

FINAL REPORT

APRIL 2022

# RICHMOND VALLEY FLOODING ECONOMIC IMPACTS STATEMENT



**Richmond**  
**Valley**  
**Council**

Report Prepared  
for Richmond  
Valley Council





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A photograph of a flooded street in a residential area. Several people are riding motorbikes through the murky floodwater. In the background, there are houses and utility poles with wires. The title 'Executive Summary' is overlaid in large white text.

# Executive Summary

In the immediate aftermath of the 2022 floods across the Northern Rivers region, Sea & Star Advisory was commissioned by Richmond Valley Council to prepare this economic impacts statement.

This assessment of impacts has been informed by:

- review of flood & economic data
- interviews with key business & employer stakeholders in the region
- economic modelling of impacts
- evaluation of industry supply chain linkages, with special focus on areas with concentrated risks.

This assessment has been developed in the very early days of flood recovery. Many key considerations are preliminary, unknown or unresolved at the time of writing:

1. asset damage assessments are ongoing
2. lead times for asset replacement are preliminary or unknown
3. further flood events have occurred in late March & early April 2022
4. the extent of stakeholder interviews has needed to respect businesses' natural need to prioritise recovery, so some feedback is subject to final confirmation.

## STRATEGIC OVERVIEW

Richmond Valley is an area of the far north coast of NSW of more than 3,000 square kilometres, home to around 23,500 people. It sits within a broader Northern Rivers region of more than 300,000 people.

Richmond Valley's largest centre, Casino, is the region's fifth-largest locality by population. The smaller communities of Coraki, Woodburn, Broadwater & Evans Head are situated downstream of Casino along the Richmond River system.

Richmond Valley's economy typically supports output of more than \$900 million annually. Output for the Northern Rivers economy overall is close to \$14 billion.

Both Richmond Valley & the Northern Rivers have seen population growth play a key role in their economic development over time.

Richmond Valley has particular strengths in agriculture & manufacturing. Beef production, its sugar value chain and forestry & wood are among its most distinctive economic activities.

Consistent with its profile of population & economic strengths, Richmond Valley's key employment centres are:

- **Casino**, with 4,700 jobs in a diversified structure of 1,000 manufacturing jobs & 1,900 jobs in key people-serving activities (health; education; retail; hospitality)
- **Coraki & surrounds**, with 270 jobs focused on construction, agriculture & manufacturing
- **Woodburn**, with 150 jobs across hospitality, construction, logistics, education & agriculture
- **Broadwater**, with 70 per cent of its 260 jobs concentrated in manufacturing, agriculture, energy & logistics
- **Evans Head**, with 690 jobs emphasising people-serving activities (hospitality; retail; education; health).

### COMMUNITY IMPACTS OF THE 2022 FLOODS

In February 2022, all of the Northern Rivers saw rainfall very much above average, with the highest levels on record in many areas. The rainfall pattern reflected an intense climatic event concentrated over a few days in late February & early March:

- on Monday 28th February, Casino Airport saw a new all-time daily record rainfall of 240 mm - 50 per cent greater than the monthly average in a single day
- Some parts of the Northern Rivers saw even more intense rainfall than Casino on 28 February, with falls of up to 700mm in 24 hours.

Record rainfalls soon became record flooding events. Flood levels two or more metres beyond the previous flood-level records of 1974 & 1954 were commonplace along the Richmond, Wilson & Tweed river systems.

Flooding unmatched in living memory led to community impacts of a previously unthinkable scale. Across Richmond Valley:

- 1,200 homes were inundated or severely damaged, with 427 uninhabitable, and 1,300 more homes seeing some damage
- water & sewer damages are estimated at \$50 million. Three sewerage treatment plants saw substantial damage, with many assets yet to be fully assessed
- the initial estimate of road damages is \$100 million due to washouts, landslips, lost bridge spans & damaged culverts.

### ECONOMIC CONSEQUENCES OF THE FLOODS

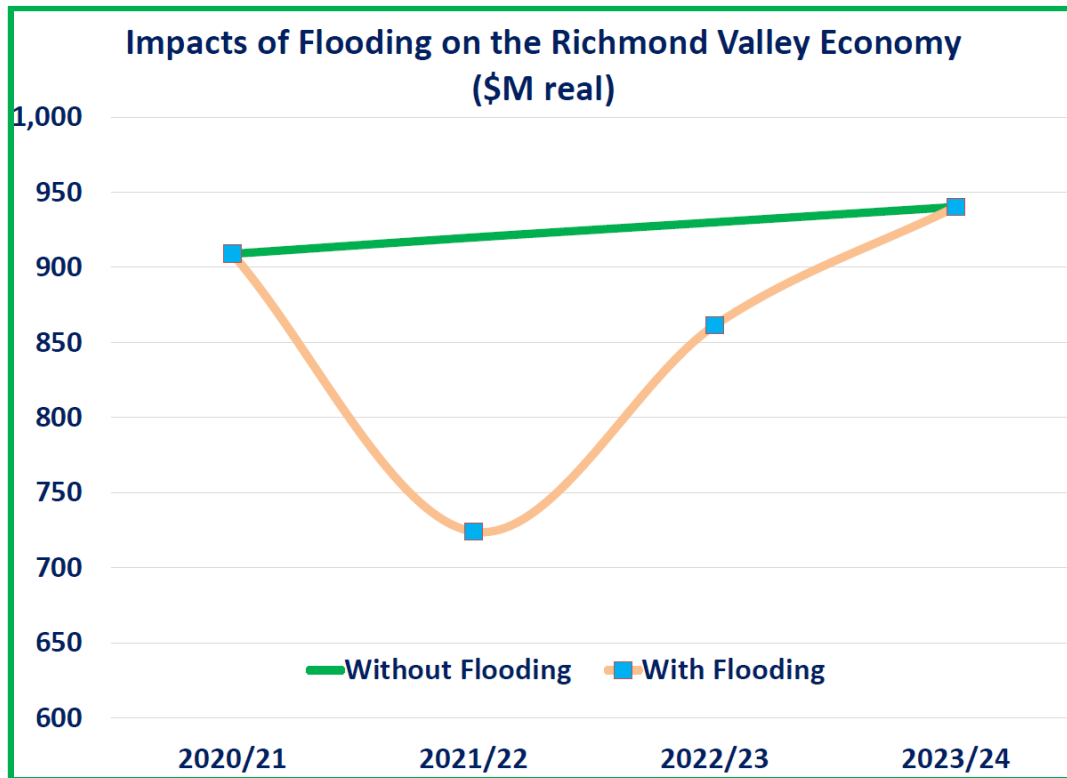
There are six broad categories of economic impacts from flooding on Richmond Valley & the Northern Rivers:

- disrupted production while water subsides and the clean-up takes priority
- asset & inventory damage & losses have cut production
- labour force losses, as people are temporarily or permanently dislocated from the region, reducing labour supply, production & incomes
- reduced consumption, consequent from falls in population, production & income

- losses of supply chain disrupting production
- deferred or lost development prospects.

## ECONOMIC IMPACTS ON PRODUCTION FROM THE FLOODS

Preliminary analysis undertaken by Sea & Star Advisory suggests the economic impact of the floods on Richmond Valley's production may exceed \$250 million across the 2021/22 & 2022/23 financial years.



Sea & Star Advisory's projections suggest that Richmond Valley's production losses will be concentrated in:

- agriculture (about a quarter of lost production)
- manufacturing (about 60 per cent of lost production).

Overall, Sea & Star Advisory's assumptions & projections reflect our view the Richmond Valley & Northern Rivers economies are generally flexible, robust & resilient, with considerable capacity to adjust & recover quite quickly.

However, it is important to remember these assumptions about regional capacity for an orderly recovery have been adopted amid considerable uncertainty. If assumptions do not hold, the rate & level of recovery will be slower & lower, with larger production impacts & risks to the recovery.

Two sectors with concentrated risks with the potential to jeopardise recovery are the **construction sector & sugar value chain**. Consultation with industry & our independent evaluation of their particular downside risks bears out these sectors merit special attention to ensure the overall recovery of Richmond Valley & the Northern Rivers is as robust as possible.

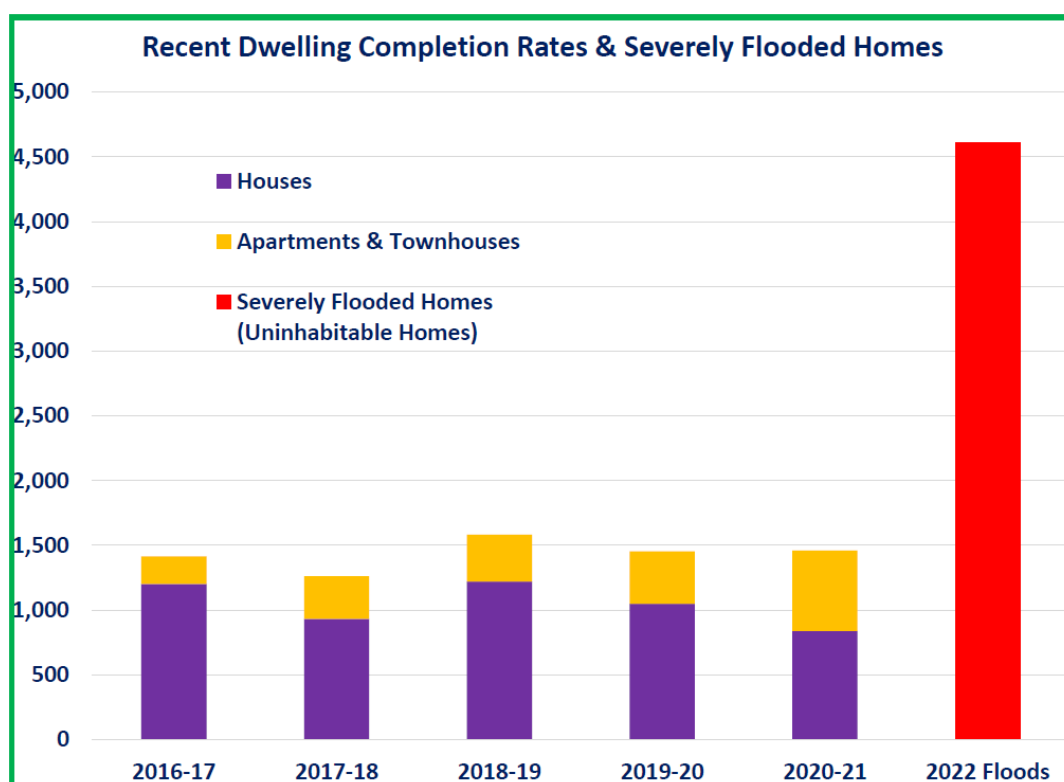


## CONSTRUCTION RISKS

With so many homes, businesses & critical assets damaged, the Northern Rivers' construction sector & supply chain is critical to rebuilding the region's asset base.

The 4,500 severely flooded dwellings across the Northern Rivers are around three times recent annual dwelling completion rates:

- this implies it would typically take three years to complete a similar number of replacement dwellings
- altogether, the Northern Rivers' rebuild & repair costs across the 10,300 flood damaged dwellings may total around \$1.6 billion.



However, flooding has put the construction industry's own capacity & supply chain in question, jeopardising economic recovery.

Flooding has dislocated some construction workers & businesses, as well caused extensive losses of plant, premises, equipment & inventories. Limiting unnecessary capacity disruptions in the local construction supply chain is critical to:

1. accelerating the local recovery rate
2. boosting housing supply capacity & cap price impacts
3. limiting unwarranted leakages of activity outside the region & re-integrating the regional supply chain.

Unless the recovery in supply capacity is orderly, hundreds of millions of dollars of production is at risk from people & capacity being permanently dislocated from the Northern Rivers. If supply chain disruption became permanent, this would have implications for the Region's ability to integrate new arrivals into its economy.

## RISKS ALONG THE SUGAR VALUE CHAIN

The Northern Rivers' community centres have been the immediate focus of attention for flood recovery. However, inundation out in the paddocks has created consequences & risks that are no less real, even if more removed from view.

Even passers through the region could hardly fail to see the significant acreages committed to cane growing. However, these cane fields are just the beginning of a value chain more extensive, intricate & sophisticated than generally understood.

### The Northern Rivers' Sugar Value Chain



While production is substantially lower than in the mid to late 2000s, production levels have been relatively stable for more than a decade. Cane production in the Northern Rivers can be viewed as three distinct catchments:

1. **Clarence Valley** - 524,000 tonnes in 2020-21 - 30 per cent of production, with a mill and refinery at Harwood
2. **Tweed Valley** - 439,000 tonnes - 25 per cent of production, with a Condong mill
3. **Richmond Valley** - 776,000 tonnes - 45 per cent of regional production, with a mill at Broadwater.

Sea & Star Advisory estimates the Northern Rivers' sugar chain provides about 1,800 local direct jobs annually. Asset impacts from flooding have been very considerable along the chain - in the hundreds of millions of dollars. Insurance coverage will also be difficult to sustain.

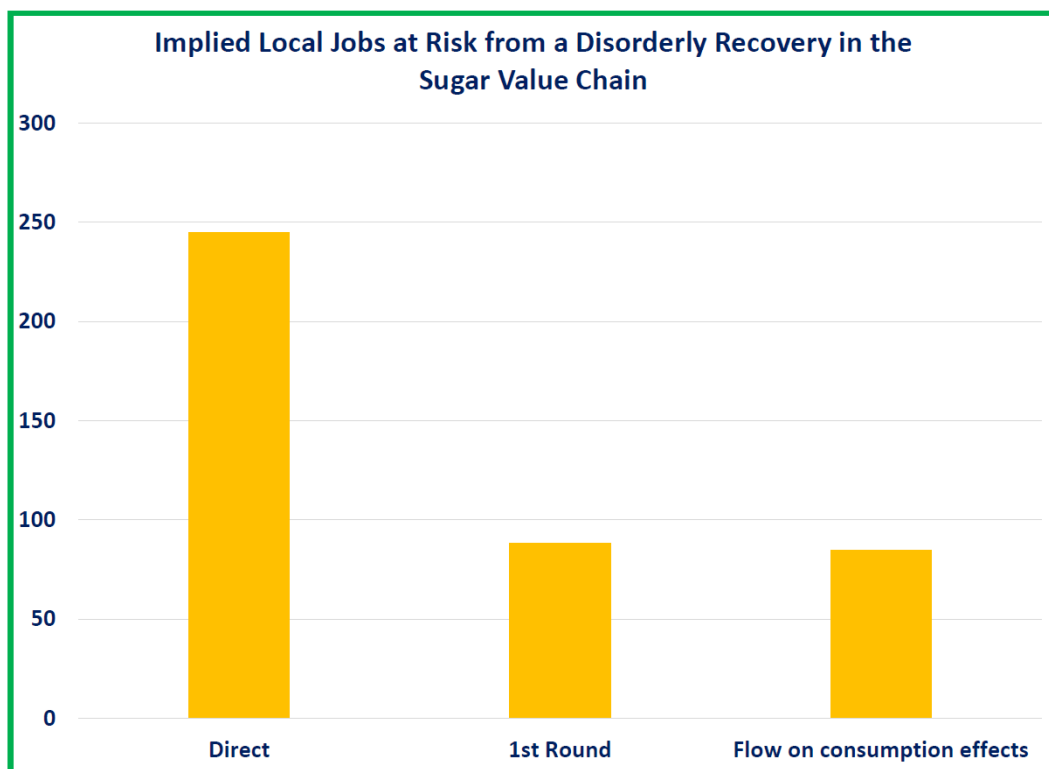
The close, intricate integration of the Northern Rivers' sugar value chain, normally a central feature of its economic success, is now creating material uncertainty in recovery. Each of the chain's components is reliant on the actions of others to make their own recovery possible.



Heavy geographic concentration of these activities means some communities face particularly sharp risks to orderly recovery.

For example, Broadwater's concentration of jobs in agriculture, manufacturing, logistics & energy means it is significantly exposed to negative social & economic 'ripple effects' if a lack of recovery in one sector drags on the others. In a severe case, this risk could stall its recovery altogether.

To demonstrate the extent of risks, we evaluated a downside scenario where cane crop losses due to the floods combined with other flooding impacts to reduce throughput along the sugar value chain by 30 per cent.



Sea & Star Advisory estimates this scenario could entail an adverse impact on production of around \$90 million and put a quarter of the Northern Rivers sugar chain jobs in question. If recovery were further prolonged, the household income & consumption impacts could put jobs in the region's broader economy at risk.

### **PRIORITY COMMUNITY & ECONOMIC NEEDS FOR EFFECTIVE RECOVERY**

Common themes have emerged from consultation about the region's leading priorities to ensure recovery:

1. restoring the sense of economic & social stability
2. restoring households to residences
3. rebuilding the economic base, paying particular attention to needs for cash flow, labour supply, lead times for asset replacement, supply chain restoration and availability of finance & commercially realistic insurance coverage.

## PRIORITY ECONOMIC POLICY ACTIONS FOR AN ORDERLY FLOOD RECOVERY

Our review of needs & risks suggests a number of measures are likely to be necessary to ensure widespread confidence & capacity for an orderly regional recovery by:

1. ensuring employers have both sufficient cash flow & confidence in recovery. In limited circumstances, risks to recovery are grave enough that highly targeted JobKeeper or JobSaver style alternatives should be considered to employment is sustained. High level costings suggest this could be done at a fraction of the cost of the State & Federal assistance package announced on 18 March 2022.
2. closely reviewing asset replacement needs, lead times & financing options.  
While some heavily flood affected businesses have sourced replacement assets relatively quickly, others appear likely to face substantial delays.
3. encouraging orderly re-planting of cane crops where damaged.
4. ensuring re-pricing of insurance premiums does not jeopardise operational viability
5. creating new options for housing & industrial lands with reduced flood risks.



# PART A: STRATEGIC CONTEXT

Part A (chapters 1, 2 & 3) of this Report:

- introduces the scope, context, methodology & qualifications relevant to this assignment
- introduces both Richmond Valley and the broader Northern Rivers region
- provides an overview of the local & regional economies affected by flooding.



# 1: Introduction

## 1.1 ABOUT THIS REPORT

In the immediate aftermath of the 2022 floods across the Northern Rivers region, Sea & Star Advisory was commissioned by Richmond Valley Council to prepare this economic impact statement.

The broad objectives of this Report are to introduce & evaluate:

- the broader Northern Rivers region subjected to large-scale flooding
- Richmond Valley's major communities
- the structure & key features of both the local & regional economies
- the community impacts of the floods, with special attention on impacts within Richmond Valley communities
- the economic impacts & implications of the floods on the local economy
- the pressing flood recovery needs & challenges facing Richmond Valley's communities & economy
- priority actions to underpin an effective recovery.

## 1.2 METHODOLOGY

The methodology informing this Report's assessment of impacts reflects a six-step approach:

- review of the key structural characteristics of Richmond Valley's communities and economy
- evaluation of the likely impacts of flooding on the communities & economy





- review of available data on asset losses & impacts from flooding
- interviews with key stakeholders across the region, including major employers in Casino, Coraki, Woodburn & Broadwater
- modelling of economic impacts
- assessment of critical needs for effective recovery and development of priority actions to respond to these needs.

### 1.3 STRUCTURE OF THIS REPORT

The rest of the Report is structured as follows:

- the rest of **Part A (chapters 2 & 3)** outlines Richmond Valley, the Northern Rivers region and the local & regional economies
- **Part B (chapters 4 & 5)** describes the extreme rainfall patterns that led to the flood impacts, as well as localised flooding impacts across Richmond Valley and elsewhere in the Northern Rivers
- **Part C (chapters 6 & 7)** evaluates the different sources of flood impacts across the economy, and provides a preliminary projection of impacts on Richmond Valley's economy, including localised impacts across its communities
- **Part D (chapters 8 & 9)** identifies key community & economic needs and formulates some initial priority actions to ensure a successful recovery.

### 1.4 QUALIFICATIONS

This assessment has been developed in the very early days of flood recovery. Many key considerations are preliminary, unknown or unresolved at the time of writing:

1. asset damage assessments are ongoing
2. lead times for asset replacement are preliminary or unknown
3. most key stakeholder consultation was undertaken ahead of state & federal assistance announced on 18 March 2022.



# 2: Richmond Valley & the Northern Rivers

## 2.1 THE RICHMOND VALLEY

Richmond Valley is an area of the far north coast of NSW of more than 3,000 square kilometres, home to around 23,500 people. Richmond Valley's immediate neighbours are Lismore (north), Ballina (north east), Clarence Valley (south) & Kyogle (north west).

The major population centres of Richmond Valley are set along the Richmond River and adjoining Evans River system:

- Casino, Richmond Valley's primary services hub, is home to about 10,000 people
- coastal Evans Head is home to more than 2,800 people
- Coraki, about 30km downstream of Casino, at the confluence of the Richmond & Wilson rivers, is home to more than 1,100 people
- Woodburn, about 25 km downstream of Coraki, is home to around 500 people
- Broadwater, just under 15km downstream of Woodburn, is home to a little under 500 people, with 120 people living in nearby Riley's Hill.

Agriculture plays a central role in Richmond Valley's social & economic character, with many more people living on the land, or in smaller villages like Rappville & Whiporie.

Richmond Valley's localities are depicted in Figure 2.1 on the next page.



**FIGURE 2.1: RICHMOND VALLEY LOCALITIES**



Source: NSW Government  
(2036 North Coast Regional Plan)

## 2.2 THE NORTHERN RIVERS

Richmond Valley is situated within a broader region known as the Northern Rivers.

While use of the label varies, the Northern Rivers is best thought of as localities spanning three major river catchments on the far north coast of NSW, namely:

- the Tweed River
- the Richmond / Wilsons River
- the Clarence River.

Seven local government areas make up the region, spanning Tweed Shire at the Queensland border in the north, to Clarence Valley in the south, with a total area of more than 20,700 square kilometres.

The Northern Rivers is home to more than 307,000 people. Its leading urban centres by population are:

- Tweed Heads (60,000 people)
- Lismore (28,000 people)
- Grafton (17,000 people)
- Ballina (16,500 people)
- Casino (10,000 people)
- Byron Bay (9,000 people)
- Murwillumbah (9,000 people).

The region reflects extensive social & economic integration across localities, typical of a metro area. For example, Lismore's higher education & health services draw in a labour pool featuring many Ballina, Byron, Richmond Valley & Kyogle residents.

The Northern Rivers is distinguished from the rest of NSW's North Coast by its greater proximity & integration with south east Queensland's large markets. Figure 2.2 on the next page places the Northern Rivers in the context of the state border & the rest of the North Coast.





FIGURE 2.2: THE BROADER NORTHERN RIVERS REGION



Source: NSW Government

(Images adapted by Sea & Star  
Advisory from the 2036 North Coast  
Regional Plan)

# 3: The Local & Regional Economies

## 3.1 THE RICHMOND VALLEY ECONOMY

Richmond Valley's economy supports output of more than \$900 million annually.

Production in 2021 was more than \$175 million above 2001 output levels. Average annual compound growth over the two decades was about 1.1 per cent per year.

Employment has increased steadily in Richmond Valley over time. Based on the most recent available Census data for 2016, employment in Richmond Valley is about 6,900 jobs.

The increase in employment over the prior decade was about 10.6 per cent. Average annual compound growth over the decade was about 1 per cent a year.

Figure 3.1 on the next page reflects the changing profile of production levels in Richmond Valley over the past two decades.

Figure 3.2 on the next page reflects some of Richmond Valley's key distinguishing specialised industries. Geographic aspects of Richmond Valley's specialisations are explored further in section 3.3.

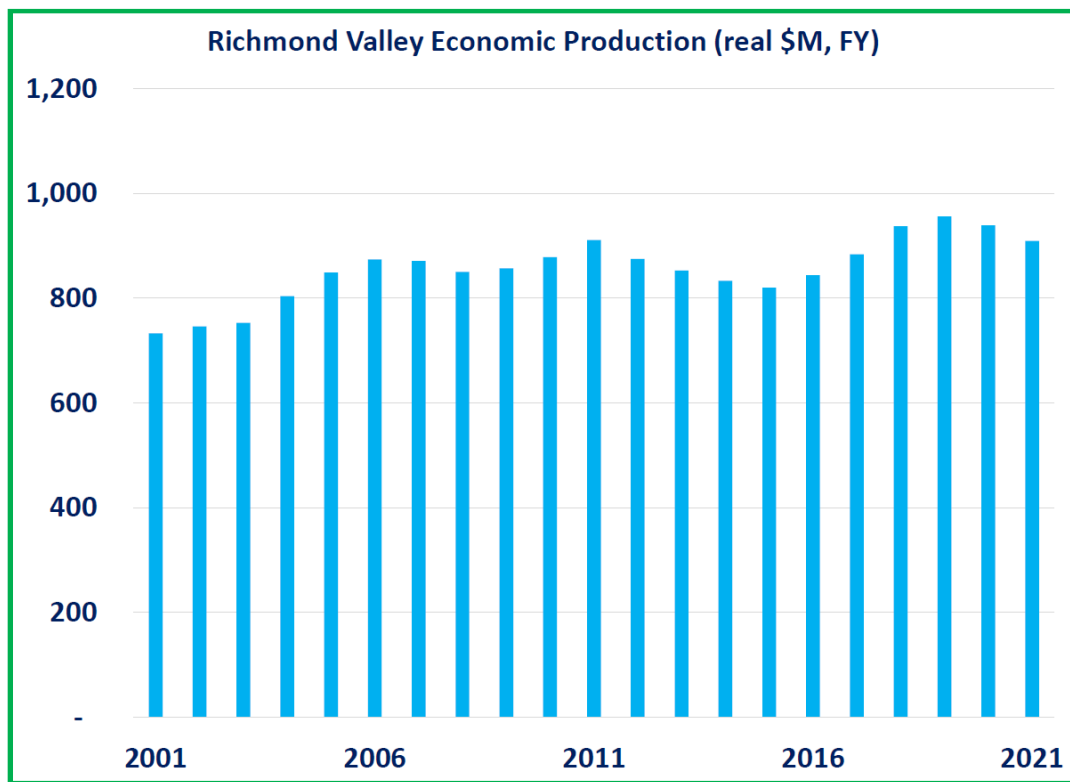
## 3.2 THE NORTHERN RIVERS ECONOMY

The Northern Rivers economy supports output of \$13.9 billion annually.



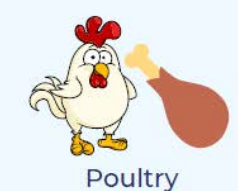
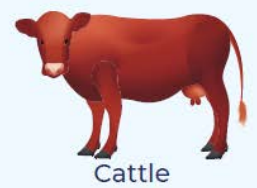


**FIGURE 3.1: RICHMOND VALLEY ECONOMIC OUTPUT, 2001 TO 2021 (FY)**



*Source: Sea & Star Advisory analysis of National Institute for Economic & Industry Research data*

**FIGURE 3.2: SELECT SPECIALISATIONS OF RICHMOND VALLEY**



*Source: Sea & Star Advisory Analysis of 2016 Census data*

Production in 2021 was about \$3.6 billion above 2001 output levels. The average annual compound growth over the two decades was about 1.5 per cent per year.

By locality, contributions towards the Northern Rivers' economic growth were:

- Tweed (36 per cent contribution)
- Ballina (19 per cent contribution)
- Byron (14 per cent contribution)
- Lismore & Clarence Valley (12 per cent contribution each)
- Richmond Valley (5 per cent contribution)
- Kyogle (2 per cent contribution).

This pattern of growth reflects the significant role population growth plays in the region's ongoing economic development.

Employment has increased steadily across the Northern Rivers over time. 2016 Census data suggests Northern Rivers employment provides about 102,000 jobs.

The increase in employment over the prior decade was about 15 per cent. Average annual compound growth in jobs over the decade was about 1.4 per cent a year.

While Tweed, Byron & Ballina provided the Northern Rivers' fastest rates of jobs growth, Richmond Valley's rate of jobs growth was significantly higher than the rates enjoyed in Lismore, Clarence Valley & Kyogle.

### 3.3 ECONOMIC CHARACTERISTICS ACROSS RICHMOND VALLEY

Deeper characteristics & specialisations across Richmond Valley are seen in job profiles for its centres, discussed below.





**Casino** supports 4,700 jobs in a diversified economic structure. Manufacturing is the leading industry, with more than 1,000 jobs.

However, Casino also provides extensive 'population serving' job opportunities. For example, taken together, the health & social services, education, hospitality & retail sectors provide 1,900 jobs in Casino.

Other significant industry sectors for jobs in Casino include agriculture, construction, transport & logistics, professional services & public administration.

In the surrounding **Casino region**, job numbers are around 550. Agriculture provides close to 300 jobs, with a further 100 in manufacturing & logistics.

**Coraki & surrounds** support 270 jobs. Construction is its leading employment sector, providing more than 50 jobs. Taken together, agriculture & manufacturing provide a similar number of jobs.

However, there is greater diversity in Coraki's economy than it might first appear. It has close to 50 jobs in health & social assistance, 30 jobs in education, and about 40 jobs across hospitality, retail & public services.

**Woodburn** supports close to 150 jobs. Hospitality is the leading employer among industries, with 35 jobs.

Together, construction, manufacturing, agriculture, wholesale, logistics & technical services provide about 50 jobs. Similar numbers of jobs are found across 'people services' like education, retail, health & social assistance, retail & public service.

**Broadwater** & surrounds support 260 jobs, which are heavily concentrated in an integrated sugar & energy supply chain.

Manufacturing is Broadwater's leading employer with 110 jobs - 40 per cent of the total.

Together, manufacturing, agriculture, energy & utilities and logistics provide 180 Broadwater jobs - or 70 per cent of the total.

**Evans Head** supports 690 jobs. People services dominate its economy, with hospitality, retail, education and health & social assistance its leading industries.

Evans Head's economic structure includes a heavy emphasis on tourism & hospitality.







# PART B: THE 2022 NORTHERN RIVERS FLOODS

Part B (chapters 4 & 5) of this Report:

- describes the extreme rainfall patterns that led to the flood impacts
- outlines the impacts on communities across the Richmond Valley and elsewhere in the Northern Rivers.



# 4: Rainfall Patterns

## 4.1 A HISTORICALLY WET LEAD-IN

In the lead up to the floods themselves, the Northern Rivers saw a historically wet period, leaving soils moist and water tables high.

In the 12 months to the end of January 2022, the catchments of the Northern Rivers reflected rainfalls ranging from above average, to well above average.

More specifically, Figure 4.1 on the next page reflects the majority of the region was best characterised as seeing rainfall very much above average for the 12 month period.

## 4.2 THE WETTEST OF FEBRUARYS

In February 2022, all of the Northern Rivers saw rainfall very much above average, with the highest levels on record in many areas.

All Northern Rivers catchments February rainfalls were upwards of 300 mm. Most of the Lismore, Richmond Valley, Kyogle, Ballina, Byron & Tweed areas saw rainfall of more than 600 mm, and upwards of 800 mm for large parts of the Richmond, Wilson & Tweed River catchments. These rainfalls ranged from two times to more than four times average monthly levels.

Figure 4.2 on the next page reflects the actual rainfalls in February 2022 across the Northern Rivers. Figure 4.3 on the next page reflects the relative rainfalls in February 2022 against average across the Northern Rivers.



FIGURE 4.1: 12 MONTH RAINFALLS TO THE END OF JANUARY 2022

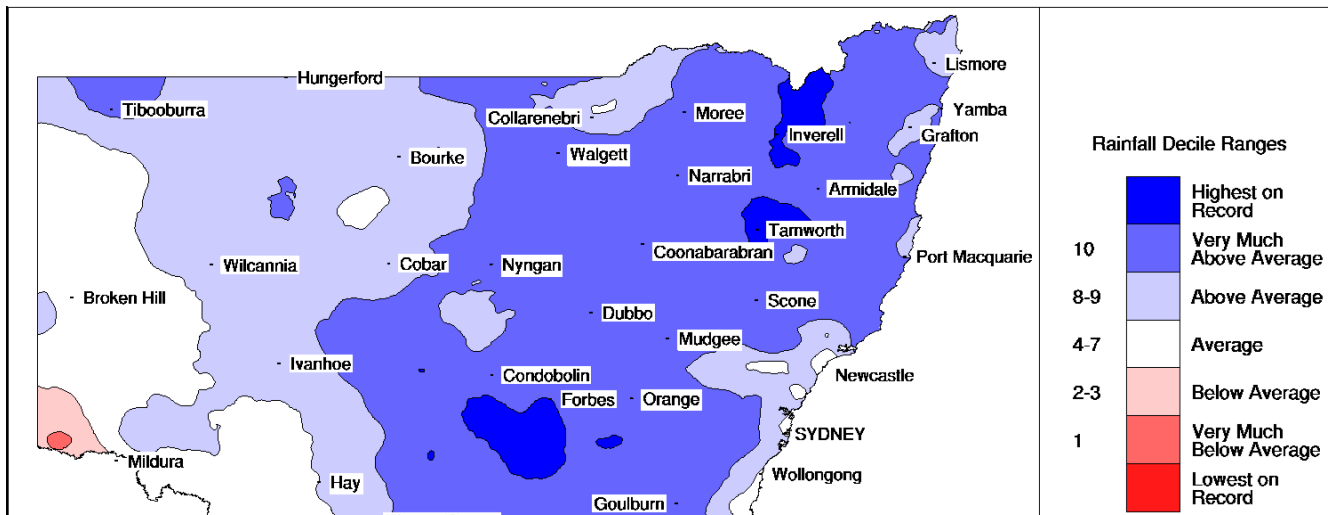


FIGURE 4.2: FEBRUARY 2022 RAINFALLS IN MILLIMETRES

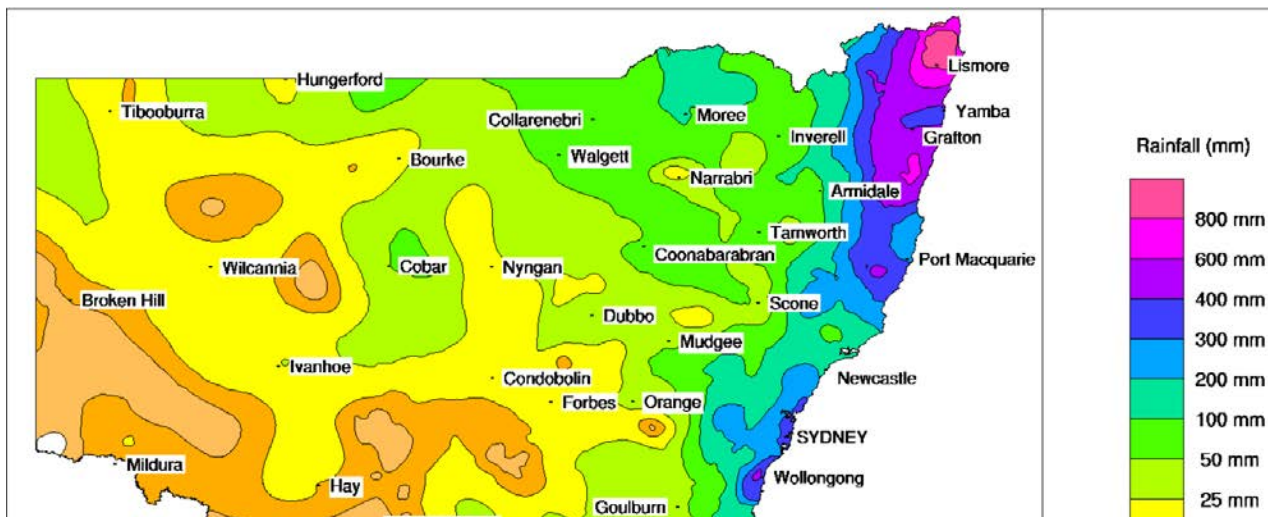
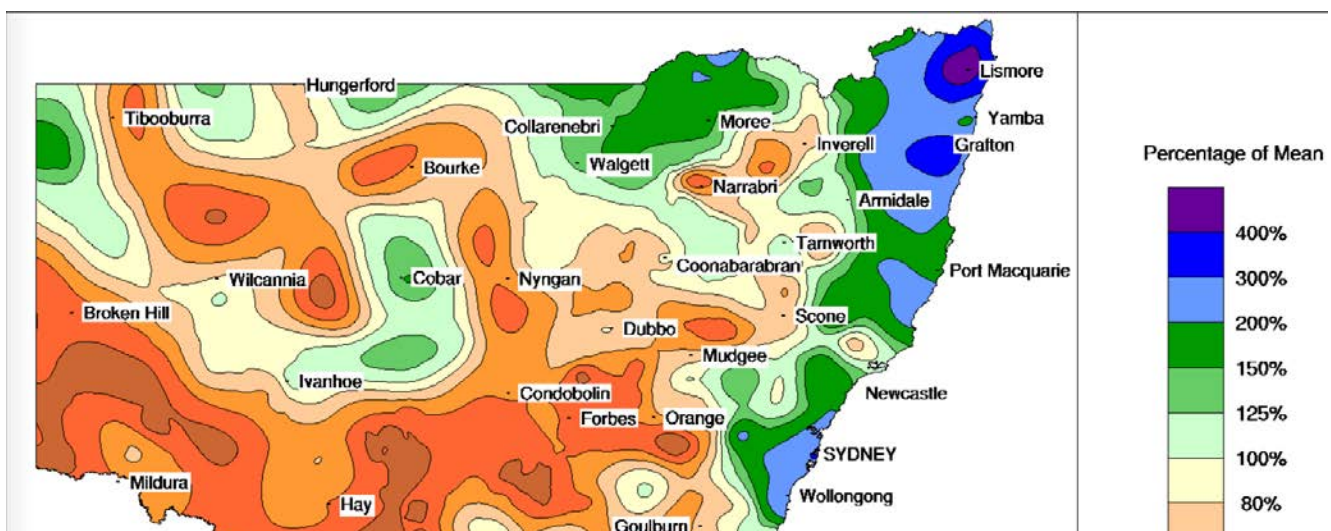


FIGURE 4.3: FEBRUARY 2022 RAINFALLS RELATIVE TO AVERAGE



Source: Commonwealth Government  
(Bureau of Meteorology)

### 4.3 A HEAVY CONCENTRATION OF INTENSE RAINFALL

The rainfall pattern not only reflected a high level of monthly rainfall, but also an intense climatic event concentrated across a few days in late February and early March.

The intensity of rainfalls is reflected in figures recorded at Casino Airport. This weather station opened in 1994.

Observations reflect that February is typically the wettest month, followed by March. Average rainfall for February is 162 mm.

On Thursday 24th February, daily rainfall was 123 mm - or more than three-quarters of the monthly average in a single day. While this rainfall was significant in itself, it pales against what followed.

On Monday 28th February, Casino Airport saw a new all-time daily record rainfall of 240 mm - or roughly 50 per cent greater than the monthly average for February in a single day. A further 88 mm was recorded the next day, Tuesday 1st of March.

Across a six day period, total rainfall for Casino Airport was more than three times the monthly average for the whole of February, the wettest month of the year.

Figures 4.2 and 4.3 reflect that heavy rainfall was widespread across the region. Some areas of the Northern Rivers saw even more intense rainfall than Casino, with the Bureau of Meteorology indicating some locations saw up to 700mm in the 24 hour period on 28 February. Lismore Airport's weather station set a daily rainfall record on 24 February prior to being rendered inoperable by floodwaters on 28 February.







# 5: Community Flooding Impacts

The record rainfalls reflected in Chapter 4 translated into record flooding events. Flood levels beyond the previous records of 1974 and 1954 were commonplace along the Richmond, Wilson & Tweed river systems. Flooding unmatched in living memory led to impacts on communities of a previously unthinkable scale. Across Richmond Valley:

- 1,200 homes were inundated or severely damaged, with 427 uninhabitable, and 1,300 more homes seeing some damage
- water & sewer damages are estimated as \$50 million. Three sewerage treatment plants saw substantial damage, with many assets yet to be fully assessed
- the initial estimate of road damages is \$100 million due to washouts, landslips, lost bridge spans & damaged culverts.

## 5.1 CASINO

In Casino, record flooding breached the high banks of the Richmond River, with flood waters reaching the main street properties. 269 properties (27 per cent) were either destroyed or damaged. 15 properties were assessed as having severe damage or worse.

Operational assets of major businesses were unaffected, but production has been lost while staff focus on clean-up & recovery with impacts from stock losses to follow.

## 5.2 CORAKI

Coraki's flooding topped 1974 & 2017 levels.







300 properties (69 per cent) were either destroyed or damaged. 94 properties were assessed as having severe damage or worse.

Major employers saw damages approaching \$1 million as the flood waters rendered their premises inoperable and stock and operational assets were lost. For some, the scale of damage meant temporary relocations to other premises was the only practical solution to sustain operations for a business critical to the region's recovery.

### 5.3 WOODBURN

In Woodburn, flooding exceeded the record levels of 1954 by around two metres. 154 properties (84 per cent) were either destroyed or damaged. 118 properties were assessed as having severe damage or worse.

Despite design that placed assets above the record levels of 1954, major businesses saw huge asset & inventory losses in the many millions of dollars, with much of it simply washed down the river. The businesses face uncertain paths to recovery, despite products & services essential to rebuilding & restoring the region.

### 5.4 BROADWATER

In Broadwater, flooding exceeded the record levels of 1954 by close to two metres. 77 properties (100 per cent) were either destroyed or damaged. 42 properties were assessed as having severe damage or worse.

Major businesses saw tens of millions of dollars of asset losses, despite positioning those assets above 1954 levels. Cane crop losses will have implications for throughput along the sugar value chain.



A woman with blonde hair is sitting in the driver's seat of a car. She has a distressed expression, with her hand pressed against her face and her eyes closed. The background is blurred, suggesting motion or a shallow depth of field. The overall tone is somber and reflective.

# PART C: FLOOD IMPACTS ON THE ECONOMY

Part C (chapters 6 & 7) of this Report:

- evaluates the different sources of flood impacts across the economy
- provides a preliminary projection of impacts on Richmond Valley's economy, including an evaluation of localised impacts across its communities.



# 6: Classifying the Flood Impacts

The impacts of flooding can be considered from a number of perspectives. Six broad classifications of impacts across Richmond Valley & the Northern Rivers are discussed below.

## 6.1 CLEAN UP DISRUPTION

In the early days of recovery, for many residents, matters of house & home have taken priority over business operations.

With labour diverted from production to unpaid clean up, repair & relocation tasks, output & incomes will be lower than they would otherwise have been.

## 6.2 ASSET DAMAGE IMPACTS

As we saw in Chapter 5, flooding has led to significant asset damage, including write-offs requiring replacement.

Additionally, inventory losses, both of inputs to and outputs from production processes, will further impair the productive potential of the region until replenished.

## 6.3 LABOUR FORCE LOSS IMPACTS

The extensive property losses catalogued in Chapter 5 will not only lead to short term diversion of workers from paid tasks, but also dislocate some workers from the region altogether, potentially in the medium or even long term.

Dislocated labour will reduce labour supply and output and incomes across the region.





## 6.4 REDUCED CONSUMPTION IMPACTS

Over time, the direct impacts on production, will lead to lower income levels. Lower incomes will lead to reduced consumption & activity in population-serving industries. This impact may be offset in part by:

- increases in essential expenditures & investments to repair or replace assets
- households drawing on their savings or other financial assets to fund consumption in the short term. However, asset damage to property is likely to see residents reduce non-essential consumption in a bid to conserve wealth.

## 6.5 SUPPLY CHAIN LOSS IMPACTS

Previous chapters have reflected that Richmond Valley & the Northern Rivers features considerable integration of its supply chain within the region.

Disruption of the supply chain poses the risk that production will be displaced, with more inputs sourced from outside the region. This disruption will tend to reduce regional output and incomes, even as it increases input costs and reduces the efficiency of supply arrangements.

## 6.6 DEFERRED OR LOST DEVELOPMENT PROSPECTS

Due to the crisis conditions of the floods, the attention of both private businesses and government organisations will be focused on recovery.

Focus on recovery is entirely appropriate. However, as a region with a strong track record of sustained growth, recovery focus will likely come at the cost of diverted attention from expansion or development projects across the region.



# 7: Projected Economic Impacts

## 7.1 SUMMARY ECONOMIC IMPACTS

Preliminary analysis undertaken by Sea & Star Advisory suggests the economic impact of the floods on Richmond Valley's production may exceed \$250 million across the 2021/22 & 2022/23 financial years.

Figure 7.1 on the next page reflects the projected profile of reductions in production.

In percentage terms, the projections suggest Richmond Valley's production will:

- contract by \$196 million (-21.3%) in 2021/22
- contract by \$69 million (-7.4%) in 2022/23.

Sea & Star Advisory's projections suggest that Richmond Valley's production losses will be concentrated in:

- agriculture (about a quarter of lost production)
- manufacturing (about 60 per cent of lost production).

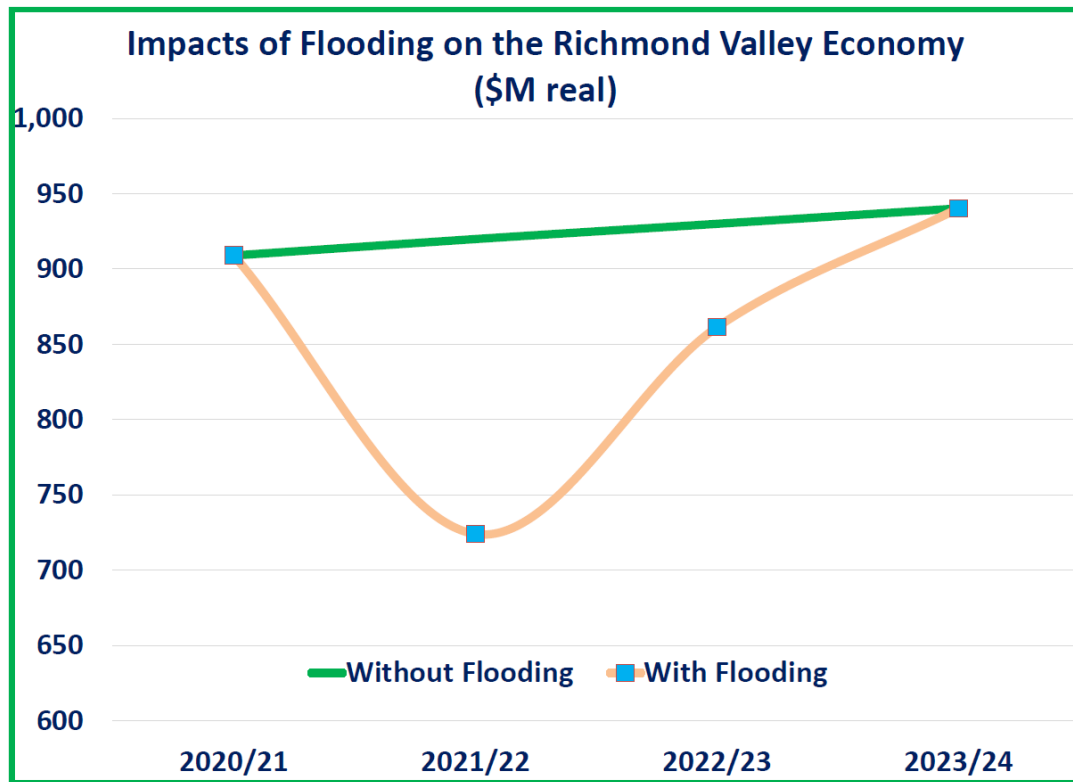
Other sectors realising significant losses from disrupted production include construction, logistics and utilities.

Industry sectors with the potential to realise minor offsetting gains in production are:

- accommodation (reflecting the acute shortage of dwellings)
- retail (reflecting consumption diverted to Casino by the extreme flood impacts in Lismore CBD).

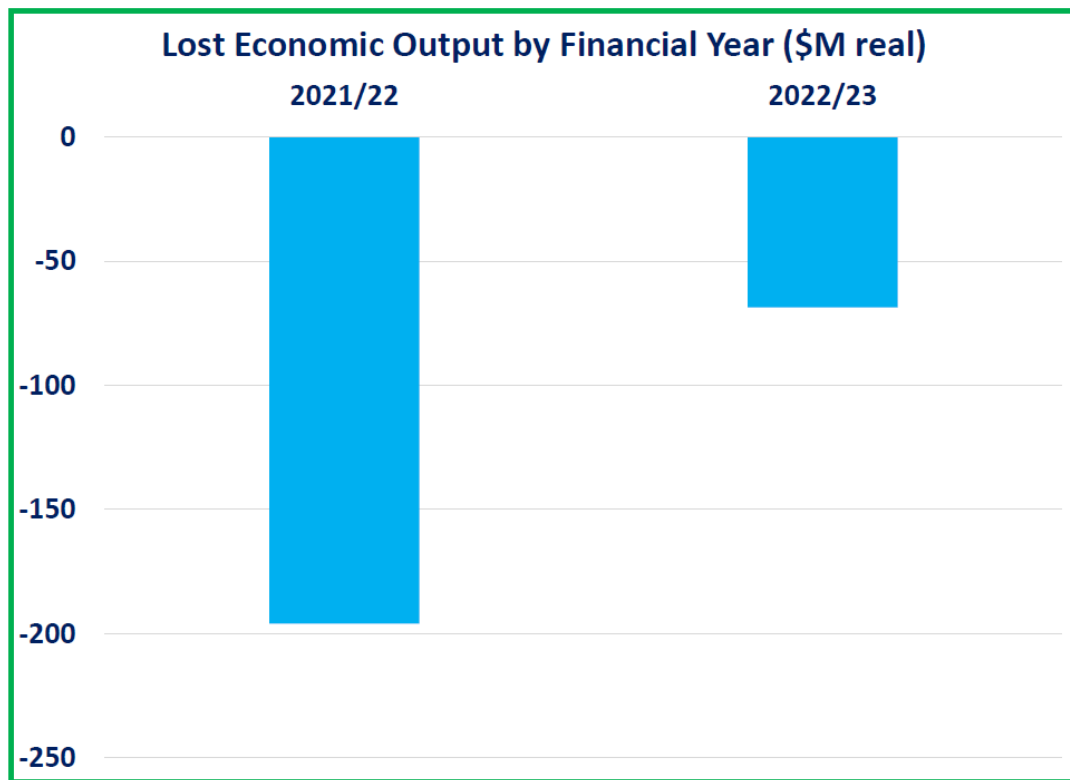


FIGURE 7.1: FLOOD IMPACTS ON RICHMOND VALLEY PRODUCTION



Source: Sea & Star Advisory projections

FIGURE 7.2: RICHMOND VALLEY PRODUCTION LOSSES BY YEAR



Source: Sea & Star Advisory projections

## 7.2 KEY UNCERTAINTIES & LONGER TERM ASSUMPTIONS

Sea & Star Advisory's preliminary analysis projects economic impacts for Richmond Valley in light of considerable current uncertainties about how flood recovery & general economic conditions will unfold.

Overall, Sea & Star Advisory's assumptions reflect our view the Richmond Valley & Northern Rivers economies are generally flexible, robust & resilient, with considerable capacity to adjust & recover quite quickly.

Some of the most critical assumptions adopted for this preliminary analysis are:

- households, businesses & landlords repair or replace damaged assets by the end of 2022/23, despite current long lead times
- "balance sheet" losses for households, businesses & landlords from flood asset damage will not delay timely financing of asset repair & replacement
- full recovery in production is achieved in the 2023/24 financial year, consistent with asset replacement within 12 months
- despite the many dwellings damaged or lost across the region, population, jobs and labour supply will not permanently be dislocated from the Northern Rivers (even if re-distributed within the region)
- as construction sector utilisation was high before the floods, demand from reconstruction will likely increase prices, with modest impacts on real production.

However, it is important to remember these assumptions have been adopted amid considerable uncertainty. To the extent assumptions do not hold, the rate & level of recovery will be slower & lower, with larger production impacts & risks to the recovery.





## BOX 7.1 - KEY REGIONAL RECOVERY DOWNSIDE RISK: CONSTRUCTION SECTOR CAPACITY & LOCAL SUPPLY CHAIN

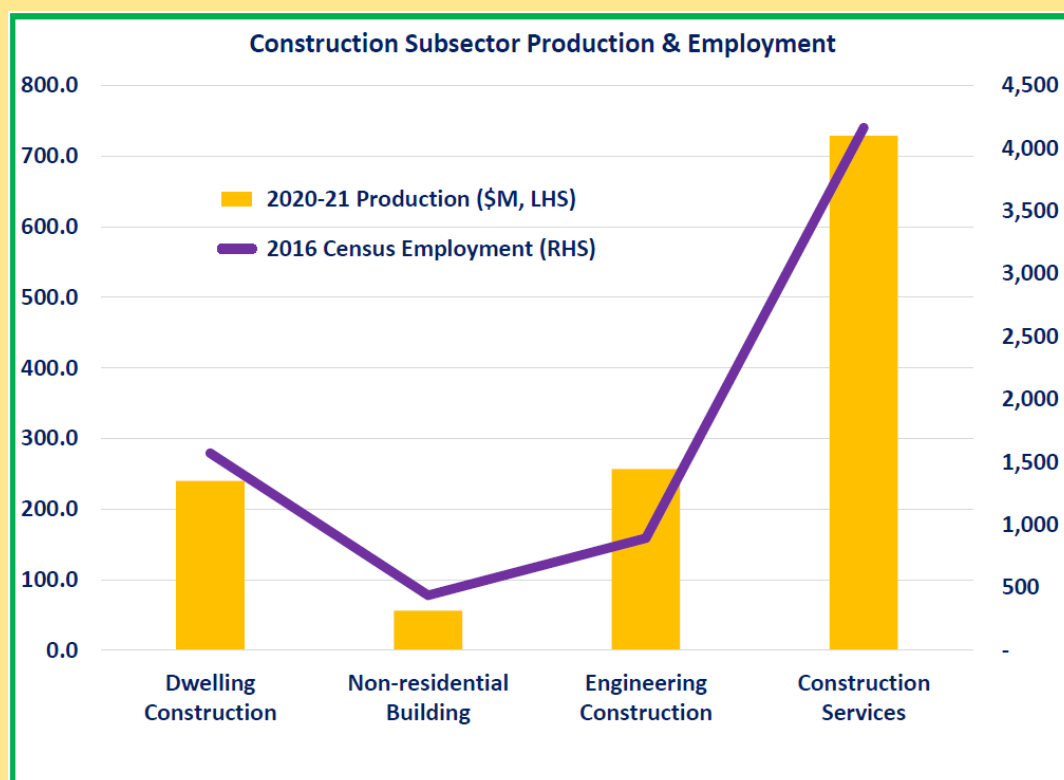
With so many homes, businesses & critical assets damaged, the Northern Rivers' construction sector & related supply chain is critical in rebuilding the region's economy. However, flooding has put the construction industry's own capacity & supply chain in question, jeopardising economic recovery.

### Scale of the Northern Rivers Construction Industry

Consistent with the region's strong population growth, construction activity in the Northern Rivers is substantial - \$1.3 billion in production, employing more than 7,000 people across the region. The industry spans four broad groupings:

1. **Dwelling construction** – roofed structures built for long-term residential use, including apartments, townhouses & free-standing houses.
2. **Non-residential building** – roofed structures that are not dwellings, but that house people, plant & machinery, vehicles, goods or livestock.
3. **Engineering construction** – any construction that does not have a roof. Examples include roads, bridges, water assets, towers, railways, pipelines & subdivisions.
4. **Construction services** – services supporting dwelling, engineering & non-residential construction activity like concreting, plumbing, carpentry or electrical.

**FIGURE 7.3: NORTHERN RIVERS' CONSTRUCTION BY SUBSECTOR**



Source: Sea & Star Advisory analysis of Australian Bureau of Statistics & National Institute of Economic & Industry Research data

With just under 60 per cent of total industry production & jobs, Figure 7.3 reflects the critical role of construction services, typically provided by local subcontracting businesses, in the construction sector's internal supply chain.

Construction's internal supply chain is complemented by broader supply chain inputs from other industry sectors, such as wood products, metal products and mineral aggregates.

### Impacts of Flooding on Construction Demand

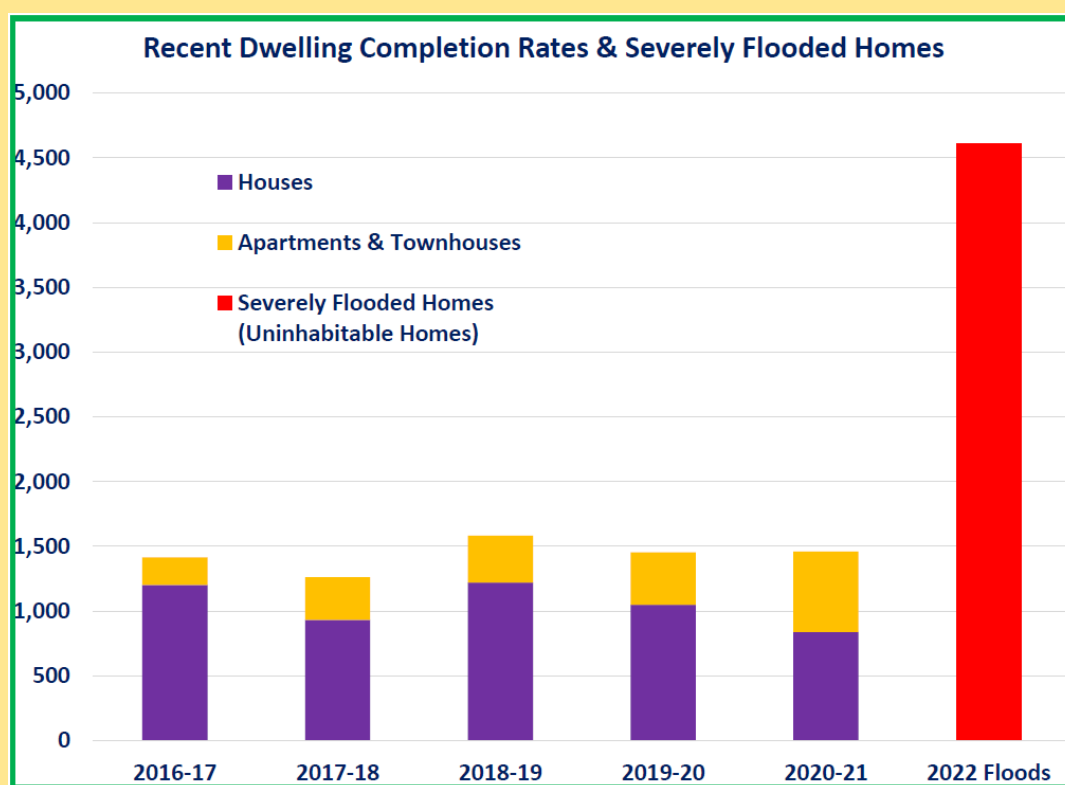
The need to repair & replace dwellings, productive buildings & critical infrastructure damaged by flooding will create construction demands across all four subsectors.

For example, we saw in chapter 5 that in Richmond Valley alone:

- repairing or replacing Council's engineering assets will cost \$100 million
- both housing & private business assets were extensively damaged.

In some respects, housing construction can be viewed as the most critical construction need of the region, given the large-scale dislocation of residents caused by the flood. State Emergency Service figures cited in the media suggest 4,600 homes across the region are uninhabitable, with 10,300 dwellings with impacts across the region. Figure 7.4 places the required number of complete or substantial rebuilds in the context of the recent dwelling completion rates.

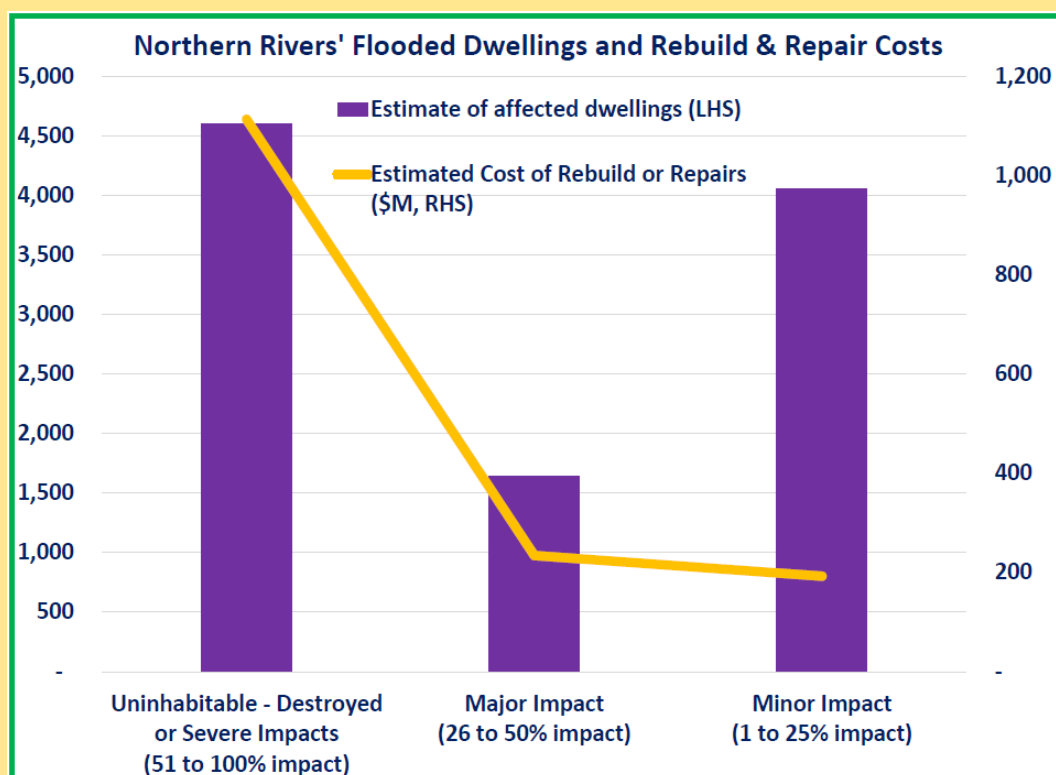
**FIGURE 7.4: REGIONAL HOUSING COMPLETIONS & FLOOD IMPACTS**



Source: Sea & Star Advisory analysis of Australian Bureau of Statistics & NSW Government data

In summary, Figure 7.4 shows the number of severely flooded dwellings is around three times recent completion rates. This implies it would typically take three years to complete a similar number of replacement dwellings.

**FIGURE 7.5: NORTHERN RIVERS DWELLING REBUILD REQUIREMENTS**



Source: Sea & Star Advisory analysis of Australian Bureau of Statistics & NSW Government data

Based on conservative costing assumptions, the profile of flood impacts suggests the Northern Rivers' rebuild & repair costs across the 10,300 dwellings may total around \$1.6 billion, reflected in Figure 7.5 below.

Large scale dwelling rebuilding reflects activity that would not otherwise occur, or would normally occur later. In-principle, this may mean reconstruction could add to regional production in the years after the initial losses. However, flood adjustment in the Northern Rivers' economy involves complicated impacts, including:

- **focus on the rebuilding effort is likely to dislocate or defer other construction activities & development activities.** For example, over the previous five financial years, the Lismore, Richmond Valley & Kyogle local government areas accounted for just 14 per cent of the Northern Rivers' dwelling completions. However, this will increase substantially with the flood rebuilding effort and is likely to attract construction resources away from the region's coastal & other areas

- the region's construction industry may become less locally integrated, with greater 'leakages' of activity reducing the Northern Rivers' overall income & activity. For example, more construction services or other building & construction inputs may be provided by businesses outside the region
- greater scarcity of resources will increase prices, and the higher costs may encourage some residents to re-locate to lower-cost localities. This would see a reduction in the productive capacity of the region over the longer term.

Adjustment processes are both complex and highly uncertain, and could leave the region substantially worse off over time. Flooding dislocated some construction workers & businesses, as well caused extensive losses of plant, premises, equipment & inventories.

Limiting unnecessary capacity disruptions in the local construction supply chain is critical to:

- accelerating the local recovery rate
- boosting housing supply capacity & cap price impacts
- limiting unwarranted leakages of activity outside the region & re-integrating the regional supply chain.

This will also avoid local supply chain replacement & consequent job losses and permanent resident relocations to localities with lower costs of living.

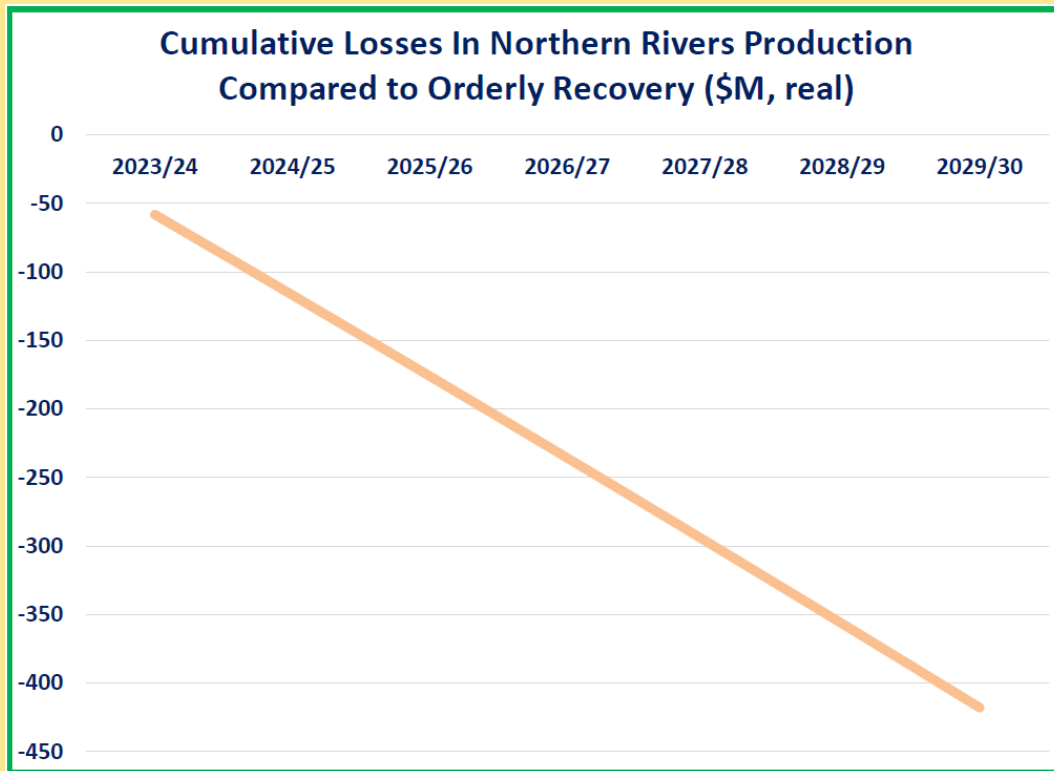
Without targeted support for key construction supply chain businesses, constraints could risk significant disruptions. The faster local supply chain capacity is restored, the smaller price impacts & risks to the extent of recovery will be.

Figure 7.6 below reflects a scenario where local supply chain disruption reduces dwelling production capacity. In turn, the disruption leads to:

- displacement of the local supply chain, reducing local job opportunities
- construction supply chain disruption & an excess increase in housing costs
  - permanently reduces construction activity by 1 per cent
  - permanently reduces the Northern Rivers population by close to 0.9 per cent
  - permanently reduces broader labour & productive capacity by 0.3 per cent.



**FIGURE 7.6: SCENARIO ANALYSIS: PRODUCTION AT RISK FROM EXCESS LOCAL SUPPLY CHAIN ADJUSTMENTS & PERMANENT DISLOCATIONS**



*Source: Sea & Star Advisory projections*

The scenario suggests the Northern Rivers' economic losses at risk from unnecessary supply chain disruptions could exceed \$400 million in the period to 2029/30.

While construction & its related supply chain is normally a core economic strength of the Northern Rivers, flooding impacts have crippled the near-term capacity of many local businesses and also put the longer-term recovery in jeopardy.

Cash flow is a critical problem. With no revenue incoming, management face difficult choices about how, or if, staff can be retained and operations continued. With operations washed out in the near term, staff are at risk of moving on while assets and input inventories are replaced. With critical operators in key markets in jeopardy, the risks of large disruptions to the recovery effort & broader economy are very real.

### 7.3 LOCALISED IMPACTS ACROSS THE RICHMOND VALLEY ECONOMY

Impacts across Richmond Valley will vary according to differences in economic structure & localised impacts of flooding.

In **Casino**, the direct impacts of flooding are more limited than for centres further down the Richmond River. With a more diverse economic base than other Richmond Valley centres, overall activity levels in Casino will also likely benefit from having sectors with short lead times for recovery. Diversion of retail activity from Lismore or elsewhere to Casino may provide some offsetting activity.

However, disrupted agricultural production and temporary dislocation of workers will have implications for major employers hoping to expand payroll over the next few years to accommodate production increases. Additionally, in Casino's broader surrounds, losses of soy beans and tea tree plantations have been extensive.

In **Coraki**, record flooding led to extensive impacts for households & businesses. With more than 37 per cent of jobs in agriculture, manufacturing & engineering, Coraki will be hit especially hard by losses in sectors likely to take longer to recover than others.

Even leading, regionally-significant local businesses in sectors well-placed for rapid recovery, face considerable difficulties in sourcing & financing new premises and operational assets.

**Woodburn** is home to a number of regionally significant businesses critical to the flood recovery effort.





More than 25 per cent of Woodburn's jobs are in agriculture, manufacturing or construction, which face long lead times for asset replacement & significant asset financing requirements. Replenishing input inventories & replacement assets as quickly as possible will reduce economic impacts.

A further 35 per cent of Woodburn jobs are in retail, accommodation & food services.

Viability of these businesses is dependent on both local population & tourist patronage. Dislocation of Woodburn residents is undermining recovery & operational viability for these key local employment activities.

The **Broadwater** region features a closely integrated sugar value chain. Altogether, agriculture, manufacturing, utilities and transport & logistics account for 70 per cent of Broadwater's jobs.

While close integration is a hallmark of local efficiency & productivity, flood recovery for these activities is co-dependent, requiring supply chain partners to resume operations.

Asset losses here have been very significant.

Broadwater's activities are capital intensive, with businesses facing critical needs to replace flood-damaged assets. Rapid financing solutions will keep long lead times for asset replacement to a minimum.

By comparison to Richmond Valley's other centres, impacts for **Evans Head** are modest:

- 35 per cent of jobs are in sectors that may see gains (retail & accommodation)
- 41 per cent are in 'rapid recovery' sectors.



## BOX 7.1 - KEY REGIONAL RECOVERY DOWNSIDE RISK: THE NORTHERN RIVERS' SUGAR VALUE CHAIN

In reviewing the impacts of the floods, the Northern Rivers' community centres, where the scale of human costs is most glaring, have been the immediate focus of attention. However, the inundation out in the paddocks has created consequences & risks that are no less real, even if more removed from view.

Even passers through the region could hardly fail to see the significant acreages committed to cane growing. However, these paddocks are just the beginning of a value chain more extensive, intricate, sophisticated & valuable than generally understood.

### The elements of the Northern Rivers' Sugar Value Chain

The sugar value chain can broadly be understood to consist of eight elements as reflected in Figure 7.7 below.

**FIGURE 7.7: 'TREACLE DOWN' EFFECTS: THE SUGAR VALUE CHAIN**

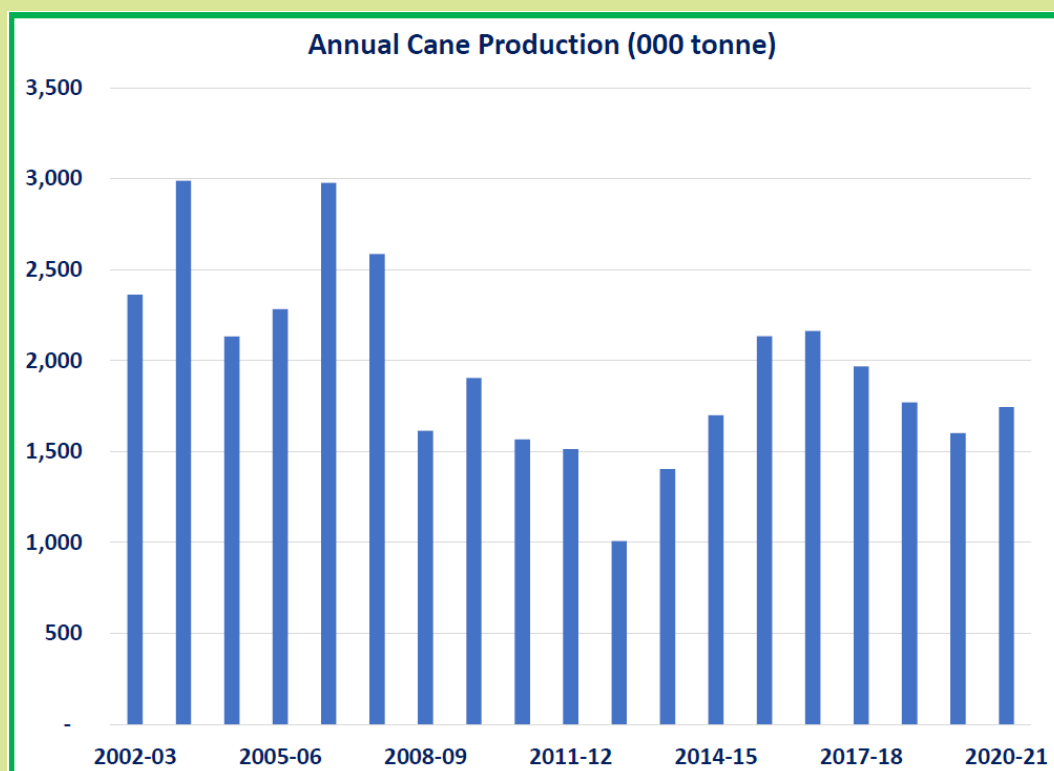


Each of the six activities, products & services and their linkages are detailed below.

### Sugar Cane Growing

Cane growing is one of the long-standing staples of Northern Rivers agriculture. Figure 7.8 on the next page depicts the profile of Northern Rivers' production levels.

Cane production levels have fallen over time, as a broader variety of crops have been introduced to the region. While production is substantially lower than in the mid to late 2000s, production levels have been relatively stable for more than a decade.

**FIGURE 7.8: NORTHERN RIVERS' CANE PRODUCTION, 2002-03 TO 2020-21**

*Source: Sea & Star Advisory analysis of Australian Bureau of Statistics data*

Geographically, the distribution of cane production within the Northern Rivers can be viewed across three distinct catchments:

1. **Clarence Valley** - the surrounds of Grafton & the Yamba - Illuka - Maclean areas produced 524,000 tonnes in 2020-21 - or 30 per cent of regional production
2. **Tweed Valley** - Murwillumbah & surrounds and Pottsville make up the vast majority of Tweed Valley cane production. Altogether, Tweed Valley's 2020-21 production came to 439,000 tonnes - or 25 per cent of regional production
3. **Richmond Valley** - the surrounds of Lismore, Ballina, Broadwater - Woodburn - Evans Head and Casino dominate Richmond Valley's production. Altogether, Richmond Valley production (together with modest output from Byron Shire) came to 776,000 tonnes - or 45 per cent of regional production.

The Northern Rivers' cane croppers realise considerable farm gate revenues off their production. Australian Bureau of Statistics' estimates put the region's 2019-20 gross farm gate revenues from cane cut for crushing at \$65.3 million - equivalent to an average revenue yield of about \$41 a tonne.

Australian Bureau of Statistics' figures for 2020-21 reflect a count of close to 500 cane growers across the Northern Rivers. Census data from 2016 reflected about 300 employees across the region. Activity & employment is highly seasonal, with cropping running from mid-June through to December.

## Milling & Crushing

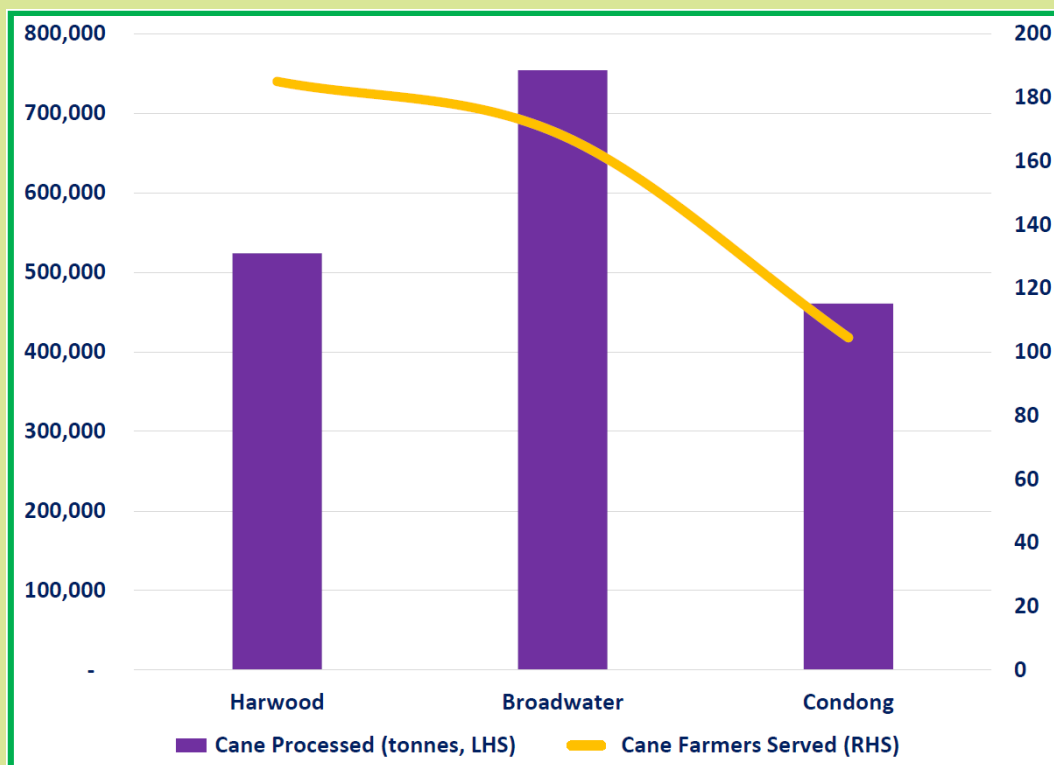
Once harvested, the cut cane begins its value added journey along the supply chain. The first processing activity is milling & crushing of the cane. While there are many aspects to the multi-stage milling process, the essentials are:

- initial shredding of the cane
- milling of the shredded cane, yielding cane juice (ultimately for molasses and sugar) & bagasse (the residual cane pulp, used in energy production)
- clarifying the cane juice, separating edible products from the 'mill mud' (used to re-fertilise the cane fields)
- separating the cane juice into molasses & raw sugar crystals
- washing & drying of the raw sugar crystals.

The Northern Rivers features three mills, situated to serve the Northern Rivers' three cane-grower catchments identified previously:

- 1.the **Harwood** mill processes the cane produced in the Clarence River catchment
- 2.the **Condong** mill processes the cane produced in the Tweed catchment, as well as some small scale production around Mullumbimby & Ocean Shores
- 3.the **Broadwater** mill processes the cane grown in the surrounds of Lismore, Ballina, Woodburn - Broadwater - Evans Head & Casino.

**FIGURE 7.9: NORTHERN RIVERS CANE PROCESSING BY MILL, 2020-21**



*Source: Sea & Star Advisory analysis of Australian Bureau of Statistics data*

Figure 7.9 on the previous page reflects mill throughput is typically greatest at Broadwater, followed by Harwood, then Condong.

### Sugar Refining

Once milled, the raw sugar is ready to undergo further transformation. All of the Northern Rivers' raw sugar is refined at Harwood. In contrast to cane growing, which runs from June to December, the refinery runs as a year-round operation.

In a similar way to milling, the refinery process involves a series of elaborate processes. The essentials of these processes are:

- liquifying the raw sugar crystals
- clarifying & filtering the liquid
- removing the colour from the liquid through ionisation treatment
- separating the now-white sugar from the molasses
- drying & packaging the refined white sugar.

Milling & refinery activities support hundreds of jobs and supply of retail & industrial sugar products to markets across Australia. While the cutting & crushing season means some of these roles are for only part of the year, they also allow for workers to participate in other activities along the value chain (like truck driving or logistics).

### Freight & Logistics

Whether as an industrial commodity or consumer product, freight movements are a critical element of sugar's value chain. Together with the markedly greater scale of Queensland operations, the logistics task is a clear point of difference between the sugar industries of the Northern Rivers & Queensland:

- more than 80 per cent of Queensland bulk raw sugar is exported, meaning the logistics chain focuses on getting product to port
- the Northern Rivers' chain focuses on domestic retail & industrial markets
- consistent with its long distances to market, need for connections to port gateways & product profile, rail freight plays a large role in Queensland's network
- the Northern Rivers' sugar logistics chain is exclusively made up of road freight.

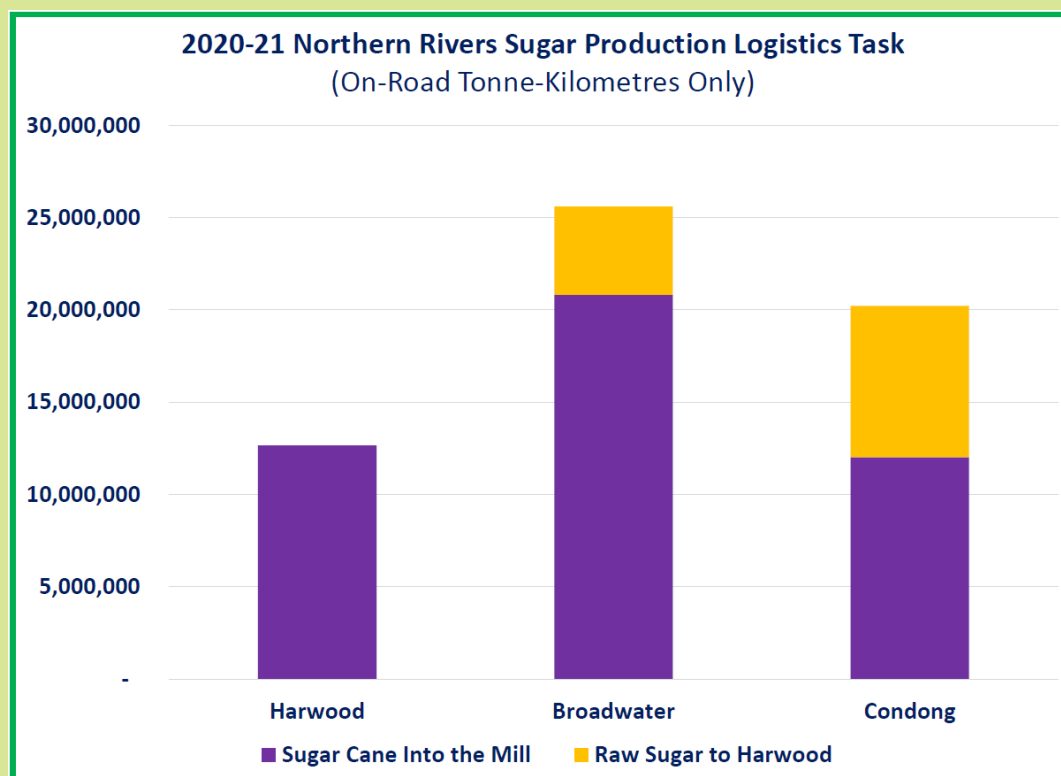
The road freight task for the Northern Rivers' sugar chain can be broken down into a number of subtasks, as follows:

1. transporting sugar cane from farms to mills
2. moving the milled raw sugar to refineries
3. moving sugar & molasses products to market
4. moving by-products into energy production, or returning it to fertilise cane crops.



Cane catchment analysis suggests that the average on-road trip length from cane field to mill is just 26 kilometres. Figure 7.10 below reflects the Northern Rivers' cane haulage is the bulk of a 58 million tonne-kilometre on-road freight task across the sugar chain's production phase. Industry assessments have suggested off-road haulage (through the cane fields) is as much distance again. As the highest production mill, Broadwater also sees the greatest freight movements.

**FIGURE 7.10: ROAD FREIGHT TASK FOR SUGAR PRODUCTION**



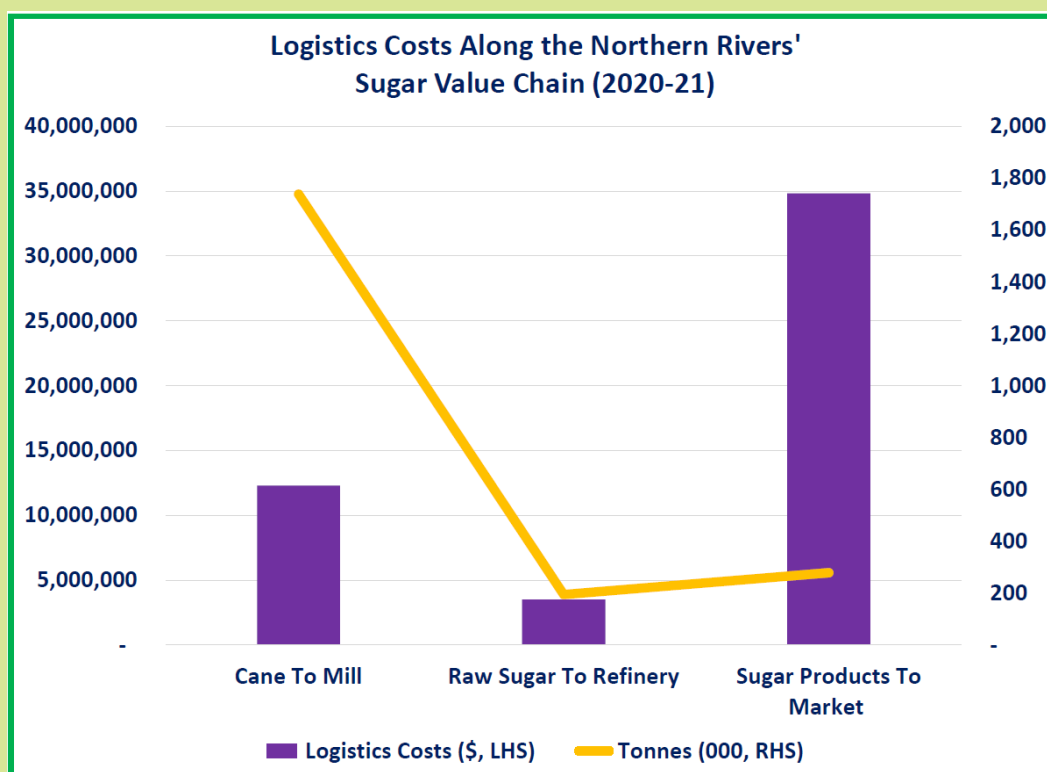
*Source: Sea & Star Advisory estimates using ABS data*

But while production phase logistics emphasises getting cane to the mill, getting finished products to market is more significant again. Figure 7.11 on the next page reflects the dominant role of post-production freight in the logistics cost structure.

While the freight volumes taken to market are much lower than cane volumes, trip lengths are much longer, with Sydney & Melbourne predominant in demand.

The Northern Rivers' profile of activity & employment in sugar chain logistics is best understood in two parts:

- **seasonal transporting of cane to mill mid-June to December.** These activities are both highly intensive & sophisticated. A fleet of 32 purpose-designed trucks, staffed by teams of three drivers among a driver headcount of 100 each season. Cane juice spoils within 16 hours once cut, so trucks run round the clock, other than when being serviced. Highly scheduled logistics are needed to balance milling efficiency with avoiding spoilage, through careful integration & optimisation of cane-cutting, truck movement and milling activity.

**FIGURE 7.11: LOGISTICS COSTS ALONG THE SUGAR VALUE CHAIN**


Source: Sea & Star Advisory estimates using ABS data

- **year-round road freight getting product to market.** More than 30 transport companies across the country help to sustain supply to more than 300 retailers, wholesalers and food & beverage manufacturers. The sugar chain freight cost structure in Figure 7.11 suggests these movements directly support **about 120 full time equivalent jobs** in the road transport sector alone.

### Power Generation

Crop harvesting & processing activities typically yield not only a primary product, but also biomass - the residual plant-based wastes & residues capable of being used as a fuel for producing heat or electricity.

Figure 7.7 reflected that in addition to sugar products, processing also realises a number of by-products of economic value. In the sugar industry, the biomass residues left from crushing are known bagasse (cane-pulp).

Using bagasse as an energy source is a long-established Northern Rivers practice. By co-locating a power plant on-site alongside the mill, heat, steam & electricity can be applied in crushing & milling processes. Milling operations integrate two power stations integrated at Broadwater and Condong. Other biomass is used for fuel outside of the crushing season.

Integrating power generation with milling means what is otherwise a waste product is instead applied as a resource. This increases efficiency, avoiding double-handling & freight movements, as well as environmental outcomes by harnessing bagasse.

If left to rot, bagasse's decomposition leads to methane emissions. By harnessing bagasse's potential, community demands for energy can be met from a renewable resource, fuelling baseload electricity supply, with no net impact on greenhouse emissions.

Transforming bagasse that might otherwise be a waste product into a resource also has a revenue implication for canegrowers & their crops. **Revenues booked from bagasse sales also amount to millions of dollars annually.**

### Power Transmission

As the energy demands of Broadwater & Condong mills are well below the energy potential of the power stations & biomass produced, the excess electricity is exported onto the grid for use across the Northern Rivers.

Unlike some other sources of renewable energy, biomass fuels can support baseload power across peak demand periods, as biomass fuels can be used around the clock as required. This typically serves a significant share of the Northern Rivers' energy needs, as well as providing significant employment.

### Flooding's Impacts Along the Sugar Value Chain

The floods created widespread, significant impacts along the sugar value chain.

Operating asset damages exceed \$100 million with loss of cane crops & throughput along the chain likely to create further impacts. Insurance should cover some of the losses, but re-pricing of premiums looks set to render future coverage of milling & refining assets uncommercial:

- **cane farmers** lost both operational assets & the crops themselves. First-year plants will generally prove unviable given the extent of flooding. Older crops should generally prove resilient, although their yields will be impacted. In many cases, the extent of crop & yield losses remains unknown, as not all floodwater has receded, or has returned, or crops otherwise remain difficult to assess.
- **cane mills** suffered significant inundation: Harwood had a metre of water through the mill; Condong had a metre of water throughout its site; Broadwater was worst affected, with more than two metres, which only receded slowly.
- **Harwood refinery** and related assets were also impacted, with around three weeks' production lost. Thankfully, floodwaters did not reach the sugar shed, packing floor or warehouses and the site should be fully operational for the crush.
- **logistics operators** have suffered from disrupted production at Harwood, as well as loss of fleet, amid a strong spike in fuel costs. Vehicles are now in short supply across the Northern Rivers, with long lead times for replacement
- damage to **power generation, transmission and related assets** was also extensive.

### Key Downside Risks to Flood Recovery Along Sugar Value Chain

The close, intricate integration of the Northern Rivers' sugar value chain, normally a central feature of its economic success, is now creating material uncertainty about the rate and extent of its recovery.

Uncertainty stems from interdependence of supply & demand along the chain, with each requiring other firms or industries to resume production as quickly as possible:

- milling & refining activity depends on the crop damage, crop yields and re-planting decisions of cane farmers
- recovery in demand for logistics will reflect crop damage, crop yields, plantings and production at the mills & the refinery
- energy production & transmission potential depends not only their own asset replacement, but also the availability of bagasse, making them dependent on crop damages, yields & re-planting decisions.

Sea & Star Advisory estimates the Northern Rivers' sugar value chain provides around 1,800 local direct jobs annually. The heavy concentration of these activities means that some communities face particular risks to their recovery.

For example, 70 per cent of Broadwater's jobs are in agriculture, manufacturing, logistics & energy. This creates a concentrated economic risk of negative social & economic 'ripple effects' if a lack of recovery in one sector drags on the others. In a severe case, this risk could prevent recovery altogether.

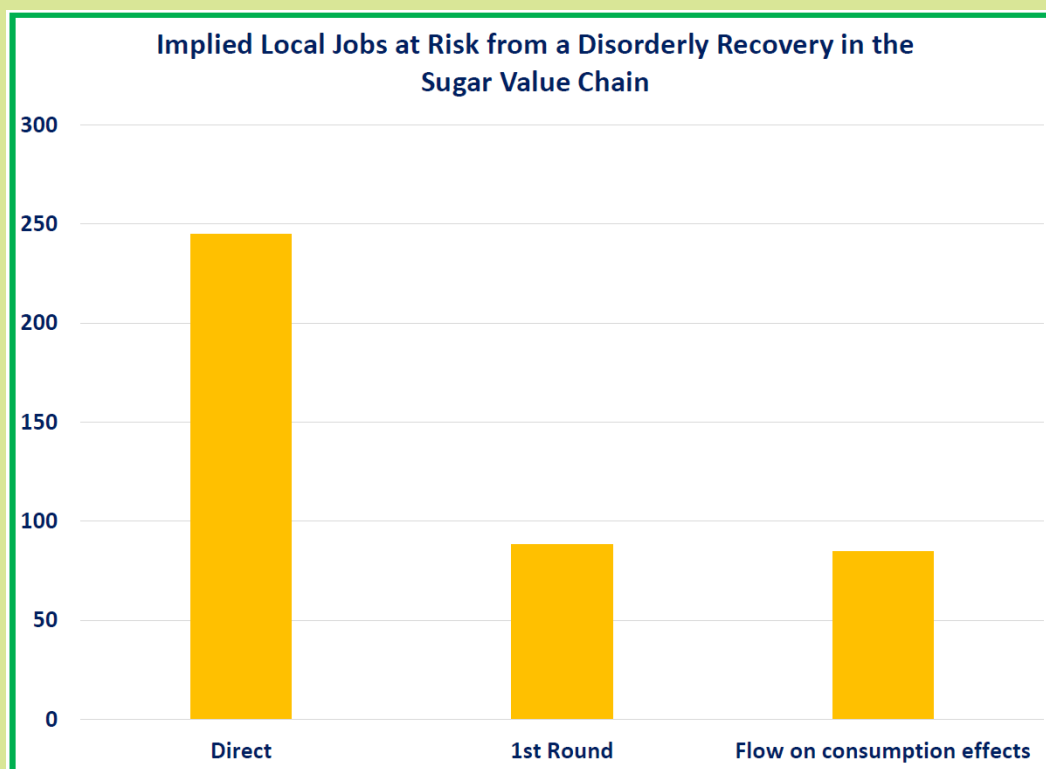
This estimate of direct local jobs is informed by both data and consultation with local businesses, with not all jobs on a full time basis. It is notable that in addition to these direct local jobs, the activities in these industries are also likely to:

- support jobs outside the Northern Rivers
- support more jobs again indirectly across the Northern Rivers economy.

Figure 7.12 on the next page reflects a scenario estimating the jobs at risk from disorderly recovery in the Northern Rivers' sugar value chain. In summary, this scenario reflects the local jobs implied to be at risk from a 30% reduction in throughput along the sugar value chain, as follows:

1. cane crop wash out & yield reductions are assumed to see the cut cane delivered to the mills fall by 30 per cent to around 1.2 million tonnes
2. the raw sugar & molasses yielded from milling fall to around 160,000 tonnes
3. Harwood's yield of refined sugar falls to about 150,000 tonnes, with an equivalent fall in the outbound freight task to get sugar products to market
4. delays in sourcing replacement assets and reduced availability of bagasse means only one power generator is operational.



**FIGURE 7.12: SCENARIO ANALYSIS: 30% THROUGHPUT SHOCK**

*Source: Sea & Star Advisory projections*

Sea & Star Advisory estimates this scenario could entail an adverse impact on production of around \$90 million and put a quarter of the Northern Rivers sugar chain jobs in question. If recovery were further prolonged, the household income & consumption impacts could put jobs in the region's broader economy at risk.

Neither farmers nor governments can influence the loss of cane yield from floods. However, governments can increase industry's confidence & capacity for orderly recovery by:

1. closely reviewing asset replacement needs, lead times & financing requirements
2. encouraging orderly re-planting of cane crops where damaged
3. ensuring major employers have both sufficient cash flow & confidence that recovery is on-track
4. ensuring re-pricing of insurance premiums does not jeopardise operational viability.



# PART D: AN ACTION PLAN FOR EFFECTIVE RECOVERY

Part D (chapters 8 & 9) of this Report:

- identifies key community & economic needs
- formulates some initial priority actions to underpin a successful recovery.

# 8: Key Community & Economic Needs

## 8.1 ECONOMIC & SOCIAL STABILITY

Richmond Valley & the Northern Rivers communities have suffered a scale of shock & disaster difficult to grasp.

Even compared to terrible past disasters like the 2019 bushfires, disruption & disorder from the 2022 floods is on a new scale to what communities have endured before.

Any lives lost, homes destroyed or workplaces shattered by disaster create ripples of trauma, stress & despair across a community. However, social impacts & risks from flooding overshadow past disasters.

Home, shared with those we love, and workplace, shared with neighbours in creating value, are staples of daily life. In destroying so many homes & workplaces, the floods also swept away the sense of normalcy, making it now seem a remote possibility for many.

Many people may have a sense of being far removed from yesterday, with little left to be taken for granted. Significant uncertainties cloud the path to recovery.

Some uncertainties are unavoidable for now. But as well as unavoidable issues, delays & perceptions of limited government direction or support fuelled further question marks.

The minds of some residents & business owners are questioning not just how & when, but also if & where, recovery occurs.







The fabric of Richmond Valley & Northern Rivers communities offers wonderful diversity in places to live, work, enjoy & prosper. The region's success is clearest in the number of people drawn to it, and the growing extent and reach of its products & services.

Recovery's first-order priority is stability - sustaining the social & economic fabric that made the Northern Rivers such a success in the first place.

Strong, active engagement & support from all governments will offer much-needed sources of stability. This will make it easier for all households & businesses - including those already dislocated, or at risk of dislocation - to resume a prosperous future in the region.

## 8.2 RESTORING HOUSEHOLDS

The practical tasks of cleaning out, and beginning repair & replacement houses to restore households have begun. Many tasks remain, but progress at least is clear for many, instilling confidence and helping encourage & sustain their recovery efforts.

However, progress has been uneven. Many communities & households have seen delays in the clean-up, let alone progress in restoring their housing & households.

Many residents are also questioning where they will get the resources from to repair, rebuild & restore a normal way of life. These questions trigger others, including the *if* and *where* recovery can be found.

It is understandable if some residents don't want to restore their households in the same place, in the same way & face the risk of future flooding doing the same again.



Irrespective of individual households' circumstances & decisions, the essentials of effective community recovery are that:

1. **people are actively supported in making such difficult choices** in so difficult a set of circumstances
2. **people have a clear sense of support for a pathway to recovery**, wherever they choose
3. **people feel like they have options, especially options to remain in the region**, including alternatives for pursuing recovery at new residences in locations with reduced flood risks.

### 8.3 REBUILDING THE ECONOMIC BASE

As for households, businesses were sent reeling by a scale of disaster they could not have practically planned for. In recovery, businesses' front of mind considerations are:

- **cash flow.** The key recurring question among businesses was how to sustain wages for long-standing, loyal staff they know need the money to begin restoring their households. With production & revenue cut by asset losses & limited input availability, 'how to keep the lights on' is a widespread, recurring question
- **assessing asset damage & replacement needs.** The extent of losses is unclear, with difficulties sourcing replacements exaggerating the need to repair assets
- **lead times for asset replacement.** COVID-19 already meant long lead times, made worse by flood scarcities & high demand
- **financing asset & input replacement.** As well as cash flow for wages, businesses face challenges in financing new assets when insurance payouts may be delayed, or bank finance re-priced amid low revenue & different perceptions of risk





- **regional labour supply & consumer demand.** A number of businesses indicated their grave concerns about the risks of residents being permanently dislocated from the Northern Rivers, reducing both regional labour supply & consumer demands they rely on or serve
- **insuring assets & operations.** Businesses indicate insurance markets already operated imperfectly before the floods, altogether refusing coverage at any price, even for assets & operations situated well above previous record levels for flooding. After the floods, market limitations mean businesses have few choices to self-insurance, irrespective of their capability for understanding & administering these arrangements efficiently.
- **regional supply chain linkages.** Some businesses reported they were at risk of losing critical local supply chain linkages, creating risks of compounding losses in output along the regional economy's supply chains
- **navigating government administrative requirements to access assistance.** Ahead of the release of a broad joint state & federal assistance package on 18 March 2022, many businesses expressed concern that administrative requirements were hampering regional recovery. Businesses drew unfavourable comparisons between the requirements of the grants immediately made available by the Commonwealth, and the relative ease & effectiveness of the JobKeeper & JobSaver schemes.

# 9: Priority Action Plan

## 9.1 REINSTATE JOBKEEPER TO UNDERPIN STABILITY & CERTAINTY

Chapter 8 identified the community's foremost needs for recovery included:

- underpinning economic & social stability to instil confidence in regional recovery
- addressing concerns of businesses about how they could continue to finance the wages of their staff, given:
  - those wages are essential to restoring households, yet
  - business cash flows are under immediate pressure from lost inputs, inventory, assets, output & revenue
- addressing business perceptions of significant risks of household dislocations permanently disrupting both the region's labour supply & consumer demand.

The businesses consulted universally took a very positive view, without prompting, of the design of both the Commonwealth JobKeeper & NSW JobSaver schemes.

The schemes' design proved an excellent policy innovation. Commonwealth Treasury's *Insights From the First Six Months of JobKeeper* notes the scheme's design:

- integrated objectives to *support business and job survival, keep employees connected to their employers, and provide income support to individuals.*
- met the need to provide certainty & address risks quickly to avoid severe economic outcomes.





The Richmond Valley & the Northern Rivers communities have similar needs for certainty & avoiding severe outcomes today. Instead of limiting application of this policy innovation to COVID-19 alone, design should be tailored to the circumstances of a large-scale natural disaster of extreme severity.

More specifically, the design of a revamped Jobkeeper or JobSaver for Flood Recovery could sustain the nexus between:

- employers
- employees AND
- recovery in the Northern Rivers region.

As for JobKeeper & JobSaver, a Northern Rivers flood recovery scheme could be:

- targeted on extreme revenue losses
- be subject to ongoing review, given uncertainty around how quickly assets might be replaced and recovery comes.

Service NSW figures suggest the JobSaver scheme provided \$7.14 billion to 207,231 recipients - an average grant of around \$34,500 per recipient.

Northern Rivers' businesses most likely to see prolonged impacts from the floods are capital-intensive, land-intensive businesses & related businesses along supply chains.

Australian Bureau of Statistics' business count data suggests the Northern Rivers has about 3,100 employing businesses across the agriculture, manufacturing, utilities, wholesale, hospitality & logistics groupings.

Even if all these businesses received the average JobSaver grant, high-level indicative costs would be \$107 million - or less than 15 per cent of the cost of the joint assistance package announced on 18 March 2022.



## 9.2 ACTIVELY REVIEW ASSET & INPUT REPLACEMENT NEEDS & LEAD TIMES

In chapter 8, we saw that businesses' review of asset impacts is ongoing. With businesses unable to replace assets quickly, and uncertain of the extent of replacements required, there are risks the region's recovery could be drawn out & delayed.

For example, the profile of modelling presented in chapter 7 reflected an assumption asset replacement & recovery would be complete by the end of the 2022/23 financial year. However, it is also plausible that it might take much longer to replace & restore assets, given broader impacts on supply & logistics from COVID 19.

All levels of government should continue to engage with affected businesses to better understand the detail of impacts in industry and clarify the risks to the rate of recovery.

## 9.3 ACTIVELY MONITOR FINANCE & INSURANCE MARKET RESPONSES

Closely related to the need to acquire new assets are businesses' ability to first finance, and then insure, the new assets effectively.

Inability to acquire effective insurance coverage from the market, requiring a choice between potentially complex self-insurance, or no coverage at all. Either option undermines the resilience of the region & the robustness of its recovery.

Both the businesses of the region and their providers of financial & insurance services have to respond to a disaster of great scale and rarity. Grants, concessional loans or help with self-insurance may be required to address risk-aversion or other re-pricing in financial services markets.



## 9.4 CREATE NEW OPTIONS IN THE REGION FOR HOUSING & INDUSTRIAL LANDS WITH LOWER FLOOD RISKS

Chapter 8 identified that a key element of flood recovery was ensuring households have options, including alternatives to re-housing residents in lower flood risk areas.

In providing greater options, the Northern Rivers will increase its capacity to retain its population & workforce - including those residents who understandably don't want to face the same risks of flooding again.

One of the great advantages of the Northern Rivers is that it truly functions as a region - including that it is commonplace for its residents to live in one locality, while working elsewhere. Strong commuting patterns in Census data include flows of:

- Ballina & Byron workers along the Bruxner Highway to jobs in Lismore
- Richmond Valley residents into Lismore
- Tweed residents onto the Gold Coast
- Yamba & Maclean residents into Grafton.

Extensive commuting trends like these are more typical of metropolitan areas.

An implication of a mobile labour force, willing to commute extensively across the region, is that a broader range of housing & employment combinations are feasible.

The Department of Planning, Industry & Environment's *2036 North Coast Regional Plan* includes local urban growth area narratives & maps. These local narratives set out priorities for putting the Plan's strategic directions into action 'on the ground'.



For Richmond Valley, the *North Coast Plan* establishes several significant strategic directions directly relevant to flood recovery efforts, including:

- 1.deliver new housing in Rileys Hill, Evans Head, Woodburn & Casino
- 2.enhance the variety of housing options available in Casino, Evans Head & Coraki
- 3.deliver new employment opportunities at Casino, Woodburn, Broadwater & Evans Head
- 4.support the local agricultural sector and associated value-adding industries, such as the NSW Sugar Mill and Richmond Dairies at Casino.

In considering opportunities to deliver new housing supply & employment opportunities in areas with reduced flood risks, careful consideration should be given to opportunities to repurpose farmland in suitable quantities.

Selective rezoning of highly amenable, well-located land can address demand for new housing carrying minimal flooding risks, without undermining the viability of key agricultural activities in the region.







