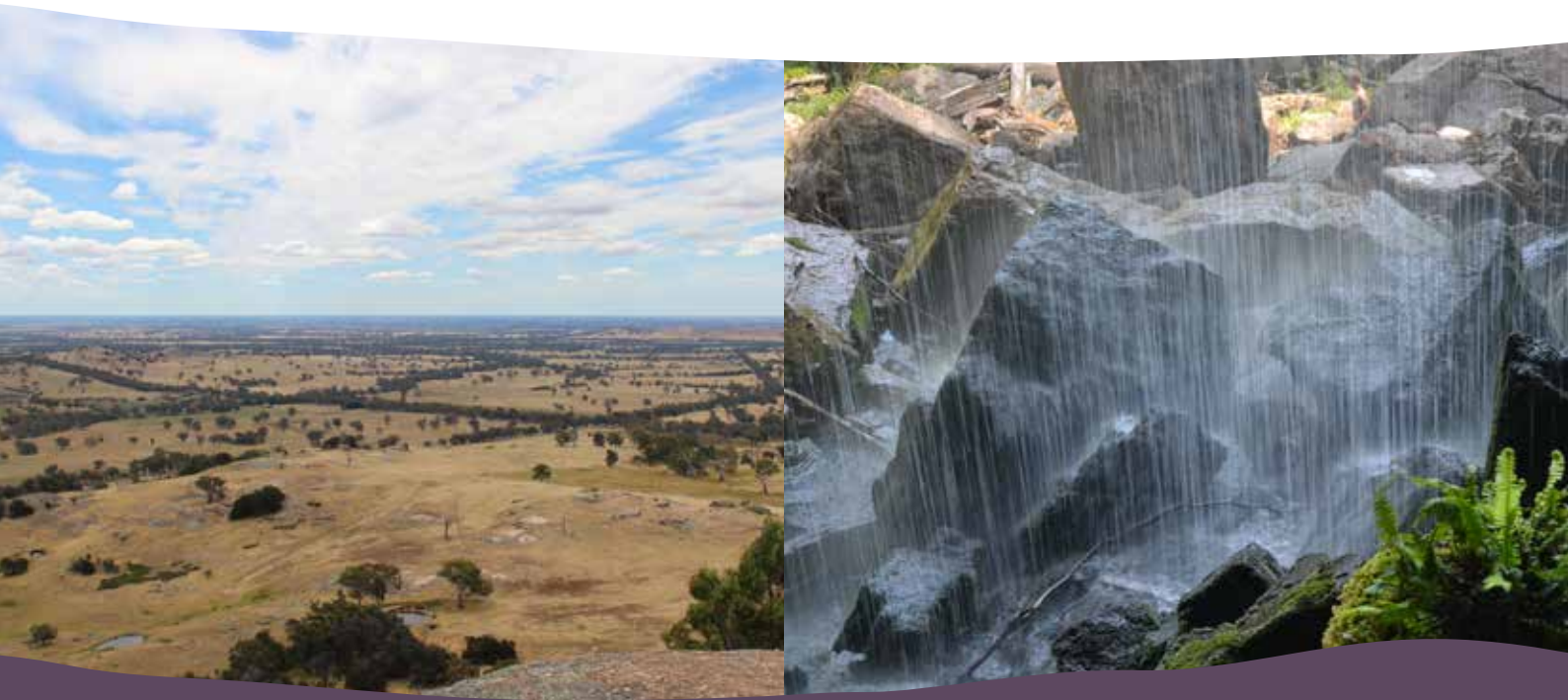




**GOULBURN  
BROKEN**  
CATCHMENT  
MANAGEMENT  
AUTHORITY



# READY FOR CHANGE

EVALUATION STRATEGY FOR THE  
GOULBURN BROKEN CATCHMENT

2017-22

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<http://www.gbcma.vic.gov.au> Phone: 03 5822 7700

Findings, conclusions and recommendations apply to the scope of services described in the agreement and in subsequent conversations between Rod McLennan and Associates Pty Ltd and the Goulburn Broken Catchment Management Authority.

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## ACRONYMS AND TERMS

<b>CMA</b>	Catchment Management Authority
<b>Deliverable</b>	Something that can be delivered to fulfil a contract
<b>DELWP</b>	Department of Environment, Land, Water and Planning
<b>GB CMA</b>	Goulburn Broken Catchment Management Authority
<b>NRM</b>	Natural Resource Management
<b>RCS</b>	Regional Catchment Strategy
<b>SES</b>	Social-ecological system
<b>SIRLWMP</b>	Shepparton Irrigation Region Land and Water Management Plan
<b>SIRPPIC</b>	Shepparton Irrigation Region People and Planning Integration Committee
<b>Social-ecological system</b>	A linked and generally similar system of people and nature, taking into account cultural, political, social, economic and technological components (Goulburn Broken CMA 2013)
<b>VAGO</b>	Victorian Auditor-General's Office
<b>VCMC</b>	Victorian Catchment Management Council

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# THE ONE-PAGE SUMMARY

## AIM, PURPOSE AND GOALS

The aim of evaluation processes is for the Catchment's people to continue to be quick in adapting to changing circumstances while retaining a strong sense of the RCS's long-term vision.

The purpose of this ready for change strategy is to support evaluation processes that make the RCS responsive to unforeseen and shifting circumstances.

The purpose will be achieved by committing to six long-term goals for evaluation processes:

1. Stronger cases for investment.
2. Reduced costs for groups and agencies to compile data.
3. Better community participation in decision-making.
4. Easier-accessed information for decision-makers.
5. Better agency collaborations.
6. More timely decision-making and action.



## POLICY DIRECTIONS

impact on 1 or more of the 6 goals

## 5-YEAR TARGETS

for implementing policy directions

**1. Scientifically validate progress and clearly communicate it**



1.1 Knowledge gaps continue to be identified and assumptions are addressed through collaborations with researchers and investors  
1.2 A consistent set of indicators (developed with other CMAs) is used

**2. Align CMA, government and other funder datasets**



2.1 'Goulburn Broken CMA standard outputs' continue to be used locally  
2.2 Statewide reports emphasise use of the model:  
Outcomes = Outputs x Assumptions

**3. Provide opportunities for community partners in contributing to evaluation and improvement**



3.1 Reports to the community include data that community members have provided  
3.2 Technologies developed to enable community partners contribute their data and immediately view it

**4. Present CMA data consistently across programs and geographic areas, based on the RCS**



4.1 The CMA's annual report continues to be the vehicle for developing consistent narratives across the catchment  
4.2 Progress within each SES is reported and evaluated annually  
4.3 Progress in implementing the RCS is reported annually, especially:  
– vision and purpose  
– 6-year strategic objectives and priorities  
– Goulburn Broken CMA's annual output 'deliverables'  
4.4 Stakeholders navigate reports via spatial, web-based technology

**5. Support agency partners in catchment evaluation and improvement**



5.1 Agency partners have been supported to report on RCS contributions funded through the CMA  
5.2 Agency partners have been supported to report on contributions to NRM not funded through the CMA

**6. Make CMA plans truly adaptive**



6.1 The schedule of major evaluations across the Goulburn Broken CMA is continually updated  
6.2 Each SES and program manager reports on evaluation processes within each SES and across each Goulburn Broken CMA program annually  
6.3 A risk (and opportunity) approach is used to sharpen adaptive management at the SES-scale, underpinning the resilience approach

# 1. INTRODUCTION

The Goulburn Broken regional community is renowned for responding swiftly to changing circumstances while remaining focused on the long-term vision. The seeds of this responsiveness were sown in the late 1980s, when a co-ordinated whole-of-community approach to manage salinity was pioneered.

The community has responded to numerous major changes since 2000, including:

- major impacts of unprecedented droughts, floods and wildfires
- new challenges, such as the transfer of significant volumes of consumptive water to environmental water
- shifting institutional responsibilities and political influences
- creation of large areas of national park
- on-ground technology improvements, especially how water is delivered and managed on irrigation farms
- changes in the types of entity managing private land, especially irrigated dairy farms where the trend is towards larger enterprises
- communication technology improvements and the explosive growth of social media
- changes to what is regarded as a 'community': how people relate to each other in their localities
- dealing with multiple, and now more often overlapping, events and policy changes.

Against this continually changing decision-making context, the Goulburn Broken Regional Catchment Strategy's (RCS) includes the strategic objectives:

- Embed resilience so that all aspects of the Goulburn Catchment RCS factor in sub-catchment and local differences, uncertain futures and knowledge, appropriate governance support, and adaptive management. (This is about tailored approaches.)
- Strengthen partnerships so that community and industry groups, agencies and individuals have the capacity to contribute to the Catchment vision (Goulburn Broken CMA 2013).

Evaluation processes are the building blocks of the adaptive management cycle and are critical in achieving these strategic objectives. This 'ready for change' strategy helps to clarify and define what is needed from evaluation processes. It provides the structure and content (via the aim, purpose and goals (below), policy directions (section 3), and 5-year targets (section 4)) that supports periodic monitoring, helping the many evaluation processes within the Catchment to be aligned with the RCS's direction. (The following page and section 2 includes further background on the resilience-approach.)

The aim of evaluation processes is to help the Catchment's people continue to be quick in adapting to changing circumstances, while retaining a strong sense of the RCS's long-term vision.

The purpose of this ready for change strategy is to support evaluation processes that make the RCS responsive to unforeseen and shifting circumstances.

The purpose will be achieved by committing to six long-term goals for evaluation processes:

1. Stronger cases for public investment in NRM.
2. Reduced costs for community groups and agencies in compiling data.
3. Better community contributions to decision-making.
4. Easier-accessed information by decision-makers.
5. Better agency collaborations.
6. More timely decision-making and action. In working towards these goals, several other needs will also be accommodated, including:
  - guiding completion of the Goulburn Broken CMA's annual report, which is tabled in Parliament as a statutory requirement under the Catchment and Land Protection Act 1994)
  - compliance with investor requirements
  - contributing to broader knowledge and scientific investigations into catchment management.

## WHO THIS STRATEGY IS WRITTEN FOR

This ready for change strategy has been written for people who are making strategic decisions affecting Goulburn Broken CMA programs, particularly Board members and senior staff of the Goulburn Broken CMA and partner agencies.

This plan is deliberately set at a high, strategic level: further details will be provided in an annual evaluation action plan and in evaluation plans (outlined in section 4) tailored for:

- Goulburn Broken CMA's six social-ecological systems
- Goulburn Broken CMA's investment areas – biodiversity, land health (including dryland salinity), invasive plants and animals, environmental flows, riparian and instream habitat and channel form, water quality (nutrients) in rivers and streams, floodplain management (Goulburn Broken CMA 2016).

## GOULBURN BROKEN CMA'S HISTORY OF EVALUATION

The Goulburn Broken CMA's approach to evaluation stretches back to the 1980s. There has since been an ongoing emphasis on building lessons of evaluation and emerging issues into strategy design (see the RCS and sub-strategy evolution record in appendix 2).

This strategy updates the Monitoring, Evaluation and Reporting (MER) Strategy for the Goulburn Broken Catchment 2004 (Garrett and McLennan 2004) that was prepared with funding through the National Action Plan for Salinity and Water Quality.

A 2015 analysis of the list of actions from the 2004 strategy found that all actions have been progressed, with 28% "done", 63% "lots done, more to do", and 9% "some done" (for internal use, click here for the analysis of the list and click here for a more comprehensive review of progress; McLennan 2016). While the status of the relevant actions from the 2004 strategy will again be checked, their essence is captured in this higher-level update. The detail in the 2004 strategy, such as evaluation principles, remains pertinent and provides further background to this 2017 version.

As funding for evaluation and planning in many NRM disciplines has declined since 2004, the annual report has become an important, ongoing vehicle for recording long-term progress and thinking.

The RCS emphasises a 'resilience approach' and the associated 'adaptive management', which has implications for the data gathered for evaluation. Various climate change projects since 2012 have progressed thinking on how adaptive management might be applied in practice. The former Murray Catchment Management Authority established an adaptation strategy that provides several useful conceptual ideas on how to apply resilience thinking (Murray CMA 2013).

The RCS's 'Evaluation and adaptation' chapter (table 16, page 67) commits the Goulburn Broken CMA to review (at various set times) the RCS, the vision, the purpose, and 6-year strategic objectives and priorities as part of 'embedding the resilience approach' (Goulburn Broken CMA 213).

Further discussion about the Goulburn Broken CMA's approach to evaluation are in the RCS 2013-2019 and appendix 1 of Goulburn Broken CMA annual reports (from 2008-09 until 2015-16).

DELWP is working with CMAs, the Victorian Catchment Management Council (VCMC) and other key stakeholders to implement five actions from VAGO's report (appendix 3). These actions are reflected in this update of the Goulburn Broken MER strategy.

Flowing from VAGO's report, DELWP, the VCMC and the CMAs released Our Catchment, Our Communities – Integrated Catchment Management in Victoria 2016-19 (Victorian Government 2016). Appendix 1 shows the links between Our Catchment, Our Communities and this ready for change strategy.

## VICTORIAN AUDITOR-GENERAL'S OFFICE (VAGO) REPORT 2014

In its 2014 report on the Effectiveness of Catchment Management Authorities, VAGO concluded:

*'The Department of Environment and Primary Industries and CMAs face significant and escalating challenges if they are to meet the core objectives of the Catchment and Land Protection Act 1994...*

*...Statewide catchment conditions are poorly understood because of inconsistent assessment methods and a number of deficiencies in the adequacy and quality of data collected.'*

The VAGO report favourably singled out the Goulburn Broken CMA for having an evaluation framework and routinely reporting on progress in implementing the RCS. However the Goulburn Broken CMA recognises that communication of progress towards RCS objectives still needs significant strengthening.

The Goulburn Broken CMA has persisted in improving evaluation at strategic levels, including better understanding the links between programs, and the benefits of integration, despite funding-requirement trends during much of the last decade towards evaluating finer levels of project detail, often in isolation from broad and long-term impacts.



## 2. THE DECISION-MAKING CONTEXT FOR NRM EVALUATION AND ADAPTATION

Victoria's ten CMAs are the major decision-making interface between government funders and the community. The CMAs provide cross-agency and cross-sectoral support for developing integrated service-delivery programs.

This section highlights the causes of major challenges for the Goulburn Broken CMA, as the Catchment's key NRM decision-maker, in evaluating progress and making change happen.

### CAUSES OF MAJOR CHALLENGES FOR EVALUATION

#### 1. The complex system of people and nature

The countless relationships in our complex system of people and nature creates a risk of spreading scarce resources and efforts too thinly in trying to achieve RCS objectives. We must focus on actions that have the highest impact on the functioning of this complex system.

#### 2. A highly integrated and changing operating environment

Evaluation activities vary enormously in scope, from highly complex, integrated issues to single issues. Overlap between evaluation activities is unavoidable. Duplication can be reduced by identifying linkages between activities and aggregating data at various levels.

National and state government investors continue to be subject to significant and increasing accountability pressures, which often manifests in confused requests for very detailed information on outputs and outcomes.<sup>1</sup>

However, measuring outputs and using them as the basis for evaluation is often problematic because NRM practitioners often interpret definitions of outputs differently. This has resulted in NRM bodies frequently changing direction and reporting requirements.

Appendix 2 lists significant documents and policies affecting monitoring, evaluation and reporting since 2004.

This strategy draws together the threads of evaluation processes that often have dramatically different levels of maturity. This means it is not appropriate to specifically prescribe the processes, and particularly the content, for many evaluation exercises in a strategy such as this.

#### 3. Uncertainties in measuring natural resources and their progress

Significant uncertainties in measuring catchment condition and understanding links between cause and effect in the complex operating environment of NRM have contributed to a non-standardised approach in catchment management reporting.

Many formats for measurement and evaluation have been prescribed over the years by state and national government funders (appendix 3).

Against this backdrop, the Goulburn Broken CMA has worked closely with funders to satisfy accountability requirements while holding its own critical evaluation processes constant, such as monitoring against benchmarks, which promotes understanding of long-term progress, including the impact on catchment condition.

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1. An output is an activity that can be readily counted, such as building a length of fence or conducting a meeting. An outcome is the impact or result of the output, such as the change in a waterway's phosphorous levels resulting from revegetating riparian zones.



## THE RESILIENCE APPROACH

Goulburn Broken Catchment communities' reputation for being responsive is based on strong relationships between stakeholders, nurtured since salinity management plans were founded on joint action in the late 1980s.

This was the start of holistic or integrated catchment management and was consistent with what became known by the early 2000s as a 'resilience approach'.

The resilience approach was formalised in the RCS 2013-19, continuing the emphasis on adaptive management and the need to be 'ready' for whatever circumstances unfold.

The resilience approach also emphasises consideration of thresholds or tipping points for social-ecological systems. Within any SES, there are just a few high-level goals we are trying to achieve and a few interventions that enable them to be achieved. (This is consistent with the 'rule-of-hand', which states the most important changes can be understood by analysing a few, typically no more than five, key variables (Yorque et al. 2002 in Walker et al. 2006.) See the case study on the Shepparton Irrigation Region on the next page for an example of how this concept can be applied when planning.

## MAJOR CHALLENGE FOR ADAPTATION: FROM ACTION TO TRACTION

Since the most recent update of the RCS in 2013, a focus has emerged on the 'adaptation part' of the resilience approach, which includes influencing (or perhaps sometimes driving) transformation of social-ecological systems as well as responding to changes. Having a well-thought out plan for evaluation processes is one thing, but making identified actions from these processes happen is quite another. How do we go from 'action to traction' (McKenzie 2015). For Goulburn Broken CMA RCS to be truly adaptive, getting the organisational (and cross-organisational) culture to act on new knowledge is obviously critical. Making these changes happen on a large scale requires considerable thought.

## CASE STUDY

# FOCUSING ON TIPPING POINTS IN THE SHEPPARTON IRRIGATION REGION

The Shepparton Irrigation Region Land and Water Management Plan 2016-2020 (SIRLWMP) (Shepparton Irrigation Region People and Planning Integration Committee 2016) includes eight priorities targeted at five threshold-based goals that will keep the social-ecological system from tipping into an undesirable new state.

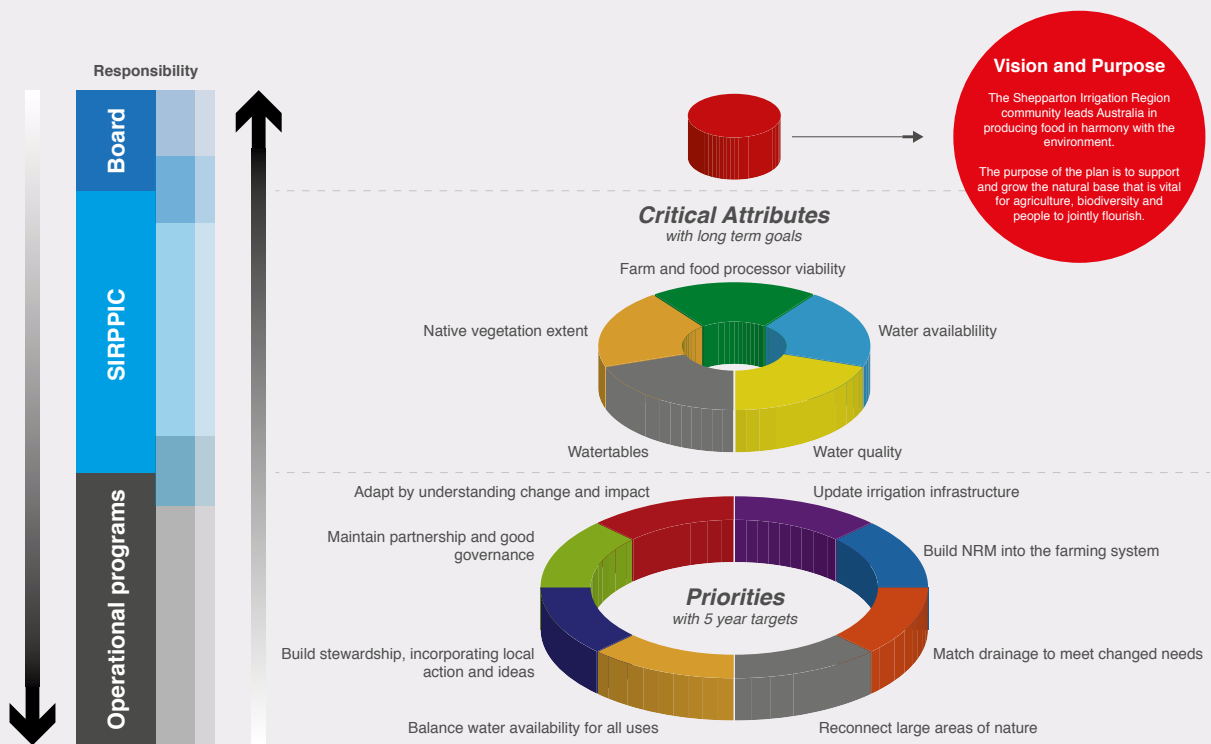
These goals are termed 'critical attributes' in the SIRLWMP because they dominate the functioning of the SIR's complex system or people and nature:

- water availability
- water quality
- watertables
- native vegetation extent
- farm and food processor viability.

Focusing on these five goals fosters shared understanding of trade-offs and multiple benefits when choosing interventions: most interventions usually impact significantly on several goals because of the highly connected nature of the dynamic working landscape of people and nature (see figure 1 below).

SIRLWMP's long-term goals (listed in appendix 5) direct action and act as reference points when reviewing progress.

**Figure 1. SIRLWMP planning hierarchy showing how the vision is achieved by implementing priorities**

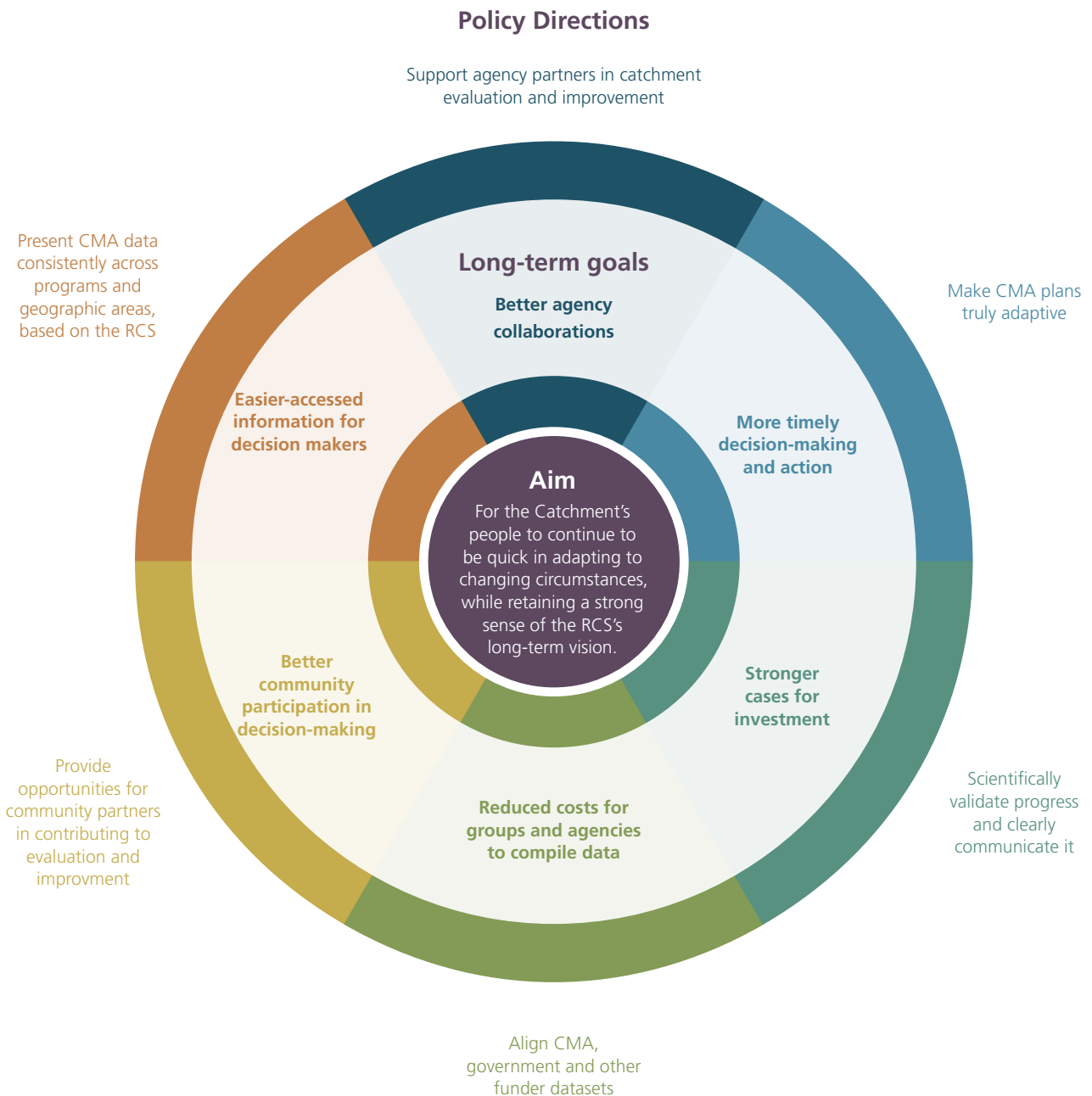


# 3. LONG-TERM EVALUATION AND ADAPTION GOALS AND POLICY DIRECTIONS

Given the context described in sections 1 and 2, six high-level goals and policy directions for evaluation and adaptation have been identified.

The choice of policy directions (and actions) recognises that achieving one goal will often impact on the other five goals (figure 2 below).

**Figure 2. Diagram showing how policy directions impact on long-term goals**



## GOAL 1: STRONGER CASES FOR INVESTMENT

NRM project benefits are often difficult to define and are especially difficult to quantify, especially over the short term. This is not a unique challenge. However, for NRM to reasonably compete with other public sectors for government funding, 'harder' data and better communicated investment cases are needed.

The Goulburn Broken CMA is also obliged to improve investment cases so that a reasonable proportion of government investment in NRM is attracted to the region.

Until about 2000, there was a strong emphasis in funding projects according to benefit:cost ratios (in terms of financial returns for investment). While the triple-bottom-line reporting style that has evolved over the last two decades provides a greater sense of overall benefits, it still does not provide reliable quantitative information for directly affecting decisions.

### ***Policy direction: Scientifically validate progress and clearly communicate it***

Investment cases must be underpinned by the best available knowledge, and evaluation processes need to continually contribute to improved knowledge. Case studies can be useful in communicating holistic projects.

Indicators of progress need to be linked with decision-making. Where possible, compliance indicators (usually set by government investors) should align with CMA indicators.

The Goulburn Broken CMA collaborates extensively with research bodies to improve understanding and has documented knowledge gaps and priorities using various frameworks, such as the National Matters for Target (Natural Resource Management Ministerial Council 2002). The Goulburn Broken CMA's Mid-term Review of the Regional Catchment Strategy (Goulburn Broken CMA 2016) includes a list of research undertaken between 2013 and 2016.

Communication of overall progress has been via the Goulburn Broken CMA's annual report, including lists of the types of evidence used to inform progress. Implementation of Our Catchments, Our Communities is likely to provide an opportunity for the Goulburn Broken CMA to update the approach in its annual report.

Several external endeavours, such as the Wentworth Group's 'Econd' ratings, also need to be considered (Sbrocchi et al 2015).

## GOAL 2: REDUCED COSTS FOR GROUPS AND AGENCIES TO COMPILE DATA

Despite the difficulty in measuring what projects have done and what they have achieved, demands for data to comply with government investor requirements have increased over the years. This has been accompanied by a decline in government investor understanding of the nuances of local projects because of deteriorating corporate or organisational memory caused by contemporary employment practices of frequent staff changes.

Different investors have different paradigms and needs: from strategy development to reporting. The Goulburn Broken CMA can influence, but not control, the different demands that arise.

Also, multiple investors contributing to single projects or in the same geographic area often want different data. This can be particularly demanding for community groups and the CMA.

Evaluation activities vary enormously in scope, from highly complex, integrated issues to single issues. Overlap between evaluation activities is unavoidable. The challenges of reducing duplication of evaluation activities can be partly addressed by fostering linkages between them and enabling aggregation of data at various levels. To achieve this we need to balance the need for consistency between regional NRM plans with local ownership: progression towards consistency is helped by using similar language and hierarchies of information, including within the RCS and local plans.

Most gains (reduced costs) will be achieved by better alignment of datasets. The Goulburn Broken CMA can only influence what the multiple investors demand, but it can help reduce red tape for groups by translating external demands to local reporting frameworks.

Measuring progress towards this goal might be by a combination of quantitative estimates of agency staff and community member time.

Information for evaluation needs to be sorted thoroughly in terms of timeframes and geographic scales to help target the different stakeholders who are making decisions on direction. Figure 1 includes details of broad monitoring and evaluation responsibilities of the Goulburn Broken CMA Board, SIRPPIC (which oversees SIRLWMP implementation), and operational staff, aligned with different levels, from the vision to goals to priorities.

***Policy direction: Align CMA, government and other funder datasets***

There are multiple levels in cause-and-effect chains and different people tend to choose different levels when designing programs, which creates inconsistency between different programs when reporting. To develop consistency in applying mental models, the Goulburn Broken CMA uses the equation:

$$\text{Outcomes} = \text{Outputs} \times \text{Assumptions.}$$

This equation is the basis of all arithmetic models used in projecting change.

The outcomes level chosen is the highest level (in the cause-and-effect chain) that is measurable over at least a 5-year timeframe. This gives the best indication of what is achieved over the medium term. It should also clearly set the direction. For example, 'Increase the extent of native vegetation in fragmented landscapes by 70,000 hectares by 2030...' (Goulburn Broken CMA 2013).

The outputs level chosen is the highest level that is measurable immediately and relates to an activity. With current technology, it is possible for practitioners to enter outputs as they are completed. The use of GPS (global positioning system) makes it possible for many spatial outputs to be 'live'.

However, because outputs have not been standardised well across the 'NRM industry' and there is no common currency for outcomes achieved across NRM programs, integration of all datasets is going to take many years, perhaps decades.

The response to the Victorian Auditor-General Office's (VAGO) 2014 report is also providing further opportunity to help implement this policy direction.

### GOAL 3: BETTER COMMUNITY PARTICIPATION IN DECISION-MAKING

Community groups see compliance reporting as a necessary part of the deal to receive government funding, but generally don't regard it as meaningful. This is an opportunity missed for developing greater shared decision-making.

There has historically been a burden on groups to report data, and it has rarely been given back to them in any meaningful reports, which affects the care taken by groups compiling the data, therefore affecting the rigour of the data: a concerted effort is needed to make the data and reporting flow more than one-way. There is a parallel disconnect in reporting between government and regional NRM organisations, such as CMAs.

***Policy direction: Provide opportunities for community partners in contributing to evaluation and improvement***

Technology improvements allow for greater immediacy in reporting back on data contributed and can be used at a local level. Many avenues are emerging for community members to be part of 'citizen science', such as by providing data that can become spatially available to all via the internet, such as bird sightings and results of water quality samples.

Community members should also clearly be able to see the questions that the data is answering and ultimately contribute to the framing of the questions.

## GOAL 4: EASIER-ACCESSED INFORMATION FOR DECISION-MAKERS

Multiple investors with multiple ways of operating create an enormous challenge for data to be presented to decision-makers in a useful form.

The different elements that make up integrated catchment management are reported in different way).

**Policy direction: Present CMA data consistently across programs and geographic areas, based on the RCS**

Technology-based and web-enabled features supported by GPS will also drive the streamlining and aligning of datasets.

However, there is a caution: we need to be strong on the questions that are being asked so that data is only collected and sorted when it really matters. There is a worrying trend towards collecting data on everything – almost in real time!

Consistency that helps organise data for decision-makers needs to be balanced with the need for a degree of flexibility.

Monitoring and evaluation frameworks from different disciplines (such as biodiversity and irrigated agriculture) and different investors (such as State and Commonwealth) inevitably overlap, and there is a strong temptation to make them neatly dovetail. However, the limits of detail in integrating these frameworks are quickly reached: the most meaningful narratives of progress are achieved by not 'overcooking' the integration.

The Goulburn Broken CMA's annual report has used a consistent style of narrative for each discipline, drawing on qualitative and quantitative evidence to support 'stories' of long-term and annual progress. Narratives are structured using: background, catchment condition, long-term strategy implementation progress, and annual performance.

The Goulburn Broken CMA is also striving to achieve the right balance for evaluating and reporting at SES level and the whole-of-Catchment Level. This is a familiar challenge: it is essentially part of the tension created when managing multiple issues at a geographic (sub-Catchment or SES) scale as well as by discrete programs at the large (whole-of-Catchment) scale.

Existing data parameters and requirements within the different disciplines of NRM make it extremely difficult to aggregate and disaggregate quantitative data meaningfully.

## GOAL 5: BETTER AGENCY COLLABORATIONS

The Goulburn Broken CMA achieves most of its objectives through regional partner organisations and individuals: partnerships are critical to the CMA's success.

*Clear roles, responsibilities and accountabilities of partners are critical to determine and deliver regional priorities. All partners have different roles in delivering catchment outcomes. These need to be clearly defined to avoid confusion and to minimise duplication or inaction.*

- Victorian Government 2016

The effective and efficient management and communication of quantitative data and other information underpins the CMA's major roles of co-ordinating and brokering partnership projects.

While the Goulburn Broken CMA recognises that regional partner agencies will always have their internal data requirements, the Goulburn Broken CMA will support them in providing data in a form that contributes to an holistic story of progress, which informs shared decision-making.

**Policy direction: Support agency partners in catchment evaluation and improvement**

## GOAL 6: MORE TIMELY DECISION-MAKING AND ACTION

A successful 'ready for change' strategy is one that translates into truly adaptive CMA plans and strategies that make up the RCS.

Multiple stakeholders and inherent uncertainties in the long-term consequences of short-term actions in NRM create enormous challenges for decision-making. Long-term partnerships have been crucial in understanding this context and enabling quick responses.

A strong indicator of this 'ready for change' strategy's success is if the right people are focused on making decisions about the right problems at the right time.

Having a well thought-out plan is one thing. Making evaluation processes happen so that plans become 'live' is more about organisational and cross-organisational culture than the quality of any written plan. There is always the challenge of translating awareness of a problem (and knowledge of the solution) into action. The solution needs to be actively driven to make it happen.

Systemic change requires actions that are tailored according to an understanding of the roles that different types of people play in a large-scale process. There is a need for experts (to provide rigorous data), connectors (to link many stakeholders in a complex system), and salespeople to get the message out (Gladwell 2000). Of course, the 'doers' – the practitioners on-the-ground, who ultimately make change happen, also need to 'buy-in' to any proposed change. The Goulburn Broken CMA has helped social-ecological systems become resilient in the face of change by focusing on the values and needs of stakeholders who undertake the actions: the region's resilience is underpinned by strong partnerships between various levels of government and land manager, especially farmers. The early 1990s catchcry 'joint action' remains as pertinent today as it did then.

**Policy direction: Make CMA plans truly adaptive**

The focus of decision-making is on opportunities to manage the critical threats to the Goulburn Broken Catchment's future. The Shepparton Irrigation Region People and Planning Integration Committee identified these threats as 'critical attributes' in early 2015, and these are listed in its 2016 update of the Shepparton Irrigation Region Land and Water Management Plan.

The many investors in NRM require evaluations at different times and at different levels of detail, making it challenging to schedule evaluations.

A key role of the Goulburn Broken CMA Board is to continually identify 'hot issues' by considering risk and opportunities, and update the balance of efforts accordingly, from strategic planning to operational action.

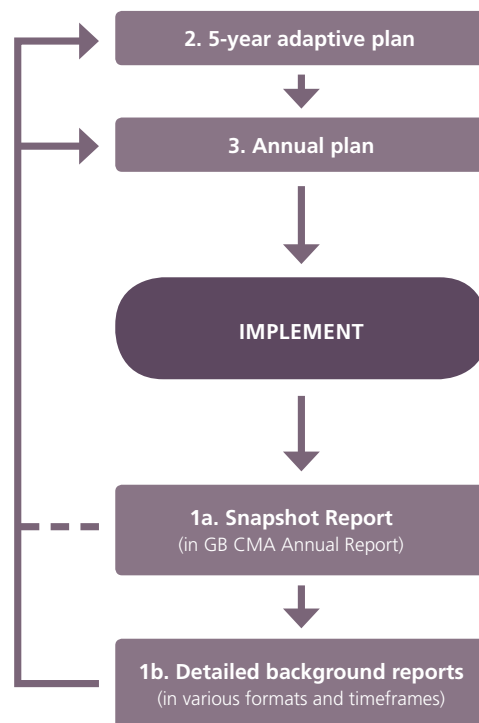
A high-level collective assessment of all issues is to be part of the Board's workplan, building on the CMA's approach to risk management via its risk register.

This includes devolving decisions to the right level across the complex natural resource management network within the Catchment.

Uncertainties and 'left-field' events need to be included when exploring risks and opportunities, usually with agency partners and the community, to ensure rapid responses to changing circumstances.

Goulburn Broken CMA information is sorted according to planning cycles (Figure 3 below), emphasising different information needs at different levels of planning in the 'plan-do-review' (or adaptive management) cycle.

**Figure 3. SIRLWMP adaptive planning cycles**



It is difficult to determine whether plans have been adaptive or not: organisations seldom have the discipline or capacity to measure it. This strategy includes an example of a checklist of 'items of evidence' (appendix 4) to be considered regularly as part of an adaptive plan. An assessment of how well these items are considered can be used to determine how adaptive a plan has been.



## 4. 5-YEAR TARGETS AND ANNUAL ACTIONS

In order to achieve the long-term goals through the policy directions, 5-year targets have been set, which act as a reference against which an action plan will be prepared and updated annually (table 1).

**Table 1. Long-term goals, policy directions and 5-year targets**

Long-term goal	Policy direction	5-year target	1-year action
1. Stronger cases for investment	1. Scientifically validate progress and clearly communicate it	1.1 Knowledge gaps continue to be identified and assumptions are addressed through collaborations with researchers and investors 1.2 A consistent set of indicators (developed with other CMAs) is used	To be developed annually as part of an action plan
2. Reduced costs for groups and agencies to compile data	2. Align CMA, government and other funder datasets	2.1 'Goulburn Broken CMA standard outputs' continue to be used locally 2.2 Statewide reports emphasise use of the model: Outcomes = Outputs x Assumptions	
3. Better community participation in decision-making	3. Provide opportunities for community partners in contributing to evaluation and improvement	3.1 Reports to the community include data that community members have provided 3.2 Technologies developed to enable community partners contribute their data and immediately view it	
4. Easier-accessed information for decision-makers	4. Present CMA data consistently across programs and geographic areas, based on the RCS	4.1 The CMA's annual report continues to be the vehicle for developing consistency. 4.2 Progress within each SES is reported and evaluated annually 4.3 Progress of implementing the RCS is reported annually, especially: - vision and purpose - 6-year strategic objectives and priorities 4.4 Stakeholders navigate reports via spatial, web-based technology	
5. Better agency collaborations	5. Support agency partners in catchment evaluation and improvement	5.1 Agency partners report on RCS contributions funded through the CMA 5.2 Agency partners have been supported to report on contributions to NRM not funded through the CMA	
6. More timely decision-making.	6. Make CMA plans truly adaptive	6.1 The schedule of major evaluations across the Goulburn Broken CMA is continually updated 6.2 Each SES and program manager reports on evaluation processes within each SES and across each Goulburn Broken CMA program annually 6.3 A risk (and opportunity) approach is used to sharpen adaptive management at the SES-scale, underpinning the resilience approach	

## 5. HOW WILL WE KNOW IF THIS STRATEGY IS SUCCESSFUL?

Indicators of progress in implementing this strategy and achieving the strategy's aim are shown in table 2 below.

**Table 1. How this strategy's success will be measured**

Element of this plan	Evidence of success
Aim and purpose	Evidence of plans and strategies being adaptive, or otherwise, including: <ul style="list-style-type: none"> <li>– case studies that show responses have been timely, from strategic to operational planning</li> <li>– updated schedules of evaluations and plan changes.</li> </ul>
Long-term goals and policy directions	Achievement of actions during strategy implementation. Changes in stakeholders' perception of meeting goals and implementing policy directions. (This could be done via stakeholder survey at the beginning (2017) and end (2022) of this strategy's time, but it would come at a cost.)
5-year targets	Achievement of actions (updated annually) during strategy implementation.

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# APPENDIX 1. LINKS BETWEEN THIS STRATEGY AND OUR CATCHMENT, OUR COMMUNITIES

The following table shows the alignment between this ready for change strategy (goals and policy directions) and the Victorian Government's 2016 Our Catchment, Our Communities (goals and actions).

<b>Ready for change strategy</b> Goal - Policy direction	<b>Our Catchments, Our Communities link</b> Goal - Action
<b>1 Stronger cases for investment</b> 1 Scientifically validate progress and clearly communicate it	<b>5 Improved monitoring, evaluation and reporting</b> 5.1 <i>Improve state and regional catchment reporting</i>
<b>2 Reduced costs for groups and agencies to compile data</b> 2 Align CMA, government and other funder datasets	<b>2 Better connections between state, regional and local planning</b> 2.1 <i>Ensure alignment between state, regional and local plans that impact on land, water and biodiversity, and RCSs</i>
<b>3 Better community participation in decision-making</b> 3 Provide opportunities for community partners in contributing to evaluation and improvement	<b>1 Effective community engagement in catchment management</b> 1.2 <i>Strengthen community engagement in regional planning and implementation</i>
<b>4 Easier-accessed information for decision-makers</b> 4 Present CMA data consistently across programs and geographic areas, based on the RCS	<b>3 Strengthen implementation of RCSs</b> 3.1 <i>Implement an investment framework that supports coordination and accountability for implementation of RCS priorities</i>
<b>5 Better agency collaborations</b> 5 Support agency partners in catchment evaluation and improvement	<b>4 Clearer roles, strengthened accountability and regional coordination</b> 4.3 <i>Improve accountability of catchment management partners</i>
<b>6 More timely decision-making and action</b> 6 Make CMA plans truly adaptive	<b>5 Improved monitoring, evaluation and reporting</b> 5.2 <i>Ensure the evidence base, including research and development and monitoring, evaluation and reporting, supports and informs planning and adaptive management.</i>

# APPENDIX 2. EVOLUTION OF GOULBURN BROKEN RCS AND SUB-STRATEGIES

*Updated 2 December 2016. An update on implementation of most strategies is provided in Goulburn Broken CMA's annual report.*

## **Goulburn Broken RCS 2013-19**

- First RCS coincided with start of Goulburn Broken Catchment Management Authority, 1 July 1997.
- Progress summarised in second RCS, 2003.
- Progressed detailed in 2009 review and since 2004-05, in Goulburn Broken CMA annual reports.
- Progress summarised in introduction to this third RCS.
- Next major review expected 2019.

## **Shepparton Irrigation Region Land and Water Management Plan 1990-2020**

- Prepared as Shepparton Irrigation Region Land and Water Salinity Management Plan 1989.
- Victorian Government endorsed it in 1990.
- Major reviews in 1995, 2000, 2003 and 2007 (not yet published) included sub-programs such as environment and surface water-management and programs.
- Progress reported in Goulburn Broken CMA annual reports.
- Next major review 2020.

## **Goulburn Broken Dryland Salinity Management Plan (1990)**

- First prepared 1989.
- Victorian Government endorsed it in 1990.
- Progress 1990-95 reviewed in 1996.
- Progress 1995-2001 reviewed; included in updated Plan (Draft c. 2002).
- Strategic approach updated as part of Dryland Landscape Strategy.
- Progress reported in Goulburn Broken CMA annual reports.

## **Goulburn Broken Land Health Statement Draft (2012)**

- Began as a Goulburn Broken Soil Health Strategy Draft 2003.
- Goulburn Broken Soil Health Action Plan (2006), which is annually reviewed, guides Strategy implementation.
- Benefits from efforts associated with Goulburn Broken Dryland Salinity Management Plan, which it supersedes.

## **Dryland Landscape Strategy 2009-11**

- Integrated biodiversity and salinity programs and catalysed integration with other CMA programs.
- Reviewed 2010.
- Being superseded by emphasis on systems of people linked with nature as per the resilience approach, as described in 2012 RCS.

## **Goulburn Broken Catchment Biodiversity Strategy 2016-2021**

- “Environment” programs an integrated part of salinity plan implementation in early 1990s (see above).
- Goulburn Broken Native Vegetation Management Strategy (NVMS) 2000, including addendum to significant 1999 draft following consultation. Annually reviewed.
- Became Goulburn Broken Native Vegetation Management Plan 2003, with NVMS bundled (as Volume 1) with Native Vegetation Retention Controls (as Volume 2), following state directive.
- Goulburn Broken Biodiversity Monitoring Action Plan 2006 details assumptions behind assessing progress against long-term biophysical targets.
- NVMS largely superseded by From the Fringe to Mainstream - A Strategic Plan for Integrating Native Biodiversity 2004-2007. Annually reviewed. Both strategies thoroughly reviewed 2008.
- Goulburn Broken Biodiversity Strategy 2010-2015 prepared.
- Biodiversity Strategy progress included in Goulburn Broken CMA's annual reports.

### **Goulburn Broken Regional River Health Strategy (GB RRHS) 2005-15**

- Until 2005, priorities guided by waterway plans prepared by waterway authorities, which preceded the CMA, and complementary whole-of-Catchment strategies, especially Goulburn Broken Water Quality Strategy (draft 1997, updated 2002) Goulburn Broken Regional Floodplain Management Strategy (2002-12) and draft Goulburn Broken Wetland Strategy (2003).
- GB RRHS reviewed 2010 and Addendum prepared 2010.
- Catchment-based staff are part of strong State and National networks measuring and evaluating progress.
- Goulburn Broken Waterway Strategy 2014-2022 prepared.

### **Goulburn Broken Water Quality Strategy 1996-2016**

- Significant draft released for public comment July 2006.
- Addendum prepared June 1997.
- Focused on algal blooms from nutrient inputs.
- Major review 2002.
- Reviewed as part of GB Regional River Health Strategy 2013.
- End of strategy life review in preparation.
- Goulburn Broken Floodplain Management Strategy 2002-12
- Progress documented in Goulburn Broken CMA's annual reports.

### **Goulburn Broken Invasive Plants and Animals Strategy (IPAS) (2010)**

- Goulburn Broken Rabbit Management Action Plan 2001-2005 (2000) and Goulburn Broken Weed Action Plan 2001-2005 (2001) prepared by Department of Natural Resources and Environment.
- Implementation of IPAS is largely administered by DPI.
- Progress reported in Goulburn Broken CMA's annual report.

### **Goulburn Broken CMA Community Landcare Support Strategy (2010; draft)**

- Goulburn Broken Landcare Support Strategy 2004-09; annual performance stories prepared in 2005-06, 2007-08 and 2009-10.
- Strategy reviewed 2008.
- Victorian Landcare Program Strategy Plan (2012) provides further guidance.

### **Goulburn Broken Communications, Marketing and Community Engagement Strategy (2010)**

- Goulburn Broken Climate Change Integration Strategy 2012-15
- Goulburn Broken Climate Change Position Paper 2007-2010
- Position Paper Reviewed in 2009 and 2010.

### **Ready for change – evaluation strategy for the Goulburn Broken Catchment**

- Monitoring Evaluation and Reporting Strategy for the Goulburn Broken Catchment (2004)
- Reviewed annually, with snapshot review 2015.
- Next major review 2022.

# APPENDIX 3. SIGNIFICANT DOCUMENTS AND POLICIES AFFECTING MER SINCE 2004

Updated 2 December 2016

Organisation	Document	MER document details and comments	Implications for Goulburn Broken CMA
Natural Resource Management Ministerial Council	National NRM Monitoring and Evaluation Framework (2002)	The framework was promoted heavily through programs, such as the National Action Plan for Salinity and Water Quality, but does not seem to be used any more. The structure of the "National Matters for Target" that were part of the framework was one of the best attempts in developing a consistent MER approach across the country.  Goulburn Broken CMA has roughly used the framework's categories as its main "investment themes" in structuring annual reports since about 2003.	Continue to (roughly) align and report structure with investment themes.
Australian Government	Various (mid-2000s until the early 2010s)	Significant promotion of "performance stories" in MER, although the Goulburn Broken CMA largely adopted a "watching brief" role. The CMA does performance stories in various guises, with specific purposes.  A major report on the Fruit Industry Employment Program (2015) could be termed a collection of performance stories.	No action.
Australian Government	National Land and Water Audit	The National Land and Water Resources Audit (the Audit), established in 1997 under the Natural Heritage Trust Act, has now finished its second phase of operation.  The Audit completed its operational activity on the 30th of June 2008.	Remember that this existed: there are probably some worthy methodologies for structuring and implementing evaluation of change.
Australian Government	Monitoring, evaluation, reporting and improvement tool (MERIT) (from 2013)	MERIT has been developed for the project and program reporting requirements of Australian Government NRM programs. MERIT allows grant recipients to record and upload data about the progress of their projects on a continual basis and to submit reports online.	Obligated to use MERIT.
The Murray Darling Basin Authority	Murray-Darling Basin water reforms: Framework for Evaluating Progress (2014)		Watching brief on implications.



Organisation	Document	MER document details and comments	Implications for Goulburn Broken CMA
Landscape Logic	Landscape Logic: Integrating Science for Landscape Management (2011?)	Landscape Logic was a research hub under the Commonwealth Environmental Research Facilities program. It was hosted by the University of Tasmania's Centre for Environment and was a partnership between six regional organisations (including the Goulburn Broken CMA), five research institutions and state land management agencies in Tasmania and Victoria.	Remember this book when thinking about linking management actions to resource condition.
Australian Government	State of the Environment Reports (1996, 2001, 2006, 2011)	Since 1999, Australian Government legislation mandates the preparation and tabling of a national state of the environment report in Parliament through the Environment Protection and Biodiversity Conservation Act 1999 (Section 516B).	Watching brief.
DELWP (when it was DSE)	Annual report guidelines (from 2010)	From 2010, "headline theme" categories have been mandated as part of annual reports to satisfy Catchment and Land Protection Act (1994) requirements. Headline themes are reasonably well aligned with the CMA's investment themes.	Watching brief on annual report guidelines.
DSE (now DELWP)	Monitoring, Evaluation and Reporting Framework (2012)	Published very late during development of RCS and with little opportunity for Goulburn Broken CMA involvement in its development. Difficult to disagree with any of the content, but the devil is in the interpretation (during implementation). The idea of "intermediate outcomes" is included, despite the difficulties encountered several times in mandating their use.	Likely to be superseded by outcomes of response to VAGO report (see next). Watching brief on requirements for "intermediate outcomes".
Victorian Auditor-General's Office	Report on the effectiveness of CMAs (2014)	DELWP is working with CMAs, the VCMC and other key stakeholders to implement the following actions. The action plan has deadlines of May 2015 to June 2016. <ol style="list-style-type: none"> <li>1. Development of improved strategic direction for integrated catchment management.</li> <li>2. Review relevant legislative instruments to improve state-wide catchment management.</li> <li>3. Improve linkages between funding and the overarching strategy for integrated catchment management and RCS priorities.</li> <li>4. DELWP (formally DEPI) and CMAs will develop a framework for catchment condition and management reporting.</li> <li>5. Improve information collation and access to support state and regional catchment condition and management MER.</li> </ol> Six CMAs have updated MER structure in their 2015-16 annual reports to align with these directions, although there is still significant inconsistencies between them in interpretation of the directions.	Participate in implementation of VAGO report responses via the CEO (Chris Norman).  Review implications of sister CMAs' attempts to use a common structure within their 2015-16 annual reports.

Organisation	Document	MER document details and comments	Implications for Goulburn Broken CMA
Victorian Catchment Management Council	State Catchment Condition (and Management) Report (2002, 2007, 2012)	Due to be prepared and released in 2017. Categories and methods historically have significant similarities with Goulburn Broken CMA's annual report.	GB CMA is participating in development of the 2017 report.
Victorian Government	State of the Environment Report (2013)	<p>The Commissioner for Environmental Sustainability reports on the state of Victoria's environment at least every five years. It is being updated now – due to be released in 2018. It is expected to include information from VCMC's 2017 report on catchment condition and management.</p> <p>The State of the Environment report collects scientific and other data about the state of Victoria's natural environment, including trends over time.</p> <p>The 2013 SOE Report has two sections. The first contains detailed background information, findings, trends and analysis against environmental indicators in the following areas:</p> <ul style="list-style-type: none"> <li>– climate change</li> <li>– air quality</li> <li>– biodiversity</li> <li>– land</li> <li>– inland waters</li> <li>– marine and coastal environments</li> <li>– human settlements.</li> </ul> <p>The second section of the SOE Report presents recommendations to improve five sustainability goals:</p> <ul style="list-style-type: none"> <li>– resilient ecosystems</li> <li>– sustainable natural resources</li> <li>– sustainable energy</li> <li>– sustainable communities</li> <li>– understanding the environment, including through better monitoring and data collection.</li> </ul>	Influence VCMC's 2017 report on catchment condition and management.
Wentworth Group of Concerned Scientists	Report to NRM regions Australia (2015)	<p>Advocates the use of the index "Econd". Calls for further resources to make it happen across all NRM regions. Has links with United Nations processes.</p> <p>North Central and Corangamite CMAs are pilot regions for this approach. North Central CMA used Econd in its annual report in 2014.</p> <p><a href="http://wentworthgroup.org/2015/03/report-to-nrm-regions-australia/2015/">http://wentworthgroup.org/2015/03/report-to-nrm-regions-australia/2015/</a></p>	<p>Very close watching brief (especially in short term).</p> <p>Determine what the links are between methodology proposed and decision making, with a close eye on the costs of implementing this approach.</p>

# APPENDIX 4. SIRLWMP EVALUATION PROCESS CHECKLIST ALIGNED WITH PLANNING CYCLE STEPS

Planning cycle step	Evaluation action	Key evaluation questions*	Implications for Goulburn Broken CMA
1a. Annual Report 1b. Detailed background reports	<ol style="list-style-type: none"> <li>1. Complete a snapshot report of SIRLWMP implementation within the Goulburn Broken CMA's annual report.</li> <li>2. Prepare detailed reports for various issues, according to a continually updated evaluation schedule</li> </ol>	<p>What progress was made this year?</p> <p>What progress has been made in implementing the SIRLWMP?</p> <p>What are the risks to the future of the SIR?</p> <p>What next steps does SIRPPIC need to take?</p>	<p>Achievements (outputs completed against funded targets)</p> <p>Achievements (including government-funded and other fund-source onground output achievements against priorities and 5-year targets (in Table 3 on page 28)</p> <p>Drivers of change (including shifts in circumstances)</p> <p>Risks and opportunities ('catchment condition' related to critical attributes and their thresholds; future scenarios and preventable and unavoidable system transformations)</p>
2. Adaptive plan (SIRLWMP)	3. Update the 2016 SIRLWMP in 2021.	<p>Is the (c. 30-year) vision for the Catchment or system right?</p> <p>Is the purpose of SIRPPIC clear?</p> <p>Do the medium-term (5-year) strategic approaches need to change?</p>	<p>Community values</p> <p>RCS vision (alignment with SIRLWMP)</p> <p>SIRPPIC terms of reference</p> <p>Progress against long-term goals for the SIR's critical attributes water availability, water quality, watertables, native vegetation extent, farm and food processor viability</p> <p>Assumptions that link outputs to outcomes (long-term goals)</p> <p>Governance arrangements (including partnerships)</p> <p>Capacity to deliver (including social, organisational and individual)</p> <p>Trade-offs and synergies (including benefit/cost)</p>
3. Annual plan	4. Prepare an annual plan based on received funds each year.	Do the preferred investment priorities need to change this year?	<p>Government priorities (resources available)</p> <p>Partnership agreements (statement of obligations)</p>
<b>Implement</b>			

\* Key evaluation questions are considered annually, but levels of detail and processes in answering them vary significantly, according to SIRPPIC's perception of the status of individual issues within the adaptive planning cycle.

# APPENDIX 5. LONG-TERM GOALS FOR CRITICAL ATTRIBUTES IN THE SHEPPARTON IRRIGATION REGION

Critical attribute	Long-term goal*			
	General direction	Quantitative target**		
Watertables	The long-term goal is to manage shallow watertables so that soil zones at risk are not salinised or waterlogged.	By 2020, minimise irrigation-related salinity impacts from shallow watertables within the SIR (500,000 hectares) by improved irrigation management on farms, improved surface water management within drainage catchments, and appropriate pumping, reuse and disposal of groundwater over 216,000 hectares. <i>Stream salinity targets (which are directly related to watertable management) are listed under 'water quality'</i>		
Water availability	Ensure that water is available to match the needs of the environment, agriculture and social consumption when required	Maintain delivery of 880,000 megalitres for agriculture within the SIR (in an average season of 100% allocation).  <i>A task during implementation of the SIRLWMP update is to explore the setting of a volume target for environmental water requirements (that complements the previous target for agriculture) specific to the SIR.</i>		
Native vegetation extent***	Increase the extent of native vegetation within focus landscapes	By 2030, the extent of native vegetation will be increased by 2% across nine focus landscapes (a total of 300 hectares per year)		
Water quality	To maintain and improve water quality for the range beneficial uses (values) (GB CMA 2014)	Murray-Darling Basin Authority salinity target (MDB Ministerial Council 2001) Manage the salinity impacts on the River Murray at Morgan (in South Australia) from implementation of the SIRLWMP, in accordance with the Murray-Darling Basin Authority's requirements, at or below 8.9 EC (electrical conductivity unit).		
		State Environment Protection Policy Environmental quality objectives (Victorian Government 2003)		
		Indicator	Percentile	Objective
		Total phosphorus	75th	< 45 micrograms per litre
		Total nitrogen	75th	< 900 micrograms per litre
		Dissolved oxygen	25th to maximum	> 85 and < 110% saturation
		Turbidity	75th	< 30 Nephelometric Turbidity Unit
		Electrical conductivity (indicates for salinity)	75th	< 500 microSiemens per centimetre
		pH (indicates for acidity)	25th to 75th	> 6.4 to < 7.7
			GB CMA (GB CMA 2014)	
	Total phosphorus loads from the Catchment	Reduce potential total phosphorus loads from the Catchment by 65% by 2016 (from the benchmark of 361 tonnes)		
	Total phosphorus loads from irrigation drains	Reduce total phosphorus loads from irrigation drains by 50% by 2016 (from the benchmark of 169 tonnes)		
Farm and processor viability	To help farm and food-processors be viable, by supporting the natural base in a way that helps them adapt quickly to changing agricultural markets and demands	A task during implementation of this SIRLWMP update is to explore the setting of specific targets (considering thresholds) for farm and food-processor viability.		

\* Goals and targets are subject to change as new knowledge emerges. These are from the Shepparton Irrigation Region Land and Water Management Plan 2016-2020 (SIRPPIC (2016)).

\*\* Considers threshold levels

\*\*\* Native vegetation quality is included as a 5-year target under the priority 'Reconnect large areas of nature'





## GOULBURN BROKEN CATCHMENT MANAGEMENT AUTHORITY

PO Box 1752  
Shepparton VIC 3632

Tel. (03) 5822 7700

Fax. (03) 5831 6254

Email. [reception@gbcma.vic.gov.au](mailto:reception@gbcma.vic.gov.au)

[www.gbcma.vic.gov.au](http://www.gbcma.vic.gov.au)

find us on **facebook**

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