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18. ECONOMIC ENVIRONMENT

18.1. INTRODUCTION

This Section assesses the potential economic impact associated with the South Galilee Coal Project (SGCP). The SGCP is proposed by joint venture participants AMCI (Alpha) Pty Ltd (AMCI) and Alpha Coal Pty Ltd (Alpha Coal), a subsidiary of Bandanna Energy Limited.

Alpha Coal Management Pty Ltd, a subsidiary of AMCI (Alpha) is the manager of the joint venture and is responsible for preparation of the Environmental Impact Statement (EIS). Consequently, for the purposes of this Section, is herein referred to as the Proponent.

There is a brief description of the economic assessment method used to calculate the potential economic impacts of the SGCP followed by a description of the existing economic environment surrounding the SGCP area, including information on relevant economic indicators, key regional markets and industries.

Measures to mitigate potential economic impacts are also provided including strategies designed to encourage local participation in the SGCP and measures to manage impacts on surrounding agricultural land uses. An explanation of how the SGCP conforms to the objectives of Sustainable Development is also included.

18.2. DESCRIPTION OF ENVIRONMENTAL VALUES

The Project is located in Central Queensland. The economic base of Central Queensland has traditionally been comprised of agricultural activities including grazing and cropping, coal mining in the Bowen Basin and industries supporting these activities.

18.3. ECONOMIC ASSESSMENT METHOD

This economic assessment was undertaken using the Input-Output (I-O) method. This method models the Project's direct and indirect impacts on the regional, State and national economies in terms of industry output, household income, employment and value-added. Direct impacts are related to the increase in economic activity and employment that are directly generated in the industry receiving the stimulus, in this case the coal mining industry, and indirect impacts are the flow-on effects from industries that support the coal mining industry, for example mining services companies. Employment numbers are generated through past relationships between expenditure and employment at a State level.

Data from the Australian Bureau of Statistics (ABS), Queensland State Accounts and the National 2006-2007 input-output tables were used to develop the I-O model used to produce the economic assessment. Further information on I-O modelling is provided in **Appendix S—Economic Technical Report**.

18.4. EXISTING ECONOMIC ENVIRONMENT

18.4.1. Study Area

The study area is comprised of local government areas (LGA) and statistical divisions. In terms of LGA jurisdictions, the Project is located within the Barcaldine Regional Council (BRC) LGA in Central Queensland. **Figure 18-1** illustrates the LGAs surrounding BRC. In terms of statistical divisions, the SGCP is located within the Central West Statistical Division (SD) (refer to **Figure 18-1**).

For the purposes of this assessment, the local study area is defined as consisting of the BRC and the Central Highlands Regional Council (CHRC). These two areas are part of the Central West and Fitzroy SDs. An overview of key socio-economic characteristics for Queensland is also provided due to the benefit that the Project is expected accrue to number of major urban/commercial centres across the State.

18.4.1.1. Barcaldine and Central Highlands Regional Council Areas

The SGCP is located in Central Queensland within the eastern boundary of the BRC area (refer to **Figure 18-1**). The closest community is the town of Alpha, approximately 12 kilometres (km) to the north of the Project site. Due to this close proximity there may be an impact on the town at a local level. However, the majority of the economic impacts are expected to extend eastwards to the CHRC.

18.4.1.2. Central West and Fitzroy Statistical Divisions

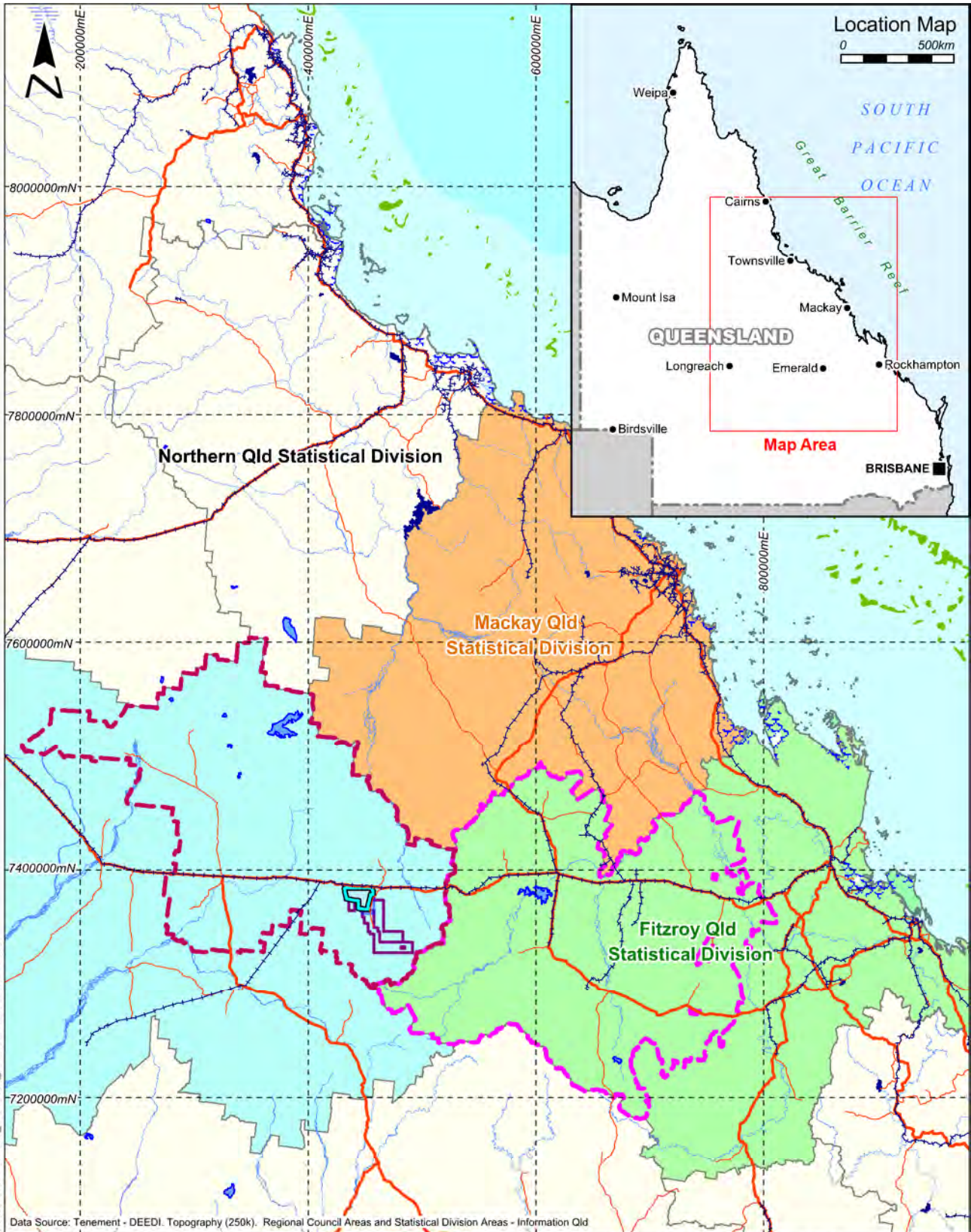
The Central West SD and Fitzroy SD to the east are expected be influenced most by the SGCP. The major regional centres closest to the SGCP are Barcaldine in the Central West SD as well as Emerald and Rockhampton in the Fitzroy SD. Emerald and Rockhampton are the major service centres for mines in the Bowen Basin and are likely to provide similar services to mines in the Galilee Basin including the SGCP.

18.4.1.3. Queensland

Impacts on the Queensland economy as a result of the SGCP are expected to be influenced by labour linkages in terms of Fly-In/Fly-Out (FIFO) mining staff from the Mackay and South-East Queensland locations. South-East Queensland based businesses are also expected to provide technical and consulting services over the life of the SGCP.

18.4.2. Gross Regional Product

The most readily available information regarding regional economies is the Gross Regional Product (GRP). These statistics are reported at the SD level by the Queensland Government. The GRP by industry for the Central West SD in 2000–2001 and 2005–2006 is presented in **Table 18-1**.



Data Source: Tenement - DEEDI. Topography (250k). Regional Council Areas and Statistical Division Areas - Information Qld

LEGEND

- | | |
|----------------------|---------------------------------------|
| MLA70453 | Mackay Qld Statistical Division |
| Exploration Tenement | Central West Qld Statistical Division |
| Principal road | Fitzroy Qld Statistical Division |
| Road (sealed) | Barcaldine Regional Council |
| Railway | Central Highlands Regional Council |
| Stream | |
| Population centre | |

Alpha Coal Pty Ltd

South Galilee Coal Project

Study Area

100 0 100

Kilometres

Scale: 1:5,000,000 (A4)

30/08/2012

Proj. : MGA Z55
Datum: GDA 1994

FIGURE 18-1

S:\PROJECTS\AM001_STHGALILEE_EIS\GIS\MAPINFOWSPACES\SECT_20\AM001_FIG18-1 STUDY AREA.WOR



Table 18-1 Composition of GRP by Industry for Central West SD

Industry	2000–2001		2005–2006		Change in composition	
	(\$m)	Composition (%)	(\$m)	Composition (%)	% Change	(Percentage points)
Agriculture, forestry and fishing	276.9	35.7	230.6	41.4	-16.7	5.7
Mining	21.7	2.8	18.4	3.3	-15.2	0.5
Manufacturing	6.2	0.8	2.2	0.4	-64.5	-0.4
Electricity, gas and water	12.4	1.6	14.5	2.6	16.9	1.0
Construction	68.3	8.8	27.9	5.0	-59.2	-3.8
Wholesale trade	26.4	3.4	11.7	2.1	-55.7	-1.3
Retail trade	46.5	6.0	26.7	4.8	-42.6	-1.2
Accommodation, cafes and restaurants	26.4	3.4	17.8	3.2	-32.6	-0.2
Transport and storage	38.8	5.0	25.6	4.6	-34.0	-0.4
Communication services	18.6	2.4	10.6	1.9	-43.0	-0.5
Finance and insurance	17.1	2.2	10.6	1.9	-38.0	-0.3
Property and business services	38.0	4.9	15.0	2.7	-60.5	-2.2
Government administration and defence	43.4	5.6	46.8	8.4	7.8	2.8
Education	38.8	5.0	26.7	4.8	-31.1	-0.2
Health and community services	38.0	4.9	32.9	5.9	-13.4	1.0
Cultural and recreational services	6.2	0.8	5.6	1.0	-9.7	0.2
Personal and other services	14.7	1.9	10.6	1.9	-27.9	0.0
Ownership of dwellings	35.7	4.6	22.8	4.1	-36.1	-0.5
Gross value added	774	100	557	100	-28.0	0.0

Source: Aurecon (2012) Economic Impact Assessment South Galilee Coal Project

Agriculture, forestry and fishing is currently the largest contributor to the region's economy accounting for 41.4 % of the total GRP in 2005–2006 followed by Government administration and defence that accounted for 8.4 %. In terms of GRP, the Central West SD economy contracted between 2000–2001 and 2005–2006 by \$217 million, across most industry sectors. Government administration and defence and utilities (electricity, gas and water) experienced marginal gains.

The GRP by industry for the Fitzroy SD in 2000–2001 and 2005–2006 is presented in **Table 18-2**.

The Mining sector is, by a considerable margin, the largest contributor to the Fitzroy regional economy, more than doubling its contribution from \$2.6 billion in 2000–2001 to \$5.5 billion in 2005–2006. As such, in 2005–2006 Mining accounted for 39.3 % of the total GRP. Although the economy of the region grew from \$12.0 billion in 2000–2001 to \$14.1 billion in 2005–2006, most sectors declined over the period excluding mining, construction, transport and storage, finance and insurance, and government administration and defence.

Table 18-2 Composition of GRP by Industry for Fitzroy SD

Industry	2000–2001		2005–2006		Change in composition	
	(\$m)	Composition (%)	(\$m)	Composition (%)	% Change	(Percentage points)
Agriculture, forestry and fishing	889.3	7.4	508.0	3.6	-42.9	-3.8
Mining	2,559.6	21.3	5,546.0	39.3	116.7	18.0
Manufacturing	1,562.2	13.0	1,439.4	10.2	-7.9	-2.8
Electricity, gas and water	1,153.6	9.6	832.6	5.9	-27.8	-3.7
Construction	636.9	5.3	959.6	6.8	50.7	1.5
Wholesale trade	492.7	4.1	381.0	2.7	-22.7	-1.4
Retail trade	648.9	5.4	592.7	4.2	-8.7	-1.2
Accommodation, cafes and restaurants	276.4	2.3	239.9	1.7	-13.2	-0.6
Transport and storage	672.9	5.6	677.4	4.8	0.7	-0.8
Communication services	180.3	1.5	127.0	0.9	-29.6	-0.6
Finance and insurance	264.4	2.2	282.2	2.0	6.7	-0.2
Property and business services	612.9	5.1	606.8	4.3	-1.0	-0.8
Government administration and defence	264.4	2.2	268.1	1.9	1.4	-0.3
Education	504.7	4.2	451.6	3.2	-10.5	-1.0
Health and community services	468.7	3.9	437.5	3.1	-6.7	-0.8
Cultural and recreational services	60.1	0.5	56.4	0.4	-6.2	-0.1
Personal and other services	192.3	1.6	169.3	1.2	-11.7	-0.4
Ownership of dwellings	600.8	5.0	550.4	3.9	-8.4	-1.1
Gross value added	12,041.0	100.0	14,126.0	100.0	17.3	-

Source: Aurecon (2012) Economic Impact Assessment South Galilee Coal Project

18.4.3. Population Demographics

Population demographics and age profiles for the BRC, CHRC and Queensland are provided in **Table 18-3** and **Figure 18-2** respectively.

18.4.3.1. Barcaldine Regional Council

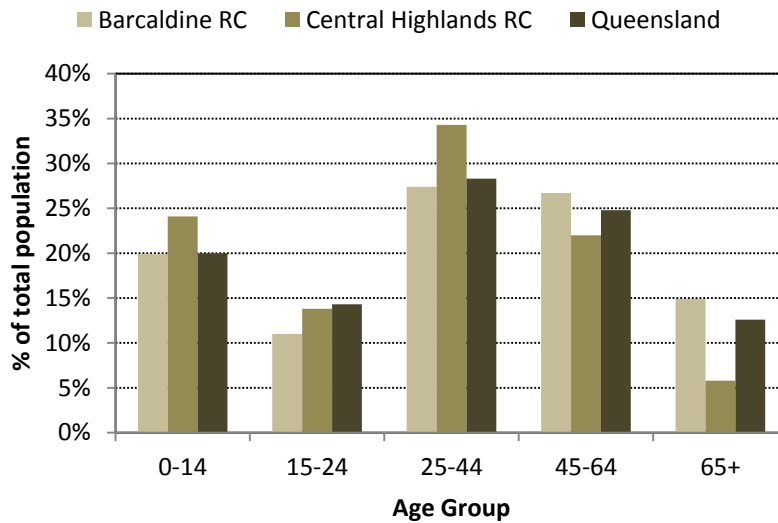
The BRC area has an estimated population of 3,412 people. The majority of the population reside in Barcaldine (1,349) with smaller groups in Alpha, Aramac, Jericho and Muttaborra. In total 74.6 % of the regional council's population reside within these towns with the remainder residing on rural properties. Forecast population growth for the BRC at 1.0 % per annum (pa) is lower than for the rest of the State at 1.8 % pa. There is also a higher median age in comparison to the rest of the State.

An older population is also a characteristic of the regional council with a lower proportion of 0–14, 15–24 and 25–44 year olds than the rest of the State and a higher percentage than the rest of the State in the 45–65 and the 65+ age ranges.

Table 18-3 Population Demographics for the BRC, CHRC and Queensland

	BRC	CHRC	Queensland	
Projected population (2011)	3,412	31,861	4,611,491	
Projected population (2031) (Medium series projection)	4,185	50,742	6,592,858	
Growth rate pa (Medium series projection)	1.0 %	2.4 %	1.8 %	
Median age (2009)	39.4 yrs	31.4 yrs	36.1 yrs	
Indigenous persons (2006)	5.9 %	3.4 %	3.3 %	
Family Composition (% of families)				
Couple family without children	41.0 %	36.6 %	39.1 %	
Couple family with children	45.9 %	53.3 %	43.3 %	
One parent family	12.0 %	8.9 %	15.9 %	
Other	1.1 %	1.2 %	1.7 %	
Household Finances				
Households fully owned	43.8 %	25.2 %	31.6 %	
Households being purchased	19.9 %	28.0 %	33.8 %	
Households rented	30.5 %	43.0 %	31.1 %	
Unemployment Rate (June 2011)	3.0 %	2.5 %	5.5 %	
Social-Economic Index of Disadvantage				
Most Disadvantaged	Quintile 1	45.7 %	8.5 %	20 %
	Quintile 2	24.6 %	14.1 %	20 %
	Quintile 3	4.0 %	22.8 %	20 %
	Quintile 4	19.2 %	35.1 %	20 %
	Least Disadvantages	Quintile 5	6.5 %	19.6 %

Source: Aurecon (2012) Economic Impact Assessment South Galilee Coal Project.



Source: Aurecon (2012) Economic Impact Assessment South Galilee Coal Project.

Figure 18-2 Age Profiles for BRC, CHRC and Queensland

18.4.3.2. Central Highlands Regional Council

The CHRC area has an estimated population of 30,403 people. The largest town in the region is Emerald with a population of 13,118. Blackwater is the next largest town with 5,420 residents. There are numerous other towns in the regional council with populations ranging from 100 to 1,661 people. In contrast to the BRC the CHRC has a projected population growth rate of 2.4 % which is higher than that of the rest of the State and more than twice that of the BRC.

The Central Highlands has a higher percentage of its population within the 25–44 years old age group at 34 %. This is substantially higher than the rest of Queensland. The higher population growth rate as well as the younger demographic may be attributable to the established mining sector that attracts a younger population base.

18.4.4. Key Regional Markets

18.4.4.1. Labour Market

The labour market profile for the BRC, the CHRC and Queensland is presented in **Table 18-4**.

The BRC area has a small labour market of 2,227 people and although the unemployment rate is lower than that of the State at 3.2 % the lack of employment prospects within the regional council is likely to see job seekers relocating to other areas with higher growth rates and job prospects to find work. Areas such as the coal fields, Rockhampton and Gladstone provide a more diverse industry base as well as extensive social, educational, health and recreational facilities.

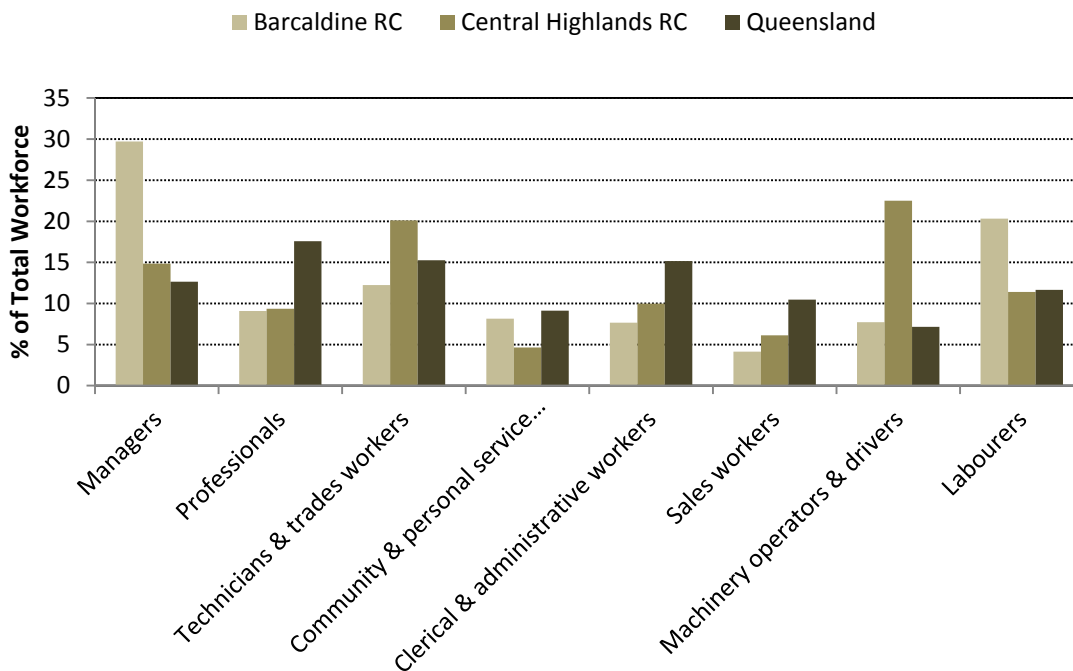
Table 18-4 Labour Market Profile for the BRC, CHRC and Queensland

Labour Type	BRC	CHRC	Queensland
Unemployed	71	485	137,000
Labour force	2,227	19,283	2,470,000
Unemployment rate	3.2 %	2.5 %	5.5 %

Source: Aurecon (2012) Economic Impact Assessment South Galilee Coal Project.

The Central Highlands has a much larger labour force and a lower unemployment rate of 2.5 % compared to both the BRC and Queensland. A large proportion of this regional council's workforce is employed by mining companies or in industries supplying goods and services to the mining sector.

Employment by occupation for the study area is presented in **Figure 18-3**. The high proportion of managers and labourers in the BRC corresponds to the limited employment opportunities within the agriculture, forestry and fishing sector which is generally limited to managers and farm hands (labourers). Similarly the higher number of machinery operators and technicians and tradespeople in the CHRC corresponds to the mining sector and mining support industry.



Source: Aurecon (2012) Economic Impact Assessment South Galilee Coal Project.

Figure 18-3 Employment by Occupation for BRC, CHRC and Queensland

18.4.4.2. Housing and Rural Property Markets

18.4.4.2.1. Availability

Types and numbers of dwellings are presented for the BRC and the CHRC areas in **Table 18-5**.

Within the BRC there were 1,208 dwellings in 2006 and 92.2 % of them were classified as separate houses. The majority of the dwellings in the regional council are located in Barcaldine and Alpha.

The CHRC had 8,548 dwellings in 2006, more than seven times the number of dwellings in the BRC. The most common type of dwelling was in the separate houses class.

Table 18-5 Occupied Private Dwellings for the BRC and CHRC (2006 Census)

Dwelling Structure	BRC	CHRC
Separate house	1,114 (92.2 %)	7,411 (86.7 %)
Semi detached	14 (1.2 %)	138 (1.6 %)
Flat, unit & apartment	41 (3.4 %)	534 (6.2 %)
Other ¹	39 (3.2 %)	462 (5.4 %)
Not Stated		3 (0.1 %)
Total	1,208	8,548

Source: Aurecon (2012) Economic Impact Assessment South Galilee Coal Project

18.4.4.2.2. House Prices

Table 18-6 provides a comparison of median house prices and predicted growth rates for the study area and Brisbane.

In the 12 months to October 2011 median house prices have increased across the study areas, in contrast to median prices within Brisbane where a decline of 4.8 % was registered. The median house price in Alpha was \$247,500 in 2011, while the median house price in Barcaldine was \$196,000 in 2011.

Of interest is the annual house price growth rate. Alpha has recorded an average annual increase of around 40 % over the past five years; however it must be noted that median house prices were only \$45,000 in 2006. House prices in Emerald are substantially higher with the median being \$401,000 which is comparable to median house prices in Brisbane.

Table 18-6 Median House Prices for Selected Centres (12 months to 31 October 2011)

Dwelling Structure	Median Price 2011 (\$ '000)	Number Sold 2011	12-Month Growth (%pa)	3-Year Growth (%pa)	5-year growth (%pa)
BRC LGA					
• Barcaldine ^A	196	22	9.0	8.2	10.8
• Alpha ^B	247.5	2	6.2	16.2 ^C	40.5 ^C
CHRC LGA					
• Emerald ^A	401	348	5.5	5.1	4.3
• Blackwater ^A	360	153	18.0	11.0	8.0
Brisbane ^D	442	-	-4.8	1.3	6.0

A: Australian Property Investor, February 2012

B: www.realestate.com.au on the 1st February 2012

C Aurecon calculations based on raw data sourced from : www.realestate.com.au on the 1st February 2012

D Aurecon calculations based on raw data sourced from ABS (2011), *House Price Indexes: Eight capital Cities, Tables 7 & 8. Cat No 6416.0*

Aurecon (2012) Economic Impact Assessment South Galilee Coal Project

18.4.4.2.3. Rent Prices

Statistical data for median rental house prices for Barcaldine and Alpha are not available. However there is readily available information for rental prices in Emerald. Rental information for Rockhampton and Brisbane are also included to highlight the regional differences. As indicated in **Table 18-7** there was a substantial rise in median weekly rent prices between 2007 and 2011, particularly in Emerald.

Despite Rockhampton being a larger business centre, Emerald has consistently attracted higher rental yields.

Table 18-7 Median Weekly Rents for Selected Centres

Dwelling Structure	June 2007 (\$)	June 2008 (\$)	June 2009 (\$)	June 2010 (\$)	June 2011 (\$)
Emerald					
• 2 bed flat	240	250	260	290	350
• 3 bed house	360	360	370	395	450
Rockhampton					
• 2 bed flat	180	200	210	220	230
• 3 bed house	250	270	275	280	300
Brisbane					
• 2 bed flat	310	350	350	360	380
• 3 bed house	330	360	370	380	390

Source: Aurecon (2012) Economic Impact Assessment South Galilee Coal Project

18.4.4.2.4. Rural Properties

Rural grazing properties are commonly valued based on their grazing productivity. Productivity is largely determined by the area and the carrying capacity of the property in terms of number of stock per unit area. Other factors influencing rural property values include

- average rainfall
- improved pastures
- opportunity for cropping
- irrigation licences
- infrastructure such as fences, stockyards, watering points, sheds, homesteads and other buildings.

Over the past two years (2010 and 2011) seven rural properties were sold within a 100 km radius of Alpha. The average price for the rural properties sold in that time was \$1,882,815. The average area of these properties was 4,457.73 ha. For these sales the average value of rural land is equivalent to \$422/ha (Propell National Valuers 2012).

18.4.4.3. Construction Services and Building Inputs

The construction sector has a significant impact on the economies of the study area. **Table 18-8** details the value of the construction market in the Barcardine and CHRC areas.

Table 18-8 Significance of Construction Activities for the BRC, CHRC and Queensland

	BRC	CHRC	Queensland
Proportion of local workforce (2005–2006)	6.2 %	9.3 %	9.0 %
Value of residential construction approvals for the 12 months ending June 2011 (proportion %)	\$3.9 m (90 %)	\$47.2 m (50.6 %)	\$8.0 billion (54.8 %)
Value of non-residential construction approvals for the 12 months ending June 2011 (proportion %)	\$0.4 m (10 %)	\$46.1 m (49.4 %)	\$6.6 billion (45.2 %)

Source: Aurecon (2012) Economic Impact Assessment South Galilee Coal Project

In the BRC the majority of construction approvals were non-residential whereas in the CHRC the approvals were almost evenly matched. The CHRC's combined building approvals value was \$93.3 million compared to the BRC's \$4.33 million for the 2010–2011 financial year.

A large proportion of the activity in the construction sector, especially in the CHRC is expected to be linked directly and indirectly to existing mining activities in the area. Direct links to the mining sector include construction of accommodation facilities and other on-site infrastructure and indirectly through residential construction generated by mining sector employees and construction of both residential and non-residential infrastructure associated with mining support businesses.

18.4.5. Expected Future Growth and Competitive Advantage

The Galilee Basin is a relatively unexplored resource region that has attracted increased interest and exploration in recent years.

There are a large number of mining and energy projects proposed in the Central Queensland Region (including projects in the Galilee Basin) located in the SDs of the Central West, Fitzroy and Mackay. There are 48 coal related proposals expected to begin by 2017 including expansions of existing operations and new mines.

A summary of Central Queensland coal developments is provided in **Table 18-9**. The total capital expenditure for these projects is more than \$35 billion and will boost coal production by more than 410 Million tonnes per annum (Mtpa). The establishment of manufacturing and construction industries in the region has created a labour pool of skilled workers available to work on infrastructure projects, creating a competitive advantage in sourcing labour.

Table 18-9 Summary of Central Queensland Coal Development Projects

Expected Start-up Date	Number of Projects	Estimated Cap Expenditure (\$m)	New Capacity (Mt)
2012	9	2,417	43.7
2013	17	6,309	68.3
2014	14	17,080	206.5
2015	5	4,850	75.0
2016	2	3,800	12.0
2017	1	1,300	4.5

There are four other major coal projects currently proposed within the Galilee Basin:

- Galilee Coal Project proposed by Waratah Coal including railway line to the Abbot Point State Development Area (APSDA) and associated facilities at the APSDA and the Abbot Point Coal Terminal (APCT)
- Alpha Coal Project proposed by the GVK Group including water and electricity infrastructure, railway line to and new facilities at the APCT
- Kevin's Corner proposed by the GVK Group including a rail load out facility and rail spur to link with the Alpha Coal Project site
- Carmichael Coal Mine proposed by Adani Mining Pty Ltd including railway line to the Port of Hay Point or the APCT.

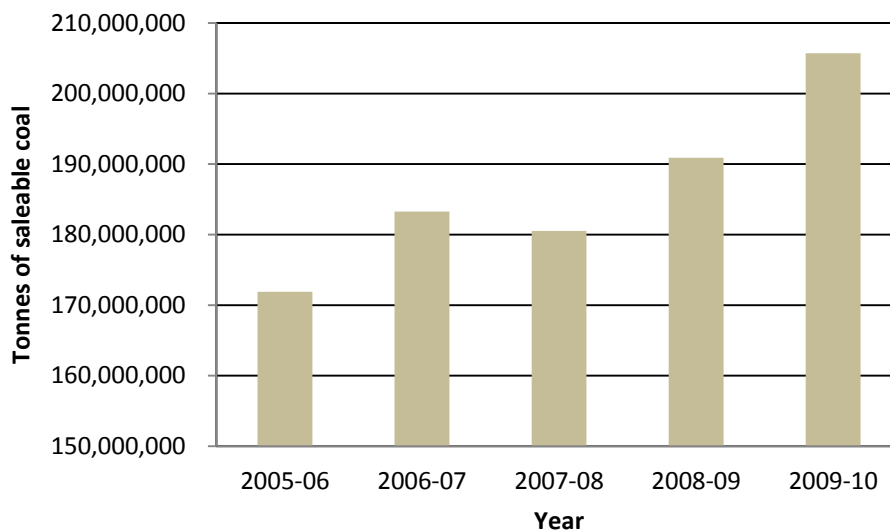
18.4.6. Key Regional Industries

There are a number of industries that are likely to be impacted directly or indirectly by the SGCP from local to the State level. Key industries that have been recognised are:

- mining
- manufacturing
- construction
- agriculture.

18.4.6.1. Mining

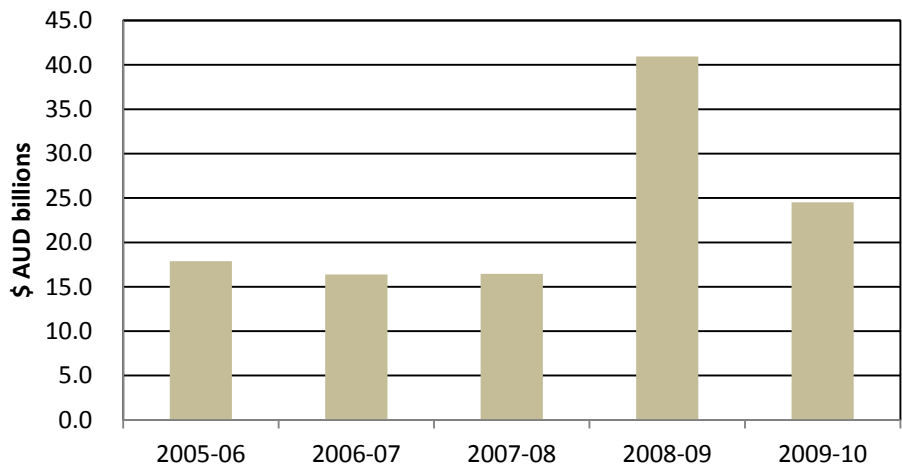
In recent years Queensland's mining industry, particularly coal mining, has experienced rapid growth. In 2004–2005 there were 43 operating coal mines in Queensland which increased to 56 mines by 2009–2010. A number of existing mines have also increased the size and production volumes of their operations. **Figure 18-4** illustrates the growth in saleable coal production in Queensland from 2005–2006 when 170 Mt was produced to 2009–2010 when 205 Mt was produced.



Source: Aurecon (2012) Economic Impact Assessment South Galilee Coal Project.

Figure 18-4 Overview of Saleable Coal Production within Queensland

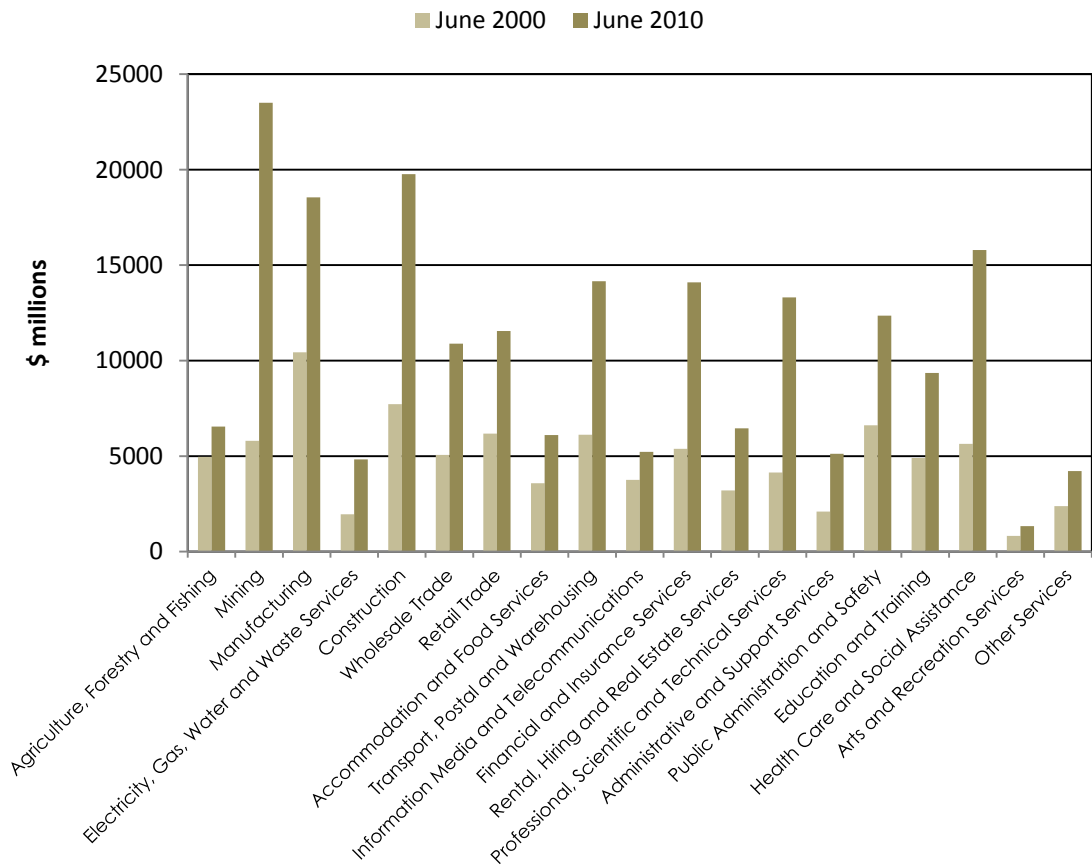
Of the 205 Mt of coal produced in Queensland in 2009–2010, 89 % was exported to 37 different countries with an export value of \$24.5 billion. The remainder was supplied to the Australian domestic market, predominantly coal fired power stations. Coal export values jumped substantially in 2008–2009 due to high coal prices. In 2009–2010 coal prices eased resulting in a lower export value despite the fact an additional 23.7 Mt of coal was exported that year (refer to **Figure 18-4** and **Figure 18-5**).



Source: Aurecon (2012) Economic Impact Assessment South Galilee Coal Project

Figure 18-5 Value of Coal Exports from Queensland

The significance of the mining industry to Queensland's economy is illustrated in **Figure 18-6**. In 2000 mining was the sixth largest industry in Queensland valued at \$5.7 billion. In 2010 the mining had grown to be the largest industry by a considerable margin valued at \$23.5 billion.



Source: Aurecon (2012) Economic Impact Assessment South Galilee Coal Project

Figure 18-6 Total Factor Income by Industry Group within Queensland

18.4.6.2. Agriculture, Forestry and Fishing

Table 18-10 provides key statistics relating to agricultural farm gate production in the BRC and CHRC areas.

Agriculture, forestry and fishing is one of the dominant industries throughout the study area particularly in the BRC area. Other off-farm impacts including jobs and income associated with processing agricultural products are not accounted for in this table.

Table 18-10 Significance of Agricultural Activities for Selected Regions

	BRC	CHRC	Fitzroy SD	Queensland
Number of employees engaged in Agriculture in 2005–06 (% of total workforce)	547 33.5 %	1,720 12.2 %	4,727 5.4 %	61,735 3.4 %
Number of Businesses engaged in Agriculture in 2005–06 (% of total businesses in region)	378 66.7 %	1,185 39.6 %	4,119 26.0 %	46,624 11.1 %
Value of Crops (2005–06) (% of total agriculture output)	\$2.7 m 2.5 %	\$133.1 m 29.6 %	\$220.7 m 26.3 %	\$4.17 billion 47.9 %
Value of livestock (2005–06) (% of total agriculture output)	\$97.0 m 88.5 %	\$316.1 m 70.3 %	\$612.9 m 73.0 %	\$4.13 billion 47.4 %
Value of livestock products (2005–06) (% of total agriculture output)	\$9.9 m 9.1 %	\$0.4 m 0.1 %	\$6.5 m 0.8 %	\$415 m 4.8 %
Total value of agriculture (2005–06)	\$109.6 m	\$449.6 m	\$840.1 m	\$8.7 billion

Source: Aurecon (2012) Economic Impact Assessment South Galilee Coal Project

18.4.6.2.1. Barcaldine Regional Council

In terms of employment and income, agriculture, forestry and fishing is the dominant industry in the BRC. Two thirds of all employment positions as well as one third of all registered businesses were engaged in this sector in 2005–2006. Unreliable and low rainfall and limited regular water supply means that it is unlikely alternative agricultural practices will displace the current extensive sheep and cattle grazing activities in the area.

18.4.6.2.2. Central Highlands Regional Council

Grazing accounts for a substantial proportion of the agricultural activities in the CHRC area. In terms of numbers of businesses engaged, Agriculture, forestry and fishing account for 39 % of the total number of businesses in the regional council area, but employ only 12.2 % of the local workforce. The combination of reliable and sustainable rainfall, the Fairbairn Dam and the Emerald Irrigation Scheme allows a considerable amount of cropping to be undertaken in the CHRC compared to the BRC. In 2005–2006 \$133.1 million of crops were produced.

18.4.6.2.3. Manufacturing

In 2000 the manufacturing industry was valued at approximately \$10.4 billion making it the largest industry in Queensland. By 2010 manufacturing was the second largest industry behind mining, increasing by over \$8 billion to \$18.5 billion (refer to **Figure 18-6**). Queensland's manufacturing sector is strongly linked to the mining industry in terms of providing products and sourcing inputs such as iron ore.

18.4.6.3. Construction

The construction industry is an important contributor to the economies of the study area. Refer to **Section 18.4.4.3** for more information on this industry.

18.4.6.4. Mining Support Services

A number of other industries and business types apart from those identified earlier operate in the region and support the mining industry by supplying services including:

- mine equipment maintenance and servicing
- infrastructure maintenance
- property and business services
- transport services
- accommodation and food services
- professional scientific and technical services
- retail and wholesale trade
- education and training
- financial and insurance services and
- information and telecommunications services.

Many of these businesses are located in regional centres, particularly Emerald, Rockhampton and Gladstone. More specialised services such as mining engineering support and professional scientific and technical services are more likely to be located in larger business centres such as Mackay and Brisbane.

18.4.7. Current Input Costs

Input costs available for the key industries in the area are in the form of average weekly earnings of employees working in a variety of industries. **Table 18-11** presents these figures in both weekly earnings and yearly salary across Australia.

Table 18-11 Average Weekly Earnings by Industry Group for Australia (2011)

	Average Weekly Earnings ¹ (\$)	Annual Salary ² (\$)
Agriculture	Not reported	-
Mining	2,086.90	108,811
Manufacturing	1,102.90	57,505
Electricity, Gas, Water & Waste Services	1,596.00	83,215
Construction	1,274.30	66,442
Wholesale Trade	1,105.90	57,662
Retail Trade	614.00	32,014
Accommodation & Food Services	485.60	25,319
Transport, Postal and Warehousing	1,168.90	60,946
Information Media & Telecommunications	1,358.50	70,832
Financial & Insurance Services	1,356.50	70,728
Rental, Hiring & Real Estate Services	1,024.40	53,412
Professional, Scientific & Technical Services	1,314.40	68,533
Administrative & Support Services	893.00	46,561
Public Administration and Safety	1,248.30	65,086
Education & Training	1,019.10	53,136
Health Care & Social Assistance	876.20	45,685
Arts & Recreational Services	725.10	37,807
Other Services	841.70	43,886

1 ABS (2011) *Average Weekly Earnings, Australia. Cat. No. 6302.0*

2 Calculated by multiplying the average weekly earnings by 52.14

Source: Aurecon (2012) Economic Impact Assessment South Galilee Coal Project

The annual average salary for the agriculture sector is not available however an estimate of the annual salary for a farm hand (labourer) is \$35,000. In terms of average weekly earnings, mining provides the highest input costs followed by electricity, gas, water & waste services. The industry with the lowest input costs in terms of wage rates is the accommodation & food services industry.

18.5. POTENTIAL IMPACTS AND MITIGATION MEASURES

For the purpose of this economic assessment, the SGCP has been divided into four phases:

- Phase 1: Construction 2013–2014
- Phase 2: Uplift in production 2015–2018
- Phase 3: Production 2019–2047
- Phase 4: Decommissioning.

During the various phases of the Project there are differing impacts linked to diverse levels of expenditure.

18.5.1. Industry Impacts

18.5.1.1. Construction, Uplift in Production and Production

Table 18-12 details the projected capital and operational expenditure of the SGCP.

Over the life of the SGCP, excluding the Decommissioning phase, it is estimated that total expenditure on goods and services will be approximately \$25.1 billion. Of this total, approximately \$23.9 billion will be spent domestically and the remaining \$1.1 billion will consist of imports.

Table 18-12 Breakup of Projected SGCP Expenditure Between Domestic and Overseas Markets

	Projected expenditure (\$ billion)		
	Domestic	Overseas	Total
Construction	1.6	0.5	2.0
Uplift in production	2.6	0.5	3.1
Production	19.8	0.2	19.9
Total	23.9	1.1	25.1

Source: Adapted from Aurecon (2012) Economic Impact Assessment South Galilee Coal Project

Table 18-13 details the impact of SGCP's annualised domestic expenditure over the construction, uplift in production and production phases on various industries.

The value of domestic expenditure will modulate according to each Project phase and therefore it is expected to have varying impacts on particular industries during the different phases.

Table 18-13 Expected Annual Economic Impacts of the Construction, Uplift in Production and Production Phases of the SGCP on Industries

	Construction			Uplift in production			Production		
	Value added (\$m)	Income (\$m)	Output (\$m)	Value added (\$m)	Income (\$m)	Output (\$m)	Value added (\$m)	Income (\$m)	Output (\$m)
Mining	106.7	17.7	180.6	294.5	49.9	505.3	468.6	78.1	795.6
Manufacturing	156.7	82.4	535.6	81.6	42.9	278.9	23.4	12.3	80.0
Electricity, Gas, Water & Waste Services	15.9	5.5	31.6	11.1	3.8	22.0	9.3	3.2	18.4
Construction	171.6	74.7	501.1	54.8	25.4	165.0	14.8	6.8	44.5
Wholesale Trade	23.1	14.7	51.5	15.6	9.9	34.8	12.2	7.8	27.3
Retail Trade	9.2	6.1	16.00	6.0	4.0	10.5	4.6	3.0	8.0
Accommodation & Food Services	4.3	2.4	9.1	3.0	1.7	6.3	2.4	1.4	5.1
Transport, Postal and Warehousing	34.9	14.9	70.8	24.5	10.5	49.8	20.4	8.7	41.5
Information Media & Telecommunications	7.1	2.4	14.6	4.4	1.5	9.1	3.2	1.1	6.7
Financial & Insurance services	25.7	12.1	33.7	16.8	7.9	21.9	14.4	6.8	18.9
Rental, Hiring & Real Estate Services	21.9	8.2	40.7	12.6	4.9	24.2	10.3	3.9	19.2
Professional, Scientific & Technical Services	34.0	24.7	71.9	23.7	17.2	50.1	21.3	15.5	45.0
Administrative & Support Services	15.5	13.4	29.8	8.9	7.7	17.1	5.9	5.1	11.3
Public Administration & Safety	4.9	3.9	8.1	3.5	2.8	5.8	3.2	2.5	5.2
Other ¹	15.6	8.5	32.1	10.7	6.4	22.0	8.4	5.5	17.00
Direct impact	265.8	114.8	773.4	307.0	80.2	654.0	396.6	67.8	680.6
Indirect – Industrial support	381.4	176.7	853.8	264.7	116.3	568.8	225.9	93.8	462.9
Total Queensland	647.1	291.5	1,627.2	571.7	196.5	1,222.8	622.5	161.6	1,143.5
Rest of Australia	54.8	31.5	200.3	48.5	21.2	150.5	52.8	17.5	140.8
Total Australia	702.0	323.0	1,827.5	620.2	217.7	1,373.3	675.3	179.0	1,284.3

¹ Includes the sectors of Agriculture Forestry & Fishing, Education & Training, Health Care & social assistance, Arts & recreational services, and other services

Source: Adapted from Aurecon (2012) Economic Impact Assessment South Galilee Coal Project

Table 18-14 details SGCP's economic impacts on the Queensland economy over the various phases. Economic impacts on the National economy (inclusive of Queensland) are bracketed.

The construction and operation of the mine (over the period 2013 to 2047) will increase total industry output by \$41.3 billion (\$46.4 billion nationally) and Gross State Product by \$21.7 billion (\$23.5 billion in Gross National Product for the Australian economy).

In a separate economic assessment, larger impacts were reported: total industry output by \$54.6 billion (\$61.3 billion nationally) and Gross State Product by \$27 billion (\$30.2 billion in Gross National Product for the Australian economy) (Synergies, 2011).

The Project will expand the regional, State and National economies.

Table 18-14 Breakup of Queensland (Australia) Economic Impacts Over the Phases of the SGCP

	Queensland Economic Impacts (\$ billion)		
	Output all industries	Household Income	Gross State Product
Construction	3.3 (3.7)	0.6 (0.6)	1.3 (1.4)
Uplift in production	4.9 (5.5)	0.8 (0.9)	2.3 (2.5)
Production	33.1 (37.2)	4.7 (5.2)	18.1 (19.6)
Total	41.3 (46.4)	6.1 (6.7)	21.7 (23.5)

Source: Adapted from Aurecon (2012) Economic Impact Assessment South Galilee Coal Project

18.5.1.2. Decommissioning

Based on current mine planning, coal production is proposed until 2047. A detailed decommissioning plan will be developed well in advance of this time. The decommissioning phase is expected to have the greatest impact on the BRC economy. The level of economic impact will be influenced by a number of factors at the time of decommissioning including:

- the number of employees required for decommissioning
- the number of employees residing locally
- development and expansion of other mining projects in the region
- market demand and the price of coal.

Other communities that will be impacted by the decommissioning phase are those that provide mine supplies and services such as Emerald and communities where large proportions of the FIFO workforce reside.

These larger regional centres are expected to be able to absorb the impact of lost economic activity due to their diversity of industries. After decommissioning, former SGCP employees are also likely to gain employment at other mining projects.

18.5.1.3. Procurement Strategy

The SGCP will invest substantially in Queensland industries as indicated in **Section 18.5.1**. Although the majority of expenditure will be accounted for by direct staffing costs and engaging contractors a significant proportion will be spent on goods and services. The benefits of sourcing local inputs include:

- the ability to deal directly with local businesses
- the ability of local businesses to respond rapidly due to their proximity to the SGCP

- spending locally supports local businesses and jobs
- for particular services transport costs are minimised.

The Proponent will employ procurement strategies to maximise opportunities for local businesses to provide goods and services to the SGCP. The Proponent and the Office of Advanced Manufacturing have agreed on a framework for the development of a Local Industry Participation Plan (LIPP) (refer to **Appendix R—Social Impact Management Plan**). This LIPP will be developed in accordance with the Queensland Government's Local Industry Policy.

18.5.2. Employment

Table 18-15 illustrates the considerable number of employment opportunities that are forecast to be directly and indirectly created during each phase (excluding decommissioning) of the SGCP.

These employment opportunities are either positions directly created by the Project or indirectly generated across industries that support the Project such as mining services. These positions are defined as Full Time Equivalent (FTE) positions.

Table 18-15 Annual Employment Generated by the SGCP

	Full Time Equivalent (FTE) Positions Created			
	Construction	Uplift in production	Production	Total
Mining	183	514	805	1,502
Manufacturing	1,249	651	187	2,087
Electricity, Gas, Water & Waste Services	76	53	44	173
Construction	1,424	483	130	2,037
Wholesale Trade	120	81	63	264
Retail Trade	74	48	37	159
Accommodation & Food Services	39	27	22	88
Transport, Postal and Warehousing	201	140	118	459
Information Media & Telecommunications	25	15	11	51
Financial & Insurance services	63	41	36	140
Rental, Hiring & Real Estate Services	110	66	52	228
Professional, Scientific & Technical Services	251	175	157	583
Administrative & Support Services	108	62	41	211
Public Administration & Safety	48	34	31	113
Other ¹	149	103	84	336
Direct impact	1,881	1,057	714	3,652
Indirect – Industrial support	2,239	1,436	1,104	4,779
Total Queensland	4,120	2,493	1,818	8,431
Rest of Australia	334	201	148	683
Total Australia	4,454	2,694	1,966	9,114

Source: Adapted from Aurecon (2012) Economic Impact Assessment South Galilee Coal Project.

Across all Project phases (excluding decommissioning), a total of 3,652 FTE positions are forecast to be created in Queensland. A further 4,779 FTE positions will be created indirectly in Queensland. A further 683 FTE positions will be created in the rest of Australia. The employment positions that the SGCP will create will have a positive impact on the regional, State and National economies.

The Proponent is currently working with Queensland Government Agencies and other stakeholders to develop and implement management and mitigation strategies that will maximise fair and reasonable employment opportunities for local, regional and Queensland workforces. Details of the Workforce Management Plan are provided as part of the Social Impact Management Plan (SIMP) (refer to **Appendix R—Social Impact Management Plan**).

Although the SGCP will be largely staffed by a FIFO workforce, locals will be employed where they are appropriately qualified. SGCP will proactively seek to employ locals by:

- promoting vacancies locally, particularly where matching skillsets with the local workforce has been identified
- employing on-site training and development programs, particularly for local indigenous community members
- offering employment flexibility for certain positions, to enable casual employment of locals seeking seasonal engagement, or to employ parents/carers during school hours to fit in with family commitments.

A detailed Human Resources Strategy will be developed during the Definitive Feasibility Study that details the more specific recruitment strategies to be employed during the construction and operational phases. Details of the Human Resources Strategy are provided in the Workforce Management Plan that will be developed as part of the SIMP (refer to **Appendix R—Social Impact Management Plan**).

18.5.3. Housing

18.5.3.1. Residential

The SGCP will employ a predominately FIFO workforce that will be housed on-site in a purpose built accommodation village. During the Project's operational stages it is estimated that 0.5 % of the workforce may reside locally. As a result there may be some minor impacts on the housing market in Alpha however these are not expected to be significant.

Price growth in Alpha, refer to **Section 18.4.4.2**, indicates that property prices have already appreciated through property market speculation linked to the prospect of mining projects in the region, including the SGCP, proceeding. Depending upon actual demand and town planning issues, such as the release of further land for residential housing, house prices may increase in the longer term similar to other mining communities. Corresponding with this may be a rise in rental rates that may impact upon affordability.

Housing demand and supply is dependent on a number of factors beyond the control of the Proponent. However SGCP will provide accurate and timely planning updates to local and State government authorities engaged in accommodation planning. A Housing and Accommodation Plan has been prepared as part of the SIMP (refer to **Appendix R—Social Impact Management Plan**).

The Proponent supports the Queensland Government's Major Resource Projects Housing Policy and its aim for the Proponent to work with the local community and government agencies to maintain the liveability of local communities. This will be achieved through a consultative approach with these key stakeholders.

Considering the cumulative impact of the SGCP and other mining and energy proposals in the Galilee Basin it is expected that the housing stock within the BRC and in particular Alpha may require expansion.

To assist the regional planning associated with infrastructure services and release of new residential blocks, the Proponent will:

- regularly engage with all levels of government, particularly the BRC, to inform the planning process in advance of the Project's staged development and implications for SGCP workforce
- regularly monitor accommodation needs of SGCP employees, particularly for those seeking to reside locally
- regularly monitor the local Alpha housing market, in terms of availability and pricing, and seek to collaborate with government, community representatives and other stakeholders to address any housing issues.

18.5.3.2. Rural Properties

Where a significant part of the surface of any rural property is required for the mining operations, SGCP proposes to acquire the property by negotiation at the appropriate market valuation. There is no proposal to acquire the properties adjacent to the mine site. Valuations of grazing properties directly adjoining the SGCP may be impacted by a number of factors including disruption to management practices. To date there is insufficient market data to indicate the possible impact on rural property valuations adjacent to the mine site.

The SGCP also involves the development of an infrastructure corridor that will contain the Project's power supply infrastructure and rail spur that will connect to a Galilee Basin Common user rail line that is being proposed by a number of other projects in the Galilee Basin (refer to **Section 4—Project Description**). This infrastructure corridor will be aligned as much as practicable with existing or proposed easements.

Rural properties that are adjacent to or are dissected by the infrastructure corridor may be impacted in terms of management/operational practices such as restricted movement of stock, fence realignment and access to water points. The Proponent will proactively engage with these landholders to mitigate any management/operational impacts.

There are two stock routes in the vicinity of the SGCP (refer to **Figure 18-7**). The Alpha - Tambo stock route will not be affected by the operation of the SGCP. The stock route that follows the Capricorn Highway is located on the northern side of the existing Central Line rail corridor. As the SGCP infrastructure corridor may dissect this stock route, the Proponent will work with the relevant agencies and stakeholders to allow unencumbered movement of stock to this stock route. The impact to the use of the stock route is therefore expected to be minimal.

18.5.4. Implications for Future Development

The cumulative increase in economic activity due to the SGCP and other developments in the Galilee Basin will provide businesses across many industries with opportunities to expand. Development of associated infrastructure, such as rail, water and power supply, will be beneficial to the development of the Galilee Basin energy reserves. Rail Infrastructure associated with the SGCP and other mining projects in the region will increase accessibility and the ability to transport coal from the Galilee Basin.

18.5.5. Distributional Effects and Impacts on Disadvantaged Groups

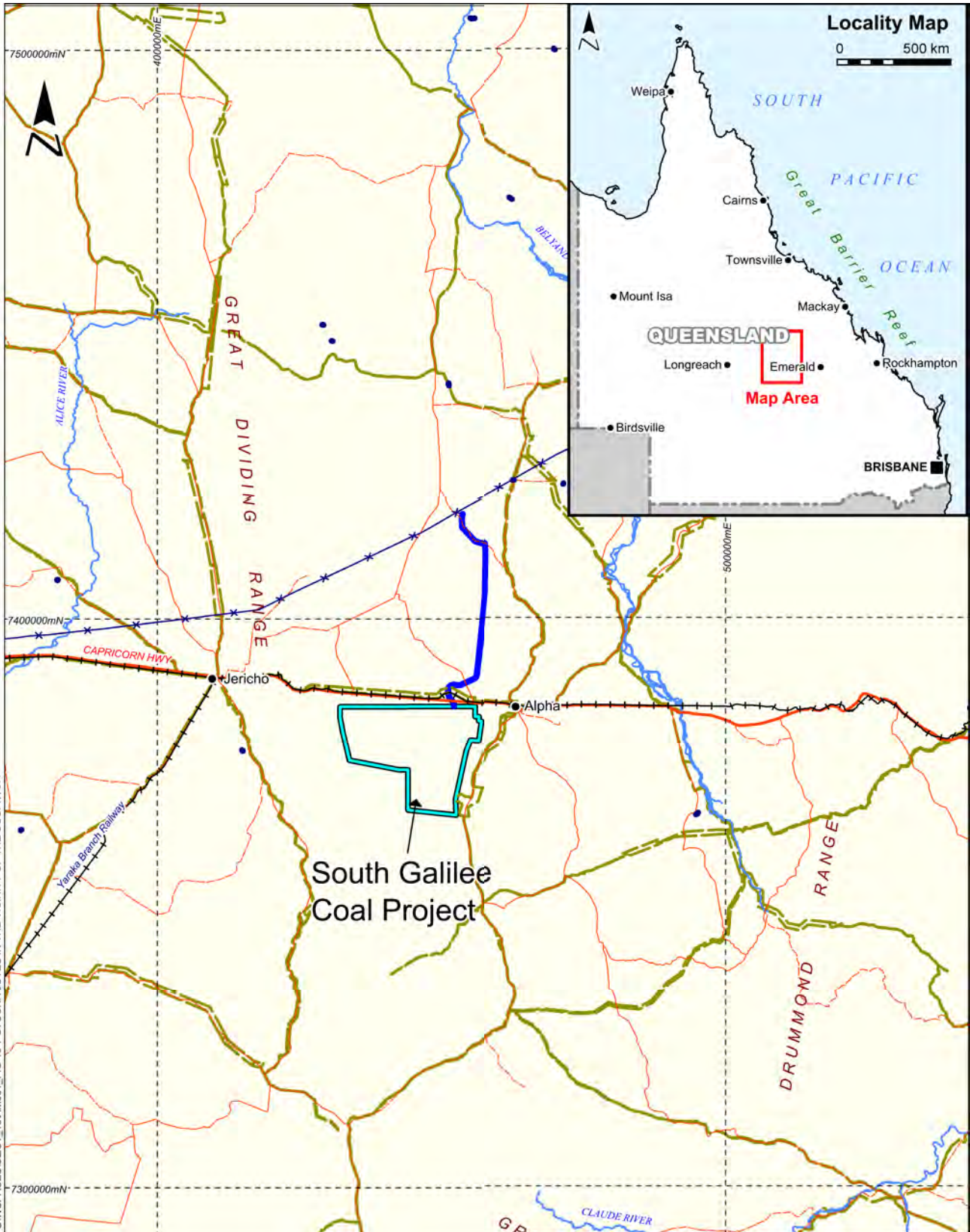
A number of long-term residents may have been attracted to Alpha due to lifestyle considerations. The cumulative impacts of all mining and energy developments in the Galilee Basin may include residents relocating if these lifestyle considerations are compromised. SGCP proposes to engage proactively with all levels of government to monitor housing and accommodation issues at Alpha and work collaborative on possible solutions in accordance with the Major Resource Projects Housing Policy. Mitigation measures to address potential impacts on disadvantaged groups through housing affordability and accessibility are detailed in the SIMP (refer to **Appendix R—Social Impact Management Plan**).

18.6. OTHER BENEFITS TO THE STATE AND NATIONAL ECONOMIES

18.6.1. Balance of Payments

The SGCP would result in a significant increase in thermal coal exports from the region. For the purposes of modelling, thermal coal production from the SGCP has been disaggregated as:

- Phase One – Construction only (2013–2014) with no coal production
- Phase Two – Ramp-up Production (2015–2018) with coal production commencing in 2015 at 5.4 Mtpa (product coal), increasing to 10.7 Mtpa in 2017. Average annual production over this period is approximately 7.8 Mtpa



PROJECT: IAM001_STH GALILEE_EIS (GIS); MAP INFO: WSPACES/SECT_18/AM001_FIG 18-7 STOCK ROUTES IN THE VICINITY OF THE SGCP-WOR



LEGEND	
	MLA70453
	SGCP infrastructure corridor
	Principal road
	Road (sealed)
	Road (unsealed)
	Stockroute
	Population centre
	Railway
	Powerline
	River
	Dam

Data Source: Tenement - DEEDI, Topography (250k) - Geoscience Australia, Protected Areas, Nature Refuges, Stockroutes - QGIG

Alpha Coal Pty Ltd	
South Galilee Coal Project	
Stock Routes in the Vicinity of the SGCP	
25 0 25	27/08/2012
Kilometres	
Scale: 1:1,000,000 (A4)	
Proj. : MGA Z55 Datum: GDA 1994	
FIGURE 18-7	

- Phase Three – Production Maturity (2019–2047) with coal production over this 29 year period fluctuating between approximately 9.6 and 16.6 Mtpa. Average annual production over this period is 14.4 Mtpa (product coal).

For the purposes of this analysis, future thermal coal prices are estimated at \$90 to \$140 per tonne. The market value of coal mined from the SGCP during Phase Two is approximately \$1.3 billion to \$2.0 billion per annum, which will have significant positive impacts for Australia's net trade account. Over the life of the Project, exports from SGCP are conservatively valued at approximately \$40.3 billion to \$62.7 billion.

18.6.2. Local Government

For the BRC LGA a proportion of the new employment and local mine expenditure generated by the SGCP will stimulate housing and commercial/retail development. To the extent that new land is developed or converted into higher value use, local government revenues will increase through increased rates and other charges.

However, an estimate of the likely revenue generated would depend critically on actual market for residential/commercial development on greenfield sites, and the capacity of the local government authority to provide appropriately zoned land to meet demand.

18.6.3. State Government Revenues

18.6.3.1. Coal Royalties

The SGCP is expected to export on average up to 7.8 Mtpa of product coal for the first four years, and up to 14.4 Mtpa for the following 29 years. The production of this coal would generate royalty payments to the Queensland Government. Under the current two-tiered coal royalty system, companies pay 7 % of the value up to \$100 per tonne and 10 % of the value thereafter. For example, a price of \$100 per tonne attracts a rate of 7 % of coal value, \$150 per tonne attracts 8 % and \$200 per tonne attracts 8.5 %.

Subject to exchange rate variations, coal price fluctuations over the life of the mine and likely transfer to the Australian Government's Minerals Resource Rent Tax (MRRT), the estimated royalty payments that would be made to the Queensland Government are estimated at \$49 to \$85 million per annum for the first four years, before increasing to \$90 million to \$158 million per annum for the following 29 years. Over the life of the Project, total coal royalties payments are estimated at \$2.8 billion to \$4.9 billion.

18.6.3.2. State Payroll Tax

Companies or groups of companies that pay \$1 million or more a year in Australian wages must pay payroll tax. The current payroll tax is 4.75 % of total taxable wages (Queensland Office of State Revenue).

The employment attributed to the SGCP is assumed to comprise direct staff and contractors over and above any exemption or payroll tax deduction levels. Average earnings for mining industry personnel are estimated conservatively at \$108,000 per annum.

Assuming that the full value of SGCP wages attracts payroll tax, it is estimated that the Queensland Government would receive payroll tax revenues over the life of the Project of \$226.4 million. Note that this analysis only examines the level of payroll tax generated by the mine site staff, and that flow-on jobs created by the SGCP may also generate significant amounts of payroll taxes to the Queensland government.

18.6.3.3. Port Charges

Port dues are also payable to the relevant port authority, consisting of:

- Harbour dues
- Tonnage dues
- Port security charge.

Note that these charges vary between port locations. Based on cost schedules published for Port of Hay Point, Port dues payable has been estimated at \$2.3 million per annum for the first four years, before increasing to \$4.2 million per annum for the following 29 years. Over the life of the Project, total Port dues are estimated at approximately \$130.4 million.

18.6.4. Australian Government Revenues

18.6.4.1. Personal Income Tax

A substantial workforce is required during the life of the Project, in which average earnings for mining industry personnel are estimated conservatively at \$108,000 per annum.

Based on the projected SGCP workforce numbers and 2011 personal income tax rates, it is estimated that employees of SGCP will make income tax contributions over the life of the Project of approximately \$1.2 billion.

18.6.4.2. Company Tax

The company tax rate in Australia is 30 % of profit. Over the life of the SGCP a number of firms will be liable to pay company tax including:

- the SGCP proponents
- firms providing goods and services directly to SGCP
- support firms benefiting indirectly by the SGCP.

The level of profits generated by firms engaged by SGCP will be impacted by a range of factors including business structure, local market conditions and competition, international market price for thermal coal, etc. Due to these and many other variables, it is not possible to estimate the likely company tax revenues associated with SGCP.

18.7. EXTRACTIVE RESOURCE AVAILABILITY

Extractive resources include sand, gravel, quarry rock, clay and soil and are used in concrete, asphalt, road bases and a range of other products. They are essential to our way of life as they are the raw materials for building homes, hospitals, schools and factories, as well as the supporting infrastructure, such as roads, railways, water supply and sewerage systems (Queensland Government Department of Mines and Energy 2007). The State Planning Policy 2/07 Protection of Extractive Resources seeks to identify extractive resources of State or regional significance and protect those resources from developments that might prevent or constrain their extraction in the future. The locations of these extractive resources are identified as Key Resource Areas (KRAs).

There are no KRAs located within or in close proximity to the SGCP. Therefore there are not expected to be any direct impacts on any KRAs as a result of the SGCP. There will be no economic consequences through limiting access to the KRAs as a result of the SGCP.

The need for railway ballast and construction aggregates for use in concrete and other quarry materials throughout the construction and operation of the SGCP will increase the output required from extractive resource industries in the area surrounding the SGCP. This will result in increased economic activity in the region that will have a positive impact on the local community.

The fill material for the majority of earthworks and road sub-base will be sourced from the rail cutting site and an on-lease borrow pit, the exact location of which will be determined following geotechnical assessment. Road base and rail line ballast materials are proposed to be predominantly sourced off-lease due to the absence of high quality material on-lease.

18.8. SUSTAINABLE DEVELOPMENT

18.8.1. National Strategy for Ecologically Sustainable Development

The National Strategy for Ecologically Sustainable Development provides a framework for governments to help direct policies and influence decision making. The strategy is designed to coordinate a co-operative approach to Ecological Sustainable Development that will deliver long-term benefits for Australia over short-term gains. ESD was adopted by all levels of government in 1992. Although designed as a policy framework tool it is important that businesses also work towards the goals of the strategy. ESD is defined by the Commonwealth Government as:

'using, conserving and enhancing the community's resources so that ecological processes, on which life depends, are maintained, and the total quality of life, now and in the future, can be increased' (Department of Sustainability, Environment, Water, Population and Communities 2010).

18.8.2. Legislation

18.8.2.1. Sustainable Planning Act 2009

In Queensland the *Sustainable Planning Act 2009* (SPA) provides the legislative framework for managing development processes. The principles of ESD are delivered through this legislation that provides local planning instruments (regional plans) and approves or denies proposed developments through the Integrated Development Assessment System (IDAS). Although mining activities are exempt under SPA, the legislation will apply to other smaller developments off-site such as service infrastructure that are required for the SGCP.

18.8.2.2. Environmental Protection Act 1994

As stated in Chapter, Part 2 of the *Environmental Protection Act 1994* (EP Act),

'The object of this Act is to protect Queensland's environment while allowing for development that improves the total quality of life, both now and in the future, in a way that maintains the ecological processes on which life depends (ecologically sustainable development).'

The EP Act is the legislation under which the EIS process is administered.

18.8.3. Application of ESD Principles and Objectives

The National Strategy for Ecologically Sustainable Development (ESD) provides a number of core objectives and guiding principles in an effort to promote development that improves the quality of life now and into the future while maintaining ecological processes. There are also further objectives that are tied to specific sectors such as mining. **Table 18-16** indicates how the SGCP conforms to the principles and objectives of ESD.

The application of the principles and objectives of ESD throughout the planning, development, operational and decommissioning stages are delivered in **Table 18-6**. The application of the principles and objects demonstrates the Proponent's commitment to incorporating environmental, social and economic considerations into all stages of the SGCP to reach a balance between maintaining environmental integrity and achieving social and economic development over the life of the SGCP.

Table 18-16 Application of ESD Principles and Objectives by the SGCP

ESD Core Objective	Application
<p>To enhance individual and community well-being by following a path of economic development that safeguards the welfare of future generations.</p>	<p>Economic activity associated with the SGCP will result in increased employment, education and business opportunities over the life of the SGCP. There are strategies in place to encourage local employment at the SGCP and also to encourage trade with local businesses. Rail, power and water supply Infrastructure associated with the Project will provide opportunities for further development in the region after the decommissioning of the SGCP. These positive impacts will result in positive flow on effects for individuals and the community as a whole.</p> <p>Ongoing consultation with the local community has begun and will continue through the SIMP (refer to Appendix R—Social Impact Management Plan). The SIMP will encourage stakeholders in the community to become actively involved in the consultation process to discuss and address issues that may arise in the future.</p>
<p>To provide for equity within and between generations.</p>	<p>The SGCP has been designed with environmental, social and economic considerations in mind to ensure that there is benefit for current and future generations. The management and mitigation measures outlined in the EIS to minimise environmental impacts will conserve regional ecosystems for future generations and not limit their ability to provide for themselves.</p> <p>Increased economic activity, business opportunities, increased employment and new infrastructure associated with the SGCP will provide benefits for current generations and future generations. Development of the Galilee Basin's energy resources will provide benefits beyond the operational life of the SGCP.</p>
<p>To protect biological diversity and maintain essential ecological processes and life-support systems.</p>	<p>The SGCP adheres to the legislative obligations concerning the conservation of biodiversity and ecological integrity. The relevant pieces of legislation are the <i>EPBC Act 1999</i> and <i>SP Act 2009</i>.</p> <p>A number of ecological studies were carried out and their results were taken into account throughout the development and planning of the SGCP. Nature conservation and rehabilitation strategies have been designed to minimise the impacts of the SGCP on ecological processes and biodiversity and to rehabilitate the site after mining ceases. These strategies are detailed in Section 5—Rehabilitation and Decommissioning, Section 8—Nature Conservation and Section 21—Environmental Management Plan.</p>
ESD Guiding Principles	Application
<p>Decision making processes should effectively integrate both long-term and short-term economic, environmental, social and equity considerations.</p>	<p>Environmental economic and social considerations over both the short and long-term have been considered throughout the planning and development stages of the SGCP. Potential impacts on environmental, economic and social values have been identified through specialised studies based on a comprehensive understanding on the existing environment, experiences with similar projects and community input.</p> <p>Where impacts are unavoidable mitigation and management strategies have been developed to deal with impacts immediately and into the future. Monitoring of impacts throughout the construction, operational and decommissioning phases will allow for adjustments to be made in order to manage impacts effectively into the future.</p>

Table 18-16 Application of ESD Principles and Objectives by the SGCP (cont)

ESD Core Objective	Application
Where there are threats of serious or irreversible environmental damage, lack of full scientific certainty should not be used as a reason for postponing measures to prevent environmental degradation.	The studies undertaken during the development of the SGCP indicate that there is little likelihood of serious or irreversible environmental damage occurring as a result of the SGCP. This is due to the nature of the existing environment and the management, mitigation and monitoring processes that have been developed for the SGCP. The Proponent has abided by the precautionary principal by undertaking extensive studies and research to investigate all implications of the SGCP that could lead to serious or irreversible environmental damage. The Proponent is committed to ongoing monitoring of environmental impacts and further scientific investigations where necessary to maintain and improve existing measures in place to prevent environmental degradation throughout the life of the SGCP.
The global dimension of environmental impacts of actions and policies should be recognised and considered.	The potential global environmental impacts from the SGCP are related to contributions to climate change and impacts to World Heritage listed areas. Climate change impacts and mitigation strategies for the SGCP are presented in Section 11—Greenhouse Gas Emissions . The SGCP aims to reduce emissions of greenhouse gases by utilising the most efficient mining strategies practicable. The SGCP area is not located in or adjacent to any declared World Heritage areas or Ramsar wetlands (refer to Section 3—Project Rationale and Alternatives and Appendix N—Terrestrial Ecology Technical Report). Therefore there will be little or no impact on any World Heritage areas.
The need to develop a strong, growing and diversified economy that can enhance the capacity for environmental protection should be recognised.	Best practice mining techniques and the mitigation and management of all impacts associated with the SGCP as detailed in the EIS will contribute to enhancing the regions capacity for environmental protection while also providing economic diversification and benefits to the community. The SGCP will contribute to the diversification of the regional economy and contribute significant economic benefits to the local, State and national economies. The Central West SD economy is traditionally based on agriculture. The development of the SGCP and the greater Galilee Basin will provide opportunities for other support business in the region, increase jobs, training and education opportunities. The economic benefits of the SGCP will have positive flow on effects to a number of other industries.
The need to maintain and enhance international competitiveness in an environmentally sound manner should be recognised.	Feasibility studies, economic studies and investor interest indicate that the SGCP is both financially viable and internationally competitive. The Environmental Impact Assessment process (EIA) and the management, monitoring and mitigation measures described in the EIS will result in the SGCP operating in an environmentally sound manner. The SGCP will strengthen Queensland's position as a world leader in the coal export market and contribute a substantial amount of funds to the State through royalties over the long-term (refer to Appendix S—Economic Technical Report). Infrastructure associated with the SGCP will assist in future development of the Galilee Basin that will contribute further to international competitiveness in the energy sector.
Cost-effective and flexible policy instruments should be adopted, such as improved valuation, pricing and incentive mechanisms.	Both short and long-term environmental, social and economic costs have been assessed over the construction, operation and decommissioning stages of the SGCP. Specific social, environmental and economic impacts and mitigation measures are identified in their respective sections within the EIS. Monitoring of impacts will allow performance to be gaged and allow for flexibility in management policies more effectively manage impacts over time.
Decisions and actions should provide for broad community involvement on issues that affect them.	Inputs from community consultation have been part of the planning and development of the SGCP. It allowed for the concerns and interests of the community to be recognised and addressed. The Proponent is committed to ongoing community consultation to engage local stakeholders within the community through the implementation of the SIMP (refer to Appendix R—Social Impact Management Plan).

Table 18-16 Application of ESD Principles and Objectives by the SGCP (cont)

ESD Core Objective	Application
ESD Mining Sector Objectives	Application
<p>Objective 5.1 To ensure mine sites are rehabilitated to sound environmental and safety standards, and to a level at least consistent with the condition of the surrounding land.</p>	<p>Progressive rehabilitation of the mine site will be conducted as soon as practicable throughout the life of the mine in accordance with the Department of Environment and Heritage Protection (DEHP) <i>Guideline 18: Rehabilitation requirements for mining projects</i> (2008). The goal of the rehabilitation of the mine site will be to create stable post-mining landforms consistent with the surrounding environment and land uses. Section 5—Rehabilitation and Decommissioning provides further detail on the progressive and final rehabilitation plans of the SGCP.</p>
<p>Objective 5.2 To provide appropriate community returns for using mineral resources and achieve better environmental management and protection in the mining sector.</p>	<p>The SGCP will provide appropriate community returns by way of economic stimulus to the local economy, increased employment training and businesses opportunities and improvements of supply infrastructure in the region including power and water. The Proponent is committed to utilising best practice mining techniques to maximise the efficiency and optimise the environmental performance of the SGCP. Ongoing community consultation through the SIMP will encourage stakeholders in the community to participate in discussions on matter that concern the community.</p>
<p>Objective 5.3 To improve community consultation and information, improve performance in occupational health and safety and achieve social equity objectives.</p>	<p>Community consultation and social equity objectives will be addressed through the delivery of the SIMP (refer Appendix R—Social Impact Management Plan). Occupational health and safety is a top priority for the Proponent in respect to safety of employees and the safety of the community surrounding the SGCP. The potential hazards and risks associated with the SGCP and measures to manage them are detailed in Section 19—Hazard and Risk. Numerous pieces of legislation, guides and Australian Standards are in place to minimise risk in the workplace and the Proponent is committed to meeting all requirements to provide a safe workplace for employees at SGCP and for the surrounding community. Risk Management Plans will be developed to assess and manage risks on-site and an Emergency Management Plan will also be developed that will outline actions to be taken in the event of an emergency on-site.</p>