SOUTH AUSTRALIAN
CENTRE FOR ECONOMIC STUDIES
ADELAIDE & FLINDERS UNIVERSITIES

The Gross Economic Impact of the Proposed Angas Zinc Mine on the Strathalbyn Economy

Final Report

Report commissioned by

Terramin Australia Pty Ltd

Report prepared by

The SA Centre for Economic Studies

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PO BOX 125, RUNDLE MALL, SOUTH AUSTRALIA 5000
PHONE (+61-8) 8303 5555 FAX (+61-8) 8232 5307
FOURTH FLOOR, LIGERTWOOD BUILDING, UNIVERSITY OF ADELAIDE

Executive Summary

Terramin Australia is currently seeking approval for the establishment of the Angas Zinc Mine near the rural town of Strathalbyn, located approximately 60 kilometres south of Adelaide. Terramin has commissioned the South Australian Centre for Economic Studies to estimate the gross economic impact of the proposed mine on the wider Strathalbyn economy.

The final feasibility study estimates that the mine will produce 319,000 tonnes of zinc concentrate and 122,300 tonnes of lead-copper over its seven-year life span. This life span may be extended if further drilling reveals additional reserves in the area.

The Strathalbyn economy is to a significant extent dependent on agricultural activities and the spending by Strathalbyn residents of incomes earned outside Strathalbyn (e.g., by people who work in Adelaide). There is little other mining activity in the region. The mine therefore has the potential to diversify the economic base of the region.

2. Methodology and Approach

2.1 Methodology

The methodology employed involves estimating the total direct and indirect employment and gross regional product arising from expenditures on the operation and construction of the proposed Angas Zinc Mine (AZM).

Some forms of final demand (i.e., capital expenditure, household consumption and government spending) were treated as being influenced by the industrial linkages within the input-output system rather than being dependent upon external influences. This treatment is considered to be more realistic as capital expenditure, household consumption and government spending all depend to some extent on the aggregate size and/or structure of the local economy. For example, an increase in the aggregate size of the workforce would tend to increase the aggregate local population and therefore various forms of government spending (i.e., health services, education services, law and order, infrastructure etc).

The modified Outer Adelaide input-output table was then transformed to derive input-output multipliers for the Angas Zinc Mine. The concept of the input-output multiplier is described in Box 2.2.

The multipliers were then combined with annual production, labour and capital expenditure data to estimate the direct and indirect impacts of the Angas Zinc Mine on the Strathalbyn economy, in terms of the employment and gross regional product created.

Box 2.2
Input-output multipliers

An increase in the output of one industry will typically have consequences for the outputs of other sectors via induced demands for inputs. A multiplier measures the total change across all sectors of the economy arising from a unit change in the final demand for the output of an industry. Multipliers can be constructed for a range for economic variables, such as income and employment, according to one's interest.

The total impact of an output change is composed of production and consumption impacts. The production impact is the impact of the initial expenditure traced through the chain of intermediate good usage. However, no allowance is made for the expenditure of primary incomes. The second, with a broader coverage, encompasses production and "consumption" impacts. The consumption impact arises when primary factors e.g. households in receipt of wage income spend the incomes that theyea M48 -11.52 refBT9.9mptios trfBT9.9m fBT9E

Figure 3.1
Total Regional Employment Impacts of the Angas Zinc Mine on the Strathalbyn Regional Economy

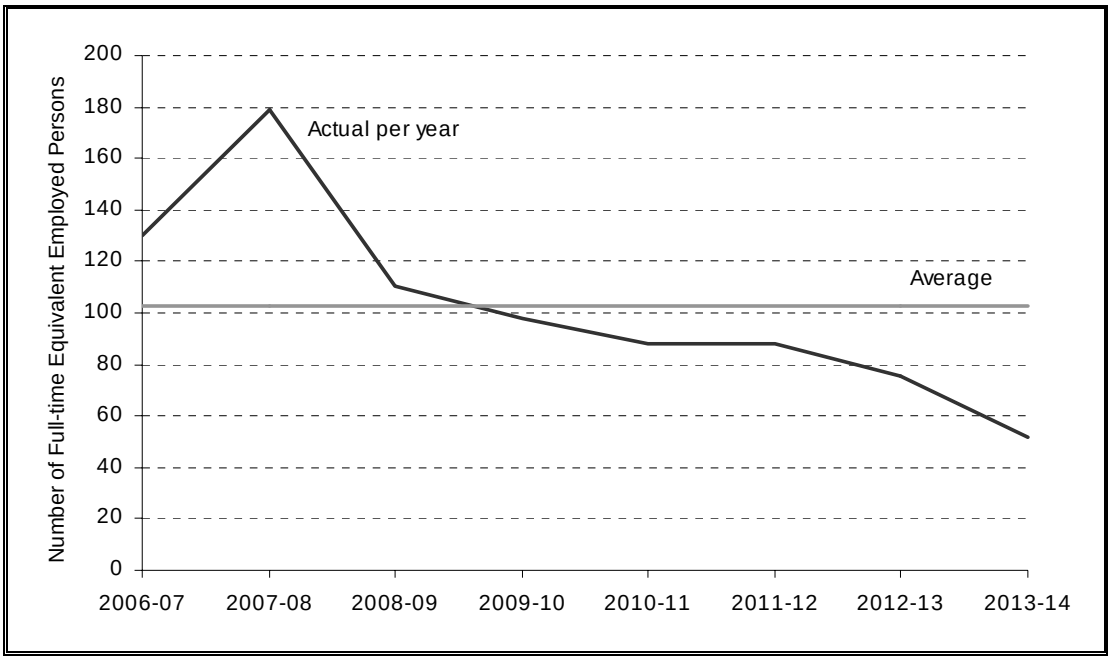

Table 3.3
Estimated Gross Regional Product Impacts of the Angas Zinc Mine on the Strathalbyn Regional Economy

Gross Regional Product ($m) Gross Reg80A 8080

largest employment impacts are estimated to be in retail trade (9.3 jobs per annum), property and business services (6.5 jobs per annum), and transport and storage (4.2 jobs per annum).

Mineral royalty payments over the life of the mine are expected to be $0.7 million per annum.

Table 3.4
Estimated Employment Impacts by Industry on the Strathalbyn Regional Economy, Annual Average

Sector	Production	Total Impact
Angas Zinc Mine Operation	51.9	51.9
Angas Zinc Mine Construction	10.9	10.9
Agriculture, forestry, fishing	1.5	2.8
Mining	0.2	0.2
Manufacturing	1.8	2.7
Utilities	0.4	0.6
Building & construction	0.3	1.9
Wholesale trade	0.7	1.3
Retail trade	4.9	9.3
Accomm, cafes, restaurants	0.3	1.5
Transport, storage	3.9	4.2
Communication services	0.1	0.3
Finance & insurance	0.1	0.4
Ownership of dwellings	0.0	0.0
Property & business services	5.7	6.5
Public admin & defence	0.5	1.1
Education	0.6	3.1
Health & community services	0.2	2.1
Cultural & recreation services	0.1	0.6
Personal services	0.1	1.2
Total	84.2	102.6

4. Regional Profile

This section presents an economic profile of the Strathalbyn region. It helps to understand how significant the mine development may be in the context of the existing regional economy, and how well the profile of the local workforce may match the labour needs of the mine development in terms of skill (i.e., occupation) requirements.

In the following section, "Strathalbyn" refers to the Statistical Local Area of "Alexandrina (DC) – Strathalbyn".[4] This area represents the north-eastern half of the Alexandrina local government area, and includes Strathalbyn, Milang, Ashbourne, Woodchester and Langhorne Creek.

4.1 General Indicators

Table 4.1 summarises key population and labour market indicators for Strathalbyn, the wider Alexandrina local government area, and South Australia.

Table 4.1
General Population and Labour Market Indicators
Strathalbyn and South Australia – 2005

	Strathalbyn	Alexandrina (DC)	SA
Population estimates (at 30 June 2005)			
Estimated Resident Population	9,245	20,408	1,542,033
Proportion of working age (15-64yrs)	65.7	63.7	66.4
Proportion aged 50 years and over	36.3	41.7	33.5

Small Area Labour Markets data indicates that there were about 4,200 employed persons living in Strathalbyn in 2005. This estimate includes people that live in Strathalbyn and work outside the region (but no breakdown is published).

4.2 Journey-to-Work Data

Journey-to-work data from the 2001 Census of Population and Housing provides detailed information on where people live and work. By comparing people's usual place of residence on Census night with their workplace address for their main job held, an estimate of the aggregate number of people that travel in and out of a region for work purposes can be obtained. While the data is now several years out of date, it remains the best existing source of information on the geographic distribution of the work locations of people who reside in particular areas.

Table 4.2 summarises the number of persons that worked in Strathalbyn and Alexandrina (DC) by where they usually lived in 2001. At that time a total of about 2,700 persons were employed in Strathalbyn. Of these workers, 71 per cent lived in Strathalbyn while 29 per cent lived outside the region.

The number of Strathalbyn residents who are employed increased by approximately 18 per cent between 2001 and 2005.[5] This rise in employment could be the result of an increase in Strathalbyn residents employed within the region, an increase in residents employed outside the region, or a combination of the two. Although there are no official estimates, it seems likely that the number of people working in Strathalbyn will have risen. If the total number of people working in Strathalbyn also increased by 18 per cent since 2001, there would be approximately 3,200 people employed in the region in 2005 (with about 2,300 of them living in Strathalbyn).[6] With the Angas Zinc Mine estimated to be associated with a total of 103 jobs per annum in the region, the mine thus has the potential to boost labour demand in Strathalbyn by approximately 3 per cent.

Table 4.2
Employed Persons That Work in Region By Where They Live – 2001

	Strathalbyn		Alexandrina (DC)	
	Number	**Per cent**	**Number**	**Percent**
Total employed persons that work in region	2,732	100.0	4,563	100.0
Total that live and work in region	1,927	70.5	3,432	75.2
Total that live elsewhere, but work in region	789	28.9	1,112	24.4

regions might be a source of labour
he region.

DC) by Where They Live - 2001

Alexandrina (DC)

his suggests that the existing workforce may not be closely matched to the mine's more skilled labour needs. However, the region may be capable of supplying the construction labourers and general workforce in the early stages of the project. Moreover, subject to the provision of opportunities for re-training and up-grading of skills, local "labourers and related workers" may be trained to become "intermediate production and transport workers". But we would expect that some significant proportion of the new regional jobs would be met by people moving into the region.

Table 4.5
Persons Employed in Region by Occupation
Alexandrina (DC) – Strathalbyn and South Australia – 2001

	Strathalbyn		South Australia	
	Number	**Per cent**	**Number**	**Per cent**
Managers & Administrators	550	20.1	59,559	9.6
Professionals	276	10.1	106,119	17.1
Associate Professionals	246	9.0	72,743	11.7
Tradespersons & Related Wrks	251	9.2	76,337	12.3
Advanced Clerical & Service Wrks	87	3.2	20,716	3.3