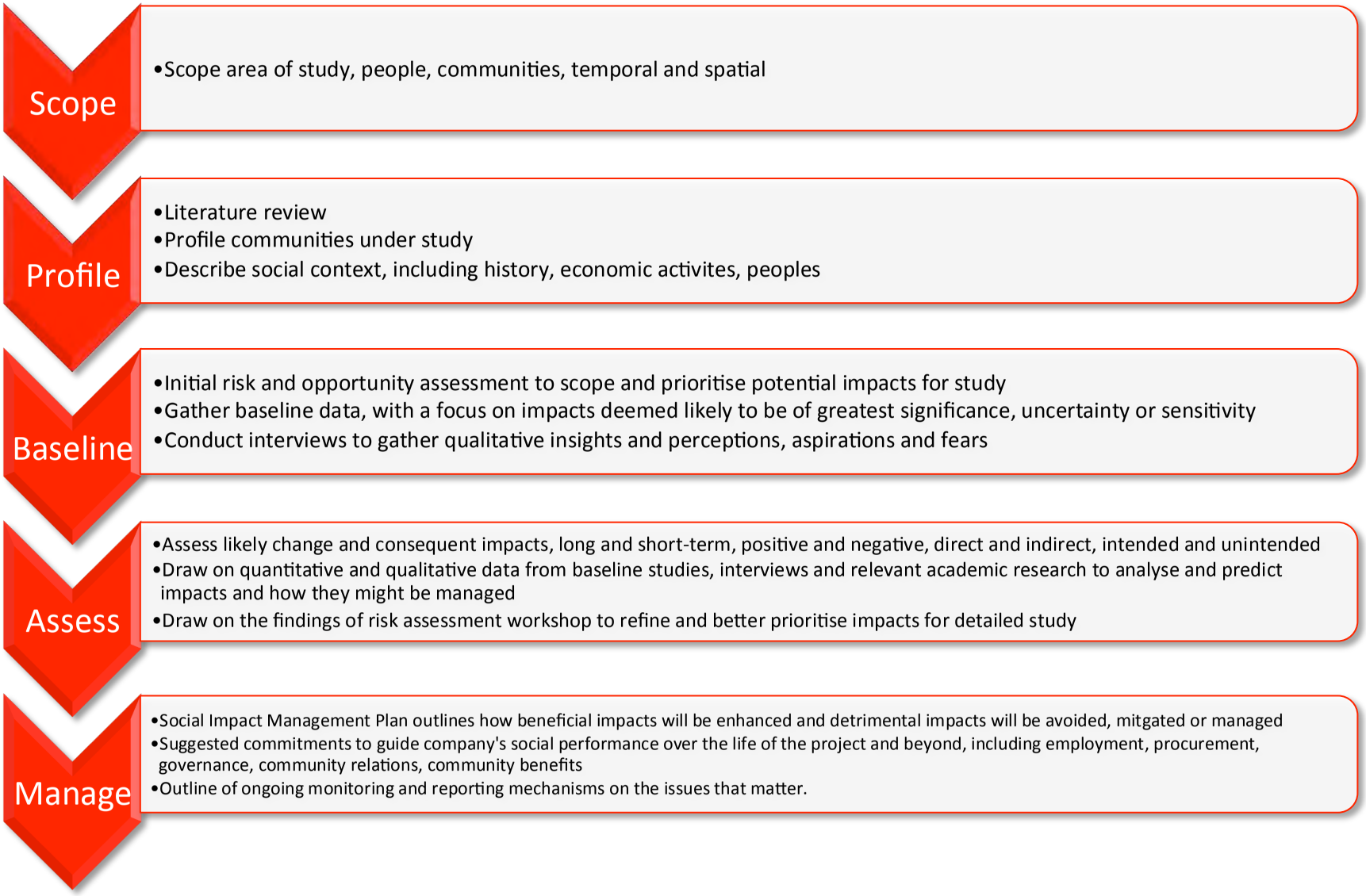
The assessment component of the SIA analyses each of the identified risks and opportunities and draws on academic research and feedback from interviews to outline relevant change that has already occurred, describe predicted change and consequences as a result of the project and discuss ways of managing negative impacts and optimising beneficial impacts. Particular attention is paid to potentially high-risk areas (such as poaching staff from other employers and the impacts on community cohesion from large amounts of cash), risks with a high level of uncertainty (such as how to maximise Aboriginal and other local employment) and areas of sensitivity where Arafura's management plans will have a strong influence on actual impacts and perceptions of risk (such as water quality and radiation).

Finally, a Social Impact Management Plan (SIMP) summarises the findings and residual risk ratings, outlines measures to enhance positive impacts and mitigate or manage negative impacts, establishes indicators to provide ongoing measurement and reporting against these risks and suggests a community report card be established, with community input, to provide annual reporting on key issues that matter to the community. This SIMP outlines recommended management plans and policies and gives a list of commitments for which Arafura will be accountable to both regulators and communities alike.

Many of the issues raised during consultation are covered in more detail in the consultation report.

The steps outlined above are summarised in the following table.

Table 2-2: Outline of methodology



2.8 Community engagement

This SIA has drawn strongly on qualitative feedback to ensure it considers local and traditional knowledge and assesses impacts from people's perspectives and provides meaningful interpretation of data. Where possible, consultation for the SIA adopted an inclusive approach, asking people how they wanted to be consulted.

Consultation was guided by an overall Community Engagement Strategy, developed in line with International Association for Public Participation (IAP2) core values and principles. Interviews for the SIA were conducted independently of Arafura. The methodology and stakeholders consulted are described in more detail in the attached Consultation Report (Appendix H).

Key stakeholders interviewed between June and October 2015 for the SIA include:

- individual interviews with each of the Northern Territory Government departments providing services to Alice Springs and the project area or with a vested interest in tourism and economic development, including Department of the Chief Minister, Tourism NT, Department of Health, Department of Education, Department of Housing, Police, Fire and Emergency Services, Department of Lands, Planning and the Environment, Department of Business, the Power and Water Corporation, Department of Community Services and Local Government
- service providers in Ti Tree including police, health, education and local government
- Australian Government staff in Alice Springs and Ti Tree
- Central Desert Regional Council
- business associations, and managers of other resource projects and Alice Springs-based companies
- environmental groups
- non-government agencies, including NT Shelter, Waltja and the Multicultural Community Services of Central Australia
- potential workforce and training providers for Alice Springs and the local area, including Correctional Services
- nearby pastoral properties
- the owners of Aileron Roadhouse
- the Central Land Council
- people with experience of the impacts of mining companies working in remote communities, including two other operating mines and the Minerals Council of Australia.

Valuable labour force data was gleaned from a labour market briefing coordinated by the Australian Government's Department of Employment in Alice Springs.

This was complemented by community consultation activities with Arafura Resources, such as on country meetings with traditional owners coordinated by the CLC, briefings of Central Desert Regional Council's elected members and Council's Laramba and Ti Tree (Anmatyerr) Local Authorities, briefings of key government departments, regulators and Members of Parliament in Darwin, Alice Springs and Canberra, and a site visit by key stakeholders.

Further consultation for the EIS is planned in April 2016, including community information sessions in Ti Tree and Alice Springs, a presentation to Alice Springs Town Council and Government's Regional Coordination Group.

See separate consultation report at Appendix H.

2.9 Structure of this report

Section 1 of this report is the executive summary. Section 2 covers the project description and methodology. Section 3 covers the existing social environment and Section 4 analyses and predicts likely social impacts on:

- population and communities
- employment and economies
- health and wellbeing
- services and infrastructure
- natural resources and the environment
- culture and way of life
- human rights.

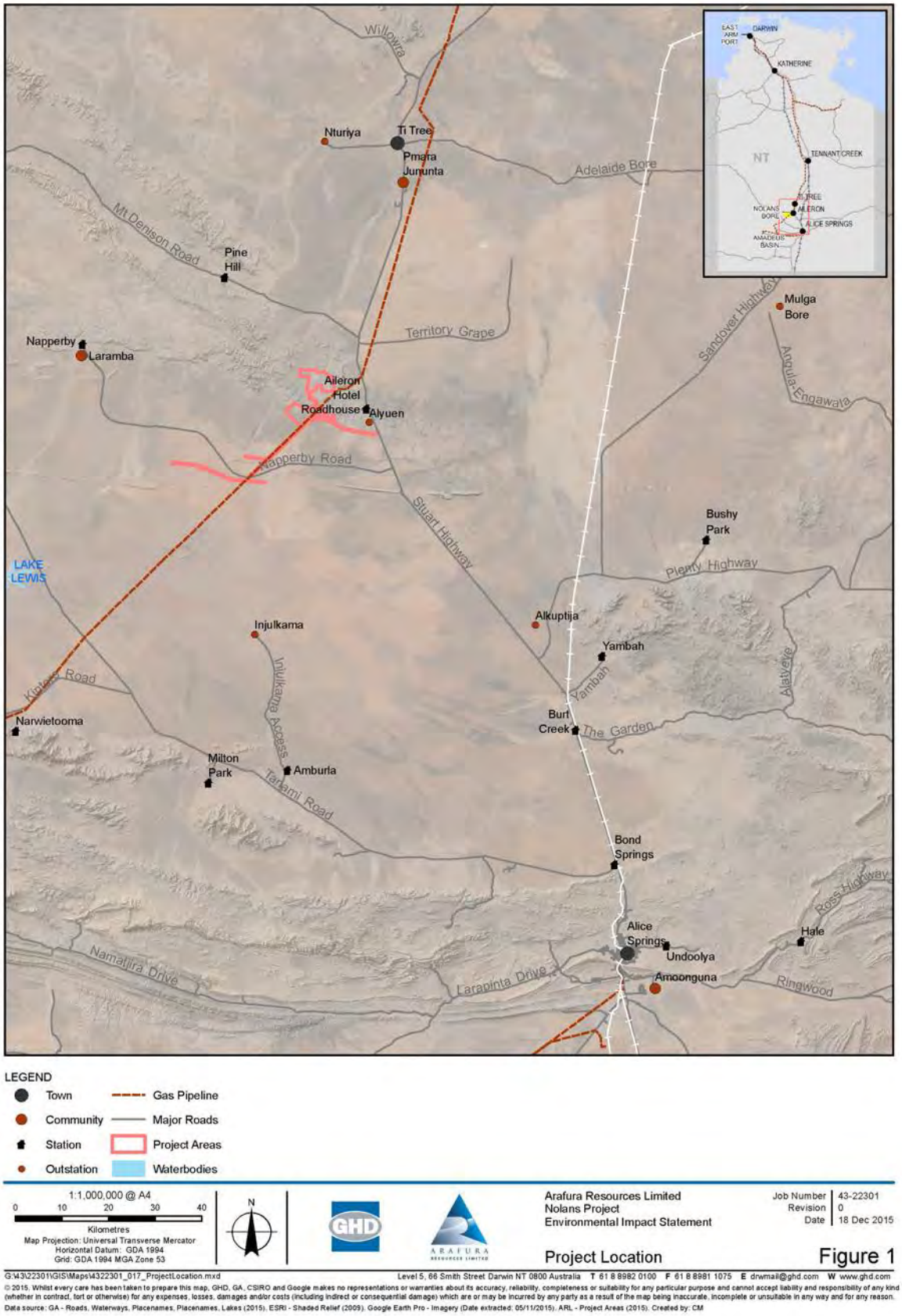
3. EXISTING SOCIAL ENVIRONMENT

3.1 The region

The region under study is Central Australia with two key primary impact areas:

- **Alice Springs**, which is likely to be a key centre for supplies and logistics, home base to many workers and a transit centre for fly in fly out workers. Alice Springs is the key administrative centre for Central Australia and government departments and businesses with a vested interest in the social and economic impacts of the project;
- **the Anmatyerr region around Aileron, Ti Tree and Laramba**, including pastoralists and homelands, and slightly further afield to acknowledge the mobility of peoples and a wider potential catchment area for workers and cumulative impacts of other projects.

Figure 3-1: Map showing Alice Springs and the project area



3.2 History of the region

3.2.1 Aboriginal traditional owners

Traditional owners of the land on which Arafura will operate are Anmatyerr people, with senior traditional owners living in the Alyuen, Ti Tree, Pmara Jutunta (Six Mile) and Laramba communities and further afield in places such as Alice Springs.

Aboriginal people in Central Australia lived a nomadic lifestyle for millions of years based on strong connections to kinship, culture and country (Dockery 2014). Mobility was driven by cyclical use of resources such as water, 'dreamtime' stories that provided an ecological map of these resources (Kimber 2011) and strong laws and oral histories that provided for survival in an arid and harsh environment.

However, Aboriginal people were dispersed by the arrival of European settlers who followed explorer John McDouall Stuart's 1860 journey. The new arrivals regarded the country as empty and took over the land and waterholes. Aboriginal people retaliated with attacks on cattle and settlers. Characterised by some as 'frontier wars' (Reynolds 1995), many Aboriginal people were killed in confrontations with white settlers and police, mixed-race children were taken away to be 'assimilated', often in missions far from their homes, and Aboriginal people were pushed to live more sedentary lifestyles in missions and reserves and to new settlements on the fringes of cattle stations and towns (Kruger & Waterford 2007).

The combined pressure of events such as the Coniston Massacre in 1928 and displacement are part of the recent history of the Anmatyerr area that in some cases has disrupted oral stories and connections to country. Within the living history of older people are memories of being taken away from parents, working on pastoral properties and being moved to communities on the fringes of Alice Springs or excisions on properties.

Along with the early pastoralists came missionaries, particularly the Lutherans who settled at Hermannsburg (Ntaria). The strong influence of the Lutherans is evidenced by the number of Aboriginal pastors in the region. The 2011 Census shows most residents of Laramba, in particular, identified as Lutheran, with a small number identifying as Catholic (see Table 4-3).

The era of land rights saw Aboriginal families play an increasingly important role in the social, economic and political fabric of Alice Springs and the establishment of key Aboriginal organisations such as the Central Land Council (CLC).

Change in the past 10 years has included local government reforms in 2008, that swept up the former Anmatyerr Community Government Council into Central Desert Shire. Then came the Australian Government's Emergency Response, or 'Intervention', to 'close the gap' of disadvantage for remote Aboriginal communities, along with new stores, controls over welfare spending and more centralised governance of remote communities.

The latest reforms from the Northern Territory Government in 2013 saw shires rebadged as 'regional councils' and a focus on devolving more control to communities through Local Authorities and community planning.

See also Indigenous and Historic Cultural Heritage assessment at EIS Appendix U.

Note: The spelling of Anmatyerr is used for this report to ensure consistency with the Indigenous and Historical Culture Asessment. Aboriginal is used in preference to Indigenous except when part of a formal title.

3.2.2 Pastoralists

The first phase of pastoral development in the Northern Territory was along the natural waterholes of the Finke and Hugh Rivers to the west of Alice Springs. The pastoral industry began with the stocking of Undoolya Station, near modern day Alice Springs, in 1873. In the 1880s, pastoral leases were stocked at Glen Helen, Tempe Downs, Bond Springs, Barrow Creek and Crown Point.

As described in a 1996 Agnote, "The early years of development were fuelled by over optimism and speculation by mainly entrepreneurs rather than by pioneers with previous pastoral experience." There was a virtual industry collapse with the droughts of the 1890s and falling beef prices. The fortunes of the pastoral industry ever since have been driven by cycles of drought, beef prices, access to markets and access to water (Carment 2007; Shaw, Bastin & White 1996).

The establishment of a railhead at Oodnadatta in 1891 and the availability of water on a connecting stock route provided access to Adelaide markets, however water constraints meant little development on pastoral leases until the railhead reached Alice Springs in 1929.

After the military presence in the Northern Territory during World War II (1939 to 1945), new bitumen roads such as the Stuart Highway opened up new pastoral areas to the north and provided access to railheads at Mt Isa and Alice Springs, while surplus war materials were used to improve fences and yards.

Improved beef prices and water drilling stimulated pastoral developments until a prolonged drought from 1958 to 1966, the third serious drought since European settlement. Droughts meant natural water and wells dried up, which resulted in over-grazing as stock was moved to remaining permanent waters (Shaw, Bastin & White 1996).

The Central Australian pastoral industry is still dominated by family-owned businesses, most of which are run by descendants of the region's early settlers who struggled through years of deprivation and isolation to build up their holdings. These families remain a key part of the Alice Springs social fabric and gather at community-based events such as the Aileron Bush Weekend, begun on a bush track after the Colson family bought Aileron Station in 1935 and opened the Aileron Hotel.

Native Title claims have been lodged over several cattle stations by the CLC to formally recognise Aboriginal peoples' connections to their traditional country, protect their sacred sites and provide rights to negotiate for benefits with mining and other companies working on pastoral properties and Crown land.

The legacy of this recent history is Aboriginal ownership of Ti Tree Station and community of Nturiya, the Laramba community living area on Napperby Station, the Alyuen excision on Aileron Station, Wilora on Stirling Station and Yuelamu on Mt Allen Station. Further afield, Engawala is excised from Alcoota, an Aboriginal-owned station.

In March 2014, native title holders lodged an application over Aileron Station in order to maintain the right to negotiate with Arafura Resources. This replaces earlier Native Title applications over part of the station.

(See also Indigenous and Historic Cultural Heritage Assessment at Appendix U.)

Immediate cattle stations:

Cattle stations in the footprint of the Nolans project include:

- Aileron Station, on which most of the project sits
- Napperby Station to the west, on which the proposed borefield sits
- Pine Hill station, which is the project's northern neighbour and potentially a source of carbonate.

Further afield:

Other cattle stations in the region include:

- Yambah to the south-east
- Bushy Park to the south-east
- Coniston to the west
- Amburla to the south
- Anningie to the north.

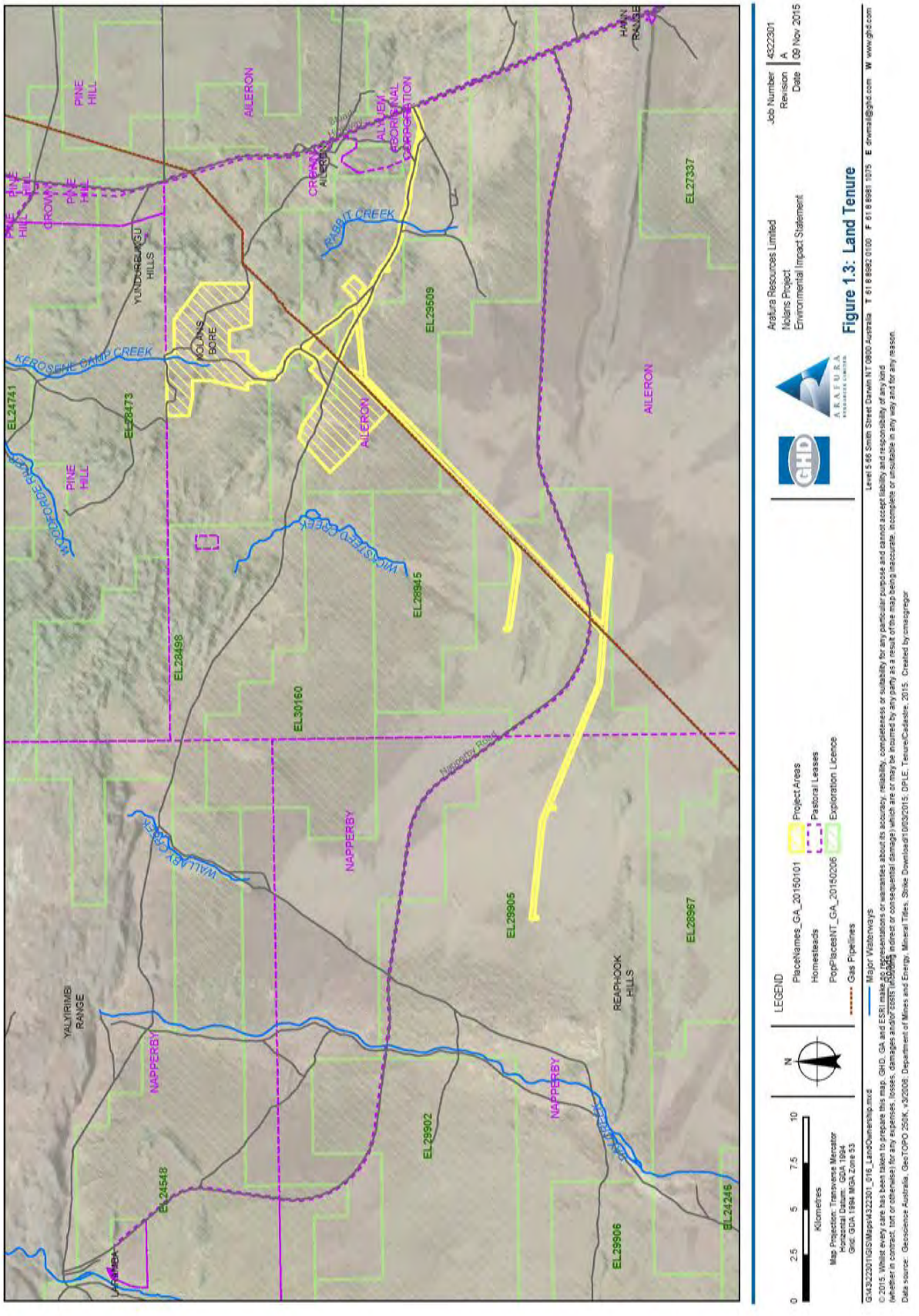


Figure 3-2: Map showing elements of the project and land ownership

3.2.3 Alice Springs

The town of Alice Springs, initially called Stuart, grew up around the Telegraph Station on the Todd River and captured the Australian imagination as a 'frontier' land settled by cattle pioneers following the trails of early explorers. Current transport routes, geographical features and place names reflect the travels and aspirations of these early settlers and their colonial masters.

In 1860, the Scottish-born explorer John McDouall Stuart travelled through, naming the MacDonnell Ranges after the Governor of South Australia and writing in glowing terms of the Central Australian landscape, which he believed held out excellent prospects for pastoral development (Carment 1991).

In 1863, what is now the Northern Territory was transferred from New South Wales to South Australia. In October 1870, the South Australian Government decided to build a telegraph line from Port Augusta to Port Darwin to link with a sub-sea cable to Britain, the first of many nation-building projects associated with the Northern Territory. The work began under the supervision of Charles Todd, with new telegraph stations at Charlotte Waters, Alice Springs, Barrow Creek and Powell Creek. Planning a route for the telegraph line brought in explorers such as WC Gosse who named Ayers Rock in 1873 after South Australian Premier, Sir Henry Ayres, while Alice Springs was the name given to the springs at the telegraph station after Todd's wife, Alice.

The present town of Alice Springs was named after Stuart and proclaimed in 1888. It was close to the Alice Springs Telegraph Station and just north of Heavitree Gap. The first hotel opened in 1889 and by the early 1890s there were a few houses and stores (Carment 1991).

Initially the town was accessed by a 1400-kilometre track that followed the route of the early explorers and Overland Telegraph Line. Once the train line reached Oodnadatta from Port Augusta, the remaining journey to the Alice Springs Telegraph Station took two weeks for a buggy or coach, three or four weeks for pack horses and camels and a month or three for wagons (Bucknall 1990).

In 1911, control of what is now the Northern Territory transferred from South Australia to the Commonwealth.

Early families endured hardship and drought and were isolated from the rest of Australia until the first Ghan arrived in Alice Springs in 1929, replacing the era of Afghan cameleers. The railway added to the population mix of Alice Springs, with many Chinese and Italian migrants working along the line between the old railhead at Oodnadatta and Alice Springs. Many well-known Aboriginal families were railway workers, with surnames that reflect the intermarriage of Aboriginal people with early Chinese market gardeners and railway workers.

In 1933, the name of the town changed from Stuart to Alice Springs and by 1935 Alice Springs had 500 residents, many fleeing the Australian Depression. By 1939, the town had a population of 950, while the war years saw significant development as troops moved through to the northern war front. As the Territory came under military control, pastoralists found a large local market for their beef, contractors won work with the military and many Aboriginal people worked for award wages for the first time (Kruger & Waterford; Carment 1991). By 1943, the Stuart Highway had been sealed to Darwin.

The post-war years saw mixed fortunes in the Territory's two key economic sectors of mining and cattle, with natural gas found in the Amadeus Basin in the late 1970s and the establishment of the American Pine Gap communications base, which brought many Americans to live in the town. There are now 800 people working at Pine Gap, half of them Australian (Garrick 2016).

In 1978 the Territory gained Self-Government, with Territorians such as Sam Calder and Bernie Kilgariff prominent in Territory and national politics and the Country Liberals (then the Country Liberals Party) being founded in Alice Springs, still regarded as the party's heartland.

Alice Springs is now the key administrative centre for Central Australia, providing government services to Aboriginal communities from the Queensland to the South Australian and Western Australia borders and beyond as well as housing the headquarters of three municipalities: Alice Springs Town Council, Central Desert Regional Council and MacDonnell Regional Council.

3.2.4 Ti Tree

The township of Ti Tree, on the Stuart Highway 193 km north of Alice Springs and 55 km north of the project site, is the largest town between Alice Springs and Tennant Creek. It was established in the late 1800s as a telegraph station, with 64 square kilometres incorporating a well set aside as the Tea Tree Telegraph Reserve in 1888, which became a watering point for cattle being driven overland to markets in Queensland and a refuelling stop for Defence forces travelling to the northern war front during World War II.

In 1919 WJ 'Bill' Heffernan was granted a lease to a parcel of land called Tea Tree Station. In 1975 Ian Dahlenberg took up 640 acres of the station to establish Dahlenberg Horticultural Enterprise to grow grapes and watermelons on what is now Ti Tree Farm.

In 1993 the Anmatyerr Community Government Council was established after a push by local Anmatyerr people, led by Eric Panangka, to break away from the CLC (Sanders 2005). Mr Panangka was elected as the first chair of the council, which incorporated nine wards servicing several nearby Anmatyerr communities. Mr Panangka was a Country Liberal Party candidate for the Legislative Assembly seat of Stuart in the 1991 elections and is a senior custodian for the project site (see Indigenous and Historic Cultural Heritage Assessment at Appendix U).

At first the Council covered only Aboriginal interests. However, in 1995 the Northern Territory Government merged it with the largely non-Aboriginal Ti Tree Progress Association despite local resistance. The council took over assets such as the Ti Tree park and airstrip and an extra ward was created to represent town residents. In 2008, the Anmatyerr Local Government Council was absorbed into the new Central Desert Shire (now Regional Council)

Ti Tree is now primarily a service town to surrounding Aboriginal communities, with Council offices, a school, health clinic, police station, stores and roadhouse providing services to traffic on the Stuart Highway.

3.2.5 Aileron

Ryan Well, just south of Aileron and 129 km north of Alice Springs was named by the South Australian Government after Ned Ryan who, with the aid of his nephew Jeremiah Ryan and his well-sinking team known as "Ryan's Camel Party", completed Ryan Well in 1889 as a stock well. It was soon realised that more water was needed for travelling stock, so the wells were progressively equipped with 'whip' pulleys, tanks and extra troughs. The well provided water to drovers and travellers on the north-south stock route until motorised transport and machine-drilled bores diminished its importance.

Samuel Nicker and his family established Glenn Maggie as a sheep and cattle station in 1914. The station homestead was named after Samuel and Elizabeth Nicker's daughter, Margaret (NT Government, Ryan Well Historical Reserve Plan of Management). The Nicker family arrived in the area after trying their luck at the Arltunga goldfields. Their dray collapsed near Ryan Well, which is where they stayed. Water was carried in a buggy from Tom Young's Rockhole, Connors Well and Annas Reservoir when the tank was dry. Supplies arrived by camel every six months. By 1919 the family income was supplemented by a contract to provide travelling stock with water. By 1923 Glen Maggie was operating as a telegraph station, with a post office and store (historical panels at the Aileron Roadhouse).

The Colsons opened a hotel in 1935 and annual races were held at the nearby bush track. The Stuart Highway wasn't sealed until World War II. Ryan Well was still used occasionally for travelling stock during the closing era of droving.

There was drought in the late 1940s and in 1950 the hotel was excised from the Aileron Pastoral Lase and sold to Arthur and Phyllis Goodliffe, who ran the hotel for nearly 10 years. Jim Davey bought the Aileron Hotel after selling Anningie Station. Many facilities were improved and drilled water was found. The hotel burnt down in the 1930s and changed hands several times before it was purchased by Greg Dick, the current owner, about 30 years ago. Today, it is the site of the Aileron Roadhouse which provides services to travellers, pastoralists and nearby Aboriginal communities alike.

3.3 Governance and key institutions

3.3.1 Australian Government

The key policy directions of the Australian Government relevant to this project are a general emphasis on 'closing the gap' of Indigenous disadvantage and a focus on 'developing the north' by investing in key infrastructure that unlocks investment in mining, agriculture, pastoral properties, horticulture and tourism.

A key structural change in the Australian Government after the last election was to draw all Indigenous programs into the Department of Prime Minister and Cabinet (DPM&C), including much of the Department of Families, Housing, Community Services and Indigenous Affairs, with a Minister for Indigenous Affairs operating from DPM&C, rather than from a stand-alone department.

Former Prime Minister Tony Abbott, in his foreword to the *Closing the Gap Report 2015,* released in February 2015, expressed disappointment at slow progress in addressing many areas of Indigenous disadvantage. In this seventh report since Council of Australian Government (COAG) targets were set in 2008, the Prime Minister reiterated three priorities areas, being:

- getting children to school
- getting adults into work
- making communities safer.

Policy implications for this focus include 'welfare to work' and reforming remote jobs programs to create 'real' jobs. Investment in community infrastructure, such as housing, will be prioritised in areas where there is potential for economic development.

Initiatives to get children to school include the Remote School Attendance Strategy, which saw a 13% increase in the number of children attending school across 29 Northern Territory Government remote schools (*Closing the Gap Report 2015*, p. 22).

The Government's third priority, safe communities, includes programs to address the high levels of domestic violence, with research showing that in 2012-13 Indigenous women were 34.2 times more likely than non-Indigenous women to be hospitalised for family violence-related assault (Steering Committee for the Review of Government Service Provision, 2014). Other strategies include rehabilitation of prisoners to reduce future offending, addressing high levels of drug and alcohol abuse, reducing petrol sniffing in areas where this is a problem and improving health and wellbeing.

The Australian Government in December 2015 established an Office of North Australia in Darwin to drive implementation of the Develop the North white paper across Northern Australia and plans a North Australian

Infrastructure Fund (NAIF) to provide $5 billion in concessional loans for infrastructure projects in Northern Australia.

3.3.2 NT Government

Similarly, the Northern Territory Government has a goal of reducing the disadvantage of remote Aboriginal communities through regional economic development, getting children to school and attracting private sector investment into strategic infrastructure that supports a North Australia Development agenda.

The Country Liberal Government won the last election largely on the bush vote and has introduced a number of policies to devolve decision-making. Chief Minister Adam Giles in June 2015 announced a dedicated Office of Indigenous Affairs, based in Alice Springs, and said public service heads would be tasked with driving economic reform in each of 13 key communities backed by public service 'community champions'. The Government has established targets for departments and contractors to hire more Aboriginal staff (Aikman 2015; Giles 2015).

At the same time, however, the Australian Government has reduced funding to smaller homelands, suggesting the Northern Territory Government take lead responsibility. Northern Territory Minister for Regional Services Bess Price confirmed in the June 2015 Estimates hearings that, as a result of the Australian Government's decision, Territory funding would be discontinued to 122 homelands in the coming financial year.

The Northern Territory Government has established a North Australia Development Office (including a Central Australian office to incorporate the Alice Springs region). The government is seeking private sector investment and Australian Government funding for infrastructure such as roads, a new rail link to Mt Isa and a gas pipeline connecting to the Eastern grid. It has a keen interest in projects that will deliver economic development in Central Australia. Key areas identified by the North Australia Development Strategy as accelerating growth are:

- investment in critical economic and social infrastructure to integrate supply chains across Northern Australia, including roads, rail, ports, essential services, telecommunications and a gas pipeline connecting the Territory with the East coast;
- improving human capital to address labour shortages and creating jobs in remote communities;
- developing the Territory's natural resources through research into soil, vegetation, water, marine resources and land tenure;
- providing a framework to encourage private investment, including removal of regulatory barriers.

The key pillars to drive economic growth are identified as resources (both oil and gas and mining), tourism, agriculture, cattle and international education.

A topical issue is the cost and effectiveness of providing local government services to remote areas. Local Government reforms in 2008 saw 61 regional and community government councils (including the Anmatyerr Community Government Council) and large unincorporated areas absorbed into nine 'super shires'. Further reform in 2013 under the current government saw the shires rebadged as 'regional councils' and the establishment of Local Authorities (in place of Boards) to provide greater autonomy and decision-making.

3.3.3 Central Land Council

The Central Land Council (CLC) is a Commonwealth statutory authority operating under the *Aboriginal Land Rights Act 1976* and a Native Title Representative Body acting under the *Native Title Act 1993.* It represents the interests of the native title holders for the project, is the negotiating body and will be influential in ensuring the interests of traditional owners are protected during planning and operational stages of the Nolans project.

The CLC covers 780,000 square kilometres and 15 language groups in Central Australia. It is governed by a 90-member council, with elected members meeting three times a year in various bush locations. The Aboriginal Benefits Account provided $15.3 million of the Council's revenue in 2013-14. CLC priorities that are relevant for the Nolans Poject include:

- community development so money is reinvested in projects and infrastructure that benefit communities, such as the Uluru-Kata Tjuta National Park rent money being invested in a swimming pool at Mutitjulu
- investing in ranger programs, as a preferred employment option in remote communities
- supporting pastoral and land management activities such as feral animal control, fire management and biodiversity conservation
- supporting traditional owners' native title interests, negotiating commercial agreements with parties interested in using Aboriginal land and managing income arising from land use agreements
- community-based models for remote housing
- better educational and employment outcomes, with a particular focus on jobs in the mining and pastoral industries, tourism, ranger and land management programs.

The CLC negotiates agreements with mining companies on behalf of traditional owners to "protect interests in Aboriginal land. Agreements, which can be in the form of an Indigenous Land Use Agreement, include compensation payments, employment, training, sacred site protection, environmental protection and cultural awareness" (2013-14 Annual Report, p. 53). A key focus is ensuring traditional owners are able to make informed decisions about activities such as mining on their country.

3.3.4 Central Desert Regional Council

Central Desert Regional Council covers an area of about 282,093 square kilometres that stretches across the Territory. In the middle is Anmatyerr Ward that includes Ti Tree, Yuelamu, Laramba and Engawala, with Willowra and Yuendumu across the boundary in Southern Tanami Ward.

Of the Council's 322 staff (300.66 full-time equivalents as of June 2014), 74% of staff are Aboriginal, as are 11 of 12 councillors. There are 2780 registered voters in the Council area, 1020 of them in Anmatyerr Ward. About one-third of the Council's managers and supervisors are Aboriginal and the council has a strong focus on providing accredited training to its staff.

Council reports a tight job market, with several positions in communities remaining unfilled, but achieved a 21% voluntary staff turnover rate in the 2013-14 financial year.

Services provided by the Council in communities include:

- municipal services such as rubbish collection, maintaining parks and reserves, cemetery management, animal welfare and control, local road maintenance, weed control and fire hazard reduction;

- community services, including play groups, school nutrition programs (Willowra, Wilora, Engawala, Yuelamu, Nyirripi and Laramba);
- aged and disability services, such as meals on wheels, transport and respite care;
- community safety services, including night patrols, special events and a mediation project in Willowra which has experienced family conflict;
- community services, including after school, vacation care, youth, sport, recreation, art and cultural activities;
- commercial services such as maintaining power and water supplies (not in Laramba), sewerage, air strips and support for emergency evacuations
- other general services including Centrelink.

The Council in 2015 lost control of three child care centres, including Laramba, in a dispute with the Australian Government over funding.

The Council won the a contract with the Australian Government to provide the Remote Jobs and Communities Program to about 800 people in Yuendumu, Ti Tree, Laramba, Yuelamu and Willowra in 2013-14. The aim of the program is to place people in jobs and provide training to increase work-readiness and skills. According to the Council's 2013-14 annual report, in the program's first year of operation, 582 participants were signed up. In July, 2015 this was rebadged by the Australian Government as the Community Development Program.

Council previously provided public housing repairs and maintenance services on behalf of Territory Housing but in March 2014 lost the contract to a private company.

Community Action Plans have been prepared for each of the council's communities. These outline planned work in the community, timeframes and responsibilities. They are reported against at Local Authority meetings every two months. The 2014-15 plans provide more detail on local priorities.

4. IMPACT ASSESSMENT

4.1 Population and communities

The population and communities section outlines the communities in the local and regional study areas, recent demographic trends and potential impacts on population composition, cohesion and governance as a result of the project.

Table 4-1: Key findings for Population and Communities and how they address Terms of Reference and EPA Guidelines

Key findings	Reference in SIA	Reference to TOR and Guidelines	Reference to Risk and Opportunity Assessment
The Alice Springs Local Government area has a population of 28,720, of whom 18.5% are Aboriginal. Among the non-Aboriginal population, there is a 'bulge' of working age residents, reduction in 15-19 year olds and dent in the ages of 60 to 64, suggesting people leave on reaching retirement age. The Aboriginal population is more of a pyramid, indicating a youthful age structure.	4.1.1.2	6.1 in Guidelines	N/A
An apparent trend of migrants from countries such as India, the Philippines and Sudan since the 2011 Census. The implications of this could mean a local workforce that would reduce dependence on FIFO workers.	4.1.1.2	Nil in TOR 6.2 in Guidelines	N/A
Ti Tree is largely a service town providing government, municipal and retail services to surrounding Aboriginal communities and travellers on the Stuart Highway. It has an unusual demographic profile as a result. Although half the population is non-Aboriginal, there were no Aboriginal children enrolled in the Ti Tree School in mid-2015.	4.1.1.3	6.2 of guidelines	N/A
Other key communities near the project site are Anmatyerr, including the family outstation of Alyuen, near the Aileron Roadhouse, Laramba (the closest community to the borefield), and Pmara Jutunta (Six Mile). There is mobility between communities and some tensions between Warlpiri residents and visitors.	4.1.1.4- 4.1.1.11	6.2 of guidelines	N/A
Key risks to community cohesion and resilience could come from an in-migration of families wanting work, increased cash from wages and royalty payments, tensions over how the benefits are shared, the consequences of increased expenditure on alcohol and any conflict and jealousies between local Aboriginal people and the large influx of workers. This is less likely to be an issue in Alice Springs	4.1.3.2 4.1.3.3	6.1 of guidelines	Threat 1 Threat 2 Threat 11

Note: This table correlates areas of study with the EPA's May 2015 Terms of Reference for preparation of the Nolans Environmental Impact Statement and November 2013 Guidelines for the preparation of an Economic and Social Impact Assessment. Other issues of study were identified during consultation and risk assessment for the EIS and more specifically during dedicated interviews for the SIA.

4.1.1 Description of the current population and communities

This study covers two primary areas: the nearest service and administrative town of Alice Springs and the mainly Anmatjere communities near the project site.

Population densities and composition, employment, key industries and levels of disadvantage are compared in Table 4-1.

Data used in this table, and throughout this SIA report, represents:

- Australian Bureau of Statistics (ABS) data for the **Northern Territory**
- the ABS **Alice Springs Local Government Area** (LGA), which covers the largely urban municipality of Alice Springs
- **Central Desert LGA**, covers the Central Desert Regional Council area which stretches from the Western Australian to the Queensland border and as far north as Lajamanu, west to Nyirripi and Yuendumu and east to Atitjere covering different language groups including Anmatjere and Warpiri.
- **The Yuendumu-Anmatjere SA2 local region, which is a slightly smaller area of the above footprint:** Again, this area takes in Warlpiri communities outside the study area. The communities under study are primarily Ti Tree (55 km from the project) and Laramba (50 km from the project).
- **Community profiles**, drawn from the ABS 'Quick Stats', based on 2011 Census data for urban centres (UCL), Gazetted Local Areas (SSC) or Indigenous locations (ILOC) to allow for an analysis of smaller local populations (because of the way data is collected, it is difficult to make valid comparisons with the above broader categories above).

There are occasional references in this report to the Alice Springs region or SA3 statistical area which covers the southern part of the Northern Territory and SA2 (more local Yuendumu-Anmatjere area). Generally, however, the Alice Springs and Central Desert LGAs are used to allow for comparisons between a largely non-Aboriginal urban area and a largely Aboriginal remote area and SSC data is used to compare individual communities.

The most comprehensive data available is from the 2011 Census so, where possible, data is drawn from other sources and subjected to a qualitative analysis to capture more recent change.

Data is drawn either from the Australian Bureau of Statistics website (www.abs.gov.au, viewed on 21 February 2016 to refresh data gathered in mid-2015), Northern Territory Treasury data from the 2015 Budget Papers and the ACIL Allen economic study for this report (see separate report at Appendix T).

Table 4-2: Overview of key comparative ABS data

	Northern Territory	Alice Springs LGA	Central Desert LGA	Yuendumu-Anmatjere SA2 area
Population 2011	211,945	25,186	3720	2060
Population 2013	240,759	28,720	4383	2433
Population 2014	245,100 (1% of the Australian population)	28,667 (12% of the Territory's population)	4331	
Proportion Aboriginal (2011)	26.8%	18.6%	80%	86.3%
Median age (2013)	31.6	33.1	28.1	25 (2011)
Average wage (2013)	$54,082	$42,133	$43,872	
Land area (sq km)	135,316,390.3	32,751	28,131,000	7,184,153
Density (pop/km)	0.2	87.7	0.1	0.2
Number of businesses (2013)	14,313, down from 14,525 in 2011 and 14,669 in 2012	1942, down from 2060 in 2011 and 2070 in 2012	20 (down from 25 in 2011)	13
Largest business sector by number of businesses (2013)	Construction (3048, down from 3127 in 2011 and 3145 in 2012)	350 construction in 2013 (down from 396 in 2012)	Retail (8)	
Number of businesses with 5+ staff (2013)	2363	384 in 2013	8	5
Main industry of employment (2013)	Public administration and safety (20.9%)	Public administration and safety (17.3%)	Public administration and safety (24.4%)	Public administration and safety (40.7%)
Labour force (2011)	103,968	13,611	1143	586
Unemployed (2011)	5489	415	165	106
Unemployment rate (2011)	5.3%	3.1%	14.4%	18.1%
Participation rate (2011)	63.9%	69.4	43.2%	
Those aged 15+ with post-school qualifications (2011)	56.5%	61.4%	38.7%	
Relative level of disadvantage, as measured by Socio-economic indexes for areas (SEIFA),	In the 2011 Census, Darwin was recorded as the most advantaged of 17 local government areas (score of 1034.6)	Alice Springs was recorded as the 5th most disadvantaged Territory LGA (score of 1005.6)	Central Desert was recorded as the third most disadvantaged LGA (score of 557.5)	

4.1.1.1 Northern Territory Population

The population of the Northern Territory as at June 2014 was 245,100, or 1.0% of Australia's population (ABS, Regional Population Growth, Australia, 2013-14), characterised by high mobility, a large proportion of Aboriginal residents (26.8% in the 2011 Census), younger than the national median age and slightly higher proportion of males. The population was estimated to increase by 0.9 % in 2014-15, largely based on the workforce requirements of the INPEX LNG gas plant in Darwin (NT Budget Papers, April 2015).

The estimated Aboriginal population was projected to increase to 29.6% of the Northern Territory's population as at 30 June 2014, nearly 10 times the proportion of Indigenous people in the Australian population. Territory residents under 15 constitute about 31% of the Aboriginal population, compared with 19% of the non-Aboriginal population. Of the Territory's Aboriginal population, 21.4% lived in remote areas, 28.3 in very remote areas and one-fifth in outer regional areas as at 30 June 2014 (*ATSI Health Performance Framework NT 2014*, based on analysis and projections from ABS data).

Northern Territory Treasury data suggests an out-migration of 'baby boomers' as they retire and move away from the Territory, including Alice Springs, and inflows of interstate migrants to the Territory at historic lows (NT Treasury, Budget Papers 2015).

4.1.1.2 Alice Springs and Alice Springs region

Alice Springs

The Alice Springs Local Government Area had a population of 28,667 in 2014, or 12% of the Territory's population (ABS Regional Population Growth data). However, the town acts as a service centre to the Alice Springs Region, or ABS SA3 area, which has a population of 41,700 (including Alice Springs) and covers the bottom half of the Territory (ACIL Allen 2016). Many Aboriginal residents from the region and Pitjantjatjara lands to the south visit Alice Springs short-term for shopping, sport, to visit relatives and to access services (SIA interviews).

The traditional owners of Alice Springs are Arrernte people, who won their native title claim in 2000.

There was a high population turnover from Alice Springs between 2006 and 2011, with a large outflow of females aged 30-39 compared with males of the same age, a net outflow of all age groups except 20 to 29 and a net turnover of 10.6% from other parts of the Territory, 43% moving interstate and 9.8% coming from overseas, making a total turnover of two-thirds of the region's population. There was also a decline in Aboriginal residents aged between 20 and 34 (Yuhun, Taylor & Winter 2012). It should be noted that the 2011 Census coincided with a big influx of government workers and tradespeople as part of programs funded by the Intervention.

A study by Yuhun, Taylor and Winter (2012), based on 2011 Census data, noted that the non-Aboriginal population in Alice Springs has a 'bulge' of working age residents, a reduction in 15 to 19 year olds (which the authors felt may reflect expanded government services during the Intervention) and a dent in the ages of 60 to 64, suggesting that people leave once they reach retirement age. However, the Aboriginal population is more of a pyramid 'indicating a youthful age structure, higher fertility rates and lower life expectancies'.

At the 2011 Census, the number of Alice Springs residents who stated one or both parents were born overseas was almost equal to the number of Aboriginal residents. A key demographic trend is the apparent major increase in overseas migrants moving to Alice Springs from other parts of Australia and overseas since the 2011 Census, which Charles Darwin University demographer Dr Andrew Taylor believes is the only

reason the Alice Springs population hasn't dropped by about 5% as other families migrate out. He detected a strong growth in migrants coming from new source countries such as Africa and the Philippines. The paper by Yuhun, Taylor and Winter (2012) found jobs was a major factor attracting migrants to Alice Springs.

The coordinator of the Migrant Services Centre of Central Australia, Marguerite Baptiste-Rooke estimates there are now 3000 Indian people living in Alice Springs, with high numbers from Kerala in southern India (primarily women recruited as health workers) and the Punjab in the north (many coming to work as taxi drivers in two Indian-owned taxi companies). Many of the Sudanese are young single men who have travelled from other cities such as Melbourne and Adelaide for work (SIA interview).

At the 2011 Census, the number of Alice Springs residents who stated one or both parents were born overseas was almost equal to the number of Aboriginal residents:

- 6921 were English
- 2354 were Irish
- 1821 were Scottish
- 263 were Maori
- 233 were New Zealanders (other than Maori)
- 1320 were German
- 517 were Indian
- 517 were Italian
- 418 were Dutch
- 388 were Filipino
- 329 were Chinese
- 128 were Polish
- 102 were South African.

Table 4-3: Table indicating growth in migrants to Australia who have moved to Alice Springs

Country of Origin	Estimated residential population in 2011 Census	Estimated migrant numbers by Multicultural Services Centre in 2015
Indians (Kerala and Punjab)	517	3000
Sudanese	Nil	350
Filippino	388	700
Zimbabweans	Nil	150

There is a large American population in Alice Springs because of the Pine Gap facility, which has seen an investment in good sports facilities under lights in Alice Springs. According to a Pine Gap spokesperson (Garrick 2016), there are now 400 Americans working at Pine Gap.

Census data suggests a large proportion of people in Alice Springs with professional qualifications but also a higher number of people with low educational achievement: "There is evidence of the population dividing into

those who are provided services and those who provide these services. The former includes the very young, those requiring support to enter and stay in the labour force, as well as the elderly." (Carson, Taylor & Campbell 2010).

The region

In relation to the broader Central Australian region covered by the SIA, residents are mainly Aboriginal, characterised by a high level of disadvantage across all socioeconomic indicators (ABS 2013, Australian Government 2015). The Central Desert Regional Council area covers more than 28 million square kilometres. The sparsely settled region has a population density of 0.1, is 80% Aboriginal and the Local Government Area had a Socio-economic Relative Disadvantage Index of 557.5% in 2011, the third most disadvantaged local government area in the Northern Territory, compared with a score of 1005.6 for Alice Springs.

The unemployment rate recorded in the 2011 ABS Census for the Central Desert Regional Council was 14.4% while the participation rate was 43.2%, compared with 3.1% unemployment and 61.4% participation for the Alice Springs Local Government Area and 5.3% and 56.5% respectively for the Northern Territory. The unemployment rate for the SA2 Yuendumu-Anmatjere area was 18.1% in 2011.

A significant proportion of Central Australian residents are Aboriginal, characterised by a high level of disadvantage across all socioeconomic indicators (ABS 2013, Australian Government 2015). As Table 4-2 above demonstrates, the Central Desert Regional Council area covers more than 28 million square kilometres. The sparsely settled region has a population density of 0.1, is 80% Aboriginal and the Local Government area had a Socio-economic Relative Disadvantage Index of 557.5% in 2011, the third most disadvantaged local government area in the Northern Territory, compared with a score of 1005.6 for Alice Springs.

Table 4-3 provides comparative data of the key communities in or near the project footprint, showing all but Ti Tree as characterised by small Aboriginal populations, with lower incomes, higher levels of overcrowding, higher levels of unemployment, and lower vehicle ownership per household than residents of Alice Springs.

The key industries of employment for both Alice Springs and the smaller communities are public and local government administration. In small communities, there is generally low business ownership and no private housing. The main languages spoken in the communities are Anmatyerr and Warlpiri. The influence of missionaries from different denominations is indicated in the high number of residents reporting their religion as Lutheran, except for Willowra, where 63.6% of residents in the last Census identified as Baptist.

Table 4-4: 2011 Census summary data at a community level (www.censusdata.abs.gov.au, viewed 18 May 2015)

Data	Alice Springs UCL	Ti Tree UCL	Laramba	Pmara Jutunta (Six Mile)	Alyuen	Nturiya (Ti Tree Station)	Willowra	Yuelumu (Mt Allen)
Population 2011	24,208	123	251	196	Little data available: Community living are, six houses with a fluctuating population of less than 100, mostly older residents with a transient younger population	106	221	207
Population 2014	26,108	143	292				253	n/a
Aboriginal	4590 (19% compared with 26.8% for the NT and 2.5% for Australia)	60 (49.2%)	230 (91.3%)	192		95	229	187 (91.7%)
Median weekly household income	$1676	$1281	$987	$1031		$633	$1281	$700
Median personal income	$865 (compared with $745 for the NT and $577 for Australia)	$690	$263	n/a		$256	$259	$219
Median for Aboriginal households	$1073	n/a	n/a	n/a		n/a	n/a	n/a
Dwellings	8104, 5135 of which were houses	56	51	35		26	59	55
Median monthly mortgage	$1950	n/a	n/a			nil	n/a	n/a
Median weekly rent	$300	$20	$20			$20	$20	$20
Average vehicles per dwelling	1.7	1.3	1			n/a	0.3	0.8
Average people per household	2.6	2.5	4.2	5.9		4.8	5	4
Median age	33 (compared with 31 for the NT and 37 for Australia)	39	24	22		25	20	28
Median age of Aboriginal residents	24	41	n/a	n/a		n/a	n/a	n/a
Worked full-time	9241 (70.80%)	50 (82%)	22 (28.6%)	n/a		n/a	24.1% (14)	15 (31.9%

Data	Alice Springs UCL	Ti Tree UCL	Laramba	Pmara Jutunta (Six Mile)	Alyuen	Nturiya (Ti Tree Station)	Willowra	Yuelumu (Mt Allen)
Worked part-time	2494 (19.1%)	8 (13.1%)	42 (54.5%)	n/a		n/a	44.8% (26)	20 (42.6%)
Unemployed	404 (3.1%)	0%	10 (13%)	n/a		n/a	25.9% (15)	3 (6.4%)
Unemployed Aboriginal	155 (12.4%)	0%	n/a	n/a	Little data available: Community living are, six houses with a fluctuating population of less than 100, mostly older residents with a transient younger population	n/a	n/a	n/a
Labour force participation	13,058 (69.5%)	n/a	n/a	n/a		n/a	n/a	n/a
Industry of employment	Public administration and safety (2207), health care and social assistance (1934), education and training (1263), retail trade (1203), construction (993), mining industry (75).	Local government administration (33.9%), fuel and retailing (16.1%), education (12.9%), farming (11.3%), mining (6.5%).	Local government administration (75.8%), stores (10.6%), civil, professional (6.1%)	n/a		n/a	Civic, professional (18.6%), education (16.3%), local government administration (14%), farming (9.3%), stores (7%)	Local government (37.5%), stores (12.5%), creative and performing arts (12.5%), education (8.3%), civil, professional (8.3%)
Language other than English spoken at home	Arrernte (1.5%), Malayalam (1%), Warlpiri (1%), Pitjantjatjara (.8%), Luritja (.7%)	Anmatyerr (30.9%), Kaytetye (4.1%), Warlpiri (3.3%)	Anmatyerr (82.6%), Warlpiri (2.8%), Luritja (1.6%), Alyawarr (1.2 %), Eastern Arrernte (1.2%)	n/a		n/a	Warlpiri (87.2%)	Anmatyerr (60%), Warlpiri (11.2%), Kriol (1.5%)
Religion	None (26.1%), Catholic (21.6%), Anglican (10.5%), Lutheran (7%), United Church (4.8%)	36% Lutheran, 16% Catholic, 13.6% no religion, 5.6% United Church, 2.4% Anglican	Lutheran (62.7%), none (29.8%), Catholic (4%), United Church (2%)	n/a			Baptist (63.6%), Pentecostal (10.5%), Catholic (3.6%), Lutheran (3.2%)	Lutheran (43.7%), Pentecostal (21.4%), Catholic (7.3%), Baptist (5.8%)

4.1.1.3 Ti Tree

Ti Tree, about 55 km north of Aileron and the closest town to the Nolans project, is largely a service town of just over 100 people, just over half of them Non-Aboriginal (see Table 4.3) providing services to nearby Aboriginal communities and outstations and passing travellers on the Stuart Highway.

There is no private home ownership as all but two houses are owned by employers such as the Government and Council and allocated to Aboriginal and non-Aboriginal workers providing government services, municipal services with Central Desert Regional Council's Anmatyerr office or supporting a small retail sector (stores, roadhouse). The 2011 Census statistics shows 0% unemployment recorded in Ti Tree and a low proportion of young people living in the town.

Reflecting this unusual demographic profile, the non-Aboriginal population is largely adult, occupancy rates of houses are relatively low (2.5 per household compared with 4.2 for Laramba and 5.9 for Pmara Jutunta). In mid-2015 there were no non-Aboriginal children enrolled at Ti Tree school in mid-2015 and only two non-Aboriginal children living in the town (attending School of the Air) (SIA interviews).

Although some non-Aboriginal workers commute to work in Ti Tree from nearby farms and pastoral properties, most of the town's non-Aboriginal population is transient. Sanders and Holcombe (2007) interviewed several government staff, most of whom said they were likely to move on within the next few years for other work. Similar comments were made during interviews for this SIA.

There is high mobility of Aboriginal people between the Ti Tree - where they work, attend school, shop and access other services – and nearby communities, including permanent and temporary camps along a creek running behind the Council offices (Sanders 2009). Many Aboriginal workers commute in to government jobs in Ti Tree from communities such as Pmara Jutunta (Six Mile).

Most of the Aboriginal population of Ti Tree is Anmatyerr (see Table 4-3).

4.1.1.4 Aileron

Aileron is essentially the Aileron Roadhouse, on land excised from Aileron Station, established in 1929. The roadhouse has been owned for the past 30 years by Greg Dick. It includes a caravan park, motel style accommodation, a bar frequented largely by Aboriginal people from nearby communities, a petrol station and an Aboriginal art shop. It provides services to nearby Aboriginal communities, bus lines and general traffic passing between Alice Springs and Tennant Creek.

Given that the project site is only 10 km to the west, the roadhouse invested in a major expansion of accommodation in recent years in expectation of providing accommodation to Arafura, which maintains an office behind the roadhouse. To date, the expectation of major business has been realised only during drilling campaigns by Arafura but the roadhouse is likely to provide accommodation for many workers during the construction phase of the Nolans project.

Known for its iconic 'Anmatyerr man' statue on the hill overlooking the roadhouse and more recent Anmatyerr woman on the flat below, the Aileron Roadhouse also becomes a hub of activity for the annual Easter Aileron Bush Weekend that attracts pastoralists, tourists and Alice Springs residents.

4.1.1.5 Alyuen

Alyuen is an Anmatyerr family outstation, also known as Aileron Community, and the closest community to the mine (being about 10 km from the Nolans site). It has a small permanent residential population of about six houses and 25 people (personal communication, Central Desert Regional Council), including senior traditional owners. There is high mobility between Alyuen and Pmara Jutunta (Six Mile) and police report (SIA interview) that drinkers often camp at Alyuen after buying takeaway alcohol at the Aileron Roadhouse nearby.

4.1.1.6 Laramba

Laramba is a key community for this project as it is closest to the processing plant (about 50 km) and borefield, it is in the water catchment for the processing plant and is home to mostly Anmatyerr people (see Table 4.3), including traditional owners for the land covered by the mine site.

Laramba is a community living area excised from Napperby Station, 205 km north-west of Alice Springs. The community began in 1983 on Napperby Station, moved to its current location in 1984 and was granted freehold title in 1992. “Before moving back to Laramba many of the people worked in the South Camp at Napperby Station, living in humpies and depending on the soakage for water.” (Remote Area Health Corps community profile of Laramba, October 2009)

In July 2013 at a special sitting at the Laramba community living area, the Federal Court handed down a determination of non-exclusive native title that recognised the rights and interests of Anmatyerr and Arrernte native title holders whose countries includes Napperby Station (CLC 2013-14 Annual Report).

Access is by the Napperby Station Road, which runs west from the Stuart Highway, 122 km north of Alice Springs (the community is 83 km from the turn-off) or a track to Tilmouth Well Roadhouse on the sealed Tanami Road.

4.1.1.7 Pmara Jutunta (Six Mile)

Pmara Jutunta, or Six Mile, is a community of nearly 200 people about 10 km south of Ti Tree. The population is reportedly quite mobile with families moving between Pmara Jutunta and Alyuen. Many people commute from Pmara Jutunta to Ti Tree for work and school. Most of the residents are Anmatyerr but anecdotally, there has been a movement of some Warlpiri people to the community. Residents include traditional owners for the project land. Census data and anecdotal accounts during SIA interviews suggest a high level of overcrowding (see Table 4-3).

4.1.1.8 Willowra

While Willowra is a Warlpiri community (Table 4.3) and well away from the project’s footprint, it is included in the area of study for the Nolans Project. Willowra people use Ti Tree as a service town and there is reportedly regular mobility between Willowra and Ti Tree, and occasional tensions between Warlpiri and Anmatyerr residents which could increase with aspirations to jobs and benefits from the Nolans project.

4.1.1.9 Nturiya (Ti Tree Station)

Nturiya is 17 km to the west of Ti Tree on Land Trust land. Access from Nturiya to Ti Tree is via a dirt road and the community is connected to Ti Tree’s electricity and water systems. Children are bussed in to school at Ti Tree. There has been social unrest in Nturiya, resulting in damage to houses and a drift of people to Ti Tree camps. Again, this community is included in the area of study because of its connections to the service centre of Ti Tree and potential aspirations to share in the benefits of the project.

4.1.1.10 Wilora

Wilora is on Stirling Station, off the Stuart Highway near Barrow Creek about 100 km north of Ti Tree. It has a population of 111 and 28 dwellings, with a median age of 26 and average of 4.4 people per household (ABS 2011 Census, Quick Stats). Housing services are provided by Central Desert Regional Council, Anmatyerr Ward.

Wilora is close to TNG's proposed Mount Peake titanium and vanadium mine.

4.1.1.11 Yuelamu (Mt Allen)

Yuelamu is 290 km north-west of Alice on the old Mt Allen Pastoral lease. Access is from the Tanami Highway. It is included as a relevant regional community because SIA interviewees mentioned mobility of residents between Yuelamu and Pmara Jutunta and other Anmatyerr communities.

4.1.1.12 Community cohesion, resilience and governance

Alice Springs

Alice Springs is a major regional centre with a large service economy. The town has a large Aboriginal population, many of them long-term Aboriginal families and descendants of the Stolen Generation, with a growing middle-class of Aboriginal people in the town who are better educated and in the workforce. At the same time, there is a large disadvantaged and more mobile population of people living in town camps, public housing and temporary accommodation moving in and out of Alice Springs from remote communities to visit relatives, for sport or to access services.

There is occasional polarisation of views between the old families and newcomers often coming to work for Aboriginal organisations or young professionals working for government departments and non-government organisations, between a strong conservative core and passion for social justice and between advocates of development and protection of the environment.

What unites Alice Springs residents is a love of their landscape and lifestyle. What divides at times is the tensions over how to resolve alcohol abuse, crime and anti-social behaviour.

Area around Aileron, Laramba and Ti Tree

Ti Tree is largely a service town with a significant proportion of government and council staff providing services to the Aboriginal communities that surround it. While Ti Tree is on Anmatyerr land, it is surrounded by Warlpiri, Luritja, Katyetje and Alyawarre land.

There have been tensions between Warlpiri and Anmatyerr people, particularly in communities with mixed populations such as Willowra, and a high level of mobility of Warlpiri and Anmatyerr people in the region. This includes people coming into Ti Tree creek camps from Nturiya and Willowra in particular for shopping and to escape conflict. On the other hand, it was described as one SIA interviewee as 'quite a blended community' where outsiders – Aboriginal and non-Aboriginal – would be likely to fit in.

Incidents in the past few years have included torching of cars, burnt houses and fighting in Nturiya, Pmara Jutunta and Willowra, eg "A series of riots in Ti Tree have been blamed on an invading Aboriginal group" (Sinclair 2013), "Men charged as outstation feud hots up" (*ABC News*, 13 November 2013), "Week long riots reignite in Ti Tree, 200 km north of Alice Springs" (Sinclair & Brown 2014).

Pmara Jutunta (or Six Mile), just outside Ti Tree, has a mobile population and was described by service providers as having a higher level of alcohol abuse and violence. People from Pmara Jutunta access services and jobs in Ti Tree. Services providers expressed concern about a large cohort of bored and unemployed youth. They were

also concerned at the divisions caused whenever there are royalty payments which translate to family conflict, an in-migration other families to access money, reduced school attendance and high rates of alcohol abuse and violence.

Laramba was described by interviewees as a more stable, functional community with a better employment history and relatively little conflict, although there are occasional police call outs from Ti Tree and Yuendumu to alcohol-related violence.

4.1.2 Potential social impacts identified

Table 4-5: Potential social impacts in relation to population and communities

Potential positive impacts	Potential negative impacts
Improved socioeconomic status of residents in Alice Springs and the Anmatyerr communities	Reduced community cohesion Reduced community resilience Reduced community amenity Reduced volunteering Mine creates dependency (e.g. on royalty payments) Weakened power and governance structures Weakened power and governance structures

Note: These are potential impacts identified. The risk assessment process provided low risk ratings for some of the potential threats on the assumption that they were immaterial, low-risk, short-term or could be managed, however, given the high levels of uncertainty about any social impacts, all – positive and negative - are included in this report.

4.1.3 Analysis and prediction of impacts on populations and communities

4.1.3.1 Overview

Impacts on community cohesion could potentially come from two sources: one is the influx of workers and their families to Alice Springs and the local region creating tensions with the existing communities, including jealousies from Aboriginal people if they perceive others getting jobs while they remain unemployed. The other is the tensions that can flow from the distribution of benefits, including wages and royalty payments, particularly management of cash payments.

There are high levels of uncertainty about these impacts and management of them is only partly under Arafura's control. This would be the case particularly if the impacts are cumulative as a result of other change in the region, such as other large mining projects. What is equally important is the community's resilience, or ability to adapt to change and find solutions in partnership with Arafura to manage the impacts.

Key mitigation strategies will be ongoing community engagement, working with the CLC on agreements with traditional owners to maximise non-cash components of a community benefits package and managing workforce issues that could lead to community tensions.

4.1.3.2 Reduced community cohesion

Community cohesion is the extent to which different community groups live in harmony based on the strength of relationships and networks. Impacts on cohesion may start with rumours about a project, which can amplify people's fears and anxieties (Vanclay et al. 2015) or even the social impact assessment process itself.

There is no question that major mining projects bring change to communities, both positive and negative, acceptable and disruptive, and sometimes dynamic (Franks 2012) through an influx of workers, particularly during construction, families moving into the region, wages and royalty payments and flow-on effects to the character

and demographic composition of a region. The changes may be welcome or they may be sudden, life-changing and unwelcome.

A major project such as the Nolans project could disrupt community cohesion - whether Anmatyerr communities or regional centres such as Alice Springs - in several ways:

- by changing the fabric of the community through a major change in its democratic composition if the mine creates new power structures
- by creating or exacerbating tensions and conflict between families over access to jobs and benefits
- jealousy over cash royalty payments, with people migrating in to communities based on rumours of royalty payments (which reportedly happens now with lease money or mining exploration payments)
- community opposition to projects can polarise people and create conflict and anger, opening fault lines between opposing views - for example mining, use of water, radiation and waste storage.

While Arafura is aiming to maximise local Aboriginal and non-Aboriginal jobs and training, labour force data and the experience of other regional exployers suggest numbers will be limited, particularly given the large number of 400-500 employees needed for construction and 250-300 during operations.

Arafura expects 70% of its workforce to come from outside the Northern Territory, with impacts of the project varying according to the accuracy of this prediction and how well the direct and indirect consequences of this significant movement of people are managed.

For short-term, short-duration bursts of activity, the use of fly-in, fly-out workers can cushion small towns from the transient nature of mining work. These workers can be housed in temporary accommodation villages and isolated to avoid social pressures from an influx of largely young, single, highly cashed up men who have little social connection with local communities. Given Arafura's intention to have a permanent workers' village for 400 people and a temporary mobile camp for peak construction periods, this impact will be minimised but is unlikely to be completely eliminated, particularly during construction when most of the peak workforce of 400-500 is likely to be flying in, taking up some short-term accommodation, adding to traffic on the Stuart Highway and taking up rooms at the Aileron Roadhouse

Providing jobs and training for local Aboriginal people is a key potential benefit of a project like this. However, a key issue raised during interviews for this SIA were concerns the payment of higher wages and royalties can also lead to jealousies and family conflict over who gets the benefits from projects while tensions can arise from in-migration of people from nearby communities looking to share the benefits. Stakeholders interviewed for the SIA expressed concerns that wages and royalties would be spent on alcohol, gambling and cars, further undermining community cohesion through domestic violence and fights. Other flow on effects include poor work and school attendance and increased overcrowding.

The issue of cash payments is problematic as it is largely outside a proponent's control. Cash royalties is partly a cumulative issue as royalty payments are already made for parks and township leases. The duration of impacts is generally immediate and short-term as royalty payments are infrequent. Solutions will need to come largely from the community but Arafura is advocating for a significant proportion of any compensation package to be in the shape of a community benefits package.

The issue of managing wages is more significant as workers will receive regular payments. However, this is also more under the company's control as it can include money management programs for its workers (see below).

The extent to which this is a problem may also be inversely related to Arafura's success in recruiting local Aboriginal workers.

It is predicted that the Nolans project will impact on community cohesion in the area around the mine, however, the extent to which this will happen is uncertain. The impact is likely to be short-term as the community adapts to the change.

The project is unlikely to have a major impact on community cohesion in Alice Springs, except by contributing to the cumulative impacts of a large number of major projects, should they all eventuate. The mine may attract new families and potential migrant workers to the town but SIA interviewees felt changes in the demographic composition of the town, while hard to predict with any certainty, would be absorbed.

4.1.3.3 Reduced community resilience

Community resilience is the capacity of a community to absorb and adapt to change. This may depend on the rate of change or the extent to which it threatens existing community composition and values. Research (Taylor & Goodrich 2011) suggests that communities are more resilient when they feel control over change rather than experiencing a loss of control.

A highly visible presence of young, male construction workers from outside the community can cause resentment by local people, particularly if they missed on out higher paid jobs and business contracts and see money leaking from the economy through imported labour. Taylor and Winter (2013) cite research that suggests towns can typically deal with annual population growth rates of 5% but rates in excess of 15% lead to institutional breakdowns.

Already communities in Central Australia are expressing concerns, including by Aboriginal people, at the pace and scale of change flowing from frequent policy changes by the NT and Australian Governments and the Develop North Australia agenda, including impacts on water and the environment (personal experience of the author during consultation for other projects). For Aboriginal people, the constant change can be unsettling:

> *When I think about the relationship between government and Aboriginal people during the past year I think about a horse running away without a saddle. It hasn't carried us along with the changes it keeps making. (Chair of the Central Land Council Francis Kelly, CLC 2013-14 Annual Report, Acting Chair's Report, p.3)*

It is useful to think of a community as an ecosystem. If disturbed, the ecosystem may readjust or it may be overwhelmed. So it will be important to monitor the level of change Alice Springs and Aboriginal communities around Aileron can absorb, plan measures to cushion these communities from adverse change and adopt an adaptive management approach that is poised to readjust company activities if avoidable negative impacts emerge.

Based on stakeholder interviews, it is predicted that Alice Springs will be resilient in adapting to change from the mine because the town should be able to absorb change. Communities near the mine may be less resilient to the scale of change, which is closely related to the extent of impacts on community cohesion. The extent of impacts is highly uncertain and is likely to depend to a large extent on perceptions of benefits and Arafura's ongoing social performance and community engagement.

4.1.3.4 Weakened power and governance structures

Power structures can be informal and formal, based on democratic participation or traditional decision-making. The key governance structures that impact on the daily lives of Central Australians link either to service delivery (Northern Territory Government, Regional Councils or Alice Springs Town Council) or structured traditional decision-making linked to native title rights (through the CLC).

The introduction of a major economic activity such as mine can disrupt existing structures by drawing community leaders away or upsetting the equilibrium of traditional structures by allocating power to particular families or individuals based on a new status through jobs at the mine. However, many other factors can undermine governance structures, such as the mobility of people, willingness and capacity to contribute, broader social trends including social media, apathy and loss of traditional decision-making structures as young people move away from their country.

Setting up consultative structures, for example through community committees or reference groups, can provide valuable participation in decision-making on project-related issues but needs to complement and respect existing governance structures and how they might be undermined.

It is predicted that the project's contribution to weakened governance structures will be minimal and partly incremental, given the level of social change challenging institutions and governance structures.

4.1.3.5 Reduced community amenity

Residents often move to a community because of its character or amenity, such as lifestyle, landscapes, creativity or neighbourhoods of like-minded people.

Resource projects can change this by bringing change to neighbourhoods and lifestyles, with a new mix of people. For example, one SIA interviewee, commenting on the potential negative changes of a major project on a small town like Alice Springs, made the comparison with the influx of mostly male INPEX workers (for the Bladin Point LNG plant) in their reflective yellow and orange shirts and white buses changing the amenity of Darwin because of perceptions they have changed the demographic mix, taken up hotels rooms previously used by tourists, drawn local workers away to higher paid jobs and changed retail spending patterns.

A House of Representatives Standing Committee on Regional Australia's inquiry into fly-in fly-out and drive-in drive-out workforces (2013) found that a large influx of non-resident workers to a town can cause permanent disruption to the social fabric, safety, image and amenity of communities and give a transient feel to towns. An influx of young men can be a volatile mix and change community dynamics "typically injecting a large number of young men living in temporary accommodation and with no community connection and little to do when off shift… Communities with significant FIFO populations are finding themselves torn between wanting to support the major employer and wanting to maintain the culture of their towns."

Quarantining the impacts of large numbers of FIFO workers by accommodating them in a workers' village on site should reduce this potential impact while it is predicted that Alice Springs can absorb the likely permanent workforce without significant changes to community amenity. However, this could change with the cumulative impacts of several projects and perceptions that Alice Springs has become a 'mining town'. There may also be short-term pressures during construction, when a peak workforce of 500 is expected.

Amenity can also relate to nuisance or disturbance, such as industrial noise, dust, extra traffic and reduced privacy for communities close to the mine. Aileron Station in particular has expressed concerns at the likely impact of industrial activities and traffic on a section of the station close to the homestead and the influx of a large number of workers to an accommodation village on the property. These impacts can be quarantined to a

some extent by locating mining facilities away from inhabited areas, through access agreements with pastoralists and through a Code of Conduct for workers to control behaviours that might reduce amenity, such as speed limits, dust suppression and noisy mining activities.

4.1.3.6 Reduced volunteering

Volunteers are the backbone of many communities, from running historical and sports venues, to working with the disadvantaged and emergency response activities. For example, fire, emergency and ambulance services in the Northern Territory depend strongly on volunteers. The people most likely to volunteer are retirees wanting to stay connected with their community and do something interesting and useful or younger people with spare time to give back to their communities.

Recent Australian Bureau of Statistics data shows volunteering rates in Australia dropped 4% in 2014, with 75% of people surveyed saying they felt rushed or pressed for time (ABS General Social Survey for 2014, quoted in media release by Volunteering Australia, 1 July 2015). Volunteering Australia CEO Brett Williamson said the rate of volunteering was "a key indicator of healthy communities and any decline in community participation was troubling".

The ABS report found that volunteering was associated with higher levels of education, while the key reasons Australians volunteer are:

- help others/community (64%)
- personal satisfaction (57%)
- to do something worthwhile (54%)
- personal/family involvement (45%)
- social contact (37%)
- to be active (35%).

Volunteering, including sports groups, may be challenged if a large component of the town's workforce is away for significant periods on mining rosters or if older people are displaced and leave town. If a significant proportion of Alice Springs' population works on remote mining projects, this is predicted to have an impact on sports teams and their administration which has reportedly occurred already in Darwin. It is predicted to have less impact on other voluntary activities which may already be suffering from the departure of people from Alice Springs as they reach retirement age.

Minimal impact is predicted in the local area around the mine. Ti Tree Police perform most emergency duties themselves due to a limited number of local emergency services volunteers and the mine may enhance local volunteering as part of its community relations, such as contributing to local emergency response groups or community projects. In March 2016, the ABC reported that volunteers were being sought to establish an emergency response unit in Ti Tree (Coates 2016).

4.1.3.7 Mine creates dependency

A potential impact of mining is that workers, businesses and the broader community become accustomed to better wages and expenditure by the mine, particularly if businesses 'put their eggs in one basket' and don't diversify. The extreme manifestation of this is the closure or shrinking populations of mining towns (both those built to service mines such as Nhulunbuy and Jabiru and those whose economies have adjusted to serve mines such as Pine Creek).

In Alice Springs, other economic sectors such as government administration and tourism are likely to mitigate against this risk, however the number of mines proposed in the region could create a sectoral shift in the workforce, draw people away from less well-paid sectors and create dependence on one economic sector. The long-term nature of the Nolans project should reduce the cyclical impacts experienced with large-scale, short-duration mining projects.

For communities near the mine, there are fears of royalties becoming a new form of welfare, partly if there is a significant proportion of cash payments rather than community benefits. This has been experienced by other mining and horticultural projects in the region, which found it hard to recruit local people (comments during SIA interviews). This phenomenon is predicted to be a significant issue in the short-term which will be largely out of Arafura's control. It may be alleviated by working with the community on employment and community development strategies and the proposed community benefits package minimising cash payments.

4.1.4 Management and mitigation on impacts on people and communities

Key mitigation strategies will need to be adaptive, to monitor and respond to community impacts. They include:

- implementing the Social Impact Management Plan
- the terms of the compensation package negotiated with the CLC minimising cash payments
- a community reference group
- a community liaison officer
- a strict Code of Behaviour for workers to control interactions with the community
- negotiated access agreements with pastoralists.

4.2 Employment and economies

Table 4-6: Key findings on Employment and Economies and how they address TOR and SIA Guidelines

Key findings	Reference	Reference to TOR and Guidelines	Reference to Risk and Opportunity Assessment
Alice Springs, as the key regional centre for the project, has experienced a decline in population and business confidence, with consequent downward pressures on housing availability and affordability.	4.2.1.2		n/a
While the resource sector is important to the Territory's economy, there has been a marked decline in mining exploration and production, with most operating mines in the Territory closing or scaling back production.	4.2.1.2 4.2.1.5		n/a
A major influx of workers and their families to Alice Springs could increase demand for goods and services, in particular housing, which could lead to inflationary pressures.	4.2.3.11		Threat 7
The project offers substantial regional economic growth potential through expenditure on wages, business growth, providing services and the indirect impact of families moving to Alice Springs and spending money in the local economy. However, failure to win work could generate negativity, while providing services to the project could also reduce business capacity for other work. There is always the risk with big projects of creating a 'boom bust' effect.	4.2.3.4 4.2.3.6 4.2.3.10	4.5 of TOR regarding economic benefits of the project 5.1.2 of SIA Guidelines	Threat 4 Threat 5 Threat 8 Opportunity 20
Tourism is a key economic sector in Central Australia and would be vulnerable to some project impacts, such as the loss of staff to better-paid jobs and crowding out of business and general tourism due to the project taking up short-term accommodation and airline seats.	4.2.1.3 4.2.3.8		Threat 9
Although education outcomes are improving for Aboriginal students in the Territory, there is still a major gap between Aboriginal and non-Aboriginal outcomes and school attendance which will affect job-readiness for the project. The Department of Education has seen a major increase of VET placements in Alice Springs schools but is now struggling to find placements for these students.	4.2.1.7	5.1.3 of SIA Guidelines	
While there are high levels of unemployment among Aboriginal people, there are low levels of unemployment among non-Aboriginal residents and better educated Aboriginal people. Age profiles suggest a large cohort of Aboriginal school leavers about to enter the labour force, so the project provides substantial opportunities for school leavers to transition to real jobs. Employers and business groups report trouble attracting and retaining Aboriginal and non-Aboriginal labour. The project may also offer business and job opportunities in areas such as land management.	4.2.1.8 4.2.3.1 4.2.3.2	5.1.3 of SIA Guidelines 6.3 of SIA Guidelines	Threat 5 Opportunity 19 Opportunity 22
Additional sources of labour may come from the growing migrant population in Alice Springs and the NT Government's Sentenced to a Job program.	4.2.1.10		
A likely negative impact of the project is that Aboriginal and other workers will leave existing jobs, rather than unemployment queues, particularly with Government quotes for Aboriginal participation in the workforce.	4.2.3.3		Threat 3
The project may be seen by pastoralists as incompatible with existing land use, for example the emergence of organic farming.	4.2.39		Threat 10

4.2.1 Background on the Territory's economy and educational outcomes

4.2.1.1 The Territory economy

The 2015 Northern Territory Budget outlined strong economic growth for the Territory, strengthening from 4.3% growth in 2012-13 to 6.5% in 2013-14, the highest growth rate of all jurisdictions. In the next few years, it predicts the Territory economy will transition from investor-led growth to growth driven by production and exports, particularly as major projects such as the INPEX LNG plant move from construction to production.

The Northern Territory economy is dominated by construction, government and community services and mining, which account for about half the Territory's total economic output. The picture for jobs is slightly different, with nearly 40% of jobs being in the government and community services sector followed by construction, retail and trade, mining (contributing 13% of GSP but only 4.3% of the workforce), manufacturing and agriculture, forestry and fishing. Treasury predicted that the Territory would receive $164.1 million in mining revenue in 2014-15 with a forecast of $167.7 million in 2015-16 (2015 Budget papers).

Treasury expected a softening of labour market conditions as the Ichthys LNG project moves from construction to export and reported a moderation in CPI increase from 3.9 in 2013 to 2.9 in 2014, largely due to lower housing rental and purchase costs.

The Government has restructured regional economic development committees in each of the regional centres, commissioned a regional infrastructure and other transport studies and in late 2014 released a *Discussion Draft Northern Territory Economic Development Strategy* in which the Chief Minister is quoted as saying the foundation for the Territory's growth was 'our abundant natural resources, our unique cultural assets, our iconic natural landscapes, an entrepreneurial spirit and the resilience and ingenuity of Territorians'.

The seven priority opportunities for a prosperous economy were listed in the strategy as being:

- energy resources
- minerals
- tourism
- agribusiness
- international education and training
- Defence
- supply and service.

The six economic enablers were listed as:

- land and water
- infrastructure
- domestic energy
- human capital
- investment
- a supportive government.

4.2.1.2 Alice Springs economy

Government (Budget papers 2015) and business report a declining population in Alice Springs. Anecdotally, in line with Treasury analysis, many of those leaving town are long-term residents as they retire. Alice Springs businesses report increasing vacancy rates of 7.5% for residential and 17.5% for commercial properties and declining prices and rents (NT Chamber of Commerce). The Chamber of Commerce reports that its membership in Central Australia has declined from a peak of about 300 members three or four years ago to about 230 in mid-2015, partly due to closures and businesses declining, as well as the departure of some of the town's productive workforce. ABS regional summary data shows a decline from 2072 Alice Springs businesses in 2011 to 1942 in 2013. The largest business sector in Alice Springs remains the construction industry, but with a drop of 396 to 350 construction-related businesses between 2012 and 2013.

The Sensis Index of business confidence published in March 2015 reported a drop in Territory small business confidence by 11 points to +35, from a high of +63 (Dunlop 2015a; *Sensis 2015*). However, business confidence was still higher than most other Australian States except New South Wales and the rate of businesses worried about the year ahead was 18%, compared with 29% a year earlier. The figures are not broken down by region. In June 2015, fewer businesses in the Territory were reported as planning to take on new staff (Dunlop 2015b), while property sales in Alice Springs were reported as 'off peak' (Menzies 2015) or 'shuddering to a halt' at Kilgariff (Forth 2015). Real Estate Institute of Australia NT figures showed a 40% drop in house sales in Alice Springs in the first quarter of 2015 attributed to changes to the Northern Territory Government's First Home Buyers Grant (Forth 2015).

Mining exploration has declined markedly, with mining jobs in the Territory growing 170% between 2003 and 2012 (Kunkel 2014) but dropping by 500 jobs (Small Area Labour Market, Department of Employment, March 2015 quarter) in the year to March 2015. At the March 2014 AGES, the Executive Director of the NT Geological Survey, Ian Scrimgeour, said mining was the most important driver of regional economic development and accounted for 20% of the Territory's GSP. However, he said, exploration expenditure was 'in serious decline'. By 2016 the Department of Mines and Energy was reporting this effect as levelling out.

While the resource sector is still a major contributor to the Northern Territory economy (see Economic Study at Appendix T), the contribution of mining has been hit by the global downturn in commodity prices. The past year has seen the closure or downgrading of most of the Territory's mines and several companies going into administration. This includes the closure of Territory Iron, Sherwin Iron and Western Desert Resources, the closure of ABM Resources' Old Pirate Gold mine in the Tanami and associated Coyote refinery, OM Manganese shutting its Bootu Creek manganese mine after going into administration, ERA deferring expansion plans, Rio Tinto shelving its Nhulunbuy aluminium refinery and proposed gas pipeline and, in early 2016, Glencore and South 32 announcing they would lay off staff at their McArthur River Mine and Groote Eylandt manganese operations respectively. The pace of onshore gas exploration has slowed due to global oil prices and opposition to fracking.

The 2015 Northern Territory Budget had a strong focus on Alice Springs, with money for regional tourism infrastructure such as roads, sports facilities, early childhood and childcare facilities. Key projects under discussion include a potential rail link from Tennant Creek to Mt Isa and North-East Gas Interconnector pipeline linking from the Mereenie Pipeline to the East Coast through Mt Isa, as well as a focus on regional economic development based on energy and innovation.

The town's economy is driven by public administration, with 20.9% of Alice Springs jobs in the public administration and safety sector (see Table 4-2) including services to remote communities across a harsh, remote and sparsely populated area. The Central Australian economy and population were artificially swollen by a flood

of public servants and tradesmen during the Australian Government's Intervention, with inflationary pressure on services such as accommodation, which have since eased.

Gerritsen, Stanley and Stoeckl (2010) found that Aboriginal people and institutions are the core of the Alice Springs and Central Australian economy - and a growth sector. This contribution comes from the incomes and benefits received by Aboriginal people living in Alice Springs, money spent by Aboriginal people on goods and services and expenditure by organisations which exist because of the presence of Aboriginal people such as government services and tourism. They also found that $17 million a year is paid to Aboriginal people in Central Australia in parks and mining royalties.

Constraints to economic growth raised in interviews include the town's capacity to provide services to major projects at the scale and standard expected, difficulties attracting a workforce, a downturn in international tourism with the global financial crisis, a dependence on air connections, and distance from other population centres.

Alice Springs is in the centre of Australia so acts as a transport hub for roads, rail and air. Its generally sunny climate has attracted a strong solar research sector and the town was one of Australia's five 'solar cities' until funding came to an end in 2013. Energy is provided by natural gas from the Mereenie gas fields, 200 km west of town.

The NT Government has implemented changes to procurement to see more local people employed on roads, housing and other government projects, attracting investment for horticultural and agricultural projects, providing roads and enabling infrastructure to the tourism sector and, above all, getting Aboriginal people into jobs.

4.2.1.3 Tourism

Tourism is a key sector of the Territory economy, contributing 16,000 jobs (13% of employment) and 9.1% of Gross State Product (Tourism NT website sighted 25 October 2015). It plays a particularly important role in regional areas such as Central Australia, with a focus on attracting tourists for an experience based on the 'Outback', nature and culture, with spin-offs for small Aboriginal businesses, art shops, retail and dispersion to remote areas.

However, tourism is vulnerable to global financial trends and the sector had been in decline in the Territory since 2000 when Tourism NT launched its *Tourism Vision 2020* in September 2013. The strategy had a goal of growing tourism's Gross Value Added (GVA) from $1.62 in 2011-12 to $2.2 billion by 2020, as measured by overnight visitor numbers. This equates to a 3.1% growth a year and 4300 new jobs.

Key tactics of the strategy are to work with airlines, improve the tourism experience and grow the tourism workforce, including jobs in hospitality and retail. Tourism NT also moved its headquarters and Chief Executive Officer to Alice Springs, reflecting the importance of tourism to the regional economy, and in 2015 embarked on a major advertising campaign to bring visitors back to the regions (Do the NT).

Key enablers of growth outlined in the strategy included increased aviation and transport links, an improved range and stock of accommodation and increased availability of labour and skills, all factors which are sensitive to major resource projects taking up airline seats, hotel rooms and workers. The *Tourism Vision 2020* (2013, p. 15) notes that, at peak times, the resource sector "is having a crowding out effect on the leisure market, displacing leisure visitors from accommodation properties or rendering room rates unaffordable". Tourism operators in July 2015 were expressing fears that direct flights to Uluru were undermining Alice Springs' tourist market (Garrick 2015a).

The latest data from Tourism NT (website sighted October 2015) suggest a slight recovery, with the visitor economy now estimated to be worth about $1.7 billion in GVA. Tourism NT reports that visitation trends are promising, noting that the decline in petrol prices has probably boosted the 'grey nomads' or self-drive sector, although a decline in low-cost airlines and structural issues had seen a decline in backpackers (SIA interview).

Occupancy rates in Central Australia April 2015 were an average 66% or 7.6 percentage points up against the same time last year (Tourism NT Quick Stats) with revenue per available room rates for 3.5 to 4.5 star hotels up 12% to an average $78 while room rates were relatively steady (down 0.7% to $118) based on increased demand. Occupancy rates reached up to 80% at peak periods, such as October.

Domestic air access to Alice Springs is through Qantas and Virgin. Budget carrier Tigerair ceased its flights to Alice Springs in July 2014 after only a year serving the route. A large proportion of visitors travelled only by plane (41% of interstate and 61% of international tourists), while another 16% and 15% respectively came for fly/drive holidays. International travellers (30%) were most likely to travel by bus or coach tours.

In September 2015, Airnorth announced the start of an intra-Territory route, with three flights a week on a 30-seater Embraer aircraft travelling from Darwin-Katherine-Tennant Creek and Alice Springs. Apart from connections to Uluru, most other air travel in Central Australia is charter flights.

A key area of decline is the backpacker market, which traditionally contributed to Alice Springs' casual labour force, blamed on changes in backpacker travel and fewer cheap flights to Central Australia. As an indication of this decline:

- in 2008, the Melanka Lodge backpacker hostel and nightclub closed, with a loss of 145 beds and a series of proposals since then to redevelop the site;
- in September 2014, Annie's Place closed after 15 years' trade, with the owner saying occupancy fell to about 25-30 % when Tigerair pulled out of Alice Springs (Sleath 2014);
- in June 2015, Toddy's in Gap Road closed.

4.2.1.4 Horticulture and primary industries

The Northern Territory Government is keen to expand the horticultural sector, to boost regional growth and jobs, by promoting the availability of land with good soil, a good climate and access to good water.

The Ti Tree region has long been seen as a potentially prime horticultural zone, first for grapes and now for crops such as melons. On the western side of the Stuart Highway, land on Ti Tree Station was taken up in the mid-1970s for vegetable and fruit growing by Ian Dahlenburg and his family about the time the station was purchased as a cattle property on behalf of the local Anmatyerr people.

An Anmatyerr Regional Development Plan released in 2003 identified expansion of the horticultural industry as a potential economic driver for the region but also saw power as a key constraint. The Ti Tree Research Farm was established to support the emerging horticultural industry and a power line was extended south from Ti Tree (Landmark Harcourts Information Memorandum 2015).

On the east of the highway, land on Pine Hill station was developed in the mid-1980s for table grape farms. In 2007, Antmatyerr people negotiated an Indigenous Land Use Agreement that established a 25 square kilometre community living area on Pine Hill, horticultural blocks and an art centre at Mulga Bore on behalf of the Ilkewartn Ywel Aboriginal Corporation. Native Title rights were recognised in 2009.

Despite the potential for table grapes and melons, the industry has had mixed fortunes, partly due to the cost of pumping water for irrigation and the costly logistics of getting produce to market. In December 2014, TTG's

Territory Horticultural Farm (growing watermelon and pumpkins) went into liquidation, owing creditors $1.3 million, after its first crop was destroyed by unseasonal hail.

The Northern Territory Government in 2015 completed Native Title negotiations to convert the tenure of three additional Pine Hill blocks, one for Aboriginal development and two for private development. The two private blocks were sold at auction in June 2015 to a Melbourne company.

4.2.1.5 Mining

Various strategies over the years have looked at ways to increase the economic sustainability of Alice Springs, such as AliceIn10 (1999), Moving Alice Ahead (2007) and most recently Regional Economic Development Plans that have looked to major projects such as mining to lift the region's economy. The Annual Geoscience Exploration Seminar (AGES) conferences and exhibition in Alice Springs are designed to showcase the Central Australian mining industry while an associated seminar run by the Chamber of Commerce aims to link local businesses with resource activity in the region.

There is a keen interest in several mining potential mining projects in the region, including TNG's proposed Mount Peake vanadium and titanium mine, expansion of Newmont's Granites gold mine, Abrasive Metals' garnets mine on the Plenty Highway, a potential copper province on the Plenty around KGL Resources, Tellus Resources' proposed salt mine near Titjikala, expanded exploration and oil and gas production by Central Petroleum and Alice Springs potentially becoming a service and supply base for the proposed Metals X Wingellina cobalt-nickel mine across the West Australian border.

Mining is a major contributor to the Territory's economy, however, as outlined in Section 4.2.1.2, the past two years has seen several mines close or reduce production. At the March 2014 AGES, the Executive Director of the NT Geological Survey, Dr Ian Scrimgeour, said mining was central to the Territory's GSP and was the Territory's largest sector, the most important driver of regional economic development and accounted for 20% of GSP. However, exploration expenditure was 'in serious decline', dropping from $228.4 million in 2011 to $113 million in 2013.

Oil and gas is a key contributor to the Territory's GDP (see Economic Study) and the Government is pushing for an onshore gas industry which would have major economic benefits. However, exploration has decreased with the dual challenge of global oil price declines and community tensions over fracking and the industry's use of water.

The Chief Minister championed the proposed North-East Gas Interconnector (NEGI) pipeline project (now known as the Northern Pipeline), with the government in 2015 awarding the project to Jemena, who plan to build a gas pipeline from Warrego, near Tennant Creek to link with the Carpentaria pipeline at Mount Isa in Queensland. Central Petroleum has an agreement to supply the Power and Water Corporation with gas from Palm Valley in advance of production from its Dingo field.

4.2.1.6 Pastoral

The Northern Territory cattle industry covers 680,000 square km (45% of the Territory's land), producing 600,000 cattle a year and providing leadership in pastoral land conservation, market development and trade, regional development, Aboriginal employment and engagement (NT Cattleman's Association).

The pastoral industry is the Northern Territory's third largest GDP earner, equating to more than 60% of primary production in the NT, generating over $400 million directly and $800 million indirectly into the Northern Territory's economy and providing more than 1800 jobs.

NT producers supply cattle to all states and territories of Australia and produce quality animals suited for the growing live export trade to South East Asia, including an average of 300,000 cattle exported to Indonesia each year (NT Cattlemen's Association website sighted October 2015).

Most cattle properties in Central Australia, including those around the Nolans project, are still in the hands of the Territory's pioneering pastoral families although many properties reportedly have been on the market and some have been bought by national or overseas investors.

An emerging issue is conflict between the resource and pastoral industries over conflicting land uses and access. The Northern Territory Cattlemen's Association last year lobbied for mining and oil and gas explorers to be bound by access agreements and some cattlemen have expressed fears about the resource industry's use of water.

A growth area for the cattle industry in Central Australia is organic farming, where certification that cattle have been raised on natural pastures free of pesticides, herbicides and other chemicals, translates to premium prices on beef. The new owners of Aileron Station, the Caason Group, have indicated Aileron intends to apply for organic certification, along with the neighbouring Pine Hill Station.

4.2.1.7 Education

The Department of Education has a focus on reform of Aboriginal education to support the government's economic development agenda. It is keen to work with major employers such as Arafura to provide links to vocational training, increase the project's Aboriginal workforce and motivate students to consider careers in mining.

In 2014, the Department received a review of Aboriginal education in the Northern Territory, which guided the development of an Indigenous Education Strategy called *A Share in the Future: Indigenous Education Strategy 2015-2024*. The review found declining outcomes for many of the Territory's Aboriginal students, an average 58% attendance rate and that by Year 9 remote students were five years behind very remote Indigenous students in the rest of Australia.

The five elements of the Indigenous education strategy are:

- the education system takes the opportunity to directly shape education outcomes from the start of a child's life
- literacy and numeracy are essential for subsequent success in schooling
- successful completion of secondary education provides options and choices for young adults
- the best results are achieved when students are engaged with their learning and attend school regularly
- a high quality and stable workforce improves student learning outcomes.

The Department's priorities for 2013-2014 included better school attendance in remote communities (including regional boarding facilities), more Aboriginal students completing the Northern Territory Certificate of Education and Training (with a 21% increase in the 2013-14 year), growing distance education through a new Northern Territory Open Education Centre and transitioning students from education into jobs.

There is a clear disparity between attendance rates by Aboriginal and non-Aboriginal students, which both governments are attempting to address through school attendance programs. Ti Tree school reported in mid-2015 (SIA interview) that key factors impacting on attendance are families not getting children to school and the impact of football. 'Sorry business' can see attendance drop as low as 29%.

The extent of the gap in literacy and numeracy for Aboriginal students in the Territory is reflected in the *Aboriginal and Torres Strait Islander Health Performance Framework NT 2014* findings that the proportion of Indigenous students at or above the benchmark for reading for Year 3 Aboriginal students was 34% (compared with 89% for non-Aboriginal students). School attendance rates were 72% (compared with 93%) for Year 3 and widened in higher grades. About 20% of the gap in school performance is explained by poorer school attendance by Indigenous students.

An indication of the disparity in education outcomes in communities covered by this study is provided by NAPLAN results and profiles taken from the My School website (www.myschool.edu.au, sighted 21 June 2015).

Table 4-7: Enrolment, attendance and outcomes in a selection of schools in the study area

School	Students enrolled	Attendance rates	Year 7 Reading	Year 7 spelling	Year 7 numeracy
Ti Tree **Years P – 9** **100% Aboriginal** **6 teaching staff** **ICSEA* value 581**	78 **	65%	Year 5*** 331	Year 5 344	Year 5 337
Laramba **100% Aboriginal** **Years P - 12** **6 teaching staff** **ICSEA value 549**	56	66%	Year 5*** 336	Year 5 319	Year 5 331
Willowra **Years P to 10** **100% Aboriginal** **ICSEA value 464** **7 teaching staff**	56	54%	260	321	410
Centralian Middle School **Years 7-9** **42% Aboriginal** **VET enrolments 322** **School-based apprenticeships 14** **ICSEA value 788** **Teaching staff 38**	282	86% 84% for **Aboriginal** 91% for Non-**Aboriginal**	469	482	453
Centralian Senior College **Years 7, 10-12** **School ICSEA* value 909** **40 teaching staff**	444	78% 66% for **Aboriginal** 87% for non-**Aboriginal**	N/A	N/A	N/A
Yirara College Alice Springs (100% Aboriginal) **Years 7-11** **School ICSEA value 466** **19 teaching staff**	186	68%	368	351	421
Braitling Primary School **Years P – 6** **19 staff** **ICSEA value 756** **69% Aboriginal**	216	83% 79% **Aboriginal** 92% for non-**Aboriginal**	Year 5 432	Year 5 409	Year 5 404

*ICSEA value = Index of community socio-educational advantage

** School reportedly had 103 enrolments as at June 2015

*** Insufficient numbers for Year 7 ranking

In Alice Springs, there has been a strong emphasis on vocational education and training, with VET completions doubling to about 100 but expansion of the program is constrained by a lack of work placements (SIA interview with Department of Education).

(See Services section at 4.3 for information on capacity and service delivery for education in the region.)

4.2.1.8 Labour market

A key goal of government, councils, businesses and mining companies is to employ Aboriginal people. With a large cohort of Aboriginal young people about to enter the workforce, improving Aboriginal educational outcomes and creating pathways to jobs remains a major focus of the Northern Territory Government.

Regional Councils, the Central Land Council (CLC) and Aboriginal organisations are the main employers of Aboriginal people in Alice Springs. The CLC reports that 48% of 235 staff are Aboriginal and that community ranger programs are popular options for jobs in communities, with 100 rangers working on cultural and natural resource management (CLC Annual Report 2013-14). Central Desert Regional Council in 2013-14 had 322 staff, of whom 74% were Aboriginal, or 86% of remote staff. Of managers and supervisors, about one-third were Aboriginal (Central Desert Regional Council 2013-14 Annual Report). MacDonnell Regional Council had 440 staff in 2013-14, of whom 79% were Aboriginal (2014-2018 Regional Plan of the MacDonnell Regional Council).

Alice Springs Town Council has a target of 20% Aboriginal employees but as of mid-2015 had only 11%, with CEO Rex Mooney commenting that the Council had lost staff to mining jobs (Muir 2015*).*

The Northern Territory Government is targeting the creation of at least 3800 new Aboriginal jobs over the next five years by doubling Aboriginal people in the public sector from 1800 to 3600, requiring contractors for Government infrastructure contracts worth more than $500,000 to achieve 30% Aboriginal employment and ensuring at least five civil and construction contracts a year are awarded to joint venture proposals with Aboriginal businesses (Giles 2015).

All mining companies operating in the region, as well as Central Petroleum, have agreements with the CLC to maximise local employment and some, such as Newmont, have put in place well-resourced recruitment, retention and training programs. Despite company commitment and initial community enthusiasm, all report trouble recruiting Aboriginal people and even greater trouble retaining these workers. Those Aboriginal people who do remain are often from Alice Springs, Darwin or other parts of Australia. Other mining companies also report difficulties recruiting workers from Alice Springs and persuading families to relocate to the town from other parts of Australia (SIA interviews).

A tourism labour market report by Deloitte (October 2015) found high deficiencies in the tourism sector, based largely on skills shortages for occupations such as chefs, cooks, waiters, receptionists, cleaners and waiters. The Northern Territory reported the highest level of recruitment difficulties (69%) compared with Queensland, which was the lowest with 31%. Retention difficulties were highest in the Northern Territory (56%) compared with South Australia, the lowest at 26% and a national rate of 36%. Only 58% of labour in the Northern Territory was reported as being local, compared with 78% nationally and 12% were international workers, compared with 10% nationally. The highest skills deficiencies reported in the Northern Territory were bar attendant, cook and café or restaurant manager.

While the unemployment rate is relatively low in Alice Springs, at 3.9% in 2015 (Department of Employment, 2015, ABS 2015), this doesn't tell the full story of Aboriginal unemployment, disengagement and reliance on welfare, particularly in remote areas. The unemployment rate in the Yuendumu-Anmatjere SA2 area was the highest in the Northern Territory, at 19.5% in 2015.

A briefing by the Australian Government's Department of Employment in Alice Springs in mid-2015 suggested the complexity of the Aboriginal employment picture was compounded by a relatively young Aboriginal population about to enter the labour market, high disengagement levels and higher Year 10 completion rates by Aboriginal students in Alice Springs failing to translate to higher employment levels.

At the same time, Alice Springs employers reported trouble recruiting to 52% of higher skilled occupations and 40% of lower skilled occupations.

With the Australian and NT Governments' focus on 'developing the north' there has been discussion about how to overcome labour market shortages through a combination of incentives for Aboriginal employment and participation, attracting people to live in the Territory and schemes such as skilled migration and working visas for backpackers, who provide much of the Northern Territory's casual workforce (Australian Government June 2015). High priority skilled occupation lists are published by the Department of Business.

4.2.1.9 Business development

The Department of Business offers a number of business growth, enterprise development and tender support programs designed to increase the number of local and Aboriginal businesses and local job opportunities.

The ICN (Industry Capability Network) opened an office in Alice Springs in October 2015 to help local businesses win work with Government and larger contractors. The Department of the Chief Minister believes Alice Springs needs an 'injection of new commerce' and is working with the Regional Economic Development Committee to look at innovative approaches to attracting new businesses to Alice Springs (SIA interview).

There was a strong view by Government and businesses interviewed for the SIA and during broader community engagement for this project that local procurement and employment were integral to companies earning a 'social licence to operate'.

4.2.1.10 Sentenced to a job

A key opportunity to employ and train Aboriginal people is through the NT Correctional Services' Sentenced to a Job program, designed to reduce reoffending while addressing labour shortages and building the capacity of prisoners to transition to jobs on release. Reoffending rates are 15% for participants, compared with 54% for released prisoners generally.

As at July 2015, the program had 85 employers supporting the scheme and about 85 prisoners in jobs, about 20 of them in Central Australia. Prisoners are generally low-security and are mainly doing time for alcohol-related offences such as domestic violence. Sex offenders are not allowed to take part in the program.

Sentenced to a Job offers a structured, disciplined workforce that is alcohol and drug free and can adapt to a range of workforce arrangements, from day work release to spending time in work camps under supervision of Corrections staff. Mining companies who have used the program include Rum Jungle Resources and Abrasive Metals. Prisoners are paid award wages, which therefore contributes to the local economy.

Along with jobs, the program includes literacy and numeracy training, money management and mentoring.

Corrections also offers a number of services from its prison industries section, which provides jobs and training for prisoners in jail. Services include a bakery, laundry, mechanical and textile services, furniture making, concreting, horticulture, food services, packaging and assembly and roof trusses.

4.2.2 Key potential impacts

Table 4-8: Potential social impacts in relation to employment and economies

Potential positive impacts	Potential negative impacts
Increased local employment with the project (higher standard of living, potential home ownership) Regional economic growth and business growth Better educational outcomes	Expectations of workforce participation not met Poaching workers from other employers Business expectations of local procurement not met Reduced business capacity for other work, particularly during construction Displacement of tourism Displacement of pastoralism Boom bust economy Increased cost of living

4.2.3 Prediction and analysis of impacts on economies and education

4.2.3.1 Overview

The most significant beneficial and detrimental impacts of mining are associated with workforce issues: how to maximise local employment without just poaching workers from other employers, how to move a large pool of unemployed Aboriginal people into a productive workforce, avoiding saturation of communities with mining workers at peak periods, while encouraging families to move and become part of the community longer-term and boosting local economies in a sustainable way so the benefits last beyond the life of a mine. These dilemmas are faced by all regional mining projects, particularly in the intense, but generally short-term, construction phase.

While the economic benefits are substantial and highly likely, the positive and negative impacts flowing from attempts to employ locals are highly uncertain given the available work-ready labour pool relative to Arafura's labour needs, particularly during construction. This would be compounded by cumulative impacts from other major projects.

Key mitigation strategies will be a comprehensive employment and workforce development plan, adapting recruitment strategies to the local communities' capacity and working closely with educational institutions and local people to maximise opportunities, set realistic targets and clearly communicate the barriers to their achievement.

4.2.3.2 Increased local employment and the mine

The key benefit of a mine such as Arafura, with a projected life of more than 40 years, is regional economic development and opportunities for local people to get real jobs.

This is a particular opportunity for Aboriginal people living near the mine to get jobs, either at the mine itself or with associated services such as land management, administration, camp cleaning and catering, mechanical services and logistics. Should the Nolans project proceed, Arafura would prioritise the employment of local Aboriginal people, with the aim of good social outcomes from providing unemployed people with real jobs, skills and long-term employment pathways. Out of the proposed 400-500 construction jobs and 250-300 operational jobs, given the likely available labour force, locals skills level and competition for local labour, Arafura predicts about 5% Aboriginal participation during construction and 10% for operational jobs with improvement longer-term.

Recruitment will be both direct by the company and through the Australian Government's Community Development Program, coordinated in this region by the Central Desert Council. The Council's Community Development Program's manager believes that people will be particularly interested in operating plant and equipment and ranger work, while women will be interested in jobs like administration and cooking. Other job opportunities may arise through land management, particularly if the project leads to contracts for local ranger groups, and with sub-contractors.

It may be that some local Aboriginal people who have left the region for work will see Arafura as offering an opportunity to return home and work on their own country. This would be positive for the individuals and communities and may create role models and community motivation to work at the mine. However, the scale of this interest against workforce demand is predicted to be small, particularly in the short-term construction phase.

Aboriginal employment targets may include Aboriginal people from other States and regions, perhaps arriving with Tier One contractors and their suppliers. This can cause community tensions but may also attract skilled tradespeople who may be more empathetic mentors and teachers for local Aboriginal people working at the mine.

Key issues impacting on the recruitment of local Aboriginal people:

- family issues, poor skills sets, high levels of disadvantage and disengagement amongst those who most need work
- low unemployment among the well-educated and work ready, which means local employment will most likely simply shift existing workers into new jobs.

Key issues impacting on the recruitment of people from Alice Springs, both Aboriginal and non-Aboriginal:

- a small pool of available labour, even with incentives and special recruiting drives
- the extent to which Arafura uses Aboriginal contractors, many of whom already have well-trained and work-ready workforces
- Arafura's success in recruiting Alice Springs' growing migrant population to work at the mine.

It is predicted that the recruitment of local labour will be difficult to achieve, particularly in the short-term, which is discussed in greater detail below. Longer-term, it is likely Arafura will be able to recruit and train more local workers.

4.2.3.2 Expectations of local employment not met, including jobs for Aboriginal people

While school attendance rates by Aboriginal people appear to be improving, data gathered for this SIA suggests Aboriginal unemployment remains the greatest challenge for a major project such as Nolans. Many mining, hospitality and horticultural projects in Central Australia struggle to find workers, despite operating in areas with high unemployment.

The general view expressed in interviews for this SIA was that anyone who wants a job has one, most of those who don't have jobs will face challenges in job-readiness, that non-Aboriginal people tend to leave town if they don't have work, and that there is a large pool of disengaged youth in the region who face major challenges with literacy, numeracy and job-readiness.

Several interviewees made the point that better educated Aboriginal people in the region have work and tend to cycle through jobs with major employers such as the Northern Territory Government, regional councils, the CLC and Aboriginal service providers. Strong ties to family and country reduce mobility and there can be social issues

with Aboriginal people moving to work on other people's country. In addition, many local people have little experience of mining jobs, the demands of living away from home and discipline of working long days on rostered shifts.

Several businesses, including hotels, have resorted to employing overseas workers on 457 visas, particularly with a decline in the local backpacker workforce.

The Central Desert Regional Council's Community Development Program (as of June 2015) reported 220 people on its books looking for work in Ti Tree and 100 in Laramba. The manager's estimate (SIA interview) is that about 20-30 people registered in Ti Tree and 10 in Laramba are likely to be work ready. Even if all these people get jobs with Arafura, it comprises about 5% of the likely construction workforce. Other employers, such as TNG's Mount Peake project at Barrow Creek, would also be trying to draw workers from this pool.

Some of the key challenges for Aboriginal employment raised in interviews for the SIA were:

- poor literacy, work skills and work-readiness
- people not showing up to work, with no explanation (Central Desert Regional Council reduced absenteeism by stressing the importance of ringing in when Aboriginal workers can't get to work to explain why)
- family and cultural pressures, particularly for workers living away from home (Central Desert Regional Council stresses the importance of mentors, saying key reasons for absenteeism are things such as caring for sick family members, over-crowded housing, having a car stolen, cultural or 'sorry' business, jealousies)
- not having a driver's licence to get to work or drive plant and equipment. Early results from work by Dockery (2015) on mobility in remote communities found fewer than half the people surveyed had a driver's licence and of those who did, 62% were employed compared to 22% of those without a licence
- a lack of housing options for local workers who either don't want to live in an accommodation village or who move to communities and towns to work at the mine.

Solutions suggested to increase Aboriginal employment include (Brereton & Pattenden 2007; interviews for the SIA):

- labour hire companies to ensure a mandated number of workers while accommodating home pressures on workers
- using Aboriginal contractors with experience of employing and training Aboriginal workers
- culturally-appropriate work practices, including leave, rosters and flexible recruitment and retention practices
- working with communities and families who can provide positive and negative pressures on workers
- providing life skills support, such as drug and alcohol education, financial literacy
- working with schools to provide transitional support at boarding schools and career pathways from school and VET courses
- strong use of mentors
- pairing individual workers with other tradespeople

- codes of behaviour and cultural-awareness training for other workers to create a friendly workplace
- setting up committees with government departments and training providers to provide advice, support and funding
- tapping into programs such as Sentenced to a Job, which aims to get prisoners into real jobs they can transition to on release
- ensuring jobs are available for women
- work experience and career advice, so children can see what is involved in mining, with a goal of long-term increases in local Aboriginal people working at the mine
- providing a range of housing options, including rooms at the workers' village to encourage workers to keep to a routine, while ensuring they have transport to visit family at weekends (or temporary accommodation in Ti Tree or Alyuen that can later be handed over as a legacy to the community)
- getting people to work as a group, perhaps living with a house parent to provide a structured environment
- help from senior people in the community to provide supervision
- helping people manage their money to avoid 'humbug' (pressure from families to share wages), which can be a disincentive to work.

The Department of Education (SIA interview) suggests working with programs such as the Clontarf Foundation, Aboriginal Literacy and Numeracy Foundation (which has been a success on Groote Eylandt) and Polly Farmer Foundation that build motivation, personal grooming and leadership "so you can be a proud Indigenous man, proud of your culture but you are still living in the 21st Century and if you want to change your lifestyle choices, you need an income".

It is predicted that Arafura will find it difficult to meet expectations of a local workforce, particularly during the construction phase where a small town will find it difficult to scale up its workforce capability at the pace and scale required by a mine.

Communicating the reasons for this will be important to manage expectations and avoid jealousies and concerns if local people see large numbers of fly-in fly-out workers while high levels of local unemployment remain.

4.2.3.3 Loss of workers to the mine

In a tight labour market, it is likely that many applicants for jobs will be leaving existing employers rather than unemployment queues. This is likely to put pressure on employers to back fill and could have negative flow-on effects on their ability to provide services, while pressure to offer higher wages could undermine their competitiveness.

It is predicted that Aboriginal people seeking work with the project are more likely to be better-educated Alice Springs residents already in jobs, rather than the less skilled long-term unemployed.

The regional council has a high level of Aboriginal employment and reports difficulty filling some key jobs. For example, in Laramba, the closest community to the processing plant, there are 27 Council staff, of whom 85% are Aboriginal. Council expects to lose many of its long-term, key workers to better-paid jobs at the mine (SIA interview).

There is also a risk of staff from other economic sectors leaving jobs for the mine and associated facilities, such as the workers' village and catering, exacerbating skills shortages. This could particularly affect the tourism and hospitality sector, which is experiencing high levels of difficulty recruiting and retaining staff (see Section 4.2.3.8).

This is predicted to have a significant short-term impact on other employers. Longer-term, the impact is likely to be mitigated by opportunities to recruit and train other workers and the likely return of many to their old jobs, perhaps with enhanced skills.

4.2.3.4 Regional economic growth

A major project such as a mine offers substantial regional economic development potential through direct expenditure on wages and business growth by providing services to the project and the indirect impact of families and companies spending more in the local economy. Spin-off opportunities range from horticultural projects supplying mine caterers to Aboriginal enterprises receiving support to provide services to the mine's key contractors.

Local companies may win work that increases their growth potential and capacity to compete in broader markets. In particular, there are several Aboriginal companies in Alice Springs with the capacity to provide services to the project which will, in turn, boost Aboriginal employment levels. Should several mining projects source services and supplies from Alice Springs, this may attract new companies to establish in the town, increase the choice and number of jobs and boost the region's capabilities as a mining and oil and gas service centre. (Of course, there is a risk that these companies may also compete with smaller, less well-resourced local businesses.)

Other economic benefits would flow from workers relocating to live in Alice Springs with their families and spending money in the local economy, including migrant families moving to Central Australia for work. This could be supplemented by a recruitment campaign to attract new residents to live in the town with their families, but at a pace at which they can be absorbed into the community rather than causing inflationary pressures and overwhelming the local housing market and services.

Various studies have found that mining projects benefit local communities through their use of land, labour and capital, which translates into expenditure, infrastructure and essential services for the local economy. For example, a study by Blackwell and Dollery (2012) found that $1.2 million a year was paid by Newmont's Tanami operations into the Warlpiri Education and Training Trust. Although local workforce participation was low (6%), other benefits at the time of the study included Newmont's investment in key infrastructure such as an airstrip and upgrades to the Tanami Road and the Tanami Regional Partnership Agreement. Benefits from the Ranger Uranium Mine included jobs, infrastructure, a broader spend in the Territory economy, $230 million in payments (in 2008) on land, labour and capital as well as taxes, royalties, jobs and investment in local essential services.

The converse is what has been described as 'Dutch Disease', or negative large increases in a local economy or country's income accompanied by reduced price competitiveness, increased imports and loss of jobs to lower-cost economies (Langton & Mazel 2013). This is more a regional or countrywide phenomenon that is unlikely to be a consequence of the Nolans project.

It is predicted that the Nolans project will provide major economic benefits for the Central Australian economy in particular. Economic modelling by ACIL Allen (Appendix T) estimates that over the three years of construction, there will be capital expenditure of $1.19 billion on the Nolans project of which about $866 million will be spent in Australia. Of this, nearly $145 million will be spent in the Northern Territory including $71 million in the Alice Springs region.

Over the life of the project, including the construction period, the Nolans project is expected to generate $6.4 billion or an average $280 million a year to the Gross State Product (GSP) of the Northern Territory. This is a significant annual contribution to the GSP of the Northern Territory and is equivalent to 1.3% of the current GSP of $21.9 billion.

Over the life of the project, the Nolans project is expected to generate $6.5 billion or an average of $284 million each year to the GSP of the Alice Springs region.

4.2.3.5 Business expectations of winning work are not met

As with local jobs, the high expectations of local businesses winning work may not be met for a range of reasons. Some of the services required by mining are specialised, while quality, commercial and safety standards will be high.

Locally, the Aileron Roadhouse has invested in expanded facilities in expectation of work from the Nolans project. These were partially realised during drilling campaigns and there is likely to be substantial use of roadhouse facilities during the construction phase of the project. However, most of the project's workforce will stay at the proposed accommodation village.

The Northern Territory Government, Chamber of Commerce and ICN (Industry Capability Network) believe there is good capacity amongst Alice Springs businesses to provide services and supplies subject to:

- plenty of notice, to give companies a chance to prepare
- procurement policies that favour local companies as long as they can meet standards and be competitive
- packaging contracts in a way that suits local businesses
- encouraging joint ventures or consortia so local businesses can work together to increase their chances of winning work.

This risk of not meeting expectations can be mitigated through good communication and partnerships with industry and government to prepare local businesses and provide access to business growth programs. A local procurement strategy can guide packaging of work to match local business capabilities.

4.2.3.6 Reduced business capacity for other work

A small economy is susceptible to capacity being soaked up by a small number of projects, which reduces the availability of services, such as trades, to smaller clients, including residential customers. The loss of workers to the mine could further undermine the capacity of local businesses, who may not be able to compete with the wages paid by the mine.

This is predicted to be a short-term impact as local businesses adjust to the opportunities available from this and any other projects starting up at the same time.

4.2.3.7 Better education outcomes

There are good opportunities for the project to work with local schools to create pathways between a better education and jobs at the Nolans project. This includes VET courses tailored to mine work, providing work experience at the mine, and scholarships for skills needed by the project.

The Department of Education has a strong focus on vocational training and, as of mid-2015, had doubled the number of Aboriginal people in VET courses in Alice Springs, but needs employers to provide work opportunities.

This opportunity is likely to be realised, particularly longer-term.

4.2.3.8 Displacement of tourism

Tourism depends heavily on access and accommodation, particularly with cost-sensitive market segments. While hotels might welcome high occupancy rates and the ability to charge more for rooms – which is an economic benefit – convention and general tourism may be displaced if accommodation is taken up by project workers, as happened during the Intervention in Alice Springs where many local hotels were virtually fully booked by construction workers and Commonwealth public servants and during construction of INPEX's LNG plant in Darwin. This could crowd out tourism sectors, such as conventions, if they are unable to get block bookings, and could be compounded by the cumulative impact of FIFO workers from other projects, such as Mount Peake.

Tourism also depends on a casual workforce, such as backpackers, who may be drawn to better paid jobs at the Nolans project. However, it appears the number of transient workers is on the decline for other reasons, including travel patterns. The Deloitte Australian Tourism Labour Force Report (2015) shows that the Territory still has slightly more international tourism and hospitality workers (12% compared with 10% nationally) and the highest level of difficulties in the recruitment and retention of staff (see section 4.2.1.8).

Other issues that could impact on tourism include the drive market being deterred by heavy vehicles on the Stuart Highway, although the level of anticipated mining traffic is relatively low compared with current use. Tourism marketing may be influenced if the branding of Alice Springs, based on its landscapes and iconic destinations, is influenced by mining activity.

The NT Government relocated the headquarters of Tourism NT to Alice Springs and has invested substantial funds in tourism infrastructure and marketing campaigns for Central Australia. It would be particularly concerned if it felt other projects were crowding out tourism, given its major focus on this economic sector.

However, the impacts are predicted to be manageable through careful adherence to the Social Impact Management Plan and monitoring the project's use of short-term accommodation in Alice Springs.

4.2.3.9 Displacement of pastoralism

The project is likely to have minimal impact on nearby pastoral properties, although there has been some recent friction between the resource and pastoral industries about access to land and water.

The mine, workers' accommodation, access roads and processing plant are on Aileron Station, which in 2015 sold to the national Caason Group. The scale of the project's footprint is large in comparison with existing land use but small in comparison with the total property. Arafura will compensate the owner with new bores for any quarantined by the mine.

Potential impacts could include loss of staff, disruption by mining workers, dust, noise or traffic. Pastoral properties would be concerned if the project's use of water impacted on domestic or stock water. However, the project may also contribute to water security through the discovery of previously unused water basins increasing access to water and potential horticulture on the property.

An emerging issue is proposed organic farming on Aileron and Pine Hill Stations, including proposed crops. While organic certification relates to the use of pesticides and herbicides on the property, Caason suggested the presence of a rare earths mine nearby could have negative impacts on its organic branding and wants assurance that there will be no impact on groundwater. Caason, during an interview for the SIA, also expressed concern at potential amenity impacts such as dust, substantially increased traffic and the social impacts of a large number of workers living on the property and at the Aileron Roadhouse.

On the more positive side, there will also be opportunities for nearby pastoral properties to provide services to the mine, diversifying their income.

4.2.3.10 Boom bust economy

An issue for any regional town is the exaggerated impact of the arrival or closure of mining activities because of their scale compared with existing economic activities. Many Territorians have witnessed this, for example, the collapse of GBS Gold and Territory Resources' Frances Creek iron ore mine (Katherine and Pine Creek), Western Desert Mining and Sherwin Iron in the Roper iron ore province, Compass Resources in Batchelor, the closure of Alcan Rio Tinto's bauxite refinery in Nhulunbuy and ERA abandoning plans to expand its uranium mine near Jabiru.

At the time of the 2011 Census, Alice Springs was booming. This is an important point as much of the economic data on Alice Springs stills relies on the 2011 Census data, therefore research for this SIA has tried to establish a more contemporary picture of the town's economy, employment and population. In 2011, temporary accommodation was taken up by Commonwealth public servants who flooded into town as part of the Australian Government's Emergency Response or 'Intervention' and interstate workers supplementing the local workforce for programs such as the Strategic Indigenous Housing and Infrastructure Program (SIHIP). Mining exploration encircled the town, with one pastoralist at the time reporting nine explorers on his property (personal communication).

To quote one person involved in the housing program at the time (personal communication), "2011 was the year things went off in Alice Springs," carpenters were asking for $110 an hour (compared with $75 now), construction companies were booking out hotels and unit complexes, rental vacancy rates were virtually zero, there were hundreds of local and interstate workers in the housing program and dozens of Aboriginal people taking up apprenticeships with companies that are now struggling to find work.

By mid-2015, when interviews were conducted for this SIA, businesses were reporting some tough years as Intervention money came to an end in 2012 and Northern Territory Government capital expenditure declined due to budgetary constraints, partially reversed with a focus on infrastructure in the 2015 Budget. The departure of families and cuts to government services was seen as contributing to a decline in the retail sector. On the other hand, small businesses said they found it hard to compete with the lower operating costs of interstate companies and reported a number of small, local companies closing, unable to compete with large chains such as Bunnings moving into town.

Research by Taylor and Winter (2013) into the 'boomtown syndrome' suggests a major issue for regional and remote towns attracting large projects is that they rarely have a sufficient and appropriately skilled pool of labour to meet construction needs. This creates the need for non-resident workers to be sought from elsewhere. The wages of non-resident workers are invariably quite high but tend to leak out of the local economy to the place of residence of the worker and their family. Most non-resident workers will never become permanent residents of the town and so do not contribute to long-term local economic prosperity.

Another issue is the 'bust' that comes with the end of the construction period, often because the over-provision of housing, services and infrastructure results from a 'catch up' with demand. An associated issue is lower tier contractors over-capitalising on plant and equipment without taking into account the short-term nature of contracts or risks of projects not proceeding as expected.

The scale and long-term nature of the Nolans project should largely mitigate against this 'boom bust' effect. However, if considered in conjunction with other potential projects in the region, there is still a risk of small companies over-extending to win work.

The risk can be cushioned by working with local businesses to maximise their preparedness for opportunities, realistic packaging of tenders and clear communication as the construction phase starts to wind down to reduce the 'bust' as intense, but temporary, activity transitions to the less intense operational phase.

4.2.3.11 Increased cost of living

A major implication of mining is the increased cost of living that accompanies higher wages which can drive up costs of services such as housing, accommodation and flights. This has a particularly detrimental impact on people who remain on lower wages and lower socioeconomic groups. The consequences may include families priced out of the private rental market seeking to move back to public housing, leaving town or becoming more reliant on charities to bridge the gap.

Other impacts can flow if mine work workers and their families receive rental or childcare subsidies, which distort the market and push up prices for other residents.

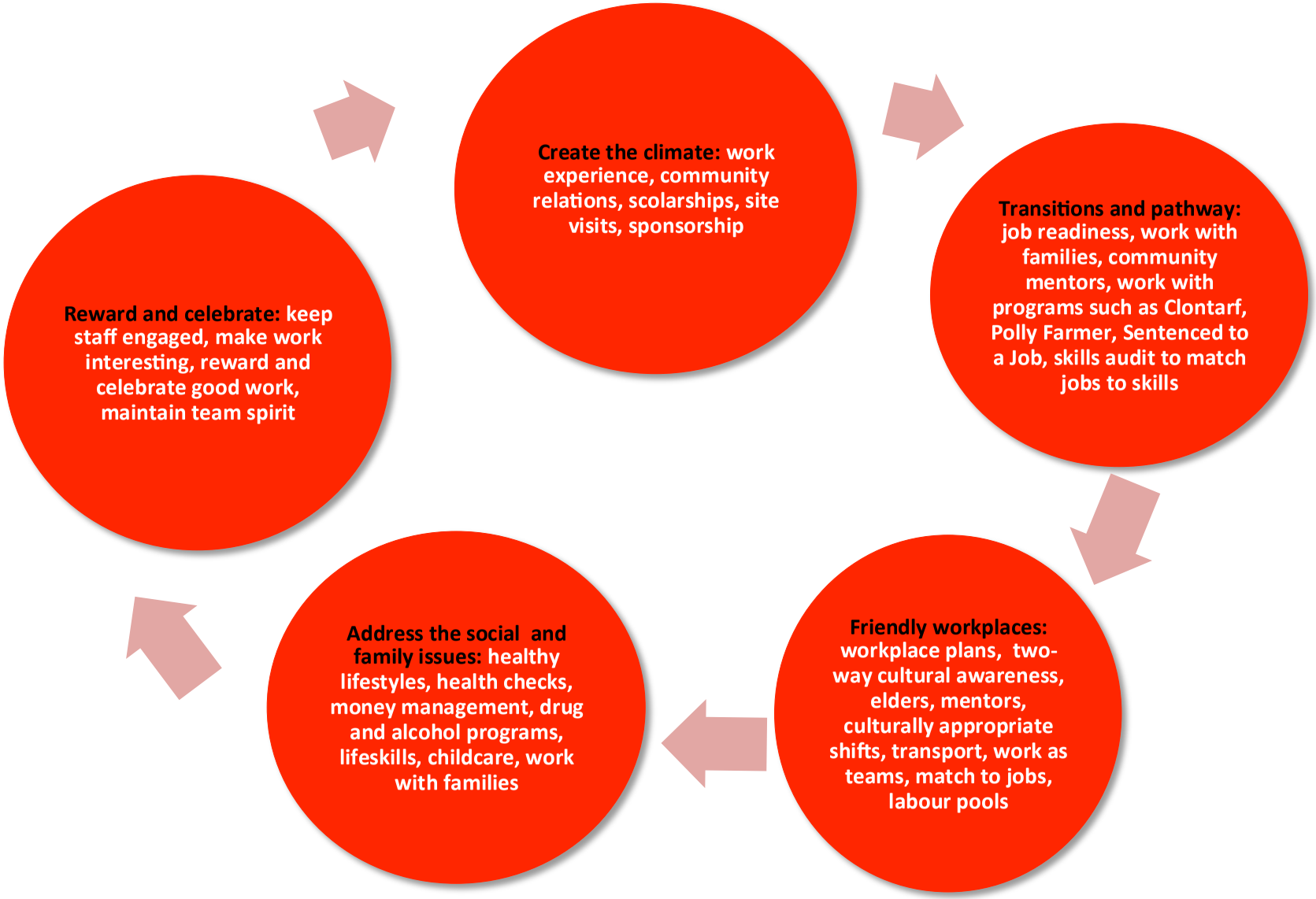
Minimal inflationary impacts are predicted from the Nolans project, however this is potentially a more significant cumulative impact if several major projects start at the same time, creating scarcity and pushing up prices.

4.2.4 Mitigation and Management

Measures to address these risks include:

- good communication to help prepare people for local recruitment and business opportunities and understand why targets may not be achieved
- working in partnership with industry and government groups on business growth and work readiness programs
- an Employment and Workforce Development Plan, including mentoring for Aboriginal people
- a Local Industry Participation Plan
- a Community Reference Group to work with local people to enhance recruitment and explain why employment targets are not being met
- a liaison officer to work with the local community.

Figure 4-1: Summary of suggestions to improve Aboriginal employment



4.3 Services and infrastructure

Table 4-9: Key findings on Services and Infrastructure and how they address TOR and SIA Guidelines

Key findings	Reference	Reference to TOR and Guidelines	Reference to Risk and Opportunity Assessment
A key potential impact on services and infrastructure would come from any additional demand on public housing in communities near the project. Alyuen, which is closest to the mine, contains only six houses, but the project might prompt the relocation of families wanting work or other benefits from the project. There is overcrowding in public housing in Alice Springs and communities and long wait lists. While it is unlikely that the project would impact on public housing in Alice Springs, any inflationary impacts could have a displacement effect of people leaving the private rental market seeking public housing.	4.3.1.3 4.3.3.3	6.3 of SIA Guidelines	Threat 11
There is no capacity for public or private housing in Ti Tree, however increased demand may be generated by an influx of Aboriginal or non-Aboriginal workers, people wanting to start enterprises to supply the mine, increased aspirations for home ownership or any additional need for government employee housing. The project may accelerate a proposed sub-division planned for Ti Tree.	4.2.1.3 4.3.1.8 4.3.3.7	6.3 of SIA Guidelines	Threat 11
Any additional demand for housing or other infrastructure in Ti Tree or nearby communities has implications for the timing and cost of expensive essential services infrastructure, which has little redundancy.	4.3.3.8	6.3 of SIA Guidelines	Threat 11
Any direct impacts on education and health services are likely to be absorbed and could be positive if the project increases school attendance. Indirect impacts of social disorder could be increased presentations at the health clinic and absenteeism at the Ti Tree school. Alice Springs health and education services should be able to absorb any increased population from the project.	4.3.1.5 4.3.1.6 4.3.3.5 4.3.3.6	6.3 of SIA Guidelines	
Demand for police and emergency services could increase with road safety risks, the need for emergency response to spills and any increase in public disorder as a result of social conflict.	4.3.1.1 4.3.1.2	6.3 of SIA Guidelines	Threat 11
Transport could be affected by workers taking up airline seats and reducing other access, including tourism, and through increased use of the Stuart Highway by project traffic.	4.3.3.9	6.3 of SIA Guidelines	Threat 9
The project could lead to improved infrastructure that benefits local communities, particularly if the combination of the Nolans project and horticultural growth prompt the growth of Ti Tree as a regional economic hub. Benefits could include better telecommunications and essential services.		5.1.4 SIA Guidelines	Opportunity 21

4.3.1 Background on services and infrastructure

The following section covers services provided primarily by the Northern Territory Government and Central Desert Regional Council, including policing, health and education, municipal services to communities in the local area around the mine as well as major infrastructure such as utilities, roads and telecommunications. Alice Springs Town Council provides municipal services in Alice Springs but is not covered by this assessment as no material impact is envisaged on its service delivery.

In addition to the services discussed below, Alice Springs has 10 day care facilities with about 400 places and a large number of recreational facilities (see the Planning Commission's Draft Regional Land Use Plan 2015 for more detail on Alice Springs community services). Although these facilities will be important in recruiting workers to live in Alice Springs, initial scoping for this study assessed a low risk of impact. However, if there is a big influx of families, childcare availability would be elevated as a potential impact on demand for community infrastructure.

4.3.1.1 Services in the local footprint area around the project

Most of the housing and government services in Ti Tree are contained in a sub-division on the east of the Stuart Highway, including the school, health centre, police station, women's shelter, a park, oval and air strip. To the west of the highway is the Anmatyerr office of Central Desert Regional Council (the former Anmatyerr Community Government Council), council workshops, an Outback Stores shop and house owned by the Puraiya Cattle company. Other retail and hospitality outlets in the town include the Ti Tree Roadhouse and caravan park, the Wayout Busy Store, Desert Farm run by a Church group and the Mango Farm store south of Ti Tree.

Ti Tree is largely surrounded by an Aboriginal Land Trust land. Key constraints to growth are public and private housing, insufficient government employee housing to accommodate expanded government services, overcrowding in nearby communities and the need to plan for expanded utilities, such as power and water, to support any construction of new houses. There are pressures on the Northern Territory Government to provide more public housing in Ti Tree so people can move to the town from nearby communities and anecdotally (SIA interviews), aspirations by some Anmatyerr people to buy their own homes in Ti Tree.

Facilities at Laramba include an air strip half way between the community and Napperby Station, a school, health clinic, stores at Laramba and Napperby Station, a Church, women's centre, laundry, childcare centre, basketball court and oval, recreational hall, and Community Development Program facility run by Central Desert Regional Council. Constraints to growth in Laramba include a lack of accommodation for visitors or expanded staffing levels, tenure issues with building additional houses on community living area and issues with water pressure. Housing services are provided by Tangentyere and Zodiac Housing, as contractors to the Department of Housing. Community projects prioritised by Council (worth $38,267) included a shade shelter over the children's playground, grave crosses for the cemetery, a trailer for the aged care centre, street lights and a softball fence at the sport and recreational hall and a telephone for the Night Patrol

Alyuen community has suffered from water stress which reportedly led to families moving to Pmara Jutunta (Six Mile) or camps around Ti Tree. In early 2015, the community was connected to better water by Central Desert Regional Council as a result of Arafura's water research. Senior people are now talking about the potential for a community garden at Alyuen, some sort of permanent health facilities for nurses visiting from Ti Tree and a central laundry and ablutions block (SIA interviews). Because Alyuen is an outstation, services are provided by Central Desert Regional Council and Department of Community Services.

Pmara Jututa, or Six Mile is about 9 km south of Ti Tree and connected to Ti Tree's power and water supplies. Some houses were upgraded as part of the Strategic Indigenous Housing and Infrastructure Program but the level of overcrowding constrains any population increase. The community accesses jobs and community services in Ti Tree, including policing and education. SIA interviews with local service providers suggest high mobility between Pmara Jututa, Alyuen and Ti Tree's 'Creek Camps'. Children commute from Pmara Jututa to school in Ti Tree by bus and some residents drive to work in Ti Tree.

Sanders and Holcombe reported (2007) that there were few services in Nturiya (Ti Tree Station), apart from reticulated water and electricity, a road to Ti Tree and school bus services. A store run by the Puraiya Pastoral Company closed in 2002, so residents travel to Ti Tree for shopping.

Information on Willowra from the Council's Municipal Plan is that housing is managed by Territory Housing, with 40 Indigenous allocated houses, property management is provided by Tangentyere and tenancy management by Zodiac. Willowra does not have an aged care facility, childcare is provided by Batchelor Institute and World Vision, the community's Night Patrol (as of July 2015) was inactive due to community unrest and community projects prioritised by Council in the 2014-15 financial year ($34,322) were to build a local park, grade the Willowra to Jurra Jurra Road and tree-planting at the entrance to the community.

4.3.1.2 Emergency services

Northern Territory Police, Fire and Emergency Services is divided into three regions, with Southern Command taking in Tennant Creek and Alice Springs. Police in 2015 moved into Greatorex Building, refurbished at a cost of $9 million to accommodate the 236 police working in Alice Springs (Chief Minister's media release, 3 July 2015). The key focus of police in Alice Springs has been addressing alcohol related crime and domestic violence, with a marked reduction in violent crime reported (see Section 4.4).

Fire and Emergency Service units in Alice Springs are part of Police, Fire and Emergency Services and provide services to the region for incidents beyond the capacity of Ti Tree Police.

Ti Tree Police cover the Stuart Highway from the Plenty Highway turnoff then up to 20 km north of Barrow Creek, Gillen Bore north of the Plenty, Laramba, Napperby, Aileron, Alyuen, the Mango Farm, Nturiya, Pmara Jututa, north to Wilora, Patsy's Camp, Barrow Creek and Tara (Neutral Junction). Backup comes from Ali Curung to the north and Alice Springs to the south and from Yuendumu to Laramba. In mid-2015, the station had two police but the high workload has led to a third position being created. In October 2015, an Aboriginal Police Liaison Officer was appointed to the station (but has since resigned).

The main workload comes from traffic duties and responses to road trauma and alcohol-related violence, particularly at Pmara Jututa (Six Mile) and around the Aileron Roadhouse. Police are the lead agency for road crashes and operate the emergency services trailer. The Fire Service is lead agency for hazardous spills, but police will often respond to lower-level emergencies. The Health Clinic operates a road trauma ambulance under direction of Central Health Services in Alice Springs. There was a serious incident when an ammonia nitrate truck caught fire in Ti Tree in 2014 on its way from Queensland to the Granites which led to the township of Ti Tree being evacuated.

Police report increasing mobility of people from as far afield as Yuendumu, Yuelumu (Mt Allen) and Papunya. This has an impact on police resources as investigation of violent incidents may involve victims and offenders from different communities who may have returned home by the time crimes are reported.

4.3.1.3 Public Housing

The Northern Territory Department of Housing is responsible for much of the community housing previously controlled by regional Aboriginal councils and Tangentyere Council in the Alice Springs Town Camps and generally sub-contracts tenancy management and repairs and maintenance work to other providers.

The Department of Community Services coordinates housing maintenance in homelands and outstations such as Alyuen.

Alice Springs

There is a severe shortage of public housing in Alice Springs as indicated by the following charts.

Table 4-10: Public housing applications as at 31 March 2014

Public Housing applications as at 31 March 2014 (tabled at Estimates, Darwin, 10 June 2014)				
Region	**General Housing applicants**	**Priority Housing applicants**	**Transfer applications**	**Total applicants**
Alice Springs	530	182	37	749
Northern Territory	2748	683	305	3736

Table 4-11: Key statistics on public housing in Alice Springs

	Key statistics on public housing in Alice Springs (from NTCOSS Cost of Living Report, December 2013, p. 13)			
	2000	**2012**	**Difference**	**Percentage change**
Alice Springs Public Housing stock	1350	849	-501	-37.11%
Alice Springs public housing waiting lists	387	552	165	+42.6%

In the 10 years to March 2015, waiting times for public housing in Alice Springs had gone from 42 to 87 months for one-bedroom units, from 21 months to 71 for one-bedroom pensioner units, from 21 months to 65 for two-bedroom units and from 34 to 70 months for three-bedroom units (NT Shelter fact sheet; Minister for Housing Bess Price in Estimates, 2 June 2016).

Communities around Ti Tree

There is no available data on waiting lists for public housing in the communities around Ti Tree however Central Desert Regional Council reports overcrowding in all nearby communities and a strong interest by residents of these communities in the government providing public housing in Ti Tree. There are two public houses in Ti Tree, one of which is deemed 'beyond economic repair', while all other housing belongs to employers such as the Northern Territory Government, Council and stores.

The *Aboriginal and Torres Strait Islands Health Performance Framework NT 2014* finds that 55% of Aboriginal Territorians live in overcrowded households compared with 5% of non-Aboriginal residents. In remote areas, 62% live in overcrowded households, compared with 45% of Indigenous Australians nationally. Only 11% of Aboriginal adults in the Territory in 2011 were homeowners, compared with 58% of non-Aboriginal Territory adults. The rate of homelessness was 2462 per 10,000 compared with 82 per 10,000 for non-Aboriginal Territorians, or 29 times higher.

4.3.1.4 Private housing market

The cost of housing in the Northern Territory is high but declining in line with economic activity, particularly in Alice Springs. Employers report that a tight and expensive housing market was previously a constraint on employment but the reverse is now the case.

The Northern Territory Real Estate Local Market Report to September 2015 indicates recorded house sales in Alice Springs were down 28.2% over the past year, with a median price of $480,000, an increase of 6.7% on the previous year's median prices. The sale of units and townhouses was down 37.8% for the past year, with 28 sales at a median price of $345,975, up .3% over the past year. Rental prices for a three-bedroom house were $490 a week, down 5.8% on the previous year (compared with a peak of $572 in March 2010). Median weekly rental for a two-bedroom unit or townhouse was $354, down 12% over the previous year, and $490 a week for a three-bedroom unit, down 9.3% over the previous year. Overall residential vacancy rates were 7%, with 3.6% for houses and 9.6% for units and townhouses, compared with almost negligible rates in 2009 and up substantially from rates of 3.5% a year earlier and 4.6% in September 2014.

As at October 2015, there were several private development proposals that would increase the available housing stock, including a number of townhouses and units covered by the Government's Real Housing for Growth Program:

- Melanka was before the Development Consent Authority and may include 100 units for public housing
- the next stage of the Kilgariff sub-division, which can cater for up to 1000 lots near the airport, was awarded to local company Sitzler Brothers in 2015
- Mt John sub-division
- Probild was building 25 townhouses at Larapinta, with the government subsidising worker housing at 25% as part of its Real Housing for Growth Strategy
- the Bowling Green in Gap Road had planning approval for 60 units.

4.3.1.5 Education

Alice Springs

Alice Springs is well-served by a range of schools including 10 primary schools (seven government and three private), three government and two private secondary schools. Tertiary education is provided by Charles Darwin University, Batchelor Institute of Tertiary Education and the Centre for Appropriate Technology (brought together as the Desert Peoples' Centre). There is also a campus of the Flinders University for Remote Health.

Educational services in the local area around the project are provided by public primary schools in Laramba and Ti Tree. Once students get to their senior years, those at remote schools travel to boarding schools in Alice Springs or interstate to complete their education. In Ti Tree at the time of SIA interviews in June 2015, two students had moved to boarding school in Tennant Creek, while several others were at boarding schools interstate and in Alice Springs.

The quality of education services is an important factor in recruiting families to live in Alice Springs. The Department reports capacity to absorb extra students, should families move to Alice Springs. The only school that is zoned (with entry restricted to residents in the area) is Ross Park Primary because demand exceeds places.

Ti Tree and surrounding communities

As of mid-2015, Ti Tree school had 103 students to Year 9, all Aboriginal, most of whom were bussed in by private bus from nearby communities such as Pmara Juntunta (Six Mile) and Nturiya (Ti Tree Station). The school was built in the 1970s for a larger community. It has five large classrooms and capacity for another 30 students or could cater for activities such as adult education or other after hours use of its facilities.

As of mid-2015, one family in Ti Tree was home schooling, one police family had two children aged 3 and 7 doing School of the Air, and it was reported that other children living on stations are schooled either through School of the Air or by going to boarding school.

Table 4-12: A summary of the capacity of schools in the Anmatyerr region

Community	Students	Staff	Capacity
Ti Tree (serves a population of about 400 in Ti Tree and surrounding communities) All students are Aboriginal, travelling from Nturiya and Pmara Jutunta	103*	6	Has capacity to absorb another 30 students and extra classrooms that could be used for other purposes
Laramba	56**	6	n/k
Willowra	56**	7	n/k
Alyuen	Nil	Nil	Currently no school, 60 km from Ti Tree and no children living there Could be affected by families moving back to Alyuen
Pmara Jutunta (Six Mile)	Nil	Nil	Children bussed the short distance to Ti Tree
Nturiya (Ti Tree Station)	Nil	Nil	Children bussed the short distance to Ti Tree

*** based on information from My School website viewed 21 June 2015; * based from information from the school during interview*

Constraints to the growth of Ti Tree's school mainly relate to a lack of government employee housing for teachers and tutors and limits on expanding power and water connections. Staff report that Ti Tree is a relatively easy place to recruit too as it's on the highway not far from Alice Springs.

There are no childcare services in Ti Tree, although these are provided communities such as Laramba.

4.3.1.6 Health services

Government health services in the Northern Territory include five public hospitals, community health clinics, environmental health, disability services, mental health services, sexual assault referral centres and alcohol mandatory treatment centres. This is complemented by Aboriginal Congress in Alice Springs which provides a range of services to Aboriginal communities in Central Australia.

In July, 2014 the Department of Health was restructured under a new service framework, with operational services coming under Top End and Central Australia Health Services. A Hospital Services Capability Framework was implemented to support health providers and planners deliver more effective services. The operational arm of the Department of Health in Central Australia, the Central Australian Health Service, is responsible for integrated health services in Central Australia and reports to a governing council. Services cover Alice Springs and Tennant Creek Hospitals, mental health services, aged care, primary health care and outreach services.

The Department of Health's 2013-14 annual report shows that of 10,308 patient discharges from Territory hospitals, 4745 were in Central Australia, which is highly disproportionate to the Territory's population distribution.

The Central Australian Health Services (CAHS) 2014-15 Annual Report reports that CAHS covers an area of 872,861 square kilometres in the Alice and Barkly districts. There were 372,000 primary health care presentations, which include mental health services.

Alice Springs Hospital is an accredited teaching hospital which provides services to a 1.6 million square kilometre area and a population of about 50,000 people. It has a capacity of 183 beds and 1625.99 staff, 29.20% of whom are Aboriginal. In 2014/15 there were more than 58,000 presentations at the hospital's emergency department. As of mid-2015, a new emergency department was under construction and is expected to be completed within two years.

Services provided at Alice Springs Hospital include general medicine, rehabilitation medicine, palliative care, nephrology, emergency medicine, anaesthesia, intensive care, surgery (including ophthalmology, orthopaedics and ear, nose and throat), psychiatry, paediatrics, obstetrics and gynaecology. The hospital is responsible for renal dialysis with 26 chairs at Flynn Drive and another 16 outsourced to Nephrocare.

There were an estimated 1230 medical retrievals across Central Australia in 2014-15, with an estimated 20-25 road retrievals by St John Ambulance each year, in addition to retrievals by remote health staff (personal communication from Central Australia Health Service). The Royal Flying Doctor Service conducts aeromedical transfers and retrievals across Central Australia.

Health services in the area of study are provided by health centres at Ti Tree, Wilora, Laramba, Willowra and Yuelamu. Ti Tree is a hub service which provides support to Alyuen, Pmara Jutunuta (Six Mile) and Nturiya (Ti Tree Station). Ti Tree also provides an emergency service to the North Stuart Highway, mainly for road crashes from Tara to about 100 kilometres north of Alice Springs.

Staff at the health centres provide primary health care services, including emergency care, medical evacuations, preventable chronic disease, immunisations, men's and women's health checks, infections and communicable disease prevention and control and public health programs such as antenatal care, growth assessment and action program. A number of other services are provided by visiting health professionals.

4.3.1.7 Land release and planning

The Department of Lands, Planning and the Environment is responsible for planning land release to support growth, by identifying Crown land suitable for development and providing headworks such as roads, power, water and sewerage if these are likely to be beyond the means of a commercial developer.

The NT Government has recognised a potential demand by both Aboriginal residents and nearby horticultural projects for private housing in Ti Tree and is planning headworks and negotiating native title for the potential release of up to 34 residential blocks below the current sub-division, east of the Stuart Highway, although the timing and nature of land release is uncertain. The Australian and Northern Territory Governments would like to see Ti Tree become a regional service centre providing services to the mine and horticultural developments (SIA interviews).

Government is encouraging industrial development at Brewer Estate, near Roe Creek, which is on harder basement rock, next to the Bohning cattle yards and the Alice Springs Correctional Facility and serviced by a spur line from the Adelaide to Darwin Railway.

4.3.1.8 Utilities

The Power and Water Corporation's Remote Operations provides services to 73 communities in the Territory and, under a contract with the Department of Community Services, provides utilities to outstations.

Water is a key constraint to population and industrial growth in Central Australia, with Alice Springs' water supply sourced from the Mereenie Aquifer. High water consumption and fragility of supply have prompted a focus on initiatives to reduce consumption, such as the Alice Springs Living Water Smart program. Similarly, there is a high level of water stress in Central Australia while the cost of improving utilities such as power, water and sewerage to remote communities is substantial due to their isolation, age and remoteness.

Utilities generally are built to meet anticipated demand, with little redundancy, so any additional housing or community infrastructure in places such as Ti Tree would require realistic lead times to provide appropriate capital works funding, prioritisation and planning (SIA interview).

Unlike most other communities in this area, Laramba has access to good bore water, pumped from a bore near Day Creek, however water pressure has been a key issue for the community due to a 30-kilometre rising main built in the 1980s and reliance on diesel. Napperby Station has the Essential Services contract and water from the bore also supplies the property's homestead, supplemented by water from a station soak.

The Power and Water Corporation is looking at expanding the use of solar power in communities including Ti Tree.

4.3.2 Key potential impacts

Table 4-13: Potential social impacts in relation to services and infrastructure

Potential positive impacts	Potential negative impacts
Community benefits from upgraded or residual infrastructure such as telecommunications and utilities Improved community infrastructure	Pressures on the affordability and availability of public and private housing Pressure on government services and community infrastructure such as emergency response, health, education, land release, transport infrastructure and utilities

4.3.3 Prediction and analysis of impacts on services and infrastructure

4.3.3.1 Overview

The predicted impact on services is highly uncertain as it is an indirect consequence of employment and workforce issues. In general, it is predicted that both Alice Springs and nearby communities can absorb the likely workforce without a great impact on existing services, such as health, housing and emergency services, particularly if an initial FIFO workforce is largely accommodated at an onsite workers' village. However, a significant influx of Anmatyerr people returning to country to work at the mine could lead to pressures on local community housing and create a demand for more private housing and community infrastructure in Ti Tree, while population mobility (e.g. more people wanting to live in the small community of Alyuen) could put pressure on housing and community infrastructure, which at present is minimal.

Impacts on Alice Springs are predicted to be minimal given that the recruitment of people to Alice Springs is likely to be absorbed within existing capacity. However, cumulative impacts if other developments start at the same time, could lead to pressures on scarce public housing (through inflationary impacts on the private housing market) and on the availability and affordability of private housing.

Key mitigation strategies are to contain any impact on local services by providing medical or primary health care services on site, taking account of accommodation needs in recruitment, short-term accommodation strategies, Codes of Behaviour to reduce demands on policing services through worker misbehaviour, traffic management plans to reduce road safety risks and on site emergency response preparedness to reduce the need for external emergency responses.

4.3.3.2 Pressure on services

A key impact on government services may arise if a large number of people move back to the Alyuen outstation, next to the Aileron Roadhouse, expecting to live with family. This community contains only six houses and basic services. Perceived opportunities with the project and recent connection to a more reliable water supply could attract families back to the outstation, which would have implications for housing demand and community infrastructure. Its tenure as a community living areas poses constraints to development. However, it is also home to senior traditional owners associated with the mine, who have been talking to government about improvements such as a better ablutions block and community garden (SIA interviews).

Central Desert Regional Council provides municipal services to Ti Tree and surrounding communities. Generally the Council believes the mine would have little impact on municipal services, apart from the flow-on effects of more residents in Ti Tree and, perhaps, pressure on waste and tip facilities. An indirect impact would flow from Council workers leaving for better-paid jobs at the mine, making it hard to recruit management and unskilled workers to deliver municipal services.

Impacts on specific government services is analysed in more detail below.

4.3.3.3 Housing

Alice Springs

Given the predicted level of recruitment of permanent staff and their families to Alice Springs, impacts on the housing market are predicted to be minimal. However, given the size of the market, this could change if there are cumulative impacts from other projects starting at the same time. The key impacts on public housing in Alice Springs would come from inflationary pressures causing rental stress and creating greater demand for public housing. It is possible that Aboriginal people coming back to Alice Springs to live with family while working at the mine could create pressure on public housing, but this is predicted to be minimal.

A study by Hunter, Howlett and Gray (2014) found that while the cost of housing tended to go up in remote towns where there was mining, levels of overcrowding in Aboriginal housing decreased because higher wages increases the level of private ownership, which could occur for this project if Alice Springs-based Aboriginal people get jobs with the project. The study suggests mining companies can help address the inflationary impact of their activities on nearby towns by increasing low-income housing stock, minimising demand by using FIFO workers, ensuring sufficient housing is available for workers and by government releasing land for private housing. However, Alice Springs is not directly comparable to the communities covered by the above study given the economic diversification of the town, compared with the reliance of communities in the Hunter, Howlett and Gray under study for mining jobs.

Ti Tree and nearby communities

In Ti Tree, Laramba and nearby communities, there is no private housing market, available public housing is overcrowded and there are constraints on accommodation for service providers (SIA interviews).

While it is considered unlikely that external workers would want to relocate families to Ti Tree rather than Alice Springs, there are many ways in which the mine could put pressure on public and private housing in Ti Tree and surrounding communities:

- the project could create a demand for permanent or temporary accommodation in Ti Tree for mine workers wanting to commute daily or wanting a place to live away from current overcrowded housing on their rostered days off;
- the project could put pressure on existing public housing if Aboriginal people return or move to the region for work at the mine and move in with family in existing public housing, in turn increasing wear and tear, community conflict and flow-on impacts such as poor work and school attendance because of overcrowding;
- Aboriginal workers at the mine may aspire to invest their wages in private home ownership which, at present, is not available due to land and tenure constraints;
- any attempts to start new businesses in Ti Tree to provide services to the mine would create a demand for public or private housing, particularly if people move from nearby communities or further afield for this purpose, in addition to the potential cumulative impact from TNG's Mount Peake project at Barrow Creek;
- any increased pressure on services, due to an influx of people, would create demand for additional government employee housing.

In Ti Tree, Government is planning a sub-division of up to 34 houses but the pace of development will depend on demand. This could be fast-tracked if mine workers move to the town (which is considered less likely) or if there is pressure from overcrowded Aboriginal communities nearby to increase public and private housing opportunities in Ti Tree so people can access jobs with the project or because families move back to Anmatyerr land in expectation of work.

The policy of both the Northern Territory Government and Australian Government is to encourage a transition from public housing to new home ownership and to prioritise new housing in areas where there are jobs and economic development opportunities (SIA interviews). So the project could present an opportunity for local people if it generates sufficient demand for public and private housing in Ti Tree to justify the sub-division going ahead, in turn alleviating pressure on public housing in other nearby communities.

Communities such as Laramba are on a community living area and accommodation for visitors and additional staff is in tight supply, although it is predicted that impacts on this community will be minimal compared with pressures in Ti Tree, Alyuen and Pmara Jutunta, which have more mobile populations.

It is predicted that the project will focus attention on overcrowded public housing and aspirations by many local Aboriginal people to move to public and private housing in Ti Tree from nearby communities and camps. This may create a short-term demand for temporary or permanent accommodation in Ti Tree but may also create longer-term pressure from permanent workers wanting better housing. So this issue could be framed either as pressure on services or as an opportunity to provide new housing on freehold land in a town with potential to become a bigger regional centre.

4.3.3.4 Emergency services

Police from Ti Tree provide services to a range of nearby communities and report a heavy workload, with substantial time out of the office that impacts on routine services, such as motor vehicle registrations (SIA interviews). Areas with high call-outs include Willowra (because of community conflict), Aileron Roadhouse (to deal with fights and the impacts of takeaway alcohol) and Pmara Jutunuta or Six Mile (to regular issues with alcohol and violence). Police report fewer call outs to communities such as Laramba and some are dealt with by Yuendumu Police.

Ti Tree Police expect an increased workload if higher amounts of available cash are spent on alcohol, leading to domestic violence and community conflict. Any worker misbehaviour, for example at the Aileron Roadhouse, would provide an additional call on policing resources. Another area of additional work could come from increased industrial traffic on the Stuart Highway.

Alice Springs Police felt there would be little impact on their workload from the mine, except the need to respond to emergencies on the Stuart Highway as a result of increased mine traffic and if young, single workers drink heavily and get into trouble, e.g. in nightclubs, on their days off.

Limited impact is expected on other emergency services except in the event of a major incident requiring fire and ambulance services, however Arafura would provide its own medical and emergency response services for routine incidents.

4.3.3.5 Education

Alice Springs

Given the reported out-migration of population in Alice Springs, it is predicted that Alice Springs schools can readily absorb new families. Only one school – Ross Park Primary – is zoned because of its popularity.

Ti Tree and surrounding communities

The impact on Ti Tree Educational facilities is likely to be positive, given that the current school was built for a larger town and facilities are under-used. Spare classrooms could, for example, be used for night classes, greater VET training or other after hours activities.

In mid-2015, Ti Tree school provided education to 103 Aboriginal children in mixed-year classes up to Year 9. As of mid-2015, there were no non-Aboriginal children at the school, which provides services to a wider catchment area. Any increase in housing in Ti Tree may have flow-on effects on demand for educational services, although if families move into Ti Tree it may just reduce the commuting time of children already attending the school.

Should externally recruited workers want to move to Ti Tree with school-aged children, they may be deterred if educational standards aren't comparable with their home towns, however this pressure is predicted to be less likely than increased demand from local Aboriginal families.

The potential for local people to move into jobs may create a demand for childcare in Ti Tree as there is no facility now. The 2011 Census data suggests relatively few families with young children living in the town but this picture does not accurately capture the potential for Aboriginal people living in nearby communities to seek to move into Ti Tree, particularly if a proposed new sub-division provides greater opportunities for home ownership and additional public housing.

Children, when they live at Alyuen, go to school at Mulga Bore or Ti Tree but at the time of interviews (mid-2015) it was reported there were no permanent children living at Alyuen. This could change if families move

back to work on the Nolans project, which could create demand for enhanced government services such as a school and better housing.

4.3.3.6 Health services

Alice Springs

Alice Springs hospital's workload means the project is unlikely to have any noticeable impact on resources (SIA interview), however the hospital would be keen to discuss the implications for staff training and response capacity for hazardous incidents, such as chemical spills or industrial accidents. The hospital is being expanded to include a new emergency department, which is likely to be finished by the time the mine sees peak construction numbers.

Ti Tree

The Ti Tree Health Clinic is busy, dealing primarily with primary health issues and chronic diseases, and facilities are cramped with no capacity to expand, however a new clinic was being planned. The impact of the project is expected to be minimal, given there will be onsite medical facilities with the project. There could be short-term impacts during initial construction, before the project's health clinic is operational. The Ti Tree Clinic has previously reported several presentations of workers during Arafura's drilling campaigns in the past few years, particularly for things such as eye injuries.

The clinic could experience increased demand to respond to emergencies or provide triage services to medical evacuations from the Ti Tree air strip.

The Department of Health (SIA interview) suggests there may be opportunities to collaborate with the project medical centre to enhance training opportunities for Aboriginal health workers.

4.3.3.7 Land release

Alice Springs should be well-positioned to absorb growth flowing from mining projects in the region, with a number of sub-divisions in the pipeline that would provide a range of new housing options. This includes the proposed Melanka development, units on Gap Road, Mt John residential blocks and up to 1000 cheaper blocks that can be made available relatively quickly at the new Kilgariff sub-division near the airport.

Ti-Tree would be more problematic. The NT Government is negotiating Native Title for the release of Crown Land between the Stuart Highway and the Airport that could make available up to 34 residential blocks to expand public and private housing options. Capacity for large-scale growth in Ti Tree would be constrained by a surrounding Aboriginal land trust, the time it takes to negotiate Native Title when there are changes in tenure and the need to expand expensive infrastructure such as utilities.

4.3.3.8 Utilities

The key potential impacts on utilities would be the flow-on effect of any increased demand for housing and other community infrastructure, with increased demand for power, water and sewerage services to Ti Tree in particular.

At Laramba, there is good access to quality bore water. The issue here is that the 30-kilometre rising main is more than 30 years old and water pressure is poor, impacting on the water flow to the community and Napperby Station (which has the essential services contract). It would reportedly cost millions of dollars to address this problem which is unlikely given the competing priorities for the Government's essential services infrastructure budget. A potential risk for Arafura is that it will be blamed for any impact on already unreliable supplies when this could have technical rather than hydrological causes. Arafura plans to mitigate

this risk with a relevant and appropriate 'water story' that describes where Arafura will get its water from and how it will ensure any impacts on Laramba's water source are not caused by draw down as a result of Arafura's borefield.

The Power and Water Corporation would be keen to ensure major projects do not impact on the availability and quality of communities' drinking water and that treated water isn't used for other purposes, such as dust suppression or construction of roads (SIA interview).

4.3.3.9 Transport

There are various ways in which the project could impact on regional transport, both positive and negative:

- taking up flights to Alice Springs with FIFO workers could push up the cost of flights and displace tourists and other domestic travel
- the project will be a significant rail freight customer and likely generate additional jobs and logistics activities in Alice Springs
- should TNG upgrade Ti Tree's airport to support its workforce for the Mount Peake mine to the north, this would be beneficial for other air travel to Ti Tree, including medical evacuations, however, any additional demand by Arafura would need to be factored into these plans
- the potential impact of heavy vehicles on the condition of the Stuart Highway (not likely given the level of traffic, see Chapter 17).

Transport issues are dealt with in more detail Chapter 17.

4.3.3.10 Community benefits from upgraded infrastructure such as roads, utilities, telecommunications, air strips or residual infrastructure from the project

Many remote communities are isolated because their small populations make it financially difficult to justify the cost of new infrastructure, such as sealed roads, telecommunications, power grids and reticulated water. The presence of the Nolans project, workers' accommodation village and associated facilities may improve the economies of scale of a regional approach to improved infrastructure, such as power and water servicing both Ti Tree, nearby towns and the horticultural district around Ti Tree.

While Ti Tree has access to mobile phone towers, Aileron relies on satellite wifi and Laramba has no mobile coverage. These services could be enhanced if Arafura is installing high quality telecommunications for the project.

The project is unlikely to contribute to improved roads as the new sealed from the Stuart Highway to the mine site will be a dedicated project road (see Chapter 17).

4.3.3.11 Improved community infrastructure

Community infrastructure could benefit in two ways from the project. The first is through an influx of population creating a demand for improved community infrastructure in Ti Tree and Alyuen in particular, although this has cost implications for Government. The second is if community benefits or sponsorship contributes to community infrastructure, such as improved sports and recreational facilities. In Ti Tree, for example, football is popular but the local oval is in poor condition. The community has already expended considerable effort on upgrading a local park to improve recreational facilities in the town. It is predicted that both these are likely to be realised to some extent through sponsorship and community benefits allocations by Arafura.

4.3.4 Mitigation and management

Key mitigation and management measures include:

- onsite provision of services, such as a health clinic
- a short-term accommodation strategy including accommodation for local workers in Ti Tree (perhaps in collaboration with a partner such as the CLC so the facilities become a legacy of the project).

4.4 Health, safety and wellbeing

Table 4-14: Key findings on health, safety and wellbeing and how they address TOR and SIA Guidelines

Key findings	Reference	Reference to TOR and Guidelines	Reference to Risk and Opportunity Assessment
There is a gap between the health status of Aboriginal and non-Aboriginal Territorians, including chronic diseases and mental health. While the project may contribute to improved outcomes, through improved socioeconomic status or workplace programs, it will be hard to correlate this against any meaningful indicators. However, poor health is likely to have an impact on employment strategies.	4.4.1.1		
Alcohol-related violence is a key issue throughout the Northern Territory although a major government focus on issues such as alcohol abuse and domestic violence has reduced its prevalence. A key fear of many interviewees for the project was how the project might contribute to increased alcohol abuse and violence through increased availability of cash and tensions over the distribution of benefits.	4.4.1.5 4.4.3.4	6.1 of SIA Guidelines in relation to community cohesion	
There is likely to be a major component of FIFO workers on the project, particularly with 400-500 workers needed for construction. This has implications for workers' mental health and potential for substance abuse.	4.4.3.2 4.4.3.6		Threat 12
While actual risk from radiation and chemicals is considered low in the project risk assessment, perceptions of risks to public health may generate fears about radiation, dust and pollution from spills.	4.4.3.9	6.1 of SIA Guidelines (attitudes towards the project) 6.3 of SIA Guidelines in relation to risk assessment on safety and amenity	Threat 13

4.4.1 Background on health, safety and wellbeing

The World Health Organisation(2008) outlines 10 key determinants of health as being:

- **social gradient**: a person's social and economic circumstances
- **stressful economic and social circumstances** mean people are less likely to be healthy and have a long life
- **early years of life**: babies born with low birth weight have a much greater likelihood of developing coronary health disease in adulthood
- social exclusion
- **stress at work**: having little control over jobs, limited opportunities to use their skills or in high demand jobs with few rewards
- unemployment, job and income insecurity can lead to chronic stress
- social support
- **addiction**: misuse of alcohol, drugs and tobacco is harmful to health but is often a response to stressful situations and social breakdown

- **food security**, including good quality and affordable food
- **transport** is vitally important to accessing health and other services and, for Aboriginal people, a means to find traditional bush foods and hunting.

Remote Territory communities continue to reflect poorly against these factors, which impact on school attendance and employment, as well as experiencing high levels of violence. As outlined by the former Northern Territory Coordinator General Olga Havnen in her report to August 2012:

> *They have poorer access to services, live in overcrowded housing, have few employment opportunities and contend with an excessively high cost of living that practically precludes a healthy diet – fresh food can cost 150% to 180% more in remote communities than in capital cities (p. 89).*
>
> *Socio-economic circumstances including high levels of overcrowding and poor housing, unemployment, poverty and alcohol/substance misuse all significantly contribute to family violence and high rates of homicide, assault and injury (p. 98).*

4.4.1.1 Health outcomes

The poor health status of Aboriginal Territorians is relevant to this study because of the potential impact on people's ability to work, thereby increasing the risk of failing to meet expectations of a local workforce, and the potential to improve health outcomes through an improved standard of living and workplace programs.

The NT Department of Health's 2013/14 annual report outlines some of the risk factors contributing to poor health outcomes:

- the prevalence of smoking, which is reported as being 56% for Aboriginal people aged 18 or more and 24.1% for non-Aboriginal people compared with 18.2% nationally;
- while Aboriginal adults are less likely to consume alcohol (50.3% in the previous year) compared with non-Aboriginal adults (90.2%), nearly 40% of Aboriginal people who reported drinking alcohol in the previous week had done so at risky or high risk levels;
- alcohol consumption during pregnancy (and the prevalence of foetal alcohol syndrome) is of particular concern, with one in eight Aboriginal and one in 16 non-Aboriginal women reporting at their first antenatal visit to have consumed alcohol during pregnancy;
- for admissions to hospital for circulatory disease, cancer and injury, there is a link to low socioeconomic status;
- recent research by the Department suggests the Territory's Aboriginal population has a much higher prevalence of dementia and younger onset of the disease compared with non-Aboriginal people.

The Department's 2013-14 Annual Report shows that Aboriginal people (who make up 29.5% of the Territory's population) comprise:

- 70% of the Territory's hospital patients
- 93% of renal dialysis patients
- 34% of mothers giving birth in public health services
- 72% of government-managed remote health centre patients.

The *Aboriginal and Torres Straight Islander Health Performance Framework NT 2014* report covers health status and outcomes, the determinants of health and health systems performance data. Hospitalisation rates of Aboriginal people in the Northern Territory (excluding dialysis) were 506 per 1000, compared with the national rate for Indigenous Australians of 393 per 1000. Aboriginal people in the Territory are hospitalised at six times the rate of non-Aboriginal Territorians, are 17 times more likely to be hospitalised for assaults, three times more likely for respiratory diseases and twice as likely for circulatory disease.

Factors contributing to poor health outcomes included high rates of smoking. Risky alcohol consumption contributes to disease, assaults, an estimated one-third of suicides, one-third of transport deaths and an increasing prevalence of foetal alcohol syndrome. A barrier to accessing health care is poor access to transport, with 62% of Aboriginal households having at least one vehicle, compared with 94% of non-Aboriginal Territorians.

4.4.1.2 Chronic disease

Chronic kidney disease places an enormous strain on the health budget and mobility of people to Alice Springs for dialysis. This has a compounding effect of families needing short and longer-term accommodation while relatives are seeking treatment.

A Central Australian Renal Study conducted by the George Institute for Global Health, jointly funded by the Australian, Northern Territory, South Australian and West Australian Governments and published in June 2011, found the burden of disease falls disproportionately on people aged 35 to 65 and rates of chronic kidney disease are up to 30 times the national average.

4.4.1.3 Sexually transmitted diseases

The *Aboriginal and Torres Strait Islander Health Performance Framework NT 2014* reports high rates of sexually transmitted infections, with syphilis reported at 2.5 times the rate of other Territorians and gonorrhoea notifications 18 times higher. The Territory's Centre for Disease Control has expressed alarm at the rise in syphilis cases in Central Australia, the Barkly and Katherine in 2015, with 134 cases reported in the year compared with 15 the year before. Most of the cases had been found in young Aboriginal people aged between 15 and 35, but sexually transmitted diseases had been found in children as young as 12 (Hope 2015).

4.4.1.4 Mental health

Interviewees for the SIA expressed concern at the high level of disengagement among youth in Central Australia and anecdotal reports of high levels of undiagnosed depression. The Australian Institute of Health and Welfare (2015) reports that:

- from 2008 to 2012 the suicide rate for Aboriginal Australians was twice the rate for non-Aboriginal Australians
- for 15-19 year olds, the rate was five times as high as for non-Aboriginal Australians
- the rate of community mental health service contacts for Aboriginal people was 3.2 times the rate for non-Aboriginal people.

4.4.1.5 Violence and alcohol

Alcohol-related violence remains a key issue affecting community safety in Central Australia, with various studies showing that Aboriginal people are disproportionately represented as both victims and offenders of crime. A report released by the Australian Institute of Criminology in May 2015 suggests Aboriginal people

are exposed to a number of vulnerabilities that increase the likelihood that they will be involved in a violent offence, including substance abuse, personal history (such as sexual abuse as a child), housing, mobility and social stressors (gambling addiction, mental illness or serious accidents).

There has been a major focus by governments and police on reducing alcohol abuse, domestic violence and other alcohol-related crime, with temporary beat locations (police stationed outside bottle shops to deter people buying alcohol to drink in prohibited areas such as town camps) in major centres. Over 12 months from 1 June 2014 to 31 May 2015 there was a reduction in the level of reported alcohol-related assaults in Alice Springs compared with the previous 12 months of 22.2%. The level of alcohol related family violence assaults over this period decreased by 23.2% compared with the previous year (Alice Springs Alcohol Management Plan, October 2015).

In July 2015, Police Commander Brent Warren and Alice Springs Women's Shelter Coordinator Dale Wakefield said Operation Respect, in which police are focussing on reducing domestic violence, had been effective. Over 37 weeks, police had made 156 arrests, issued 129 domestic violence orders and served 88 summonses in relation to 445 domestic and family violence offences. However, Commander Warren was reported as saying that Alice Springs residents had become "numb" to witnessing acts of violence, something police wanted to change (Garrick 2015b).

Alcohol is readily available in the area around the project, with takeaway alcohol available from Barrow Creek and the Aileron Roadhouse. Concerns about the prevalence of alcohol related harm and domestic violence, particularly in relation to royalty payments, were raised frequently in interviews for the SIA.

4.4.1.6 Road safety

NT Department of Transport data shows there were 39 fatalities on Territory roads in 2014, with a 10-year average of 48 fatalities a year. The 2014 rate of 15.9 deaths per 100,000 people was three times the national rate of 4.9. Aboriginal people living in remote areas are over-represented in crash statistics. Key causal factors in fatalities over 10 years were alcohol (45%), not wearing a seatbelt (45%), speed-related (24%) and fatigue related (5%). In addition, of 24 fatal crashes, 58% were single vehicles running off the road or overturning and 23% involved pedestrians being hit (www.transport.nt.gov.au/safety/road-safety/our-statistics).

Improving road safety through education and enforcement is a key priority of Northern Territory Police, while drink-driving remains a key issue, with reports of people travelling between communities to purchase alcohol, sometimes in unroadworthy vehicles.

In response to the prevalence of unlicensed driving and importance of having a driver's licence to get work, Drive Safe NT runs driving courses across the Northern Territory (Fitzgerald 2015).

In February 2014, the Northern Territory Government introduced a return to open speed limits on a 204-kilometre stretch of the Stuart Highway north of Alice Springs to just south of Barrow Creek, a stretch of road that will be used by project traffic although to date there have been reported fatalities as a result of this move.

4.4.2 Key potential impacts

Table 4-15: Potential social impacts in relation to services and infrastructure

Potential positive impacts	Potential negative impacts
Improved health and wellbeing of workers Reduced substance abuse in the community	Alcohol and other substance abuse by workers and in the community Depression and suicide of FIFO workers Increase in sexually transmitted diseases Increased crime and antisocial behaviour Increased road safety risks Fears about exposure to hazards and radiation

4.4.3 Prediction and analysis on health

4.4.3.1 Overview

Health is described by Vanclay (2003) as "a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity" or by the World Health Organisation as "a state of complete physical, social and mental wellbeing". The World Health Organization defines quality of life as "an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad-ranging concept affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships and their relationship to salient features of their environment" (from National Wellness Institute of Australia website, nwia.idwellness.org, sighted 28 July 2015).

The project is likely to rely heavily on a FIFO workforce, which brings with it welfare and mental health issues prevalent in the resource industry, which is predicted to be a significant issue for management given that many of the causes of mental health issues happen away from the workplace.

Public health issues include fears about exposure to radiation and dust. There is a high level of uncertainty about public perception issues, which did not rate highly in SIA interviews but which have the potential to emerge as significant issues. This includes fears relating to waste storage, radiation, contamination of water and spills.

Mitigation strategies will include good workplace wellbeing programs and good communication on risk issues.

4.4.3.2 Improved health and wellbeing of workers

Aboriginal health outcomes, on all indicators, are well below that of other Australians and a key focus of 'Closing the Gap' strategies by the Australian and Northern Territory Government (see 4.4.1.1). High levels of disadvantage, overcrowded housing, poor diet, chronic diseases, poor early childhood health, alcohol-related harm including foetal alcohol related syndrome that affects the children of heavy drinkers and high levels of ear disease affect not only quality of life but employment and training outcomes.

There are opportunities for the mine to introduce healthy lifestyle programs that improve workers' health, while access to higher wages may health address health issues associated with poverty, such as overcrowding and poor diet. However, it would be difficult to correlate quantifiable improvements with the project's employment activities.

4.4.3.3 Alcohol and other substance abuse by workers

A key issue facing mining and construction industries around Australia is the prevalence of drug and alcohol abuse including, most recently, an 'ice' epidemic. Alcohol abuse can also be an issue on FIFO workers' days off, particularly if they frequent hotels and nightclubs while rostered off.

Strategies such reducing opportunities to access drugs and alcohol, a zero tolerance policy for substance abuse in the workplace and a Code of Behaviour mandating that drugs and alcohol are not to be brought into the community or workers' village are likely to substantially mitigate against this risk.

4.4.3.4 Alcohol and other substance abuse increase

A key issue raised by service providers is the level of alcohol abuse in nearby communities and some use of illicit drugs, such as 'ganja'. So far there have been no reports of ice in the region (SIA interviews), however fears were expressed in 2015 public hearings by a NT Parliamentary select committee that ice was an emerging problem in regional areas (Legislative Assembly 2015).

Frequent concerns were expressed in SIA interviews that mining could increase drug and alcohol abuse, through royalty payments, higher wages and drugs and alcohol being brought into communities by mine workers.

Another concern was the potential for clashes between locals and workers as a result of drinking at nearby hotels, a problem experienced during Arafura's drilling campaigns. If Arafura runs a dry camp there could be tension over 'two sets of rules' regarding drinking if contractors don't stay in the workers' village.

While a Code of Behaviour can have some influence on worker behaviour, it will be harder to manage substance abuse in communities (which is covered in the section on community cohesion above at 4.3.1).

This issue is predicted to be more of an issue in the communities nearer the project than in Alice Springs, but police suggested there could be impacts in Alice Springs if FIFO workers spend time in local nightspots while accommodated in Alice Springs between flights.

4.4.3.5 Reduced substance abuse in the community

The Department of Health would be keen to see a volatile substance abuse program implemented to prevent petrol-sniffing.

The project may be able to sponsor health programs in the workforce (e.g. QUIT program) while a zero tolerance approach to drugs and alcohol, combined with getting people into meaningful jobs, could make a positive contribution to local health and mental health outcomes. However, given the lack of relevant baseline data, it will be difficult to quantify any measurable improvements in health status other than the number of programs offered.

4.4.3.6 Depression and suicide of workers

Workforce issues include mental health, particularly fly-in, fly-out workers. Studies (Hoath & Haslam-McKenzie 2013) have found the main incentive for workers to commute long-distance to work are higher incomes and that most workers cope well with the lifestyle. However, there is a high level of uncertainty in managing workers' mental health, as many of the causes of depression may be family or other issues that occur away from the workplace. Likely worker issues to be managed include:

- loneliness and mental health issues for workers spending long periods away from their families (e.g. shorter rosters)

- mental health issues from alcohol and drug abuse and binge-drinking on days off particularly for cashed-up workers
- impacts on family wellbeing.

The risks will be reduced through good worker support, a high standard of accommodation and helping workers maintain connections with family, for example through good telecommunication connections. Given the difficulties of managing mental health issues and the severe consequences, this remains a priority issue.

4.4.3.7 Increase in sexually transmitted diseases

An increase in sexually transmitted diseases could be problematic if the presence of a large number of single mine workers attracts prostitutes or there are sexual liaisons between project workers and local people. It is predicted these will be minimal if Arafura adopts a Code of Behaviour that quarantines interactions with the community.

4.4.3.8 Increased road safety risks

An increase in traffic during construction and operations of the mine, including road trains carrying chemicals, has implications for road safety on the Stuart Highway. There is both the likelihood of more traffic but also the consequences of mine traffic coming into contact with local people drink driving or driving unroadworthy vehicles and the potential serious consequences of a chemical spill.

Another risk is if mine workers from communities such as Laramba increase their use of the unsealed Napperby road to get to work or if workers are driving home fatigued after long shifts, both of which will be alleviated to a large extent by bussing people to work.

See Chapter 17 for more discussion on traffic issues.

4.4.3.9 Fears about exposure to hazards and public health

While negative perceptions about uranium did not feature highly in SIA interviews, concerns about radiation, waste storage, tailings dams and contamination of water have been raised during general community consultation and have the potential to become more substantial issues at any time. This in turn would generate community conflict, fear and potential opposition to the mine and concerns by regulators.

A key fear, exacerbated by community debate on fracking, is that mining activity will pollute existing aquifers and water supplies, either through stormwater runoff from contaminated areas or from spills. The mining industry is seen as having a poor track record on legacy environmental issues.

A particular fear amongst Aboriginal people is the implications of any failure, collapse or leakage of tailings and whether this could contaminate local water supplies.

People living in the arid Central Australian region are well-aware of how far dust travels and some community members asked about public health impacts of dust blowing from the mine, in particular whether it contains any radioactive materials.

There is a high level of uncertainty about reactions to perceived risk, particularly as many people probably find it hard to visual the scale of the project and its impact on the landscape. A key mitigation strategy will be good communication and transparent monitoring and reporting.

4.4.4 Mitigation and management

Key mitigation and management measures include:

- human resource practices, including a focus on wellbeing programs
- a Code of Conduct for workers
- provide transport for commuting workers
- good risk communication practices and materials.

4.5 Natural resources and the environment

Table 4-16: Key findings on natural resources and the environment and how they address TOR and SIA Guidelines

Key findings	Reference	Reference to TOR and Guidelines	Reference to Risk and Opportunity Assessment
Any environmental impacts are likely to have consequent social impacts, in particular for Aboriginal traditional owners and pastoralists. This could include changes to the landscape, impacts on habitats and groundwater, noise and dust affecting amenity and reduced access, flora and fauna loss impacting on traditional activities such as hunting and food-gathering.	4.5.3.2	6.3 of SIA Guidelines regarding risk assessment in relation to amenity and cultural opportunities	Threat 15
Water in particular has important cultural values for Aboriginal people, connecting with dreamings, traditional patterns of mobility, access to soaks and associations with water courses. Although hydrological studies suggest no impact, there are likely to be fears about any impacts on water quality and availability.	4.5.3.4		Threat 15
Aboriginal people are keen to work on their own country, particularly land management and rehabilitation jobs such as ranger programs.	4.5.2.3	5.1.4 SIA Guidelines in relation to employment opportunities	Opportunity 22

4.5.1 Background on natural resources and the environment

Issues relating to biodiversity and water are covered in their respective parts of the Environmental Impact Statement (Chapters 9 and 10). To avoid duplication, this section deals only with the social implications of environmental impacts, or how environmental impacts translate to lost use or enjoyment of environmental assets.

4.5.1.1 Environmental values

As outlined by Vanclay (2003), the environment covers "the quality of the air and water people use; the availability and quality of the food they eat; the level of hazard or risk, dust and noise they are exposed to; the adequacy of sanitation; their physical safety; and their access to and control over resources."

Attitudes regarding environmental impacts are strongly influenced by where people live and their values, described by Fenton (2005) as enduring beliefs about preferable end states which guide choices and actions, such as incongruent beliefs regarding land use and development. Environmental values can include the meanings people ascribe to places, objects, the emotive qualities of land and attachment to place.

The concept of natural capital (air, soils, water, landscape and impacts on biodiversity) is now included in variations of the sustainable livelihoods concept, which assesses cohesion of communities by their networks and social, human, political, built, financial, cultural and natural capitals. When these are in balance, the outcomes include healthy ecosystems, vibrant regional economies and social equity and empowerment (Cornelia Butler, North Central Regional Centre for Rural Development, cited in Vanclay et al. 2015).

The project area has been disturbed by pastoral activities but has experienced little industrial disturbance and retains its spectacular landscapes and many relatively intact, inaccessible areas.

Alice Springs Historian Dick Kimber (2011) provided useful insights into the cultural values associated with water in his paper written in 2011 for the then Department of Natural Resources, Environment and The Arts, during a review of the 2007 Alice Springs Water Resources Strategy. He outlines how Aboriginal people's

mobility and dreaming stories were linked to their knowledge of water resources, often following river systems or soaks, and that early conflict between settlers and Aboriginal people was over access to this water, as pastoralists took control or polluted precious soaks to water their cattle.

The natural geographical form of the land influenced Aboriginal dreaming trails and determined where people travelled. "It is no accident that the walking pads noticed by all explorers were largely along the river and creek lines and through the gorges. These walking pads allowed for the most comfortable walking along largely shaded ways between waters and also allowed access to the favoured land for hunting and gathering."

A topical issue in Central Australia in response to the 'developing the north agenda' is the pace and scale of development that the Territory can sustain, while maintaining what Territorians regard as a special and unique lifestyle. Concerns raised in recent media and social media commentary include land tenure, water allocation, growing scrutiny of the impact of mining and contamination from legacy mines, fears of the implications of onshore gas exploration and fracking and the changing character of rural areas outside main towns.

Additional issues raised in interviews for this SIA were concerns about the impacts of climate change and whole-of-life-cycle implications of resource projects.

4.5.1.2 Water

Water is a key constraint to population and industrial growth in Central Australia, with Alice Springs' water supply sourced from the Mereenie Aquifer. High water consumption and the fragility of supply have prompted initiatives to reduce consumption, such as the Alice Springs Living Water Smart Program. Pumping of bore water for Alice Springs' drinking water supply will eventually move from Roe Creek to the Rocky Creek borefield, which is used now to support horticulture.

Aboriginal people place a high value on water and traditionally lived their lives based on its availability, retreating to soaks and permanent water sources during drought. As an illustration, cultures tend to assign the most words to describe to its most valued food and natural resources, such as multiple words for rice in Asia and snow for Eskimos. Spencer and Gillen (as described by Kimber 2011, p. 18) found Arrernte people had 17 different names for different kinds of major water supplies, including names for a claypan, soakage, spring, large waterhole, water hole surrounded by tall bulrushes, a muddy waterhole and a rock-hole.

A key environmental feature and heritage site near the project is Annas Reservoir Conservation Reserve, north-west of the Aileron Roadhouse with access from the Stuart Highway and across Aileron Station. The reserve is now visited occasionally for recreational purposes, with access across Aileron Station.

4.5.1.3 Land management

There has been an increasing focus on good land management in the Territory, through local Landcare groups (often run by pastoralists) and ranger programs that are a popular source of employment for Aboriginal people.

For the past 15 years, the CLC has coordinated ranger groups in Central Australia, with 11 groups now employing about 100 Aboriginal people and helping Aboriginal people work on their own country, while providing formal skills. The $8.8 million in funding (CLC 2015) for these programs comes largely from:

- the Australian Government's Working on Country Program, that acknowledges Aboriginal people's strong relationships and obligations to country;

- Indigenous Land Corporation Real Jobs Program that targets jobs in environmental land management and the pastoral sector with accredited training opportunities;
- Aboriginal Benefits Account: established under the Aboriginal Land Rights Act to receive and distribute royalty monies generated from mining on Aboriginal land to initiatives that benefit Aboriginal people living in the Northern Territory.

The CLC's development strategy for ranger groups, released for discussion in July 2015, notes the program is in high demand, with frequent requests for new ranger groups made at council level and community meetings. The CLC has assessed 25 potential locations, with an objective to grow the program to cover 20 teams in the next five to 15 years. Part of the challenge will be reducing reliance on government funding and looking at fee for service opportunities.

Ti Tree rangers worked on EIS biodiversity surveys in 2015. It was noticed during presentations on the project to traditional owner meetings, people were most engaged when there was discussion of threatened species such as the desert skink and black-footed wallaby.

4.5.2 Potential key impacts

Table 4-17: Potential social impacts in relation to natural resources and the environment

Potential positive impacts	Potential negative impacts
Gain of biodiversity of species and habitat through enhanced land management	Environmental risks impacting on the use and enjoyment of the area Hydrological risks impacting on the availability and quality of groundwater Impacts on amenity, such as noise and dust

4.5.3 Predicted social impacts relating to the environment and natural resources

4.5.3.1 Overview

Consideration of environmental impacts includes the social consequences of environmental disturbance such as biophysical impacts on land use, quality of water, species, landscape, amenity and rehabilitation of the land. This is particularly acute for Aboriginal people, who retain close spiritual and lifestyle connections with their land.

While actual loss of access to and enjoyment of the natural environment is predicted to be low, there may be negative perceptions of changes to the landscape because of the scale of the project.

Concerns about cumulative impacts on the site are predicted to be minimal but there could be concerns about cumulative industrial and mining development in Central Australia impacting on the environment, in particular water supplies and lifestyle values.

4.5.3.2 Environmental risks impacting on the use and enjoyment of the land

Environmental studies for the Nolans project EIS suggest that impacts on biodiversity are likely to be minimal because the project is on land that has been disturbed by grazing. Potential impacts could come from roads bisecting corridors used by animals such as wallabies or impacts of clearing dust, spills, changes to habitat or contamination of water. Reduced habitat can have an impact on traditional land uses such as hunting, however traditional owners advised during community consultation that Nolans project is on land not known for its good hunting.

Apart from Aileron Station, the Nolans project will not be visible to people unless they are visiting the site for work or project-related business. However, local Aboriginal people and any other visitors not accustomed to mining may be confronted by the size of the mine, dams, processing plant and associated infrastructure and number of people living in the accommodation village.

4.5.3.3 Gain of biodiversity and habitat

There are opportunities to contribute to the conservation of biodiversity through rehabilitation, biodiversity offset and ranger programs. A 2015 CLC review of its 11 ranger programs found the programs are popular and there is significant demand to expand them.

4.5.3.4 Hydrological impacts impacting on the availability and quality of water

There has been sensitivity about the impact of the Nolans project using water from the nearby Ti Tree aquifer, particularly with the Northern Territory Government's plans to expand horticulture in the Ti Tree region. The current focus on water issues in Central Australia may heighten the awareness and concerns of people in Central Australia on the impact of the project's activities on groundwater.

Water drilling by Arafura led to the discovery of a series of deep and expansive basins with previously unknown water, much of its saline. Data on this new water source enabled Central Desert Regional Council, supported by Northern Territory Government funding, to connect Alyuen and Aileron to reliable water supplies as well as offering new sources of stock water for nearby pastoralists. Chapters 7 (surface water) and 8 (groundwater) suggest the project's water use is unlikely to impact on other users.

There should be minimal impact on spiritual connections to land and water, for example with reduced flows of water courses and soaks, given that Arafura will be drawing its water from deeper aquifers that do not supply existing bores or contribute to environmental flows at significant natural features. However, this doesn't necessarily address fears and anxieties about impacts on water features. People may still fear that the Nolans project will reduce the quality and available of water from the Ti Tree Aquifer, nearby creeks, borefields providing water to Laramba and important natural features such as Annas Reservoir, impacting horticultural, pastoral and community use.

During consultation for the project, people in Laramba expressed concern that Arafura's use of water from nearby borefields might impact on the community's drinking water supply and the environmental values of Day Creek. Groundwater studies (Chapter 8) suggest this is unlikely, but the issue will require good communication.

4.5.3.5 Impacts on amenity

There could be concerns about impacts on amenity from dust and noise. Given the project's location, these are most likely to be experienced by Aileron Station and Aileron Roadhouse.

Dust suppression measures and a code of behaviour for workers will minimise impacts the impacts of traffic on station roads.

4.5.4 Management and mitigation

Mitigation measures include:

- Environmental Management Plan
- a community reference group
- good communication
- using local ranger groups on land management.

4.6 Culture and way of life

Table 4-18: Key findings on culture and way of life and how they address TOR and SIA Guidelines

Key findings	Reference	Reference to TOR and Guidelines	Reference to Risk and Opportunity Assessment
Many factors have already impacted on the culture and way of life of Aboriginal people, which could be further undermined by challenges to traditional authority and connections to country.	Also discussed in IHCHA report 4.6.1		Threat 16
Any impacts on land and water could undermine spiritual connections to land.	4.6.3.3		

4.6.1 Overview of culture and way of life

Vanclay (2003) describes culture as "shared beliefs, customs, values and language or dialect" and way of life as how people "live, work, play and interact with one another on day-to-day basis". The International Chamber of Mines and Metal's 2013 position statement recognises that Indigenous peoples "have profound and special connections to, and identification with, lands and waters and these are tied to their physical, spiritual, cultural and economic wellbeing".

As Faircheallaigh (2009) describes it, Aboriginal people may be excluded from the impact assessment process if no weight is given to Indigenous ecological, cultural and social knowledge. Impact assessment can be an alien and bureaucratic process that relies heavily on written submissions and voluminous reports but, for Aboriginal people, the stakes are high, with the potential for "serious damage to the land and sea on which they rely for sustenance and cultural vitality". He suggests social impact assessments need to consider the values and priorities of affected peoples, how widely or narrowly impacts are conceptualised and how affected people define 'the good life'.

Aboriginal people in Central Australia lived for millions of years in a close relationship with the land, travelling long distances to find scarce food and water (Carment, 1991). There was a strong relationship between different estate groups and sacred sites, with water holes vital to group survival.

There have been many disruptions to traditional Aboriginal culture and way of life due to early settlement pushing Aboriginal people away from traditional land and water holes (Kimber) and massacres that dispersed people from their land and disrupted the traditional passing on of knowledge about land and family ties by senior custodians.

However, Anmatyerr people still have strong ties to their land, water and culture, speak their traditional languages at home and traditional owners retain strong cultural authority, knowledge of special sites on the country around Aileron knowledge about plants, animals and hunting sites in the area.

The Lutheran Church has a strong influence in Central Australia, linked to early missionary activity, which is evidenced in the high proportion of people in Laramba identifying as Lutheran. The German Lutherans set up a mission at Hermannsburg in 1877 to protect local Arrernte people and many Lutheran missionaries have left their influence in the area, as well as recording genealogies and aspects of Aboriginal culture. While some missions and early settlers encouraged Aboriginal to maintain aspects of their culture, the dominant trend of the times was to assimilate and 'westernise' Aboriginal people, remove mixed race children from their families and impose non-traditional law and institutions.

These days, the predominant way of life in the local area around the Nolans project is pastoral activities, horticulture around Ti Tree, government and council services delivered from Alice Springs, Ti Tree and Aboriginal communities and high unemployment.

European heritage is linked to early pastoral settlement, with all cattle properties linked to early settlement and long-standing settler families. Remnants of this early settlement include heritage-listed areas such as the 1929 Aileron Homestead, Ryan Well and Annas Reservoir Conservation Reserve (outlined above), as well as the old Glen Maggie homestead. Further afield, there are remnants of early settlement in old pastoral homesteads and telegraph stations in the district.

Culture and heritage are covered in more detail in the Indigenous and Historic Cultural Heritage Assessment at Chapter 16.

4.6.2 Potential impacts on culture and way of life

Table 4-19: Potential social impacts in relation to culture and way of life

Potential positive impacts	Potential negative impacts
Retention of culture through greater market for art and support for cultural programs	Lifestyles and livelihoods disrupted by reduced access to land Impacts on heritage, spiritual connections or sacred sites through damage Reduced sense of culture and attachment to place

4.6.3 Prediction and analysis of potential impacts

4.6.3.1 Overview

In general, the project is expected to have minimal impact on Aboriginal lifestyles and culture except, perhaps, through indirect impacts if the mine challenges cultural authority or contributes to the breakdown of traditional law and cultural practices.

The project could impact on the broader lifestyle and culture of the region if mining replaces pastoralism as the predominant economic sector and brings in workers and their families who have no connection to or appreciation of the area's strong pastoral way of life. However, this impact was rated as low.

4.6.3.2 Reduced access to traditional lands

The project should not substantially reduce access to traditional lands as Aboriginal people retain to right to access their country.

4.6.3.3 Impacts on heritage, spiritual connections or sacred sites through damage

Arafura will have the required Sacred Site Clearance Certificates for sites of significance in the project's footprint and will introduce codes of behaviour for its workers to ensure sacred sites are respected. Arafura will discuss with traditional owners the appropriate way to delineate sites and educate workers about their importance.

There are no known European heritage sites likely to be disturbed by the project although there are heritage sites nearby such Aileron Homestead and Ryan Well.

4.6.3.4 Reduced connections to culture or attachment to place

Reduced access, changes to the landscape and a changed character to towns and lifestyles could cause people to move away and weaken their ties to the region, for example if Alice Springs residents felt the town had become a mining town or access to recreational facilities was reduced. On its own, given the relatively small predicted influx of outside workers, the project is not expected to change the nature of the town but this could be a cumulative impact.

The culture of the Anmatyerr people living around Ti Tree has been strongly influenced by European settlement, the establishment of pastoral properties on their land, intermarriage with other Aboriginal and non-Aboriginal groups, mobility of families, the activities of Lutheran missionaries, new governance structures introduced by the dominant culture and, more recently, influences affecting all cultures such as school curricula, the Internet and social media.

Mining may bring in further influences that weaken culture, language and customs, however this impact is predicted to be incremental and not high risk.

4.6.3.5 Retention of culture through greater markets for art and support for cultural programs

Activity in the region generated by the mine could enhance interest in Anmatyerr art, which is sold from a shop at Aileron Roadhouse, although given that this is off-limits to most workers, art sales are likely to be confined to management and contractors staying at the roadhouse.

There is also potential for cultural awareness and community benefits programs negotiated in any compensation package to include business and cultural opportunities, such as cultural awareness training by Anmatyerr people, land management and storytelling about the culture and history of Anmatyerr people.

4.7 Human rights

Table 4-20: Key findings on human rights and how they address TOR and SIA Guidelines

Key findings	Reference	Reference to TOR and Guidelines	Reference to Risk and Opportunity Assessment
While breaches of human rights are likely to be inadvertent, they could include breaches of labour laws, failure to gain free, prior and informed consent of traditional owners during negotiation of agreements, or unintended gendered impacts (such as barriers to female employment).	4.7		Threat 17
Aboriginal workers could experience racism in the workplace or finding accommodation in Alice Springs.	4.7.1.4		Threat 18

4.7.1 Overview of human rights

The Office of the High Commissioner for Human Rights describes human rights as "universal legal guarantees protecting individuals and groups against actions which interfere with fundamental freedoms and human dignity".

The Universal Declaration of Human Rights adopted by the United Nations General Assembly (10 December 1948) has 30 articles that include equal recognition before the law, the right to privacy, freedom of movement, the right to just and favourable work conditions and remuneration, social and cultural rights necessary to maintain a person's dignity, the right to an education, the right to rest and leisure and the right to take part in the cultural life of a community.

The United Nations Declaration on the Rights of Indigenous Peoples includes the right for Indigenous peoples to be included in impact assessment processes, with a stipulation of 'free, prior and informed consent'. A consequence of this stipulation is the importance of meaningful engagement to ensure Aboriginal people receive information that helps them understand the project, that they are not inhibited from providing feedback and that this is received before any rights are disturbed.

The International Association for Impact Assessment (IAIA) guidance document on assessing social impacts (Vanclay et al. 2015) places a strong emphasis on human rights, particularly when mining projects could impact on vulnerable and marginalised people. Key human rights to consider include:

- ensuring free, prior and informed consent (source)
- equitable access
- the International Labour Organisation's declaration of fundamental principles and rights at work, including payment of award wages and not using child labour
- displacement and resettlement issues
- appropriate grievance mechanisms, ensuring people know their rights and remedies.

Under the *Native Title Act 1993* the Northern Territory Government must notify native title holders of any new exploration proposal on their land. The CLC has statutory responsibilities for ensuring free prior and informed consent, protecting the rights of native title holders and negotiating exploration and mining agreements on their behalf. As outlined on the CLC's website:

Native title recognises that Aboriginal people have traditional rights to speak for country; but native title does not provide Indigenous people with ownership of the land or stop development like land rights under the Aboriginal Land Rights Act.

Native title gives traditional owners the right to negotiate an Indigenous Land Use Agreement and compensation, through the CLC, as well as the right to protect sacred and important sites, the right to access for traditional activities such as hunting and the right to have a say on the management or development of land.

An Indigenous Land Use Agreement (ILUA) allows governments, companies and native title holders to negotiate agreements about future developments on the land, including agreement on jobs, compensation and the protection of sacred sites. For example, Anmatyerr families signed an ILUA on the Pine Hill Pastoral Lease in 2007 which provided compensation in the form of a living area, art centre at Mulga Bore and horticultural block. Another ILUA was signed in 2015 as part of the Government's release of two additional horticultural blocks on Pine Hill.

While many parts of the Territory are deemed Aboriginal land, under the *Aboriginal Land Rights Act*, pastoral properties are covered by the *Native Title Act*. However, many community living areas (or 'enhanced NT freehold') have been excised from pastoral leases, such as Alyuen and Laramba. A community living area cannot be taken back by Government, sold or used for mining or exploration (www.clc.org.au/articles/cat/community-living-areas, sighted 7 July 2015).

In general, there is a heightened awareness of human rights issues in the Territory through:

- several decades when Aboriginal people and their supporters fought for and won land rights after 1976, the right to equal pay after the Wave Hill walk-off in 1966, the right to vote after a national referendum in 1967 and a range of anti-discrimination measures
- the establishment of land councils to protect the native title rights of Aboriginal traditional owners
- strong opposition and community conflict over the 2007 Northern Territory Emergency Response (NTER) and associated measures, such as income management, and compulsory acquisition of townships, which many Aboriginal people saw as both disempowering and a breach of human rights.

4.7.1.1 Potential impacts on human rights

The human rights areas most relevant to this project are:

4.7.1.2 Infringement of labour rights

The International Labor Organisation's Declaration of Fundamental Principles and Rights at Work (1998) states that Indigenous and tribal peoples "shall enjoy the full measure of human rights and fundamental freedoms without hindrance of discrimination". The basic rights in the workplace are:

- freedom of association and the effective recognition of the right to collective bargaining
- the elimination of all forms of forced or compulsory labour
- the effective abolition of child labour
- the elimination of discrimination in respect of employment and occupation.

4.7.1.3 Gendered impacts

This could include inequitable access to jobs (for example because of women's family responsibilities making it harder to access work away from home), changed family arrangements due to men working, access to childcare and disruption to traditional activities such as food gathering.

4.7.1.4 Racism in the workforce or the community

Racism can be both intended or unintended. Unintended racism can includes comments made about workers or their families, exclusion from jobs or work practices or what has been described as the 'soft bigotry of low expectations' (Langton 2012b). It extends to the experiences of Aboriginal or foreign workers in the community. For example, NT Shelter (SIA interview) reports that Aboriginal people may experience racism when applying for rental properties in Alice Springs.

4.7.1.5 Reduced input to decision-making by vulnerable populations

Populations which are vulnerable because of language barriers and disadvantage may get reduced input to decision-making because their voices are not heard.

4.7.2 Potential impacts on human rights

The risk assessment for this project rated the potential negative risk of human rights breaches as low and generally immaterial, therefore potential impacts are discussed as a group.

Table 4-21: Potential social impacts in relation to human rights

Potential negative impacts
Infringement on Aboriginal human rights, including racing, inequitable access to jobs, labour rights and reduced access to decision-making by vulnerable populations. The key non-Aboriginal infringement of human rights is the potential for infringement on property rights.

4.7.3 Analysis and prediction of impacts on human rights

4.7.3.1 Overview

In general, it is not envisaged that the project would have a strong impact on human rights, which are protected by a number of statutes and native title organisations, including the Central Land Council (CLC).

The key impact on rights are more likely to be unintended, such as gendered impacts reducing workforce participation by women or racism experienced by workers.

There is also an opportunity to contribute to a key human right, described in Article 25 as "the right to a standard of living adequate for the health and wellbeing of himself and of his family, including food, clothing, housing and medical care and necessary social services".

4.7.3.2 Infringement of human rights

It is not envisaged that the project will infringe on human rights, with the right of native title holders to negotiate protected by the *Native Title Act* and role of the CLC and other issues more at the scale of workplace issues than human rights breaches.

Infringements of labour rights would occur should the mine employ child labour, not pay award wages or misuse work experience programs or if its hiring practices are discriminatory.

Workplace practices will need to ensure unintended gendered impacts don't unreasonably preclude women from workforce participation, while respecting cultural norms in respect to gender and equity issues.

Racism in the workplace is possible but feelings of safety in the workplace by Aboriginal workers should be addressed in induction and cross-cultural training as well as strict enforcement by management.

The risk of not gaining free, prior and informed consent should be mitigated by the CLC ensuring native title holders are properly informed and provide instructions to the CLC on agreement-making.

It is predicted that none of these issues would be sufficiently severe to constitute human rights breaches but are more likely to be inadvertent workplace breaches.

4.7.3.3 Infringement on property rights

No impacts on property rights are envisaged although, as outlined above, the cattle industry is seeking greater rights in relation to access agreements when pastoral properties are used by the resource industry. Australia's former Human Rights Commissioner Tim Wilson was reported in 2015 as saying that property rights are often the forgotten human rights and the law needed to give greater recognition to the property rights of farmers (Ludlow 2015).

4.8 Cumulative impacts

The US principles and guidelines for social impact assessment (2003) describe cumulative impacts as "those that result from the incremental impacts of an action added to other past, present, and reasonable foreseeable future actions regardless of which agency or person undertakes them". They may be more difficult to define than primary impacts, however, the American guidelines emphasise the importance of considering cumulative impacts.

The cumulative impacts from this project are more likely to cover the larger geographic region, including Alice Springs, as a result of other large projects potentially going through construction and commissioning phases at the same time, drawing on a common workforce, services and supplies or creating cumulative pressures on key government services.

Other potential major projects in Central Australia include expansion of The Granites (Newmont), TNG's Mount Peake titanium-vanadium mine drawing on the same employment pool from around Ti Tree, Tellus Holdings' salt mine and waste storage facility near Titjikala, Central Petroleum expanding its activities, KGL's potential Jervois copper mine, Metals X Wingellina project which may source supplies from Alice Springs, Jemena's proposed Northern Pipeline and a number of potential construction projects in Alice Springs. The timelines of these projects are uncertain.

Some of the key potential detrimental cumulative impacts could be:

- demand for water heightens community concerns about the balance of water allocation to major projects in both Alice Springs and the broader Central Australian region
- competing users of water being perceived to impact on communities, pastoral properties and horticulture
- demands for accommodation in Alice Springs for both management staff, specialist contractors and FIFO workers crowding out tourism
- pressure on potential employees and services in Ti Tree should both Arafura and TNG start work in a similar timeframe
- compounding workforce and recruitment shortages as people leave existing jobs to work at the mines, particularly for other businesses and the tourism and hospitality industry
- FIFO workers creating pressure on the cost and availability of flights to Alice Springs
- FIFO workers or those who relocate to Alice Springs to work on the project congregating in hotels and night spots, leading to spikes in alcohol-related violence
- the cumulative pressure of mining workers and their families exceeding available housing supply (rental and purchase), forcing prices and the cost of living up and increasing demand for public housing
- more industrial traffic on the road (both commuting workers, mining trucks on the Stuart Highway and chemicals being transported)
- a negative image for the mining industry from wider concerns about legacy issues from mining.

Potential positive cumulative impacts:

- growth of the horticultural sector around Ti Tree to provide produce to caterers working at accommodation villages (with shorter supply chains and more lucrative local markets)
- collaborative employment and training programs for local Aboriginal people, both with other mining companies and Central Desert Regional Council
- combined recruitment campaigns with other employers to encourage families to move to Alice Springs, including what appears to be a potential pool of migrants moving to Alice Springs for work
- greater capacity for a Central Australian service and supply industry, with reduced reliance on individual projects
- a greater population base in Alice Springs, with increased retail spending, a stronger regional economy and other spin-offs including more recreational facilities and sponsorships.

5. SUMMARY

In summary, the following key issues and impacts have been identified in the SIA and will inform company decision-making and commitments during planning for the project. Management and mitigations strategies for these impacts are discussed further in the project's Social Impact Management Plan.

The project offers enormous economic and labour opportunities in an area with high unemployment, socioeconomic disadvantage and uncertain regional economy, with many potential spin-offs to drive a project that is economically, socially, technically and environmentally sustainable. Some of the key risks and opportunities are predicted to be:

- **Realising opportunities:** Impacts on a largely Aboriginal and disadvantaged population, including the potential for positive changes but also the potential for dashed expectations if expectations are not met.
- **Regional economic benefits:** Economic modelling shows capital expenditure of $1.19 billion on the Nolans Project of which around $866 million is expected to be spent in Australia. Of this, nearly $145 million will be spent in the Northern Territory including $71 million in the Alice Springs region.

  Over the life of the project, including the construction period, the Nolans Project is expected to generate $6.4 billion or an average $280 million each year to the Gross State Product of the Northern Territory.
- **Influx of workers:** All those impacts relating to a small community's capacity to absorb a large influx of workers, including those on community resilience and cohesion, demand for public and private housing, pressure on services and community infrastructure, potential inflationary pressures and crowding out of other economic sectors.
- **Impacts of wages and cash royalty payments:** Service providers in particular expressed fears in interviews for this SIA about the potential negative impacts of higher wages and cash royalty payments, including alcohol abuse, domestic violence, fights, inward migration of people and conflict over royalties, reduced school attendance and expectations of mining 'hand outs' that undermine the motivation to work. Many of these are outside the control of Arafura and may add incremental impacts to existing conditions.
- **Workforce options:** The key challenge is likely to be maximising the project's local workforce. The ultimate legacy of a mining project in a remote regional area comes from transitioning disadvantaged and unemployed Aboriginal people into jobs, businesses and land management. This in turn will increase skills, provide the opportunities that flow from a good education and higher wages and build a more sustainable regional economy. The SIA assessment suggests that any successful employment strategy will need to incorporate collaboration with service providers, communities and families to address the multi-faceted issues contributing to poor work-readiness, recruitment and retention: from literacy and numeracy to life skills, a lack of role models, family pressures and practical issues such as transport and overcrowded housing.
- **Workforce issues:** Other workforce issues include the mix and management of drive-in drive-out (DIDO), bus-in bus-out (BIBO) and fly-in fly-out (FIFO) workers, appropriate supports for local Aboriginal workers and their families who may be transitioning from long-term unemployment and mental health issues associated with FIFO work.

- **Environmental:** Environmental risks have social impacts, from reduced access to country, loss of enjoyment or use of land and water, impacts on spiritual connects and fears about the consequences of the project on the landscape, biodiversity, air and water quality. While the technical risks may be low, the potential for impacts on community fears, trust and perceptions of public health and safety are much higher.
- **Cumulative:** There could be significant cumulative impacts on a small community from several large resource projects drawing on local labour and supplies at the same time and potentially compounding pressure on community infrastructure, changes to the demographics of the local area and perceptions of changes to the amenity and character of a community that has limited experience of mining and industrial activities. Equally, if none or few of the projects go ahead, there could be heightened expectations of individual projects to deliver much-needed economic benefits and disappointment if expectations are not met.

6. NOTES

6.1 Note regarding limitations

It was intended to consult widely with communities for this social impact assessment. Limitations to effective consultation included the social disruption that can flow from the consultation process, such as the risk of miscommunication, language and literacy barriers, generating community conflict and rumours contributing to the 'honeypot' effect of outsiders moving to communities with unrealistic expectations of jobs and money.

Arafura Resources has a good working relationship with the Central Land Council (CLC) and respects its statutory role in coordinating agreement making and engagement with Anmatyerr traditional owners. The CLC also plays a key role in ensuring that Aboriginal people provide Free, Prior and Informed Consent (FPIC), through work by its anthropologists, legal and mining staff.

Several 'on country' meetings have been held with traditional owners over the past few years to explain the project and receive feedback. However, the CLC has expressed reservations about companies consulting directly with communities because of the risk of raising expectations when the project is not yet certain.

As far as possible, the consultant has attempted to consult professionally and listen well, while respecting these sensitivities.

To overcome these limitations, qualitative input was provided by third parties or well-informed service providers. Other input on the likely concerns and needs of the Anmatyerr people has come from the cultural and heritage study, desk research on issues experienced elsewhere, the contribution of Anmatyerr people to ecological and water studies and contact with local people at general meetings such as the Central Desert Regional Council.

6.2 Qualifications of the SIA consultant

This SIA was prepared by Jane Munday of Michels Warren Munday. Her qualifications include a Bachelor of Arts (Majoring in Psychology and Indonesian) and a Masters of Business Administration. Her key expertise lies in community engagement. She has a Certificate of Public Participation from the International Association for Public Participation (IAP2) and has completed two units of the Advanced Certificate. She is also a member of the International Association of Impact Assessments, has attended two international conferences on impact assessment and completed two-day courses in Social Impact Assessment (Canada 2013) and Human Rights and Social Impact Assessment (Italy 2015). She has lived in the Northern Territory for 22 years, including 10 years in senior communication management positions for NT Police, Fire and Emergency Services and the Department of the Chief Minister. She founded Michels Warren Munday in April 2004 and was Managing Director of the company until October 2015. Jane has worked on many resource and other major projects during the regulatory approvals phase and consulted widely throughout the Territory on resource, infrastructure and policy issues. She coordinated engagement and communication for Territory Alliance for the Strategic Indigenous Housing and Infrastructure Project covering 13 remote communities and the Alice Springs town camps over four years. Territory Alliance won the IAP2 NT Regional Project of the Year Core Values Award in 2012.

6.3 Discussion about the impact of doing a social impact assessment

A topic that is rarely raised in relation to social impact assessments for major projects is that the process of doing an assessment may of itself cause impacts, particularly when it involves engagement with people as opposed to desktop research. Key consequences of engagement are creating rumours or misinformation, creating unrealistic expectations and generating community conflict due to different points of view about aspects of the project.

These risks are not an argument to not communicate or consult. As Vanclay et al. outlines (2015), "communities don't want to have project impacts thrust on them, they want to be active partners in co-development and they want to benefit from private sector projects". However, it is a warning to heed the sensitivity of the process and the need for careful and sound judgement in planning and implementing effective engagement strategies. Expectations should be managed and companies need to be careful not to cause inadvertent impacts.

Not consulting does not stop rumours, while conflict over resource projects is often generated by a lack of trust, explanation and transparency. Talking to communities is a key element of companies earning their 'social licence to operate', it allows companies to understand the community's perspective on issues and will often tap into invaluable local knowledge.

The other element of engagement is that it provides deeper insights that may be missed with a reliance on statistical data. As Brereton (2005) comments, well-constructed qualitative measures will often be of more value to organisations than simple, and possibly misleading, numerical measures. "Measurement without engagement exposes sites to the risk that they will overlook or misinterpret significant local issues."

See community consultation report at Appendix H.

7. GLOSSARY

Community cohesion	A state of harmony and shared sense of belonging between people from different backgrounds living in a community.
Dutch Disease	Negative consequences of large increases in a country's income (e.g. Holland and the UK's large increase in oil revenue) that leads to decreases in price competitiveness, more imports and jobs moving to lower-cost countries (Investopedia: www.investopedia.com/terms/d/dutchdisease.asp sighted 17 January 2015)
Equator principles	A risk management framework adopted by financial institutions for determining, assessing and managing environmental and social risk in projects.
Free prior and informed consent	Contained in the 2007 United Nations Declaration on the Rights of Indigenous Peoples, the concept of free, prior and informed consent means there should be no coercion to gain consent and no retaliation for saying no. Consent should be given before there is any activity on the land and informed means people need to be given full access to information in a language and format that helps them understand what is proposed and its consequences.
Health and wellbeing	"a state of complete physical, mental and social wellbeing, not merely the absence of disease or infirmity" (Preamble to the Constitution of the World Health Organisation, June 1946).
Human rights	Human rights are universal legal guarantees protecting individuals and groups against actions which interfere with fundamental freedoms and human dignity (Office of the High Commissioner for Human Rights). The IPIECA guide to human rights for the oil and gas industry refers to rights holders (those who are impacted on by projects) and duty bearers (parties with responsibilities towards rights holders, including companies and States with legal obligations to protect).
Participation rate	Refers to the number of people who are either employed or actively looking for work. It does not include people not actively seeking work, although these people are included in the unemployment rate.

Precautionary principle	When there are threats of serious or irreversible environmental damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation (1992 Rio Declaration on Environment and Development).
Rent-seeking	Using resources to obtain an economic gain from others without reciprocating any benefits back to society through wealth creation (Investopedia www.investopedia.com/terms/r/rentseeking.asp sighted 17 January 2015).
Social licence to operate	Social licence to operate means acceptance of a project by its stakeholders, particularly the most directly impacted community.
Sustainable livelihoods	A way of thinking about communities and people in terms of their capabilities and livelihood resources (capitals) and strategies they use to make their living and conduct their way of life. A livelihood is sustainable when it can cope with and recover from stresses and shocks (it is resilient) and maintain or enhance its capabilities (Vanclay et al. 2015).
Stakeholder	Those who have an interest in a particular decision, either as individuals or representatives of a group. This includes people who influence a decision or can influence it, as well as those affected by it (2002 World Summit on Sustainable Development).
Social impact assessment	Analysing, monitoring and managing the social consequences of a development (Vanclay 2003).
Vulnerable	Vulnerable communities are those more prone to exposure and adverse impacts, those with greater sensitivity to those risks and will less adaptive capacity (European Bank, Social Safeguards).

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