Lockyer Valley and Somerset Water Security Scheme

Benefit Summary Report

Lockyer Valley Regional Council

Somerset Regional Council

The LVSWSS forms part of the Water Initiatives in the Lockyer Valley commitment being delivered under the South-East Queensland (SEQ) City Deal. The (SEQ) City Deal is a partnership by the Australian Government, Queensland Government and Council of Mayors for South-East Queensland.

For more information, please contact:
admin@lvandswatercollaborative.com.au

Electronic copy of the report can be found at:
lvandswatercollaborative.com.au

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Executive Summary

The Lockyer Valley and Somerset (LVS) regions are nationally recognised as vital agricultural areas, distinguished by their highly productive farmland and the critical role they play in ensuring Australia's food security. Despite this importance, the substantial value generated by the horticulture sector is restricted by the lack of access to a reliable and affordable irrigation water supply.

KEY POINTS ABOUT THE LOCKYER VALLEY SOMERSET AGRICULTURE INCLUDE:

- The LVS widely known as the "Salad & vegetable bowl of SEQ" and functions as a "**horticultural powerhouse**".
- The region contributes an irreplaceable and up to **30%** of Queensland's and **5%** of the nation's overall fresh produce.
- For several key crops – **the region accounts for a significant majority of SEQ production**.
  - Lettuce 58%
  - Onion 55%
  - Cabbage 80%
  - Leafy Salad Vegetables 80%
  - Broccoli 77%
  - Cauliflower 80%
- Agricultural production is valued at **$1.4 billion** and contributes **$621.8 million** towards Queensland's Gross State Product and provides **1,817 jobs**.
- **7,514 of area** under production and requiring in excess of **32,000 ML water** each year.

The Lockyer Valley and Somerset Water Security Scheme (LVSWSS) is designed to directly address this constraint by making an additional 22,000 ML/year of water available for agriculture and other high-value uses, with the goal of securing a sustainable supply that will boost production, enhance food security, and ultimately "drought-proof" the region against climate variability.

Three project options have been evaluated—34,000 ML, 22,000 ML, and 8,250 ML schemes—with the 22,000 ML scheme adopted as the central option for detailed economic analysis based on the assessment of benefits provided against affordability.

SUMMARY OF LVSWSS 22,000ML PROJECT OPTION

- Recycled water (RW) to be supplied from the Western Corridor Recycled Water Scheme (WCRWS) to the approximately 205 km distribution network near Coominya with between 11 to 13 solar and battery powered pump stations.
- Water available to irrigators 365 days per year with the full scheme volume able to be delivered over a 270-day period.
- Use of either existing storages in the Lockyer Valley (Lake Clarendon, Atkinson Dam, Bill Gunn Dam) or purpose-built scheme dam to provide reliability and flexibility.
- Scheme life of 30 years for the purpose of economic modelling. *(Source: IPS)*

LVSWSS involves supplying recycled water (RW) sourced from the underutilised Western Corridor Recycled Water Scheme (WCRWS) which has been in care and maintenance since 2013, via a new piped distribution network.

The project aligns directly with the Queensland Government's objective to **boost primary production output to $30 billion by 2030** under the Prosper 2050 Strategy, a target for which the LVS region is considered crucial. It also aligns with the Australian Government's goal of **increasing exports by $100 million by 2030** and its National Food Security Strategy under development. The project supports the commitment by the Queensland Government to maximise the economic benefit of the State's water resources and water infrastructure.

The urgency of the LVSWSS is underscored by climate analysis, which forecasts increased rain volatility and warmer growing conditions. Historical data shows notably large year-to-year variability in rainfall, but more importantly projections indicate that temperatures will rise and maximum consecutive dry days will more than double (from 34 days to 76 days) which places immense pressure on existing water resources. The LVSWSS seeks to shore up existing Lockyer Valley Somerset agricultural production of $1.4 billion that is contributing $621.8 to Gross Regional Product.

The Millennium Drought serves as a sobering example of the significant impact that droughts have had on LVS agricultural production. Given growth since the Millennium Drought, the estimated cost to Queensland of a similar event would be in the order of up to $700 million/ year in lost production and over 900 jobs impacted over the duration of the drought. there has been no additional water security provided to the region since the Millennium Drought.

Compounding this, agricultural water demand in the region is projected to exceed supply due to population growth and constraints limiting production expansion in counter-seasonal growing regions like the Sydney Basin.

This supply-demand imbalance is forecast to result in an approximate 17,000 ML water supply shortfall each year by 2050, leading to severe production shortfalls for key crops such as lettuces, potatoes, cabbages, leafy salad vegetables, broccoli, and cauliflowers. Again modelling of increased likelihood of droughts will compound this shortfall.

Accordingly, the LVSWSS is projected to act as essential enabling economic infrastructure. Economic impact modelling for the 22,000 ML option anticipates an annual increase in LVS agricultural production value of $268.4 million (or 19.1%) as a result of the LVSWSS. The LVSWSS's total economic impact across Queensland is expected to contribute $173.9 million to Gross State Product (GSP) and generate a total of 593 Full Time Equivalent (FTE) jobs.

A key characteristic of the horticulture industry's employment is its reliance on additional seasonal workers during peak harvesting times which will potentially see this employment uplift double. The move to high value add and greenhouse production will shift these part time seasonal jobs into permanent positions.

The scheme also offers significant environmental benefits, including the potential to generate substantial sediment reduction and in turn cost savings for Seqwater by reducing water treatment costs at the Mount Crosby Water Treatment Plant, estimated to range from $1.5 million to $6.1 million annually. It also aims to reduce sediment loads impacting Moreton Bay following weather events, which is projected to save the Port of Brisbane an average of approximately $4.9 million annually in avoided maintenance dredging costs.

The Cost Benefit Analysis (CBA) of the 22,000 ML scheme returns a Benefit Cost Ratio (BCR) of 0.58 and a Net Present Value (NPV) of ($347.0 million) at a 7 per cent real social discount rate. This result is in line with other recent water infrastructure projects that have been approved and built.

If successful, the project will establish Australia's the largest recycled water irrigation scheme. It will also be the first use of large scale urban water infrastructure to grow food.

1.0 Scheme Overview

1.0 – INTRODUCTION

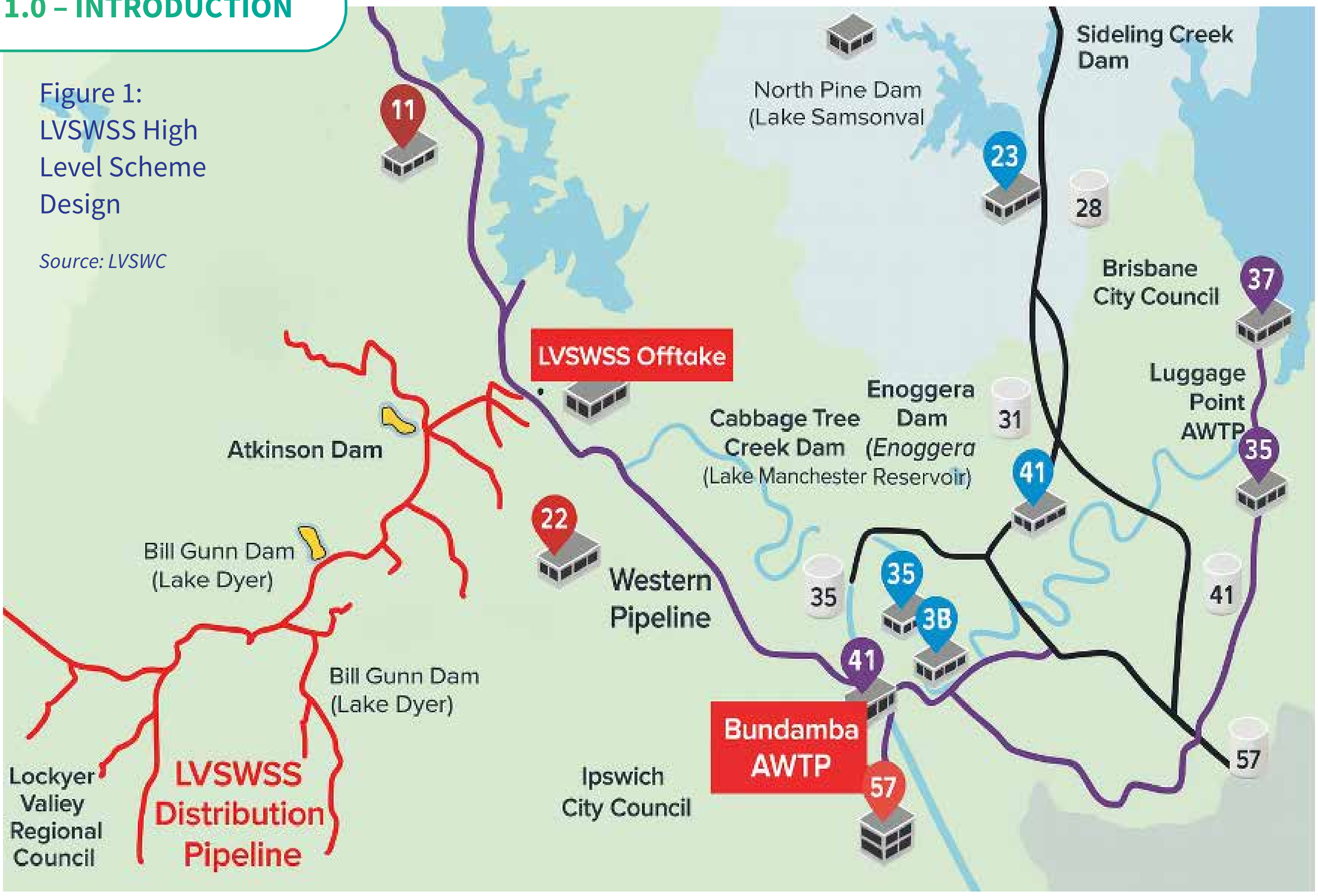


Figure 1: LVSWSS High Level Scheme Design

Source: LVSWC

The Lockyer Valley and Somerset (LVS) regions are recognised as vital agricultural areas for the nation's food security, boasting Australia's best soils and most productive farmland. Its agriculture sector enjoys strong community support due to the role it has in generating economic growth, jobs, and wages for Queensland families.

Despite the high quality of land and technical expertise available, the substantial value of agricultural production in these regions is severely constrained, not by limits on soil quality, land availability, or technical knowledge, but specifically by the lack of access to a reliable and affordable irrigation water supply.

The Lockyer Valley and Somerset Water Collaborative (LVSWC) project is investigating the construction of infrastructure to supply recycled water (RW) to agricultural and industrial users in the LVS region from the Western Corridor Recycled Water Scheme (WCRWS) via a stand-alone piped distribution network. The Lockyer Valley and Somerset Water Security Scheme (LVSWSS) aims to directly overcome this critical limitation by making an additional 22,000 ML/year of water available for agriculture and other high-value uses. Of the WCRWS total 66,000 ML capacity one third will be allocated to irrigation production and the other two thirds will be available other water uses, including the potential to develop an industrial customer base along the corridor.

The primary objective of this scheme is to secure a more sustainable and reliable water supply, which in turn will boost agricultural production, enhance Queensland and Australia's food security, and generate local jobs. Ultimately, the LVSWSS commendably intends to "drought-proof" the region and safeguard it against the negative impacts of climate variability.

1.1 – POLICY DRIVERS

The LVSWSS is seeking to use significantly underutilised urban water infrastructure, the Western Corridor Recycled Water Scheme (WCRWS), to deliver substantially increased food security and an ongoing annual economic benefit to [1]Queensland. The WCRWS has largely been in care and maintenance since 2013.

Activating the WCRWS will:

- Deliver generational water infrastructure that will secure supply and foster economic growth;
- Significantly contribute to the delivery of the Prosper 2050 Strategy and its interim goal of boosting Queensland's primary production output to $30 billion by 2030;
- Use SEQ wastewater to deliver a significant economic benefit to Queensland; and
- Deliver significant environmental benefits, including to Moreton Bay, by aligning with the Council of Mayors (SEQ) Resilient Rivers Initiative (see section 8).

1.2 – LVSWC

Lockyer Valley and Somerset Water Collaborative (LVSWC) was established to ensure a shared position on future water security, supply and management for all water users and the communities of the region.

The membership of the LVSWC is a coalition of leaders and interests that are all committed to a secure and sustainable future for LVS.

The collaborative members are:

Lockyer Valley Regional Council
Somerset Regional Council
LWUF lockyer water users forum
LCCIT Lockyer Chamber
Urban Utilities
Lockyer Valley Growers

The Lockyer Valley Regional Council are the project owners and provide the Governance and Administrative guidance & support for the LVSWC to administer the project and progress the Scheme. Infrastructure Project Solutions (IPS), on behalf of Lockyer Valley Regional Council, is preparing an Opportunity Assessment Report (OAR) in accordance with the Queensland Business Case Development Framework with a view to seeking government funding. This report is due to be completed by mid year. The OAR is the ultimate deliverable of the current funded Optimisation Assessment Phase of the project and is funded under the SEQ City Deal.

1 – https://www.dpi.qld.gov.au/news-media/campaigns/prosper2050

2.0 Project Options

2.1 – OVERVIEW

Irrigation schemes across the globe have been referred to as their region's most important enabling economic infrastructure that has activated significant agricultural production, employment and investment that has in turn supported social prosperity for their broader community.

As part of the benefits assessment there were three options considered for increasing water supply to the Lockyer Valley and Somerset region. The three options assessed were based on distribution scenarios of 34,000 ML, 22,000 ML and 8,250 ML. These were developed based on previously forecasted ultimate customer demand (34,000 ML/annum), the theoretical maximum capacity of one of the Advanced Water Treatment Plants (AWTP) feeding the WCRWS (22,000 ML/annum) and a forecast interim customer demand (8,250 ML/annum). The options are summarised below.

2.2 – 34,000 ML SCHEME (VAR)

Seqwater supplies recycled water (RW) from the Western Corridor Recycled Water Scheme (WCRWS) to the LVSWSS distribution network near Coominya and can provide 34,000ML over 330 days per year, with a design scheme life of 30 years. This water is conveyed via a distribution network consisting of approximately 205kms of pipeline.

The water is pumped through the distribution network by either 11 or 13 pump stations which will be powered by the generation of 7 MW of solar with an option to couple with battery storage for the scheme. The water then utilises gravity from the balance tanks to supply irrigators allowing availability 24 hours/day, 365 days/year with the ability for irrigators to take their annual contracted volume over 270 days of the year.

The scheme has two short term storage options to increase the scheme reliability and flexibility, being three existing Lockyer irrigation storages: Lake Clarendon, Atkinson Dam, and Lake Dyer (Bill Gunn Dam) which requires the 13 pump stations, or utilising a purpose-built off-stream storage, which requires 11 pump stations.

2.3 – 8,250 ML SCHEME

Seqwater supplies recycled water (RW) from the Western Corridor Recycled Water Scheme (WCRWS) to the LVSWSS distribution network near Coominya and can provide 8,250ML over 330 days per year, with a scheme life of 30 years. This water is conveyed via a distribution network consisting of approximately 205 kms of pipeline and 9 balance tanks.

The water is pumped to balance tanks through the distribution network by either 11 or 13 pump stations which will be powered by the generation of 2MW of solar with an option to couple with battery storage for the scheme. The water then utilises gravity from the balance tanks to supply the irrigators allowing availability for 24 hours/day, 365 days/year with the ability for irrigators to take their annual contracted volume over 270 days of the year.

The scheme has two short term storage options to increase the scheme reliability and flexibility, being three existing Lockyer irrigation storages: Lake Clarendon, Atkinson Dam, and Lake Dyer (Bill Gunn Dam) which requires the 13 pump stations, or utilising a purpose-built off-stream storage, which requires 11 pump stations.

The 22,000 ML LVSWSS has the potential to become the largest sustainable competitive advantage that the LVS region has cementing it as Australia's largest food bowl.

It will help support diversification, resilience, wellbeing and economic prosperity for its residents, directly or indirectly across the Lockyer Valley, Somerset and SEQ.

2.4 – 22,000 ML SCHEME

The 22,000 ML scheme was adopted as the central option for the economic analysis presented in the following sections, with the 34,000 ML and 8,250 ML scheme options modelled as scenarios. This decision is based on the benefits of the Scheme relative to its affordability (see section 9.0). The LVSWSS as currently planned would involve the following:

- Seqwater supplies recycled water (RW) from the Western Corridor Recycled Water Scheme (WCRWS) to the LVSWSS distribution network near Coominya and can provide 22,000 ML over 330 days per year, with a scheme life of 30 years.
- This water is conveyed via a Scheme owned distribution network consisting of approximately 205 kms of pipeline and 9 balance tanks. The water is pumped to balance tanks through the distribution network by either 11 or 13 pump stations which will be powered by the generation of 5 to 6MW of solar with an option to couple with battery storage for the scheme.
- The water then utilises gravity from the balance tanks to supply the irrigators allowing availability for 24 hours/day, 365 days/year.
- The scheme allows irrigators to take their annual contracted volume over 270 days each year.

The scheme has two short term storage options to increase the scheme reliability and flexibility, being three existing Lockyer irrigation storages: Lake Clarendon, Atkinson Dam, and Lake Dyer (Bill Gunn Dam) which requires the 13 pump stations, or utilising a purpose-built off-stream storage, which requires 11 pump stations.

A demand assessment previously undertaken as part of an earlier phase of the project identified up to 180 potential customers of the Scheme, which included 12 very large customers (those seeking >1,000 ML) and 73 very small customers (20-100 ML). It is expected that, should the Scheme proceed:

- Government will provide a substantial non-equity contribution towards construction costs;
- Irrigator-customers will provide a capital contribution (previously estimated at $1,500 per ML);
- Government will subsidise the cost of water supplied from the Western Corridor Recycled Water Scheme (but not the cost of distribution).

The LVSWC proposes that the ultimate owner and operator of the new infrastructure will be an entity owned by the customers, that is a locally managed entity (LME). On this basis, those irrigators/customers who invest in the project will become both (a) owners (for example as shareholders in the LME) and (b) customers, who are supplied water by the scheme.

3.0 Importance of LVS Agriculture

3.1 – OVERVIEW

Horticultural is of profound importance to the LVS region, Queensland and Nationally through the significant economic, employment and food security benefits that it provides year round. It is indispensable, establishing the area as a national asset critical for food supply across Australia.

The LVS widely known as the "Salad & vegetable bowl of SEQ" and functions as a "horticultural powerhouse". The region contributes an irreplaceable and up to 30% of Queensland's and 5% of the nation's overall fresh produce. However, the current economic value of production at $1.4 billion has plateaued due to uncertainty of water supply, a vulnerability that must be addressed to protect and expand this crucial food source for national needs.

3.2 – CURRENT LVS PRODUCTION

Seasonal horticulture production in the LVS region is underpinned by several competitive advantages, including suitable agronomic conditions, the ability to supply key markets in counter-seasonal windows, good access to labour and logistics infrastructure, and proximity to major markets. During the winter and spring months, the Lockyer Valley accounts for the majority of fresh market supply for several vegetable crops (eg: lettuce, cabbage, cauliflower).

The table below provides estimates for seasonal horticulture crop production in SEQ and the proportion of this production attributable to the LVS region. The main crops grown by tonnage are lettuce, potatoes, cabbage, pumpkin and onions. This table shows that for several crops – lettuces, potatoes, cabbages, leafy salad vegetables, broccoli and cauliflowers – the region accounts for a significant majority of SEQ production.

Estimated tonnages of seasonal horticulture production in Lockyer Valley and Somerset

CROP	LOCKYER VALLEY AND SOMERSET PRODUCTION (T)	SEQ PRODUCTION %	QUEENSLAND PRODUCTION %
Lettuce	34,397	86%	58%
Potatoes	20,079	98%	24%
Cabbage	19,734	>99%	80%
Pumpkin	19,461	77%	34%
Onion	18,478	70%	55%
Leafy salad vegetables	17,336	>99%	80%
Broccoli	16,981	>99%	77%
Cauliflower	10,600	>99%	80%
Sweet Corn	5,884	48%	11%
Tomatoes	4,831	66%	10%
Melons	3,502	96%	4%
Carrots	3,047	11%	4%
Green Beans	3,042	64%	18%

Source: Synergies modelling

ESTIMATED CURRENT WATER USE BY CROP

Lockyer Valley and Somerset Region

Synergies has estimated the current water use by commodity in the LVS region, based on the above production data and Synergies' estimates for crop yield and water requirements per hectare of production. These are set out in the table adjacent. In total, based on key horticulture crops alone LVS horticulture is providing $433.9 million in agricultural production with 7,514 of area under production and requiring in excess of 32,000 ML water each year.

CROP	VALUE OF PRODUCTION ($)	AREA OF PRODUCTION (HA)	WATER USE (ML)
Leafy salad vegetables	$152.00m	231	509
Broccoli	$56.96m	1,249	4,120
Lettuce	$49.09m	1,147	4,586
Poultry	$49.0m	-	1,318
Onion	$21.61m	462	2,310
Cabbage	$17.75m	789	3,157
Turf	$16.3m	668	4,339
Pumpkins	$14.38m	649	2,595
Green Beans	$12.89m	608	1,521
Potatoes	$12.89m	446	2,231
Tomatoes	$8.64m	88	264
Sweet Corn	$8.25m	588	2,942
Cauliflower	$8.21m	459	1,836
Melons	$3.34m	54	162
Carrots	$2.54m	76	305
Total	$433.85m	7,514	32,195

Source: Synergies modelling

Gross farm gate value of other agricultural commodities in the Lockyer Valley and Somerset region

The top five crops by farm gate value are leafy salad vegetables, lettuce, broccoli, cabbages and fresh herbs. In addition, to the substantial value generated by seasonal horticulture in the LVS region, significant value is also generated from other agricultural commodities, as detailed below.

Cattle **$65.6M**

Poultry **$49M**

Nurseries & Cut Flowers **$31.2M**

Turf **$16.3M**

TOTAL **$162.1M**

Source: Synergies modelling

3.3 – SOCIAL IMPORTANCE

LVS horticulture sector is identified as a major contributor to the social fabric of LVS's rural and regional communities, serving as the mainstay for the region employment and economic activity.

Horticulture has considerable social significance in playing a large part of its residents' lives. It is hugely important to the fabric of the LVS due to the history and tradition it has through considerable family linkages and generational linkages. However its importance extends beyond this history.

The concept of "velocity of the horticulture dollar" refers to the speed and extent to which money circulates through the economy as a result of horticultural activity. It is a continuous cycle where financial contributions from the Horticulture Industry moves within the community thereby fostering overall regional prosperity and resilience. The "horticulture dollar" represents the economic value generated by the Industry. This value, originating from growers, then circulates through the broader economy as they purchase goods and services from other businesses within their local communities and supply chains. Money spent by horticulture businesses and their employees remains within the local economy, supporting various other sectors and businesses.

The Industry's activities are deeply intertwined with sectors such as retail, wholesale trade, manufacturing, and transport. The revenue generated by horticulture growers flows into these upstream (like fuel, fertilisers, chemicals, and machinery) industries through the purchase of essential inputs and downstream (such as transport and processing).

This circulation ensures that the horticulture dollar "underpins economic stability and growth" in the communities where growers operate. It acts as a "mainstay for many rural areas, fostering multicultural communities" and contributes to the "social fabric and environmental health of communities across the State.

Overview of Social Benefits

Food security

LVS's Horticulture Industry plays a critical role in providing fresh, high-quality, nutritious produce to Australian consumers, contributing significantly to national food security.

Environmental Stewardship

Many horticultural practices are increasingly focused on sustainability, with initiatives to improve soil and land management, reduce farm run-off, and contribute to the health of ecosystems like the Moreton Bay.

Rural and Regional Development

The Industry underpins the economic and social fabric of the LVS communities, providing employment, supporting local businesses, and fostering community resilience.

Community Well-being

By creating and maintaining beautiful green spaces and contributing to a circular economy, the Horticulture Industry enhances the overall well-being and liveability of LVS communities.

Support for Local Businesses

The Industry has significant links to other sectors, including retail, wholesale trade, manufacturing, and transport, and supports a network of local businesses providing goods and services to farms.

Source: QEAS 2025

3.4 ECONOMIC IMPORTANCE

The LVS Horticulture Industry is a significant contributor to the LVS and Queensland economies through the employment created and the economic activity created for local businesses.

The economic contribution and benefits of the Industry are provided in the below table. The gross value of agricultural output in the horticulture and other agriculture sector[2] for the LVS region exceeds $1.4 billion and contributes $621.8 million in gross regional product.

Horticulture has an extensive value-chain both upstream and downstream including nurseries, mills, transport operators, packaging providers, ports, planting and harvesting contractors, fuel distributors, fertiliser and chemical retailers, farm machinery retailers, irrigation equipment suppliers, and accountants and insurance brokers. This fosters a cycle where the horticulture dollar circulates within the community, contributing to overall regional prosperity and resilience – referred to as velocity of the horticulture dollar (see section 3.3). Accordingly the Horticulture Industry provides significant indirect producer and consumer flow-on benefits.

ECONOMIC CONTRIBUTION OF LVS HORTICULTURE INDUSTRY

METRIC	AGRICULTURE	ALL INDUSTRIES
Lockyer Valley and Somerset		
Gross output ($M)	$1,403.86	$12,678.73
Gross Regional Product ($M)	$621.75	$3,695.00
Labour income ($M)	$112.32	$1,823.27
Employment (FTE)	1,817	22,060
Queensland		
Gross output ($M)	$14,598.36	$1,096,463.07
Gross Regional Product ($M)	$7,487.21	$485,972.39
Labour income ($M)	$1,408.20	$246,919.00
Employment (FTE)	22,111	2,563,692

Source: Synergies modelling

2 – Defined as the 'Other agriculture' sector in the I-O tables, incorporating all horticulture and intensive animal production in the region

OVERVIEW OF ECONOMIC BENEFITS

Major Producer

LVS is Queensland's premier region for fruit and vegetable production, growing 30% of the State's produce.

Significant Industry Value

Horticulture is LVS's largest primary industry in value, contributing over $1.4 billion per year in farm gate value.

This significant contribution directly boosts the state's GSP.

Regional Economic Driver

Production horticulture is a major contributor to the LVS and neighbouring economies and the mainstay of these communities providing economic stability and growth in areas that might otherwise struggle.

Regional Employment Provider

For the community the Horticulture Industry is one of the largest providers of employment and livelihoods.

Export Potential

Strong export growth, particularly for trade-focused commodities, is a key driver of the Industry's projected growth.

LVS, offers unique advantages for "out of season" production of exotic fruits and vegetables, with significant export potential to Asia, particularly for premium commodities.

Multiplier Effect

For every dollar of value and jobs that horticulture generates, additional significant activity and jobs are created in the rest of the economy, demonstrating significant flow-on effect.

Source: QEAS 2025

3.5 – EMPLOYMENT IMPORTANCE

LVS's Horticulture Industry is a significant generator of employment providing in excess of 1,817 jobs thereby playing a vital role in the region's workforces. Horticulture is notably the most labour-intensive of all agricultural industries, with labour costs accounting for as much as 32.7% of overall operating expenses (ABARE). This characteristic explains the Industry's substantial direct and indirect employment contribution.

OVERVIEW OF EMPLOYMENT BENEFITS

Direct Employment

The Horticulture Industry directly employs thousands of persons across Queensland.

Labour Intensive

Horticulture is the most labour-intensive of all agricultural industries, with labour representing 32.7% of overall operating costs. This means it generates a high number of jobs per unit of output compared to other agricultural sectors.

Diverse Rolls

The Industry offers a wide range of roles, from on-farm positions.
From pickers, packers, nursery hands, and machinery operators, to more skilled and managerial roles such as production horticulturalists, quality assurance managers, farm managers and logistics managers.

Seasonal and Regional Employment

The seasonal nature of horticulture creates a demand for large numbers of employees during specific times of the year, providing income for both local workers and seasonal workers, including backpackers and "grey nomads." The Industry has significant links to the tourism Industry. Through higher value add production and utilisation of year round greenhouse production, LVSWSS will convert these seasonal jobs into full time roles.

Indirect Job Creation

Additional jobs are created in related sectors such as wholesale trade, retail, transport, and construction, highlighting its broader impact on the employment landscape.

Source: QEAS 2025

A key characteristic of the Queensland Horticulture Industry's employment is its reliance on seasonal workers to maintain continuity of supply.

Occupations across the Industry include Fruit Growers, Vegetable Growers, Fruit Farm Workers, Fruit Pickers, Fruit and Vegetable Packers, Vegetable Farm Workers, Wine Grape Growers, Vineyard Workers, Agricultural and Horticultural Mobile Plant Operators, Mushroom Pickers, Nut Growers, Horticultural Supervisor or Specialists and Vegetable Pickers. Mechanisation is leading to a growing number of Machinery Operators and Drivers, Technicians and Trades Workers, and Professionals. In addition the Industry provides an entry point in the workforce for many younger persons through apprenticeships.

A key characteristic of the Queensland Horticulture Industry's employment is its reliance on seasonal workers to maintain continuity of supply. During peak harvesting times temporary full-time equivalent jobs become available each month.

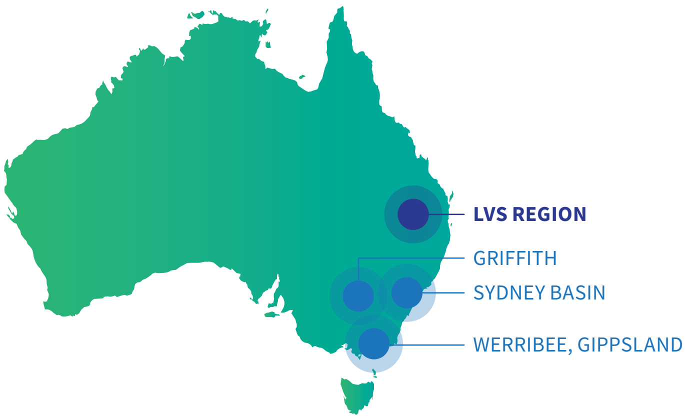
This highlights the significant demand for flexible labour to meet fluctuating production needs. To this end, the Industry fosters connections with the tourism sector attracting backpackers and 'grey nomads' to fulfill this workforce requirement.

Commodity groups without high levels of mechanisation experience the highest levels of short-term fluctuations in labour demand in peak periods such as harvest. In contrast, labour demand will typically be more consistent in protected cropping operations which offer year-round production or extended seasons. Through higher value add production and utilisation of year round greenhouse production, LVSWSS will convert these seasonal jobs into full time roles. Finally greater certainty increase the skills and labour attraction of the industry for tomorrow's workforce.

3.6 – NATIONAL FOOD SECURITY BENEFITS

The LVS is Australia's northern most major green vegetable producing region, enabling growers to supply markets in counter-seasonal windows, during which supply is limited from southern growing regions due to climate limitations.

Noting that most crops can be grown year-round in the LVS region, the table following summarises, for each key crop, the key seasonal window in which the LVS region is Australia's key growing region supplying the domestic market.



It shows that the Sydney Basin and Werribee are the key alternative growing regions during the LVS region's key seasonal windows across the key crops. Each of these regions is subject to significant constraints in terms of their capacity to expand seasonal horticulture production to meet future growth in demand, as summarised on the following page.

OVERVIEW OF SEASONAL WINDOWS & COMPETING GROWING REGIONS FOR KEY CROPS

CROP	KEY SEASONAL WINDOW (SEASONAL ADVANTAGE)												COMPETING GROWING REGIONS
	January	February	March	April	May	June	July	August	September	October	November	December	
Broccoli				■	■	■	■						Sydney Basin, Werribee
Cabbage									■	■	■	■	Sydney Basin, Werribee
Cauliflower					■	■	■	■	■				Werribee, Gippsland
Lettuce/Leafy salad vegetables						■	■	■					Sydney Basin, Werribee
Onion	■									■	■	■	Griffith
Sweet corn	■	■	■	■	■						■	■	Sydney Basin, Gippsland

Source: Synergies

OVERVIEW OF KEY GROWING REGIONS

SYDNEY BASIN (NSW)

Broccoli | Cabbage | Lettuce/ Leafy salad vegetables | Sweet Corn

- Urban encroachment and land use pressures (see below).
- Increasing land prices are a constraint on increasing area of agricultural production.

WERRIBEE (VIC)

Broccoli | Cabbage | Lettuce/ Leafy salad vegetables | Cauliflower

- Declining water quality.
- Urban encroachment.
- Limited farm mobility due to ‘Green Wedge’ planning policies.

Source: Synergies

3.7 – ALIGNMENT WITH QUEENSLAND AND AUSTRALIAN GOVERNMENT POLICY OBJECTIVE

The project aligns with the Australian Government's goal of increasing exports by $100 million by 2030 and its National Food Security Strategy under development. The Queensland Government is also currently aiming to boost the output of its primary industries to $30 billion by 2030[3]. The Primary Industries Prosper 2050 is a 25 year blueprint which aims at repositioning Queensland's primary industries as high-growth, innovation-driven pillars of the economy.

The Strategy is framed as a system-wide reset, focusing on long-term structural reform, coordinated investment, regulatory overhaul, and workforce renewal. The blueprint aims to ensure that primary industries remain the backbone of Queensland's economy, with a bold vision to achieve $30 billion in agricultural output by 2030.

The Strategy is central to the Crisafulli Government's broader rural and regional policy agenda, addressing challenges such as supply chain volatility, climate extremes, labour shortages, and complex regulatory settings. The Strategy signals a shift from reactive policymaking to long-term structural planning, with a strong focus on diversification, resilience, and technology-enabled growth.

The LVS will be crucial to the realisation of this Strategy. The output of primary industries in Queensland is currently estimated at $22.6 billion with a requirement of increasing agricultural production by $7.4 billion (a 33% increase) by 2030.

3.8 – IMPLICATIONS FOR THE LVSWSS

Given the constraints in other growing regions, the importance of the LVS region in terms of its role in meeting future growth in seasonal horticulture demand is expected to increase over the next several decades. That is, the demand growth rate for key crops will exceed population growth. The Sydney Basin, the primary alternative to seasonal horticulture in the Lockyer Valley and Somerset, will see a gradual phase out of seasonal horticulture production, reaching zero production by 2050. Accordingly the LVS is considered to have and will increasingly have profound importance to Australia's sovereign food security.

3 – Queensland Government (2025). Primary Industries Prosper 2050 – A 25-year blueprint for Queensland's primary industries.

4.0 Climate Variability

4.1 – INTRODUCTION

As part of the project LVSWC commissioned detailed year-to-year forecasts and longer-term climate variability outputs specific to the LVS Regions by highly respected climate scientist Roger Stone (Speedbird Climate).

This research included information on: mean temperature, maximum temperature, minimum temperature and rainfall.

The analysis utilised actual rainfall and temperature data for LVS spanning the past 125 years. The output included analysis of the historical base conditions, detailed yearly forecasts extending out to 5 and 10 years (until 2034) and detailed climate projections until 2049 and in some cases until 2074.

4.2 – HISTORICAL CLIMATE VARIABILITY AND TRENDS

Analysis spanning the past 125 years indicates notably large year-to-year variability in both rainfall and temperature across the LVS regions.

Both regions exhibit historically increasing trends in maximum temperature, specifically around 0.9 degrees Celsius (°C). Historical trends in minimum temperatures show an increase of 0.6°C to 1.0°C in the Lockyer Region, and 0.3°C to 0.6°C in the Somerset Region over the analysed period.

Long-term trends in rainfall are less pronounced for the Lockyer Valley, ranging from no trend (0 mm) to a slight decrease of minus 107 mm in certain locations. Trends in rainfall for the Somerset Region vary more significantly, showing a slight decrease of minus 12 mm in some locations up to a more substantial decrease of minus 299 mm in others. Major fluctuations in year-to-year rainfall occur, with values varying widely in closely occurring years (e.g., from approximately 240 mm to over 1200 mm).

INCREASING MINIMUM TEMPERATURE
0.6°C to 1.0°C – Lockyer region
0.3°C to 0.6°C – Somerset region

INCREASING MAXIMUM TEMPERATURE
0.9°C in both the Lockyer and Somerset regions

LOCKYER REGION RAINFALL
Decrease of 0mm –107mm in certain locations

SOMERSET REGION RAINFALL
Decrease of 12mm –299mm in certain locations

4.3 – FORECASTED AND VOLATILITY

Detailed year-to-year modelled forecast analyses confirm that large variability or ‘volatility’ is increasingly likely to exist in both rainfall and temperature values.

These forecasts, based on known current global patterns and dynamics of the atmosphere and oceans, suggest that while long-term median rainfall remains relatively stable, there are likely to be notable periods of more extreme and frequent high and low rainfall events. This high variability is particularly apparent in peak summer rainfall.

The forecasts suggest the potential for consecutive dry days (drought) periods. Simultaneously, the projected likelihood is excessively high temperatures, potentially up to 2°C above the mean. The combination of returning drought periods alongside higher mean and maximum temperature values suggests the potential for more severe drought impacts in the LVS, possibly occurring in the short term (within the next five years). Key points from the analysis is indicated in the table following.

SSP 2-45 COMPLETE LISTING OF ALL MODELLED VARIABLES

Lockyer Valley, 2025-2049 and 2050-2074

LOCKYER VALLEY	SOMERSET
Increased Drought Risk	
The single most significant threat is the projected increase in the duration of dry spells. The maximum consecutive dry days could more than double, ranging from 33 days up to a high of 76 days, compared to the historical 34 days. This indicates a much higher risk of prolonged drought conditions, placing immense pressure on irrigation and groundwater resources.	The maximum consecutive dry days is projected to increase significantly, with a range of 32 days up to a high of 74 days, compared to the historical 34 days. This indicates that the **Somerset region is at high risk of experiencing prolonged, severe dry spells**, which is critical for agricultural water management.
Increased Rainfall Variability	
Total annual rainfall is projected to have a very wide range, from a low of 647 mm (down from 774 mm observed) to a high of 1027 mm. This suggests **greater uncertainty in water supply**, with the potential for both significantly drier years and much wetter years.	Total annual rainfall is projected to have a broad range, from a low of 714 mm (down from 878 mm observed) to a high of 1144 mm. This variability presents a **management challenge**, requiring farmers to prepare for both significantly drier and potentially much wetter seasons.
Higher Average Temperatures	
The daily mean temperature is projected to rise to a range of 19°C to 20°C, up from the observed 18°C. This general warming will influence **crop heat stress, water requirements** (due to increased evapotranspiration), **and pest/disease dynamics**.	The daily **mean temperature is projected to increase** to a range of 20°C to 21°C, up from the observed 19°C. This general warming will increase crop water demand through evapotranspiration and affect the suitability of certain crops.
Extreme Hot Days (Tmean = mean temperature)	
The projected number of days Tmean above 90% remains within the historical maximum, ranging from 23 days to 37 days, compared to the observed 37 days. While the low end decreases, the stability of the upper range means the **risk of extreme heat days impacting crop yield and quality remains a significant concern**.	The number of Days Tmean Above 90% (hot days) is projected to range from 22 days to 37 days, compared to the historical 38 days. While the upper range slightly decreases, the continued presence of a significant number of hot days means that **heat stress remains a key risk for high-value horticultural crops**.
Fewer Cold Events	
The number of days Tmean below 10% is projected to decrease (range of 24 days to 39 days, down from 32 days observed). Additionally, the risk of frost will remain minimal or decrease, with maximum consecutive frost days projecting a range of 1 day to 3 days, compared to 3 days observed. **This change could benefit winter cropping by reducing cold-related limitations**.	The number of days Tmean below 10% (cold days) is projected to range from 23 days to 40 days, compared to 32 days observed. The overall trend suggests a reduced frequency of cold spells, which could **simplify the management of winter crops by lowering the risk of cold-related damage**.

4.4 – AGRICULTURAL CONSEQUENCES

LVS agriculture will need to adapt to a climate defined by a higher frequency of prolonged dry spells and warmer average growing conditions, with an overall increase in the variability of the total annual rainfall.

This projected climate variability presents significant challenges for the LVS's horticulture sector including:

Increased Irrigation Demand
Lower total rainfall and significantly longer maximum dry periods will put greater pressure on groundwater aquifers—the primary water source for the region's agriculture—increasing competition for water and raising the potential for depletion and salinity issues.

Shift in Growing Seasons/Crops
Farmers may need to adjust planting and harvesting times or potentially transition to more heat-and drought-tolerant crops to maintain viability.

Yield and Quality Loss
Higher temperatures and more frequent hot days risk poor plant growth, increased water use, and quality defects like "blanking" (missing kernels) in sweet corn and other heat-sensitive crops.

Pest and Disease Dynamics
Warmer temperatures can lead to shifts in the distribution and behaviour of agricultural pests and diseases, requiring changes in management and biosecurity.

The overall trend indicates that climate variability will increase the operational risks and costs for LVS agriculture, making resilience strategies—particularly concerning water security—critical for the sector's long-term sustainability.

4.5 – IMPLICATIONS FOR THE LVSWSS

In summary, for LVS agriculture, the biggest challenges presented by climate variability are the potential for significantly extended dry periods and a warming trend, both of which necessitate a strong focus on water security and heat-resilient crop management.

For example, the experience of the Millennium Drought (2005-2007) emphasises the adverse impacts of shortfalls in fresh vegetable production. Based on analysis undertaken by the University of Melbourne, the price of fresh vegetables increased by ~33 percent during the Millennium Drought, primarily due to production shortages in major growing areas, including the LVS[4].

Furthermore, the estimated cost to Queensland was more than $200 million in annual lost agricultural production until the region recovered. Given growth since the Millennium Drought, the estimated cost to Queensland of a similar event would be in the order of up to $700 million/ year in lost production and over 900 jobs impacted over the duration of the drought.

5.0 Agricultural water use and demand

5.1 – OVERVIEW

Despite the high quality of land and technical expertise available, the substantial value of agricultural production in the LVS region is severely constrained, not by limits on soil quality, land availability, or technical knowledge, but specifically by the lack of access to a reliable and affordable irrigation water supply.

The LVSWSS aims to directly overcome this critical limitation by making an additional 22,000 ML/year of water available for agriculture and other high-value uses. This section provides a Synergies assessment of the demand for water in the LVS against supply to determine need for the LVSWSS.

5.2 FUTURE GROWTH IN AGRICULTURAL WATER DEMAND

Synergies assessed current and future agricultural water demand in the LVS region. Consultation with growers in the region identified three drivers of future water demand for agricultural production in the LVS region including:

- Population growth in SEQ
- The increasing importance of the Lockyer Valley and Somerset
- Climate variability

The table adjacent outlines projected growth in water demand for seasonal horticulture production and other agricultural commodities to 2050. By 2050, annual water demand for key seasonal horticulture crops, in addition to turf and poultry, in the LVS region is modelled to exceed 46,000 ML. Over 6,750 ML of the demand growth over this period is attributable to the declining output from alternative growing regions, particularly the Sydney Basin.

PROJECTED GROWTH IN WATER DEMAND FOR AGRICULTURAL PRODUCTION

Lockyer Valley and Somerset region (ML)

COMMODITY	2050 WATER DEMAND (CURRENT REGIONAL SHARE)	DEMAND GROWTH FROM INCREASED MARKET SHARE	2050 WATER DEMAND
Lettuce	5,561	751	6,312
Cabbage	4,061	1,665	5,726
Turf	5,547	0	5,547
Broccoli	4,831	347	5,178
Sweet Corn	3,403	1,739	5,142
Cauliflower	2,397	856	3,253
Pumpkins	3,108	0	3,108
Green Beans	1,831	1,188	3,019
Onion	2,753	0	2,753
Potatoes	2,729	0	2,729
Poultry	1,684	0	1,684
Leafy Salad Vegetables	664	219	883
Carrots	378	0	378
Tomatoes	330	0	330
Melons	210	0	210
Total	39,487	6,764	46,251

Source: Synergies modelling

The 22,000 ML LVSWSS has the potential to become the largest sustainable competitive advantage that the LVS region has cementing it as Australia's largest food bowl.

It will help support diversification, resilience, wellbeing and economic prosperity for its residents, directly or indirectly across the Lockyer Valley, Somerset and SEQ.

5.3 – AGRICULTURAL WATER SUPPLY

5.3.1 – Supplemented Entitlements

There are two major supplemented water supply sources within the Lockyer Valley, the Lower Lockyer Valley WSS and the Central Lockyer Valley WSS, which includes the Morton Vale Pipeline. The table below highlights significant underutilisation of medium priority (MP) water entitlements across the water schemes.

This is attributable to the significant variability in terms of the reliability performance of MP entitlements in these schemes, which is not conducive to high utilisation for horticulture production.

BREAKDOWN OF SUPPLEMENTED ENTITLEMENTS BY WSS

WATER SUPPLY SCHEME	MEDIUM PRIORITY ENTITLEMENTS	AVERAGE WATER DELIVERED	COMMENTS
Central Lockyer Valley	14,390 ML	7,465 MLa	Starting released allocations have fluctuated consistently over the ten-year analysis period. Over the previous three years, starting allocations have been at 100% for FY22 and FY23 before dipping in FY24 to 31%. Prior to this, starting allocations have regularly been at 0%, with no allocations released in FY16 to FY21.
Morton Vale Pipeline	3,420 ML	949 ML	Starting released allocation have fluctuated consistently over the ten-year analysis period. Over the short-term starting allocation have remained high at 100%. Prior to that allocations were significantly lower at 0%, with no allocations released between FY19 and FY21.
Lower Lockyer Valley	10,849 ML	1,380 ML	Starting released allocations have remained relatively high over the past three years, ranging from 91% to 100%. In contrast, the earlier part of the analysis period shows significantly lower starting allocations, with no allocations released between FY19 to FY21.

Source: Seqwater scheme performance reports.

5.3.2 – UNSUPPLEMENTED ENTITLEMENTS

The Central Lockyer Valley WSS also contains a significant amount of unsupplemented groundwater that is utilised for irrigation use.

The following table sets out the breakdown of Low Priority (LP) and MP groundwater entitlements and volume of water used for both priority levels in FY2024. The table shows there is significant underutilisation of both LP and MP unsupplemented groundwater. This is in conjunction with volatility in the reliability performance of the associated entitlements over the analysis period. This is primarily a function of long extended dry periods, which can be observed for the years FY2017 to FY2020 where 0 percent allocations were released. It is noted that groundwater allocations were separated from the Central Lockyer Valley entitlements in FY2020, brought on by the continuing deterioration of groundwater quality and limited recharge of the aquifers.

BREAKDOWN OF UNSUPPLEMENTED WATER ENTITLEMENTS

PRIORITY LEVEL	ENTITLEMENTS	FY24 WATER USED	COMMENTS
Low Priority Groundwater	18,505 ML	5,669 ML	Created in 2020, announced allocations have been consistently high, with 100% allocations the past 3 years.
Medium Priority Groundwater	9,260 ML	107 ML	Announced allocations over the short term have been relatively high, ranging from 80 to 100% over the previous 5 years. Prior to this, there were no announced allocations from FY17 to FY20.

Source: Synergies modelling.

5.3.3 – LVS GROUND WATER

AGRICULTURAL WATER DEMAND

46,250 ML by 2050

The LVS region relies predominately on groundwater supplies to meet water demand needs, which has been estimated to be as high as 45,000 ML of usage within the region and meets approximately 70% of total water demand.

The sustainability of these groundwater resources depends heavily on consistent and sufficient aquifer recharge. However as discussed in section 5, recharge patterns have become increasingly erratic due to changing climate conditions and variable rainfall. When extraction rates exceed natural replenishment, the aquifers experience a gradual decline in water levels. This imbalance not only threatens long-term water availability but also accelerates salinity build-up over time, as reduced freshwater inflows allow salts to concentrate within the groundwater system. The rising salinity and continued depletion of storage capacity can permanently degrade the aquifer, making it unsuitable for future agricultural use.

The long-term viability of groundwater within the region (see section 5.0) is projected to decline further due to the combined pressures of climate variability and ongoing extraction. Extended dry periods, which are expected to become more frequent, will continue to reduce natural recharge rates while simultaneously increasing demand on these resources through increased temperatures.

The effects of climate variability extend beyond groundwater alone, also affecting surface and supplemented water supplies. As rainfall patterns shift and dry periods become more prolonged, the reliability of these alternative sources also diminishes. This leads to increased volatility in announced water allocations, creating uncertainty for growers and reducing overall volumes of water available for agricultural production. Together with declining groundwater quality and quantity, these pressures compound the challenge of maintaining sustainable water access in the region.

5.4 – IMPLICATIONS FOR THE LVSWSS: AGRICULTURAL WATER SUPPLY-DEMAND IMBALANCE

As outlined, agricultural water demand in the LVS region is projected to rise to approximately 46,250 ML by 2050, primarily driven by population growth and reduced supply in other counter-seasonal growing regions.

As the water supply assessment indicates no material change in water supplies available for agricultural use in the region, there will be an increasing gap of 17,000 ML on average each year between agricultural water supply and demand.

In addition to constraining growers in the LVS region, this imbalance will result in constraints on the supply of fresh produce to east coast markets, resulting in higher retail prices and supply shortages, in particular during the winter and spring months when the Lockyer Valley is the main growing region for several crops across Eastern Australia.

The following table presents the anticipated water supply shortfall in 2050 for the Lockyer Valley and Somerset region, along with the corresponding impacts on agricultural output.

WATER IMBALANCE & SHORTFALL FOR THE LOCKYER VALLEY & SOMERSET - 2050

COMMODITY	WATER SUPPLY SHORTFALL (ML)	PRODUCTION SHORTFALL (T) (% OF CURRENT PRODUCTION)
Cabbage	2,941	13,808 (70%)
Sweet Corn	2,534	4,759 (81%)
Lettuce	2,136	15,042 (44%)
Green Beans	1,694	3,181 (105%)
Cauliflower	1,628	11,465 (108%)
Turf	1,569	227 hectares (34%)
Broccoli	1,394	5,394 (32%)
Pumpkins	715	5,035 (26%)
Potatoes	675	5,704 (28%)
Onion	622	4,672 (25%)
Leafy Salad Vegetables	431	13,796 (80%)
Poultry	366	5,113 (28%)
Carrots	98	920 (30%)
Tomatoes	87	1,498 (31%)
Melons	62	1,261 (36%)
Total	16,952	86,255

Source: Synergies modelling.

The modelled water shortfall in 2050 is significant relative to current production of the crop in the Lockyer Valley and Somerset region.

The table shows that for some crops – in particular cabbage, leafy salad vegetables, sweet corn, cauliflower, and green beans – the modelled shortfall in 2050 is significant relative to current production of the crop in the Lockyer Valley and Somerset region (i.e. above 70 percent of current production).

The LVSWSS commendably intends to "drought-proof" the region and safeguard it against the negative impacts of climate variability and water supply shortfall identified above.

6.0 LVSWSS Economic Impact

6.1 – OVERVIEW

This section presents the economic benefits prepared by Synergies based on the 22,000 ML scheme option.

The LVSWSS will act as essential enabling economic infrastructure designed to provide a more reliable supply of water available for agriculture. This enhanced security will provide irrigators with the certainty necessary to plan, plant with confidence, and invest, ultimately achieving greater financial returns for the State.

6.2 – INCREASE IN FARM GATE VALUE OF PRODUCTION

The project will significantly increase water supply for growers in the LVS region. This will support the expansion of agricultural production in the region (in particular seasonal horticulture) generating economic benefits through increased farm-gate value and an improved supply of key vegetable crops, including during counter-seasonal windows.

CROP	WATER DEMAND	NET MARGIN PER ML	INCREASE IN ANNUAL PRODUCTION VALUE
Other vegetables	3,000 ML	$1,830	$39.32m
Cabbage	1,647 ML	$793	$33.64m
Lettuce	2,200 ML	$1,835	$30.98m
Tomatoes	800 ML	$4,530	$29.15m
Broccoli	1,628 ML	$1,662	$25.22m
Turf	1,400 ML	$5,342	$19.72m
Poultry	500 ML	$1,670	$16.38m
Other horticultural crops	1,300 ML	$1,926	$16.22m
Onions	1,250 ML	$1,720	$14.17m
Green beans	1,300 ML	$1,519	$11.48m
Cauliflower	725 ML	$1,770	$9.36m
Sweet corn	1,100 ML	$1,591	$6.82m
Pumpkins	750 ML	$1,627	$4.23m
Potatoes (incl sweet potatoes)	550 ML	$1,143	$3.72m
Fruit trees	500 ML	$1,237	$3.61m
Carrots	350 ML	$1,937	$3.29m
Broadacre	2,250 ML	$254	$1.11m
Totals	21,250 ML	$32,384	$268.41m

Source: Synergies modelling.

Facilitating the growth of the horticulture sector in SEQ will also have flow-on benefits to the LVS economy and community and is consistent with Queensland Government policy targeting growth in agricultural production. The increase in the LVS horticulture annual production resulting from the LVSWSS's additional 22,000 ML is estimated at $268.41 million with key crops benefiting including turf, tomatoes, carrots, lettuce and cauliflower.

6.3 – ECONOMIC IMPACTS

6.3.1 – Headline Impact

The economic activation enabled by the LVSWSS extends far beyond the farm gate, generating significant economic activity for Queensland, contributing to the Gross Regional and State Product, and employment. The economic impact modelling for the LVSWSS based on the 22,000 ML project option, projects significant annual economic benefit.

As stated, Horticulture has an extensive value-chain both upstream and downstream. Upstream includes nurseries, transport operators, packaging providers, ports, planting and harvesting contractors, fuel distributors, fertiliser and chemical retailers, farm machinery, retailers, irrigation equipment suppliers, and accountants and insurance brokers. Downstream the Industry's activities are deeply intertwined with food manufacturing, retail, wholesale trade and transport, creating a ripple effect that extends economic benefits far beyond the primary production stage.

RESULTS OF ECONOMIC IMPACT MODELLING

	Current		Newly created project impacts		
METRIC	**AGRICULTURE**	**ALL INDUSTRIES**	**DIRECT**	**INDIRECT**	**TOTAL**
Lockyer Valley and Somerset					
Gross output ($M)	$1,403.86	$12,678.73	$268.41	$31.91	**$300.33**
Gross Regional Product ($M)	$621.75	$3,695.00	$118.95	$10.66	**$129.60**
Labour income ($M)	$112.32	$1,823.27	$21.56	$3.22	**$24.78**
Employment (FTE)	1,817	22,060	348	48	**397**
Queensland					
Gross output ($M)	$14,598.36	$1,096,463.07	$268.41	$94.68	**$363.09**
Gross Regional Product ($M)	$7,487.21	$485,972.39	$139.98	$34.88	**$173.86**
Labour income ($M)	$1,408.20	$246,919.00	$26.32	$15.23	**$41.55**
Employment (FTE)	22,111	2,563,692	421	172	**593**

Source: Synergies modelling

This interconnectedness means that the direct economic contribution additionally creates flow-on benefits as the horticulture dollar circulates across inter-Industry transactions. Benefits to both the LVS region and Queensland are provided in the above table.

6.3.2 – Economic Impacts on Lockyer Valley and Somerset

The LVSWSS is projected to deliver a substantial and localised boost to the regional economy:

GROSS OUTPUT

Current Gross Output
$1,403.86 million

+

Projected Additional Gross Output
$300.33 million

The current horticulture sector in the region generates a Gross Output of $1,403.86 million. The scheme is projected to add a total direct Gross Output of $300.33 million. This total is driven by a direct impact of $268.41 million (a 19.1% increase) from the value of agricultural production and an indirect impact of $31.91 million from flow-on effects.

GROSS REGIONAL PRODUCT (GRP)

Current Horticulture GRP
$621.75 million

+

Project Additional GRP
$129.60 million

The current horticulture GRP stands at $621.75 million. The scheme is expected to contribute a Total GRP increase of $129.60 million, comprising a direct GRP increase of $118.95 million and an indirect increase of $10.66 million.

EMPLOYMENT

Current Full Time Jobs
1,817

+

Projected Full Time Job Increase
397

The current horticulture sector supports 1,817 Full Time Equivalent (FTE) jobs. The project is projected to create a Total Employment increase of 397 FTEs, consisting of 348 direct jobs and 48 indirect jobs.

6.3.3 – Economic Impacts on Queensland

The economic benefits of the LVSWSS extend well beyond the immediate region, flowing across SEQ:

GROSS OUTPUT

Current Gross Output
$14,598.36 million

+

Projected Additional Gross Output
$363.09 million

The current Queensland horticulture sector generates $14,598.36 million in Gross Output. The scheme's total impact on the state is a Total Gross Output increase of $363.09 million. This figure includes the $268.41 million direct stimulus and $94.68 million in indirect output across various state industries.

GROSS REGIONAL PRODUCT (GRP)

Current Horticulture GRP
$7,487.21 million

+

Project Additional GRP
$173.86 million

The current GSP for the state's horticulture sector is $7,487.21 million. The scheme is estimated to contribute a Total GSP of $173.86 million, which includes a direct impact of $139.98 million and an indirect impact of $34.88 million.

EMPLOYMENT

Current Full Time Jobs
22,111

+

Projected Full Time Job Increase
593

The state's current horticulture sector supports 22,111 FTE jobs. The total employment impact across Queensland is projected to be 593 additional FTEs, consisting of 421 direct jobs and 172 indirect jobs.

6.4 OTHER ECONOMIC BENEFITS

In addition, the LVSWSS supports regional diversification by creating new tourism and recreation opportunities through the year-round use of existing waterways and dams, supports regional population growth, establishes wealth by increasing land values, and encourages commercially focused research and skills development, particularly leveraging the University of Queensland's Gatton campus.

6.5 – IMPLICATIONS FOR THE LVSWSS

The LVSWSS directly boosts agricultural capacity by supporting more intensive use of existing land, facilitating large-scale greenhouses for year-round production, and allowing farmers to transition into higher-value cropping and new commodity lines. Furthermore, it fosters market expansion, enabling new export opportunities often accompanied by potentially higher margins and longer-term contracts, while also stimulating crucial agri-business activities like specialised food processing, packaging, transport, and storage.

The LVSWSS will act as a catalyst driving significant change and diversification within these areas. This transformation will move the LVS towards more complex and higher-value agricultural production, which in turn enhances regional economic resilience by reducing over-reliance on single commodities and attracting new domestic and international investment fostering a more dynamic and adaptable rural landscape.

7.0 Environmental Benefit

7.1 – OVERVIEW

The LVSWSS can deliver a range of significant environmental benefits by taking wastewater currently discharged under licence into the region's waterways and ultimately Moreton Bay.

This section summarises the potential environmental, resilience, and biodiversity benefits prepared by COMSEQ that could result from sediment reduction opportunities linked to the LVSWSS through the Resilient Rivers Initiative. Such a program would see landholders incentivised to participate in gully and riparian restoration projects on their properties and other land improvements. The project represents a significant opportunity to redesign the agricultural landscape to reduce sediment loss and enhance farming land through reducing the loss of top soil.

Resilient Rivers is a successful partnership between COMSEQ, the Australian Government, the Queensland Government, water utilities, regional waterways and catchment organisations and community. For almost 10 years it has delivered coordinated catchment management to improve the health and resilience of SEQ's catchments, waterways and Moreton Bay, a Ramsar internationally important wetland.

7.2 – SEDIMENT LOADS FROM THE LOCKYER VALLEY

Sediment exported from the Lockyer Valley has been identified as a major contributor to downstream environmental impacts affecting the Brisbane River and Moreton Bay. During rainfall events, sediment from upstream sub-catchments such as Laidley Creek, Tenthill Creek and Sandy Creek, is washed into local waterways, eventually reaching the Brisbane River and Moreton Bay. The Lockyer Valley is particularly vulnerable to erosion due to limited protective vegetative cover, particularly in riparian and gully areas. The lack of natural stabilisation is exacerbated by prolonged dry periods which promote soil instability, increasing potential sediment export during subsequent rainfall events.

SEDIMENT LOADS & TREATMENT COSTS OF HISTORIC ADVERSE WEATHER EVENTS

YEAR	EVENT	ESTIMATED SEDIMENT LOAD (T)
2011	Ex-tropical cyclone Tasha	1,300,000
2013	Ex-tropical cyclone Oswald	850,000
2014	Minor storm	180,000
2017	Ex-tropical cyclone Debbie	420,000
2020	Summer storms	150,000
2022	Rainfall event	900,000
2023	Summer storms	120,000

The table adjacent highlights the adverse weather events over the last 15 years, and the estimated amount of sediment exported from the Lockyer Valley catchment.

Over the past 15 years, seven adverse weather events have resulted in the export of approximately 3.92 million tonnes of sediment from the Lockyer Valley alone, at an average of 0.56 million tonnes per event.

Source: Resilient Rivers SEQ, SEQ Council of Mayors.

7.3 – ENVIRONMENTAL BENEFITS QUANTIFIED

The implementation of the LVSWSS will create the opportunity to align the scheme with outcomes sort by Resilient Rivers and provide the basis for strategic redesign of the agricultural landscape, incentivising scheme participants to undertake revegetation of riparian zones and areas affected by active gully erosion. Any sediment reduction program will be co-designed with scheme participants and other key stakeholders. The size and scale of the LVSWSS, with scheme participants stretching across the region, provides a unique opportunity to address soil loss on farms and sediment flow at scale. The reduction in sediment loads coming from the Lockyer Valley during major weather events will have several benefit streams, including:

- enhanced farming enterprises by ensuring good soil stays on the land;
- reduced water treatment costs at Mt Crosby WTP;
- reduced dredging costs at the Port of Brisbane; and
- enhanced water quality in SEQ waterways and Moreton Bay resulting in improved use and non-use values.

7.3.1 – Reduction in water treatment costs

Excessive sedimentation poses significant challenges for the Mount Crosby Water Treatment Plants (WTP), which is the key treatment facility for the SEQ Water Grid. Located on the Brisbane River, the WTP draws water from the Mount Crosby Weir pool, where high sediment loads lead to increased treatment costs and reduced capacity for Seqwater to deliver reliable water services. In addition to direct treatment costs, sediment can cause abrasion damage to infrastructure and may necessitate reliance on alternative, higher-cost water sources such as desalination.

Analysis of four major sediment events shows that a total of 3.17 million tonnes of exported sediment correlated to an additional $23 million in costs above standard treatment costs for Seqwater. This equates to approximately $7.25 per tonne of sediment. Specifically, the 2022 rainfall event alone resulted in an estimated additional cost of $6.6 million due to chemical dosing, sludge production, and reliance on desalination. Climate change modelling suggests that rainfall events capable of producing high sediment exports are likely to increase in frequency, which will only increase reliance on the Mount Crosby system and raise the costs of supply disruption

Through proactive intervention such as the Resilient Rivers Initiative and the LVSWSS, the annual cost savings for water supply achieved through sediment reduction are estimated to range from $1.5 million to $6.1 million per year, based on landholder participation levels and event frequency.

7.3.2 – Reduction in dredging costs at Port of Brisbane

Beyond water treatment cost implications, sediment exported from the Lockyer Valley has long been recognised as a major contributor to the sediment load entering Moreton Bay. The Bay acts as a sediment sink for multiple catchments including the Lockyer Valley, Bremer River and mid-Brisbane River, all of which feed into the Brisbane River estuary. Accumulated sediment reduces depth of the approach channels, swing basins and berths, compromising under-keel clearance and vessel safety. This, in turn, increases the frequency and cost of dredging operations following adverse weather events.

In terms of dredging costs, Port of Brisbane has advised that this sediment discharge increases the cost of dredging in the port channel and harbour area by between $10 and $25 per cubic metre. Based on a mid-point estimate of $17.50 per cubic metre, and the same event frequency, and event size, the average annual dredging costs due to sediment discharge is approximately $4.9 million.

7.3.3 – ENHANCED USE AND NON-USE VALUES IN MORETON BAY

In addition to the above, there are other significant indirect costs stemming from sediment discharge into Moreton Bay. These include deterioration in water quality, which can negatively impact marine ecosystems, recreational use and commercial activities. Furthermore, the sedimentation can lead to a loss of non-use values, such as biodiversity, and cultural heritage, impacting the broader community.

The key use values attributable to Moreton Bay are the value of the tourism and recreation services that the Bay supports and the value of commercial fishing. The value of the commercial fishing industry in Moreton Bay is estimated at approximately $30 million per annum[5]. The majority of this production is sold into domestic markets within SEQ.

Moreton Bay also generates significant tourism and recreation activity. In 2023/24, total international and domestic visitor nights in the Moreton Bay region totalled almost 4.3 million. There were around 2.95 million domestic day trips to the region[6]. The non-use values of the Moreton Bay relate to the significant environmental values, which are summarised below.

ENVIRONMENTAL VALUES IN MORETON BAY

- Moreton Bay is one of three declared Marine Parks in Queensland and is one of Australia's largest sites listed under the Convention on Wetlands of International Significance (Ramsar Convention).
- The wetlands within Moreton Bay include intertidal mudflats, marshes, sandflats, and mangroves adjoining the Bay's island and the mainland. This variety of habitats contributes to the Bay's high level of biodiversity.
- There are eleven declared Fish Habitat Areas in Moreton Bay which support a large number of fish species.
- Seagrass habitats in Moreton Bay support a wide range of species including turtles, fish, crustaceans, and dugongs. Turtles (Green and Hawksbill) and dugong are listed as vulnerable under the Nature Conservation Act 1992.
- Mangroves in Moreton Bay also stabilise the intertidal zone, which reduces sediment flows and reduces the risk of erosion.
- It is estimated that 32 species of migratory shorebirds visit Moreton Bay annually, with the majority being listed under the Japan Australian Migratory Bird Agreement (JAMBA) or the China Australia Migratory Bird Agreement (CAMBA). In addition, there are approximately 3,500 resident shorebirds that breed in and around Moreton Bay each year.

5 – Thurstan, R.H. et al (2019). Fishers and Fisheries of Moreton Bay. Moreton Bay Quandamooka and Catchment: Past, present, and future.
6 – 'Moreton Bay – Tourism visitor summary'; DOA: 29 October 2025; See: https://economy.id.com.au/moreton-bay/tourism-visitor-summary.

7.4 – IMPLICAITONS FOR THE LVSWSS

While there are a range of factors that impact on the use and non-use value of Moreton Bay, there is a clear relationship between these values and water quality levels.

Reducing sediment flows will improve water quality, thereby preserving the use and non-use values detailed earlier, in addition to the direct benefits in avoided costs of water treatment and dredging.

There is the potential to design the LVSWSS to generate substantial environmental benefits by implementing a critical sediment reduction program, thereby safeguarding essential water infrastructure and preserving the region's productive agricultural land under COMSEQ's Resilient Rivers Initiative.

8.0 LVSWSS Cost Benefit Analysis Results

8.1 – OVERVIEW

Synergies was engaged to undertake an assessment of the potential economic benefits attributable to the scheme through cost benefit analysis. As stated, the central analysis in the report has been undertaken based on a scheme with a 22,000 ML annual supply, with scenarios also modelled for 8,250 ML and 34,000 ML. This report presents a comprehensive analysis of the economic benefits, relative to the economic costs, of the three scheme options. with key findings are provided in this section.

SUMMARY OF BASE CASE

Agricultural Water Demand

Significant growth in demand for key agricultural commodities in the Lockyer Valley and Somerset region, driven by population growth and reduced supply from counter-seasonal growing regions. Agricultural water demand in the Lockyer Valley and Somerset region projected to increase from 32,195 ML in 2025 to 49,150 ML in 2050.

Agricultural Water Supply

Agricultural water supplies projected to remain relatively stable, noting increasing climate variability is expected to impact on reliability of surface and groundwater supplies, which is a significant constraint on the extent to which existing supplies can meet projected growth in agricultural water demand.

Water supply-demand balance

Increasing water supply-demand imbalance, with unmet demand for agricultural production in the region to reach approximately 17,000 ML by 2050.

Economic Cost of Sediment Run-off

Economic cost of sediment runoff from the Lockyer Valley catchment estimated at $2.66 million per annum in terms of increased water treatment costs and $4.90 million per annum in terms of increased dredging costs to Port of Brisbane.

Operation of the WCRWS

The WCRWS remains in care and maintenance as substantially underutilised urban water infrastructure.

8.2 – SUMMARY OF ECONOMIC BENEFITS

Following discussion of benefits across sections 6 and 7 the table below summarises the 30 year economic benefits of the project options (8,250 ML, 22,000 ML and 34,000 ML scenarios) presented as net present value.

SUMMARY OF ECONOMIC BENEFITS UNDER THE PROJECT OPTION ($M)

BENEFIT	8,250 ML	22,000 ML	34,000 ML
Increased agricultural production	$211.68	$392.27	$423.00
Increased industrial output	$40.45	$40.45	$40.45
Reduction in water treatment costs	$7.08	$18.88	$18.88
Reduction in dredging costs at Port of Brisbane	$13.04	$34.78	$34.78

Total Economic Benefits

8,250 ML **$272.25M**

22,000 ML **$486.38M**

34,000 ML **$517.11M**

Note: PV estimates based on a real social discount rate of 7 per cent. | *Source: Synergies modelling.*

8.3 – SUMMARY OF ECONOMIC COSTS

8.3.1 – Capital costs

There are two options in terms of the operational arrangements for the project options that impact on capital costs:

1) Construction of turkey nest dams for use as balancing storages
2) Reliance on existing Seqwater irrigation dams.

The table below sets out the capital cost profiles for the three project options for both operating arrangements, noting all options have a five-year construction period. The construction of the project options with turkey nest dams has been used as the central option in the results, with sensitivity analysis undertaken on the 'Seqwater irrigation dams' operating arrangements.

PROJECT OPTIONS CAPITAL COSTS ($M) (@ 7% DISCOUNT RATE)

OPTION	YEAR 1	YEAR 2	YEAR 3	YEAR 4	YEAR 5	PV TOTAL
8,250 ML						
Turkey nest dams	$52.07	$104.14	$208.27	$104.14	$52.07	**$426.20**
Seqwater dams	$46.68	$93.36	$186.72	$93.36	$46.68	**$382.10**
22,000 ML						
Turkey nest dams	$66.54	$133.08	$266.16	$133.08	$66.54	**$544.66**
Seqwater dams	$59.73	$119.46	$238.91	$119.46	$59.73	**$488.90**
34,000 ML						
Turkey nest dams	$102.84	$205.67	$411.34	$205.67	$102.84	**$841.75**
Seqwater dams	$92.31	$184.61	$369.23	$184.61	$92.31	**$755.57**

Source: ECS.

8.3.2 – Operating, maintenance and lifecycle costs

The table following sets out the operating and maintenance costs attributable to three project options. The costs include operating and maintenance costs attributable to WCRWS infrastructure; and operating and maintenance costs attributable to the distribution network for the LVSWSS. The WCRWS infrastructure costs have been calculated based on cost estimates developed by ECS and allocations derived by Ricardo, based on an analysis of the operating and maintenance costs allocated to LVSWSS irrigators, while the distribution network costs have been developed by ECS and relate to the fixed and variable costs required to both maintain the distribution infrastructure and the variable cost of supplying irrigators.

PROJECT OPTIONS OPERATING, MAINTENANCE & LIFESTYLE COSTS

PARAMETER	8,250 ML	22,000 ML	34,000 ML
TURKEY NEST DAMS			
Seqwater Costs Allocated to LVWSS Irrigators ($ per ML)	$1,017	$1,017	$1,017
Distribution Scheme ($ per ML)	$488.56	$283.00	$283.00
Annualised Costs (full supply) ($M)	$12.42	$28.60	$44.19
Present Value Total ($M)	**$125.39**	**$288.70**	**$446.18**
SEQWATER IRRIGATION DAMS			
Seqwater Costs Allocated To LVWSS Irrigators ($ Per Ml)	$1,017	$1,017	$1,017
Distribution Scheme ($ Per Ml)	$438.05	$279.15	$279.15
Annualised Costs (Full Supply) ($M)	$12.00	$28.51	$44.06
Present Value Total ($M)	**$121.18**	**$287.85**	**$444.86**

Source: ECS, Ricardo.

8.4 – NET ECONOMIC IMPACTS

The following table presents the results of the 22,000 ML scheme at real social discount rates of 4%, 7% and 10%. The results are based on the immediate uptake of available volumes by agricultural and industrial users with the capital cost estimates based on the project with the turkey nest dam storages.

RESULTS OF COST-BENEFIT ANALYSIS – 22,000 ML OPTION (PV TERMS, $MILLION)

PARAMETER	4%	7%	10%
TURKEY NEST DAMS			
Value of agricultural production	$832.94	$392.27	$211.75
Value of industrial production	$81.85	$40.45	$23.21
Reduced water treatment costs	$31.49	$18.88	$13.29
Reduced dredging costs	$58.02	$34.78	$24.48
Total economic benefits	**$1,004.30**	**$486.38**	**$272.74**
ECONOMIC COSTS			
Capital costs	$592.09	$544.66	$502.66
Operating and maintenance costs	$549.85	$288.70	$177.33
Total economic costs	$1,141.94	$833.37	$679.99
Net present Value	**($137.64)**	**($346.98)**	**($407.26)**

Benefit Cost Ration	4%	7%	10%
	0.88	**0.58**	**0.40**

Source: Synergies modelling.

The results show that under the central scenario, the project option returns a Benefit Cost Ratio (BCR) of 0.58, with a Net Present Value (NPV) of ($347.0 million) (7 percent real social discount rate). At a real social discount rate of 4 percent, the BCR improves to 0.88 which is considered more appropriate for water infrastructure (see section 10.5).

8.5 – SENSITIVITY ANALYSIS

Sensitivity analysis shows how the results of the cost-benefit analysis for the 22,000 ML scheme are impacted by changes to key parameter estimates and assumptions. The results of the sensitivity analysis are shown in the table below. All results are based on a real social discount rate of 7 percent.

RESULTS OF SENSITIVITY ANALYSIS

SENSITIVITY	NPV ($M)	BCR
Central case	($346.98)	0.58
SCHEME CAPACITY		
8,250 ML	($279.33)	0.49
34,000 ML	($770.82)	0.40
CAPITAL COSTS		
Without turkey nest dam storages	($290.37)	0.63
Water authority standard capital costs	($479.05)	0.50
OPERATING COSTS		
Low (-20 per cent)	($289.24)	0.63
High (+20 per cent)	($404.73)	0.55
TAKE-UP PERIOD		
10-year take-up period	($383.09)	0.50
CROP PRICE		
Low (-10%)	($533.07)	0.36
High (+10%)	($156.95)	0.81

Source: Synergies modelling.

The table on the previous page shows that the results for the 22,000 ML option are not materially sensitive to the capital cost, operating costs and demand take-up period, with the BCR ranging from 0.63 to 0.5 under the sensitivities tested. The results are more sensitive to the crop price, with a 10 percent price increase or decrease across the crops included in the demand profile resulting in a greater change to the BCR.

The results also show that both the 8,250 ML and the 34,000 ML scheme options return lower BCRs than the 22,000 ML option. The 34,000 ML option has higher capital and operational costs but the additional 12,000 ML are supplied to relatively low value users limiting additional economic benefits created. The $8,250 ML option has a higher $ per ML capital cost but is limited by the overall benefits that it creates.

8.6 – IMPLICATIONS FOR THE LVSWSS

It is important to consider the results of the cost-benefit analysis in context, firstly in terms of the BCR result relative to other non-urban bulk water projects and secondly in terms of the limitation of cost-benefit analysis as it is applied in the non-urban bulk water sector.

The most recent bulk water project developed in a regional setting is the Rookwood Weir project (Lower Fitzroy River Infrastructure Project). Construction of Rookwood Weir, which is primarily for agricultural supply in addition to supplementing industrial and urban users, was completed in 2023 at a cost of $568.9 million. The DBC for the project was completed in 2017 and returned a BCR of 0.7 at a real social discount rate of 7 percent.

The Queensland Government has also recently committed funding for the construction of the Barlil and Cooranga Weir projects in the Wide Bay-Burnett region. This is after the projects were assessed by the Bundaberg and Burnett Regional Water Assessment and returning BCRs of 0.3 and 0.5 (real social discount rates of 7 percent) respectively.

The progression of these projects despite the results of cost-benefit analyses undertaken in accordance with the BCDF highlights the issues with the application of cost benefit assessment technique to assess the economic feasibility of non-urban bulk water projects.

While cost-benefit analysis provides the basis for the robust and consistent evaluation of infrastructure project proposals, the application of the approach under the BCDF is not necessarily well placed to accommodate the unique characteristics of certain infrastructure projects. Non-urban bulk water projects exhibit significant differences relative to other infrastructure projects, specifically:

- bulk water infrastructure projects are long-lived, with high costs up front and benefits emerging over long periods of time that are discounted by 7% back into net present terms; and
- there is a high level of uncertainty associated with the beneficial uses of water supplied by a bulk water project, due both to the wide range of potential uses (i.e. production of a variety of crops, use in different agricultural and industrial sectors) and the long-lived nature of the infrastructure.

Accordingly, cost-benefit analysis as it is applied under the BCDF, is more likely to understate the future economic benefits derived from bulk water infrastructure than to overstate the benefits, as water demand profiles are derived based on current water uses and information on current market trends. That is, the water demand profile, and hence quantification of economic benefits, does not consider the potential for longer term structural changes that result in additional, high-value sources of water demand that may positively impact on the economic benefits attributable to the project.

Sources: 'Rookwood Weir opens in central Queensland after construction delays from rain'. ABC News; DOA: 6 November 2025; See: https://www.abc.net.au/news/2023-11-22/major-qld-project-rookwood-weir-opens-years-of-construction/103132538.

Building Queensland (2017). Detailed Business Case – Lower Fitzroy River Infrastructure Project.

Department of Local Government Water and Volunteers (2025). Regional Water Assessment – Bundaberg and Burnett – Summary Report.

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Queensland Government

SEQ CityDeal

Council of Mayors South East Queensland

The LVSWSS forms part of the Water Initiatives in the Lockyer Valley commitment being delivered under the South-East Queensland (SEQ) City Deal. The (SEQ) City Deal is a partnership by the Australian Government, Queensland Government and Council of Mayors for South-East Queensland.

For more information, please contact:
admin@lvandswatercollaborative.com.au

Electronic copy of the report can be found at:
lvandswatercollaborative.com.au