SA Riverland community profile

Irrigation region

Key issues for the region

1. Region’s population — SA Riverland’s population is approximately 33,000 people, including 3,000 farm businesses.

2. Gross Value of Irrigated Agricultural Production
   • For 2008-09 the drought affected Gross Value of Irrigated Agricultural Production in SA Riverland was $300 million.
   • Assuming there was no drought and the Riverland maintained its existing area, the Gross Value of Irrigated Agricultural Production is estimated at $500 million. Production using long-term cap equivalent (LTCE) water and the long-term values of price per ML is expected to reach $500 million per year. Current production is estimated at $300 million per year, which is under capacity because of the dried-off areas.

3. Water entitlements (approximate)
   • Surface Water Long-term Cap — the LTCE in Riverland is estimated to be 344 GL. Usage is significantly below this and was 291 GL on average during the drought (see Table 6).
   • Groundwater entitlements are negligible.

4. Major enterprises — Major enterprises include wine grapes, citrus, stonefruit, almonds, vegetables.

5. Government buyback — The Commonwealth Government buyback in Riverland has totalled 27 GL to date.

6. Water dependence — Very high capital investment both on-farm and off-farm makes the regional economy highly water dependent.

7. Current status
   Regional population and major towns
   Regional Centres are Renmark, Loxton, Barmera, Berri and Waikerie. The population is around 33,455 and is relatively evenly spread, with 34% in Berri Barmera LGA, 36% in Loxton to Waikerie and 29% in Renmark to Paringa. The Riverland area has above average proportions of children and people aged 45 years and older. There have been below average population increases over recent years, and the population is projected to decline in the future.
   Key points about the region
   • The regional economy of around $2.2 billion has a high dependence on irrigation, with wineries, packing sheds and other food processing reliant on a consistent supply of irrigated crops. There are an estimated 3,000 growers and 33,455 people living in the region.
   • The region developed with the expectation of 100% reliable water. Since 2006-07 the Region has suffered a series of low allocations, being finishing allocations of 60%, 32% and 18% and starting allocations of only a few %, which makes planning very difficult. Low water allocations have led to high debt from annual water purchases e.g. in 2007-08 interstate temporary trade into SA was around 150 GL.
• Low water allocations combined with low prices have resulted in 6,000 ha of perennial plantings being dried off (15% of perennial irrigated horticulture and expanding). There is very little capacity to fund replanting at $25,000 to $45,000/ha and several years until payback.
• There is no scope for farm transformation to dryland as irrigation property sizes are too small (only 0.5 % to 1% of the area required for dryland operations).
• Irrigation supply system and farm water efficiency is already very high with limited scope for water savings. Most water use efficiency was privately funded.
• Growers feel that they have already achieved very high efficiency and have given up water entitlement in the past and that this should be recognised in SDLs.
• The area has suffered a slump in confidence and high stress caused by low wine grape prices, unsellable developed blocks and low equity. There are some blocks being poorly maintained mixed with other blocks where growers are achieving high returns and see a strong future.
• The response to any permanent and material reduction in SDLs will depend upon long-term horticulture profitability. At the moment this is low and could result in a likely reduction in horticultural area, no replanting of dried-off areas, and people abandoning properties; this would increase the already high unemployment. However, if horticulture profitability returns then the region will be able to purchase water from other areas to maintain and expand production. Some growers see an opportunity in being able to buy or being supplied water from the environment in dry years and selling or supplying water to it in wet years.
• The region has sustainable comparative advantages for high value irrigated horticulture including soils, climate, reliability of water supply, best practice water supply systems, ability to grow a diversity of crops, fruit fly free status and proximity to markets.

8. Responses to water availability scenarios
• Wine grape industry currently very sensitive to water reduction due to low profitability. Other perennial horticulture may be able to survive by buying water. This will be dependent on commodity prices and water prices.
• Any reduction in water availability would face widespread opposition.
• Any reduction greater than 20% of long-term water availability would affect critical mass and community irrigation district viability.
• There is no scope for farm transformation to dryland as irrigation property sizes are too small (only 0.5 % to 1% of the area required for dryland operations.)
• The response to any permanent and material reduction in SDLs is uncertain and will depend upon long-term horticultural profitability. At the moment this is low, especially for wine grapes and could result in a likely reduction in horticultural area, no replanting of dried-off areas, and people abandoning properties. This would lead to reduced employment in an area where unemployment is already above State averages. However, if horticulture profitability returns then the Region will be able to purchase water from other areas and expand production, as it has over the last fifteen years. Some growers see an opportunity in being able to buy or being supplied water from the environment water holder in dry years and selling or supplying water to it in wet years.
• Water security is essential to industry confidence and investment. If the SDL provided a reduction in the frequency of low allocation years, then it would assist.

Regional overview

The South Australian Riverland is the product of the irrigation systems implemented on the Murray River beginning in the 1890s. The Riverland is hot and dry and citrus crops require irrigation water from the Murray River all year round. The Murray flows through a deeply incised channel and the high cost of pumping water to the highlands means that only crops capable of generating high returns per ML are a viable proposition.

The Riverland is a major horticultural region, with associated wineries and packing sheds. It also has manufacturing industry and is a strategic location for transport between Adelaide, Mildura and Sydney.

The Riverland is Australia's largest wine producing region, growing in excess of 50% of South Australia's wine grapes. The region is also well known for its production and processing of citrus, stone fruit, almonds and vegetables. The Riverland is also a producer of cherries and olives. The location of high horticultural quality soils adjacent to the Murray is a key advantage for the region. The region has a history of growing a variety of crops and responding to markets.

Recreation and tourism are important contributors to the regional economy with tourist accommodation (including the houseboat industry) generating significant employment and income for the regional economy. Water related recreation on the River Murray and Lake Bonney includes fishing, swimming, canoeing, sailing, water-skiing, picnicking, camping, sightseeing, and touring.

The Riverland is experiencing a prolonged period of unprecedented drought and low wine grape price impacts that, when combined, threaten the ability of the region to fully recover and continue to be a significant contributor to the State economy. The Riverland Futures Taskforce is a $20 million initiative managed by a partnership between Berri Barmera Council, District Council of Loxton Waikerie, Renmark Paringa Council, Riverland Development Corporation, SA Murray-Darling Basin Natural Resources Management Board and the Government of South Australia. This initiative aims to promote diversification of existing industry, strengthening of local enterprises and enhancement of business structures and local value added opportunities.

Most Riverlanders share an active concern and interest in the health of the River Murray. The predominant natural environment consists of River Red Gum and Black Box forests that line the river banks and flood plains, as well as steep cliffs. Natural resource management is an important priority for the Region and is overseen by the South Australian Murray–Darling Basin Natural Resource Management Board. There are four local action planning groups (LAPs) within the Region (Renmark to the border, Loxton to Bookpurnong, Berri Barmera and Riverland West) addressing natural resources management issues at a district scale. They deliver on-the-ground projects in environmental and primary production, including irrigation management. These groups are dependent upon grant funding.
Figure 1 Location of irrigation district

Collection District based Irrigation Regions
- capital city
- main town
- state border
- main rivers
- Basin Plan regions
- Riverland irrigation districts
- Sunraysia irrigation district
- Goulburn-Murray irrigation district
- NSW Central Murray irrigation districts
- Murrumbidgee irrigation district
- Lachlan irrigation district
- Macquarie Valley irrigation district
- Namoi irrigation district
- Gwydir irrigation district
- Border Rivers irrigation district
- Lower Balonne irrigation district
- SA Below Lock 1 Irrigation District
Irrigation overview

History of irrigation

The first district to be established in the region was Renmark in 1887 by the Chaffey Brothers, who also established the Mildura Irrigation District in the neighbouring upstream Region of Sunraysia. Other settlements followed in the 1890s at Holder, Kingston, Lyrup, Moorook, Murtoa, New Era, New Renmark, Pyap, Ramco and Waikerie. Some of these schemes were developed as a government response to the economic depression of the 1890s, where the aim was to keep energy, talent and capital from leaving South Australia using Village Settlement Schemes.

In 1901 a Royal Commission recommended that the settlements be subdivided and leased to individual settlers instead of village associations and over time most of these areas became government irrigation areas. Soldier settlement schemes were later allotted for returned servicemen at Berri, Chaffey, Cadell and Cobdogla from 1917, with Loxton and Cooltong from 1946. In 1956 and 1961 the privately developed Sunlands/Golden Heights schemes were established.

As pumping technology became more affordable and efficient more recent development occurred through private irrigation, where irrigators operate their own pumping infrastructure from the River. Water trade enabled further growth in these properties from the early 1990s with the Riverland purchasing water from pasture users in upstream states or from the downstream lower Murray region to expand the winegrape and almond industries. Some of this development was funded through managed investment schemes. Now the majority of irrigation is from private infrastructure. The Central Irrigation Trust manages most of the community supplied districts with a total of 13,000 ha. There is also the Renmark Irrigation Trust, which supplies water to 4,700 ha. All the water is supplied from the River Murray.

The change in area of perennial horticultural crops in response to drought over the last three years is shown in Table 1. There also are approximately 1,000 ha of vegetables grown and the area laid out for irrigation (including vacant seasonal and perennial area) is around 48,000 ha. The main trend in citrus has been a shift away from valencias (from 150 kt to 50 kt) for juicing to more navels for fresh fruit and export to the USA. In wine grapes there has been a large expansion followed by a reverse in the last few years. Almonds have also grown in area in recent years. There are also significant areas of stone fruit and pome fruit. This area reduced during the wine grape boom when people replaced older trees with wine grapes. In recent times people are considering a move back to these and other crops such as dates and vegetables. The area has a history of changing crop type to suit the market.

Most properties hold a water entitlement that was calculated based on crop area and crop requirement. Licensing conditions require annual reporting of water use versus crop requirement. Water use has been relatively steady in the decade prior to the drought, which was an outcome of water entitlements being sufficient for the development, and usage had been capped by State legislation. Irrigators believe that legislation provided 100% reliability and that being a small, highly efficient and high value user of the total resource, that this should be recognised. Expansion in irrigated area occurred through water trade, but this has reduced since 2007 because of drought and low commodity prices.
### Table 1  Perennial Horticulture

<table>
<thead>
<tr>
<th>Commodity Area (ha)</th>
<th>2007</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Winegrapes</td>
<td>24,392</td>
<td>20,634</td>
</tr>
<tr>
<td>Citrus</td>
<td>7,768</td>
<td>6,390</td>
</tr>
<tr>
<td>Nut crops (mostly almonds)</td>
<td>4,246</td>
<td>4,231</td>
</tr>
<tr>
<td>Other tree crops</td>
<td>2,020</td>
<td>1,330</td>
</tr>
<tr>
<td>Olives</td>
<td>716</td>
<td>628</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>39,142</td>
<td>33,173</td>
</tr>
</tbody>
</table>

### Table 2  System details and performance, Central Irrigation Trust & Renmark Irrigation Trust

Does not include private (not community supplied) areas

<table>
<thead>
<tr>
<th>Parameter</th>
<th>CIT</th>
<th>RIT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total length of natural waterways used within the distribution system</td>
<td>km</td>
<td>0</td>
</tr>
<tr>
<td>Total length of irrigation supply channel</td>
<td>km</td>
<td>390</td>
</tr>
<tr>
<td>Number of customer irrigation supply points</td>
<td>#</td>
<td>2,270</td>
</tr>
<tr>
<td>Area Irrigated in current year (2005-06)</td>
<td>ha</td>
<td>13,564</td>
</tr>
<tr>
<td>Number of irrigation customers</td>
<td>#</td>
<td>1,478</td>
</tr>
<tr>
<td>Gravity water supply system % of area</td>
<td>% of area</td>
<td>0%</td>
</tr>
<tr>
<td>Pumped water supply system (% of area @ 0-30m line pressure at farm gate)</td>
<td>% of area</td>
<td>73%</td>
</tr>
<tr>
<td>Pumped water supply system (% of area @ &gt;30m line pressure at farm gate)</td>
<td>% of area</td>
<td>27%</td>
</tr>
<tr>
<td>Gross diversions to water supply system in current year (2005-06)</td>
<td>ML</td>
<td>107,635</td>
</tr>
<tr>
<td>Gross diversions to water supply system, ten year rolling average</td>
<td>ML</td>
<td>118,806</td>
</tr>
<tr>
<td>Gross diversions to water supply system for irrigation purposes 2005-2006</td>
<td>ML</td>
<td>104,722</td>
</tr>
<tr>
<td>Gross diversions to water supply system for irrigation purposes, ten year rolling average</td>
<td>ML</td>
<td>115,200</td>
</tr>
<tr>
<td>Number of individual supply points to irrigation customers, on the surface water system</td>
<td>#</td>
<td>2,270</td>
</tr>
</tbody>
</table>

#### Water Trading

<table>
<thead>
<tr>
<th>Total transferable entitlement (not including groundwater)</th>
<th>ML</th>
<th>152,114</th>
<th>c. 47,000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal transfers - permanent</td>
<td>ML</td>
<td>526</td>
<td>n/a</td>
</tr>
<tr>
<td>Internal transfers - temporary</td>
<td>ML</td>
<td>3,220</td>
<td>n/a</td>
</tr>
<tr>
<td>Internal transfers - permanent, net</td>
<td>ML</td>
<td>-302</td>
<td>n/a</td>
</tr>
<tr>
<td>Internal transfers - temporary, net</td>
<td>ML</td>
<td>-9522</td>
<td>n/a</td>
</tr>
</tbody>
</table>
Rural water supply

Regional system description

The region is entirely supplied by the River Murray. The delivery infrastructure is highly efficient as it is 100% piped and metered from the River.

There has been a large investment in piped systems over the last 40 years. Modern metering has recently been installed in the Central Irrigation Trust with remote reading. These meters without remote reading are also installed in the Renmark Irrigation Trust. Both Trusts work together on new technologies and programs.

The scope for improvement in irrigation efficiency is very low due to the current high level of efficiency. Both government and private investment have underpinned this. Government assisted with the upgrading of off farm irrigation supply systems to piped supplies, often pressurised. Private investment by growers converted many older less efficient systems to highly efficient drip and micro systems on farm.

The extent of the Commonwealth Government buyback has been approximately 27 GL of water to 2008-09 from South Australia’s high security entitlement in the Riverland (see Table 6).

The Riverland area is underlain by saline groundwater that is too salty for irrigation.

The farm

Natural capital

There is very little scope for transformation to dryland given the small property size (1% to 0.5% of the area required for dryland) and low rainfall. The area of perennial horticulture dried off as a result of low water allocations is estimated at 6,000 ha or 15% of the pre-drought area and expanding. This includes 1,400 ha citrus, 3,800 ha wine grapes and 800 ha other crops. Figure 2 shows surveyed responses as to what are significant regional issues.

Government assistance has included Small Block Irrigator Exit Grants, professional planning and advice grants, Exceptional Circumstances payments, and state assistance for irrigators for water purchasing. Approximately one quarter to one third of growers are estimated to be on assistance of some form. There is a feeling that eligibility for assistance is less available for larger or medium sized businesses that are accumulating debt, and also that vegetable growers missed out because the scheme for water purchasing was only available to permanent plantings. There is widespread criticism of the requirement to remove irrigation infrastructure for five years in the Small Block Irrigator Exit Grants, as this is seen to undermine district viability. The South Australian Government has announced a $20 million package for the Riverland Futures Taskforce to help struggling Riverland communities diversify their economies and survive the drought. Growers see research and development for intensive horticulture and marketing as important priorities.

2009-2010 data is expected to show increased debt and reduced receipts compared to 2007-8 presented.

As part of the analysis, a survey was undertaken of farms in Riverland. Of some 89 respondents, 78 were horticulture (some respondents listed multiple uses) (Figure 3).
Figure 2: Regional issues — all farms

Note: 1 = no problem to 5 = significant problem. Number of respondents = 36
Line indicates range in one standard deviation.

Figure 3: Survey respondents by farm type

Horticulture 88%
Broadacre & livestock 3%
Livestock 1%
Broadacre 2%
Dairy 0%
Other 8%
Financial capital

Based on the farm survey undertaken as part of this assignment, some 35% of horticultural farms are owned (the remainder have a mortgage). There are high levels of debt caused by the need to buy water and low commodity prices, especially wine grapes and other crops dependent upon export markets, and high Australian dollar exchange rates.

The area was hit by low citrus prices in the USA market due to Chilean competition. Currently there is little capacity to replant and recover.

Most businesses are 'treading water' hoping for an improvement in commodity prices and water availability.

There has been an increase in growers seeking off-farm income and government support.

The need to buy water and at such a high price was a real shock to the region that had the expectation that water was legislated to provide 100% allocations. Development of dried-off areas has stopped because of the uncertainty and water reliability is a critical determinant for investor confidence.

Human capital

Stress levels have increased. There is little capacity to support further change due to high debt levels. There is also a missing generation of younger growers willing to take over from growers wanting to retire. There is a number of older growers wishing to retire, but finding it difficult to sell their property. The profile of growers has been described as being of two groups, a large group known as the "outgoers" wishing to retire and "ongoers" wishing to stay and committed to development and expansion.

Financial ratios

Return on capital is expected to have declined and debt levels increased. Growers are suffering from a decline in asset values associated with their developed land. The majority of the asset base is water value, which is currently declining and putting more growers at risk. However, the Region is capable of returning to high profitability and some industries already have. The impact of the drought and low commodity prices, especially wine grapes is not expected to be reflected in official statistics yet.

The following pages provide more detail about farms within the horticulture sector in the region.

Figures 4 – 6 and the table on this page present results from the telephone survey of irrigation farmers undertaken in the region. They include:

- Farmers’ ranking of a range of issues that they considered problematic;
- Farm financial measures (note that 39% of horticulture farmers in the Riverland have off-farm income (77 survey respondents)); and
- Measures of optimism, and how satisfied farmers are with a range of life issues.

Table 3: Farm financial measures

<table>
<thead>
<tr>
<th>Ratios</th>
<th>Measure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Return on assets</td>
<td>2.18%</td>
</tr>
<tr>
<td>Debt ratio</td>
<td>31.16%</td>
</tr>
<tr>
<td>Water/total assets</td>
<td>0.01%</td>
</tr>
</tbody>
</table>
Figure 4: Farm issues — horticultural farms

Note: 1 = no problem to 5 = significant problem. Number of respondents = 78
Figure 6: Optimism — horticulture

Note: 1 = completely dissatisfied to 10= completelyy satisfied. Number fo respondents = 78.
Line indicates range in one standard deviation.

On-farm irrigation water use

Irrigation application methods

Approximately 60% of irrigation is drip irrigated and 30% low throw (or low level) fixed sprinklers, which are highly efficient. There is little opportunity to improve the already high water use efficiency.

There is widespread adoption of a range of scheduling techniques.

Although not experienced recently, historically the area has suffered from high river salinity, which (along with the drive to improve water use efficiency) has encouraged growers to adopt irrigation systems that do not wet foliage. The recent low water allocations and high water prices have also encouraged achievement of a very high level of water use efficiency.

Some growers are concerned that upstream areas are getting an unfair advantage in Government funding, because they have not made the efficiency savings.

Opportunities/trends

Most farms have their own pumps, filters and irrigation distribution systems to drippers or sprinkler. The area has experienced high river salinity and so has avoided large areas of overhead fixed sprinklers.

Much of the area is tile drained to maintain safe levels of perched watertable. However, in recent years the low rainfall and high level of irrigation management has meant that drains have low or nil flow. Some areas (e.g. Waikerie and Loxton) are served by groundwater pumps that intercept underlying saline groundwater to improve River Murray salinity.
The area does include profitable crops and is expected to diversify and overcome the current downturn. The infrastructure is in place to achieve this.

**Table 4. On-farm irrigation management (2007-08)**

<table>
<thead>
<tr>
<th>Irrigation parameter</th>
<th>Details</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Method</td>
<td>Drip/trickle</td>
<td>57</td>
</tr>
<tr>
<td></td>
<td>Microjet fixed sprinklers</td>
<td>40</td>
</tr>
<tr>
<td></td>
<td>Flood flow</td>
<td>8</td>
</tr>
<tr>
<td></td>
<td>Travelling</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td>22</td>
</tr>
<tr>
<td>Timing irrigation on the basis of</td>
<td>Own observations/knowledge</td>
<td>77</td>
</tr>
<tr>
<td></td>
<td>Soil moisture measuring tools</td>
<td>58</td>
</tr>
<tr>
<td></td>
<td>Weather forecast</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td>Calendar based</td>
<td>26</td>
</tr>
<tr>
<td>Percentage of farms trading</td>
<td>Purchasing</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td>Selling</td>
<td>46</td>
</tr>
</tbody>
</table>

**Water entitlements**

Based on the farm survey undertaken as part of this assignment, some 96 per cent of (horticultural) farms are irrigated. The average area for horticultural farms is 31.2 ha, of which 24.7 ha are irrigated. There were no groundwater or other entitlements.

Water entitlements are High Security SA Riverland. Over the last five years there has been substantial purchase of temporary water from upstream states to assist with the low water allocations, especially in 2008-09 when a finishing allocation of only 18% was available. This followed the 2006-07 season allocations of 60% and the 2007-08 season of 32%. Difficulty in planning water purchases and in deciding which areas to dry off were caused in 2005-06 where a starting allocation of 80% was reduced to 60%. The low starting allocations of 4% to 2% also made it difficult to plan water purchases or drying off.

The ability to buy-in water has generally been perceived to be a good thing, but growers have been unhappy to pay the high prices, especially in 2007-08 when the price of temporary water exceeded $1,000/ML.

**Soil moisture measurement**

There is a relatively high adoption of soil moisture monitoring. Soil salinity monitoring is also increasing as growers are becoming concerned that ‘under-irrigation’ is leading to high rootzone salinity. Some growers believe that continuing low allocations have contributed to several seasons of under irrigation, which when combined with hot temperatures in November 2009, led to low yields of grapes and citrus in 2009-10.

**Irrigation timing**

Irrigation decision support tools are widely used and there is little scope to improve water use efficiency through improved irrigation timing. In addition wineries are requiring a high level of irrigation management to achieve quality wine grapes.
Regional agricultural production

Regional agricultural value chain

The major participants in the value chain are wineries, citrus packers, and transport. The region grows around 25% of the national crush (equivalent to 50% of South Australian crush) and is home to major wineries at Berri, Loxton, Renmark, Kingston on Murray. Many of these wineries also process grapes from Sunraysia.

Citrus packing is also a major industry with five major citrus packers and about 15 to 20 grower packers. Fruit is also transported to Mildura for packing. There are also fresh citrus juicing plants in the region. There is a substantial vegetable growing industry - potatoes and onions at the western end of the Riverland on centre pivot irrigation systems.

The returns per ML for all crops, but especially vegetables, are very volatile. The nut industry currently has a positive outlook.

The value for grapes since 2006 has fallen dramatically and in 2010 is expected to be approximately half the value shown at right. This has fallen from a high of $255 million in 2002 when over 400 kt were crushed at a value of $600/t. In 2010 it is expected that this will be 280 kt at an average value of $285/t. The $180 million decline in value is having significant impacts in the industry and region. Already three major wineries have been mothballed for wine grape processing. Some growers were not paid for fruit by wineries going out of business, which has affected debt levels. The CCW cooperative has cushioned price decreases for its members. There is concern that oversupply in other regions will slow recovery in the Riverland. The shortened vintage period in wineries is also adding to unemployment in the Region.

Some growers are responding by growing annual crops between vineyard rows (e.g. pumpkins) or lucerne. Growers are positive about the outlooks for citrus, almonds and stonefruit.
Figure 7. Gross value of agricultural production (GVAP) (2006)\textsuperscript{iv}

Figure 8. Gross value of agricultural production (GVAP) $/ML of water used (2006)\textsuperscript{iv}
The region's community

Figure 9. Level of highest school education (2006)

Figure 10. Higher education (2006)
Figure 11. Employment (2006)\textsuperscript{viii}

Figure 12. Nominal income (2006)\textsuperscript{ix}
Figure 13: Regional issues — regional responses

Note: 1 = no problem to 5 = significant problem. Number of respondent = 36.

Figure 14: Optimism (regional people)

Note: 1 = completely dissatisfied to 10 = completely satisfied. Number of respondent = 36. Line indicates range in one standard deviation.
The region’s community — education, employment and income

Community overview

Berri, Renmark, Barmera, Waikerie and Loxton are the service centres for the Riverland region. There are significant linkages between the Riverland and the Sunraysia region in terms of processing of wine grapes and citrus packing.

TAFE South Australia has campuses at Berri, Waikerie and at Renmark. Regional services are primarily provided from Berri.

Most people live in the Riverland towns or the community supplied districts. The major social issues include unemployment, ageing population of growers, and low socio-economic status. There is also a predicted population decline in the region and an underrepresentation of young adults, which suggests that young adults are moving away.

The high dependency on the wine industry and the current over supply and low confidence is a major threat to the regional economy and its recovery. However the Region has a history of adapting to market change and this can occur. For example there is profitability in almonds, citrus, stonefruit that can drive this change.

There is growth potential in solar, eco-tourism, and lifestyle industries. The Riverland region has good transport links, an attractive climate and a good location, Waikerie being only 1.5 hours from Adelaide. These factors point to the potential for the region to become a semiretirement community. Improved transport such as rail or an airport would assist.

The region’s community — demographics and key statistics

Table 5. Demographics and key statistics (LGAs within study area. 2006)\textsuperscript{xxi}

<table>
<thead>
<tr>
<th></th>
<th>Berri and Barmera</th>
<th>Loxton Waikerie</th>
<th>Mid Murray</th>
<th>Renmark Parngs</th>
<th>Unincorporated SA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>10949</td>
<td>11351</td>
<td>1527</td>
<td>9447</td>
<td>86</td>
<td>33360</td>
</tr>
<tr>
<td>Total Indigenous persons</td>
<td>330</td>
<td>212</td>
<td>27</td>
<td>200</td>
<td>82</td>
<td>851</td>
</tr>
<tr>
<td>Farm and farm managers</td>
<td>432</td>
<td>823</td>
<td>58</td>
<td>449</td>
<td>0.1</td>
<td>1762</td>
</tr>
<tr>
<td>Farm and farm managers as percentage of total employed</td>
<td>9%</td>
<td>15%</td>
<td>11%</td>
<td>11%</td>
<td>1%</td>
<td>12%</td>
</tr>
<tr>
<td>Households</td>
<td>4396</td>
<td>4628</td>
<td>615</td>
<td>3834</td>
<td>25</td>
<td>13498</td>
</tr>
</tbody>
</table>

Dwelling

<table>
<thead>
<tr>
<th></th>
<th>Berri and Barmera</th>
<th>Loxton Waikerie</th>
<th>Mid Murray</th>
<th>Renmark Parngs</th>
<th>Unincorporated SA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fully owned</td>
<td>33%</td>
<td>40%</td>
<td>45%</td>
<td>34%</td>
<td>0%</td>
<td>36%</td>
</tr>
<tr>
<td>Being purchased - directly or rent/buy scheme</td>
<td>31%</td>
<td>29%</td>
<td>27%</td>
<td>30%</td>
<td>0%</td>
<td>30%</td>
</tr>
<tr>
<td>Rented</td>
<td>27%</td>
<td>23%</td>
<td>15%</td>
<td>27%</td>
<td>84%</td>
<td>25%</td>
</tr>
</tbody>
</table>

Community services and wellbeing by remoteness

<table>
<thead>
<tr>
<th></th>
<th>Berri and Barmera</th>
<th>Loxton Waikerie</th>
<th>Mid Murray</th>
<th>Renmark Parngs</th>
<th>Unincorporated SA</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population per education employee</td>
<td>36</td>
<td>34</td>
<td>49</td>
<td>38</td>
<td>22</td>
<td>37</td>
</tr>
<tr>
<td>Population per health employee</td>
<td>20</td>
<td>21</td>
<td>85</td>
<td>27</td>
<td>17</td>
<td>23</td>
</tr>
<tr>
<td>Population per culture and recreation employee</td>
<td>243</td>
<td>299</td>
<td>0</td>
<td>305</td>
<td>0</td>
<td>293</td>
</tr>
</tbody>
</table>
The regional economy

Regional economic structure

The major regional industries are wine grapes, wine making, almonds, vegetables and citrus (Figure 15). The main economic drivers of the region are:

- international competition in export markets such as exchange rates, increasing production from South America and South Africa, access to new markets such as Asia;
- market prices (both domestic and export);
- labour costs and potential for mechanisation;
- access to capital for redevelopment of dried-off areas;
- building crop diversity using the Riverland’s comparative advantages in climate, soils, infrastructure and market proximity; and
- water availability/security and cost.

Currently the wine industry is adjusting to oversupply. The wine grape industry is structured so that there is a high reliance on the CCW, the largest grape supply Cooperative in Australia, which annually supplies in excess of 200,000 tonnes of grapes (but only 140,000 tonnes this year) to the nation’s largest wine company, Constellation Wines Australia (formerly Hardy Wine Company). The citrus industry is facing uncertainty with regard to competition from Chile in the USA navel market, after many years of developing this market and changing tree crops to suit this, but growers are still optimistic. The vegetable industry is highly variable in returns, but is also facing increasing international competition and imports from China, and New Zealand. The almond industry is facing increases in supply from large scale plantings and is building export markets and the industry remains upbeat about its prospects. The economy is largely based on grape growing, citrus, almonds, vegetables and the associated wine making, and almond processing. There is also a strong tourism component. Most of the industries of the Riverland are highly dependent upon irrigated production for their ongoing viability. Potential diversification options being considered are solar industries, and the retirement housing market.

Regional response over the last five years

Demonstrated adaptation capacity

The most pressing regional issues are:

- recovery following the drought (replacing dried-off areas). There is concern over ‘Swiss cheese’ effects caused by the Small Block Irrigator Exit Grant package undermining irrigation district viability and preventing farm amalgamation. It has been taken up by around 180 growers, with likely unmet demand for more takers if the package was still available.
- adjustment within wine grape industries to oversupply.
- uncertainty for investment in perennial horticulture. The sector has a need to build opportunities for businesses to consolidate and expand.
- growers exiting the industry. There is a lack of succession options, with a large cohort of older growers wishing to retire but unable to sell.
- flow-on effects for employment and population.
Riverland growers have been significantly impacted by low water allocations. Properties have been developed on the understanding that water was High Security with 100% allocations, whereas in the last few years there have been starting allocations of only a few percent and finishing allocations of:

- 60% in 2006-07;
- 32% in 2007-08; and
- 18% in 2008-09, i.e. 82% reduction on usual 100%.

As a result large areas of plantings have been dried off and high levels of debt have been incurred to fund water purchases. In 2007-08 interstate temporary trade into South Australia was around 150 GL. Equity levels have fallen due to high borrowings and falling land values. In the Riverland producers have scaled back production with approximately 15% of plantings dried off, from a total area of c. 40,000 ha across sectors in 2009. Much of the citrus dried off has been lower value valencia plantings. One grower suggested that the irrigation season starting in October would enable higher earlier allocations and would assist with planning.

There have been significant impacts on downstream processing especially citrus juicing. Many small properties have become rural residential part time operators with a high reliance on off-farm income. These growers can remain viable in the downturn and maintain infrastructure and production for future upturn. Some growers also have sought off farm work in the mining industry, although the mineral sands mine close to Loxton has recently closed, which has reduced off-farm work opportunities.

Small and very large properties are expected to continue, while middle sized and mid to large properties are most at risk as they do not have access to off-farm income or economies of scale.
Regional vulnerability

The region has five medium sized centres in Berri, Renmark Barmera, Waikerie and Loxton rather than a single regional centre. These towns are all highly dependent upon horticulture and its secondary processing industries. The region has high vulnerability and high dependence on water. The community has limited options and a low ability to cope with a reduction in water allocation. Domestic product per capita and per household is significantly below state and national averages.

The region is highly vulnerable to a reduction in available water. Perennial plantings have no capacity to vary planted area with changed water availability. The economy is built on a high dependence of water for agriculture. The historic high security of water combined with suitable soils and climate has led to long-term investment in capital-intensive perennial horticulture and a high level of value adding in processing, packing and distribution industries. The full impacts of low water allocations have yet to flow through to the official statistics shown above.

Regional water dependence

The regional economy is highly dependent on irrigated agriculture and associated value-adding. The Riverland Socio-Economic Impact Report Steering Committee undertook a study in early 2007xxiv that estimated the value of citrus to be $42 million and grapes at $125 million (in 2007). The number full time equivalent (FTE) jobs directly associated with irrigation is approximately 4,102 FTE plus 1,568 associated with food and wine manufacturing giving 5,670 FTE jobs out of 13,765 FTE (in 2002-3). The estimated impact of drought represented an annual average decline of 10% in regional incomes and employment since 2004-05. Further work later in 2007 revised this estimate to 16% decline.

Community resilience to change in water allocation

The community has a low ability to cope with a reduction in water allocation. A very high proportion of the regional economy is dependent upon irrigation and value-adding. The Riverland value-added by industry sector is estimated to be 46% for irrigated agriculture and associated processing.xxv The community also has a large number of people of non-English speaking background who will require special consideration with regard to consultation.

Scope for regional transformation

Scope for farm transformation

The capacity to transform to different commodities is:

- low for dryland agriculture. Existing farms are 0.5% to 1% of the area required for dryland farms and rainfall is insufficient or marginal for dryland farms; and
- medium for high value intensive irrigation horticulture. The region does have comparative advantages for this. Farms do not have access to capital for this transformation, but do have access to skills.
- low for succession. The region has two groups the on-goers and the out-goers. The out-goers have already reached retirement age and are looking for a way to exit. The on-goers are committed to stay and wish to take opportunities, particularly those posed by low land values and low entry costs at the moment; and
Figure 16. Index of Relative Socio-economic Advantage and Disadvantage (2006)\textsuperscript{xxvi}

Figure 17. Unemployment and labour force participation (2006)\textsuperscript{xxvii}
• high for the commitment to diversify the economy through the $20 million futures fund plus leverage and individual grower commitment.
The region has a medium to high capacity for innovation and adoption in the regions and sustainable competitive advantages in soil, climate, infrastructure and proximity to Adelaide markets.

**Scope to strengthen irrigation management**

On-farm: Already at a very high level due to drought impacts and other factors such as pumping cost and adoption of technology to achieve labour savings. There is some concern that leaching has resulted in higher soil salinities than is sustainable. Accordingly, there is a little scope to save water from farm technology.

Delivery system: The supply system is already pipelined and there is no capacity to strengthen this component other than improved metering and telemetry/control systems.

Freeing up of water trade rules: Generally water trading rules are unrestricted. There has been frustration in changing trading rules from upstream states such as the ballot in the Murrumbidgee valley.

**Water availability scenarios — introduction**

**Description of scenarios**

Face-to-face interviews of key stakeholders, and a telephone survey of dryland and irrigation farmers, businesses and community members, were undertaken in the region.

In addition to providing information for the development of the community profile, respondents were asked about the likely impacts of a range of water availability scenarios. These scenarios are not linked to possible Sustainable Diversion Limits; rather, they are intended to test a range of responses from irrigators, and flow-on effects in communities.

The following pages present the results of those discussions.

Water availability scenarios were expressed relative to the long-term cap equivalent water allocation for the irrigation region. Baseline data are provided below.

The figures below are expressed as LTCE for entitlements and are estimates derived from a range of sources. Usage in the drought years has been above allocation due to significant water purchases on the temporary market. The need for water purchase in recent years of low allocations has added significantly to production costs and has contributed to decisions taken by some growers to exit the industry. Around 15% of properties have been dried off and the capacity for replanting and renewal is low. Low commodity prices, especially wine grapes, have been the main driving factor in drying off of perennial plantings rather than low water allocations. Growers in other commodities have responded by removing barely viable plantings of older citrus and other crops and have either replanted or intend to replant with newer more profitable varieties. Replanting will depend upon the confidence of each industry to be able to purchase water at an economic price.

The fallout from wine grape oversupply and low prices is still working through the Riverland community in terms of economic and social impacts and these will not be accurately reflected in the statistics within the profile. A large number of growers are on government assistance. Recovery will be slow and redevelopment of dried-off areas will be expensive. Rising water costs means a higher input cost of irrigated produce which needs to be factored into unit costs of production and will flow directly through to international competitiveness e.g. wine grapes are already being produced at below costs of production, which cannot be sustained.
Table 6. Baseline water data by region (LTCE, approximate, rounded)

<table>
<thead>
<tr>
<th>Region</th>
<th>LTCE allocation volume (GL, approx, rounded)</th>
<th>Drought average use (GL, July 2002 to June 2009)</th>
<th>Buybacks (GL, already delivered, or committed to)</th>
<th>Efficiency project savings allocated to the environment (GL, committed)</th>
<th>Number of irrigators (number, approx)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riverland</td>
<td>344xxx</td>
<td>291xxx</td>
<td>27xxx</td>
<td>8xxx</td>
<td>3,000xxx</td>
</tr>
</tbody>
</table>

Table 7. Water availability scenarios — reductions from estimated LTCE entitlement volume

<table>
<thead>
<tr>
<th>Region</th>
<th>Comment</th>
<th>Sector</th>
<th>20%</th>
<th>40%</th>
<th>60%</th>
</tr>
</thead>
<tbody>
<tr>
<td>GL</td>
<td>GL</td>
<td>GL</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Riverland</td>
<td>TOTAL</td>
<td>Annual and Perennial Horticulture</td>
<td>275</td>
<td>205</td>
<td>140</td>
</tr>
</tbody>
</table>

Water availability scenarios — direct impacts (face-to-face interviews)

Growers of annual horticultural crops such as vegetables will buy water until price becomes prohibitive, and will then relocate to lower cost production areas.

Perennial horticulture, which is capital intensive, will buy water and dry off plantings depending on the relative profitability of crops and water price. Water reductions of greater than 20% will threaten district viability and critical mass of industries. Wine grapes is most at risk due to low profitability. Over the long-term horticulture will only pay what it is profitable to pay. This is a much lower price than they were prepared to pay for short-term drought, where the cost of maintaining plantings (avoiding high replanting costs) drove decisions.

Table 8. Summary of direct (irrigation) responses to water availability scenarios

<table>
<thead>
<tr>
<th>Region</th>
<th>Key sectors</th>
<th>-20% LTCE</th>
<th>-40% LTCE</th>
<th>-60% LTCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riverland</td>
<td>Perennial and annual horticulture</td>
<td>Mostly purchase water some drying off of older and unviable plantings</td>
<td>Drying off of larger areas. Critical mass of many industries threatened. Community District viability threatened</td>
<td>Contraction to smaller industry mostly located in private diverter areas.</td>
</tr>
</tbody>
</table>

The overall attitude of the Riverland interviewees is that the MDBA should look elsewhere in the Basin to implement a reduction in water availability, for the following reasons:

- irrigation water in the Riverland is already highly efficient and accountable where all water is delivered via pipes onto farms with modern metering, operating at state of the art efficiency levels e.g. high pressure drip in some districts;
- water allocation per land area is already at highly efficient levels e.g. RIT water allocation is 9.3 ML/ha reduced from 14 ML operating at 97% efficiency;
- growers have already given up water and this should be recognised;
- the Riverland’s total irrigation water take from the Basin system is relatively low (6%) coupled with a high Gross Value Production per ML water used;
- the future (and potential) of the region is underpinned by the profitability of horticulture and access to a full allocation of water with high reliability and security;
- growers are likely to have been under-watering through consecutive years of low allocations which could be raising soil salinities on blocks;
- the Riverland is an arid environment (~250 mm rainfall) with no scope for conversion to dryland agriculture; and
- the importance of balancing environmental and consumptive water needs has long been acknowledged by South Australians.
Water availability scenarios — telephone survey responses

For the SA Riverland as a whole, in the telephone survey conducted for this assignment, around a third of irrigation farmers indicated they would seek to exit if water availability reduced by 20% or 40% (Figure 18).

This is notably less responsive to changed water availability than those seeking to exit horticulture across the entire Murray–Darling Basin in response to these scenarios (30 and 37% respectively for the -20% and -40% scenarios, discussed in the Synthesis Report for this assignment).

Water availability scenarios — value chain and flow-on impacts (face-to-face interviews)

The regional economy is estimated to be $2.2 B and a large proportion of this is based on the irrigation industry. Value adding infrastructure includes wineries, packing sheds, juicing factories, transport and supporting industries. The key determinant of the impact will be the relative profitability of horticulture versus the water price for buying in water to maintain the industry. If the water price is affordable then the impacts will be much less.

Table 9. Summary of indirect (flow-on) responses to water availability scenarios

<table>
<thead>
<tr>
<th>Region</th>
<th>Key sectors</th>
<th>-20% LTCE</th>
<th>-40% LTCE</th>
<th>-60% LTCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Riverland</td>
<td>Perennial and annual horticulture</td>
<td>Some loss of plantings resulting in reduced seasonal work and closure of some wineries.</td>
<td>Larger scale losses of plantings and resulting lost direct and indirect employment. Community district viability questionable for some areas. Large scale social impacts would be expected e.g. High unemployment and social costs.</td>
<td>Large scale employment loss and high social impacts. Increase in welfare dependencies. Very large scale social impacts expected.</td>
</tr>
</tbody>
</table>

![Figure 18. SA Riverland: telephone survey responses to water availability scenarios](image-url)
The horticultural sector in the Riverland wants and needs to feel supported by the broader community (city and rural alike). Areas where greater recognition is called for include:

- the high value of horticultural production, high capital investment both on and off farm in irrigation and associated value adding;
- the region’s already very high water use efficiency in producing food for both domestic and global markets;
- the serious challenges horticultural families are facing in relation to fluctuating commodity prices, highly competitive markets, climate variability and low water availability;
- high stress and anxiety levels within the irrigation community due to consecutive years of low water allocations, high cost of temporary water purchase, low wine grape prices below cost of production and fallen farm asset values; and
- yet, growers are hard working and trying to adapt, they want to continue to produce food and keep their region vibrant — it’s their home.

Riverland growers have shown flexibility and have a history of changing crops in response to market signals. Some of the current opportunities include:

- intense crops grown to specification on smaller lots e.g. stone fruit growing and packing;
- expansion into nut crops which is already occurring, although with some caution with respect to the potential for oversupply;
- consolidation and redevelopment of citrus enterprises, transferring from juicing to fresh fruit varieties; and
- good returns on dried fruit but some capital costs to allow a return to this industry by wine grape-growers.

The 5-year moratorium on irrigating land subject to exit packages will further undermine the productive potential of the region by: lowering land values; raising fixed irrigation delivery costs for the on goers; stranding irrigation assets; and compromising the potential of the whole area. There are different views on whether the moratorium applies to the land or the exiting grower.

The many comparative advantages of the Riverland as a supplier of irrigated horticultural produce, which would aid its recovery and its adjustment, include its:

- positioning on the river, being fed by all catchments within the Basin;
- close proximity to Adelaide and Melbourne markets and good networks for freight movement; and
- tremendous environmental advantages in growing horticultural produce such as good irrigable soils, best irrigation supply systems (virtually on demand), comprehensive drainage, fruit fly free status and a low disease pressure climate suitable for growing diverse (temperate and tropical) crops.
Figure 19 Map of irrigation district
Endnotes

i EconSearch, 2009, Economic Profile of the Riverland Region of South Australia 2006/7, for PIRSA, Marryatville. Sum of winegrapes, vegetables, fruit & nuts, and other agriculture from Table 4.1 value of output 2006-07 Riverland at $276 M

ii EconSearch, 2009 for PIRSA, Economic Profile of the Riverland Region of South Australia 2006/7, Marryatville. Output of Riverland Region Table 4.1.

iii Estimated 1,300 CIT plus RIT and private irrigators approximately 3,000 growers

iv EconSearch, 2009 for PIRSA, Economic Profile of the Riverland Region of South Australia 2006/7, Marryatville. Output of Riverland Region Table 4.1.

v PIRSA, 2010, SA River Murray Irrigated Crop Survey, January 2010, February

vi PIRSA, 2010, SA River Murray Irrigated Crop Survey, January 2010, February


viii MJA Socio-economic Survey for MDBA 2010

ix MJA Socio-economic Survey for MDBA 2010

x MJA Socio-economic Survey for MDBA 2010

xi MJA Socio-economic Survey for MDBA 2010

xii MJA Socio-economic Survey for MDBA 2010

xiii Australian Bureau of Agricultural and Resource Economics, 2008, Australian Farm Survey Results 2005-06 to 2007-08, Canberra


xvi Australian Bureau of Statistics, 2006, 2006 Census, Canberra


xxii Australian Bureau of Statistics, 2006, 2006 Census, Canberra


xxiv Riverland Socio-Economic Impact Study Steering Committee, 2007, Economic and Social Impact of Key Industries on the Riverland. April

xxv Riverland Socio-Economic Impact Report Steering Committee, note xxiv Page 5. Figure 1 Economic contribution of industry sector sum of agriculture, wine manufacture and other food and beverage.


xxviii South Australia has a long-term average diversion Cap for All Other Purposes (i.e. purposes apart from supply to country towns and Adelaide, and irrigation in the Lower Murray Swamps) of water from the River Murray of 449.9 GL/year. Around 90% of this is for irrigation and it is estimated that around 85% of water use is upstream of Lock 1. For the purposes of this project LTCE entitlements needed to be apportioned between the Riverland and the region below Lock 1 in SA. Accordingly, 344 GL LTCE was estimated as the entitlement volume for Riverland (449.9 × 0.9 × 0.85) and 61 GL (449.9 × 0.9 × 0.15) to the region below Lock 1 (plus the Lower Murray Swamps irrigation entitlement of 72 GL/year). However, it is important to note that this apportionment between the two regions is approximate and in practice, it changes yearly as entitlements are traded, so the data used in this report may not be appropriate to be used for other purposes. Pers. comm. Diane Favier and Jarrod Eaton, DWLBC, June 2010 to MJA.

xxix Pers. comm. Diane Favier and Jarrod Eaton, DWLBC, June 2010 to MJA. Of the 9 GL efficiency savings, 7.2GL went to The Living Murray and 1.8GL has been retained by the Government of South Australia.

xxx The total volume purchased in South Australia by the Commonwealth Environmental Water Holder since 2006-07 is 36.2GL. This is for the River Murray in South Australia and the SA Government was not able to provide a breakdown of above and below Lock 1. For the purposes of this report it is assumed 27 GL of buyback lies within the Riverland and 9 GL south of Lock 1, using the same proportion as for total LTCE allocations. However please note that this apportionment between the two regions is approximate, so the data used in this report may not be appropriate to be used for other purposes. Pers. comm. Diane Favier and Jarrod Eaton, DWLBC, June 2010 to MJA.

xxxi Pers. comm. Diane Favier and Jarrod Eaton, DWLBC, June 2010 to MJA. Of the 9 GL efficiency savings, 7.2GL went to The Living Murray and 1.8GL has been retained by the Government of South Australia.

xxxii Pers. comm. Diane Favier and Jarrod Eaton, DWLBC, June 2010 to MJA.

xxxiii MJA Socio-economic Survey for MDBA, March-April 2010. n=120 (-20% scenario), n=126 (-40% scenario). Samples were independent.