



# AGRIBUSINESS GROWTH AND DIVERSIFICATION IN FAR WEST NSW

Regional Development Australia – Far West

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### Acknowledgement

WRI wishes to acknowledge the assistance provided by RDA Far West, Broken Hill City Council and relevant agricultural businesses, government and industry bodies in the completion of this report.

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Prepared for Regional Development Australia – Far West

9<sup>th</sup> September 2016

16 016 RDA Far West Agribusiness

## Executive Summary

Regional Development Australia Far West (RDA Far West) seeks to support the development of a strong and diversified economy in the Far West of NSW by driving local opportunities in agribusiness. In particular, the RDA is exploring opportunities to extend agribusiness through local value adding which taps into a local supply chain (primary producers) and local support services with a long term vision to work towards facilitating a paddock-to-plate local agri-business industry in the Far West of NSW.

The RDA Far West region comprises the two Local Government Areas (LGAs) of Broken Hill City and Central Darling Shire, as well as the unincorporated area of NSW, covering an area of approximately 147,000 square kilometres. Food production is well established in the region, though mainly through the primary production of meat and horticultural produce.

In the last ten years, however, the economy has become increasingly reliant on mining. Opportunities to diversify the economy are being explored by the RDA, and those that leverage the region's natural competitive advantages – climate, agricultural produce and appeal as a tourist destination, are being prioritised.

RDA Far West engaged the Western Research Institute (WRI) to undertake a range of research, industry engagement and economic modelling activities to better understand the Agriculture sector and current businesses opportunities and barriers. The Agribusiness Growth and Diversification in Far West NSW report delivers the findings of this research.

This report has undertaken a profile of the Broken Hill and Far West region to provide context for the development and diversification of the Agricultural sector. This profile highlights a region with a significant economy and good prospects for economic growth, although there will be some demographic, education and economic headwinds over the foreseeable future.

The region has a population of 21,632 that is projected to fall to 18,850 with a higher proportion of 65+ individuals. The major employing sectors in the region include:

- Health Care & Social Assistance
- Agriculture
- Retail Trade
- Education
- Accommodation and Food Services (Hospitality)
- Other mining

The unemployment rate and income levels compare relatively well with other regional averages, whilst business counts have fallen by 6.5 percent between 2011 and 2015. Individuals in the region generally have lower levels of education than comparative populations in the non-metropolitan regions of NSW. Health outcomes were mixed when compared with NSW State averages, whereas housing affordability in the region compared favourably with the Rest of

NSW. Finally, the Broken Hill Tourism sector highlighted that in 2014 there were 143,000 visitors to the region, who spent 437,000 visitor nights in the region.

The Agribusiness Growth and Diversification in Far West NSW report also identifies that the livestock industry is a very significant part of the regional agricultural economy. Anecdotal evidence provided estimates of the recent total annual value of the production of livestock at \$138,257,956. This is comprised of:

- \$27,723,846 in cattle sales, which translates into 32,406 cattle at \$855.51 per head
- \$45,574,110 in sheep sales, which translates into 529,746 at \$86.03 per head
- \$64,960,000 in goat sales, which translates into 800,000 at \$81.20 per head

## Key Findings

Interviews with businesses and other relevant bodies in the region illustrated that the agricultural sector has some very significant opportunities for development at the same time as facing challenges in managing water supply issues and dealing with geographical remoteness and transport issues. A range of economic opportunities and barriers was identified in a number of key sub-sectors:

### Horticulture

In the Horticulture sub-sector the major opportunities identified to grow and diversify agricultural businesses were:

- Value adding: To develop value adding capacity of horticultural produce to create additional income streams at the same time as managing production issues.
- Access to technical knowledge: Assisting local small scale growers to access technical information to assist growth in the operations and provide strategic advice.
- Urban agriculture: To work with local businesses, community and local government to develop urban agriculture to take advantage of available water resources.

The management of water and other constraints on business arising from the region's remoteness and transport infrastructure will be key issues to manage in to the future.

Based on an interview with a horticultural producer, economic impact modelling was undertaken to understand the impact of developing a freeze drying, value adding operation in conjunction with fruit production in the Broken Hill & Far West SA3 economy. Based on data provided from interviews the economic impact of this opportunity was estimated at:

Value adding	Initial	Flow-on	Total
Output (\$)	18,400,000	35,450,000	53,850,000
Value added (\$)	3,490,000	9,780,000	13,280,000
Household income (\$)	2,340,000	3,810,000	6,160,000
Employment FTE	43	92	135

### Food Manufacturing

In the Food & Beverage Manufacturing sub-sector, the major opportunities identified to grow and diversify agricultural production were:

- Demand for local products: to develop a range of locally manufactured food products that feature local produce.
- Marketing: to develop a Broken Hill brand that draws on the unique history and environment of the region to create demand for locally manufactured food and produce.
- Integrated food manufacturing business model: to utilise an integrated food manufacturing, retail and tourism business model to develop a strong business that diversifies local agricultural production by utilising local produce.

Managing the development and scaling of small food manufacturing business is a key issue for the development of this sector, as is the cost of transport for manufactured products.

Modelling was undertaken to estimate the impact of developing an integrated food manufacturing business in the Broken Hill & Far West SA3 economy. Based on information gained through industry interviews, the economic impact of developing this opportunity is estimated at:

Integrated food manufacturing business	Initial	Flow-on	Total
Output (\$)	\$450,000	\$658,000	\$1,108,000
Value added (\$)	\$152,000	\$207,000	\$349,000
Household income (\$)	\$91,000	\$79,000	\$170,000
Employment FTE	4.5	1.5	6

### Meat Production

In the meat production sub-sector the major opportunities identified to grow and diversify agricultural production were:

- Comparative advantage of rangeland production: to best understand the comparative advantages of meat production in the region and focus on developing those competitive advantages to assist producers.
- Improved pasture management: to continue work in assisting local producers to best manage pastures, including through the control of kangaroo populations.
- Better business practices: to develop producers' understanding of key downstream markets and businesses, and to assist producers to better understand their businesses through better business planning and a focus on financial metrics.

- Organic production: to develop the knowledge of meat producers to better understand how to capture the additional value of organic production and create more profitable businesses.
- Value adding: to understand value adding opportunities that can diversify income and take advantage of local conditions.
- Marketing opportunities: to develop producers' knowledge of and contacts with downstream meat processing, marketing and sales businesses to allow producers to develop marketing of their produce.
- Goat production: to assist a more professional approach to the management of the goat industry to increase productivity, deliver higher revenues and manage cash flows better.

Key barriers to the growth of the meat production sub-sector include resolving kangaroo management issues (including licensing issues in the kangaroo processing industry), managing transportation costs and issues in addition to improving communications.

Modelling was undertaken to understand the economic impact of improving pasture management practices through managing kangaroo populations, based on information gained through interviews and from relevant literature. The economic impact of *one property* managing its kangaroo populations in the Broken Hill & Far West SA3 economy, has been estimated in the order of:

Pasture management	Initial	Flow-on	Total
Output (\$)	\$277,700	\$410,099	\$637,799
Value added (\$)	\$46,095	\$108,175	\$154,270
Household income (\$)	\$15,692	\$41,939	\$57,631
Employment FTE	0.0	1	1

If improved pasture management, through managing kangaroo numbers, was achieved on a wider scale, the economic impact on the region would be very significant.

### Meat processing

In the meat production sub-sector the major opportunities identified to grow and diversify agricultural production were in developing:

- Multi-purpose abattoir: to develop a multipurpose abattoir to diversify agricultural processing in the region and deliver transport cost savings to local meat producers.
- Kangaroo meat processing: to assist the kangaroo processing industry to obtain a commercial processing licence and grow production, at the same time as assisting local meat producers through the reduction of kangaroo numbers.

Key barriers to the growth of the meat processing sub-sector revolved around resolving licensing issues for processing kangaroos. There is currently no multipurpose abattoir operating in the region, and hence, no barriers to the development of a multipurpose sheep and goat abattoir were identified in interviews.

Modelling was undertaken to understand the economic impact of developing a multipurpose abattoir in the Broken Hill & Far West SA3 economy. Based on the operations of a former operating abattoir in Broken Hill, the economic impact of an abattoir, employing 50 Full Time Equivalent (FTEs) positions was modelled, with the following estimated impact:

Multi-purpose abattoir	Initial	Flow-on	Total
Output (\$)	21,390,000	40,950,000	62,340,000
Value-Add (\$)	4,080,000	11,340,000	15,430,000
Income (\$)	2,740,000	4,420,000	7,160,000
Employment FTE (no.)	50	106	156

Further modelling was also undertaken to assess the development of a current operating kangaroo processing business in Broken Hill. The economic impact of implementing current opportunities for the local kangaroo processing business in the Broken Hill & Far West SA3 economy is estimated at:

Kangaroo processing	Initial	Flow-on	Total
Output (\$)	\$1,200,000	\$2,410,000	\$3,610,000
Value added (\$)	\$220,000	\$650,000	\$870,000
Household income (\$)	\$150,000	\$250,000	\$400,000
Employment FTE	5	6	11

### Agricultural Tourism

In the Tourism sector, the major opportunities identified to grow and diversify agricultural production were in developing:

- Tourism success in events: to explore events as a means of assisting regional farm stay businesses and driving tourism numbers and expenditure, potentially through agriculturally themed events.
- Local food: to drive tourism numbers and deliver more gain from local tourism expenditures by developing locally produced and manufactured foods for sale to visitors.
- Farmers markets: to work with businesses and the community to explore the development of a local farmers market that will provide a destination for tourists and provide a market for locally produced and manufactured foods.

The key issue to manage in this sector was the local tourism management architecture, to facilitate better industry communication and cooperation.

## Recommendations

Based on the information collated for the Agribusiness Growth and Diversification in Far West NSW report, WRI has made a number of recommendations across the various sectors included in this report. The key recommendation from this report relates to the opportunity to develop the local kangaroo processing industry.

Whilst this industry is only operating at a very small scale at the moment, its successful development has the ability to assist business across the Agricultural sector and potentially providing the greatest impact. Whilst there are very significant potential economic benefits for the kangaroo meat processing sub-sector and its participants, there are also likely significant economy benefits for meat producers and other agricultural producers in the region by reducing the number of kangaroos impacting on pastures. By reducing pest populations, economic impact modelling suggests that substantial gains can be captured by meat producers through greater pasture productivity.

Whilst political and regulatory challenges will need to be managed and resolved to properly exploit this opportunity, its successful development will likely deliver key outcomes for the regional agricultural economy. All recommendations have been compiled below.

### Horticulture

- That further work be undertaken to understand which horticultural producers remain in the region and their future prospects. This work will allow stakeholders to develop a plan to assist producers and understand the potential to build on the local industry.
- Once industry engagement has been undertaken, work with the horticultural industry to understand if there are any value adding processes that could be implemented locally that would assist local producers to negotiate industry constraints.
- If there is sufficient desire from local horticultural producers, resources could be pooled to access professional agricultural advice to assist local industry participants.
- That work is undertaken with community, council and businesses to explore the demand for urban agriculture. Issues to consider would include interest in urban agriculture projects, current water supply and demand, infrastructure requirements to supply water from current rooftop and stormwater infrastructure, potential sites and site ownership/access issues.

### Food manufacturing

- That dialogue is facilitated between successful food manufacturing businesses or potential customers and local food manufacturing businesses to mentor and potentially collaborate in the development of the local industry.
- That relevant stakeholders work with local food manufacturers to facilitate the use of locally manufactured foods in the local food and tourism scene. This will allow tourists to experience products that are locally manufactured in the region and capture an authentic food experience. Local restaurants and retail food outlets would potentially benefit from



this arrangement by marketing local produce to tourists with the opportunity to sell more products.

- That local food manufacturers undertake efforts to understand their marketing advantages and work to develop products that work to these advantages. Developing products that speak to the history and geography of Broken Hill may provide local food manufacturers with a marketing advantage over other products.

#### Meat production

- That relevant stakeholders and relevant peak bodies continue to discuss and develop a consensus on kangaroo management and particularly kangaroo processing licence issues. A united view across relevant stakeholders could potentially influence government actions and deliver satisfactory outcomes that assist meat producers to better manage kangaroos on their properties.
- That relevant stakeholders facilitate discussions between meat producers and downstream meat buyers, processors, exporters and marketers. This would assist producers in developing their knowledge of the meat supply business chain. Better understanding of these issues may assist producers to better target their production to meet market needs and could potentially create future links between regional producers and potential buyers.
- That goat meat industry stakeholders work with the Goat Industry Council of Australia and Meat and Livestock Australia to provide information to local meat producers to develop a greater understanding of and professionalisation in the production of goats.

#### Meat processing

- That further investigation is undertaken on the economic viability of a local multipurpose abattoir. This investigation would need to understand current abattoir capacity and demand and the cost effectiveness of local abattoir operations with regard to price, cost and transport.
- That all efforts are made to facilitate the development of a kangaroo processing industry in Broken Hill. Establishing this industry on a larger scale than current operations would assist agricultural producers and create employment and revenues for the Broken Hill economy.
- That relevant stakeholders and relevant peak bodies continue to discuss and develop a consensus on kangaroo management and particularly kangaroo processing licence issues. A united view across relevant stakeholders could potentially influence government actions and deliver satisfactory outcomes that assist meat producers to better manage kangaroos on their properties.
- That further investigation is undertaken to understand the economic viability of developing the kangaroo processing sub-sector to include the processing of kangaroo meat for human consumption. Developing this capacity would create a larger market for kangaroo meat and could potentially provide a significant boost to the local industry.

### Agricultural tourism

- That the relevant tourism undertake engagement activities with farm stay businesses to incorporate these businesses into the local tourism community and regional marketing materials. Further, that the Broken Hill City Council plays a central role in coordinating tourism in the region and should understand regional farm stays as a positive for the local tourism economy.
- That the relevant tourism body work with local tourism related businesses, including farm stays, restaurants and food retailers, to provide and market a local dining experience based on local products and produce for tourists to the region.
- That relevant stakeholders work together to develop and promote a farmers market that will provide local products and points of interest for tourists.

## Introduction

Regional Development Australia Far West (RDA Far West) seeks to support the development of a strong and diversified economy in the Far West of NSW by driving local opportunities in agribusiness. In particular, the RDA is exploring opportunities to extend agribusiness through local value adding which taps into a local supply chain (primary producers) and local support services with a long term vision to work towards facilitating a paddock-to-plate local agri-business industry in the Far West of NSW.

The RDA Far West region comprises the two Local Government Areas (LGAs) of Broken Hill City and Central Darling Shire, as well as the unincorporated area of NSW, covering an area of approximately 147,000 square kilometres. Food production is well established in the region, though mainly through the primary production of meat and horticultural produce.

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RDA Far West engaged the Western Research Institute (WRI) to undertake a range of research, industry engagement and economic modelling activities to better understand the Agriculture sector and current businesses opportunities and barriers. The Agribusiness Growth and Diversification in Far West NSW report delivers the findings of this research.

## Methodology

RDA Far West identified five agricultural sub-sectors and related processing industries to be included in the study, based on the known major producing agricultural sub-sectors or the potential for the development of new sub-sectors. These include:

- Livestock and related meat processing
- Horticulture and related food processing
- Aquaculture and related food processing
- Floriculture and native foods
- Tourism

Research and interviews highlighted relevant information and data for the livestock, horticulture and tourism sub-sectors in the region. However, no information was highlighted in interviews that allowed for a greater understanding of the potential to develop aquaculture and floriculture businesses in the region. For the purpose of this report, the sectors have been broken down for discussion into the following: horticulture, food manufacturing, meat production, meat processing and tourism.

WRI undertook a range of research activities to illustrate conditions within the region and to explore relevant industries. These include:

- A socioeconomic profile
- Research to quantify agricultural production in the Broken Hill and Far West region
- Industry engagement to identify economic opportunities in the Agricultural sector and related industries
- Economic impact modelling to assess the potential impacts of economic opportunities in the Broken Hill and Far West region

Further detail on these activities is included below.

### Socioeconomic profile

WRI developed a socioeconomic profile of the Broken Hill and Far West region. This profile allows for growth and diversification in the Agriculture sector to be understood in the context of regional socio-economic trends.

The profile utilised the most recent regional data available from a range of national and state administered data sources. These sources include:

- Input-Output tables for the Broken Hill & Far West SA3.
- Australian Bureau of Statistics (ABS) Census of Population and Housing 2006 and 2011.

- ABS Census 2006 and 2011 Quick Stats.
- ABS release No. 7503.0 - Value of Agricultural Commodities Produced, Australia.
- ABS release No. 7121.0 - Agricultural Commodities, Australia.
- ABS release No. 8165.0 - Counts of Australian Business June 2015.
- ABS release No. 3218.0 - Regional Population Growth, Australia.
- Australian Government, Department of Employment, Small Area Labour Market (SALM) data.
- New South Wales Government, Family and Community Services, Housing Rent and Sales Reports.
- New South Wales Government, Department of Planning and Environment, New South Wales State and Local Government Area Population Projections: 2014 Final.
- Tourism Research Australia, Local Government Area Profiles, Broken Hill, 2014.

Note: some data points provide a comparison with the 'Rest of NSW'. This region is a standard ABS term referring to non-metropolitan NSW.

### Quantifying Agricultural Production

Research was undertaken to understand and quantify the value of agricultural production in the RDA region. After extensive research and discussion with data collection agencies, it has been established that the lowest level of agricultural data for the region is at the Far West & Orana SA4 level. This means that there is no specific data to the RDA region. On this basis, agricultural production data has been provided in this report at the Far West & Orana SA4 level.

Further research was undertaken to investigate anecdotal evidence, which may provide insights into the value of agricultural production at the RDA region level. This process met with some success, with interviews providing some well-informed estimates of the value of sheep, cattle and goat production for the region over the past year. It should be noted that these are based on personal estimates and should only be considered indicative.

### Opportunity Analysis

Qualitative interviews were undertaken with locally operating businesses, Broken Hill City Council and other relevant organisations to highlight realistic business opportunities and understand changing dynamics in their operating environments, including challenges and barriers to development. A total of 22 interviews were undertaken to inform the qualitative research, with some of these interviews covering more than one sub-sector. Interviews in each sub-sector were as follows:

- Seven horticulture interviews
- Four food manufacturing interviews
- Twelve meat production interviews
- One meat processing interview
- Three tourism interviews

Interviews with businesses in these sectors sought to understand current operations, examine viable business opportunities for the future and highlight any barriers to developing these opportunities.

Where opportunities were identified, businesses were asked if they were able to share estimates of the future potential impact of these opportunities. Estimates were requested in terms of potential Full Time Equivalent jobs (FTEs) and impact on revenues. Where sufficient data was provided, indicative modelling was undertaken to understand the potential future impacts of these operations.

All interviewees consented to be identified in the report and for the information and data they provided to be discussed and modelled.

### **Economic Impact Modelling**

Sectoral opportunities in the Broken Hill and Far West region were modelled using economic impact analysis. Economic impact analysis was conducted using the 2013 Marginal Coefficients Input-Output models of the region. See Appendix 1 for a description of the Marginal Coefficients Input-Output model.

WRI used the Industry significance method of economic impact modelling to understand the impacts of the various opportunities. Industry significance analysis estimates changes in output, value added, household income and employment that would take place if the industry ceases to exist and is shut down. These impacts are explained below:

- Output, which is the value of goods and services that are produced within an establishment that become available for use outside that establishment, plus any goods and services produced for the organisation's own final use. Output is equal to total revenue plus any internal consumption.
- Value added, which is equal to gross output minus intermediate inputs. Value added is equivalent to the contribution to gross regional product (the local equivalent of gross domestic product).
- Household Income, which measures the benefit received by regional households from economic activity. It typically refers to compensation of employees but can also include income in return for other forms of productive activity.
- Employment, which refers to full-time equivalent (FTE) employment and is a measure of the total level of staff resources used. The FTE of a full-time staff member is equal to 1.0. The FTE of a part-time worker will be a fraction of this depending on the relative number of hours worked.

The Input-Output tables developed for this project were derived from the latest national table produced by the Australian Bureau of Statistics (ABS). That table provides a detailed picture of the structure of the economy of Australia for the year 2009-10. Steps were undertaken to update the table to end 2013. Further information from the State Accounts (ABS Cat. No. 5220.0), labour force data from the 2011 Census and the quarterly labour force survey (ABS Cat. No. 6291.0.55.003) were used to develop a state table for New South Wales. This was then regionalised to reflect the economy of the Broken Hill and Far West region. Further details of the procedures used in the development of a regional Input-Output table are provided in Appendix 1.

## Broken Hill and Far West - Socioeconomic Profile

The Far West Region of NSW encompasses the semi-arid lands of western NSW and is known for the Barrier Ranges, and the Darling River which flows through western NSW to join the Murray River at Wentworth. Bordering Queensland and South Australia, the Far West region of NSW is the most sparsely populated in the state, constituting 18.4 per cent of its area, but only 0.4 per cent of the population.

The region comprises of two Local Government Areas, Broken Hill City and Central Darling Shire and the unincorporated area of NSW, altogether covering an area of approx. 147,000 square kilometres. This geography coincides with the ABS Broken Hill & Far West SA3 region.

The Broken Hill Complex Bioregion generally has a hot, dry climate and lies within the NSW arid zone. Key climate variables include:

**Table 1 – Broken Hill Bioregion**

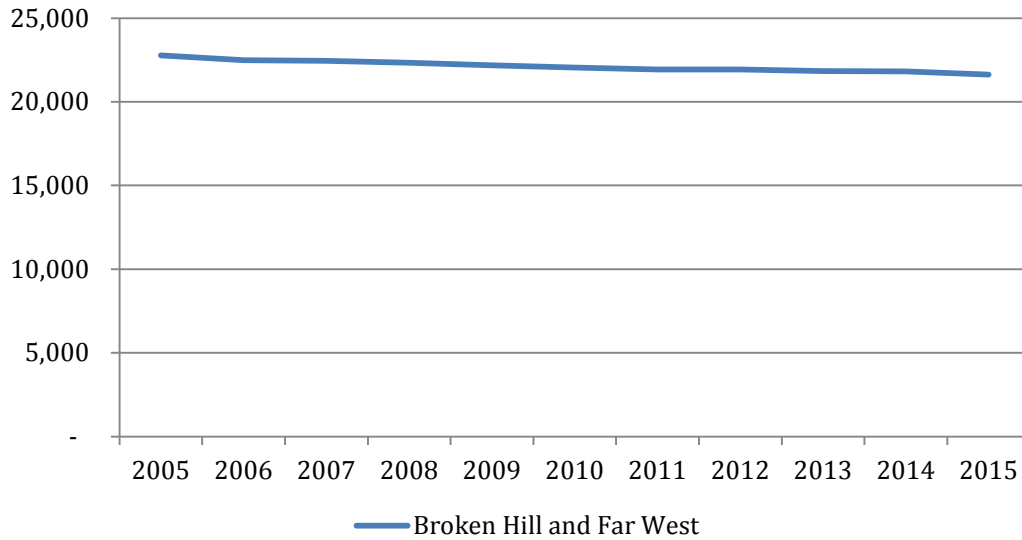
Broken Hill Complex Bioregion - climate variable information	
Mean annual temperature	17-20°C
Minimum average monthly temperature	3.8-5.5°C
Maximum average monthly temperature	32.1-35.8°C
Mean annual rainfall	137-257mm
Minimum average monthly rainfall	6-19mm
Maximum average monthly rainfall	16-39mm

Source: NSW Government, Office of Environment and Heritage [webpage](#). Accessed 30 August 2016

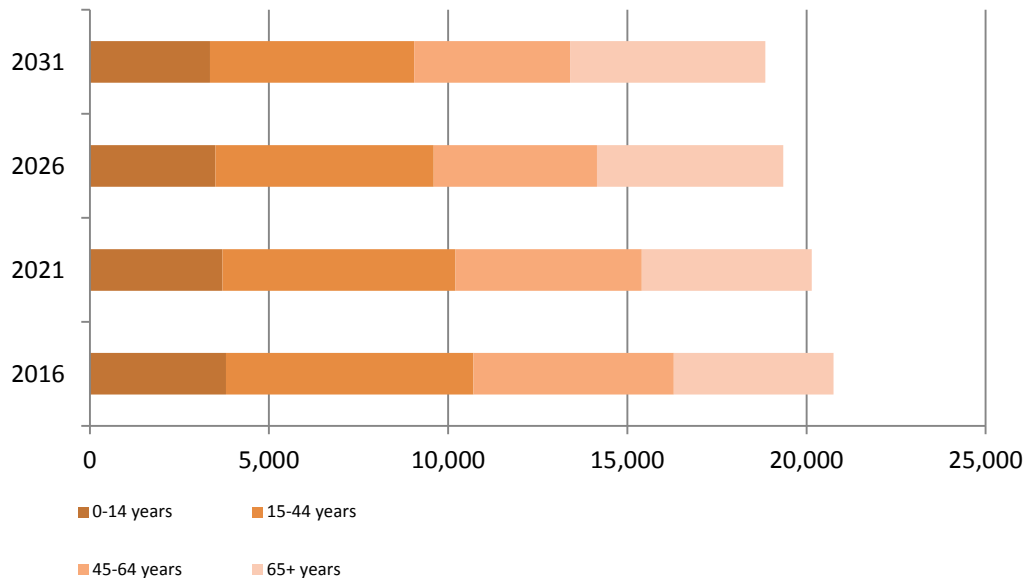
**Population**

The population for the Broken Hill and Far West SA3 as at the 2011 Census was 21,202. The estimated resident population as at June 2015 was 21,632 and has been in a gentle decline for some time. Population projections suggest that this decline will continue to a 2031 projected population of 18,850 and that the aged (65+) population will become proportionately larger.

**Estimated Resident Population**



**Population Projection Combined Broken Hill and Central Darling LGAs**





**Table 2: Age Dependency ration as at 2011**

	Far West & Orana	Rest of NSW
Child (0-14)	0.18	0.31
Aged (65+)	0.19	0.29
Total	0.37	0.60

Note: The 'Rest of NSW' is a standard ABS term referring to non-metropolitan NSW.

## Economy

### Gross Regional Product

The Gross Regional Product (GRP) for the Broken Hill and Far West SA3 is estimated at \$974 million.

### Key Employment Sectors

Key employment sectors in the region are:

- Health Care & Social Assistance
- Agriculture
- Retail Trade
- Education
- Accommodation and Food Services (Hospitality)
- Other mining

**Table 3: Top 20 Estimated Industry Employment and Wages 2014-15**

Sector	Wages	Percent of Total Wages	Employment	Percent of Total Employment
Health Care & Social Assistance	\$86,388,700	19.9	1106	17.5
Agriculture	\$16,968,100	3.9	822	13
Retail Trade	\$27,279,200	6.3	653	10.3
Education	\$56,298,100	12.9	605	9.5
Accommodation and Food Services (Hospitality)	\$22,627,700	5.2	479	7.6
Other mining	\$56,167,900	12.9	472	7.5

**Table 3: Top 20 Estimated Industry Employment and Wages 2014-15 (Continued)**

Sector	Wages	Percent of Total Wages	Employment	Percent of Total Employment
Public Administration & Safety	\$44,299,700	10.2	425	6.7
Personal & Other Services	\$17,693,400	4.1	377	6
Wholesale Trade	\$31,878,800	7.3	298	4.7
Construction	\$12,709,800	2.9	241	3.8
Primary Metal and Metal Product Manufacturing	\$5,627,700	1.3	101	1.6
Administrative and Support Services	\$10,524,800	2.4	99	1.6
Professional, Scientific and Technical Services	\$4,256,800	1	73	1.2
Arts & Recreation	\$4,307,300	1	66	1.1
Fabricated Metal Product Manufacturing	\$7,740,700	1.8	62	1
Machinery and Equipment Manufacturing	\$3,198,900	0.7	44	0.7
Electricity, Gas, Water and Waste Services	\$4,350,000	1	42	0.7
Food, Beverage & Tobacco Product Manufacturing	\$1,956,300	0.4	37	0.6
Financial and Insurance Services	\$2,558,800	0.6	27	0.4
Total	\$429,506,500		6265	

Looking at employment in more detail in the agriculture sector illustrates the predominance of employment with certain sub-sectors. Detailed data from the 2011 Census highlights the percentage breakdown for employment in the major agricultural subsectors:

- Cattle and sheep production – 79 percent of agricultural jobs
- Horticulture – 5 percent of agricultural jobs
- Shearing services – 5 percent of agricultural jobs

### Count of Businesses

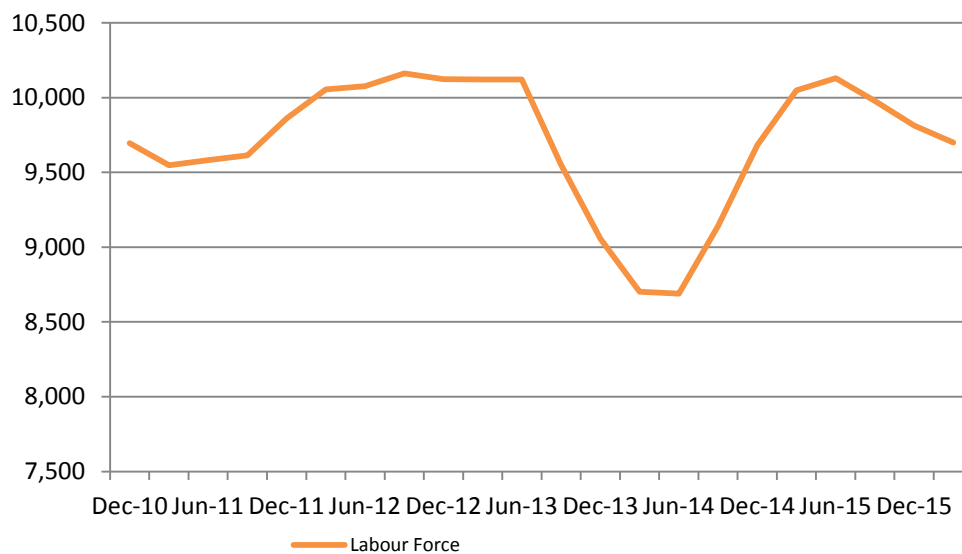
Over the 2011 – 2015 period, the number of businesses in the Broken Hill and Far West region declined from 1,319 to 1,233, a decline of 86 businesses or 6.5 percent. Whilst there was significant growth (13) in the number of businesses in the Health Care and Social Assistance sector, most sectors saw the number of businesses decline. The five worst performing sectors, by the number of business declines were:

- Retail Trade - 21 businesses
- Transport, Postal and Warehousing - 19 businesses
- Administrative and Support Services - 10 businesses
- Education and Training - 8 businesses
- Agriculture, Forestry and Fishing - 8 businesses

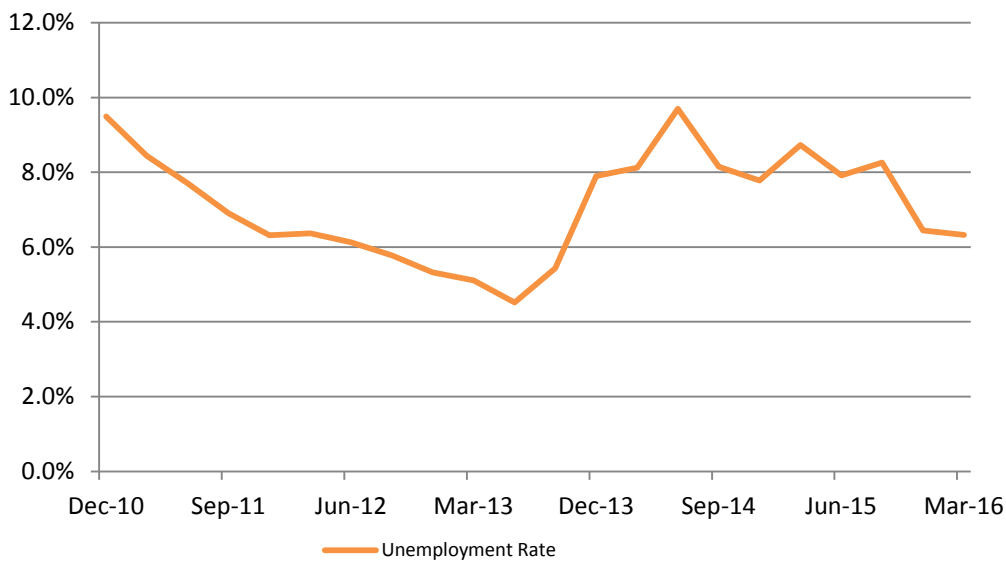
### Key Labour Force Data

As at March 2016 the combined Broken Hill and Far West SA2 regions had a labour force of 9,699 and an unemployment rate of 6.3 percent.

Labour Force



### Unemployment Rate



### People

#### Average Income by Occupation

In 2011, the top earning occupations in the Broken Hill & Far West SA3 region were Machinery Operators & Drivers and Professionals.

**Table 4: Income by Occupation**

Occupation	2011
Machinery Operators & Drivers	\$64,126
Professionals	\$63,328
Managers	\$52,379
Community & Personal Service Workers	\$51,624
Clerical and Administrative Workers	\$42,514
Technicians & Trades Workers	\$40,121
Labourers	\$28,534
Sales Workers	\$24,698

Source: ABS data.

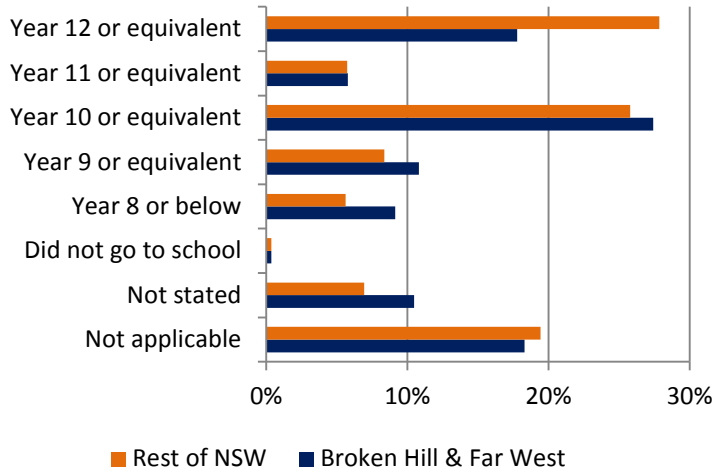
#### Highest Year of School Completed

As at the 2011 Census, the highest year of school education completed amongst residents of the Broken Hill and Far West region was most commonly:

- Year 10 or equivalent (27%)
- Year 12 or equivalent (18%)
- Not stated or not applicable (29%)

Interestingly, the completion of Year 10 was marginally higher for the region, but completion of Year 12 in the region was substantially lower than the Rest of NSW.

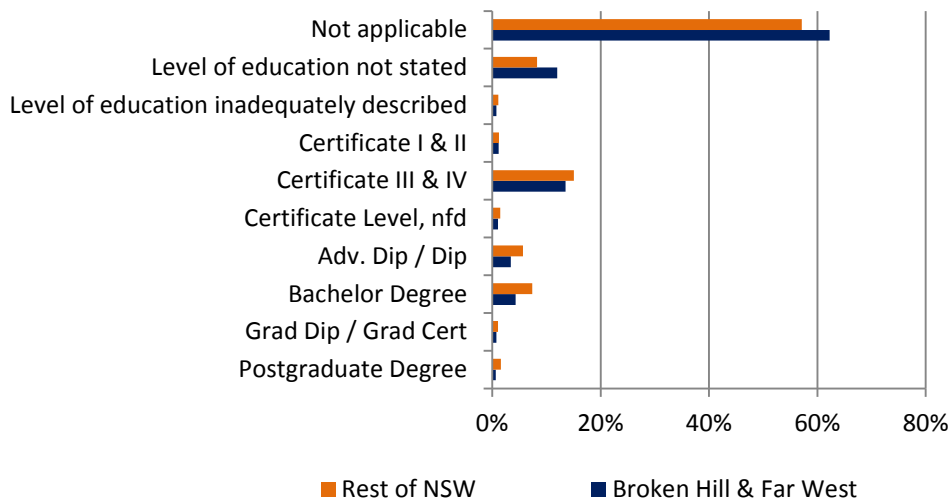
Highest Year of School Completed



Post School Qualifications

As at the 2011 Census, the most commonly completed, highest post-school qualifications were:

- Certificate III or IV (14%)
- Bachelor Degree (4%)
- The level of completion of Certificate III or IV is equivalent to that reported for the Rest of NSW (15%), but significantly lower for Bachelor Degrees and Diplomas.

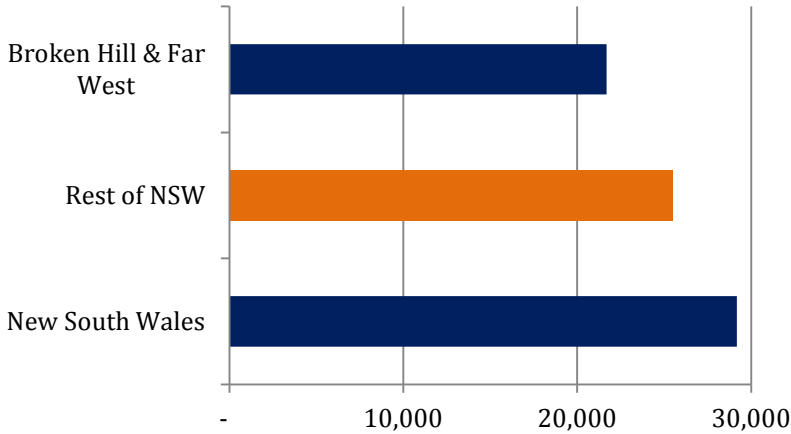


Median Incomes

Median Weekly Household Income 2011



Median Personal Income



## Health

Data on a number of key health related behaviours and outcomes were compiled to provide an overview of the health of the Far West health district:

- **Children's physical activity:** for children aged less than 16 years, 38 percent undertake adequate physical activity.
- **Smoking:** the rate of persons aged over 16 years who smoke is 14.5 percent, which is a dramatic reduction from 2002, when 27.5 percent of the population smoked. Smoking related hospitalisations occur at the rate of 614.4 (per 100,000 population) in 2014-15 in the region, compared with 542.1 for the whole of NSW, suggesting a high rate of smoking related illness, although this rate is declining. Smoking related deaths occurred at the rate of 92.8 (per 100,000 population) in 2013.
- **Consumption of fruit and vegetables:** as at 2015, the percentage of persons aged over 16 years who consumed the recommended amount of vegetable was 8.3 percent and 37.8 percent for fruit consumption.
- **Overweight and obese:** in 2015, 67.2 percent of the Far West population was considered overweight or obese. Hospitalisations due to body mass occurred at a rate of 410.5 (per 100,000 population), compared to the NSW state average of 436.8. High body mass related deaths occurred at the rate of 43.8 (per 100,000 population) in 2013.
- **Alcohol:** for persons aged over 16, 26 percent of the population consumed alcohol at levels posing long term risk to health in 2015. In 2014-15, alcohol attributable hospitalisations occurred at a rate of 664.1 (per 100,000 population), which is a slightly lower rate than for the whole of NSW, which occurred at the rate of 671.6. Alcohol attributable deaths occurred at a rate of 31.3 (per 100,000 population) in 2012-13.
- **High blood pressure:** high blood pressure hospitalisation occurred at a rate of 1207.2 (per 100,000 population) in 2013-14.

## Housing

### Housing Affordability

The affordability of housing was examined using a ratio of median house prices divided by median taxable income, and median weekly rents as a percentage of average weekly taxable income.

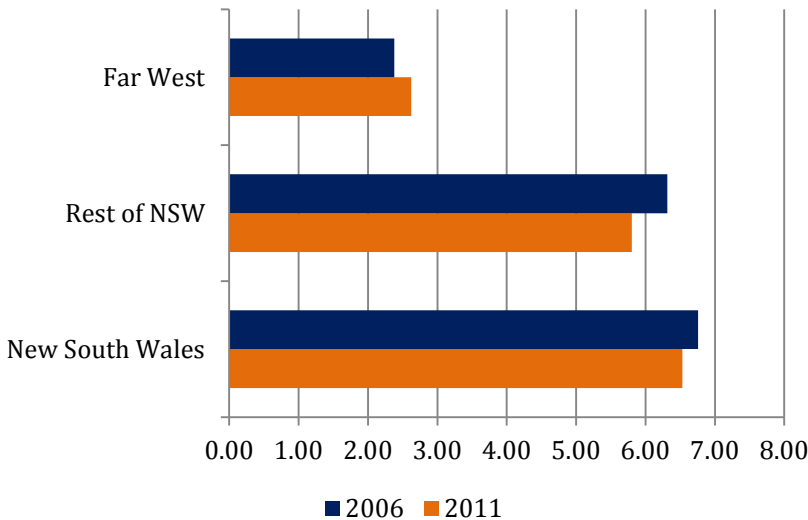
- Median weekly rents in Broken Hill and Far West in 2011 were more affordable compared to the Rest of NSW and NSW. However, rental affordability has deteriorated marginally in the region since 2006.

- The affordability of home ownership in Broken Hill and Far West has remained relatively stable since 2006. Broken Hill and Far West remains considerably more affordable than the Rest of NSW and NSW.

Median weekly rent as percentage of median household weekly taxable income



Ratio of median house price to median household taxable income





## Tourism

Tourism research is available for the Broken Hill Local Government Area (LGA). As at 2014 the Broken Hill LGA had 162 tourism related businesses that had employees.

Key statistics for the region are:

- The most important visitor group were domestic overnight visitors (135,000).
- The primary reason for visiting the region was for a holiday (78,000).
- The majority of accommodation nights were spent in a hotel or similar lodging (138,000).
- The majority travel party type were couples (46,000).

**Table 5: Broken Hill LGA Key Tourism Metrics 2014**

	International	Domestic overnight	Total
Visitors ('000)	8	135	np
Nights ('000)	47	390	437
Average stay (nights)	6	3	3
Spend (\$m)	3	70	np
Average spend per trip (\$)	397	519	np
Average spend per night (\$)	64	179	167
Average spend (commercial accommodation) per night (\$)	103	188	181

Source: Tourism Research Australia

## Regional Issues

Agricultural growth and diversification in the Broken Hill and Far West region needs to be understood in terms of significant regional issues that impact on businesses in the region. Two major issues impacting on agricultural producers are transport and communications, which are discussed in greater detail below.

### Transport

The region's remoteness from large population centres and generally limited transport infrastructure places additional operational and financial pressures on agricultural and other businesses. The region is geographically remote from major population centres, approximately:

- 1,148kms from Sydney
- 759kms from Dubbo
- 848kms from Wagga Wagga

- 837kms from Melbourne

Transport's key role in the regional economy has been recognised by RDA Far West, who engaged a consultant to develop an integrated transport study in 2012. The report identified that the demand for transport in the Far West Region is driven by:

- A resident population of approximately 22,500 primarily using the road network to travel within the region.
- Tourism visitation to the Region with a large self-drive market.
- Agricultural producers transporting livestock, crops and produce from the farm to markets throughout Australia and for export.
- Mining operations transporting mineral resources to port for export, and freight to the mines.
- Transport companies transporting freight primarily from Adelaide and the Eastern Seaboard to the Far West Region.<sup>1</sup>

The Far West Region has an extensive transport infrastructure network comprising:

- Road: the most heavily used transport infrastructure in the Far West Region. The region has an extensive road network include major highways, regional and local roads. The major highways in the Far West Region are the:
  - Silver City Highway;
  - Barrier Highway; and
  - Cobb Highway.
- Rail: the Far West Region is located on the transcontinental rail line that connects Perth and Sydney providing rail access throughout the east west corridor of Australia. The network forms part of the Australian Rail Track Corporation Ltd (ARTC) network.
- Air: Broken Hill Airport is located 6km from the City and is the major airport in the Far West Region. The airport is owned and operated by Broken Hill Council and is also a major base for the Royal Flying Doctor Service. There are several smaller airports throughout the region primarily used for emergency services, recreational and private aviation.
- Sea: the Far West Region is linked to ports in South Australia and New South Wales by rail infrastructure, with a focus on the Mining and resources sector including Port Pirie, Port Adelaide and the Port of Newcastle.<sup>2</sup>

Despite these transport links, there is significant room to improve transport infrastructure, which can hamper businesses through poor road infrastructure, high costs, or a lack of access (access to rail transport is limited for non-mining businesses). Indeed, the transport study highlighted 15

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<sup>1</sup> Regional Development Australia - Far West, Far West NSW Integrated Transport Study, 2014, p iii.

<sup>2</sup> Regional Development Australia - Far West, Far West NSW Integrated Transport Study, 2014, p ii.

infrastructure priorities, nine of which were considered high priority. Many of these infrastructure projects will have direct impacts on agricultural producers.

## Communications

Internet connection has come to be one of the principal tools for accessing information, communicating and undertaking business activities. Internet connectivity and communications in the Broken Hill and Far West region are poor, particularly for many agricultural operations that are remotely located. The industry group, NSW Farmers, has put these issues succinctly in a 2014 publication sharing details of a survey of farm businesses impacted by poor internet access:

*Given the large distances associated with living in rural areas, telecommunications play a vital role in maintaining social, community and business links. Unfortunately the lower population densities also mean that these areas do not get the same focus on service delivery.*

*Regional Australia is home to one third of the Australian population and makes an important contribution to the national economy, with agriculture producing 93% of all food consumed in Australia as well as exporting to international markets.*

*In NSW, 44,000 farm businesses operate across 72% of the total land area. While the largest services providers encompass 98-99% of the population in their mobile coverage network, this is mostly achieved through servicing highly urbanised areas as opposed to farming communities outside of regional centres.*

*The 2011-12 Regional Telecommunications Review identified that access to mobile broadband and voice services is important to capture the next generation of productivity improvements for the agricultural sector.*

*Undoubtedly parts of the farming sector are already taking advantage of the opportunities offered by access to mobile voice and broadband services. However, the current limitations of coverage, speed and pricing mean that many households and businesses in regional NSW are currently restricted in their access to such technology.*

*In order to capitalise on these benefits, there is an immediate need to improve the coverage and quality of voice and broadband services in regional areas.<sup>3</sup>*

As this publication shows, regional and remote NSW farm operations are reliant on the internet for their businesses, and do not receive adequate connectivity to undertake many basic business interactions. This feedback has been reflected in interviews with agricultural operations in the Broken Hill and Far West region.

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<sup>3</sup> NSW Farmers, Telecommunications Survey Results, 2014, p 2.

## Agricultural Production

Data supplied by the Western Local Land Services from the annual land and stock returns, completed by livestock holders, provides information on the number of stock being held on properties in the Broken Hill and Far West region in 2015. Importantly, this data is not production value data, but refers to the number of animals being held on properties in 2015.

This data highlighted that beef cattle, sheep and goats were the predominant livestock holdings in the region, with very few other types of livestock. Stock holding numbers were as follows:

- Beef Cattle - 80,931
- Goats - 140,898
- Sheep - 1,529,369

All other available agricultural data was at the Far West & Orana SA4 region level. In 2014-15, total agricultural production in the Far West & Orana SA4 was \$1.3 billion. Production was dominated by three main production categories:

- Broad acre crops (Excl. hay production)
- Livestock - Slaughtered and other disposals
- Livestock - Products

The counts of businesses in each production sector followed this trend with the broad acre crops and the livestock sub-sectors forming the majority of businesses.

**Table 6: Far West & Orana SA4 Agricultural Production 2014 - 15**

Sector	Value (Local) 2014 - 15	Number of businesses
Agriculture Total	\$1,306,444,477	3,619
Broad acre crops (Excl. hay production)	\$662,910,411	1,381
Broad acre crops (Hay production)	\$21,776,197	204
Horticulture Cut Flowers	\$537,516	1
Horticulture Nurseries	\$1,031,361	3
Horticulture Turf	\$1,411,252	4
Horticulture - Vegetables for human consumption	\$810,087	13
Horticulture - All fruit & nuts (Excluding grapes)	\$1,322,347	32
Horticulture – Grapes	\$327,298	8

Livestock - Slaughtered and other disposals	\$438,332,296	
	<ul style="list-style-type: none"> <li>• Sheep \$151,306,162</li> <li>• Cattle \$272,328,403</li> <li>• Pigs \$4,541,583</li> <li>• Poultry \$7,528,840</li> <li>• Other \$2,627,307</li> </ul>	<ul style="list-style-type: none"> <li>• Sheep 2,077</li> <li>• Cattle 2,454</li> <li>• Pigs 24</li> <li>• Poultry 155</li> <li>• Other 605</li> </ul>
Livestock - Products	\$177,985,707	N/A

Source: ABS data.

Far West & Orana SA4 production data was compared with a number of other rural inland SA4 regions and with total NSW State production to understand how the Far West & Orana SA4 performed amongst peers (see Table 7 below). At the broad Agriculture sector level, the Far West & Orana SA4 had the poorest performance out of the comparison regions, with the value of production declining 11 percent over the period.

Other key points from this data are:

- The growth in the value of broad acre crops was mixed with substantial declines in general broad acre cropping, but reasonable growth in the value of hay production.
- Growth in Far West & Orana cut flower production had the most significant growth across the comparison regions, but off a very low base.
- Nursery production followed a general declining trend across comparison regions, although it was one of the worst performers.
- Turf production had reasonable growth.
- There has been a significant decline in the growth of vegetables for human consumption and the region has performed very poorly when compared with other regions.
- Similarly, fruit and nut production has had a significant decline and poor performance against comparison regions.
- Slaughtered livestock has performed very well in both percentage gains and in dollar terms, but is in the lower end of the growth range when compared across regions.
- There was a small decline in the value of livestock products, including wool, milk and eggs. Whilst the region performed at the lower end of the range, this performance was reasonable in comparison with other regions.

**Table 7: Change in the Local Value of Production between 2011 – 12 and 2014 – 15 by SA4**

Sector	Percentage Change				
	NSW	Far West & Orana	Murray	Riverina	Central West
Agriculture Total	14%	-11%	27%	31%	37%
Broad acre crops (Excl. hay production)	-32%	-45%	-23%	-26%	-16%
Broad acre crops (Hay production)	-84%	29%	-98%	93%	-1%
Horticulture Cut Flowers	20%	99%	-72%	-	-
Horticulture Nurseries	-13%	-80%	35%	-36%	-81%
Horticulture Turf	26%	33%	-	156%	-
Horticulture - Vegetables for human consumption	2%	-84%	-4%	13%	116%
Horticulture - All fruit & nuts (Excluding grapes)	7%	-77%	-11%	32%	0%
Horticulture – Grapes	20%	118%	16%	32%	-1%
Livestock - Slaughtered and other disposals	37%	29%	27%	83%	43%
Livestock - Products total	11%	-6%	10%	0%	20%

### Livestock production – Broken Hill & Far West SA3

Interviews were undertaken with a number of individuals involved in the meat production business that allowed for the collection of anecdotal evidence as to the value of meat production in the Broken Hill and Far West region.

#### Sheep and Cattle

Anecdotal evidence was gathered on the value of livestock production in the Broken Hill and Far West region through discussions with two major local livestock brokering houses, Landmark and Elders. Representatives from Landmark and Elders were asked to provide data on their total sales of sheep and cattle in the most recent financial year. They were also asked to estimate what percentage of the entire market their sheep and cattle sales comprised. Utilising their business data, estimates and their thorough knowledge of the local markets, these two businesses were able to provide some indicative estimates of production in the region.

The total value of sheep and cattle sales from the region was estimated at \$73,297,956. This was comprised of

- \$27,723,846 in cattle sales, which translates into 32,406 cattle at \$855.51 per head
- \$45,574,110 in sheep sales, which translates into 529,746 at \$86.03 per head

Economic impact modelling was undertaken on the above revenues to estimate the impact of sheep and cattle production in the region. Noting that these are indicative impacts, based on industry estimates of production, the economic impacts have been estimated as:

**Table 8: Cattle production**

	Initial	Flow-on	Total
Output (\$m)	\$27,720,000	\$45,280,000	\$73,000,000
Value-Add (\$m)	\$5,740,000	\$11,850,000	\$17,590,000
Income (\$m)	\$1,950,000	\$4,630,000	\$6,590,000
Employment FTE (no.)	0	116	116

**Table 9: Sheep production**

	Initial	Flow-on	Total
Output (\$m)	\$45,640,000	\$70,520,000	\$116,160,000
Value-Add (\$m)	\$9,570,000	\$18,350,000	\$27,920,000
Income (\$m)	\$3,260,000	\$7,210,000	\$10,470,000
Employment FTE (no.)	0	181	181

### Goats

Interestingly, ABS data does not report on the number of goats produced in the region. This fact fits in with research and anecdotal evidence that has found that there is very little reporting of goat production numbers. The lack of data was confirmed by a representative of the Goat Industry Council of Australia (GICA), who advised that they do not have any means of estimating this number. Discussions with industry participants did, however, illustrate some potential methods for estimating these numbers. A reasonable estimate, detailed below, is that goat production in the Broken Hill and Far West region could be as high as \$64,960,000 in the last year.

Interview feedback is outlined below:

- Elders – livestock broker  
A discussion with the manager at the Broken Hill Elders branch provided some insight into the number of goats being produced in the Broken Hill and Far West region. It was this person’s view that the region produced between 350,000 and 500,000 goats annually. Whilst this figure was a personal estimate, it is based on a very detailed knowledge of the meat production business in the region and personal relationships with some of the largest goat

mustering operations in the region. Based on this figure, and an estimated average price per head for goats of \$75 (also provided in the interview), this equates to a production value between \$26,250,000 - \$37,500,000.

- Rick Gates – goat depot operator  
An interview with a goat depot operator in the Wilcannia region highlighted very large estimates of goat production from within the Broken Hill and Far West region. This individual operates a goat depot, which buys smaller numbers of goats from individual properties and resells them in bulk. This depot operator turns off an average 150,000 goats annually.

It was discussed that in 2014-15, the number of goats slaughtered in Australia was 2.1 million.<sup>4</sup> Based on this operator's knowledge of the industry, it was advised that Victoria, Western Australia and the Northern Territory had very little goat production. The remaining goat producing regions were highlighted as South Australia, Western NSW and South Western Queensland.

Anecdotal evidence suggests that Western NSW is the largest producer of goats. Based on a 2.1 million slaughter rate, a rough division of this number between three regions led to an estimate of approximately 800,000 goats being produced from the Broken Hill and Far West region, accounting for the fact that NSW is the largest producer.

Further information was provided which allows for some quantification of the value of this production. The average dressed weight for goats was confirmed at approximately 14kg per head. At a \$5.80 dressed weight average price, this translates into \$81.20 per head of goat. Times the production number of 800,000, this equals approximately \$64,960,000 in goat production in the region.

It would appear, based on the alignment with national goat slaughter data, conversations with other producers and market participants, and given the strong local knowledge of this source, it would appear that this is a realistic estimation of goat production for the Broken Hill and Far West region.

Economic impact modelling was undertaken on the above revenue to estimate the impact of goat production in the region. Noting that these are indicative impacts, based on industry estimates of production, the economic impacts have been estimated as:

**Table 10: Goat production**

Goat production	Initial	Flow-on	Total
<b>Output (\$m)</b>	\$64.96	\$94.82	\$159.78
<b>Value-Add (\$m)</b>	\$13.83	\$24.55	\$38.38
<b>Income (\$m)</b>	\$4.71	\$9.70	\$14.41
<b>Employment FTE (no.)</b>	0	244	244

<sup>4</sup> This number is confirmed in the following publication: Meat and Livestock Australia, Fast Facts 2015 - Australia's goat meat industry.



## Horticulture

With its warm, dry climate the southern half of the Far West region has historically provided good conditions for horticulture when adequate access to water has been possible. Warmer spring temperatures have traditionally allowed the region to enjoy a small window of time (approximately 3 weeks) whereby producers in the region could sell produce into supermarkets prior to the beginning of picking in other, cooler regions. However, with changes in the horticultural sector in other warm climate regions, this advantage has been reduced down to approximately 10 days.

The large expanse and low population allows for inexpensive land to be utilised for horticultural production. The water resources at the Menindee lakes have, in the past, allowed for the development of substantial horticultural operations. However, this sector is now struggling.

To develop an understanding of potential economic opportunities in this sector a number of Broken Hill horticultural producers were contacted:

- Robert Tavian – Director of Santalum Quandongs
- Gary Ferguson – Director of Broken Hill Gourmet Products
- Travis Casey – Owner/manager of Triaqua
- Peter Hempel – Manager for Thomas Foods
- James Roncon – General Manager, Broken Hill City Council
- Andrew Bruggy – Deputy General Manager, Broken Hill City Council
- Andrea Roberts – Economic Development Manager, Broken Hill City Council

A range of horticultural products has been produced in the region, although this can be dependent on water availability in any given year and has been impacted over recent years with production of certain products ceasing. Past production has included:

- Stone fruit
- Citrus
- Table and wine grapes
- Quandongs
- Table and oil olives
- Potatoes
- Lucerne

With the sub-sector under considerable pressure, interviews highlighted a range of operational issues, constraints and opportunities, which are discussed in detail below. Despite these constraints, two opportunities have been identified to diversify the Agriculture sector, provide the region with fresh fruit and vegetables and assist with the development of a local food culture.

## Water

The most substantial barrier to the development of the horticultural sub-sector in the region is access to water. Low rainfall periods and changes to New South Wales' agricultural water licencing system have resulted in substantial reductions in water available to horticultural producers in the region. Anecdotal evidence suggests that many of the larger horticultural operations have shuttered or reduced operations and some family owned farms have been put up for sale.

Horticultural producers agree that the region has significant promise if access to water is secured. Feedback is that there are profitable horticultural products and businesses if water is available. This is supported by research undertaken by the Australian Academy of Technological Sciences and Engineering (ATSE ), who have argued that Australia's "Ability to exploit new growing environments will depend on water and infrastructure availability" and that "Horticulture can compete strongly on the water markets with high returns".<sup>5</sup>

However, low access to water is the defining feature of arid, inland NSW. Indeed, one interviewee provided the anecdote that over the 100 year period between 1880 – 1980, the Darling River had stopped flowing 45 times, meaning that the region had times where water was accessible and times when it was not. It was further noted that producers had no choice but to structure their business model around the fact of variable access to water.

It appears that businesses are dealing with variable water in a number of ways. Corporate owned farms appear to utilise a disciplined approach of shuttering or selling operations impacted by low water. Evidence from interviews was that some corporates had significantly cut employment at certain operations, leaving them with minimum care and maintenance staffing.

It was suggested that family owned farms had, in some respects, more flexibility to deal with low water periods by taking paid work in a business off the farm to supplement their on-farm incomes. It was also noted that, with the downturn in mining, this was becoming more difficult.

Evidence was also found to suggest that some family farms were simply selling their properties and moving out of the region. It was discussed in one interview that in these situations, the stress of a continuing lack of certainty around water supply and poor investment returns had proved too much for some farmers.

The most significant issue relating to poor water security was that investment into hard infrastructure as well as plant assets could not be undertaken without some sense that investments would be able to repay themselves and provide a reasonable return. Whilst it was not raised in this specific context during interviews, farm indebtedness makes a secure return on investments even more imperative.

A key impact on the level of water security on farms related to the type of horticulture activity being undertaken. Interviews highlighted that permanent plantings, such as orchards, had a higher level of water security than annual plantings, such as potatoes. The impact of this higher level of security meant that, in dry times, permanent plantings could potentially receive sufficient water to remain

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<sup>5</sup> Australian Academy of Technological Sciences and Engineering (ATSE ), Food and Fibre - Australia's Opportunities, 2014, p 37.

alive until further water was available. In contrast, annual plantings receive no water in these periods.

Access to water will remain a key issue for horticultural producers in the region.

### **Regional production, processing and transport constraints**

Horticultural producers in the region face a range of different processing and transport constraints, determined by geographical and infrastructure constraints, and the type of horticultural production they are engaged in. Understanding these constraints could assist with future decisions on the most appropriate produce to grow in the region, or to understand the necessary infrastructure and business model required to create a successful business.

By way of example, interviews highlighted some specific constraints on the production, processing and transport of certain horticultural crops currently being grown in the region:

- Stone fruit must be packed onsite and requires better transport infrastructure in order to prevent bruising and allow fruit to reach supermarkets in a saleable condition. This requires producers to develop expensive packing house infrastructure and manage transportation conditions.
- Table grapes have also been produced in the region, particularly around Menindee, with some success. However, imports and earlier ripening varieties being planted in other warm regions have impacted Far West regional producers and have seen many grape producers cease production.
- Olive oil producers also operate under unique circumstances, with olives being required to be processed within 24 hours of being picked in order to qualify for the quality and processing standards set out for extra virgin olive oil accreditation. These constraints impact substantially on harvesting, with significant labour input required within highly defined periods of time. A further impact is that, olive plantations must be planted in sufficient size groves so as to allow for economic production of oil – groves that are too small or production from trees that are too dispersed will not allow for sufficient oil production from the required labour.
- Quandongs offered some potential advantage to producers, although they do have a substantially smaller market than for many of the more widely consumed fruits. Quandongs are a native fruit to the region and use less water than many other fruit crops. An issue for the horticultural production of quandong is that they are a parasitic plant that must be planted alongside a host plant. A substantial advantage of quandong production is that the fruit can be frozen without extensive impacts on fruit quality.

Future successful horticultural production will need to focus on products that are best suited to regional climate, water restrictions and picking, packing and transporting constraints that come with operating in a remote area. Alternately, successful production could utilise new value adding processes to access new markets or manage production issues.

## Value adding

As discussed above, different horticultural production facilities have unique operating circumstances that may impact on operational efficiency, effectiveness and profitability. As is often the case, operational problems may also be transformed into an opportunity. One horticultural producer discussed a potential opportunity to introduce a value adding capacity into horticultural production that would alleviate a number of the operating issues faced by remote fruit producers.

The opportunity was to develop freeze drying infrastructure alongside fruit production. This provides an interesting solution to a number of the problems associated with fruit production and opens up a different market to producers. Whereas fruit is often produced for the fresh fruit market, to be sold through supermarket chains or into boutique fruit and vegetable stores, freeze drying capacity allows for the transformation of fresh fruit into a value added product for sale in the Wholesale sector - most likely to be used by food manufacturers in their production. Possible uses include the production of fruit flavoured yoghurts, chocolates, desserts, drinks, etc.

This processing avoids many of the picking and packing issues for soft fruits, reduces wastage and could potentially create more profitable businesses. For example, fresh fruit producers must manage supply chain issues, such as delivering to market in a way that maximises freshness and ripeness, whilst avoiding bruising and wastage. Freeze dried products have substantially longer shelf lives, do not require instant transportation, do not need to be refrigerated, and do not require premium grade fruit. This process can use older, riper and bruised fruit, and with regard to transport, a freeze dried product involves significantly less weight and bulk. All of these factors may contribute to lowering wastage and other costs of production.

Noting that freeze drying infrastructure would require investment, it was commented that the current requirement for packing and refrigeration plant was also expensive infrastructure. Installing freeze drying infrastructure would simply be a substitution cost. A further observation was that freeze drying infrastructure could be utilised to process many different types of fruit, whereas fresh fruit packing infrastructure could only be utilised to pack specific fruit.

The opportunity was also considered in terms of the potential for periods of lower water entitlements. It was discussed that freeze drying infrastructure could potentially sit idle if low water entitlements reduced or ceased fruit production. This was seen as a minor issue as fruit could be imported into the region quite easily from Mildura. It was further highlighted, by way of comparison, that the current fresh fruit packaging infrastructure in place was also sitting idle.

In terms of the potential economic impact of freeze drying infrastructure, it was estimated that the processing would utilise as many staff as fresh fruit packing infrastructure, with the added benefit of have a longer processing season. Whereas one large fresh fruit producing organisation formerly employed 13 FTEs and between 90 – 140 casual labourers for two months of the year, it was suggested that a freeze drying facility would employ the same number of people, but with an additional 1-2 months of extended processing for the casual staff.

Modelling was undertaken to estimate the economic impact of a value added processing opportunity based on the above scenario. For the purpose of modelling an estimate of Full Time Equivalent (FTE) positions was developed. Assumptions were made with regard to translating casual

workers into FTEs. It was assumed that 120 staff, working full time hours for four months of the year equated to 30FTEs, in addition to the 13 FTEs discussed above. This comes to a FTE count of 43.

Modelling 43 additional FTE in the Manufacturing sector (Food & Beverage Manufacturing) the economic impact of this opportunity on the Broken Hill & Far West SA3 area are as follows:

**Table 11: Value adding**

	Initial	Flow-on	Total
Output (\$)	18,400,000	35,450,000	53,850,000
Value added (\$)	3,490,000	9,780,000	13,280,000
Household income (\$)	2,340,000	3,810,000	6,160,000
Employment FTE	43	92	135

### Access to technical information

A number of the smaller horticulture producers discussed the difficulty of operating in this sub-sector without access to technical information on issues such as plant management, pest control and growing techniques. Interviews also highlighted that professional horticultural advice and knowledge can assist producers to make better business decisions.

The example was given that, with the planting of earlier fruiting table grape varieties in Queensland, local table grape production had been adversely impacted as demand was being filled by these Queensland producers. If local growers were more aware of the trends in varieties and what was being planted in other regions, they could have changed their operations in anticipation and been less negatively impacted by industry trends.

### Urban agriculture

Interviews with agricultural production businesses were focussed predominately on farm operations. However, given the confluence of issues and needs highlighted in interviews, it would appear that developing some level of urban agriculture would provide a neat solution to a number of the needs and desires voiced in these interviews.

Urban agriculture can be undertaken in many different ways including market gardens, public orchards, aquaculture and community gardens. Urban agriculture would further diversify the agricultural industry in the region, assist in developing a food culture and a 'paddock to plate' local production system, provide the community with fresh fruit and vegetables, provide a point of interest for tourists and provide produce for a potential farmers market.

As discussed above, interviews with horticultural producers highlighted that water security is a significant barrier to production. A significant benefit of urban agriculture is that it has the capacity to operate around the barrier of water security.

Currently, Broken Hill's storm water runoff is un-utilised, with anecdotal evidence suggesting that much of the runoff is directed into disused mine infrastructure or privately owned wetlands. If Council were to take steps to either capture this water through rain water tanks connected to public

buildings, or develop infrastructure to capture some of this water from the storm water infrastructure, a significant amount of water could be available for local agricultural production.

Given Broken Hill's dry climate and the clear need for water, the current system appears to be a highly inefficient use of a valuable asset, which could be harnessed at relatively low cost. Furthermore, Broken Hill has a precedent for the use of recycled water. It was discussed that some businesses were already utilising some level of recycled water in their operations.

Meetings with Broken Hill City Council highlighted the potential for the development of the necessary infrastructure, including both land and water. Council were receptive to the idea of urban agriculture from a planning perspective and discussed the potential use of Council land. Further, Council highlighted the potential to utilise water from the storm water run-off system and/or connect public buildings to water tanks. It was suggested that substantial amounts of water could be available from these sources if managed appropriately.

### **Horticulture recommendations**

- That further work be undertaken to understand which horticultural producers remain in the region and their future prospects. This work will allow stakeholders to develop a plan to assist producers and understand the potential to build on the local industry.
- Once industry engagement has been undertaken, work with the horticultural industry to understand if there are any value adding processes that could be implemented locally that would assist local producers to negotiate industry constraints.
- If there is sufficient desire from local horticultural producers, resources could be pooled to access professional agricultural advice to assist local industry participants.
- That work is undertaken with community, council and businesses to explore the demand for urban agriculture. Issues to consider would include interest in urban agriculture projects, current water supply and demand, infrastructure requirements to supply water from current rooftop and stormwater infrastructure, potential sites and site ownership/access issues.

## Food Manufacturing and Local Food

The Broken Hill and Far West region appears to have a quite limited Food & Beverage Manufacturing sector. Very few food and beverage manufacturing businesses were highlighted in interviews, and businesses in this sub-sector interviewed were very small scale businesses, often not operating on a commercial basis.

Despite the small scale of these operations, a wide range of products was being manufactured in this sector in the region. These include:

- Extra virgin olive oil
- Quandong products
- Sauces
- Salted caramel
- Bush foods
- Flavoured syrups

To develop an understanding of potential economic opportunities in this sector a number of Broken Hill food and beverage manufacturers were contacted:

- Robert Tavian – Director of Santalum Quandongs
- Gary Ferguson – Director of Broken Hill Gourmet Products
- Lee Cecchin – Owner/manager of Pandoras Palate
- Jason King – Owner/manager Bell’s Milk Bar

Interviews undertaken during the project highlighted a number of value added food manufacturing opportunities that could operate alongside primary agricultural production operations, such as meat processing and freeze drying produce from the horticultural industry. These manufacturing opportunities have been dealt with in other relevant sections of this report.

A number of interviews was also conducted with small scale food manufacturing businesses. These businesses were included in the project to understand the potential to diversify agricultural production by developing local food manufacturing businesses that would utilise local produce.

Whilst these businesses appear unlikely to offer large scale diversification opportunities for the Agricultural sector, they do offer a significant prospect of assisting the development of a local food culture and industry that would assist the region’s economy and could provide some level of support to specific agricultural producers.

### Demand for local products

It is a widely accepted idea that a significant part of a tourists experience when travelling is to experience local foods. Interview feedback from both manufacturers and tourism operators has confirmed this idea, agreeing that tourists to the region want and ask for local products. Feedback on this issue highlighted that tourists either want food that is local to the region, such as native or

'bush foods', or food that may be particular to the place or business that is catering to the tourist. One example of this was of farm stay visitors who wanted to taste beef grown on the property. This suggests that tourists want a food experience that is authentic and representative of the region or business.

A further insight from interviews was that, at the moment, there are difficulties in providing tourists with this experience. Noting that small scale manufacturers may not be capable of ramping production at this point in time, discussions with local manufacturers found that they are often not working with other local businesses to make their products available to tourists as a retail item or used in the preparation of foods that tourists are purchasing.

A related issue is the inability for tourists to taste one of the region's most successful products, locally grown meat. Interview feedback suggested that it is not possible to purchase locally produced meats and that meat is brought in from other regions.

This raises an opportunity for local food manufacturers to work with other retail and tourism operators to develop a more authentic tourism experience by utilising local produce. Furthermore, it lends credence to the idea of redeveloping some capability to process locally produced meats for sale to tourists and locals.

## Marketing

Developing the demand for locally produced foods relates into the marketing and branding of the region and its produce. Interviews with local food and beverage manufacturers illustrated a range of different marketing strategies. Some products were marketed on their quality; some products were marketed on the individual history of the business; other products were marketed on the personality and reputation of the purveyor; and finally some products did not appear to be marketed at all. Different businesses have met with varying levels of success based on these strategies.

In many instances, the most distinctive factor of any food product manufactured in Broken Hill is the fact that it is produced in Broken Hill, and is therefore representative of the town's location, isolation and unique history and environment. By developing products and marketing that tap into these factors, businesses are able to define themselves against competitor products and appeal to people who want to taste the products of outback Australia.

Local branding will cater to tourists who come to the region and wish to taste local produce, but could also allow for the development of local food manufacturers that are trying to develop markets for their products outside of the region. When competing against a variety of products from other regions, a highly defined and articulated brand that sells the local story of Broken Hill, taps into a strong and present understanding of Australia's outback heritage and Broken Hill's history and could provide a significant advantage. Conversely, trying to develop a more personalised brand may require significantly more work and will be less likely to leverage off any branding work being undertaken by other local businesses or organisations.



## Integrated food manufacturing business model

Interviews with food and beverage manufacturers highlighted an interesting local business with a business model that has been utilised very effectively in other areas of regional NSW to develop local food production into an integrated manufacture, retail and tourism business.

Bell's Milk Bar is an original 1950s milk bar that has been in continuous operation since it was opened. The business has retained its original 1950's milk bar décor and style and is a popular destination for locals and tourists. The business continues to manufacture a large selection of sweet syrups, based on the original recipes used by its founder, for use in the milk bar and for retail sale. The business also has a website and sells its syrups online and wholesale.

Importantly, the business markets its authentic premises and story to attract clientele, including a significant proportion of tourists. The Bell's Milk Bar experience is very much based on its 1950s décor, and the premises also include a 1950s style museum, whereby one room is decorated entirely in 1950s furniture and machinery, much of which is original to the premises from that era.

The integrated retail, food manufacture and tourism focussed business model for Bell's Milk Bar is similar to the very successful Junee Liquorice and Chocolate Factory and could potentially be utilised in another setting to develop a business based on local Broken Hill agricultural produce. The Junee Liquorice and Chocolate Factory evolved from an organic farm business that began manufacturing liquorice as a means of value adding the grain produce produced on the farm.

The Junee Liquorice and Chocolate Factory business has developed over the years into a sophisticated and integrated business that manufactures and sells a range of confectionary, including online and wholesale sales, a tourism operation that utilises its manufacturing process as a means of drawing in customers, a restaurant and function business in addition to a gift shop, all integrated into the one historic premises in an old flour mill.

Whilst Bell's Milk Bar does not utilise significant amounts of local agricultural produce, the business model has been found to be a successful way to incorporate local produce with manufacturing and tourism businesses to great effect. On this basis, there is a potential opportunity to develop a similar business in Broken Hill, utilising local produce.

Bells Milk Bar currently employees 3.5 FTEs. It was estimated by the business owner that, if the food manufacturing side of the business was ramped up, it could employ an extra FTE. On this basis, indicative modelling was undertaken on the basis of 4.5 FTEs, modelled on the Retail and Food & Beverage Manufacturing sectors, to illustrate the potential impact of a new integrated retail, food manufacture and tourism focussed business, with a focus on agricultural production. The economic impact of this business is estimated at:

**Table 12: Integrated food manufacturing business**

	Initial	Flow-on	Total
Output (\$)	\$450,000	\$658,000	\$1,108,000
Value added (\$)	\$152,000	\$207,000	\$349,000
Household income (\$)	\$91,000	\$79,000	\$170,000
Employment FTE	4.5	1.5	6

## Challenges, barriers and suggestions

### Transport

Transport cost was raised as an issue for food manufacturers. Smaller consignments and reliance on air freight has meant that transport costs can form a large part of total costs to get products on shelves outside of the Broken Hill region. One interviewee advised that they sometimes relied on friends and family travelling to certain destinations, who would deliver products on their journey. Any actions that could be taken to assist transport costs would deliver benefits to local food manufacturers.

### Scaling Production

The food and beverage manufacturing businesses included in interviews were all small scale businesses, with some having yet to become commercially viable. All of the businesses interviewed highlighted that they faced many of the common issues that small businesses experience as they try to grow their operations. These include a high ratio of overheads, managing small scale production to meet variable demand, marketing and market development, and personal issues such as a lack of time to meet the many demands of running a small operation.

## Food manufacturing recommendations

- That dialogue is facilitated between successful food manufacturing businesses or potential customers and local food manufacturing businesses to mentor and potentially collaborate in the development of the local industry.
- That relevant stakeholders work with local food manufacturers to facilitate the use of locally manufactured foods in the local food and tourism scene. This will allow tourists to experience products that are locally manufactured in the region and capture an authentic food experience. Local restaurants and retail food outlets would potentially benefit from this arrangement by marketing local produce to tourists with the opportunity to sell more products.
- That local food manufacturers undertake efforts to understand their marketing advantages and work to develop products that work to these advantages. Developing products that speak to the history and geography of Broken Hill may provide local food manufacturers with a marketing advantage over other products.

## Meat Production

Meat and fibre production is the mainstay of the Far West Agricultural sector and is currently enjoying buoyant markets, good growing conditions and considerable optimism among local Far West producers. The region is a major producer of sheep meat and wool, beef cattle, goats and has a largely untapped potential as a supplier of kangaroo meat.

The industry has a complicated supply chain, with producers selling to a range of wholesalers, exporters, sale yards and other producers in a wide geographical area. Destinations include Dubbo, Lobethal, Melbourne, Murray Bridge, Wagga Wagga, Charleville, Swan Hill and export markets in California and potentially other US states.

Whilst producers have traditionally been focussed on cattle and sheep meat/fibre, other animals such as goats and specific breeds of meat sheep are becoming increasingly important to the sector. Anecdotal evidence suggests that sheep fibre and meat production accounts for the largest share of grazing production in the region, with one interviewee estimating the region has an approximate 30/70 split between beef and sheep production.

To develop an understanding of potential economic opportunities in this sector, a number of Broken Hill meat and fibre producers were contacted:

- Julie and Justin McClure – Owners of Kallara Station
- Naomi Schmidt – Owner/manager of Eldee Station
- Terry Smith – Owner/director of Scarsdale Station and Waterbag Station
- Sue Andrews – Owner/director of Avondale Station
- Mitchell Plumbe - Senior Land Services Officer – Local Land Services Western Region
- Annette Turner – Owner/manager Polpah Station
- Louise Turner – Owner/manager Goodwood Pastoral
- Katie Davies – Councillor at Goat Industry Council of Australia
- Rick Gates – Owner/manager Burndoo Station – goat depot
- Lachlan Gall – President of the Pastoralist Associations West Darling
- Geoff Hodgens – Manager of Landmark Broken Hill
- Ben Finch – Manager of Elders Broken Hill

A wide range of activities are undertaken by producers within this sector in the region, including:

- Meat sheep, including Merinos, Damaras, Dorpers and White Suffolk cross
- Wool
- Beef cattle
- Goats (rangeland and managed production)
- Kangaroo

Whilst a number of interviews were conducted with producers that had fibre and meat production, it was meat production that was the major focus of interview feedback. These producers are very optimistic, with many highlighting opportunities to grow production and maximise aspects of their businesses. One interviewee discussed the ‘huge’ opportunity in the growth of the ‘protein production industry’, discussing their view that the industry was currently operating with a level of security not seen since the 1950s. The estimated long-term demand for protein was seen to be very optimistic.

### Comparative benefits of rangeland production

The Australian Academy of Technological Sciences and Engineering (ATSE ) 2014 report ‘*Food and Fibre - Australia’s Opportunities*’ highlighted that, for businesses operating in Australia’s Agricultural sector, competitive advantage is realised through:

- Lower cost: the ability to produce and deliver products from farms to markets at a lower cost than competitors; and
- Greater differentiation: the development of differentiated products or services through quality and reliability to win favour from markets and in some cases, to capture price premiums.<sup>6</sup>

It was highlighted in a number of interviews that meat and fibre production in the Far West region had certain competitive advantages when compared to similar production in the Eastern regions of NSW. The warm, dry climate, coupled with wider production areas mean that animals are less prone to disease and require significantly less use of chemicals (some producers have discussed that they do not use any). Lower expenses for pasture improvement were also seen as a benefit of Western rangeland production.

This was seen to have two major impacts for producers in the region. Firstly, given the significant cost of pasture, chemical and medicinal inputs, producers’ variable costs will likely be lower than in many other regions. Secondly, the lower necessity for chemical inputs places regional producers in an ideal position to phase their production to organic production, which has the capacity to increase the value of the production. A further benefit of the region’s natural advantage in organic production is that any efforts to undertake regional branding for organic or ‘rangeland’ production would be aided by an authentic story and an easier transition to chemical free production.

Based on the above measure of competitive advantage, it suggests that the region has the capacity to develop these competitive advantages to drive the development of the industry in the region.

### Improved pasture management practices

Interviews highlighted that there may be an opportunity to create more productive businesses and properties by improving pasture management practices and implementing a regime of regenerative agriculture. It was suggested that outdated grazing and agriculture management practices had degraded the land, leading to negative outcomes for properties in terms of soil, water and plant life.

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<sup>6</sup> Australian Academy of Technological Sciences and Engineering (ATSE ), *Food and Fibre - Australia’s Opportunities*, 2014, p 24.

Improving pasture management practices can regenerate the land at the same time as optimise animal production.

Important aspects of pasture management include:

- Managing the 'total grazing pressure' from domestic and wild animals
- The appropriate management of pastures, such as rotating grazing to spell pastures and thereby allowing specific plants to re-sow, seed or shoot
- Soil management to allow for the most productive pastures
- Managing water to maximise its productive and environmental impact

Improved pasture management was seen as having positive impacts on businesses. It was estimated by one interviewee that the more 'switched on' (successful) graziers were ones that were incorporating regenerative farming techniques into their operations. It was further estimated that these producers could be earning as high as a 14 percent return on their assets, which was seen to be significantly higher than many other producers.

Many interviews discussed the grazing pressure on the land being a difficult but important factor to manage. Whilst the stocking rates of domesticated animals can be managed, the impact of wild animals (mainly kangaroos and goats) on pastures can have significant and largely uncontrollable impacts on environmental and pasture management.<sup>7</sup>

The Broken Hill and Far West region is known to have very large populations of kangaroos and goats. Indeed, research suggests that in the relatively nearby Cobar region, estimated that there were approximately 11.2 goats and 5.02 kangaroos per square kilometre.<sup>8</sup>

It was suggested in one interview that farm settlement of the region had provided an ideal environment for kangaroo populations to thrive, by providing ideal pasturing conditions. This had led one interviewee to suggest that the kangaroo population is at an all-time historical high. In terms of the impact of kangaroos on individual properties, one producer estimated that the kangaroo population on his property was somewhere between 25,000 and 35,000.

Anecdotal evidence suggests that high populations of kangaroos are having significant impacts on farms. One producer described that kangaroos had stripped his property of pasture after rain had set new growth.

The anecdotal evidence is supported by literature, with one interviewee citing research that estimated that kangaroos can account for 20 – 50 per cent of total grazing pressure, depending on seasonal conditions.<sup>9</sup> This document further estimated that...

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<sup>7</sup> New South Wales Government, Local Land Services – Western, Management of kangaroo populations in the Western Region – 2016, Discussion paper, p 3.

<sup>8</sup> New South Wales Government, Local Land Services – Western, Management of kangaroo populations in the Western Region – 2016, Discussion paper, p 5.

<sup>9</sup> New South Wales Government, Local Land Services – Western, Management of kangaroo populations in the Western Region – 2016, Discussion paper, p 6.

*The culling of kangaroos leads to increased production per animal. If 10 per cent of kangaroo numbers are culled each year, wool production is expected to increase by 25 per cent. As body weight of animals is affected more than wool it can be expected to have a greater response to kangaroo population reductions.<sup>10</sup>*

Modelling was undertaken to estimate the impacts of improved pasture management, by reducing the number of kangaroos impacting on pasture. Based on the above estimated impact on lamb body weight, a modelling scenario was developed utilising feedback from interviews in conjunction with market data for lamb.<sup>11</sup> Scenario assumptions included:

- A 10 percent reduction of kangaroo numbers on one property, leading to a 25 percent increase in lamb body weight
- Annual production of 10,000 lambs
- Dressed lamb carcass weight of 18kgs
- Lamb carcasses attracting \$5.06 per kilogram at market

This scenario would result in lamb sales revenue of \$910,800. A 25 percent gain in lamb weight would, all things being equal, result in an additional \$227,700 in value accruing to the producer. Modelled in the Agriculture sector, the estimated economic impact of this additional revenue in the Broken Hill & Far West SA3 economy are as follows:

**Table 13: Improving pasture management**

	Initial	Flow-on	Total
Output (\$)	\$277,700	\$410,099	\$637,799
Value added (\$)	\$46,095	\$108,175	\$154,270
Household income (\$)	\$15,692	\$41,939	\$57,631
Employment FTE	0.0	1	1

It should be noted that the management of kangaroo populations is subject to strict regulations. Furthermore, the commercial kangaroo harvesting industry in the region is facing certain operational difficulties. For example, anecdotal evidence suggests that it is currently uneconomic for kangaroo shooters to operate in the region, due to a lack of processing capacity and demand. These issues create difficulties for meat producers to manage kangaroo populations on their properties.

### Better business practices

An observation on the interviews undertaken throughout the project is that, whilst many producers appear to be highly skilled in production techniques and general farm management, there seemed to be relatively few who appeared to have more highly developed views on business management. Put another way, their focus appeared to be much more on the agricultural side of their operations, rather than on the business aspects.

<sup>10</sup> New South Wales Government, Local Land Services – Western, Management of kangaroo populations in the Western Region – 2016, Discussion paper, p 6.

<sup>11</sup> Meat and Livestock Australia – market information, CTLX, 24 August 2016.

With one major exception, interviews in this area highlighted that many producers do not appear to understand the full business chain between their operation and the end user/buyer of their produce. Often, it appeared that producers were focussed on their operations up to the point of sale. Indeed, a number of interviews admitted to this focus. By failing to understand their business chain, they could potentially be missing out on many opportunities to brand, value add, create partnerships, differentiate themselves from competitors and build their businesses.

One interviewee stood out, however, as being knowledgeable and focussed on their whole business chain and expressed the attitude that they needed to value add to their production in order to be successful, rather becoming a 'complacent farmer'. This operator is an organic certified lamb producer.

This producer was able to express the value of organic certification to their business and how this enabled them to develop a supply chain partnership to deliver their product into the US supermarket chain Wegmans.<sup>12</sup> Further, they highlighted one of the main sensitivities of their business (water) and discussed how this impacted their operations.

They were also able to detail a number of opportunities to value add or increase the productivity of their operations. These details included utilising technology they were importing from South Africa, managing water efficiency and storage, accessing new export markets and undertaking new opportunities to brand their produce.

This interview highlighted a meat production operation that knew and could voice the value of their product and a sophisticated understanding of their business, including its sensitivities and areas of opportunity. Any producer who cannot provide this level of information and insight into their operations could potentially be missing significant opportunities to become more efficient, profitable and successful.

This view was backed by insights from a Local Land Services employee who speaks with a large number of meat and fibre producers over a large area of Western NSW. It was his experience that some farmers needed training to increase their financial literacy to ensure access to tools and techniques to accurately measure their efficiencies and returns on their assets. Access to information on farm business benchmarking data was seen by this interviewee as a good first step to having more informed business operations.

Meat and Livestock Australia (MLA) provides some useful information for meat production businesses, including business management issues, online and in specific publications, such as [Making more from sheep](#) and [Going into Goats: A practical guide to producing goats in the rangelands](#). These publications provide information on farm and animal management, but also provide information on markets, business structures, budgeting, etc.

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<sup>12</sup> [Wegmans](#) is a 90 store regional supermarket chain focussed on high volume, high quality, but low priced food, with an emphasis on customer experience. The chain offers many organic products.

## Organic production

Interviews highlighted interest in organic production as a business opportunity, although there was mixed feelings about whether organic production would offer a viable return on investment. On the one hand, there were very successful organic accredited producers who felt that this accreditation was central to their business offering and profitability. At the other end of the scale, there was scepticism about the potential returns versus cost and the view was expressed that the accreditation process was too difficult.

It was agreed that the natural environmental conditions of the region allow producers to operate an organic meat production business. Factors such as climate and the low density of animals were seen to provide a natural competitive advantage to organic producers in the region, in that fewer (or no) chemicals were needed in production, although the distance to an organic abattoir was seen as a significant disadvantage.

A key difference between organic and regular meat production is that organic accreditation can impact on the pricing of produce, making it less of a commodity and more of a speciality good. However, producers must be able to deliver a return on the investment in organic production. What was quite clear was that some producers knew how to do this, whilst others did not understand how to develop their businesses to make this kind of production work for them.

An interesting comment from one organic producer was that their organic status was fundamental to their business success, whereas other producers advised that, at the sale yards, organic production didn't result in better prices. Clearly, there are producers out there who have configured their business, marketing and supply chain to create value out of their organic accreditation.

It is worth noting that the successful organic producer interviewed had developed a strong relationship with a large international supplier and delivers up to 80 percent of their production to this buyer. This product is then exported to a specific supermarket chain in the US, with a focus on organic products. This suggests that one avenue for successfully capitalising on organic accreditation lies in developing relationships with downstream food businesses, rather than selling directly into sale yards. In other words, capturing the value of organic production may require identifying the right markets and partners.

Furthermore, downstream food businesses appear to be open to developing these kinds of partnerships. Indeed, it was observed by the organic producer that both producers and buyers need each other to develop their own businesses.

A closing observation in one interview was that the Far West region had the opportunity to become a world leader in organic meat production.



## Value adding

One way of diversifying agricultural production in the Broken Hill and Far West region is for producers to diversify their operations into some kind of value added processing. The term value adding may be understood in different ways, particularly in specific industrial sectors. In this instance, value adding is referred to broadly as undertaking some kind of transformative processing that allows the producer to ask and receive a higher price for their produce.

One producer highlighted an interesting side venture into value added production that could be incorporated into their on-farm business. Being exposed to occasional flood events, it was discussed that this extra water resulted in significant additional grazing fodder. These producers were looking into utilising technology developed in South Africa to dry and pelletise organic wild grasses and vegetation (mixed with grown fodder) for stockfeed. This feed could be used for their lamb production or sold to others as organic feed. An added bonus to pelletised feed is that dried feed has less weight and therefore would be cheaper to transport. This process will allow the producer to monetize the additional grass and fodder grown in a flood event and diversify their revenue streams to make a more resilient business.

## Marketing opportunities

The majority of interviews with meat producers highlighted marketing regionally produced meat as a good opportunity to grow their businesses. It was discussed that consumers want to know where their food comes from and that aspects of production could be utilised as a marketing tool, such as organic, rangeland, ethical, saltbush, or environmentally sound production.

Speaking to this issue, one interview raised an interesting point that producers were not necessarily meeting the needs of consumers. The view was expressed that many consumers held views around the need for ethical meat production. It was discussed that these views were often dismissed by producers as uniformed 'city views'. It was suggested that, rather than dismissing these views out of hand, they should be recognised as the needs of the market, and that by embracing and catering for these views, producers could benefit their business.

However, the (largely) missing piece of feedback from interviews relating to the discussion of marketing opportunities was that, in order to brand and market their produce, producers have to develop their businesses beyond the paddock gate. That is to say, that without some control over the product that gets placed in front of consumers, producers have very little capacity to brand or market their produce.

One potentially interesting opportunity was raised that recognised the need for producers to form relationships with consumers. This idea was for developing a direct relationship with either consumers or a retailer in metropolitan areas that would sell butchered Far West meats in bulk to consumers. For example, people paying for a whole butchered lamb.

A related idea was to develop marketing around the use of cheaper cuts of meat. This would allow for higher prices to be charged for this meat and producers to (potentially) capture more of this value. However, as mentioned, these opportunities require producers to take control of the processing, distribution and marketing of their produce.

## Goat production

Across all interviews in the meat production sub-sector it was agreed that the development of the rangeland goat meat industry had been a saviour to producers in the region and remained a significant opportunity in the future. The term 'rangeland' has replaced the former term of 'feral' to denote undomesticated goats. Goat production is predominately aimed at the export market, whereby Asia and the US are the principal markets.

Anecdotal evidence suggests that the industry is comprised of larger devoted goat producing properties, individual properties mustering rangeland goats grazing on their properties, and goat depots which aggregate local production and sell in larger quantities.

Current goat meat prices were seen as very favourable and, anecdotally, were currently higher than prices being received for lamb and mutton. Evidence suggests that dressed goat meat was attracting \$5.80 per kilogram, whereas dressed lamb was attracting approximately \$5.00.

The Far West region produces very large numbers of rangeland goats, with estimates as high as 800,000 in recent years. Individual properties can turn off huge numbers of goats in a year, with estimates from individual goat depots of up to 150,000. Smaller producers may turn off 1,000 goats annually or less.

Interviews with producers highlighted a common theme that many producers are opportunistic rather than managed. Producers predominately saw themselves as sheep or cattle producers, but mustered goats and sold them when there was a sufficient presence of goats on their property. This was confirmed in an interview with a representative of the Goat Industry Council of Australia (GICA), who is situated in the Far West region. This representative estimated that up to 95 percent of goat producers are opportunistic.

An interesting insight from interviews with devoted goat producers was that rural tradition and inflexibility had handicapped the development of the industry. Some goat producers felt that there was some degree of social pressure against goat producers, who were not seen favourably.

This, and other feedback from GICA, suggests that the goat industry is in its infancy and that the region could benefit by a more professional approach to goat management and production. For example, whilst opportunistic producers may have been aware of current goat prices, they appeared to know relatively little about the goat industry, supply chains and markets.

A GICA representative highlighted a number of potential benefits of developing a more professional, managed approach to goat production:

- Better pasture management was highlighted as a significant issue, as unmanaged goats may negatively impact on pastures. Whilst this requires an investment in fencing infrastructure, managing where goats are feeding will allow for better control over production across a property.
- Better cash flow management was seen as a substantial benefit, in that the timing of goat mustering could be managed to deliver cash to businesses in a more controlled manner.
- Better returns from goat production can be achieved through factors, such as the management of breeding and the holding of goats to optimise sale weight and value.

Utilising some rough calculations, a more professional approach to goat management can be seen to be beneficial for individual small producers. In a hypothetical scenario, if we assume that a producer turns off 1,000 rangeland goats from their property each year at an average live weight 60kg<sup>13</sup> and a live weight price of \$2.40 per kilo,<sup>14</sup> this would result in an approximate revenue of \$144,000.

If a more professional approach could assist this producer to increase productivity through more active management, such as better pasture or breed management, it could return significant gains to the producer for a relatively low level of input. If these productivity gains equated into a weight increase of 10 percent, that would equal an additional \$14,400 for the producer annually. For larger scale operations that muster up to 20,000, a 10 percent increase in goat weight would convert into an additional \$288,000 in revenues. Furthermore, better management practices would allow producers to deliver cash flow to their business at crucial moments.

The MLA have undertaken work to assist producers to develop their understanding of the key profitability and productivity factors in producing goats. The MLA has documented these factors in two publications - *'Going into Goats: A practical guide to producing goats in the rangelands'* and *'Going into Goats: Profitable producers' best practice guide'*. Strategic industry development is also being undertaken by the GICA, with the development of the Goatmeat and Livestock Industry Strategic Plan 2020.

## Challenges, barriers and suggestions

It is common amongst industries that are experiencing favourable market conditions that they do not view negative industry and business issues as being too significant to their business. Rather these issues are often seen as a cost of business or an irritant. Interviews in the meat producing sub-sector highlighted this sentiment, with most producers voicing irritation at certain issues, but no dire barriers to development in the sector.

### Kangaroos

The main challenge voiced in producer interviews was the issue of kangaroo management. Whilst this issue has been dealt with in detail elsewhere in the report, it can be summarised that very high kangaroo populations are impacting heavily on pastures (and therefore meat production productivity) and farm infrastructure, to the detriment of the meat producing industry. Producers felt that the regulatory management of kangaroos and kangaroo processing licences was not working and needed to be changed to develop a sustainable system for managing kangaroos.

### Transport

The second principle challenge related to transport, infrastructure and issues related to the isolated geography of Western NSW. The cost of transport was a major factor that impacts on meat producers. These producers have to truck live animals long distances to access markets or abattoirs, which results in significant costs to the producer. A complicating factor, which comes with additional

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<sup>13</sup> Agriculture Victoria provides an estimate weight range for mature goats between 45 – 80kg. Agriculture Victoria [webpage](#). Accessed 24 August 2016

<sup>14</sup> The live weight price for goats was confirmed in an interview with a goat depot operator at \$2.40 per kilogram.

costs, is that recent regulations concerning live animals welfare means that animals must be taken off trucks and spelled for distances over a certain length/time.

Transport infrastructure was also discussed in some interviews with unsealed roads and examples of damaged water-crossing infrastructure. It was highlighted that small amounts of rain made unsealed roads unpassable and generally poor road conditions could also damage transport vehicles.

### **Internet and communications**

Finally, poor internet and communications capability were seen as having negative impacts on farm operations. This was illustrated through a lack of basic communication abilities and poor access to information on issues such as weather and agricultural markets.

### **Other**

Whilst a variety of other issues were discussed in individual interviews, these appeared to be of a lower order. Other issues included finance issues (including farm debt and farm succession), red tape, labour expense, and the lack of information sharing and collaboration between industry participants.

## **Meat production recommendations**

- That relevant stakeholders and relevant peak bodies continue to discuss and develop a consensus on kangaroo management and particularly kangaroo processing licence issues. A united view across relevant stakeholders could potentially influence government actions and deliver satisfactory outcomes that assist meat producers to better manage kangaroos on their properties.
- That relevant stakeholders facilitate discussions between meat producers and downstream meat buyers, processors, exporters and marketers. This would assist producers in developing their knowledge of the meat supply business chain. Better understanding of these issues may assist producers to better target their production to meet market needs and could potentially create future links between regional producers and potential buyers.
- That goat meat industry stakeholders work with the Goat Industry Council of Australia and Meat and Livestock Australia to provide information to local meat producers to develop a greater understanding of and professionalisation in the production of goats.

## Meat Processing

The meat processing sub-sector in the Broken Hill and Far West region is quite limited, but with very significant potential. Despite having a thriving meat production industry, including cattle, sheep and goats, there is only one small commercial meat processor in the Far West region, Free Range Foods. The lack of a more prominent meat processing industry appears to be out of step with the opportunities seen in meat production within the region.

An interview was undertaken with the Manager/director of Free Range Foods, Rocky Pellegrino, to better understand the opportunities for the meat processing sub-sector in the region. This business is comprised of a small scale kangaroo and wild meats abattoir.

The region has historically had significant meat processing capacity. Two abattoirs formerly operated in Broken Hill, a goat abattoir which was closed by the Australian Quarantine and Inspection Service (AQIS) in 2005 over maintenance issues, and a kangaroo abattoir which closed in 2009, which was linked to a lack of demand when Russia halted imports of kangaroo meat.<sup>15</sup> Anecdotally, some interviews suggested that the kangaroo abattoir was not closed for lack of demand. Rather, the business was bought for its operating licence, which was subsequently moved elsewhere.

Whilst no data was available on the number of employees at the former goat abattoir, the closure of the kangaroo abattoir was reported to have resulted in approximately 50 job losses and impacting on up to 160 kangaroo shooters.<sup>16</sup> Despite these closures, there appears to be significant support for a multipurpose meat processing centre in the region. This was found in interviews with meat producers and this finding was supported in an informal survey of producers undertaken on behalf of RDA Far West in 2016.

### Multi-purpose abattoir

Interviews found that many beef and sheep meat producers volunteered strong support for the development of a multi-purpose abattoir in the region, with the potential to process sheep, goats and poultry. Producers discussed how this would assist their businesses by reducing transport costs by significantly reducing transport distances and the additional cost of having to rest animals on long transport routes. This saving would fall directly to the producer's bottom line.

A further benefit was seen in the quality of meat that could be produced locally. It was argued that the stress of transport on animals resulted in a lower quality of product, impacting on the taste of the meat. It was suggested by one producer that shorter transport periods would result in less stress and a more premium product. This would, ostensibly, result in better prices and demand.

An interesting comment made by one meat producer was that local meat processing would allow producers collectively to consider exports. Whilst no more detail was provided on this opportunity, it appears to be based on the understanding that, for producers to reap the benefits of accessing greater markets, they must engage with meat processors and other downstream businesses.

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<sup>15</sup> ABC News, [Broken Hill roo abattoir shutting up shop](#), 14 July 2009. Accessed 19 August 2016

<sup>16</sup> ABC News, [Broken Hill roo abattoir shutting up shop](#), 14 July 2009. Accessed 19 August 2016

Other than general support, some comments were made by producers on certain business aspects of a potential abattoir. It was highlighted that any local abattoir would need to be price competitive with other abattoirs, accounting for lower transport costs, in order to attract livestock from local producers. It was also noted that a multi-purpose abattoir would require sufficient supply of stock throughput to remain commercially viable.

Modelling was undertaken to understand the potential economic impact of a multi-purpose abattoir opening in the Broken Hill & Far West SA3 region. As there is no current operating largescale abattoir in the Broken Hill and Far West region, it has not been possible to undertake modelling on the basis of an operating business. However, research has highlighted that the kangaroo abattoir operating in Broken Hill until 2009 directly employed 50 people and supported up to 160 kangaroo shooters. On this basis, modelling was undertaken on the economic impact of an additional 50 FTEs being employed in the Manufacturing sector (Food & Beverage Manufacturing) in the region. Estimated impacts are as follows:

**Table 14: Multipurpose abattoir**

Abattoir	Initial	Flow-on	Total
Output (\$)	21,390,000	40,950,000	62,340,000
Value-Add (\$)	4,080,000	11,340,000	15,430,000
Income (\$)	2,740,000	4,420,000	7,160,000
Employment FTE (no.)	50	106	156

It should be noted that the main feedback for a multi-purpose abattoir came from interviews in the meat production sub-sector, rather than from an operator. On this basis, sufficient information has not been captured on the operations side of this kind of business to understand if this type and scale of abattoir is viable in Broken Hill. A further study would have to be undertaken on the cost effectiveness of a local multipurpose abattoir to understand current abattoir capacity, demand and cost effectiveness with regard to price, cost and transport.

### Kangaroo meat processing

In addition to the feedback for a multipurpose abattoir, it appears that there is a clear need for increased kangaroo abattoir capacity. Interviews highlighted that the Far West region is home to very large populations of kangaroos, which have become a significant pest to agricultural businesses, causing significant impacts on pastures, revenues and infrastructure. Developing a sustainable industry to manage these numbers would utilise a natural asset, minimise impacts on farming operations and potentially provide significant benefits to the Far West economy. Indeed, this opportunity would create significant benefits, not only in the form of direct business revenues, but also by assisting in the management of kangaroo numbers.

As mentioned above, the Far West region has only one operating kangaroo meat processing business – Free Range Foods. An interview with a Director of the company highlighted that this sector has a number of very significant opportunities to grow.

### Low Priced Protein

A promising factor for the development of the kangaroo meat processing industry in the region is the current imbalance in the market for meat. A common observation in interviews was that kangaroo meat prices were out of line with other meats and that this was likely to correct itself over time.

Interviews highlighted that whereas sheep and goat meat prices were often between \$5 - \$7 per kilo, whereas kangaroo meat currently sells for approximately \$0.60 per kilo. Given that the world demand for protein is growing significantly and that other meat markets are responding with higher prices, it appears likely that kangaroo will become more popular, with a corresponding rise in price.

### Free Range Foods

Free Range Foods is a small kangaroo and wild animal abattoir that processes and sells a range of products into the pet food industry, including basically transformed products such as meat mince and chunks to highly processed foods such as jerky. The company produces most of its product from kangaroo meat processed onsite, but also has the capacity to buy in butchered meats to use in its manufactured products.

Free Range Foods highlighted a range of interesting and potentially lucrative opportunities that it is considering:

- Free Range Foods currently have an agreement to allow them to process kangaroos and other wild animals and produce products licenced for the pet food industry. The company is primarily focussed on attempting to obtain a licence to allow them to produce kangaroo meat for human consumption, opening up a new market for the company's produce.
- The company is currently looking into producing an all-natural dog loaf product.
- Considering opportunity to render meat scraps to produce meat meal ('blood and bone').
- Considering centralising operations in Broken Hill. This would involve two more FTEs from Adelaide operations to Broken Hill.
- Trying to manage red tape issues with the Department of Attorney General to allow for the export of pet food products in the order of one container per month (approximately \$100,000 per month).
- Looking at developing a small multi-species abattoir to process goats, sheep and wild animals.
- Would consider the use of emu meat in operations if licences were available for the use commercially.

Whilst the small size of the organisation may prevent it from undertaking all of these activities in the short term, the development of any of these opportunities would have a significant impact on a small economy, such as in the Far West region. A number of these opportunities have been modelled in the Manufacturing sector (Food & Beverage Manufacturing) to assess the economic impact on the Broken Hill & Far West SA3.

The modelling scenario included the development of a dog loaf product; consolidating operations and moving two FTEs from Adelaide to Broken Hill; and successfully negotiating red tape issues to allow the export of one container of pet food per month. Based on the interview with the business

owner, these opportunities were expected to increase FTE employment in Broken Hill by five and increase revenues by \$1.2 million annually. The economic impact of these opportunities was estimated at:

**Table 15: Kangaroo processing**

	Initial	Flow-on	Total
Output (\$)	\$1,200,000	\$2,410,000	\$3,610,000
Value added (\$)	\$220,000	\$650,000	\$870,000
Household income (\$)	\$150,000	\$250,000	\$400,000
Employment FTE	5	6	11

Based on these modelled opportunities, it can be seen that there is significant potential for this industry and business to develop. However, for the development of the kangaroo processing industry to progress, there is a number of complex and highly political issues that must be navigated. These issues have been detailed below.

### **Kangaroo Management**

The management of kangaroo populations was discussed as a significant issue for local meat producers. These producers argued that the current regime for managing kangaroo populations was very flawed and led to poor outcomes.

Interviews found that the current management of the kangaroo population was undertaken by the NSW Department of Environment and it was suggested that the management of kangaroo populations from an environmental and conservation perspective had led to mismanagement, resulting in very high populations of kangaroos that had become a significant pest to producers. Producers highlighted the negative impact of very large kangaroo populations on their businesses through overgrazing and damage to infrastructure.

It was further suggested that, given the very high populations, kangaroos should be managed by the Department of Primary Industry, with an emphasis on developing a sustainable industry. This was seen as a good outcome whereby pest populations could be managed at the same time as promoting regional jobs and economic development. This approach had very strong and unanimous support for the development of the local kangaroo processing industry by meat producers.

### **Politically Sensitive**

Interviews often referred to the political sensitivity of the kangaroo industry, highlighting that people were commonly highly critical of the kangaroo industry because of the animal's position as a national and cultural icon. Whilst interviewees recognised these sensitivities, it was argued that the explosion in kangaroo numbers was a result of man-made pastures and that these numbers had to be controlled in order to minimise both the environmental damage and economic impact of large kangaroo populations.

### **Kangaroo Processing Licences**

A further barrier to the development of a successful kangaroo meat processing opportunity, highlighted in interviews, is the licencing regime operated by the NSW Government. Anecdotal evidence suggests that there is a very limited number of kangaroos processing licences available in NSW and that obtaining a new licence is not possible. The local kangaroo abattoir and processing facility is currently operating on a subleased licence, which comes with certain restrictions, including



that it may only supply the pet food industry. In order for a successful commercial kangaroo abattoir to operate it would require a permanent licence, without restrictions or caveats, so as to have a secure basis for investing in its facilities and operations.

It has been suggested in an interview with one meat producer that all NSW kangaroo processing licences are held by a very small group of businesses that effectively monopolise the industry. Further there was some criticism of these licence holders, in that they operate in a predatory fashion, and that the industry would benefit from a government inquiry to ensure that the industry is operating properly.

### **Meat processing recommendations**

- That all efforts are made to facilitate the development of a kangaroo processing industry in Broken Hill. Establishing this industry on a larger scale than current operations would assist agricultural producers and create employment and revenues for the Broken Hill economy.
- That relevant stakeholders and relevant peak bodies continue to discuss and develop a consensus on kangaroo management and particularly kangaroo processing licence issues. A united view across relevant stakeholders could potentially influence government actions and deliver satisfactory outcomes that assist meat producers to better manage kangaroos on their properties.
- That further investigation is undertaken on the economic viability of a local multipurpose abattoir. This investigation would need to understand current abattoir capacity and demand and the cost effectiveness of local abattoir operations with regard to price, cost and transport.
- That further investigation is undertaken to understand the economic viability of developing the kangaroo processing sub-sector to include the processing of kangaroo meat for human consumption. Developing this capacity would create a larger market for kangaroo meat and could potentially provide a significant boost to the local industry.

## Agricultural Tourism

The Tourism sector for the Far West region is dominated by Broken Hill, with its well-known history, tourism and business infrastructure, and the sole airport access in the region. Agricultural tourism in the Broken Hill and Far West region is a small scale industry and is experienced predominately through farm stay businesses. To develop an understanding of potential economic opportunities in this sector, a number of Broken Hill and regional tourism providers were contacted:

- Louise Turner – Owner/manager Goodwood Pastoral
- Julie and Justin McClure – Owners of Kallara Station
- Naomi Schmidt – Owner/manager of Eldee Station

The Tourism sector was included in this project as an identified means to diversify agricultural businesses. This could be achieved through the development of farm stay accommodation or other potentially more creative means. Farm stay accommodation can deliver another form of revenue to farm businesses and make for more productive use of farm assets.

Interviews were undertaken with three businesses that included a farm stay as part of their farming operations. Whilst limited information was gathered on the tourism aspects of these businesses, a number of interesting pieces of feedback were highlighted.

### Tourism success in events

An interesting anecdote highlighted a successful tourism event held on one farm stay property. This was the ARB Eldee Family Easter Event, which is a commercially sponsored, family-targeted four wheel driving event. The Easter weekend event includes four wheel drive challenges, Easter egg hunt, happy hour, family trivia, complimentary sunset tour, a DJ and an event presentation on the Easter Sunday afternoon. The event draws in approximately 60 families (300 people). The success of this event could provide insights into ways to develop the most potential out of farm stay businesses.

A more agriculturally focussed event could also provide a possible opportunity for a tourism business or community. Across Australia a range of events have been developed based on agricultural production. These include traditional agricultural and trade show days, but also include more niche tourism events, such as the Sawtell Chilli Festival and the Guyra Lamb and Potato Festival. These events utilise local produce to create fun and attract people to the region. Such an event can assist in diversifying the local Agricultural sector and/or market regional produce.

### Local food

A further interesting insight from a tourism operator was that visitors to the region wanted to taste local food. Reference was made to the paddock to plate concept, in that visitors to farm stays wanted to be able to taste the produce from that farm. This provides an interesting but difficult opportunity for meat producing farm stay operations to explore, given that there is no local meat processing capacity. At this stage, meat producing farm stay operations must serve their guests with meat imported into the region and bought from the local butcher. The development of local meat

processing capacity has the potential to assist some farm stay operations provide an important local experience to their guests, which is known to be a major focus for tourists.

### **Farmers markets**

A further suggestion was the development of a local farmers market to sell seasonal produce. It was discussed that tourists love farmers markets and that Broken Hill does not currently have a farmers market in operation. Whilst there is a regular market, this market does not sell fresh, seasonal farmers produce. The development of farmers market would assist local tourism operators and potentially provide for an additional diversification for the local Agricultural sector by creating another outlet for the sale of agricultural produce from the region.

## **Challenges, barriers and suggestions**

### **Tourism architecture**

It was suggested in one interview that the local tourism industry was not operating effectively in terms of providing appropriate support to all tourism businesses and that tourism marketing and management in the region had become stale. Indeed, this interview illustrated a reasonably negative picture of the tourism management in the region.

Criticism of the industry was targeted towards local governments, which were seen as unhelpful. The view was discussed that because Central Darling Shire Council was in administration they had no capacity to undertake tourism development, coordination and planning. On the other hand, feedback about Broken Hill City Council suggested the Council was uninterested in assisting farm stays as they were perceived as too far outside of the Broken Hill area. Given that Broken Hill is often the gateway for visitors into the region, and the remoteness of many properties, this was seen as problematic. This particular tourism operator had bypassed Council to promote their farm stay and had initiated direct contact with a Canberra based company that has installed and manages tourism content on a digital touch screen information portal at the Broken Hill Visitor Information Centre.

Other tourism bodies were also viewed in a similar manner. For example, the Whitecliffs Opal Field Tourism Association was also viewed as 'dysfunctional'. Another comment highlighted that there was not enough discussion and information sharing going on within the industry.

The conclusion to be drawn from this feedback is that there may be a need to better manage the tourism architecture that funnels tourists from regional centres out to farm stay operations, and that better industry coordination may assist individual businesses.

## Agricultural tourism recommendations

- That the relevant tourism undertake engagement activities with farm stay businesses to incorporate these businesses into the local tourism community and regional marketing materials. Further, that the Broken Hill City Council plays a central role in coordinating tourism in the region and should understand regional farm stays as a positive for the local tourism economy.
- That the relevant tourism body work with local tourism related businesses, including farm stays, restaurants and food retailers, to provide and market a local dining experience based on local products and produce for tourists to the region.
- That relevant stakeholders work together to develop and promote a farmers market that will provide local products and points of interest for tourists.

## Conclusion

The Agribusiness Growth and Diversification in Far West NSW report delivers the findings of a range of research, industry engagement and economic modelling activities. The report was undertaken to better understand the Agriculture sector and current businesses opportunities and barriers. These opportunities have the capacity to grow businesses and revenues, and diversify the local economy away from its dependence on mining.

The Agricultural sector in the Broken Hill and Far West region is a dynamic sector amidst significant changes to its environmental and business profile. Changing water availability, technology, political and market forces are refashioning the industry away from some traditional outputs, whilst bolstering others. These changes are being felt in the region's Agricultural sector, with the horticulture sub-sector having to develop new business models and the meat production sub-sector taking advantage of buoyant markets and strong demand.

Opportunities have been identified for the sector to grow and diversify its income streams to develop a stronger regional economy. Whilst this report did not discover much information on the development of new or emerging agricultural enterprises, such as floriculture or aquaculture, there is potential for the development of these industries if creative solutions are found to operational problems, such as low water availability. These sectors could potentially benefit from further exploration.

WRI has identified a number of recommendations for RDA Far West and other relevant stakeholders to assist the local industry to achieve the opportunities identified in this report. These are detailed below.

## Recommendations

Based on the information collated for the Agribusiness Growth and Diversification in Far West NSW report, WRI has made a number of recommendations across the various sectors included in this report. The key recommendation from this report relates to the opportunity to develop the local kangaroo processing industry.

Whilst this industry is only operating at a very small scale at the moment, its successful development has the ability to assist business across the Agricultural sector and potentially providing the greatest impact. Whilst there are very significant potential economic benefits for the kangaroo meat processing sub-sector and its participants, there are also likely significant economy benefits for meat producers and other agricultural producers in the region by reducing the number of kangaroos impacting on pastures. By reducing pest populations, economic impact modelling suggests that substantial gains can be captured by meat producers through greater pasture productivity.

Whilst political and regulatory challenges will need to be managed and resolved to properly exploit this opportunity, its successful development will likely deliver key outcomes for the regional agricultural economy. All recommendations have been compiled below.

### Horticulture

- That further work be undertaken to understand which horticultural producers remain in the region and their future prospects. This work will allow stakeholders to develop a plan to assist producers and understand the potential to build on the local industry.
- Once industry engagement has been undertaken, work with the horticultural industry to understand if there are any value adding processes that could be implemented locally that would assist local producers to negotiate industry constraints.
- If there is sufficient desire from local horticultural producers, resources could be pooled to access professional agricultural advice to assist local industry participants.
- That work is undertaken with community, council and businesses to explore the demand for urban agriculture. Issues to consider would include interest in urban agriculture projects, current water supply and demand, infrastructure requirements to supply water from current rooftop and stormwater infrastructure, potential sites and site ownership/access issues.

### Food manufacturing

- That dialogue is facilitated between successful food manufacturing businesses or potential customers and local food manufacturing businesses to mentor and potentially collaborate in the development of the local industry.
- That relevant stakeholders work with local food manufacturers to facilitate the use of locally manufactured foods in the local food and tourism scene. This will allow tourists to experience products that are locally manufactured in the region and capture an authentic food experience.

Local restaurants and retail food outlets would potentially benefit from this arrangement by marketing local produce to tourists with the opportunity to sell more products.

- That local food manufacturers undertake efforts to understand their marketing advantages and work to develop products that work to these advantages. Developing products that speak to the history and geography of Broken Hill may provide local food manufacturers with a marketing advantage over other products.

#### Meat production

- That relevant stakeholders and relevant peak bodies continue to discuss and develop a consensus on kangaroo management and particularly kangaroo processing licence issues. A united view across relevant stakeholders could potentially influence government actions and deliver satisfactory outcomes that assist meat producers to better manage kangaroos on their properties.
- That relevant stakeholders facilitate discussions between meat producers and downstream meat buyers, processors, exporters and marketers. This would assist producers in developing their knowledge of the meat supply business chain. Better understanding of these issues may assist producers to better target their production to meet market needs and could potentially create future links between regional producers and potential buyers.
- That goat meat industry stakeholders work with the Goat Industry Council of Australia and Meat and Livestock Australia to provide information to local meat producers to develop a greater understanding of and professionalisation in the production of goats.

#### Meat processing

- That further investigation is undertaken on the economic viability of a local multipurpose abattoir. This investigation would need to understand current abattoir capacity and demand and the cost effectiveness of local abattoir operations with regard to price, cost and transport.
- That all efforts are made to facilitate the development of a kangaroo processing industry in Broken Hill. Establishing this industry on a larger scale than current operations would assist agricultural producers and create employment and revenues for the Broken Hill economy.
- That relevant stakeholders and relevant peak bodies continue to discuss and develop a consensus on kangaroo management and particularly kangaroo processing licence issues. A united view across relevant stakeholders could potentially influence government actions and deliver satisfactory outcomes that assist meat producers to better manage kangaroos on their properties.
- That further investigation is undertaken to understand the economic viability of developing the kangaroo processing sub-sector to include the processing of kangaroo meat for human consumption. Developing this capacity would create a larger market for kangaroo meat and could potentially provide a significant boost to the local industry.

### Agricultural tourism

- That the relevant tourism undertake engagement activities with farm stay businesses to incorporate these businesses into the local tourism community and regional marketing materials. Further, that the Broken Hill City Council plays a central role in coordinating tourism in the region and should understand regional farm stays as a positive for the local tourism economy.
- That the relevant tourism body work with local tourism related businesses, including farm stays, restaurants and food retailers, to provide and market a local dining experience based on local products and produce for tourists to the region.
- That relevant stakeholders work together to develop and promote a farmers market that will provide local products and points of interest for tourists.



## APPENDIX 1: INPUT-OUTPUT ANALYSIS

Input-output tables are part of the Australian national accounts. An input-output model provides a very detailed picture of the structure of an economy at a particular point in time. It includes all the transactions that occur during a specific period, usually one year.

The rows of an input-output table show the disposal of the output of an industry to itself and to other industries as well as final demand categories (e.g. exports and household consumption). The columns show the origin of inputs into production, whether they are intermediate inputs (i.e. intra- and inter-industry purchases) or primary inputs (e.g. labour and capital).

The main use of input-output tables is economic impact analysis, where the tables are used to estimate the benefits generated by new initiatives on each and every sector of an economy. For example, if there is a change in the purchasing or sales pattern of any industry, the flow on, or multiplier, effects on upstream industries can be calculated. An input-output table is also very useful for estimating the direct and indirect contribution of final demand, as with the expenditure associated with opportunities in the Broken Hill and Far West Agricultural sector.

One of the main attractions of input-output models is their relative ease of use and the level of detail obtained concerning the structure of the economy. The Australian Bureau of Statistics (ABS) notes the usefulness of input-output tables:

*“Input-output tables provide detailed information about the supply and disposition of commodities in the Australian economy and about the structure of, and inter-relationships between, Australian industries. Detailed data on supply and use of commodities, inter-industry flows and a range of derived data, such as input-output multipliers, are provided for economic planning and analysis, and construction of models for forecasting purposes.” (ABS Introduction to Input-Output Multipliers, Cat. 5246.0)*

The application of input-output analysis to estimate the economic impact of the opportunities highlighted in this report involves four basic steps:

- Construction of appropriate national, state and regional input-output tables;
- Analysis of the value of expenditure by type (expenditure by visitors and by the facility) and origin (local, imported and total);
- Assessment of final demand impacts from these expenditure categories; and
- Using marginal coefficients to overcome the problem of over-estimation associated with linear coefficients.

The input-output table for this project was extracted from the Australian Bureau of Statistics (ABS) 2009-10 national input-output table using the Generation of Regional Input-Output Tables (GRIT) technique. The national table was adjusted to represent New South Wales using detailed ABS data from the 2011-12 publications State Accounts (ABS cat no. 5220.0) and Labour Force, Australia, Detailed Quarterly (ABS cat. no. 6291.0.55.003). Tables were built for Broken Hill & Far West SA4 using total employment data sourced from the 2011 ABS Census and the proportion FTE and growth rates calculated from the ABS Labour Force Catalogue, Employed Persons by Region, Sex & Industry, using the most appropriate Labour Force Region data (ABS Cat. No. 6291.0.55.003). These adjustments provide base tables for the 2014-15 financial year.

The GRIT technique derives regional input-output tables from the national input-output table using location quotients and superior data, such as primary survey data, at various stages in the construction of the tables. The GRIT procedure was developed by Associate Professor Guy West and Professor Rod Jensen of the University of Queensland and is the most widely used method of constructing regional input-output tables in Australia. The GRIT method is also widely used in America and Europe.

GRIT uses a series of non-survey steps to produce a prototype regional table from the national table, but provides the opportunity at various stages for the insertion of “superior data”, in this case data on expenditure obtained for the various components of each event. The system is “variable interference” in that the analyst is able to determine the extent to which they interfere with the mechanical processes by introducing primary or other superior data.

The GRIT system is designed to produce regional tables that are:

- Consistent in accounting terms with each other and with the national table;
- Capable of calculations to a reasonable degree of holistic accuracy; and
- Capable of being updated with a minimum effort as new data becomes available.

The GRIT technique is basically a hybrid method of deriving state and regional input-output tables from the national input-output table while at the same time allowing for the insertion of superior data (e.g. employment and income information from the Australian Bureau of Statistics) at various stages in the construction of the tables. The GRIT procedure was developed by Associate Professor Guy West and Professor Rod Jensen of the University of Queensland and is the most widely used method of constructing input-output tables in Australia. The GRIT method is also widely used in America and Europe.

The final input-output tables were balanced using the RAS technique. The RAS technique is a bi-proportional iterative adjustment method designed to modify a base input-output matrix to fit new row and column totals. The rows and columns are simply adjusted proportionally to the new row and column totals in turn, and the cycle repeated until the actual row and column totals converge to the specified values. After the tables are balanced they are checked to ensure that the final tables are consistent and to identify any large discrepancies.

One of the main limitations of input-output tables is the assumption of linear coefficients. To address this problem and the associated problem of overestimation, the input-output analysis undertaken incorporates the marginal coefficients model.

The marginal income coefficients model attempts to overcome the limitations of traditional input-output analysis by removing the assumption of linear coefficients for the household sector. As is well documented in the literature, the household sector is the dominant component of multiplier effects in an input-output table so using marginal income coefficients for the household sector only provides a more accurate estimate of the multiplier effects and provides results closer to those of a computable general equilibrium (CGE) model. This provides a more accurate estimate of the significance of impacts associated with the manufacturing, than would be possible with traditional input-output analysis.

## WESTERN RESEARCH INSTITUTE

WRI is a regional development research organisation located in Bathurst, New South Wales. WRI holds a wealth of knowledge on employment, business development and investment issues affecting regional Australia. It has worked with Commonwealth, State and Local Governments and industry groups on numerous investment and development programs in regional areas. WRI has strong credentials in business and commercial market consulting and applied economic modelling including input-output analysis, shift-share, agribusiness and regional socio-economic surveys and analysis.

### **Ms Wendy Mason - General Manager**

Wendy joins the WRI team as General Manager from her former position as Head of the Commonwealth Bank Foundation. Wendy comes to the Western Research Institute Limited with extensive management and business development experience, excellent networks, and a substantial track record in stakeholder relations across the government, financial and not-for-profit sectors; and experience as a major end-user of research to support best practice outcomes.

Bringing with her formal qualifications in education and psychology from the University of Sydney, a Graduate Certificate in Human Resource Management and Graduate Certificate in Business (Marketing), Wendy also holds an Australian Institute of Company Director's Diploma of Business (Governance).

### **Mr Alistair Maclennan – Senior Research Consultant**

*BA Political Economy, First Class Honours (UNE)*

Having served in a variety of parliamentary, public service and private sector roles, Alistair brings a wealth of research experience to WRI. Alistair has well developed skills in data analysis, economics and business, and has a wide understanding of government. In addition, Alistair also has experience in policy development in the energy sector, where he engaged with industry, government agencies and NGOs to inform policy. Alistair's experience in engaging with clients, stakeholders and the public

assists WRI to fully understand its clients' needs and provide tailored research.

### **Ms Danielle Ranshaw – Senior Research Consultant** *BEc&Fin NSW*

Danielle's experience in project management in the information technology sector combined with qualifications in economics and finance provides a solid background for WRI projects. With skills in systems design and development, Danielle has been able to extend WRI's capability in developing robust and increasingly complex systems to support research fieldwork. Additionally, Danielle has extensive experience in business process analysis, performance planning and review, report writing and project planning.

### **Ms Wai Matthews – Research Consultant** *BBus (Fin/Eco) CSU*

With a background in Business Administration and Bookkeeping, Wai brings to WRI strong experience and knowledge in local business operations, management and finance. Wai has great interest in economic issues affecting regional areas which led to her attaining an internship with the NSW Department of Industry as an Economic Analyst. As an intern, Wai has gained a wealth of knowledge and experience in data analytics and reporting as well as a good understanding of government. Wai is currently undertaking Post Graduate study in Applied Statistics to further her skills.

**Ms Dale Curran – Executive Officer**

BA ANU

Dale is responsible for all administrative processes at WRI including executive support, finance, management of the Board of Directors and maintenance of policies. She has worked in a variety of roles at WRI, including Fieldwork Supervisor and Research Assistant, and has worked on several community and business surveys. Dale brings a high level of organisational skill to her role as Executive Officer.

