



# Resilient Rivers Initiative

Council of Mayors, South East Queensland

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**A Marsden Jacob Report**

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# Summary

This report provides preliminary economic estimates of the Council of Mayors (SEQ) (CoMSEQ) Resilient Rivers Initiative investments in South East Queensland. Our work shows how \$4.3 million of investment from 2018-2021 generates significant economic impacts and benefits across South East Queensland, and in specific local government areas.

CoMSEQ engaged Marsden Jacob to complete a high-level assessment of potential economic contributions of *Resilient Rivers Initiative* investments, and the economic benefit values that these investments might generate for South East Queensland. This work will support CoMSEQ with Monitoring, Evaluating and Reporting (MER) activities, and planning of future works.

To deliver this assessment we have (1) developed a high-level investment evaluation framework that builds on earlier assessments and makes best use of available CoMSEQ data (2) compiled information and undertaken a portfolio analysis of the projects funded with \$4.3 million of investment between 2018 – 2021 in the *Resilient River's initiative* (3) used the outcomes of the portfolio analysis to estimate the economic contribution and of investments at the portfolio and LGA levels (4) identified opportunities for future investment in the SEQ City Deal from a larger spread of LGA's and forecast the possible economic impact.

**Our evaluation shows *Resilient Rivers Initiative* funding has and will deliver significant on-ground investment from 2018-2021.**

Investments support extensive 'hard infrastructure' outputs that can support waterway health across South East Queensland. Around 77% of investments in the *Resilient Rivers Initiative* are 'shovel-ready' jobs, focused on practical conservation activities undertaken across public and private land. They include a surge in weed control efforts, river and wetland restoration, national park infrastructure, bushfire recovery and resilience activities, invasive animal control, tree planting and habitat restoration from metropolitan to rural areas and funding for private land conservation.

Investments also support extensive 'soft infrastructure' outputs. By soft infrastructure we mean the capacity building, planning and regulation investments that support delivery of improved waterway health outcomes in South East Queensland. In total, these important soft investments account for around 23% of total budgeted expenditure over 2018-2021. These investments include capacity building with landholders, education, training, and stakeholder engagement.

## *Resilient Rivers Initiative* investments generate significant economic contribution in LGA regions.

Economic contribution measures how economic activity contributes to the economy through market transactions and output. In this evaluation we have estimated the direct economic contribution of the *Resilient Rivers Initiative* \$4.3 million investments in waterway health over 2018-21.

In this report, we measure the direct economic contribution as the economic contribution of the investments themselves. This is the economic stimulus of the \$4.3 million itself. Components of economic contribution accounting we estimate in this evaluation include:

- **Investment** is the amount spent by local governments in the local area. For example, under the Resilient River's Initiative, investment in a riparian fence is the cost of intermediate inputs (fencing material and fixed costs), wages, taxes net of subsidies and profits to the fencing suppliers and installers in that LGA.
- **Gross value-added (GVA)** is a subset of Investment. GVA is the total of all revenues, from final sales and (net) subsidies, which are incomes into local businesses. **GVA – Initial** represents the economic returns on local capital and labour resources that stem directly from the investment. It measures the true contribution of the economic activity to the economy because it backs out leakage out of the economy. The major sources of GVA leakage are spending and importing goods from outside the local region.
- Economic activity generates salaries and thus employment. In this report we measure employment as the number of **full-time equivalent jobs generated (FTE)** and/or supported in the creation of local gross economic output and GVA. **Employment – Initial** is the FTE generated by GVA – Initial.
- **Type 2A GVA** (GVA – 2a) and **Type 2A Employment** (Employment – 2A) are also presented. **GVA-2A** illustrates the additional revenue for local businesses from second order sales and subsidies. **Employment - 2A** represents the FTE jobs generated by GVA – 2A, when the flow on effect from investment in the economy is considered.

We estimate the \$4.3 million in waterway health investments generate around \$2.1 million in initial GVA, based on modelled assumptions in Table 1. This is a key result, illustrating that almost half of all investments in the *Resilient Rivers Initiatives* remain in the LGA regions as GVA - initial. The investments also generate around \$1.7 million in GVA – 2A. This represents the economic impact 'flow on effects' are expected to have on the local community.

Investments in waterway health through the *Resilient Rivers Initiative* supports significant jobs and employment in the LGA regions. Investment of \$4.3 million supports around 23 full time jobs directly across 2018-21 in the local government areas. That's equivalent to an average of 5.7 people each year and 5.35 FTEs per \$1 million invested. When flow on effects (Employment – 2A) are included, the total full time jobs supported grows by around 14 people and average employment supported per year grows to 9.35 people on average. Similarly, FTEs supported per \$1 million invested grows to 8.73 on average.

Table 1: Direct economic contribution estimates of *Resilient Rivers Initiative* investments by LGA, 2018-2021

LGA	2018-2021 investment	GVA- initial	GVA- 2A	Employment - initial	Employment - 2A
<b>Grand Total</b>	<b>\$4,285,485</b>	<b>\$2,065,000</b>	<b>\$1,776,000</b>	<b>22.9</b>	<b>14.5</b>
Brisbane	\$750,000	\$325,000	\$360,000	3.5	2.5
Ipswich	\$1,029,761	\$502,000	\$352,000	5.6	2.8
Lockyer Valley	\$1,316,588	\$623,000	\$561,000	6.9	5.0
Scenic Rim	\$592,068	\$307,000	\$268,000	3.5	2.3
Somerset	\$195,000	\$94,000	\$84,000	1.0	0.7
Logan	\$402,068	\$215,000	\$151,000	2.4	1.2

### Comparison to similar work

We note the Pew Charitable Trusts (TPCT) has proposed a \$4 billion federal and state economic stimulus package to build a bridge to recovery on the other side of Covid-19. Ernst & Young (E&Y) were commissioned to model the economic impact of the proposed investment. Their results show similar levels of economic impact per dollar spend as our estimates for CoMSEQ. Their headline results are compared to ours in Table 2 below, and shows spend per full time equivalent (FTE) position created is similar across our and the E&Y evaluations. This demonstrates that investments in both programs have effectively the same level of economic impact per dollar invested.

Table 2 Comparison of FTE position created by investment

Program	Total investment*	Spend per FTE position created by investment
PEW	\$4,000,000,000	\$167,000
CoMSEQ RRI	\$4,285,485	\$187,000

\* Proposed investment for PEW

### Potential SEQ City Deal impact

Under a potential SEQ City Deal, CoMSEQ sees an opportunity to explore an investment of a further \$30 million through the three levels of government by 2025. Under such a model, these investments would be in catchment works that would support flood mitigation, water quality and provide further benefit for South East Queensland households. CoMSEQ asked that we model the potential economic contribution of these investments. Our results in Table 3 show that the \$30 million investments would result in the order of \$15 million GVA- initial and 170 Employment - Initial in the LGA regions. Importantly the results also emphasise that much of these investments will stay within the LGA regions and benefit the local businesses, rather than being exported (leaking) out of the LGA regions as goods and services.

Table 3 Potential SEQ City Deal impact

	Proposed Investment	GVA- initial	GVA- 2A	Employment -initial	Employment -2A
<b>Total</b>	<b>\$30,000,000</b>	<b>\$15,406,000</b>	<b>\$13,389,000</b>	<b>170</b>	<b>110</b>
2020/21	\$3,000,000	\$1,540,000	\$1,339,000	17	11
2021/2022	\$4,000,000	\$2,054,000	\$1,785,000	23	15
2022/23	\$5,250,000	\$2,696,000	\$2,343,000	30	19
2023/24	\$7,750,000	\$3,980,000	\$3,459,000	44	28
2024/25	\$10,000,000	\$5,136,000	\$4,463,000	57	37

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# 1. Introduction

## How much value are we delivering through long-term waterway health investments in South East Queensland? What's our return on investment?

The Council of Mayors (SEQ) (CoMSEQ) is investing \$4.3 million in waterway health over 2018-21 to deliver waterway health as a part of the *Resilient Rivers Initiative*.

The Resilient Rivers Initiative is currently guided by an overarching regional strategy and comprehensive Catchment Action Plans (CAPs) for priority catchments in South East Queensland. These CAPs identify the issues and risks for each catchment along with a series of actions to be delivered to address the issues. Funding to-date has been directed towards the planning, prioritisation and delivery of on-ground projects. The Council of Mayors and South East Queensland LGAs are developing and implementing these investments. Some of these investments are new investments in on-ground works. These new investments will contribute towards recovery and growth of target waterways. Other investments are in waterways already on the trajectory to recovery and growth.

The *Resilient River Initiative* relies on the regional “voice” from CoMSEQ cementing the relationships between local government areas to create a holistic and coordinated approach to investing in South East Queensland waterways and catchments. The investments will improve water quality and environmental health of South East Queensland’s waterways and deliver other economic benefits to SEQs local government areas.

### 1.1 Evaluating the social and economic impacts and outcomes of *Resilient River Initiative* Investments.

Monitoring, Evaluating and Reporting (MER) of environmental contribution expenditure using the Resilient Rivers Outcomes Framework helps to ensure that investments are strategically targeted. Strategic targeting helps to maximise benefits and achieve the intended outcomes of the *Resilient Rivers Initiative*.

*Resilient Rivers Initiative* is focussed on rehabilitating the local environment to support a healthy ecosystem, a prosperous economy and thriving communities, now and into the future. This means clear and evidence-based monitoring, evaluation and reporting of the social and economic outcomes of *Resilient Rivers Initiative* investments is fundamental to being able to demonstrate CoMSEQ is achieving intended results.

### 1.2 Objectives

Council of Mayors (SEQ) (CoMSEQ) engaged Marsden Jacob to complete a high-level assessment of potential economic contributions of *Resilient Rivers Initiative* investments, and the economic benefit values that these investments might generate for the LGA regions. This work will support CoMSEQ with MER activities and MER planning. To deliver this assessment, we have:

- Developed a high-level investment evaluation framework that builds on earlier assessments and makes best use of available data. This framework is set out in the next section.
- Compiled information and undertaken a portfolio analysis of the projects funded, and projects that will be funded in the future. Results of this evaluation are summarised in Chapter 3. Detailed results by LGA regions are provided in Appendix 1.
- Used the outcomes of the portfolio analysis to estimate the economic contribution of investments at the portfolio and LGA levels, where information is available. This work shows the economic contribution of the waterway health investments to the LGA regions. Results are summarised in Chapter 4. Detailed results by LGA regions are provided in Appendix 2.
- Identified the potential impact of future investment programs to the South East Queensland community. This is outlined in Chapter 5 through discussion of the potential 'SEQ City Deal'.

We note here that we are measuring the economic impacts of investment as distinct from the economic benefits or value of the investments. For example, reductions in sediment and flooding damage have economic benefit or value. These types of benefits would be in addition to the economic impacts we discuss in this paper

We also note that any investment involves an opportunity cost, i.e the money committed to the *Resilient Rivers Initiative* is not available to be invested elsewhere. We have not estimated the opportunity cost of these investments as part of this evaluation.

## 2. Evaluation framework

The ultimate outcome of waterway health investments is to protect and improve the health of South East Queensland’s waterways. These investments can also deliver economic benefits to local communities.

Figure 1 Overview of investments, outputs and outcomes of waterway health investments

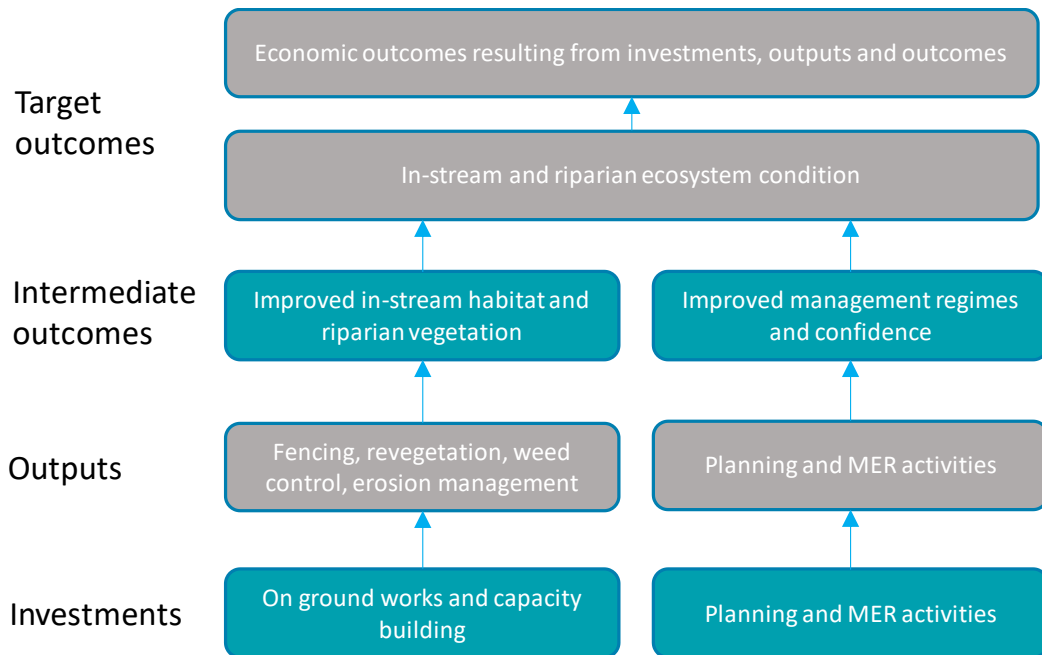


Figure 1 shows how investments in on-ground works, capacity building, and planning and MER activities through the \$4.3 million in waterway health funding can be traced through outputs and intermediate outcomes to target outcomes. Target outcomes are measured by changes in in-stream and riparian ecosystem condition.

The timeframe for investments and outputs is in the ‘planning’ and ‘taking action’ phases. In this case these phases span the four years that the \$4.3 million in waterway investments will happen in. The timing of intermediate and target outcomes are often much longer because environmental, behavioural and institutional change takes time.

### 2.1 Measuring the economic impacts and outcomes of *Resilient Rivers Initiative* investments

Economics is about how societies allocate limited resources to meet their needs and wants. It is about people making choices under conditions of scarcity and uncertainty. It is present in much of what we hear about and do in our daily lives.

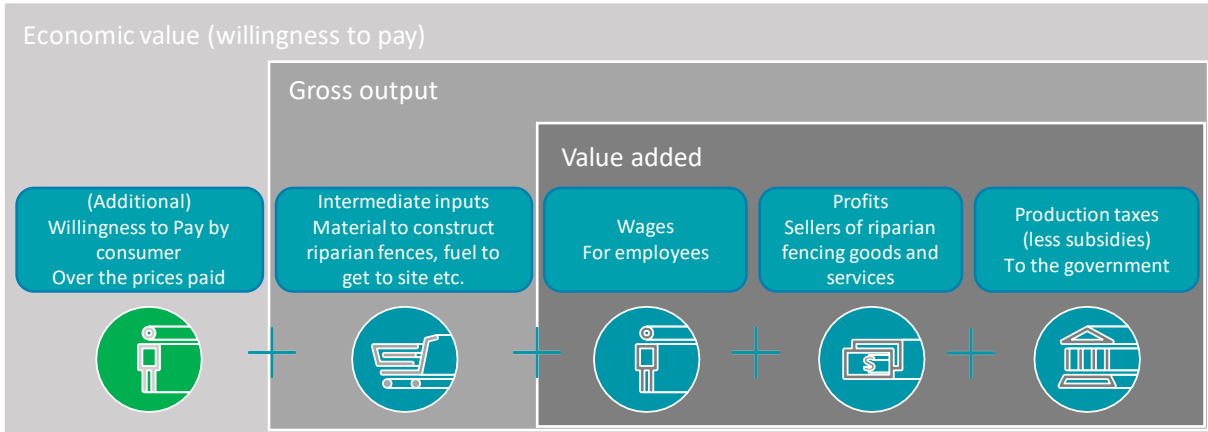
Figure 1 shows that investments in on-ground works, capacity building and planning and MER activities to deliver waterway health outcomes all result in some form of economic outcome.

For example, an investment in fencing results in labour employment and materials purchased, which creates economic impacts within local communities. When the fencing investment improves waterway condition, this may reduce downstream water treatment costs for producers, which is an economic outcome. Improved water condition could also improve macroinvertebrate or fish diversity and other outcomes. These outcomes are valued by South East Queensland communities and can be measured in economic terms. Because these changes in impacts and outcomes result from investment to meet needs and wants, they are all ultimately economic outcomes.

For this evaluation, we focus on direct, indirect and induced economic outcomes. We introduce each of these concepts briefly below.

### 2.1.1 Economic contributions and economic value

Figure 2: Relationship between economic value and contribution



### Economic contribution

Economic contribution measures how economic activity contributes to the economy through market transactions and output. The significance of an activity is usually defined by its relative share of market transactions and output compared to other activities or sectors.

Figure 2 shows a simplified example how the economic contribution of an investment in riparian fencing is measured in the Queensland economy. Components of economic contribution accounting are shown in blue. For a riparian fence:

- **Investment** is the amount paid for the riparian fence. Investment is the cost of intermediate inputs (fencing material and fixed costs), wages, taxes net of subsidies and profits to the fencing suppliers and installers.
- **Gross value-added (GVA)** is a subset of gross output. GVA is the total of all revenues, from final sales and (net) subsidies, which are incomes into local businesses. Those incomes are used to cover expenses (wages and salaries, dividends), savings (profits, depreciation), and (indirect) taxes. **GVA – Initial** represents the economic returns on local capital and labour resources that stem directly from the investment. It measures the true contribution of the economic activity to the economy because it backs out leakage out of the economy. The major sources of GVA leakage are spending outside the local region and importing goods from outside the local region.

- Economic activity generates salaries and thus, employment. We measure employment as the number of **full-time equivalent** (FTE) jobs generated and/or supported in the creation of local gross economic output and GVA.

In this evaluation, we measure the economic contribution of waterway health investments by LGA regions, differentiating between on-ground investments and planning and MER activities shown in Figure 1.

Our economic contribution calculations rely on the Flinders University Economic Impact Analysis Tool. This purpose-built model was developed by the Australian Industrial Transformation Institute (AITI). It uses local government area (LGA) level data on economic and industry relationships to simulate revenue flows to existing businesses (direct contributions), flow-on effects to related industries from which purchases are made (indirect contributions), and effects from expenditures made through household income and salaries (induced contributions).

We discuss the AITI I-O model in more detail in Appendix 3. Our discussion includes limitations of the I-O modelling approach that readers should be aware of.

### 2.1.2 Direct, indirect and induced impacts

Investments in waterway health in South East Queensland can have direct, indirect and induced impacts. Greater linkages generally translate into higher levels of impact within an economy, particularly for economic contributions. For example, when an LGA region sources their goods and services (including labour) locally, there is a greater flow-on impact within the local economy. Where an LGA region purchases more things from outside the region (i.e. they are dependent on imports) then more impact occurs outside the LGA boundaries.

The total impact of the investment within each LGA is the sum of the direct, indirect and induced effects:

- **Direct Impacts** are economic impacts and values for activities that directly deal with LGAs or get the benefit of waterway health improvements. For example, a local business selling fence posts to the LGA regions for riparian fencing.
- **Indirect Impacts** are impacts accruing due to the activities undertaken by the sector
- **Induced Impacts** represents the wider contribution of the LGA region's investments through the expenditures of those who are directly or indirectly employed by the LGAs. In this report we refer to induced impacts as 2A impacts.

### 3. Resilient Rivers Initiative investment portfolio summary

*Resilient Rivers Initiative* funding is delivering significant on-ground investment from 2018-2021.

Investments and outputs are summarised in Table 4. Appendix 1 includes portfolio summaries for each LGA Region.

Key observations include:

- **Planned investments.** The investments and outputs in Table 4 and Appendix 1 are a mix of actual and planned investments – i.e. actual investments from LGA activities from 2018 to present and planned LGA activities during 2020-21. We have not evaluated whether the investments and outcomes planned for 2018-21 and shown in Table 4 and Appendix 1 have occurred. This should be kept in mind when interpreting all the estimates in this report.
- **Investments support extensive ‘hard infrastructure’ outputs** that can support waterway health across South East Queensland. Around 77% of investments in the *Resilient Rivers Initiative* are ‘shovel-ready’ jobs, focused on practical conservation activities undertaken across public and private land. They include a surge in weed control efforts, river and wetland restoration, national park infrastructure, bushfire recovery and resilience activities, invasive animal control, tree planting and habitat restoration from metropolitan to rural areas and funding for private land conservation.
- **Investments also support extensive ‘soft infrastructure’ outputs.** By soft infrastructure we mean the capacity building, planning and regulation investments that support the delivery of improved waterway health outcomes in South East Queensland. In total, these important soft investments account for around 23% of total budgeted expenditure over 2018-2021. These investments include capacity building with landholders, education, training and stakeholder engagement and MER activities.
- **Three LGA’s account for about 70% of total funding** received (Figure 3). Table 9 summarises investments across LGA by output name. Appendix 1 provides detail on investments and output by CMA.

Table 4: *Resilient Rivers Initiative* portfolio summary by investment type

Output Name	2018-19	2019-20	2020-21	2021-22	Grand Total
<b>Total</b>	<b>\$330,000</b>	<b>\$1,245,724</b>	<b>\$1,519,761</b>	<b>\$1,190,000</b>	<b>\$4,285,485</b>
Structural	\$80,000	\$75,000	\$180,000	\$0	\$335,000
Environmental	\$55,000	\$890,724	\$1,025,000	\$990,000	\$2,960,724
Planning and Regulation	\$90,000	\$95,000	\$115,000	\$70,000	\$370,000

Output Name	2018-19	2019-20	2020-21	2021-22	Grand Total
Capacity Building	\$95,000	\$160,000	\$155,000	\$130,000	\$540,000
Engagement	\$10,000	\$20,000	\$25,000	\$0	\$55,000
Monitoring and Evaluation	\$0	\$5,000	\$19,761	\$0	\$24,761

Figure 3: Planned *Resilient Rivers Initiative* investment portfolio summary by LGA (2018-2021)

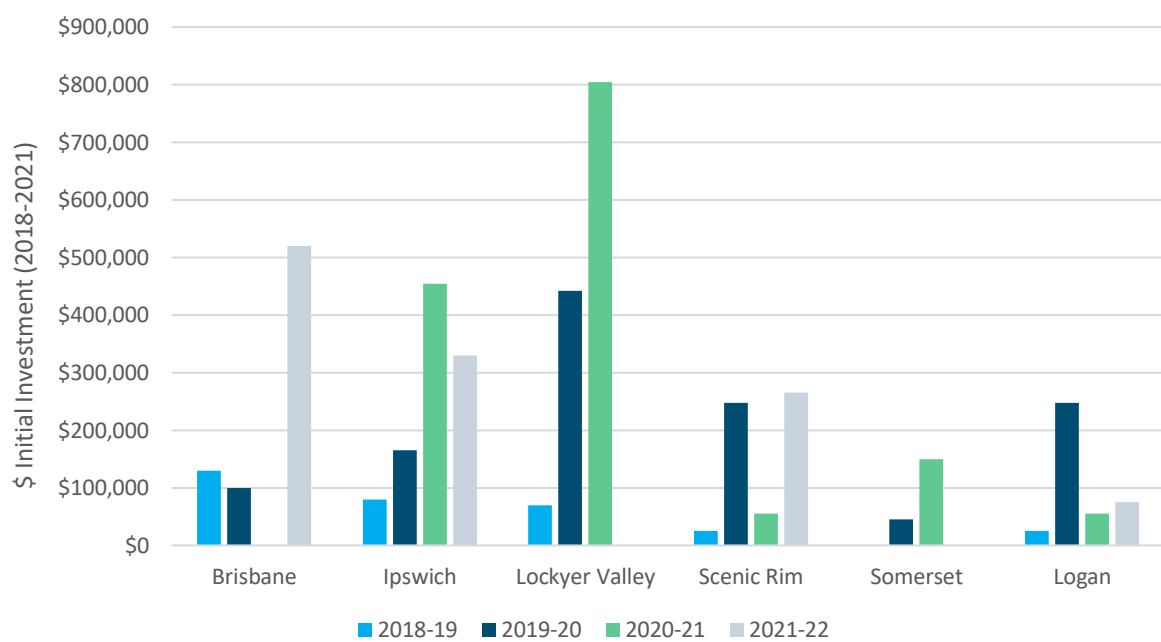




Figure 4: Resilient Rivers Initiative investment portfolio summary by investment type

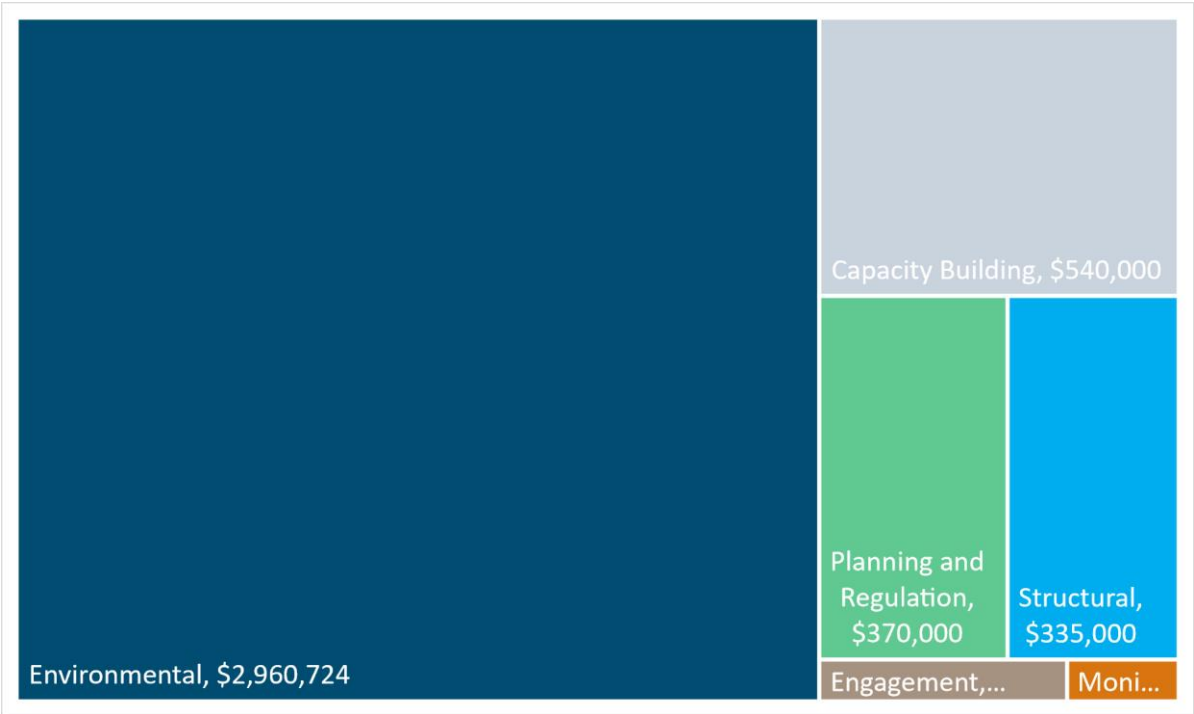
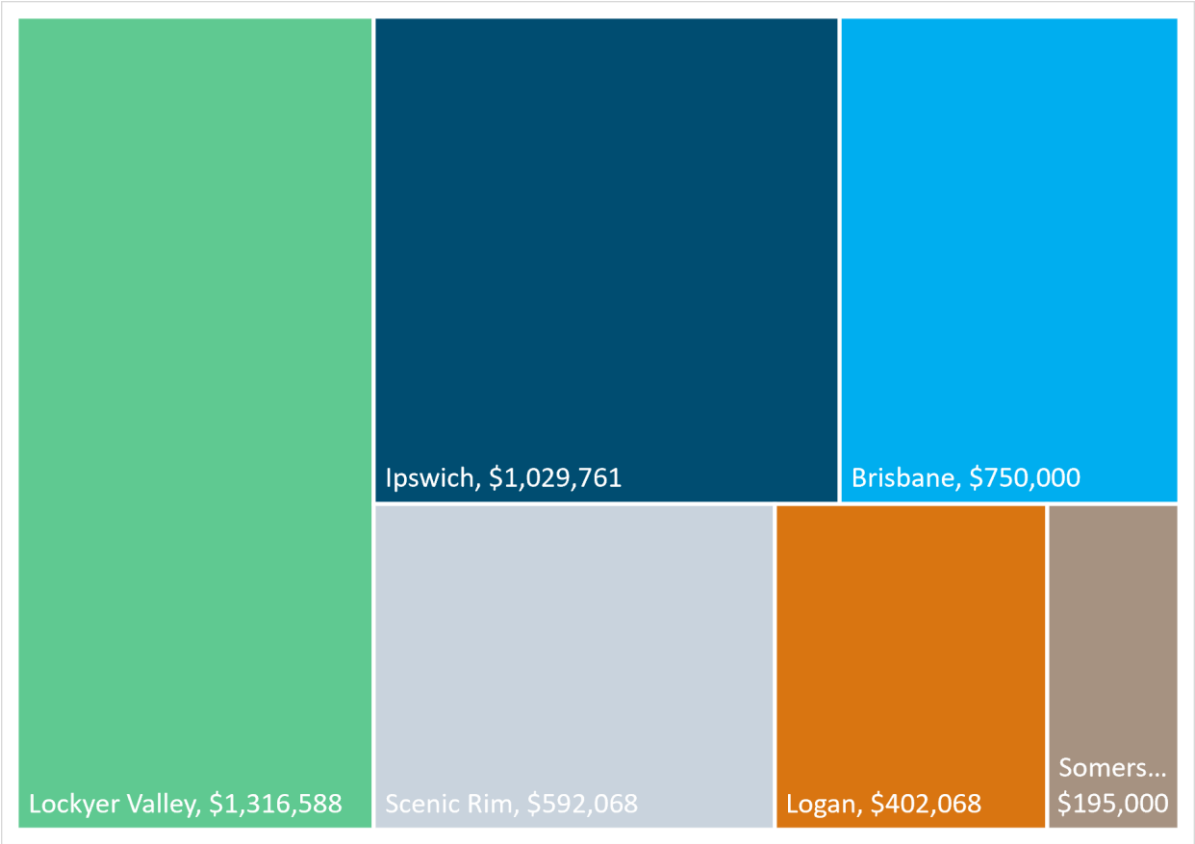


Figure 5: Resilient Rivers Initiative investment portfolio summary by LGA



## 4. Direct economic contribution of *Resilient Rivers Initiative* investments

*Resilient Rivers Initiative* investments directly generate significant levels of economic activity within the LGA regions. Our economic contribution evaluation provides an order of magnitude estimate of the level of economic activity generated by the \$4.3 million of investments in waterway health summarised in the last chapter.

In this chapter we estimate how the \$4.3 million in waterway health investments create economic contribution in the LGA regions over 2018-21. By economic contribution, we mean the economic activity levels that are generated by the \$4.3 million CoMSEQ investment itself. The economic activity (employment and material purchases) created by a riparian fencing project funded through an LGA is an example of what we mean by the economic contribution of waterway health investments funded by the Council of Mayors.

Our economic contribution calculations rely on the [Flinders University Economic Impact Analysis Tool](#). This purpose-built model was developed by the Australian Industrial Transformation Institute (AITI) and draws on 2011 census industry of employment data and the 2009/10 national I-O table. It uses local government area (LGA) level data on economic and industry relationships to simulate revenue flows to existing businesses (direct contributions), flow-on effects to related industries from which purchases are made (indirect contributions), and effects from expenditures made through household income and salaries (induced contributions).

There are known limitations to I-O models. We discuss some key limitations in Appendix 3. Time and resourcing constraints prevented the use of computable general equilibrium (CGE) analysis in this project. CGE is our preferred approach for estimating economic impacts of investment activities.

Direct economic contribution estimates of the \$4.3 million of CoMSEQ investments in waterway health are summarised by LGA in Table 5 and by sector name in Table 6. Figure 6 shows LGA economic contribution, combining LGA Investment, GVA-Initial, GVA-2A, Employment – Initial and Employment – 2A in the one graph. Appendix 2 includes economic contribution summaries for each LGA.

The economic contribution summaries and LGA results in Appendix 2 are built from funding data provided by CoMSEQ. Key observations include:

- **Investments in waterway health generate significant economic contributions within LGA regions.** Table 5 shows that the \$4.3 million in waterway health investments made through *Resilient Rivers Initiative* generates around \$2 million in initial GVA and \$1.8 million in additional 2A GVA, based on modelled assumptions. In our view, GVA is the best measure of the impact of investment in a LGA region. As discussed earlier, GVA is the total of all revenues, from final sales and (net) subsidies, which are incomes into local businesses. Those incomes are used to cover expenses (wages and salaries,

dividends), savings (profits, depreciation), and (indirect) taxes. This means GVA measures economic returns on local capital and labour resources. It measures the contribution of the economic activity to the LGA economy because it backs out leakage out of the economy.

A key result shown in Table 5 and Table 6 is that around half of all Resilient Rivers Initiative investments remain in the LGA regions as initial GVA.

- **Investments in waterway health through the *Resilient Rivers Initiative* support significant jobs and employment in the LGA regions.** Investment of \$4.3 million supports around 23 full time jobs directly across 2018-21 in the local government areas. This is equivalent to an average of 5.7 people each year and 5.35 FTEs per \$1 million invested. When flow on effects (Employment – 2A) are included, the total full-time jobs supported grows by around 14 people and average employment supported per year grows to 9.35 people on average. Similarly, FTEs supported per \$1 million invested grows to 8.73 on average.
- **Employment supported by the Resilient Rivers Initiative will lead directly to jobs within the industry sectors the impacts are calculated for.** The majority of jobs supported are in the Agriculture, Forestry and Fishing sector, where investment has an initial FTE impact of around 14 (Table 6). This high-level analysis does not speculate on the specific FTE roles supported.
- **Recall that these figures do not include any economic activity that results indirectly from the investment.** This means the total economic contribution of the investments could be greater, or less. For example, if waterway investment improves agricultural productivity or resilience, this could result in greater output, GVA and employment in the LGA. If waterway investment reduces agricultural productivity, then output, GVA and employment could be lower.

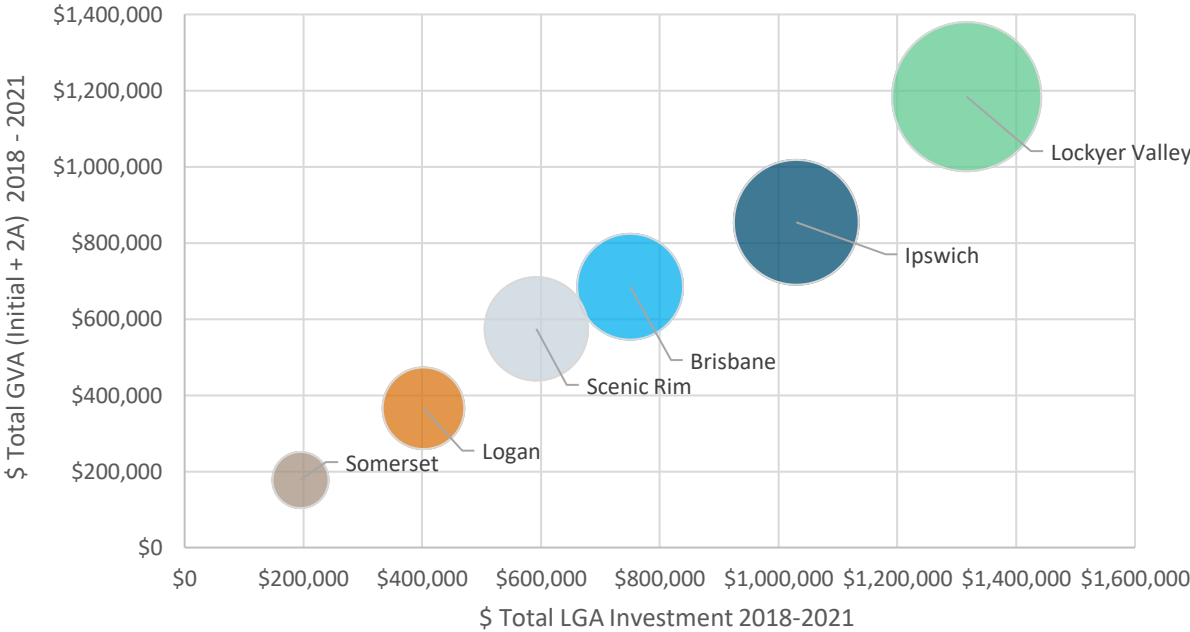
Table 5: Economic contribution estimates by LGA, 2018-2021

LGA	2018-2021 investment	GVA- initial	GVA- 2A	Employment -initial	Employment -2A
<b>Grand Total</b>	<b>\$4,285,485</b>	<b>\$2,065,000</b>	<b>\$1,776,000</b>	<b>22.9</b>	<b>14.5</b>
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Somerset	\$195,000	\$94,000	\$84,000	1.0	0.7
Logan	\$402,068	\$215,000	\$151,000	2.4	1.2

Table 6: Economic contribution estimates by sector name, 2018-2021

Sector	2018-2021 investment	GVA- initial	GVA- 2A	Employment - initial	Employment - 2A
<b>Grand Total</b>	<b>\$4,285,485</b>	<b>\$2,065,000</b>	<b>\$1,776,000</b>	<b>22.9</b>	<b>14.5</b>
Construction	\$335,000	\$104,000	\$187,000	1.0	1.4
Education and Training	\$595,000	\$445,000	\$262,000	5.3	2.1
Agriculture, Forestry and Fishing	\$2,960,724	\$1,295,000	\$1,134,000	14.3	9.4
Public administration and Safety	\$394,761	\$220,000	\$192,000	2.4	1.5

Figure 6: Resilient Rivers Initiative economic investment summary by LGA 2018-2021. Bubble size shows total employment impact (Employment - initial plus Employment - 2A) of investment.



## 5. Future Opportunities - SEQ City Deal

We understand CoMSEQ is currently exploring the future development of the *Resilient Rivers initiative* with the Commonwealth Government. This development, labelled the SEQ City Deal, proposes a stronger and tripartite taskforce to guide the strategy and delivery of the Resilient Rivers Initiative into 2025. \$30 Million of investment is proposed for the regional catchments.

In the future first five years, the capacity to deliver works in South East Queensland is limited and will need to be supported with continued investment. The SEQ City Deal will require a long term and adequate funding source to effectively manage the region’s catchments into 2025 and beyond. Increased investment through the SEQ City Deal will allow for greater activity across more catchments, and a greater outcome for the community and environment. A proposal of \$30 million future investments under the SEQ City Deal is outlined in Table 7 below.

Table 7: Proposed SEQ City Deal investment timeline

Proposed Investment					
2020/21	2021/22	2022/23	2023/24	2024/25	Total
\$3,000,000	\$4,000,000	\$5,250,000	\$7,750,000	\$10,000,000	\$30,000,000

The impact these investments would have on the local government areas in South East Queensland has been approximated. To do this, the average GVA and FTE yield was calculated for spending within Resilient Rivers Initiative projects outside Brisbane. Brisbane projects were excluded to ensure the average GVA and FTE yield was conservative and representative of the expected yield across all South-East Queensland communities. These averages were then applied to the proposed investment schedule in Table 7 to outline the possible impact of investment under the SEQ City Deal. The results are displayed in Table 8 below.

Table 8: Approximated economic contribution estimates of SEQ City Deal

	Proposed Investment	GVA- initial	GVA- 2A	Employment -initial	Employment -2A
<b>Total</b>	<b>\$30,000,000</b>	<b>\$15,406,000</b>	<b>\$13,389,000</b>	<b>170</b>	<b>110</b>
2020/21	\$3,000,000	\$1,540,000	\$1,339,000	17	11
2021/22	\$4,000,000	\$2,054,000	\$1,785,000	23	15
2022/23	\$5,250,000	\$2,696,000	\$2,343,000	30	19
2023/24	\$7,750,000	\$3,980,000	\$3,459,000	44	28
2024/25	\$10,000,000	\$5,136,000	\$4,463,000	57	37

# Appendix 1. LGA investment and output summaries

Table 9: LGA investment by output

LGA	Output name	2018-19	2019-20	2020-21	2021-22	Total
<b>Grand Total</b>		<b>\$330,000</b>	<b>\$1,245,724</b>	<b>\$1,519,761</b>	<b>\$1,190,000</b>	<b>\$4,285,485</b>
<b>Brisbane</b>		<b>\$130,000</b>	<b>\$100,000</b>	<b>\$0</b>	<b>\$520,000</b>	<b>\$750,000</b>
	Environmental	\$0	\$10,000	\$0	\$500,000	\$510,000
	Structural	\$80,000	\$75,000	\$0	\$0	\$155,000
	Planning and Regulation	\$30,000	\$15,000	\$0	\$10,000	\$55,000
	Capacity Building	\$20,000	\$0	\$0	\$10,000	\$30,000
<b>Ipswich</b>		<b>\$80,000</b>	<b>\$165,000</b>	<b>\$304,761</b>	<b>\$230,000</b>	<b>\$779,761</b>
	Environmental	\$55,000	\$155,000	\$200,000	\$160,000	\$570,000
	Structural	\$0	\$0	\$0	\$0	\$0
	Planning and Regulation	\$15,000	\$0	\$40,000	\$50,000	\$105,000
	Capacity Building	\$0	\$5,000	\$45,000	\$20,000	\$70,000
	Engagement	\$10,000	\$0	\$0	\$0	\$10,000
	Monitoring and Evaluation	\$0	\$5,000	\$19,761	\$0	\$24,761
<b>Ipswich/ Scenic Rim</b>		<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$200,000</b>	<b>\$200,000</b>
	Environmental	\$0	\$0	\$0	\$150,000	\$150,000
	Capacity Building	\$0	\$0	\$0	\$50,000	\$50,000
<b>Ipswich/ Somerset</b>		<b>\$0</b>	<b>\$0</b>	<b>\$300,000</b>	<b>\$0</b>	<b>\$300,000</b>
	Environmental	\$0	\$0	\$265,000	\$0	\$265,000
	Planning and Regulation	\$0	\$0	\$25,000	\$0	\$25,000
	Capacity Building	\$0	\$0	\$10,000	\$0	\$10,000
<b>Lockyer Valley</b>		<b>\$70,000</b>	<b>\$441,588</b>	<b>\$805,000</b>	<b>\$0</b>	<b>\$1,316,588</b>

LGA	Output name	2018-19	2019-20	2020-21	2021-22	Total
	Environmental	\$0	\$351,588	\$505,000	\$0	\$856,588
	Structural	\$0	\$0	\$180,000	\$0	\$180,000
	Planning and Regulation	\$25,000	\$25,000	\$40,000	\$0	\$90,000
	Capacity Building	\$45,000	\$55,000	\$55,000	\$0	\$155,000
	Engagement	\$0	\$10,000	\$25,000	\$0	\$35,000
<b>Scenic Rim</b>		<b>\$0</b>	<b>\$0</b>	<b>\$0</b>	<b>\$90,000</b>	<b>\$90,000</b>
	Environmental	\$0	\$0	\$0	\$80,000	\$80,000
	Planning and Regulation	\$0	\$0	\$0	\$10,000	\$10,000
<b>Scenic Rim/ Logan</b>		<b>\$50,000</b>	<b>\$494,136</b>	<b>\$110,000</b>	<b>\$150,000</b>	<b>\$804,136</b>
	Environmental	\$0	\$374,136	\$55,000	\$100,000	\$529,136
	Planning and Regulation	\$20,000	\$10,000	\$10,000	\$0	\$40,000
	Capacity Building	\$30,000	\$100,000	\$45,000	\$50,000	\$225,000
	Engagement	\$0	\$10,000	\$0	\$0	\$10,000
<b>Somerset</b>		<b>\$0</b>	<b>\$45,000</b>	<b>\$0</b>	<b>\$0</b>	<b>\$45,000</b>
	Planning and Regulation	\$0	\$45,000	\$0	\$0	\$45,000



## Appendix 2. LGA economic contribution estimates

Table 10: Brisbane LGA economic contribution estimates

Sector	2018-2021 investment	GVA- initial	GVA- 2A	Employment - initial	Employment - 2A
<b>Total</b>	<b>\$750,000</b>	<b>\$324,000</b>	<b>\$361,000</b>	<b>3.5</b>	<b>2.5</b>
Construction	\$155,000	\$48,000	\$105,000	0.5	0.7
Education and Training	\$30,000	\$22,000	\$21,000	0.3	0.1
Agriculture, Forestry and Fishing	\$510,000	\$223,000	\$198,000	2.5	1.4
Public administration and Safety	\$55,000	\$31,000	\$37,000	0.3	0.3

Table 11: Ipswich LGA economic contribution estimates

Sector	2018-2021 investment	GVA- initial	GVA- 2A	Employment - initial	Employment - 2A
<b>Total</b>	<b>\$1,029,761</b>	<b>\$501,000</b>	<b>\$352,000</b>	<b>5.6</b>	<b>2.8</b>
Education and Training	\$110,000	\$82,000	\$48,000	1.0	0.4
Agriculture, Forestry and Fishing	\$777,500	\$340,000	\$235,000	3.8	1.9
Public administration and Safety	\$142,261	\$79,000	\$69,000	0.8	0.5

Table 12: Somerset LGA economic contribution estimates

Sector	2018-2021 Investment	GVA- initial	GVA- 2A	Employment - initial	Employment - 2A
<b>Total</b>	<b>\$195,000</b>	<b>\$94,000</b>	<b>\$83,000</b>	<b>1.0</b>	<b>0.7</b>
Education and Training	\$5,000	\$4,000	\$2,000	0.0	0.0
Agriculture, Forestry and Fishing	\$132,500	\$58,000	\$57,000	0.6	0.5
Public administration and Safety	\$57,500	\$32,000	\$24,000	0.3	0.2

Table 13: Lockyer Valley LGA economic contribution estimates

Sector	2018-2021 Investment	GVA- initial	GVA- 2A	Employment -initial	Employment - 2A
<b>Total</b>	<b>\$1,316,588</b>	<b>\$623,000</b>	<b>\$560,000</b>	<b>6.9</b>	<b>5.0</b>
Construction	\$180,000	\$56,000	\$82,000	0.5	0.7
Education and Training	\$190,000	\$142,000	\$70,000	1.7	0.6
Agriculture, Forestry and Fishing	\$856,588	\$375,000	\$369,000	4.1	3.3
Public administration and Safety	\$90,000	\$50,000	\$39,000	0.5	0.3

Table 14: Scenic Rim LGA economic contribution estimates

Sector	2018-2021 Investment	GVA- initial	GVA- 2A	Employment -initial	Employment - 2A
<b>Total</b>	<b>\$592,068</b>	<b>\$308,000</b>	<b>\$267,000</b>	<b>3.5</b>	<b>2.3</b>
Education and Training	\$142,500	\$107,000	\$69,000	1.3	0.6
Agriculture, Forestry and Fishing	\$419,568	\$184,000	\$185,000	2.0	1.6
Public administration and Safety	\$30,000	\$17,000	\$13,000	0.2	0.1

Table 15: Logan LGA economic contribution estimates

Sector	2018-2021 Investment	GVA- initial	GVA- 2A	Employment -initial	Employment - 2A
<b>Total</b>	<b>\$402,068</b>	<b>\$215,000</b>	<b>\$151,000</b>	<b>2.4</b>	<b>1.2</b>
Education and Training	\$117,500	\$88,000	\$52,000	1.0	0.4
Agriculture, Forestry and Fishing	\$264,568	\$116,000	\$89,000	1.3	0.7
Public administration and Safety	\$20,000	\$11,000	\$10,000	0.1	0.1

## Appendix 3. AITI Input – Output Model

We used the regional economic impact model developed by [Flinders University](#) to estimate the regional economic contribution of *Resilient Rivers Initiative* investments from 2018 to the future.

The model provides measures of impacts from investments in on-ground structural and environmental works, planning and MER activities. This Appendix describes the structure of the I-O model and limitations of I-O models readers should be aware of.

The estimates generated by the regional economic impact model are underpinned by an input–output model developed by SGS Economics from national input–output figures from the ABS. This model shows the flow of goods and services between all the parts of the Australian economy. The figures developed for each local government area (LGA) disaggregate these total figures across LGA regions using known regional subtotals and forcing the relationship across all LGA regions to match the Australian total.

Using I-O to estimate order of magnitude economic impacts of Resilient River investments is considered reasonable, given the time and budget available to this project. However, I-O models have known limitations. These limitations mean I-O models may overstate the economic contribution of economic activity and investment.

The issues with I-O models include:

- **The input–output approach assumes that relationships between industries are static.** That is, productivity improvements are not factored in and historical relationships are assumed to hold. Businesses are not able to adjust to changes in prices to change the way they produce things.
- **The input–output approach uses total production estimates.** As a result, the relationships are average. However, if we think about where increases in spending might occur, we expect the spender to look for the best value option (or a marginal option). Using an average approach does not allow for using any underutilised capacity at the industry level or for the better use of existing machinery as production expands from its existing base.
- **All of the expenditure is assumed to be new economic activities in each local government area.** That is, input–output models assume that labour and equipment are, in effect, unemployed and with no constraints on their availability. This means that crowding out or industry substitution effects (including from saving) are assumed to be negligible. This means that there is sufficient slack in the local economy to service these stimuli without transferring significant resources from other uses. If that is not the case, then there is a tendency for input–output models to overstate economic value.

The input–output approach is also constrained by:

- the relevance of the most recent national input–output table, which was completed in 2009/10 and the Census industry of employment data from 2011.
- the high level of discretion that can be applied when disaggregating national tables to a state and

regional industry level where those local levels of data are not available.

These issues mean that input–output modelling generally overstates the gross and net economic impact of industry sectors. Changes in spending in an industry, for example, are unlikely to generate the same impact as suggested by the application of input–output multipliers. Ignoring these effects can cause input–output based estimates to overestimate the overall impact on the economy.