



Wimmera
Southern
Mallee

MINING SECTOR PLAN

DECEMBER 2012

The Wimmera

Everything you need.



Contents

| | |
|---|-----------|
| Acknowledgements | 4 |
| Executive summary | 5 |
| 1. Introduction | 7 |
| 2. Policy Context | 7 |
| 2.1 State Government Policy Context | 7 |
| 2.2 Regional Policy Context | 7 |
| 3. Mining in the Wimmera Southern Mallee | 7 |
| 3.1 Overview | 7 |
| 4. Regional overview | 13 |
| 4.1 Wimmera Southern Mallee Economic Analysis | 13 |
| 4.2 Mining sector output and economic performance | 15 |
| 4.3 Comparison economic impacts assessment | 18 |
| 5. Current and emerging projects | 21 |
| 5.1 Regional objective | 21 |
| 5.2 Analysis | 21 |
| 5.3 Opportunities | 23 |
| 5.4 Constraints | 23 |
| 5.5 Enabling factors | 23 |
| 6. Infrastructure and services | 25 |
| 6.1 Regional objective | 25 |
| 6.2 Analysis | 25 |
| 6.3 Opportunities | 26 |
| 6.4 Constraints | 27 |
| 6.5 Enabling factors | 27 |
| 7. People, skills and training | 28 |
| 7.1 Regional Objective | 28 |

| | |
|----------------------------|----|
| 7.2 Analysis | 28 |
| 7.3 Opportunities | 29 |
| 7.4 Constraints | 29 |
| 7.5 Enabling factors | 30 |

8. Logistics and transport infrastructure

| | |
|------------------------------|----|
| 8.1 Regional Objective | 31 |
| 8.2 Analysis | 31 |
| 8.3 Opportunities | 31 |
| 8.4 Constraints | 32 |
| 8.5 Enabling factors | 32 |

9. Industry development

| | |
|------------------------------|----|
| 9.1 Regional Objective | 33 |
| 9.2 Analysis | 33 |
| 9.3 Opportunities | 35 |
| 9.4 Constraints | 35 |
| 9.5 Enabling factors | 35 |

10. Recommendations

| | |
|--|-----------|
| Appendix 1: Consultation list | 41 |
| Appendix 2: Map of Mineral Sands Tenements | 43 |
| Appendix 3: Community Engagement Model | 44 |
| Appendix 4: Overview of BHP's Supplier Relationship Model | 46 |
| Appendix 5: References | 49 |



List of tables

Table 1: Comparison of job creation outcomes..... 18
 Table 2: Comparison of output outcomes (\$m)..... 18
 Table 3: Comparison of wages and salaries outcomes (\$m) 19
 Table 4: Comparison of value-add outcomes (\$m).....20
 Table 5: Indicative Infrastructure Costs34

List of figures

Figure 1: Strategic Mining Assets9
 Figure 2: EDR - Ilmenite (Mt) 10
 Figure 3: EDR - Zircon (Mt) 10
 Figure 4: EDR - Rutile (Mt) 10
 Figure 5: Inferred Resources - Ilmenite (Mt) 10
 Figure 6: Inferred Resources - Rutile (Mt)..... 11
 Figure 7: Inferred Resources - Zircon (Mt)..... 11
 Figure 8: Wimmera Southern Mallee Economic Output (\$m) 13
 Figure 9: Local expenditure by sector 14
 Figure 10: Industry exports..... 14
 Figure 11: Imports by industry 15
 Figure 12: Value-add by industry sector 15
 Figure 13: Mining output trends 16
 Figure 14: Mining local expenditure 16
 Figure 15: Mining export performance..... 17
 Figure 16: Mining sales performance 17
 Figure 17: Mining value-add 17
 Figure 18: Mining Sector Performance (2007 - 2012)..... 18



Project Statement

The Mining Sector Plan has been prepared specifically for Wimmera Development Association. The report represents information correct and complete at the time of writing.

The information contained in this document has been gained from anecdotal evidence and research. It has been prepared in good faith and in conjunction with Wimmera Development Association. Neither SED, nor its servants, consultants, agents or staff shall be responsible in any way whatsoever to any person in respect to the Report, including errors or omission therein, however caused.

Acknowledgements

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Executive summary

This report considers the opportunities, constraints and key enabling factors required to further develop and grow the mining industry within the Wimmera Southern Mallee Region.

Wimmera Development Association will utilise this information to maximise the regional benefits of mining activity for businesses and communities.

The mining industry is currently the 5th largest sector of the economy; however with the closure of the Stawell Gold Mine by the end of 2014, there is the real possibility that the sector could contract and key mining skills and industry capabilities become diluted over time as employment opportunities are sought in other industries and / or regions.

The development of the mining sector in the Wimmera Southern Mallee region is aligned to both state and regional industry and regional development policy. The State Government's economic action plan, *Securing Victoria's Economy*, aims to make Victoria a global hub of mining and mining services, while the Wimmera Southern Mallee Regional Strategic Plan specifically identifies the development of this sector as critical to the achievement of broader regional objectives.

The sector currently has major mining firms such as Illuka, Crocodile Gold and Astron (Donald Mineral Sands) operating in the region. Australian Zircon and Navarre Mineral currently have projects under exploration and feasibility.

The Wimmera Southern Mallee is part of the Murray Basin mineral sands deposit. This is one of the world's largest mineral sands deposits. It is estimated that the region could service over 15% of the world's demand for mineral sands for the next 40 years. The region has Australia's largest economically demonstrated resources of rutile and zircon and the second largest amount of ilmenite. The region has the largest portion of inferred resources of all three mineral types.

Demand for mineral sands is expected to grow into the foreseeable future. There is limited global supply. In 2011 the region produced over 542,600 tonnes of mineral sands, of which 95% was exported.

The Wimmera Southern Mallee region has some noticeable and significant competitive advantages that can enable the local industry to develop. These key advantages include:

- ▶ Accessible, large scale and high quality resource quantities;
- ▶ Secure water resources;
- ▶ High levels of liveability for the workforce, particularly compared to other mining regions;
- ▶ Established, experienced and responsive support industries;
- ▶ Experienced, stable and low cost workforce;
- ▶ Excellent transport linkages with an intermodal freight terminal at the heart of the region in Horsham, road and rail access to the Ports of Portland, Geelong, Melbourne, and Adelaide;
- ▶ Access to high quality research and training institutions;
- ▶ Competitively priced, reliable and accessible power and gas connections;
- ▶ Proactive State and Local Governments; and
- ▶ Regional social infrastructure - schools, health, sporting and cultural.

Growing the sector will have significant spill over benefits to the broader region. The sector is a high value adding activity and is therefore a driver of regional economic prosperity. Within the Wimmera Southern Mallee regional economy, mining produces the highest rates of return per job, and more than two times the value added benefits to the economy than any other sector from the same level of output growth.

For every additional 200 workers in the mining industry, regional output increases 5% and regional value-added 6%. There are two significant projects undergoing feasibility at present. Each has construction costs around \$200m and will need around 250 – 300 workers during construction and operational staff and contractors of 100 – 200. It is possible that each of these projects will have commenced construction by 2014.

The mining sector has significant opportunities to grow and develop in the Wimmera Southern Mallee. To maximize regional benefits and support innovative approaches to future mining investment a range of initiatives have been identified.

- ▶ Develop local business capabilities, to replace some of the \$136m worth of annual expenditure imported into the region to service the mining



industry;

- ▶ Develop a mining support services cluster to grow the local industry and identify opportunities outside the region and internationally, building on existing expertise and business skills;
- ▶ Advocate for infrastructure investment to support mining sector growth and ensure freight efficiency and productivity. Freight and logistics planning (including rail and road infrastructure investment) is critical to the successful business case for mining development;
- ▶ Establish a fly out – fly in (FOFI) facility at Stawell aerodrome so other markets can be accessed for the local workforce and industry;
- ▶ Develop a business case for the establishment of a world class mine safety and emergency training centre at Stawell;
- ▶ Establish partnerships with the University of Ballarat and the Regional Universities Network to address the range of identified research and technological issues to build new opportunities for the sector and the region;
- ▶ Further expansion of the Wimmera Intermodal Freight Terminal precinct;
- ▶ Advocate for appropriate housing to service population growth;
- ▶ Brand and position the region as a global centre for mineral sands mining, and link this promotion to the 'Wimmera, Everything You Need' campaign;
- ▶ Link the local industry to local secondary and tertiary educational providers to increase awareness of the sector and focus skill development;
- ▶ A regional approach to regional workforce planning and skill development, in partnership with the University of Ballarat and Longerenong College to ensure regional training delivers on regional priorities;

- ▶ Support value adding processing opportunities in the region;
- ▶ Advocate for regulatory review and planning efficiency; and
- ▶ Plan for future services and social infrastructure to the growing population/workforce.

The Wimmera Southern Mallee has significant potential to develop as a world class mining and minerals processing region. Mining activity including exploration and planning, development of feasibility cases and investment proposals, as well as direct mining investment has grown in recent years. Regional, national and international interest in the region's resources is considerable.

The Wimmera Southern Mallee region has a reputation for working collaboratively with Local, State and Federal Government, with industry and businesses, with community and other stakeholder organisations. It has successfully worked to address key issues and build a culture of strategic support, in response to regional issues and opportunities for development.

The Wimmera Southern Mallee region will utilise mining sector plan to support the growth of the industry. The plan provides a base for strategic planning, advocating and supporting future opportunities from mining activity in the region.

The Wimmera Southern Mallee Mining Sector Plan is a regional resource documenting the current status of mining-related activities and issues. It provides the region with strategic priorities to consider for action, identifying partnerships and opportunities to prepare regional businesses and organizations to maximise the benefits of mining activity and investment.



1. Introduction

The Wimmera Southern Mallee region is located in Western Victoria and is comprised of six municipalities: Buloke, Hindmarsh, Horsham, Northern Grampians, West Wimmera and Yarriambiack. The region boasts a strong agricultural industry supported by vibrant regional centres with established health, education and community services.

The region has emerged as an important source of minerals sands – predominantly rutile, ilmenite and zircon. Mining activity in the Wimmera Southern Mallee region is growing with the continued planning and development in mineral sands; yet the industry faces complexities with the downgrading of the Stawell Goldmine. The number and range of exploration licences in the region is also significant.

The growth in mining for mineral sands in the Wimmera Southern Mallee has the potential to produce region-wide social and economic benefits for decades to come. However, it also requires increased management of environmental, social and economic impacts on communities. The Mining Sector Plan aims to provide baseline information about the status of multiple mining activities in the Wimmera Southern Mallee and inform regional and community planning as the industry continues to evolve.

2. Policy Context

2.1 State Government Policy Context

The Victorian Government has an economic reform strategy that responds to current challenges and positions Victoria to capitalise on opportunities from global economic shifts. The strategy has four pillars:

1. Improving productivity through investment in economic infrastructure, skills reform, creating competitive markets and reducing business costs;
2. Growing the economy and export markets to support business, particularly through enhanced international engagement;
3. Creating significantly stronger budget capacity to fund infrastructure, maintain high quality services and keep taxes competitive; and

4. Supporting industries and employees in transition.

The economic reform agenda provides the foundation for the development of the Government's approach to regional growth. The Victorian Government has a policy position that regional and rural Victoria is the key to balancing the State's future growth. Regional Victoria, which is growing strongly, has a role to play in managing population growth throughout the State. Accelerating regional growth can improve the quality of life in regional areas and help to reduce pressures on Melbourne. Effectively delivering on this objective will require an understanding about the economic performance of Victoria's regions and drivers of growth.

This plan contains elements of all four of the strategic pillars outlined in the economic reform strategy therefore fits squarely within this policy context.

During December 2012 the Victorian Government released a key economic policy document titled *Securing Victoria's Economy*. The policy builds on the economic reform strategy and contains specific strategies to attract mining investment and create employment opportunities by making Victoria a global hub of mining and mining services.

2.2 Regional Policy Context

The Wimmera Southern Mallee Regional Strategic Plan outlines, as one of its principal strategic directions, a competitive and innovative economy. To achieve this objective, the plan identifies actions that include the sustainable development of the gold and mineral sands mining industries.

This Mining Sector Plan builds on directions contained in the Regional Strategic Plan that suggests facilitating industry clusters, building on regional strengths and developing transport infrastructure that supports the needs of the region's industries and communities.

3. Mining in the Wimmera Southern Mallee

3.1 Overview

There are currently 34 exploration and drilling licences in the Wimmera Southern Mallee. Figure 1 maps the Wimmera region, highlighting major mining and exploration activity and major infrastructure in the region, including roads,



rail, mineral processing facilities and ports.

3.1.1 Stawell Goldmine

Stawell Goldmine is owned by Crocodile Gold, a Canadian company. In 2012 there were approximately 280 employees and 100 contractors engaged at the Stawell mine. The goldmine has enjoyed a long and important history in Stawell, yet underground mining is expected to cease towards the end of 2013. Over the life of the mine, the workforce within the Stawell and broader Wimmera region has developed an enviable reputation for excellence in a range of disciplines pertaining to gold mining. To build on these regional capabilities plans are being progressed to establish a training excellence centre in Stawell, and to encourage workers and companies working in the mining sector to continue to live in the town and work elsewhere in a fly-out fly-in (FOFI) environment.

3.1.2 Mineral sands

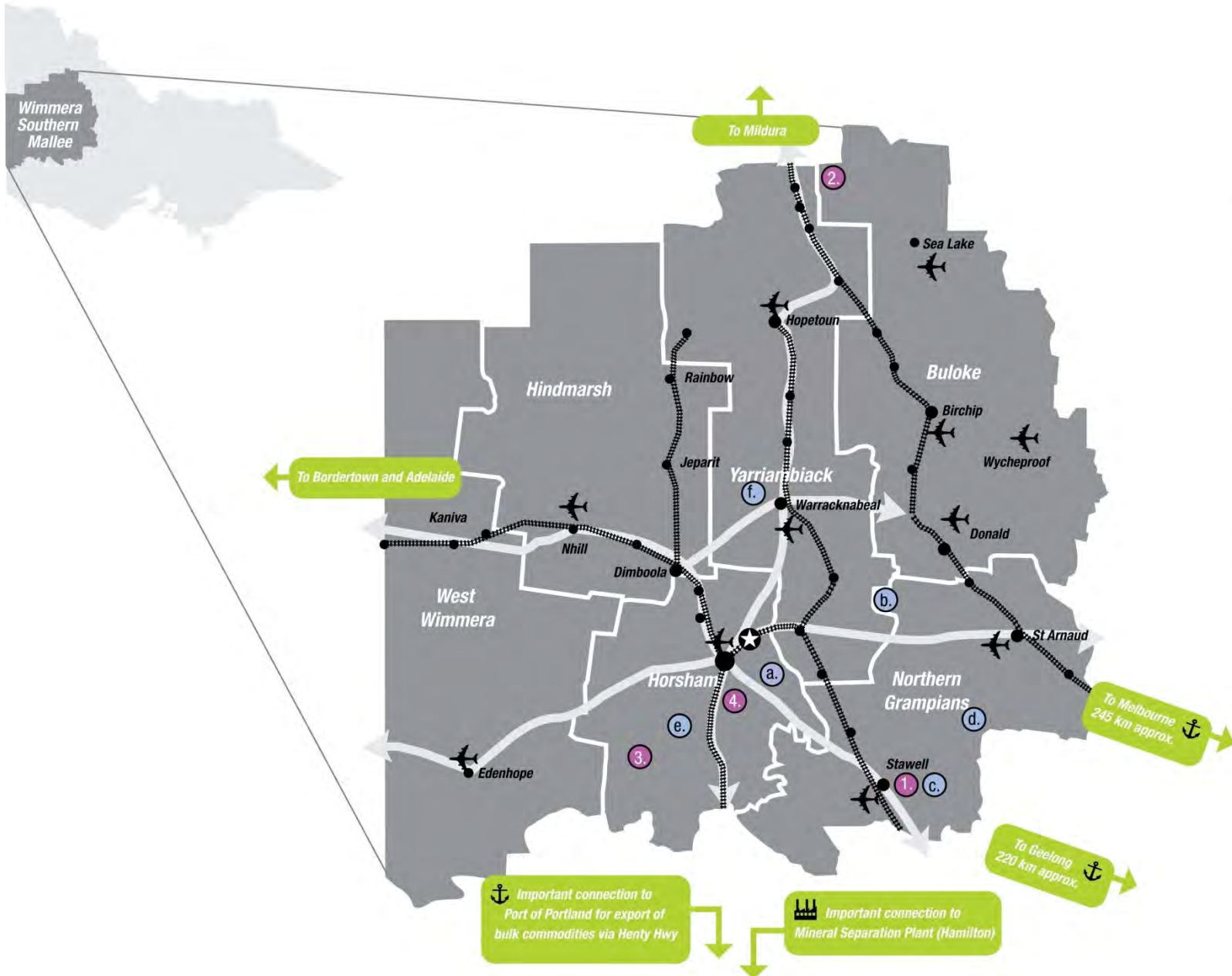
Victoria's mineral sand endowment includes an estimated 350 million tonnes (Mt) of coarse grained, strandline deposits and a further three billion tonnes of the fine grained, "WIM" style deposits. Identified resources are enough to supply current world demand for 20 years. The Western Victorian region, part of a 320,000 square kilometre section of the Murray Darling Basin that traverses Victoria, NSW and South Australia, has emerged as an important source of minerals sands – predominantly rutile, ilmenite and zircon.

These minerals are base inputs into a range of consumer and industrial goods such as titanium metals, glazing and ceramics, electronics, paints and deodorants.

Victoria has the potential to be a global powerhouse in mineral sands production, with the industry potentially worth over \$1.5b per annum, compared to the value of the coal industry which is estimated to be \$536m.

The Wimmera Southern Mallee is Victoria's mineral sands capital. It has been dubbed "The Pilbara of Mineral Sands" due to the richness and quality of the mineral deposits. Critically, major infrastructure is close to exploration and mine sites reducing risks and increasing mine viability. Figure 1 highlights the key strategic assets of the region and mining projects.





- Wimmera Intermodal Freight Terminal Precinct
- Aerodromes
- Key Rail transport Corridors
- Key Road Transport Corridors
- Key Ports
- Mineral Separation Plant

Existing Mine Sites

- Stawell Goldmine, Crocodile Gold
- Woorack, Rowneck and Pirro mines, Iluka
- Douglas mine, Iluka (under rehabilitation)
- Echo mine, Iluka (under rehabilitation)

Prospective mine sites

- Australian Zircon (mineral sands project)
- Donald Mineral Sands/Astron (mineral sands project)
- Big Hill (gold project)
- Navarre Minerals (Kingston gold project)
- Navarre Minerals (Black Ranges copper, zinc, gold project)
- Copper Strike (mineral sands project)

Figure 1: Strategic Mining Assets



3.1.3 Scale of Mineral Reserves

Victoria has Australia's largest economical demonstrated resources of Rutile and Zircon, and the second largest amount of ilmenite. Victoria has the largest portion of inferred resources of all three mineral types. The scale of the economical demonstrated resources (Figure 2, Figure 3 and Figure 4) and inferred resources (Figure 5, Figure 6 and Figure 7) is as follows:

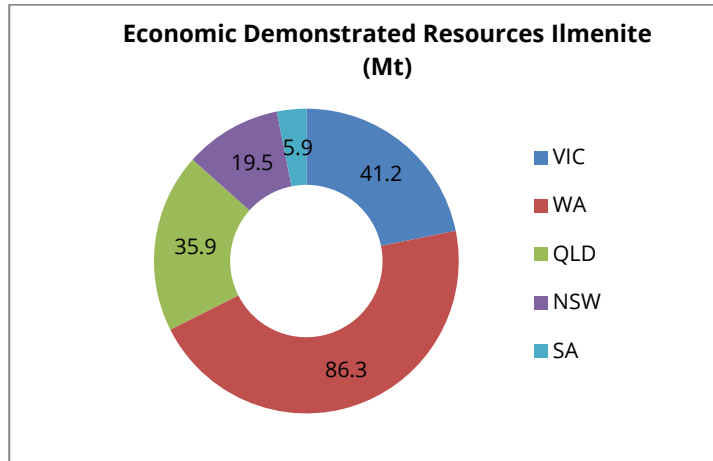


Figure 2: EDR - Ilmenite (Mt)

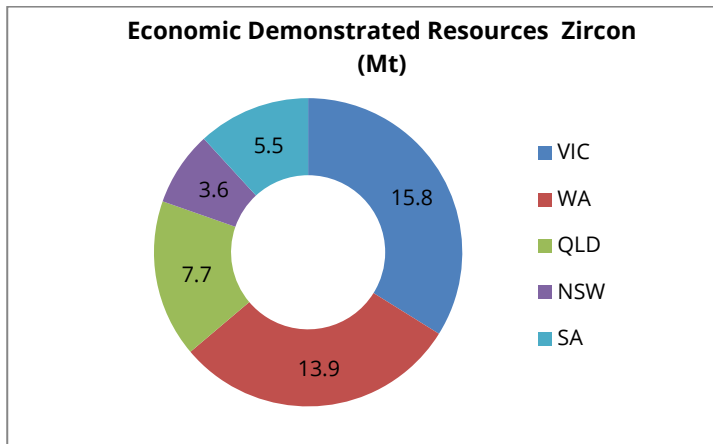


Figure 3: EDR - Zircon (Mt)

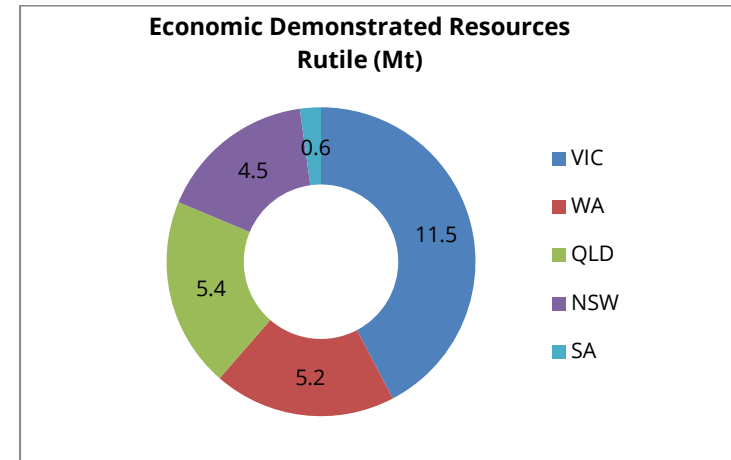


Figure 4: EDR - Rutile (Mt)

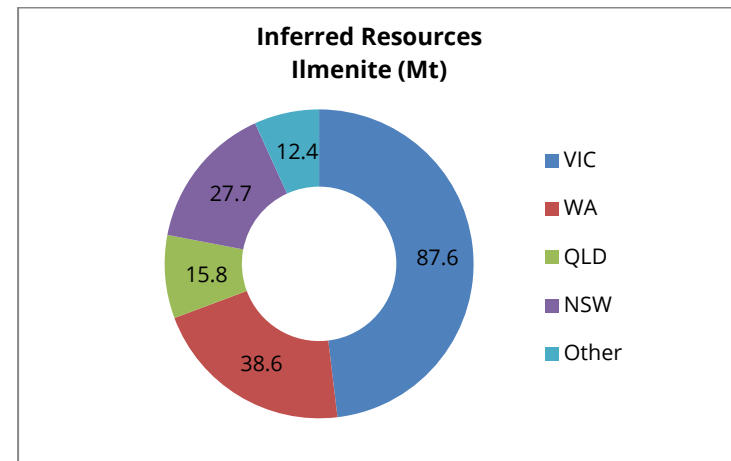


Figure 5: Inferred Resources - Ilmenite (Mt)

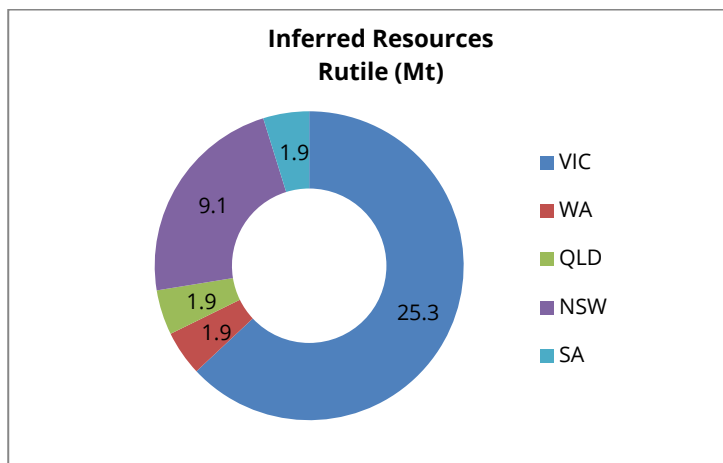


Figure 6: Inferred Resources - Rutile (Mt)

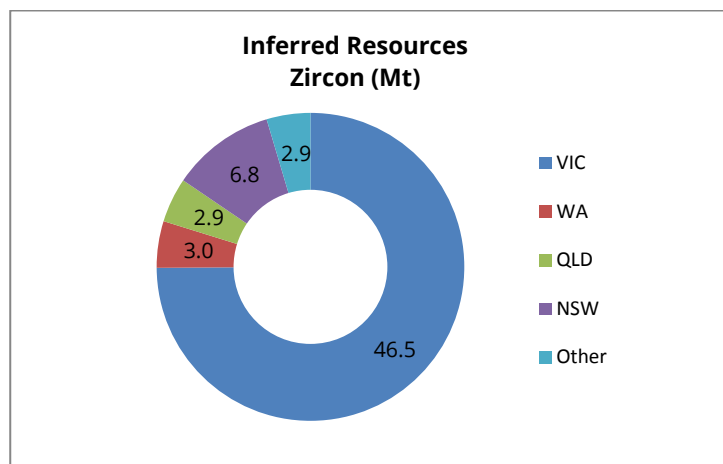


Figure 7: Inferred Resources - Zircon (Mt)

There are several large scale projects in operation in the area, including Astron's Donald Mineral Sands comprising WIM250 and Jackson WIM200 deposits located approximately 50kms North East of Horsham.

Illuka Resources operates a mineral separation plant at Hamilton to produce the final specification rutile and zircon. The plant processes feedstock from the Douglas project near Horsham, the Murray Basin Stage 2 project at Kulwin, 30

km west of Ouyen and Jacinth-Ambrosia (SA) concentrate. Output is shipped via either of the Ports of Portland and Geelong to overseas markets. Appendix 2: Map of Mineral Sands Tenements highlights the extent of mineral sands tenements throughout the region.

In 2011, production in the Murray Basin region totalled 224,900 tonnes of rutile, 99,500 tonnes of upgradeable ilmenite and 218,200 tonnes of zircon.

3.1.4 Product Demand

The demand for mineral sands is expected to continue to be strong for the foreseeable future. Demand for zircon and titanium is driven primarily by end users and is leveraged to global Gross Domestic Product (GDP) growth. The World Bank is expecting global growth to increase to over 3% in 2013, with growth from China increasing to around 8.5%.

Demand for zircon is underpinned by the ceramics industry (55% of current demand) and manufacturing applications. Growth in ceramics is expected to grow at 5% per annum to 2020 with 8% - 9% growth per annum in China.

Demand for titanium is underpinned by the coatings industry, which accounts for around 56% of current demand. Demand for titanium feedstock is expected to increase 60% between 2012 and 2020.

The price of these minerals is expected to increase as there is limited capacity in current global mineral sands supply. This situation is expected to continue for the foreseeable future with many existing mine sites coming to the end of their useful lives, limited new discoveries since 2004, no readily available substitutes and few new supply and production projects coming on stream.

3.1.5 Other opportunities

Other mineral and precious metal deposits have been identified in the region and continue to be explored. Examples include further mineral sands exploration through the Shire of Yarriambiack and further gold exploration across the region.



Competitive advantages of the Wimmera Southern Mallee region

- Low cost operating environment.
- Security of water resources.
- Power and gas infrastructure.
- Access to major centres and infrastructure.
- Access and stability of local, skilled workforce.
- State Government proactive response to investors and exploration companies.
- Extensive exploration and mapping already undertaken.
- High level of engagement with Local Government.
- Strong liveability and family friendly, particularly when compared to other mining regions around the world.
- Established and experienced mining support industries within the region enable mining companies to assess and source skills, capabilities and equipment in short timeframes.
- Large mining company, Iluka, operates in the region.
- Wimmera Intermodal Freight Terminal Precinct and rail access to Ports in Melbourne, Geelong, Adelaide, Portland.
- Regional network of major roads and aerodromes.



4. Regional overview

4.1 Wimmera Southern Mallee Economic Analysis

4.1.1 Population

Australian Bureau of Statistics estimated resident population data shows that the population of the region has fallen by 1,192 people from 58,761 in 2001 to 57,569 in 2011 (↓2%). All Shires have experienced population decline over the period apart from Horsham Rural City.

4.1.2 Economic output

The economic output of the Wimmera Southern Mallee economy is estimated to be \$6.1b with the top 5 industry sectors contributing \$3.6b (59%).

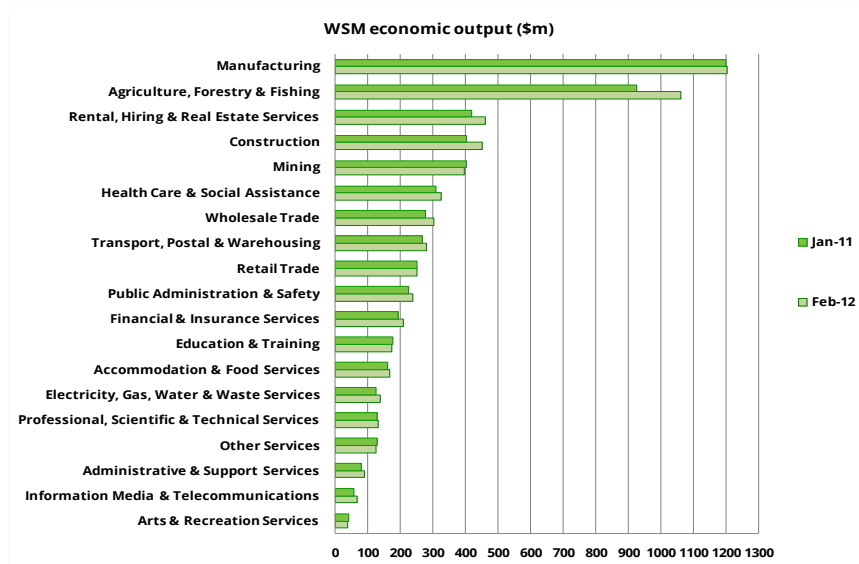


Figure 8: Wimmera Southern Mallee Economic Output (\$m)

The major sectors and percentage of total output are:

- ▶ Manufacturing \$1.2b (20%);
- ▶ Agriculture \$1.1b (17%);
- ▶ Rental, hiring and real estate \$460m (7%);
- ▶ Construction \$450m (7%); and
- ▶ Mining \$398m (6%).

These five sectors are estimated to have increased output by \$267m (↑8%) since February 2011 whereas the overall economy has grown by \$394m (↑7%). This would indicate that the local economy is specialising, and increasing its reliance on major industry.

22,468 people were in the workforce with key employment sectors being agriculture, health care and social assistance, retail, manufacturing and education and training. Mining accounted for 311 jobs or 1.4% of employment in the region.

The difference between the value of output and the level of employment of the mining sector highlights:

1. Significant level of imports used by the sector; and
2. The high level of capital intensity of the industry

4.1.3 Local expenditure

Local expenditure shows the intermediate goods and services produced in the Wimmera Southern Mallee and purchased by industry sectors in the region.



Figure 9: Local expenditure by sector

Whilst important to the local economy, the low amount of local expenditure undertaken by the mining sector relative to its output (13%; 5th largest output sector and 9th largest local expenditure sector) indicates that there is room to develop opportunities to increase the amount of regional expenditure undertaken by the mining sector. This can be done through two avenues:

1. Develop organisations within the region capable of providing goods and services to the sector; and / or
2. Encourage existing firms to engage with the sector more widely and therefore build stronger linkages with the sector. This should increase the amount of work that flows to the local supply chain.

The decline in local mining expenditures over the past 12 months is greater than the economic output of the sector, indicating that there is less, not more of the industry being concentrated locally.

4.1.4 Regional exports

Products and services exported by Wimmera Southern Mallee industries to outside of the region total \$2.3b with three sectors being dominant (\$1.8b - 78.3%) namely:

- ▶ Agriculture \$818m;
- ▶ Manufacturing \$590m; and
- ▶ Mining \$379m.

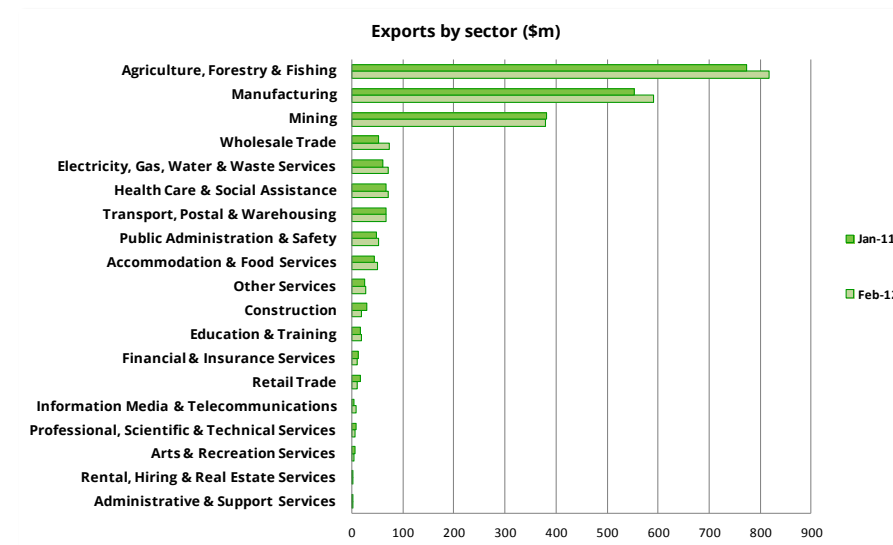


Figure 10: Industry exports

This information shows that nearly all mining output (95%) is exported outside the region.

It would be worthwhile to investigate where further value add to minerals could be developed within the region to develop the local supply chain post early stage processing (which is undertaken within the region)

4.1.5 Regional imports

The value of goods and services imported by industry into the Wimmera Southern Mallee is \$1.73b. Leading importers are:

- ▶ Manufacturing \$590m;
- ▶ Agriculture \$256m;
- ▶ Mining \$136m (non-ferrous metal ore mining \$126m); and

- ▶ Construction \$123m.

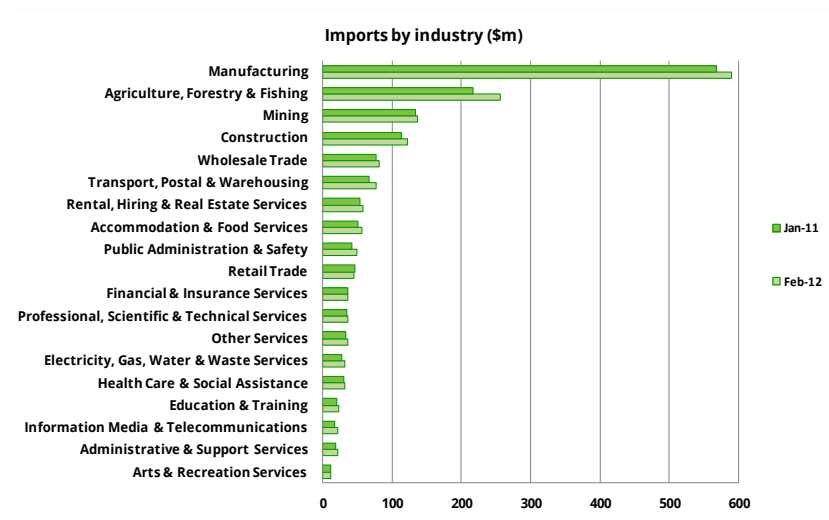


Figure 11: Imports by industry

The amount of goods and services imported into the region is consistent with other aspects of the economic analysis, notably the low ratio of local expenditure to output. Based on this information there is around \$140m (32% of outputs) worth of expenditure being undertaken by the local mining sector sourced from outside the region. While this figure may appear high, compared to manufacturing's 49% of imported expenditures, mining is relatively well embedded in local supply chains. Agriculture, by way of comparison imports 23% of its economic output.

There are opportunities to institute an import replacement program with products being imported to the region from domestic (\$67m) and international (\$67m) locations.

4.1.6 Value-add

The amount of value added to intermediate inputs in the Wimmera Southern Mallee is estimated at \$2.8b. The main value-adding sectors are:

- ▶ Agriculture \$493m
- ▶ Rental, hiring and real estate \$331m

- ▶ Health care and social assistance \$256m;
- ▶ Manufacturing \$242m; and
- ▶ Mining \$215m (non-ferrous metal ore mining \$204m).

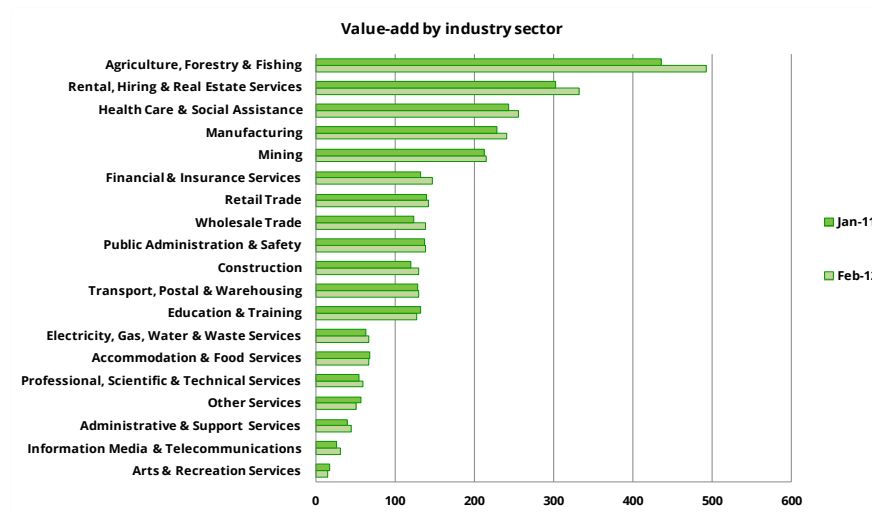


Figure 12: Value-add by industry sector

The value-added analysis shows that the mining sector is a high value adding sector of the economy, and as such is likely to be a relatively high driver of regional prosperity. An increase or decrease in the size of the sector is likely to have a relatively larger impact on the economy than other sectors. The analysis highlights that there are considerable benefits to growth in the sector, but also risks to the broader economy if the sector contracts.

4.2 Mining sector output and economic performance

This section looks at the mining sectors economic performance and impact.

The mining sector is the regions' fifth largest and contributes approximately \$398m in output to the regional economy. Performance has shown little change between 2010 and 2012. Key mining activities can be broken down into the following:

- ▶ Non-ferrous metal ore mining (\$366m);



- ▶ Non-metallic mineral mining (\$22m); and
- ▶ Exploration and mining support services (\$6m)

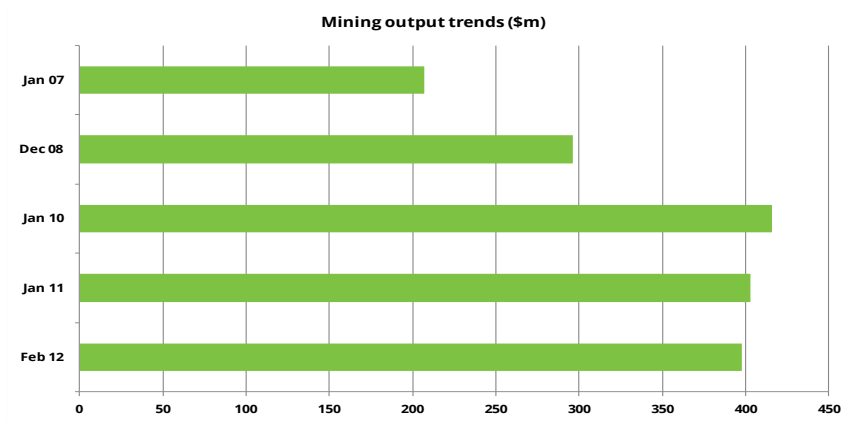


Figure 13: Mining output trends

Analysis of sub-sector performance shows that between 2007 and 2011 the non-ferrous mining output has grown by \$202m (↑123%) and other mining by \$8m (↑59%). However, services to mining appear to have come off a peak in 2010 (\$11.2m) to a current output level of \$6m.

Wages in the exploration and mining support services sector have fallen. This may be related to (1) the decline in operations at Stawell Goldmine; (2) a hiatus in mining exploration; or (3) the loss of skills to / the importation of skills from, outside the region.

The average wage paid per employee working in the mining sector in the region is \$125k per annum.

4.2.1 Local sales

Local sales by the mining sector are relatively insignificant at around \$20m annually.

4.2.2 Local purchases

The mining sector purchases \$47m of goods and services from within the Wimmera Southern Mallee economy with the non-ferrous metal ore mining the

major purchasing sub-sector (\$36m). The following are the key sectors purchased from:

- ▶ Manufacturing \$13m;
- ▶ Construction \$7m
- ▶ Mining \$5m;
- ▶ Postal, transport and warehousing \$3m; and
- ▶ Financial and insurance services \$3m.

Following increases by the mining sector in local expenditure up to 2011, there is an emerging reduction in local expenditure by the sector to below 2010 levels. This represents a drop of \$10m (↓18%). This decline in local expenditure is not being completely replaced by imported purchases. This is consistent with the general reduction in the sector's activity over the past 24 months.

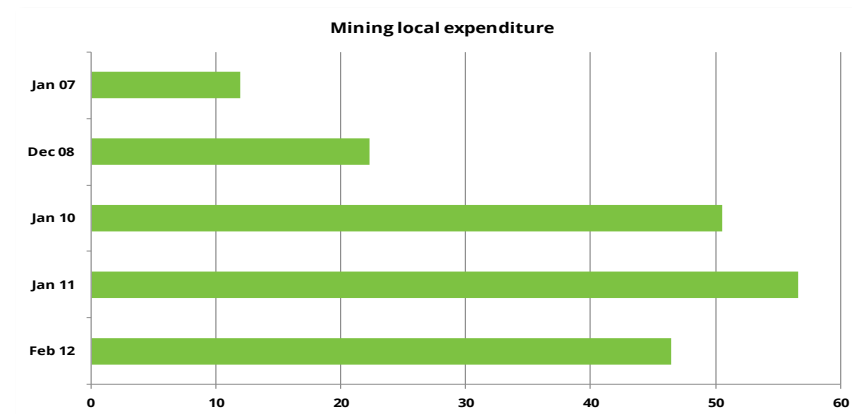


Figure 14: Mining local expenditure

4.2.3 Output and exports

Export sales account for around 95% of output. The non-ferrous metal ore mining sub-sector is the main mining exporter at \$358m (94%).

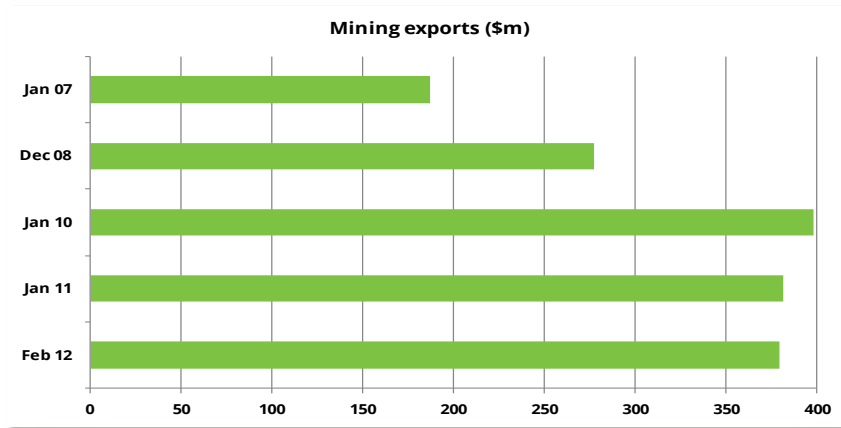


Figure 15: Mining export performance

Both export and local sales have fallen overall from the peak in 2010. This may be reflective of commodity and product market prices and/or lower sales volumes.

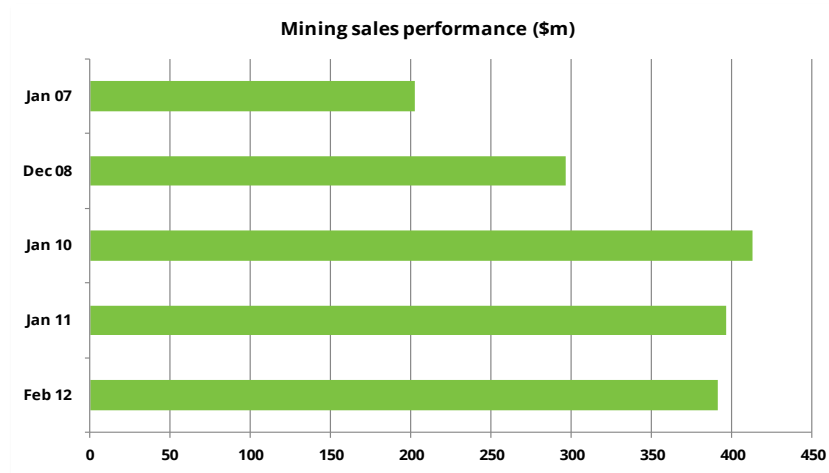


Figure 16: Mining sales performance

4.2.4 Mining value-added

Value-add performance by the mining sector appears to have flat lined over the past few years with the industry valuing adding remaining constant at around \$200m. There is a very strong correlation between value added and output, indicating that value is created when product is sold, not necessarily when it is produced. There is a strong link between the value created in the Wimmera region and the global demand (which drives production) for mineral sands.

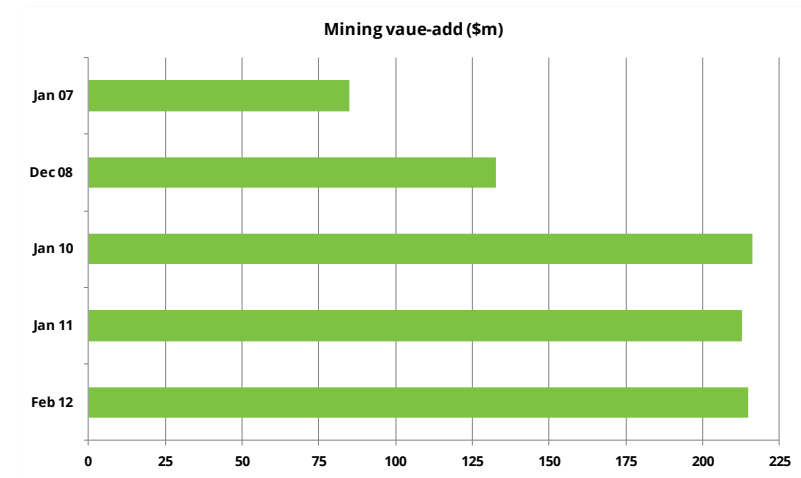


Figure 17: Mining value-add

4.2.5 Summary of Mining Sector Economic Performance

Figure 18 summarizes the economic performance of the mining sector over the period 2007 – 2012. The sector has grown over this period, roughly doubling its output and regional value add. Since 2010 the sector has contracted slightly. This reflects the phase that the local industry is currently in, with existing projects moving into production, a scaling back of exploratory activity and the scaling down of operations at Stawell.

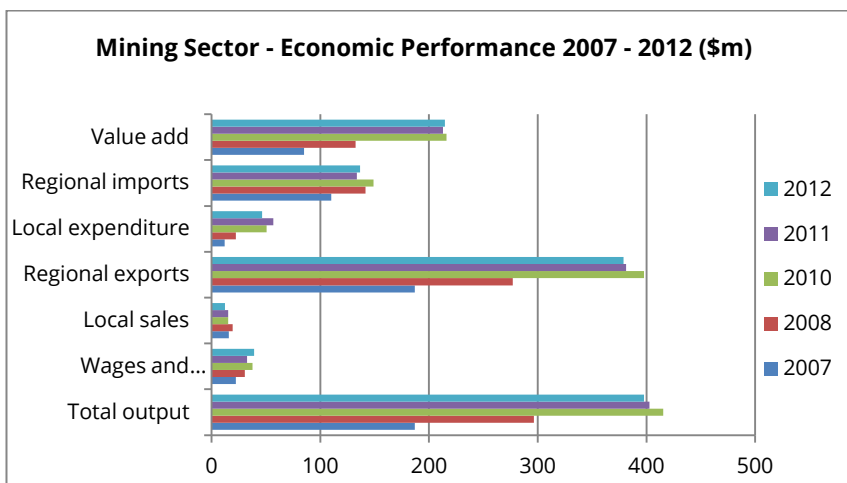


Figure 18: Mining Sector Performance (2007 - 2012)

The region has established a baseline of industry activity and capability at around an annual output level of \$400m. To be in a position to grow and develop the industry, it will be necessary to build upon the existing platform to ensure the industry has the necessary skills, capabilities, infrastructure and capacity to lift output.

The following sections of this report consider these issues and identify where and which inputs needed to build the industry can be acted upon and how these actions can be effected.

4.3 Comparison economic impacts assessment

An economic assessment has been completed to assess the impact of an additional 200 jobs of each of the top 5 sectors of the regional economy to assess the relative impact on the overall economic performance of the region. The results of these analyses are presented in Table 1, Table 2, Table 3 and Table 4.

| Sector | Jobs | | |
|--------------------------------|-------------------|--------------------|--------------|
| | Industrial effect | Consumption effect | Total effect |
| Manufacturing | 192 | 93 | 485 |
| Construction | 181 | 85 | 466 |
| Mining | 115 | 110 | 425 |
| Rental, hiring and real estate | 128 | 93 | 421 |
| Agriculture | 60 | 20 | 280 |

Table 1: Comparison of jobs creation outcomes

If 200 new jobs are created in the mining sector, there will be flow on effects of 225, bringing total employment requirements to 425.

| Sector | Economic Output (\$m) | | | |
|--------------------------------|-----------------------|-------------------|--------------------|--------------|
| | Direct effect | Industrial effect | Consumption effect | Total effect |
| Mining | 256 | 41 | 27 | 324 |
| Manufacturing | 147 | 64 | 23 | 234 |
| Construction | 88 | 56 | 21 | 165 |
| Rental, hiring and real estate | 98 | 38 | 23 | 159 |
| Agriculture | 43 | 18 | 5 | 66 |

Table 2: Comparison of output outcomes (\$m)

Mining has the highest economic output benefits with an additional 200 jobs



creating an additional \$324m of economic output for the economy, or a 5% increase on current output.

| Sector | Salaries and wages (\$m) | | | |
|--------------------------------|--------------------------|-------------------|--------------------|--------------|
| | Direct effect | Industrial effect | Consumption effect | Total effect |
| Mining | 25 | 9 | 6 | 40 |
| Rental, hiring and real estate | 18 | 10 | 5 | 33 |
| Manufacturing | 17 | 11 | 5 | 33 |
| Construction | 13 | 13 | 5 | 31 |
| Agriculture | 3 | 3 | 1 | 7 |

Table 3: Comparison of wages and salaries outcomes (\$m)

Mining produces the highest increase in wages and salaries, which is used to spend on local goods and services, increasing employment and downstream economic benefits.





| Sector | Value added (\$m) | | | |
|--------------------------------|-------------------|-------------------|--------------------|--------------|
| | Direct effect | Industrial effect | Consumption effect | Total effect |
| Mining | 138 | 16 | 15 | 169 |
| Rental, hiring and real estate | 45 | 18 | 13 | 76 |
| Manufacturing | 29 | 24 | 13 | 66 |
| Construction | 25 | 22 | 12 | 59 |
| Agriculture | 20 | 7 | 3 | 30 |

Table 4: Comparison of value-add outcomes (\$m)

The value of the mining sector to the region's economic prosperity is demonstrated through the value-added results. These show that an additional 200 jobs results in over twice the value-added benefit to the region than the next best value adding sector. Regional value add would increase by 6% should an additional 200 mining sector jobs be created.

The tables show that the mining sector delivers the highest rates of economic dollar returns from the creation of 200 jobs. The sector also creates a significant number of additional jobs across its own and other sectors.

This analysis demonstrates the significance to the regional economy of mining as a driver of regional economic prosperity. However, if the level of local expenditure could be increased, through programs such as import replacement, the economic outcomes from an increase in mining activity will be more significant. Improved outcomes in terms of economic output, value adding and wages and salaries would result from a greater integration of local suppliers into the local mining sector.

We would note that when assessing these results, they have been developed using industry structures and relationships that exist at the time of report writing. The progressive closure of the Stawell Gold Mine over the next 12 months will

result in significant changes to present industry structures and the regional mining sector supply chain. The results of this analysis will change as a result, and readers need to be cognisant of this when assessing the analysis.





5. Current and emerging projects

5.1 Regional objective

Developing existing industry and securing new industry and projects is the cornerstone of the development of a competitive and innovative local economy. The development of the mining industry through successful establishment of new mining projects and activities will add to the economic prosperity of the region. This section outlines the current and emerging mining projects across the Wimmera Southern Mallee.

5.2 Analysis

5.2.1 Iluka Resources

Iluka Resources is a company involved in the mining and processing of titanium based and zircon products. Iluka has operations in Western Australia, Victoria, Queensland and United States, and is the largest supplier of zircon to the world market.

The Iluka Resources Douglas project in Victoria is based on the resources of three main deposits, Bondi Main, Bondi West and Bondi East with a single mining unit plant and a wet concentrator plant. A mineral separation plant, located at Hamilton, is then used to produce the final specification rutile and zircon. The Douglas project, Iluka's last in the Wimmera Southern Mallee region, will be decommissioned during 2013.

The Iluka Wornack, Rownack and Pirro (WRP) project, near Ouyen, is currently in operation. This mine currently draws workforce from the Wimmera Southern Mallee region. Mining at the WRP group of deposits is expected to complete during 2015 – at this stage marking the end of mining activities in Victoria for Iluka. Operations will then move to Balranald (NSW) and the Eucla Basin (SA). Hamilton's mineral separation plant, however, is a key capital investment, and is expected to continue processing mineral from SA and southern NSW. For example, heavy metals are shipped from Eucla basin to Portland, transported by road to Hamilton for processing then returning to Portland for export.

5.2.2 Donald Mineral Sands (Astron Ltd)

Donald Mineral Sands Pty Ltd is a fully owned subsidiary of Astron Ltd. The Donald project is currently in the advanced (definitive) feasibility study stage in readiness for presentation to investors. An Environmental Effects Statement has also been completed.

Located on the border of Yarriambiack, Buloke and Northern Grampians Shires, Donald Mineral Sands covers a substantial area. The development of this area may provide opportunities for the Minyip, Donald and St Arnaud communities.

Donald Mineral Sands is proposing to mine and process fine-grained mineral sands, onsite. On current knowledge the mine life spans 30-60 years depending on production volumes. It is forecast that heavy mineral concentrate will be transported by road to the Wimmera Intermodal Freight Terminal (WIFT) then by rail to Port of Portland, Geelong or Melbourne. It is forecast that approximately 400,000t of mineral sands will be transported by road and rail per year.

During October 2011, Donald Mineral Sands purchased almost 7GL in water rights from GWMWater. We are also advised that DMS recently purchased further land in the district, both encouraging signs for the project.

Once the decision is made to commence, the construction phase will take about 18-24 months, including both the mine and separation plant. This phase is expected to cost over \$200m.

5.2.3 Australian Zircon

Australian Zircon is investigating the feasibility of developing the WIM150 Mineral Sands Project located approximately 20kms southeast of Horsham. Australian Zircon are proposing to develop mineral sands mine and processing facility on location, with operations commencing near Drung South progressing to Drung North district. The known deposit is 12 kilometres long and 6 kilometres wide (unusually large for mineral sand mining) containing heavy mineral concentrate, zircon, rare earth elements and titanium products. They expect to extract 12 million tonnes of ore per year and anticipate the mine life to be over 25 years.

Australian Zircon has estimated a construction workforce of up to 350 people, operational workforce of 125 staff and 125 contractors will be needed. Their feasibility study and environmental effects statement is estimated to be



completed in 2013 and should this be positive, project finance confirmed 2013/14.

If this timeline is met, the mine's preliminary's and construction of processing facilities should occur during 2014/15, ready for mining in 2015/2016.

We would note that there are still considerable risks to this project proceeding within this timeframe. Project finance for mining projects is tight and rises in construction costs may have negative effects on the viability of the project. These factors will need to be carefully monitored over the next 12 – 24 months.

5.2.4 Navarre Minerals

Navarre Minerals is an ASX listed, Australian-based mineral exploration company searching for gold and base metal deposits in Victoria. Navarre is in the early stages of exploration on two local projects, Kingston (gold) and Black Range (copper, lead, zinc). Test drilling at Black Range is expected to begin in early 2013.

5.2.5 Crocodile Gold

Crocodile Gold is a Canadian company operating gold mines in the Northern Territory and Victoria (Fosterville and Stawell). Crocodile are expected to cease operations at the Stawell Goldmine during 2013. Although this is expected to have a large economic impact on the Stawell township, the company has indicated that there will be opportunities for the local workforce at their other operations. Stawell Goldmine has advised that approximately 71% of employees have expressed an interest in a fly out fly in (FOFI) arrangement indicating their preference is to remain living in the region. One possible destination for FOFI workers is Cobar, a mining town in western NSW.

The Stawell Goldmine's modern operation spans 27 years and produced its two-millionth ounce of gold in March, 2010. Stawell Goldmine is one of the largest employers in the Stawell area and contributes over \$58.3 million to the local community in wages, purchased goods and services per year.

Due to the closure of the Stawell Gold Mine, 283 skilled staff and 100 contractors will be retrenched by mid- 2014, with the majority of redundancies before mid-2013.

Remplan modelling estimates the closure will approximate a contraction in the Shire's economy of approximately \$482m per annum, or 29 per cent.

The Stawell workforce is highly skilled, stable and capable. Staff are fully capable in all aspects of underground gold mining in an metalliferous environment and surface processing. Stawell Gold Mine was operating under Nationally Recognised RII09 training and qualifications.

The mine has an excellent safety record, reflecting the highly developed capabilities the workforce has in this area and wage and salary expectations on the lower side of mid-range as determined by the McDonald survey¹.

Stawell Gold Mines has advised that it is investigating the mining of Big Hill at the Stawell site. This project will be subject to a community consultation process and Ministerial approval. It should be noted that if the Big Hill mining proceeds, it is likely to directly employ around 80 people for approximately 4 years.

5.2.6 Copper Strike

Copper Strike is an Australian mineral exploration and development company focused on exploration for base metals and mineral sands. Copper Strike recently embarked on mineral sands exploration in the Wimmera when exploration Licence EL5415 was granted by the Victorian Department of Primary Industries early in 2012. They expect to begin drilling next year at sites 20kms North and South of Warracknabeal. Deposits are understood to be high concentration zircon.

5.2.7 Other Regional Mining/Exploration

- ▶ Other exploration companies, Iron Mountain Mining Ltd, Karl Drago Sabljak, Rovatec Resources Pty Ltd have applied for exploration licences in the Wimmera Southern Mallee over the past 18 months.
- ▶ Gold exploration is being undertaken in the western part of the Mallee region in areas that have not previously been tested.
- ▶ Northern Grampians Shire Council is part of the Australian Gold Heritage Region aimed at preserving region's gold heritage assets.

¹ Based on human resources survey conducted by McDonald & Company (Australasia) Pty Ltd. (www.resourceshr.com)



- ▶ Around \$28m was spent on mineral sands exploration in 2010 and \$26m in 2011 – there is a significant body of information on the quality, composition and location of reserves.
- ▶ Further gold exploration is being undertaken around St Arnaud and Stawell.
- ▶ Around 35 to 40 gypsum mines in the west of the Wimmera Southern Mallee region produce products for the farming and construction industries.
- ▶ There is a significant number of quarries throughout the region, principally producing materials for road and related infrastructures and construction projects.

5.3 Opportunities

- ▶ Opportunities exist for local industry bodies / community groups to assist exploration companies with investment attraction and community engagement.
- ▶ Development of Big Hill mine in Stawell
- ▶ Both mine developments and downgrades create opportunities for contractors (e.g., welding, earth moving) and support services.
- ▶ Upgrades to Stawell aerodrome are aiding in the development of a FOFI arrangement for existing employees at the Stawell goldmine. This upgrade will also create opportunity for new business and support industries at the aerodrome.
- ▶ Utilising FOFI arrangements for local industry to access other mining regions.
- ▶ The preservation of the gold assets in the Northern Grampians region through the Australia's Premier Gold Heritage Region project will generate tourism opportunities.
- ▶ Amending the *Nuclear Activities (Prohibitions) Act 1983* would allow for the exploration of uranium and thorium in the Region (and Victoria), placing the State on equal footing with others in Australia and potentially allow for the identification of new economic opportunities.
- ▶ Amending the *Mineral Resources (Sustainable Development) Act 1990* to allow a mining licence to be granted when the primary activity originates

outside of Victoria would open up new processing opportunities for facilities in the region, notably the Mineral Sand Processing Plant in Hamilton as resource from interstate could be processed in isolation from those associated with primary mining sites in Victoria.

5.4 Constraints

- ▶ The Victorian Government maintains tightly prescriptive exploration licensing encouraging companies to actively explore or risk losing exclusive rights to the resource. This can be seen as a constraint to some operations, particularly underground, where exploration programs can have longer timelines.
- ▶ Technological improvements are improving the efficiency of processing fine grained WIM 150 deposits but are yet to be commercially proven.
- ▶ The exploration for uranium or thorium is currently prohibited under s.5 of the *Nuclear Activities (Prohibitions) Act 1983*. Australia wide exploration for uranium totalled \$214m in FY11.
- ▶ Global mining investment appears to be slowing due to the end of the commodity price boom. In this climate mining companies tend to concentrate on low risk operations.
- ▶ Mining construction costs are increasing, reducing economic returns on mining project.
- ▶ There is no power under the *Mineral Resources (Sustainable Development) Act 1990* to grant a mining licence over land where no mining is occurring or planned unless what is occurring or planned is ancillary to mining under a mining licence somewhere in the state of Victoria.
- ▶ Project finance market remains tight, potentially limiting projects ability to access funds to develop projects to scale and to time.

5.5 Enabling factors

- ▶ Companies Australian Zircon, Navarre Minerals and Donald Mineral sands are in the exploration stages of development. Although potential commencement dates vary, the mining industry in Wimmera Southern Mallee is expected to grow significantly should these operations



commence within 5 years (as expected).

- ▶ Access to high quality support services, skills and capabilities, infrastructure, secure energy and water supply and low sovereign risk are all enabling factors for the development of a mining region.
- ▶ Wimmera Southern Mallee has a strong history in mining with large, global mining companies operating in the region. This experience, coupled with skilled workforce and support industries, lessens the risk for mining companies looking to invest in the region.
- ▶ State Government planning and community support for Big Hill mine.



Opportunities in the Wimmera Southern Mallee region

- Murray Basin is a world class province for mineral sands:
 - Large under-developed resource - able to supply 15% of world demands over next 40 years
 - High-value, fine grained deposits are a huge underdeveloped prize
- Established industry with infrastructure.
- Supportive Government:
 - Encouraging development, industry competition and resource trading
 - Promoting resource husbandry and downstream processing to maximise long-term value
- Low cost, accessible and reliable electricity supply.
- Upgraded rail and port infrastructure.
- Reliable and cost competitive water supply.
- Established innovation platform and regional systems.
- Opportunity for Fly Out - Fly In service from Stawell aerodrome.



6. Infrastructure and services

6.1 Regional objective

The Wimmera Southern Mallee aims to ensure infrastructure supports the current and future needs of the region's industries and communities. This section analyses some of the infrastructure and related service development opportunities that will arise as the mining sector develops.

It should also be noted that the Victorian Freight and Logistics Plan (to be released during 2013) will provide a platform for regional planning and advocacy for road and rail infrastructure.

6.2 Analysis

6.2.1 Roads

Local and state roads are often used to transport material from mine sites to rail hubs. Product is then containerised and railed to port for export, with most product being shipped through the Port of Portland in Victoria's south-west. The condition of roads due to additional truck movements is a sensitive issue, impacting communities, businesses, safety and productivity.

Without significant investment in road infrastructure, this will increasingly become a cost and productivity issue for the region. For this reason, mining companies should be engaged in the discussion on road infrastructure maintenance and upgrades when proposing transport routes to Councils.

Wimmera municipalities are currently developing strategic route plans to support the transport industry's needs for greater access to local roads, including cost estimates for necessary infrastructure improvements. It is expected that the regions estimate for infrastructure improvements to cater for high productivity vehicles (HPV's) will be in the vicinity of \$100m to \$200m – including road improvements to support access from regional areas to the Wimmera Intermodal Freight Terminal at Doon.

6.2.2 Rail

Rail networks are important for the movement of freight (traditionally grains, hay and woodchips) from the Wimmera Southern Mallee to the ports of Portland,

Geelong and Melbourne. Both Australian Zircon and Donald Mineral Sands have indicated that if their mine sites are approved, their preference is to ship containerised product from the Wimmera Intermodal Freight Terminal to port for export.

It should be noted that a rail upgrade between Ararat and Geelong (80kms), if completed, would improve productivity for a range of freight users, including agriculture and grains.

6.2.3 Power, gas and water

Access to energy and water is essential for the expansion of the minerals sands industry in the region. The Wimmera Mallee Pipeline, completed in 2010, has provided the region with secure water supply, enabling growth in mineral development and other water-intensive industries.

The region has well established and accessible power and gas connections, particularly around townships and key transport and growth corridors. Continued and further development of this infrastructure is planned. Prices for energy are highly competitive.

6.2.4 Telecommunications

As with most regional and remote areas of Australia, mobile telecommunications coverage can be unreliable. Companies operating at remote mine/exploration sites have indicated this to be an issue. The rollout of the National Broadband Network, anticipated in the Wimmera Southern Mallee region by the end of 2014, is expected to improve local telecommunications, particularly to these more remote areas, and create business and employment opportunities. For example, mining companies can house data storage facilities locally, requiring commercial office space, IT infrastructure and support staff.

6.2.5 Housing and social infrastructure

Housing availability is an issue with low supply in and around Horsham, and more broadly across the Wimmera region. Rental vacancies also appear low. The Wimmera Southern Mallee Regional Growth Plan recommends that appropriate planning be put in place to build 100-150 new houses per year across the region to meet future demand, including the possibility of extra land sub-division based on current growth forecasts.



The proposed Donald Mineral Sands and Australian Zircon Developments will apply further pressure on housing stock. That said, mining companies often prefer to establish camp facilities during the construction phase of development, particularly when accommodation isn't available close to the mine site. However, once mines are operational, employee accommodation is likely to be a private decision, hence increasing demand for housing in Wimmera Southern Mallee townships. With this increased demand it can also be expected that property values will increase, another factor increasingly common in mining regions.

Housing is not the only social infrastructure that experiences increased demand in growing communities. Ensuring sufficient social infrastructure (e.g., child care, cultural and recreational facilities etc) is available and in the right timeframe is also critical to developing the region. Horsham's social infrastructure tends to support a catchment outside its local government area. Without sufficient social infrastructure, there is a risk that mining activity will not be converted into longer term social, community and economic development. Work is currently being undertaken to make some form of assessment into what type of social infrastructure will be needed. Funding infrastructure development may present problems for Local Government, and consideration of newer approaches to this issue (for example community funds) should be encouraged.

Compared to other major project based industries working in regional and remote areas, there seems to be limited community engagement. There is some, and some mining companies are better than others, but there is a consensus suggesting this could improve. While there is evidence of mining companies making community contributions, often through 'community funds' (which are quite common in energy industries), there is a feeling they can be put to greater use, provide support back to communities.

It appears that mining firms have been less consultative and engaging with local industry at the commencement of projects. Overtime local industry has improved its engagement level with mining firms.

6.2.6 Support services

The established support industries within the Wimmera Southern Mallee provide a competitive advantage for the region as miners can access established, experienced and appropriate skills, capabilities and equipment within reasonably short time frames. In this sense, the region has a 'reputation' which

can be built upon. The logistics industry was noted as being highly regarded and good example of a key supply industry.

Miners coming into the region are generally seen as not being very good at engaging with the local business community at the commencement of their operations. The view is that they have improved over time, however establishing early communication of the industry and requirements would be well regarded and take some of the social tension out of communities when 'go to' contractors come into the region.

6.3 Opportunities

- ▶ There are opportunities for rail upgrades to benefit a range of industries in the region. Upgrade opportunities should be positioned as benefiting multiple stakeholders and users, not just a single sector or industry.
- ▶ Rail upgrades would have a large spill over effect on the economy, such as reduced road deterioration and maintenance costs, reduced costs for other industries such as grains, increased safety and improved environmental benefits.
- ▶ Advocacy to the Victorian Government regarding investment and upgrading rail freight and logistics to accommodate agriculture and mining activities.
- ▶ Rollout of the NBN will improve regional telecommunications and create new business and employment opportunities in support industries such as IT services.
- ▶ Water pipeline creating new investment opportunities.
- ▶ Property development opportunities will arise as demand for housing increases.
- ▶ Focus on early stage consultation and relationship building with newer mining entrants, for example Navarre Minerals and Copper Strike.
- ▶ Development of community funds and programs that work with communities to improve the way the communities engage with miners and associated industry.



6.4 Constraints

- ▶ Telecommunications in remote areas remain restricted.
- ▶ There appears to be a housing shortage in Horsham and other towns located in the Wimmera. Rental vacancies also appear low. Affordability issues can arise if supply cannot keep up with sudden demand for housing.
- ▶ Rail infrastructure between Ararat and Geelong requires upgrading to ensure that rail transportation remains economic and competitive with road transport.
- ▶ Level of trust and community goodwill towards mining firms is variable.
- ▶ Mining companies use their preferred suppliers at the commencement of their project to reduce perceived project risks.

6.5 Enabling factors

- ▶ Scenarios for increased housing demand should be developed and the appropriate planning procedures put in place in order to meet future demand.
- ▶ Utilise the community action planning process to incorporate specific concerns or issues pertaining to mining.
- ▶ Scenarios and planning should also include ensuring sufficient social infrastructure will be available. Social infrastructure outcomes should also be encouraged in mining company's broader community engagement plans.
- ▶ The region's strategic transport route plan is encouraging a proactive approach to managing additional truck movements on state and local roads.
- ▶ The Wimmera region's high level of water security is considered a competitive advantage, attracting mining and other industry to the region.
- ▶ Well established, accessible and commercially competitive energy resources.

- ▶ Long-term, region-wide planning amongst regional stakeholders will enable development of sustainable infrastructure to not only support the mining industry, but other industries important to the region's economy.
- ▶ Region's reputation for established support services.
- ▶ It is suggested that assisting local businesses to engage with mining companies, through building their consultation skills will enable more localised B2B relationships to occur.
- ▶ Adoption of an agreed to community consultation framework and process. Appendix 3: Community Engagement Model is an example of such a model developed for use in regional and rural communities engaged with mining operations.





7. People, skills and training

7.1 Regional Objective

To function effectively and productively the Wimmera Southern Mallee must attract and retain workers as well as plan to ensure future workforce needs are met. This section considers workforce, skill and training needs of the mining industry.

7.2 Analysis

Employment and training providers appear knowledgeable about developments in the local mining industry and well prepared to react to any industry needs/requirements (e.g., vocational training, licensing, labour hire, access to skilled people, support services).

Access to people also does not appear to be a high risk issue. This confirms results from the Mineral Council of Australia's Mineral Industry Skills survey that concluded there are limited skills shortages in the Victorian minerals industries and that workers preferred to live in Victoria compared to remote areas of WA and QLD. For this reason, the Wimmera region should continue to position itself as a liveable, family friendly mining region – a distinct competitive advantage against other Australian mining regions. When searching for specialised skills, mining companies will then 'sell' the Wimmera lifestyle to workers in remote WA and QLD.

The stability of the local workforce and nearby residential communities is seen as offering the region a competitive advantage over other mining regions. Established residential communities are seen as offering lower total cost workforces (less recruitment, recurring training, more stable). Supporting regional population growth would enhance this competitive position.

The establishment of fly out - fly in at Stawell will require a range of support services for FOFI workers and their families.

Mineral sands mining utilises similar skill sets to agriculture, such as heavy machinery, scraping, excavation and truck driving. For this reason, potential workforce issues for agriculture in the Wimmera Southern Mallee could arise and should be monitored accordingly. The 'poaching' of workers from agriculture and trade professions has been a common occurrence in Australia

during the mining boom. Poaching workers could put further strain on agriculture in the Wimmera Southern Mallee, an industry already experiencing labour and skills shortages, particularly around peak periods such as harvest.

Agriculture, in particular, has struggled to compete with mining sector wages. Some have suggested that the growth of the mining industry presents a significant threat to agriculture in the Wimmera Southern Mallee, yet others suggest that wages in the Victorian minerals sector are much lower than in remote WA and QLD – therefore presenting less of a threat. Either way, local agriculture must remain cognisant to developments in mining and put the appropriate workforce planning measures in place.

Mining projects proposed by Donald Mineral Sands and Australian Zircon will each require around 250-350 people (including contractors) during the construction phase. Once operational the mines, and onsite processing facilities, will require about 250 people. Mining companies generally provide in-house training, although some operations are known to outsource training and licensing, with key focus on workplace safety.

7.2.1 Mine Safety Emergency Training Centre

There is potential to develop the Stawell site into a Mine Safety Emergency Training Centre. At the moment the view is that a centre focussing on Emergency Management Training for mine rescue and emergency management would be a feasible option. This area aligns with the strong safety capabilities that exist within the Stawell operations. There are precedents for this type of facility being built elsewhere in Australia. Limiting the scope of the facility to just mining may limit the appeal of the centre. Accordingly, scoping of the centre to appeal to sectors outside of mining is likely to increase the prospects of such a facility being economically viable.

7.2.2 University of Ballarat and Regional Universities Network

The region also has a major competitive advantage with the University of Ballarat having campuses in Horsham and Stawell. This places the region as one of only two in Australia to have a major university campus in a regional city the size of Horsham. The university has a major role to play in the industry's development through several avenues:

1. Through the Industrial Skills Centre which can interface with employers through the length of the mining supply chain, to identify skills, trades and



up-skilling needs;

2. With a long history in the mining sector through the Ballarat School of Mines and dedicated undergraduate and postgraduate programs in mining engineering, the university can provide a range of research and linkage functions to industry and mining companies;
3. Having recently established a dedicated research precinct in Horsham, the University can lift the research and development profile of the region and link to firms providing such services to build the capability and capacity of the research to undertake this work; and
4. As a foundation member of the Regional Universities network, currently headquartered in Ballarat, the region, through the university will have access to a range of mining and mining engineering related expertise. Many regional universities have highly developed niche capabilities in the mining field, for example environmental, water and global positioning systems technologies. These capabilities can be leveraged into the wider research offering for firms in the region.

7.2.3 Longerenong College / WORKCO

WORKCO provide employment and training services throughout the Wimmera Southern Mallee region. Since taking over the administration of Longerenong College in 2006, WORKCO have received Federal Government funding to develop engineering and vehicle training centres as part of the Wimmera Trade Training Centre.

Longerenong College is particularly well placed to provide specific vocational education and training (e.g., welding courses, heavy machinery licensing) to meet the demands of the growing local mining industry. For example, there is an opportunity to offer the National Apprenticeships Program, developed by Group Training Australia, at the Longerenong Campus. The National Apprenticeships Program up-skills people through an advanced entry adult apprenticeships. The program has been developed to address a shortfall in skilled workers within the Minerals and Energy sectors throughout Australia.

7.3 Opportunities

- ▶ Proposed mine sites will each provide employment opportunities for between 250 and 350 people, depending on the phase of the project and volumes of production.
- ▶ Opportunities exist for local workforce development and training organisations (e.g., vocational training, licensing, labour hire, accessing skilled people).
- ▶ There is also opportunity for training in support industries (e.g., IT, office administration).
- ▶ Utilising UB's research precinct and membership of the Regional Universities Network to co-locate higher order mining research and service firms.
- ▶ A Mine Safety Emergency Training Centre for training in mining and emergency services, with scope to offer similar services to other industries.
- ▶ Exposing a greater number of local undergraduate and postgraduate students to the industry will increase the awareness of the industry and what it offers to a wider range of audiences.
- ▶ Provide linkages and programs within secondary schools that seek to develop mining related skills and interests.
- ▶ Utilising a greater diversity of skills within the industry to overcome the inherent gender biases of the industry.
- ▶ Investigating the opportunity to offer the National Apprenticeships Program at Longerenong College.

7.4 Constraints

- ▶ Mining companies feel that education providers are very reactive to providing industry-relevant courses.
- ▶ Mining companies often have well established supply chains and research partners.
- ▶ Industry often wants to move on actions quite quickly compared to other stakeholders. It is necessary for all partners to be able to respond in appropriate timeframes to seize opportunities.



- ▶ Industry often wants resources provided quickly with skills development and up skilling a secondary consideration. This limits the opportunities to develop new skills in the local workforce.

7.5 Enabling factors

- ▶ Training organisations in the Wimmera Southern Mallee region appear equipped to manage increased demand, particularly for vocational education and training.
- ▶ The presence of the University of Ballarat and the Regional Universities Network in the region and their commitment to the region and the development of the mining sector.
- ▶ The stability of the local workforce and nearby residential communities is seen as offering the region a competitive advantage over other mining regions.
- ▶ Local business taking a proactive approach to engaging with mining companies entering the region.
- ▶ Agriculture developing a workforce development plan in order to proactively manage risks associated with the threat of workers being poached by mining.
- ▶ Liveability of the Wimmera Southern Mallee region.
- ▶ The role UB can play in building value to industry skill partnerships through being able to access funds and programs that industry and other institutions can not to up-skill the local workforce.
- ▶ Local secondary colleges participating in workforce development initiatives.

Industry Case Study

Horsham Hydraulics is a family owned business that has been supporting the Wimmera and surrounding regions with hydraulics and engineering services and repairs for almost two decades. Mining in the Wimmera region has helped Horsham Hydraulics grow, with the company taking on 4 new employees and setting up a mobile welding truck designed specifically for servicing their mining clients.

Horsham Hydraulics began working with Roche Mining a number of years ago to perform onsite welding during the construction phase of the Douglas mine. This relationship then extended to being a preferred provider for Iluka Resources and its contractors for breakdown servicing, plant and heavy machinery maintenance, and plant operation. Company Director, Eddy Nagorcka, suggests that retaining a customer focus, having a proactive approach to solving problems (night and day), and building trust with the client is key to being successful when working with mining companies.

Having established their reputation with mining companies and contractors operating around Australia, Horsham Hydraulics now provide onsite services beyond the Wimmera region, with their team travelling interstate to mine sites and civil construction sites requiring repairs in the event of a breakdown.



8. Logistics and transport infrastructure

8.1 Regional Objective

Movement of goods and people is a critical component of the mining industry. The Wimmera Southern Mallee has an efficient and extensive transport network comprised of road, rail, air and intermodal activities, as well as experienced transport and logistics operators. This section of the plan considers the further development of the logistics needs of the mining industry.

8.2 Analysis

Logistics and associated infrastructure is considered one of the Wimmera Southern Mallee's competitive advantages. The development of the Wimmera Intermodal Freight Terminal Precinct highlights this strength.

Mining companies appear to prefer containerising mineral sand products then transporting by rail to port for export. Australian Zircon is undecided which port they will use but stated their options to be Adelaide, Portland, Geelong or Melbourne. Donald Mineral Sands consider Portland and Melbourne their main port options, via the Wimmera Intermodal Freight Terminal. Navarre Minerals (at Kingston) envisage trucking the mined product to Stawell, transporting by rail to be exported through Melbourne or Geelong. If Black Range proves feasible, it is likely that Navarre will have product exported from Portland. Providing a working example of mining logistics, Iluka currently perform preliminary processing of heavy minerals at their Woornack, Rownack and Pirro group of deposits. Product is then trucked to Hopetoun, railed to Hamilton for processing, then trucked to Portland for export. Iluka run one train per day between Hopetoun and Hamilton (13 out of 14 days).

Australian Zircon and Donald Mineral Sands have indicated potential container and traffic movements through the Wimmera Intermodal Freight Terminal precinct. If either mine site is approved, and if the preferred transport method for the minerals is via rail, it is estimated that 17,000 containers per annum would be shipped from Wimmera Intermodal Freight Terminal for the life of each mine. This would result in 65 truck movements, per company, per day through the precinct. That said, the mode used will ultimately be an economic decision by the mining companies that is yet to be confirmed. Regardless of whether road or rail transport is preferred, the movement of freight from the region to major

Victorian ports is likely to significantly increase with the operation of these mines. It is recommended that regional stakeholders understand the critical role the Wimmera Intermodal Freight Terminal can play in the local mining industry's logistics. As previously noted, upgrades to the rail line will be vital for productivity and for reducing truck movements.

The Wimmera Intermodal Freight Terminal Precinct Structural Plan indicates that a stepped approach will be taken to increase capacity as demand for rail services grows from the mining companies. It should be noted that logistics companies, Wimmera Container Lines and Port of Portland have been proactive in their communications with mining companies and presenting strategies for total supply chain management solutions for mineral sands from mine to sea transport. Upgrades to the Port of Portland's storage capacity are also currently taking place in anticipation of increased demand from mineral sands companies.

It is also critical that mining project managers confirm and adhere to transport routes identified in their Environmental Effects Statement (EES) and planning application and that local road use agreements must be in place before projects commence.

Integrating transportation and logistics requirements with other key user and industry groups and stakeholders is important to ensure regional funding priorities are identified. The Wimmera Southern Mallee region has strategic road and rail infrastructure priorities for the agriculture and mining sectors. Advocacy to the Federal Government (through Infrastructure Australia) and through the development of the Victorian Freight and Logistics Plan promotes these activities.

There is a high level of awareness amongst stakeholders of the impact of mining on local road networks. Managing the inherent tensions between various road user groups is seen as important.

The recent upgrades to the Stawell and Horsham aerodromes are key infrastructure assets for freight and people movement within the region.

8.3 Opportunities

- ▶ There is opportunity for new logistics, and support businesses to set up at the Wimmera Intermodal Freight Terminal Precinct.
- ▶ According to the Wimmera Intermodal Freight Terminal Precinct Structure



Plan, 104 new jobs may be created at the precinct by the further and continued development of the mining industry.

- ▶ Upgrading high performance vehicle network to include major transport routes across the Region.

8.4 Constraints

- ▶ Uncertainty as to actual vehicle movements during mining operations results in higher rates of road deterioration than planned.

8.5 Enabling factors

- ▶ Wimmera Intermodal Freight Terminal Precinct planning is in place and capable of meeting demand from increased mining activity.
- ▶ Port of Portland is capable of meeting additional movement of mineral sands; planning is in place to increase storage capacity.
- ▶ It is critical that mining project managers confirm and adhere to identified transport routes.
- ▶ Marketing the Wimmera Intermodal Freight Terminal will increase throughput and provide opportunities for business investment.
- ▶ A consistent and unified approach to road and rail transport infrastructure investment and project prioritisation.
- ▶ Local Government level planning processes are completed on a timely basis.
- ▶ Rail upgrade, notably between Ararat and Geelong, is critical to industry productivity and reducing road freight movements.





9. Industry development

9.1 Regional Objective

The Wimmera Southern Mallee has clear competitive advantages in the mining sector. The continued development of the mining sector will rely on the ongoing development of the industries that support the sector. This section addresses how local industry and supply chains can best develop in conjunction with the local mining industry.

9.2 Analysis

The growth of the industry in the region is dependent on:

1. New projects coming on-stream; and
2. Deeper penetration of existing mining industry activities (both within and external to the region) by local industry.

Either of these strategies will result in the continued development of the local mining industry. Development occurs through multiple channels, including:

1. Direct services to the local industry;
2. Local firms expanding goods and service offerings to the wider industry located outside the region; and
3. Support industries required to build infrastructure required to accommodate additional population and industry that enters the region to support the industry's development.

Whilst \$140m of annual services are imported by miners within the region and this represents a significant import replacement opportunity for the region, growing the local industry and encouraging it to service mining firms outside the region will represent a more substantial and sustainable long-term industry development opportunity.

9.2.1 Supplier capability

Many large scale mine operators now have dedicated procurement and supply chain development programs. These programs have been predicated on the basis that suppliers are a key source of innovation in the mining industry and it

is in the best interests of mining companies to develop the innovative capability of suppliers. Appendix 3: Community Engagement Model contains an example of such a program implemented by BHP for their Copper Mining Division.

9.2.2 Regional Support Infrastructure

The Wimmera Southern Mallee Regional Growth Plan identifies a need for high quality housing requirements to attract skilled professionals to the region. As previously stated, under current growth forecasts the region requires up to 150 new houses per annum. According to the Wimmera Southern Mallee Regional Growth Plan, over two-thirds (i.e., 100-125) of these new houses will be required in Horsham. This requirement supports a population that is expected to remain broadly stagnant at around 51,000 out until 2031 (VIF, 2012). Depending on location and existing land use requirements, this increase in housing stock will require a range of services and other infrastructure to ensure it is appropriately developed. If the mining industry were to grow beyond current forecasts, further increases in the demand for new housing should be expected.

If the mining industry directly employs an additional 400 people over the foreseeable future (if identified projects proceed as planned, this number of additional mining industry workers would likely be needed), there will be a need for not just housing infrastructure but also a range of other infrastructure to support the total number of around 850 jobs. Based on a participation rate of 60%, these jobs will require additional population of 1,416 people.

For Local Government, this will mean the development of additional community infrastructure requiring both capital outlays and recurring costs. Table 5 provides an indicative analysis of some of the additional requirements² that may arise from growth in the mining industry across the Wimmera Southern Mallee region.

² Analysis based of report prepared for Regional Cities Victoria 'Implications of Population Growth on Infrastructure and Resources in Regional Cities', Essential Economics, 2009.



| | Unit | Wimmera Southern Mallee Needs | Capital costs (000's) | Recurring Costs (000's) |
|----------------------------|-------------------|-------------------------------|-----------------------|-------------------------|
| Kindergarten | \$2,500/child | +80 | | 200 |
| Childcare | \$7,500/child | +80 | | 600 |
| Library | \$33/per capita | | | 28 |
| School places | \$8,740/place | +178 | | 1,556 |
| Recreational facilities | \$1.1m / facility | 1 facility | 1,100 | 500 |
| Arts & Cultural facilities | \$550k / facility | 1 facility | 1,800 | 500 |

Table 5: Indicative Infrastructure Costs

Undertaking a detailed analysis of the needs is beyond the scope of this report, however Wimmera Development Association or the local Regional Development Australia should consider completing such an analysis as a key aspect of the planning for the growth of the industry, but also to assess the likely sequence of needs.

9.2.3 Branding and positioning

To establish itself within the broader mining industry, there is a view that the region needs to be more active with its branding and promotion. This view was also expressed in relation to Victoria branding itself in global markets as a key player in mining. Victoria is the home to several tier one mining companies, has a unique mining history, is spatially small, providing close access to infrastructure, population and services. The Wimmera Region could be the 'flagship' for Victorian mining, while leveraging off 'The Wimmera, Everything You Need' campaign.

9.2.4 Innovation

The quantity of mineral sands reserves (with proven reserves exceeding 30 years production) provides an environment whereby industry level innovation can be undertaken as paybacks on innovation investment has a sufficiently long time to be recovered. The Victorian Earth Resources Innovation Roadmap contains innovation roadmaps for unlocking the Murray Basin's mineral sands deposits. Key areas for attention include:

- ▶ Dry processing technology;
- ▶ Developing downstream titanium mineral processing;
- ▶ Developing low-cost Ti mineral upgrading technology;
- ▶ Development of improved rehabilitation techniques specific to large scale land disturbances; and
- ▶ Mining methods to minimise or eliminate disturbance.

Developing technologies to process fine grain mineral sands has been highlighted as another potential innovation project. Whilst the commercial imperative may not be immediate as there is sufficient supply of coarse grain sands, there is a long term imperative to develop these technologies.

Similar roadmaps have been developed for gold extraction which may have applicability for the Stawell region, given it has proven but at this stage, uneconomic gold reserves.

At an industry wide level, innovation can play a role in assisting to develop the local industry and to develop the mineral sands industry, including:

- ▶ Protecting the environment and developing community partnerships;
- ▶ Development of quality people as a key resource;
- ▶ Regional communities actively seeking long-term partnerships with industry; and
- ▶ Occupational health, safety and welfare (an area where Stawell has a demonstrable competitive advantage).

9.2.5 Regional Australia Institute

The recently opened Regional Australia Institute has identified the impact of



mining developments and industry on rural and regional communities as one of its key research themes, commencing in 2013. Efforts should be made to engage with this program and implement recommendations and actions stemming from it.

9.3 Opportunities

- ▶ New mining companies require assistance and guidance with planning applications and regulations.
- ▶ University of Ballarat has a role to play in developing industry partnerships and assisting local industry and mining companies access State and Federal Government research funding.
- ▶ Development of infrastructure support industries required to meet population needs.
- ▶ Growth of existing mining service sector companies to other regions.
- ▶ Increasing awareness of the mining industry within the region, and of Victoria. Position the region as the headquarters of Victorian mining, and of global mineral sands mining.
- ▶ In conjunction with University of Ballarat and industry, develop innovation programs consistent with innovation needs for the mineral sands industry contained in the Victorian Earth Resources Innovation Roadmap.
- ▶ Develop broader industry development programs consistent with the leadership themes identified in the Earth Resources Innovation Roadmap.
- ▶ Engaging with the Regional Australia Institute, and contribute on its research theme into the impact of the mining industry on rural and regional communities.

9.4 Constraints

- ▶ Stakeholders not being prepared or able to work in partnership / collaborative models, jeopardising project delivery, notably infrastructure related projects.
- ▶ Compared to other states, planning, regulatory and environmental process associated with mine development and management are seen as being overbearing. This places the Wimmera Southern Mallee and Victoria at a competitive disadvantage.

- ▶ Many mining related jobs are perceived as being 'male only'. This creates several issues that will need to be overcome:
 - ▶ Social problems arise from a disproportionate number of male workers in communities;
 - ▶ Employment and lifestyle options must be developed to encourage partners and families to move to the region
- ▶ Funding constraints on local Government that limit capacity to develop infrastructure.
- ▶ Failure to develop sufficient, appropriate housing and community infrastructure.

9.5 Enabling factors

- ▶ Victoria is seen as a low risk place to invest. The Victorian Government are also supportive of new mining investment.
- ▶ Establishing and developing a regional mining industry support industry cluster.
- ▶ FOFI access to other mining markets for industry and employees.
- ▶ Increasing awareness amongst the mining industry of the skills and capabilities of local firms.
- ▶ Mining companies have found local Councils and Wimmera Development Association to be very supportive. Particularly when providing local contacts and getting their message to the right people.
- ▶ Funding alternatives that allow growth infrastructure to be developed in a timely fashion.
- ▶ Industry, Local, State and Federal Government and other institutions being prepared and able to work in partnerships to bring projects (and infrastructure funding) to fruition.
- ▶ In conjunction with industry, Wimmera Development Association or Regional Development Australia – Grampians Region, complete a detailed analysis of the housing and infrastructure needs of the region to support mining industry growth requirements.

Ensuring ongoing community consultation and engagement between industry and the community.



Industry Case Study

CKS Engineering is a Stawell based company that has been providing engineering services to local industry for almost 2 decades. Since taking the business over 12 years ago, Tom Hedges has focused the company's attention on servicing the local mining industry. 'We knew the local mining industry wasn't going to last forever', so CKS Engineering has gradually been expanding outside Stawell to mining operations in surrounding districts and interstate.

Understandably, much of CKS Engineering's work has focused on underground mining, yet Mr. Hedges foresees opportunity for his company in the Wimmera Southern Mallee's growing mineral sands industry. 'Getting in front of the right people is the hardest task when trying to win work with mining companies'. This is where, he suggests, using the local Government and industry-focused organisations like the Wimmera Development Association to access appropriate contacts within these companies, and within the broader local industry, can be the most effective approach.

CKS Engineering also suggests that delivering on time, quality and cost are the most important factors when working with mining companies. According to Mr. Hedges, supplying an industry where delivery time is so critical, the Western Highway and access to quality freight services are some of the region's strongest competitive advantages.





10. Recommendations

| Theme | Recommendation | Ref | Priority (H/M/L) | Stakeholders |
|--------------------------------------|--|-----------------|------------------|--|
| Current and emerging projects | Maintain a mining friendly business environment aimed at encouraging investment (e.g., assistance with approvals, introductions to land owners, readily available information on the region, etc). | 5.3 | H | Community Local business WDA Local Government State Government |
| | Encourage local businesses to identify opportunities and to build relationships with mining companies through facilitated introductions or forums/workshops. | 5.3 | M | Local business WDA Local Government Training providers |
| | Continue to encourage/fast track the development of a FOFI arrangement based in Stawell for mine workers. | 5.2.5, 5.3 | H | WDA Local Government State Government Mining industry Local businesses |
| | Identify investment attraction opportunities that support the retention and growth of the industry in the region | 5.2, 5.3 | M | WDA Local Government |
| Infrastructure and services | Advocacy to the Victorian Government regarding investment and upgrading rail freight and logistics to accommodate agriculture and mining activities. | 6.2.2, 6.3, 6.4 | H | WDA Local Government State Government |
| | Investigate opportunities for mining support services with the rollout of the | 6.2.4 | L | WDA |



| | | | | |
|------------------------------------|--|------------------------|---|--|
| | NBN | | | Local Government |
| | Investigate new business opportunities requiring secure water supply (e.g., mineral processing technology research) | 6.2.3, 6.3 | M | WDA GWMWater Mining industry Local Government |
| | Develop scenarios around housing demand in townships adjacent to mine sites. | 6.2.5, 6.5 | H | WDA Local Government |
| | Encourage the appropriate planning to ensure sufficient social infrastructure (e.g., child care, cultural and recreational facilities etc) is in place and engaging mining companies for contribution. | 6.2.5, 6.5 | H | WDA Local Government |
| | Engage mining companies to discuss their transport plans to enable Council to consider maintenance priorities and costs. | 6.2.1 | M | WDA Local Government |
| | Long-term planning around sustainable infrastructure development is required with input from all Wimmera Southern Mallee Councils. | 6.2.5 | H | WDA Local Governments |
| | Encourage and assist with community engagement planning and execution by mining companies. | 6.2.5, 6.5, Appendix 3 | M | WDA Local Government |
| People, skills and training | Promote the region's liveability in order to retain this competitive advantage over other mining regions of Australia by leveraging 'The Wimmera, Everything You Need' campaign. | 7.2, 7.5 | M | Mining industry WDA Local Government |
| | Review agriculture / mining workforce through the Grampians workforce development strategy. | 7.2, 7.5 | M | Regional Development Australia - Grampians Region WDA Training providers |



| | | | | |
|-----------------------------|---|---------------|---|--|
| | | | | Local Government |
| | Pursue to Business Case stage the development of Mine Safety and Emergency Training Centre in Stawell. | 7.2.1, 7.3 | M | Rural Universities Australia University of Ballarat Local Government State Government |
| | Develop a program that links tertiary and secondary schools to the mining industry (develop skills, increase awareness). | 7.2, 7.5 | L | Mining industry Local Schools |
| | Investigate the opportunity to provide the National Apprenticeships Program at Longerenong College. | 7.2.3, 7.3 | M | WDA Local Government WORKCO |
| Logistics | Encourage mine managers to adhere to agreed transport routes. | 8.2, 8.4, 8.5 | L | WDA Local Government |
| | Market the Wimmera Intermodal Freight Terminal to increase throughput and encourage business investment. | 8.2, 8.3, 8.5 | M | WDA Local Government |
| Industry development | Assess opportunities for value-adding of mining materials in the region | 9.2, 9.1.4 | M | WDA Local Government |
| | Complete technical and non-technical innovation roadmaps through collaboration between industry and universities. Use these as the basis for developing a robust innovation process and support industry. | 9.1.4 | H | WDA Mining industry Local Government University of Ballarat / Regional Universities Network |
| | Work with Invest Victoria and Austrade (through their investment attraction arm) to promote regional mining investment internationally. | 9.1.3 | H | WDA Local, State and Federal |



| | | | | Government |
|--|--|----------|---|--|
| | Assess the development of a local mining cluster that can share knowledge, skills, technology and infrastructure; seek investment; share resources; develop a mining industry supply chain program; and identify synergies. Seek State Government support. | 9.2, 9.5 | H | WDA Local business State Government Mining Industry Engineers Australia - Wimmera Branch |



Appendix 1: Consultation list

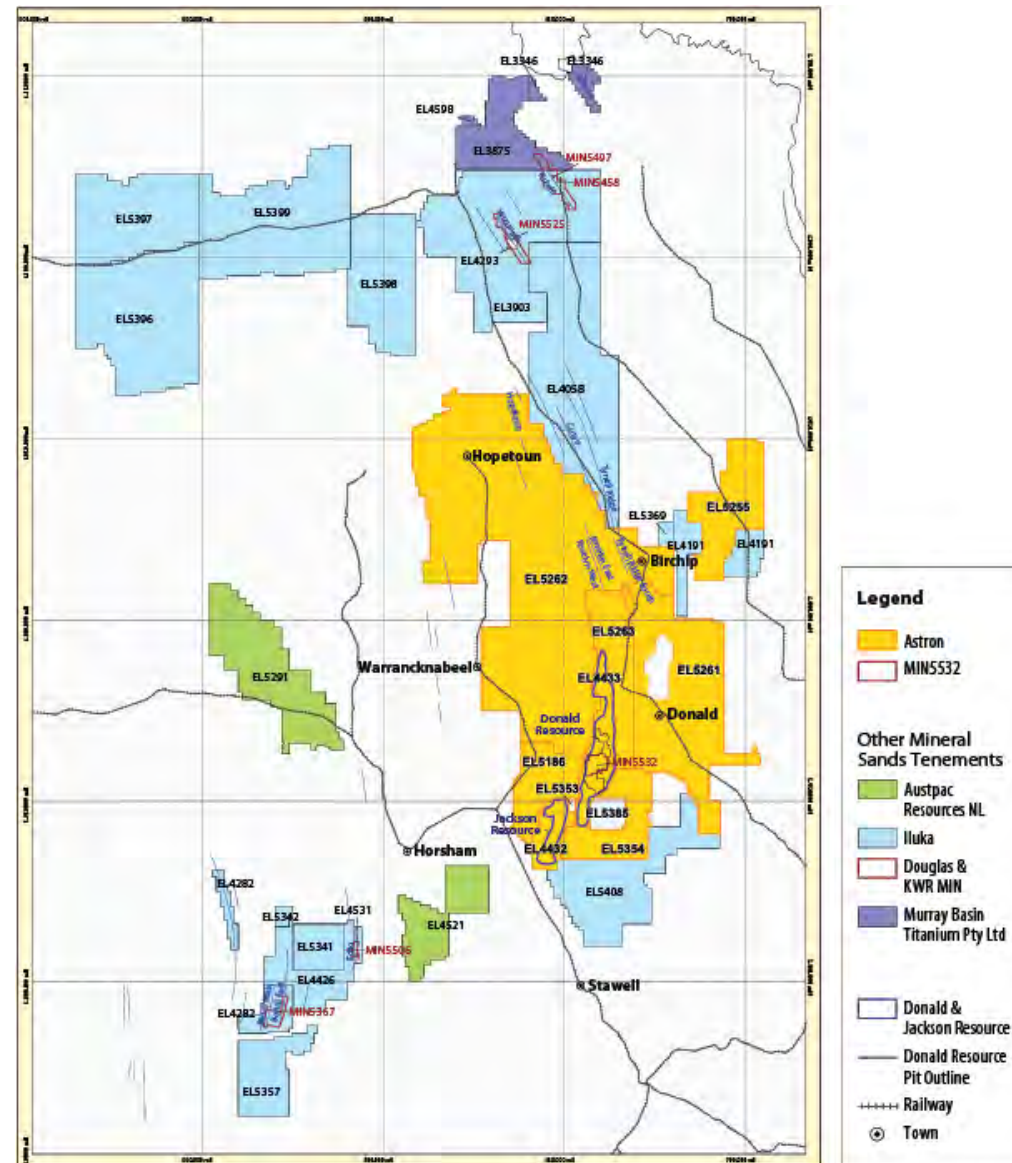
| Name | Position | Organisation |
|----------------------|--|--|
| Andrew Reeves | Director | Australian Zircon |
| Gail Horsted | Project Manager | Australian Zircon |
| Warwick Heine | CEO | Buloke Shire Council |
| Troy Cole | General Manager | Crocodile Gold |
| Peter Dudzinski | Manager, Energy | Department of Business and Innovation |
| Emma Dunne | Project Manager, Infrastructure and Energy | Department of Business and Innovation |
| Sean Rooney | Manager, Minerals Development & Engagement | Department of Primary Industries |
| Simon Peters | Project Manager | Donald Mineral Sands |
| Steve Briggs | Development Manager | Grampians Wimmera Mallee Water |
| Peter Brown | CEO | Horsham Rural City Council |
| Andrew Bradley | Regional Manager | Industry Capability Network |
| Steve Wickham | General Manager Australian Operations | Iluka Resources |
| Jay Miller | CEO / Director | Millers |
| Geoff McDermott | Managing Director | Navarre Minerals |
| Wessley Edgar | Exploration Manager | Navarre Minerals |
| Justine Linley | CEO | Northern Grampians Shire Council |
| Jim Nolan | Director Marketing and Community | Northern Grampians Shire Council |
| Jim Cooper | CEO | Port of Portland |
| Bryce Simpson | Managing Director | Simpsons |
| Prof David Battersby | Vice Chancellor | University of Ballarat |
| Chris Dunlop | Manager – Western Region | VicRoads |
| Brian O'Connor | Site Manager | Western District Employment Access |
| Elaine Rudolph | Senior Case Manager | Western District Employment Access |
| Doug Golden | General Manager | Wimmera Container Lines |
| Jason Templeton | Commercial Manager | Wimmera Container Lines |
| David Brennan | CEO | Wimmera Catchment Management Authority |
| John Ackland | CEO | WorkCo |
| Ray Campling | CEO | Yarriambiack Council |



| Name | Position | Organisation |
|---------------|--|----------------------|
| Jaye Macumber | Manager Community, Business & Economic | Yarriambiack Council |
| James Magee | Director Infrastructure and Planning | Yarriambiack Council |
| Brian Kay | Consulting geologist | |



Appendix 2: Map of Mineral Sands Tenements





Appendix 3: Community Engagement Model

Community Engagement model for Wimmera Southern Mallee based on Project Stage.

| Project stage | Examples of community engagement activities | Examples of community development activities |
|----------------------------|--|---|
| Exploration | <p>Discussions and dialogue for the purposes of:</p> <ul style="list-style-type: none"> ▶ seeking permissions for access to land; ▶ negotiating land use and other agreements ; ▶ identifying and addressing cultural heritage issues; and ▶ informing people of exploration activities and timetables. <p>Managing expectations and addressing community concerns about:</p> <ul style="list-style-type: none"> ▶ the impacts of exploration; ▶ potential for future development; and ▶ opportunities for the community if the resource is developed. | <p>Facilitating opportunities for local people to find employment with, or provide products or services to exploration undertakings. Assisting Traditional Owner groups to build their capacity to negotiate. Supporting or contributing to infrastructure development in areas where exploration is occurring.</p> |
| Project development | <p>Engaging in further discussion and negotiation for the purposes of:</p> <ul style="list-style-type: none"> ▶ Ongoing permission for access to land; ▶ Fulfilling the obligations of land use and other agreements; ▶ Identifying cultural issues that may extend beyond exploration such as mapping exclusion zones, active protection of sites. Providing information regarding project development particularly when project development is uncertain. Involving the community in baseline monitoring of environmental and socio-economic and cultural aspects; and ▶ Establishing consultative forums and structures (such as community liaison committees). | <p>Undertaking community needs analyses and baseline studies, including understanding community capacity to cope with change, and the strength of community networks and institutions. In collaboration with key stakeholders, planning the company's community development programs which may include:</p> <ul style="list-style-type: none"> ▶ Establishing trusts and foundations to manage royalties, and/or corporate community contributions; ▶ Supporting and/or contributing to improvements in community infrastructure (such as schools, housing); ▶ Outreach programs for marginalised groups; ▶ Building the capacity of local and Indigenous businesses to provide products or services to the facility; and ▶ Building the capacity of local and Indigenous people to gain direct employment at the facility. Liaising with governments about regional development planning. |
| Construction | <p>Understanding and addressing community concerns about the environmental and social impacts of large-scale construction activity. Dealing with community expectations about employment and economic opportunities in the construction phase and beyond. Liaising with near neighbours to manage amenity and access issues.</p> | <p>Implementing programs to help integrate employees and their families into the community. Partnering and collaborating with government and other organisations to ensure the delivery of improved services (such as childcare, education and housing) to communities impacted by construction activity. Providing employment, training and business opportunities for local people in the construction phase and beyond.</p> |
| Operations | <p>Dealing with ongoing amenity and environmental issues and addressing other matters of community concern. Establishing systems to ensure the operation can respond to community concerns and ensuring that agreements are complied with</p> | <p>Working in collaboration with the community to allocate and distribute community development funding, in line with community needs analyses. Implementing or supporting initiatives that address identified that address identified community</p> |



| Project stage | Examples of community engagement activities | Examples of community development activities |
|------------------------------------|--|--|
| | <p>and undertakings honoured. Keeping people informed about what is happening at the mine (such as through open days, newsletters, hotline). Participating in consultative groups and forums and maintaining the involvement and focus of these groups</p> | <p>needs. Building the capacity of local organisations (such as through the provision of funding and in-kind support to volunteer and not-for-profit organisations). Providing training, employment and business development opportunities for local people. Partnering and collaborating with other organisations to deliver improved services for the community. Supporting or funding a community visioning exercise.</p> |
| <p>Planning for closure</p> | <p>Involving external stakeholders in decisions about post-mine land use and beyond, preferably from early on in the life of the operation. Ensuring that the community is kept informed of significant developments and understands the timetable for closure. Liaising with key agencies (such as local government, housing authorities) to minimise disruption to services and mitigate adverse community impacts. Dealing with uncertainty and anxiety in the community and workforce about closure.</p> | <p>Working with communities to help them define a post-mining future or providing support for the community to undertake these processes independently. Identifying viable alternative uses for mine land and project infrastructure. Helping to build the capacity of local people to utilise opportunities presented by mine closure. Providing employment and business opportunities around closure (such as rehabilitation work and environmental monitoring). Considering programs that aim to establish alternative businesses and activities that are not dependent on mining (such as tourism, agricultural projects). Where appropriate, establishing structures such as trusts and foundations to provide economic benefits beyond the life of the mine.</p> |

Source: Department of Industry, Tourism and Resources (2006)



Appendix 4: Overview of BHP's Supplier Relationship Model

Overview

BHP has a formal supplier relationship model (SRM) used to assess, rank and assist suppliers to improve their performance across a range of attributes. Suppliers are broken to key supplier groups and assessed on key variables.

The program is specifically designed to identify and improve innovation throughout the supply chain.

BHP seeks suppliers who are capable of assisting with improvements in 4 key areas:

1. Production techniques and management;
2. Adoption of new technologies;
3. Developing the next generation of mining innovations; and
4. Building the future

Based on the results each supplier develops a specific action plan.

After ranking (see slide 2 for examples of metrics), suppliers are ranked and assessed. Of the supplier base in 2009, 67% were assessed as below average, 30% as average and only 3% as good.

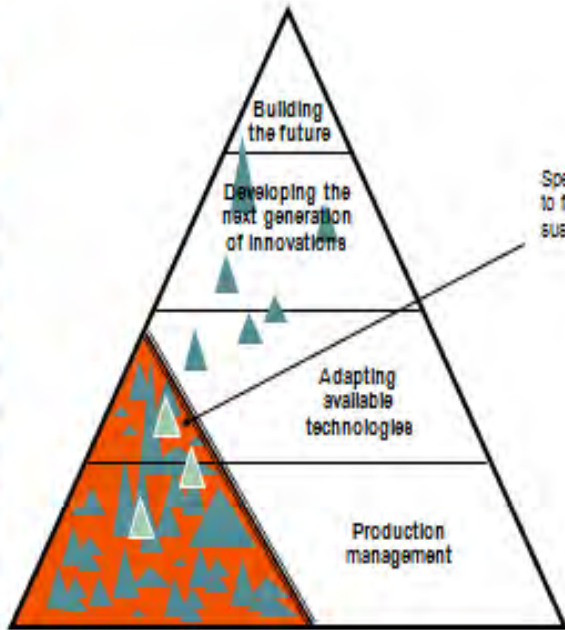
The vast majority of BHP's suppliers are considered small or micro businesses.



PRINCIPLES OF MODEL SRM



- 1 SIZE
- 2 HUMAN CAPITAL
- 3 TECHNOLOGICAL CAPACITY
- 4 INTERNATIONALIZATION
- 5 VALUES & H SEC
- 6 RELATIONSHIP WITH THE ENVIRONMENT
- 7 OPERATIONAL SUSTAINABILITY
- 8 COMMERCIAL SUSTAINABILITY
- 9 FINANCIAL STABILITY



Specific action plans to facilitate sustainable growth

SECTOR

- 1 Inputs/consumables
- 2 Equipments suppliers, parts and spares
- 3 Universities and Research centers
- 4 Technical training Institute
- 5 Maintenance service
- 6 Repairing Services
- 7 Construction services and projects
- 8 Engineering and Consulting services
- 9 Personnel services
- 10 Other services

DIMENSION

- 1 SIZE
- 2 HUMAN CAPITAL
- 3 TECHNOLOGICAL CAPACITY
- 4 INTERNATIONALIZATION
- 5 VALUES & H SEC
- 6 RELATIONSHIP WITH THE ENVIRONMENT
- 7 OPERATIONAL SUSTAINABILITY
- 8 COMMERCIAL SUSTAINABILITY
- 9 FINANCIAL STABILITY

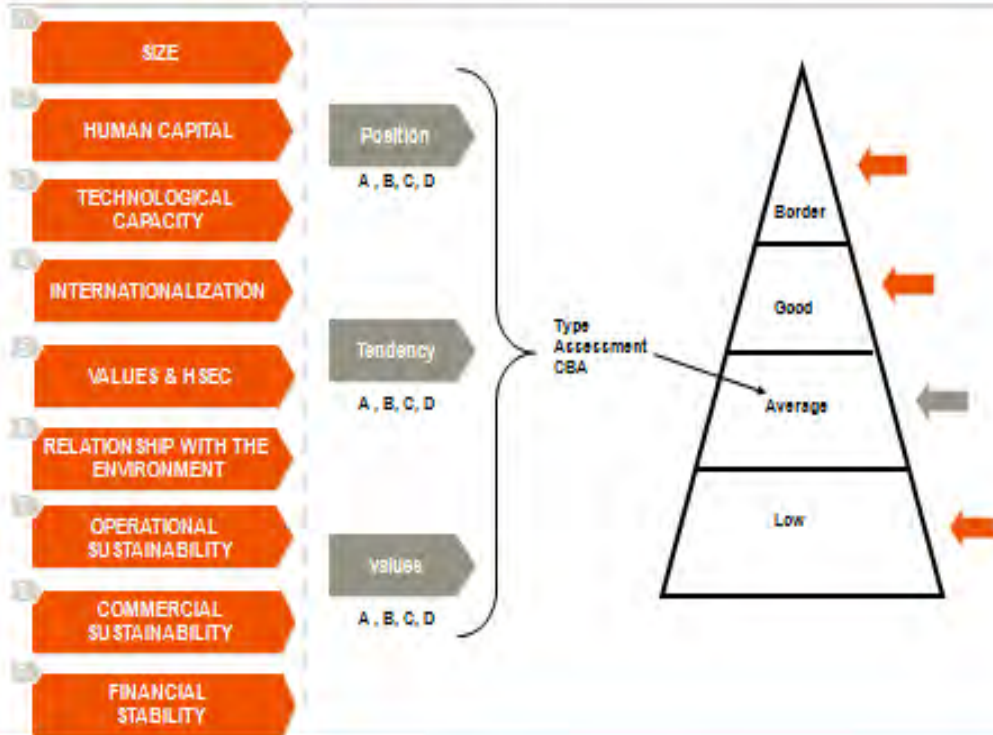
ATTRIBUTE



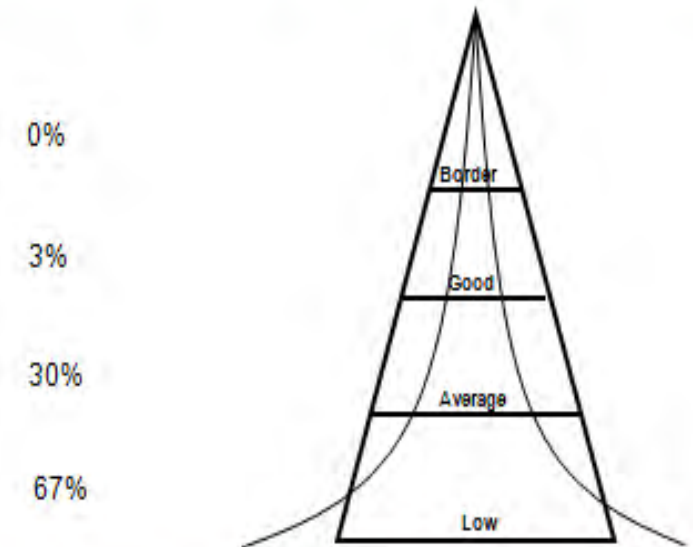
- Sales volume / Incidence BHP Billiton
- Number of employees (staff/outsource)
- Distribution of employees
- Type of training and investment
- Level of rotation
- Importance of innovation in the organization
- Improvements in innovation activities
- Intellectual property
- Areas of 'Core expertise'
- Use of E-commerce
- National and international positioning
- Overseas sales
- Policies and procedures aligned with values BHP Billiton
- Degree of similarities with 'BHP Billiton Way'
- Degree of relationship with stakeholders
- National e international references
- Industry leadership
- Quality management process
- Growth projections
- Expenditure
- Leverage products
- Level of impact production
- Level of indebtedness
- Labor situation
- Company conformation/legal



Logical of the SRM Model



Results of the Model SRM – 2009



Roles of different actors of the industry



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