

Chapter 19

Cumulative Impacts



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ABBREVIATIONS

EIA	Environmental Impact Assessment
EIS	Environmental Impact Statement
EPA	Environmental Protection Authority
NT	Northern Territory
PFS	Pre-Feasibility Study
ToR	Terms of Reference



19 CUMULATIVE IMPACTS

19.1 Introduction

This chapter provides an assessment of the potential cumulative benefits and impacts that may arise as a result of the construction and operation of the Proposal with other projects planned in the region.

Cumulative benefits/impacts are incremental environmental benefits/impacts that are caused by past, present or reasonably foreseeable future activities that, when combined, may have a cumulative effect. When considered in isolation, the environmental benefits/impacts of any single project upon a receiver or resource may not be significant. However, the potential benefits/impacts may increase when individual effects are considered in combination, either within the same project or together with other projects.

19.2 Methodology

The assessment of cumulative benefits and impacts builds upon the detailed assessment of the environmental aspects presented in Chapter 7 through Chapter 18.

To identify the likelihood of cumulative impacts, potential construction and operational phase interfaces with other significant projects or initiatives were reviewed, specifically:

- Relevant projects under construction.
- Relevant projects that have publicly declared financial commitments.
- Relevant projects for which approval has been sought or that have been approved under relevant legislation.

In determining which other projects are relevant to the cumulative benefit and impacts assessment, the following criteria were taken in account:

- Location - the projects are located in proximity to the Proposal.
- Project timeframe - projects likely to be under construction concurrent with the Proposal or would otherwise have a noteworthy operational interaction with the Proposal.
- Project size - projects were listed on either local government websites or on the website of the NT EPA.

Consideration of cumulative benefits and impacts was inherently addressed as part of the detailed modelling approach for a number of environmental aspects assessed as part of specialist investigations presented in this EIS.

19.3 Relevant projects

There are a number of major projects in progress or proposed within 500 kilometres of Alice Springs. These projects are listed in Table 19-1 and their locations are shown in Figure 19-1.



Table 19-1 Major projects in progress or proposed in the vicinity of Alice Springs (including the Proposal)

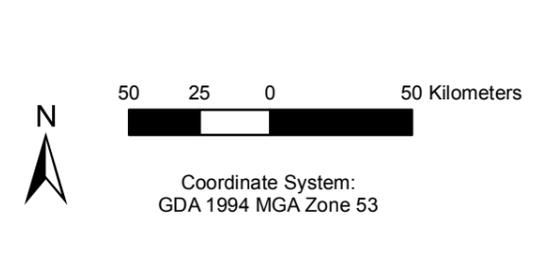
Project (proponent)	Construction start date*	Operation start date*	Location	Construction employment (approx.)*	Operation employment (approx.)*
Tanami Gold Mine Expansion (Newmont)	2016	2017	Approximately 540 kilometres north-west of Alice Springs.	N/A	50
Mt Peake Project (TNG Limited)	2016	2018	Approximately 235 kilometres north of Alice Springs.	350	175-250
Jervois Mine (KGL Resources)	2017	2018	Approximately 270 kilometres north-east of Alice Springs.	360	300
Nolans Project (Arafura Resources)	2017	2019	Approximately 135 kilometres north-west of Alice Springs.	500	350
The Proposal	2017	2017	Approximately 120 kilometres of Alice Springs.	720 (peak)	150

**Information subject to change, refer to Appendix U*



Document Path: C:\GIS_SSI\Maps\Chandler_CumulativeImpacts_SMA.mxd

Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community



Legend
 Proposed development footprint

Figure 19-1
 Major projects in progress or proposed
 in the vicinity of Alice Springs (including the Proposal)



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19.4 Cumulative benefits

There would be a significant benefit to the economy of the local region, the NT and to the economy of Australia as a result of the Proposal, as discussed in Chapter 12 and supported by Appendix U.

The capital expenditure is estimated to be around \$676 million for the Proposal. The construction period would have a high local content - around 67% of all construction costs would be spent in Australia (36% spent in the NT). Over the construction period it is expected that 1,299 full time equivalent workers would be employed (all sourced from within Australia). Around 477 workers (or 37% of the construction workforce) would be sourced from the local region. In total, about 940 workers (or 72% of the construction workforce) would be sourced from the NT (including the local region) and the remaining 360 workers (or 28% of the construction workforce) would be sourced from the rest of Australia.

On average, there would be spending of just under \$81 million per annum to operate the Proposal. Of this, 64% would be spent in Australia (a total of 52% would be spent in the NT, 32% of which would be spent in the local region). During steady state operations it is expected that 150 full time equivalent workers would be employed by the Proposal.

Just over 5,400 full time equivalent job years would be created over the life of the Proposal, an average of 217 full time equivalent job years per annum. The Proposal would deliver long term job creation in Australia, particularly in the NT where most of the job creation would be realised. An estimated 3,665 full time equivalent job years would be created in the NT over the life of the Proposal. This is equivalent to an average of 71 full time equivalent job years per annum.

Almost \$3.4 billion would be contributed to the real incomes of Australians over the life of the Proposal. This includes an increase of \$441 million to real incomes in the NT. The contribution to the local region would be higher at \$476 million for the life of the Proposal.

Almost \$1.9 billion in direct and indirect taxation would be paid over the life of the Proposal (or an average of around \$75 million each year). The majority of this taxation would be in the form of company taxes paid by the proponent as well as other personal and company income taxes paid to the Federal Government. In total, the NT is likely to receive \$34 million in payroll taxes as a result of direct and indirect state revenues from the Proposal, or an average of \$1.4 million per annum.

The gross domestic product of Australia would rise by about \$4.1 billion or an average of \$166 million each year over the life of the Proposal. Most of this impact would be realised in the NT (the majority of which in the local region). About \$3.6 billion (or an average of \$144 million per year) would be added to the gross state product of the NT over the life of the Proposal.

These benefits, along with the economic benefits of the four major projects in progress or proposed in the general vicinity of Alice Springs would have a significant cumulative, beneficial effect on the economy of the local region, the NT and to the economy of Australia.

19.5 Cumulative impacts

Perpetual pastoral leases surround the Proposal. These include:

- Maryvale Station (approximately 3,244 square kilometres in size).



- Henbury Station (approximately 5,273 square kilometres in size).
- Idracowra Station (approximately 4,628 square kilometres in size).

The surrounding pastoral properties are well established, with a majority of the required infrastructure already established. There are no non-pastoral use applications or land clearing applications that have been recently approved within these perpetual pastoral leases. Therefore, cumulative impacts are expected to be negligible.

As discussed above, there are four projects in progress or proposed in the general vicinity of Alice Springs (refer to Table 19-1 and Figure 19-1). These projects have been identified because they are progressed in their development with construction expected to commence or progress in 2017. They are all located within 500 kilometres of Alice Springs and, therefore, there may be some social/economic cumulative impacts felt within the town. These impacts may include the recruitment of workers, the purchase of goods and services, or making use of infrastructure such as the airport, accommodation, training facilities and health facilities within Alice Springs.

There would be an overlap during both construction and operation of the four projects and the Proposal (refer to Table 19-1). Given the proximity of Alice Springs to the Proposal and the Nolans Project and the location of the town on the direct route to the Tanami Gold Mine, it is likely that all three proponents would be seeking to source some employees and goods and services from Alice Springs or to locate staff in the town.

Despite the possibility that a number of proposed projects may come on line at the same or similar times, the town of Alice Springs should be able to absorb an increase in demand from the additional developments. In terms of visitor accommodation, the current annual room vacancy rate of 65% and seasonally high vacancy rates of 80% suggest that there are approximately 500 rooms available for overnight accommodation in the town on average which suggests that the current accommodation market could service the demand from the developments assuming that the supply of rooms are of a standard being sought by the industry. A falling housing market in terms of median prices and rental values also indicates there is some flexibility in the market to absorb additional population.

There are currently around 340 people seeking work in the Alice Springs Local Government Area. This represents an unemployment rate of 1.7%. It is unknown as to what qualifications these job seekers hold or what their career aspirations might hold. However, it could mean that there are opportunities for local job seekers to become involved in the construction and operation of these developments and in the flow on jobs created by the developments. It is likely, however, that projects would seek fly-in-fly out workers for part of their workforces. For example, the Tanami Gold Mine currently employs only fly-in-fly out staff and Arafura expects that around 210 of its steady state workers will be employed on a fly-in-fly out basis with just under 40 employees sourced from the surrounding region. The Proposal is expected to employ 477 people from the local region, which includes Alice Springs, over the four years of construction and around 50 per year in operation. This could mean that the already tight labour market in the area would experience greater pressure which could lead to additional people moving to the town to take up job opportunities offered by the Proposal and others.

In the local region, \$118 million would be spent during the four years of construction of which nearly \$73 million would be spent in 2018, the peak construction year. An average of \$26 million per



annum would also be spent in the local region during operation (with the majority of that expenditure expected to be spent in Alice Springs). This may result in pressure on local businesses during the peak construction period if all projects proceed as planned and all have a similar local content. This increase in demand may also attract new businesses to Alice Springs, particularly given the number of proposed developments.

There would be no other cumulative impacts associated with the four identified projects and the Proposal. This is because the closest project is located over 250 kilometres from the Proposal (refer to Table 19-1 and Figure 19-1). As such, there would be no cumulative impact on biodiversity (including matters of national environmental significance), groundwater, surface water, heritage, or human health and safety. In addition, there would be no cumulative impacts associated with air quality, noise and vibration, or landscape and visual.

19.6 Conclusion

There would be significant economic benefits of the Proposal. About 270 workers would be employed per annum during construction and up to 180 full time equivalent workers would be employed during operation (around 90 would be sourced from the local region). Just over 5,400 full time equivalent job years would be created over the life of the Proposal, an average of 217 full time equivalent job years per annum. An estimated 3,665 full time equivalent job years would be created in the NT over the life of the Proposal. This is equivalent to an average of 71 full time equivalent job years per annum.

The capital expenditure is estimated to be around \$676 million for the Proposal. Around 67 % of all construction costs would be spent in Australia (36 % spent in the NT). On average, there would be spending of just under \$81 million per annum to operate the Proposal. Of this, 64% would be spent in Australia (a total of 52% would be spent in the NT).

These benefits, along with the economic benefits of the four major projects in progress or proposed in the general vicinity of Alice Springs would have a significant cumulative, beneficial effect on the economy of the local region, the NT and to the economy of Australia.

Perpetual pastoral leases surround the Proposal. These properties are well established, with a majority of the required infrastructure already established. There are no non-pastoral use applications or land clearing applications that have been recently approved within these perpetual pastoral leases. Therefore, cumulative impacts are expected to be negligible.

There are four major projects in progress or proposed within 500 kilometres of Alice Springs. All have similar construction and operational start dates. Therefore, there may be some social/economic cumulative impacts felt within the town. These impacts may include the recruitment of workers, the purchase of goods and services, or making use of infrastructure such as the airport, accommodation, training facilities and health facilities within Alice Springs. Despite the possibility that a number of proposed projects may come on line at the same or similar times, the town of Alice Springs should be able to absorb an increase in demand from the additional developments.

There would be no other cumulative impacts associated with the four identified projects and the Proposal. This is because the closest project is located over 250 kilometres from the Proposal. As



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