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AUDIT REPORT

**MURRUMBIDGEE
CATCHMENT MANAGEMENT AUTHORITY**

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List of acronyms

CAP	Catchment Action Plan
CMA	Catchment Management Authority
EBS	Environmental Benefit Score
GM	General Manager
IPD	Integrated Project Delivery
IID	Institute for International Development
IT	Information technology
LEP	Local Environment Plan
LHPA	Livestock Health and Pest Authority
MBCMA	Murrumbidgee CMA
MBI	Multiple Benefits Index
MDB	Murray Darling Basin
MER	Monitoring, Evaluation, Reporting
MERI	Monitoring, Evaluation, Reporting and Improvement
MI	Murrumbidgee Irrigation
MOU	Memorandum of Understanding
NAP	National Action Plan for Salinity and Water Quality
NRC	Natural Resources Commission
NRM	Natural Resource Management
NSW	New South Wales
OIG	Operational Implementation Group
PLC	Project Liaison Committee
PVP	Property Vegetation Plans
SCaRPA	Site and Catchment Resource Planning and Assessment tool
YVC	Yass Valley Council

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1. INTRODUCTION

The Natural Resources Commission (NRC) has a statutory role to audit whether the state's 13 Catchment Action Plans (CAPs) are being implemented effectively – that is, in a way that complies with the *Standard for Quality Natural Resource Management* (the Standard) and will help achieve the state-wide targets.

In 2008, the NRC completed seven of the thirteen audits. In 2009 the NRC contracted external consultants to undertake the remaining six audits. The NRC contracted the Institute for International Development (IID) to undertake the audit of the implementation of the CAP prepared by the Murrumbidgee Catchment Management Authority (MDCMA).

This draft Audit Report to the NRC contains the conclusions of the audit of the implementation of the Murrumbidgee CAP and the actions that the audit team suggests that the Murrumbidgee CMA Board take to improve this implementation. The full audit conclusions and suggested actions, and a summary of the CMA's response to the suggested actions, are included in Attachment 1 of this report.

The purpose of this report is to promote greater understanding of the Murrumbidgee CMA's performance, and to guide the CMA Board in continued improvement. The report explains:

- the audit conclusions and their significance
- how IID used the Standard in reaching the conclusions.

The NRC will use the conclusions, along with those of other audits and additional information, to inform a report to Government on progress in implementing CAPs and performance of the regional model.

1.1 Focus of the audit

Although a range of government agencies have a role in implementing CAPs, the NRC focused its first audits on the actions of the CMAs in NSW. This is because CMAs are the lead agencies responsible for implementing CAPs.

In addition, while state-wide and CMA-level monitoring and evaluation programs are being implemented, sufficient and consistent data from these programs were not available at the commencement of these audits. As a result, the NRC's initial audits were not able to test the contribution of CMA actions against accurate measurements of landscape-scale changes in natural resource condition that help achieve the state-wide targets. Instead, the audits focused on whether CMAs' planning, project implementation and other CAP-related activities, and the business systems that guide and support these activities, are reaching the quality benchmarks set by the Standard.

The audits focused on four lines of inquiry:

1. Is the CMA effectively prioritising its investments to promote resilient landscapes that support the values of its communities?
2. Are the CMA's vegetation projects contributing to improved landscape function?
3. Is the CMA actively engaging its communities?
4. Is the CMA effectively using adaptive management?

For each line of inquiry, the NRC required the audit team to assess not only whether the CMA is doing the activity, but whether it is doing it effectively – that is, by applying the most relevant elements of the Standard and achieving the required outcomes of the Standard. The NRC believes a CMA that is doing each of these four activities in a way that reaches the quality benchmarks set by the Standard has the greatest chance of achieving multiple NRM outcomes and making the highest possible contribution towards the state-wide targets.

Finally, in pursuing each of the four lines of inquiry, the audit team was required to focus on CMA projects that use vegetation to improve landscape function. It was not practical to look at all CMA programs and projects, given the timeframe for the audits. The NRC considers that focusing on vegetation-related projects was the best option, as in general these have most potential to contribute to multiple NRM targets across more than one biophysical theme (for example, improvements in river health, soil function and native species habitat).

1.2 Summary of audit findings

To conduct the audit, the NRC identified what the audit team would expect to find if the CMA was doing each of the four activities listed above effectively. For each line of inquiry, the NRC identified three or four criteria they would expect the CMA to be meeting. The NRC also identified the elements of the Standard that are most relevant and important to that line of inquiry, and the CMA behaviours and other outcomes we would expect to find if the CMA is properly applying those elements of the Standard.

The audit team then assessed the CMA's performance against these expectations by interviewing a sample of CMA Board and staff members, landholders and other stakeholders; reviewing a range of CMA and public documents; and visiting projects.

Finally, the audit team identified the actions the CMA should take to improve its performance in implementing the CAP in compliance with the Standard.

The sections below summarise the audit findings for the Murrumbidgee CMA, including the NRC's expectations, the audit team's assessment of Murrumbidgee CMA's performance against these expectations, and the actions the audit team suggests the CMA take to improve its performance. As noted above, the full audit conclusions and suggested actions for Murrumbidgee CMA are provided in Attachment 1.

1.2.1 Prioritising investments to promote resilient landscapes

If a CMA is effectively prioritising its investments to promote resilient landscapes that support the values of its communities, the NRC would expect to find that it has a commonly understood definition of what constitutes resilient landscapes in its region. For example, its Board members and staff would be able to consistently explain the main natural resource assets in the region, and the interactions that characterise healthy landscape function. They would know the main threats to the assets and landscape function, and the environmental, economic, social and cultural value the community places on those assets. In addition, they would also agree on the options for action and how these actions promote resilient landscapes.

The NRC would also expect to find that the CMA has a system for ranking investment options that uses a wide range of information about the assets and threats, and can identify the projects that will contribute to

multiple NRM targets across more than one biophysical theme. This system would be transparent, consistent and repeatable. In addition, the NRC would expect to find that the CMA has a system to ensure its short- and long-term investments are consistent with each other and with the catchment-level targets in the CAP.

Our audit of Murrumbidgee CMA's implementation of the CAP found that:

- The CMA had a commonly understood definition of what constitutes resilient landscapes in the region. This understanding was expressed in the CMA's vision: *"a healthy and productive Murrumbidgee catchment and its communities working together – Yindyamarra"* and further explained in the CAP.
- There was a common understanding of the characteristics of resilience in the region among the Board and staff. This understanding included the ability of the landscape to respond to change and the importance of the adaptive capacity of the community.
- The CMA had a clearly documented and well-defined system that ranked investment options and incorporated the best available information and multiple CAP target achievement. The Board and staff demonstrated a shared understanding of a transparent, consistent and repeatable system to rank investment options. However, the limitations of the CMA's information management systems have prevented the consistent inclusion of spatial analysis in prioritisation to date.
- The CMA had systems that ensured short and long-term investments were consistent with each other and that these investments aligned with other planned targets.

There are no suggested actions for these criteria. Improvements to information management are dealt with under Line of Inquiry 4.

1.2.2 Delivering projects that contributed to improved landscape function

If a CMA is effectively delivering vegetation projects that contribute to improved landscape function, the NRC would expect its Board and staff to have a common understanding of how the short-term outcomes of its projects are expected to lead to long-term improvements in natural resource condition, and that the expected long-term outcomes are documented. The NRC would also expect to find that its projects are achieving the expected short-term outcomes, and that the CMA has a system for identifying opportunities to further leverage the experience of its project partners to add value to the initial projects.

In addition, the NRC would expect to find that the CMA is attracting additional funding and in-kind contributions to match government investments in projects, and that it has systems in place to monitor and evaluate project outcomes over time.

Our audit of Murrumbidgee CMA's implementation of the CAP found that:

- The CMA had documented its long-term objectives in its CAP. The objectives were consistently expressed in supporting plans and strategies such as the Corporate Strategic Plan, the MER (Monitoring, Evaluation and Reporting) Framework and associated templates. The planned management activities to achieve these objectives were logical and practically achievable.
- Project contracts included planned management actions. However the long-term objectives of both the CMA and landholders were not as well documented. There was therefore a risk that misunderstandings about the original objectives could occur when properties change hands or CMA staff change within the 10 year period of most contracts.

- The CMA had successfully achieved most project outputs on all projects inspected and these were robust and had strong logic linkages to long-term outcomes. Demonstrated changes in management practices and some changes in resource condition were also observed. Together these indicated that in most cases, achievement of long-term outcomes was likely if appropriate management actions were continued.
- The CMA was building good long-term collaborative relationships with landholders and other stakeholders and these relationships were fostering improved appreciation of natural resource values. However, on two projects being implemented by collaborating institutions, inspections showed that not all the outputs planned in the project designs had been achieved and on a third collaborative project not all management actions were being implemented.
- The CMA had attracted additional resources from landholders and project collaborators and recorded the contracted contribution in project files. However, significant differences were noted between what had been negotiated during project design and what had actually been contributed during project delivery. Consequently the full extent of additional resources attracted by the CMA had not been accurately recorded.
- The CMA had established a comprehensive MER system to track achievement of project outputs and the ongoing achievement of project outcomes. This system included the use of contracted inspectors to monitor project implementation and innovative 'Landholder Log Books' to engage landholders in the systematic monitoring and reporting of outputs and outcomes. However, on the projects inspected the landholders had not made any use of their Log Books. This indicated that despite the apparent strength of the system, it was not consistently delivering effective results.

The audit team suggests that the Murrumbidgee CMA Board take a range of actions to address the issues identified by the audit and so improve the extent to which its implementation of the CAP complies with the Standard. These actions include:

- Ensuring the long-term objectives of both the CMA and landholders are clearly documented in project contracts to facilitate long-term attention to the desired outcomes of the joint investment.
- Strengthen the monitoring and evaluation of project implementation by collaborative partners to ensure the delivery of outputs and maintenance of management actions.
- Developing a methodology that could be used to more accurately estimate and record additional resources contributed by stakeholders, and
- Further strengthening the monitoring of the outcomes of its investments by assisting landholders to effectively implement the Log Book system.

1.2.3 Effectively engaging its communities

If a CMA is effectively engaging its communities, the NRC would expect it to have identified the key community groups and stakeholders it should consider in planning and undertaking its work. The NRC would expect its Board and staff to have a shared understanding of these groups, including their knowledge, capacity and values, and the socio-economic and cultural opportunities and threats they pose to the successful implementation of the CAP.

In addition, the NRC would expect the CMA to be implementing an appropriate engagement strategy for each key group in its community, which is designed to build trust in the CMA, promote two-way knowledge sharing, and ultimately achieve outcomes. The CMA would also be implementing a communication strategy that promotes collaboration, sustainable behavioural change and feedback. These strategies would be

based on its knowledge of the interests, capacities and values of each group, and their communication preferences.

Our audit of Murrumbidgee CMA's implementation of the CAP found that:

- The CMA had identified the community groups and stakeholders it must consider in planning and undertaking its work. This was documented in both strategic and project specific documents.
- The CMA Board and staff had a shared understanding of community attitudes, capacity and values across the catchment. The CMA Board and staff also had a shared understanding that there may be gaps in engagement, in particular community groups and stakeholders not already involved in NRM.
- The CMA had engagement strategies that identified the CMA's stakeholder groups and the appropriate engagement mechanisms. The CMA was implementing the strategies in ways that demonstrated a meaningful understanding of engagement and stakeholder needs.
- The CMA had effectively engaged with councils, industry and the Aboriginal community at both local and strategic levels. This engagement had built trust and delivered on-ground outcomes. However, there was scope to extend collaboration with the irrigation industry to further contribute to achievement of CAP targets.
- The CMA had effectively engaged with Landcare groups and networks through regional offices and local projects. However, the mechanisms in place to engage at the strategic level were not effective, in that they did not promote two-way sharing of knowledge or build trust.
- The CMA was implementing its Community Engagement and Communication Strategy through a range of approaches, such as reference groups, publications, community consultation and rotational Board meetings.
- The CMA also used Project Liaison Committees (PLCs) to inform project planning and raise community awareness. However, there was a shared view between CMA staff and stakeholders that the effectiveness of PLCs should be reviewed to strengthen ownership and promote engagement in the long-term.

The audit team suggests that the Murrumbidgee CMA Board take a range of actions to address the issues identified by the audit and so improve the extent to which its implementation of the CAP complies with the Standard. These actions include:

- Using its review of the CAP to identify any potential stakeholders or community groups missed to date.
- Exploring opportunities for broader collaboration with the irrigation companies, institutions and other agencies to further contribute to the achievement of CAP targets.
- Reviewing existing mechanisms to engage with Landcare for their effectiveness in promoting a two-way sharing of knowledge and building trust, and
- Reviewing the effectiveness of the PLCs to build ownership of the projects and promote engagement in the long-term.

1.2.4 Effectively using adaptive management

If a CMA is effectively using adaptive management, the NRC would expect it to have documented how it will apply the principles of adaptive management in its planning and business systems. The NRC would expect its Board and staff to be able to explain how the CMA uses adaptive management to promote continuous learning at both an individual and institutional level. They would also be able to explain the key

knowledge gaps and uncertainties related to the assets and threats in the region, and how the CMA manages these.

In addition, the NRC would expect the CMA to use monitoring and evaluation systems that test the assumptions underlying its investments in improving landscape function and resilience, and use appropriate experts to assess the planned and actual outcomes of these investments. There would also be an organisational focus on applying new knowledge (gained from monitoring and evaluation or other sources) to increase the effectiveness of investments. Finally, the NRC would expect the CMA to have and maintain information management systems that support its adaptive management processes.

Our audit of Murrumbidgee CMA's implementation of the CAP found that:

- The CMA had clearly and consistently documented the principles of adaptive management in its planning and business systems. The CMA had recently developed a Corporate Strategic Plan and had mapped its 12 key business systems. This demonstrated a strategic approach to effectively applying adaptive management across the CMA.
- However, the Corporate Strategic plan had only been approved in May 2009 and the business systems had not yet been finalised. There was also evidence of gaps and inconsistencies in the development and implementation of some systems, such as the knowledge system and the MER (Monitoring, Evaluation and Reporting) system.
- The CMA had designed a comprehensive MER business system to drive the strategic and operational use of monitoring and evaluation. However, the system was not testing the underlying investment assumptions and employing appropriate expertise to assess planned and actual achievements.
- This system contained two components, the CAP MER strategy and the Strategic Plan MER strategy. While the CAP MER strategy was more developed neither strategy was complete nor fully implemented.
- The CMA had not maintained an information management system necessary to support adaptive management processes or other key business systems including financial management, knowledge, investment prioritisation and MER.
- The CMA was implementing a number of new information management systems sourced from agencies and other CMAs. However, there was no information technology (IT) Plan or detailed data modelling to guide implementation. Furthermore, there was already evidence of a significant risk that, despite the investment in new technology, the implementation of these systems would not deliver the information management necessary to support adaptive management processes.

The audit team suggests that the Murrumbidgee CMA Board take a range of actions to address the issues identified by the audit and so improve the extent to which its implementation of the CAP complies with the Standard. These actions include:

- Planning and prioritising the completion of the 12 key business systems and ensuring the Corporate Strategic Plan and the business systems are fully implemented in a timely manner.
- Completing the development of the MER business system and implementing both the CAP MER strategy and the Strategic Plan MER strategy.
- Developing and implementing an IT plan, as referred to in the Corporate Strategic Plan, to ensure a clear strategy for continued improvement of its information management system.

- Undertaking an analysis of the CMA's data needs, and an audit of available data both within the CMA and externally, to identify data that could support the information management systems.

1.3 Structure of the report

The rest of this report explains the audit conclusions and how the audit team used the Standard in reaching those conclusions in more detail. It is structured around each of the four lines of inquiry as follows:

- Chapter 2 describes the audit team's assessment of whether the CMA is effectively prioritising its investments to promote resilient landscapes that support the values of its communities
- Chapter 3 focuses on whether the CMA's vegetation projects are contributing to improved landscape function
- Chapter 4 discusses the audit team's assessment of whether the CMA is effectively engaging its communities
- Chapter 5 looks at whether the CMA is effectively using adaptive management.

The attachments provide the full audit conclusions, suggested actions, more detailed information about the audit, and an overview of the context for the audit conclusions including a summary of the key features of the Murrumbidgee region and CMA. As noted above, a summary of the CMA's response to suggested actions has been provided in Attachment 1.

2. PRIORITISING INVESTMENTS TO PROMOTE RESILIENT LANDSCAPES

The audit's first line of inquiry was to assess whether the CMA is effectively prioritising its investments to promote resilient landscapes that support the values of its communities. This line of inquiry focused on planning – the first step in the adaptive management cycle. Its aim was to assess whether the CMA had established the knowledge, understanding, systems and procedures required to undertake this step effectively, in line with the Standard.

Although the CAP itself documents the priorities in the region, the NRC recommended approval of each CAP on the basis that the CMA would continue to improve the plan's quality and potential to contribute to the state-wide targets. Therefore, the CMA cannot simply spend its funds in line with the CAP. Rather, it needs to continue to apply the Standard in implementing the CAP. This will enable it to continually refine its investment priorities as its knowledge of the landscapes and communities in its region improves, and its understanding of best-practice NRM evolves.

The NRC identified three criteria that they would expect a CMA to meet in order to effectively prioritise its investments in compliance with the Standard. These criteria include that the CMA had:

- a commonly understood definition of what constituted resilient landscapes in its region
- a system for ranking investment options that took account of factors such as scientific and local knowledge; socio-economic information; community and investor preferences; potential for partners to contribute matching funds or in-kind support, and potential to achieve maximum outcomes, for example, by contributing to multiple NRM targets across more than one biophysical theme
- a system that ensured that its short- and long-term investment priorities were consistent with each other, and with the catchment-level targets in the CAP.

The NRC identified the elements of the Standard that are most relevant and important for meeting these criteria. The NRC also identified the behaviours and other outcomes they would expect the CMA to demonstrate if it is properly using these elements of the Standard, and thus meeting the criteria to a level of quality consistent with the Standard.

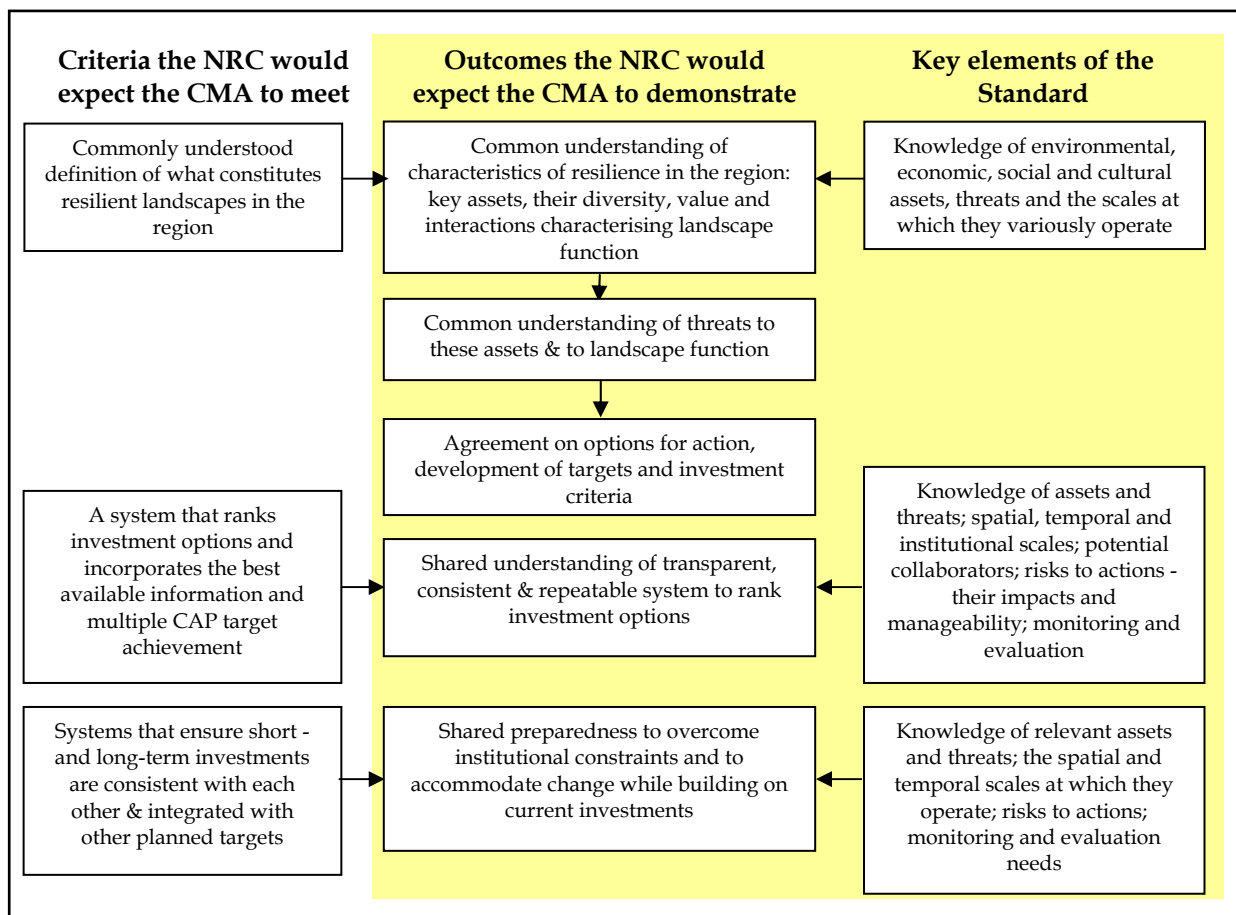
For example, if the CMA is meeting the first criterion (having a commonly understood definition of what constitutes resilient landscapes in its region) in a way that complies with the Standard the NRC would expect it to be collecting and using the best available knowledge on the natural resource assets and threats in its region, and on the economic, social and cultural values its community places on those assets. The NRC would also expect it to be considering the scales at which the assets and threats operate, and determining the optimal scale at which to manage them to achieve multiple NRM benefits and integrated outcomes.

As a result, the NRC would expect to find that its Board members and staff can consistently explain the main natural resource assets in the region, and the interactions that characterise healthy landscape function. The NRC would also expect them to understand the main threats to the assets and landscape function, and the environmental, economic, social and cultural value the community places on the assets. In addition, they would agree on the options for action to address the threats and maintain or improve the quality of the assets, and the criteria for deciding the actions in which the CMA should invest.

Figure 2.1 provides an overview of this assessment framework. The criteria the NRC would expect the CMA to meet are shown in the left hand column, the most relevant and important elements of the Standard

for meeting these criteria are in the right hand column, and the behaviours and other outcomes the NRC would expect the CMA to demonstrate if it is using these elements of the Standard are shown in the centre column.

Figure 2.1: The framework the audit team used to assess whether the CMA was effectively prioritising investments to promote resilient landscapes



The sections below discuss each criterion, including why it is important and what the audit found in relation to it.

2.1 Commonly understood definition of resilient landscapes

NSW's aspirational goal for natural resource management is resilient landscapes – that is, “landscapes that are ecologically sustainable, function effectively and support the environmental, economic, social and cultural values of our communities”. At its simplest, a CMA's role is to coordinate investment to improve NRM across its region and deliver outcomes that make the greatest possible contribution to the achievement of this goal. To do this, the CMA must have a commonly understood definition of what constitutes resilient landscapes in its catchment – its Board and staff members need a consistent understanding of what the goal means for the particular landscapes and communities in its region.

The audit found that the Murrumbidgee CMA had a commonly understood definition of what constitutes resilient landscapes in the region. This understanding was expressed in the CMA's vision: “*a healthy and*

productive Murrumbidgee catchment and its communities working together – Yindymarra and further explained in the CAP. The vision was clearly documented in the Corporate Strategic Plan and numerous other planning and operational publications and communication tools.

The CMA Board and staff had a common understanding of the characteristics of resilience in the region. This understanding included the ability of the landscape to respond to change or ‘bounce back’ following adverse impacts and the importance of the community’s adaptive capacity. The inclusion of the Wiradjuri term “Yindymarra” in the vision was commonly seen as an expression of the CMA’s recognition of the importance of cultural values.

The CMA had updated its understanding of resilience over time. This was detailed in recently developed strategies and communication tools such as the “Creating Resilient Landscapes in the Murrumbidgee Catchment” presentation, which had been used in staff training. Recently developed documentation, such as the revised Community Engagement and Communications Strategy, explained resilience and linked the concept to how the CMA engaged the community.

In respect to the Standard, the CMA:

- demonstrated it had collected knowledge of environmental, economic, social and cultural assets and threats, and the scales at which they variously operate, to inform its understanding of landscape function (*Collection and use of knowledge, Community engagement, Determination of scale*)
- demonstrated a shared understanding of characteristics of resilience in the region, the key assets, their diversity, value and interactions characterising landscape function. (*Information management*)

2.2 A system for ranking investment options

Our knowledge of biophysical and natural systems is incomplete and evolving. People’s interactions with natural systems are also dynamic, and community values evolve over time. Because of this, CMAs need to continually seek out improvements in knowledge and adjust their focus accordingly. Their systems for ranking their investment options need to use a wide range of information – such as scientific and local information on the assets and threats in the catchment, as well as information on the values the community places on the assets, and on potential collaborators and their capacity.

In addition, CMAs have received limited government investment and have an enormous amount to achieve if we are to realise the goal of resilient landscapes. This means they need to invest these funds in ways that will make the greatest possible contribution towards as many catchment-level and state-wide targets as possible. To do this, they need a system for ranking investment options that takes account of the options’ potential to contribute to multiple targets.

The audit found that the Murrumbidgee CMA had a clearly documented and well-defined system that ranked investment options and incorporated the best available information and multiple CAP target achievement.

The Investment Prioritisation system was one of the CMA’s 12 key business systems and had been clearly documented and described in the process mapping of key business systems recently undertaken by the CMA. It had been developed over time and incorporated the best available information and multiple CAP target achievement.

The prioritisation system clearly directed investment towards achieving CAP targets. The CAP was structured around the four themes or 'key assets' of Land, Water, Biodiversity and Community and had been built on the former Catchment Blueprint with a refinement of targets.

Historically, salinity flowing into the Murrumbidgee River has been one of the major threats to landscape assets in the catchment. The CMA initially identified five (5) priority sub-catchments on the basis of salinity discharges from each sub-catchment. In funding rounds prior to 2008/09 the CMA received almost all of its funds from the National Action Plan (NAP), a program that was aimed at treating salinity and improving water quality. The CMA directed this funding through programs and projects targeted towards its priority sub-catchments.

The CMA had regularly assessed progress against the CAP and made adjustments to its priorities in successive funding rounds. In the 2008/09 financial year, the CMA commissioned consultants to undertake a review of salinity in the priority sub-catchments, using point sampling of salinity discharges. This review identified the sub-catchments that were exporting the highest salt loads by sampling the discharge rates during base flow conditions when the dilution effect of stream flows would be at their lowest. The sampling demonstrated that salinity outflows across the sub-catchments had declined. However, it was not possible to determine whether this reduction was attributable to changed management actions or the drought, and the review confirmed that the salinity discharges were such that the selection of priority sub-catchments was still appropriate.

The CMA had used both its Knowledge Bank system (see Section 5.1) and its community consultation processes to help ensure the prioritisation process was using best available information. Findings from internal reviews of progress against CAP targets and community consultation showed that the CMA was not achieving its CAP targets in areas outside of the priority sub-catchments, for example in the lower Murrumbidgee area. In response, the CMA developed an asset management plan for the area. This plan provided the basis for developing targeted projects that would deliver progress towards CAP targets. The CMA sourced suitable funding and developed the Eco Tender project (see Box 2.1) to maintain and improve the quality and extent of nationally significant environmental assets on private land in the floodplain. These assets included threatened vegetation communities, wetlands and aquatic habitats and areas of significant Aboriginal cultural heritage. Funding was targeted towards individual property-scale projects where the CMA could achieve best value for money. Projects were selected through the use of market-based instruments (MBIs); in this case a tender process.

The one notable weakness in the prioritisation system was that the CMA had not consistently applied spatial analysis to enhance its understanding of scale and connectivity when targeting its investments. This was mainly due to the lack of spatial analysis capacity in the CMAs information management systems. This issue is fully discussed in section 5.3.

Overall, the CMA demonstrated that it had developed and applied a transparent, consistent and repeatable system to prioritise its investments and the Board and staff demonstrated a shared understanding of the system.

In respect to the Standard, the CMA:

- demonstrated it had consistently applied available knowledge of assets and threats and risks to actions to prioritise investment, design programs and assess individual projects (*Collection and use of knowledge, Determination of scale, Risk management*)

- could not demonstrate it had consistently applied spatial analysis to refine its understanding of the scale of assets and threats and improve its prioritisation of investment. (*Determination of scale and Information management*).

Box 2.1: Targeting investment in priority areas to achieve progress towards CAP targets.

The MBCMA used a market based instrument approach to target investment towards priority areas in the Lower Murrumbidgee region. This project maintained and improved the quality and extent of high value environmental assets on private land in the region and ensured progress towards CAP targets.

A CMA review of achievements towards CAP targets revealed that insufficient progress was occurring in the lower Murrumbidgee region. In this dryer region of the catchment, water is the key to maintaining growth and promoting resilience. The persistent drought of recent years had placed much of the landscape under stress and threatened a loss of biodiversity in areas of high value vegetation on private land.

Community consultation undertaken by the CMA indicated that there were landholders throughout the area that were interested in taking action to preserve bio diversity. In response to this consultation, the CMA developed the Lower Murrumbidgee Eco Tender with the stated objective of "maintaining and improving the quality and extent of targeted high public value environmental assets on private land." The CMA decided to use a tender process to target landholders who were prepared to enter into stewardship contracts. This use of tenders enabled the CMA to assess the extent of funding needed to achieve its targets and to select those projects that offered best return on investment.

The CMA engaged interested landholders through advertising and direct contact. Those landholders who responded positively were invited to attend workshops where the priority vegetation types were described and the tender process was explained. Typically about 50% of attendees indicated interest in entering into stewardship agreements.

The CMA then visited these properties to make a preliminary assessment of the value of the vegetation in biodiversity terms, by applying the Property Vegetation Planning (PVP) biometric tool.



Above right: A sample of Redgum forest on the Lower Murrumbidgee Floodplain within an area of 530 Ha targeted by the Eco Tender project.

Eventually 17 bids were received and these were further analysed using the 'Site and Catchment Resource Planning and Assessment' (SCaRPA) tool. This tool calculated an environmental benefit score (EBS) and then ranked each tender bid by unit cost. An independent expert panel evaluated the offers and recommended 11 cases for funding based on higher returns on investment. Two marginal cases were recommended for further consideration. The CMA invited the landholders in these marginal cases to negotiate to improve the strength of their proposals and ensure the maximum area could be secured for the available funding.

The audit inspected one of the projects selected through this process. The project was situated along the banks of the Murrumbidgee River between cleared farming areas and was the largest project tendered. The project site was also across the river from a similar property where the bio diversity was also being managed as a public service. This demonstrated the consideration of scale in the selection process.

The landholder described the impact of the drought in the region and how these circumstances had promoted his interest in entering into a 10 year stewardship agreement. He considered that the known financial return for stewardship through a PVP contract compared favourably with the risks associated with continued farming and timber harvesting with limited available water. The landholder had undertaken the project as a systematic evaluation of both the results in terms of preserved bio diversity and the opportunity cost of stewardship over long periods.

The CMA and farmer proposed an in depth evaluation of his experience to assess the outcomes and compare the stewardship approach to other incentives based approaches system that subsidise inputs such as fencing.

This innovative approach of targeting investment to priority areas through the use of tenders maximised progress towards CAP targets and promoted the benefits of bio diversity stewardship to landholders within the Lower Murrumbidgee region.

2.3 Systems that ensure consistent short and long-term investments

The time lapse between changes to the management of natural resources and the improvement in the function of natural systems can be significant. In the interim much can change, and CMAs need to accommodate this change without losing focus on the long-term objectives of their region's CAP. To do this, CMAs need systems to help them adaptively manage towards long-term targets as they learn what works and what doesn't, and as the environmental, economic, social and cultural landscapes around them change.

The audit found that the Murrumbidgee CMA had systems that ensured short and long-term investments were consistent with each other and that these investments aligned with other planned targets.

In funding rounds prior to 2008/09 the CMA was faced with trying to implement a CAP with National Action Plan for Salinity and Water Quality (NAP) funding that was targeted to only a subset of priorities within the catchment, i.e. water quality and salinity. To ensure achievement against CAP targets, the CMA developed programs that applied vegetation-based management actions to the treatment of salinity and the improvement of water quality. The CMA then developed a delivery system that was efficient to operate, provided long-term security for investors and achieved multiple outcomes.

The CMA used Property Vegetation Plans (PVPs) as the contractual tool to deliver all project activities with landholders. This focussed all delivery through a single contractual system and provided long-term security of investment by linking incentive contracts to land titles.

The CMA then developed the Integrated Project Delivery (IPD) system to deliver incentives from the various programs through these PVPs. These incentives were referred to as 'products'. The IPD was designed to enable staff to tailor a holistic package of 'products' to the resource condition of properties and the needs of individual property owners.

When the flow of funds varied and investors changed their preferences the CMA had the systems, knowledge and networks in place to rapidly make adjustments. The number and nature of 'products' available could be quickly adjusted to meet investor preferences and staff were able to continue 'selling' integrated suites of products to landholders across the catchment while the CMA sought funding for additional programs or projects to fill funding gaps. Community engagement mechanisms, such as Project Liaison Committees (PLCs), were used to capture local knowledge and inform stakeholders of the products available and promote interest among landholders in priority areas of the catchment. This assisted rapid rollout of incentives as new products became available.

In addition, the CMA collaborated with the irrigation companies to align the incentives offered through Land and Water Management Plans within the irrigation areas with incentives offered by the CMA elsewhere in the catchment.

The CMA consistently reviewed its progress against CAP targets and reported on this progress to the Board and externally in Annual Reports. Where progress was inadequate the CMA sought additional funding that was then applied to improve alignment of short-term and long-term targets.

The Eco Tender project was one such targeted program (see Section 2.2 and Box 2.1). This project made use of additional funding to provide products for offer in the Lower Murrumbidgee Floodplain. These products were then added to the suite of products already available to landholders in this priority area.

In respect to the Standard, the CMA:

- demonstrated that it had evaluated and adapted its short-term investments to promote integrated long-term outcomes (*Collection and use of knowledge, Determination of scale, Monitoring and evaluation and Information management*).

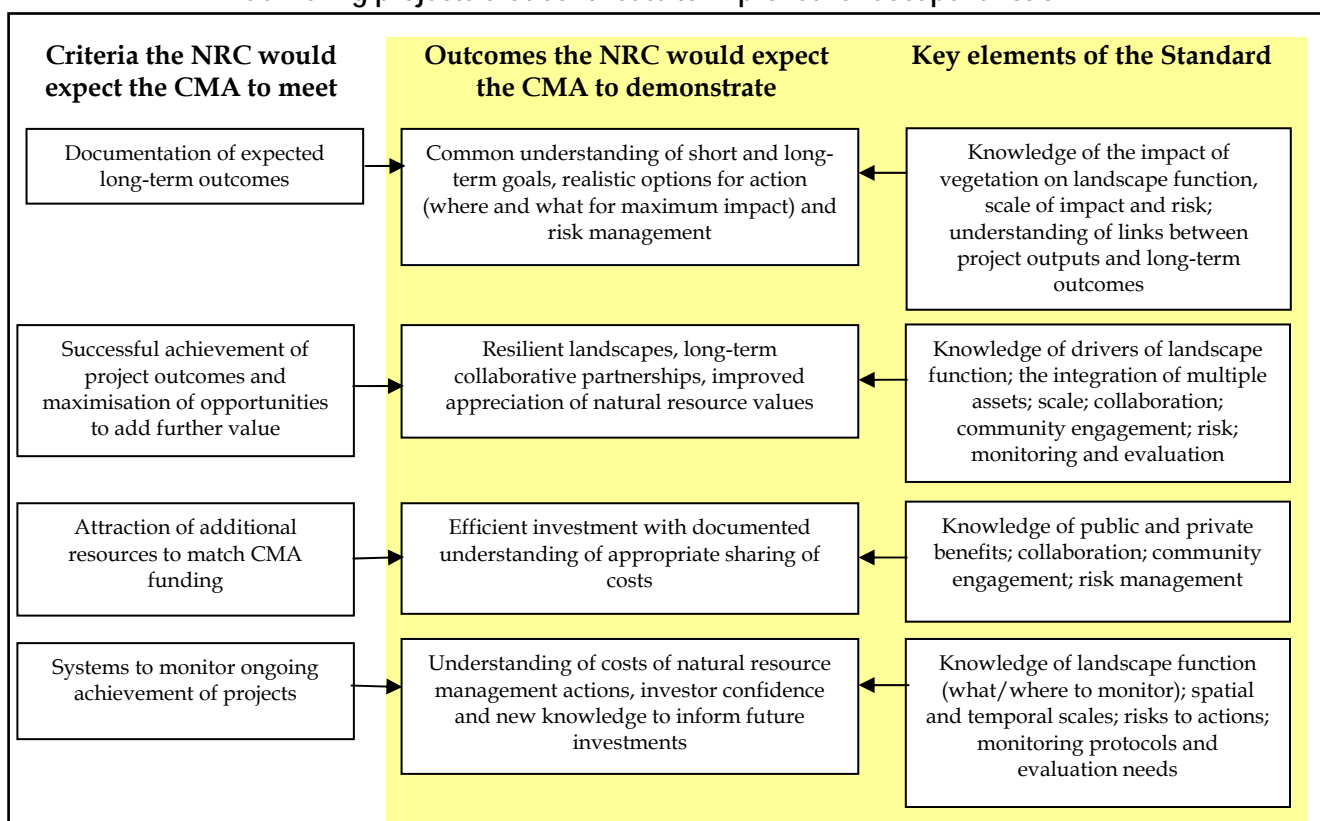
3. DELIVERING PROJECTS THAT CONTRIBUTE TO IMPROVED LANDSCAPE FUNCTION

The audit's second line of inquiry assessed whether the CMA's vegetation projects are contributing to improved landscape function. CMAs should promote short-term improvements in the management of natural resources in their catchments that will contribute to long-term improvements in natural resource condition. To understand whether they are pursuing this aim in a way that meets the quality benchmarks set by the Standard, we assessed whether they were meeting four criteria. These were that the CMA:

- documents the expected long-term outcomes of projects it invests in
- is successfully achieving short-term project outcomes, and maximising further opportunities to add value
- is attracting additional resources to match its funding in projects
- has a system to monitor achievement of ongoing project outcomes.

As for all lines of inquiry, the NRC also identified the elements of the Standard that are most relevant to meeting these criteria effectively, and the behaviours and other outcomes the NRC would expect to see if the CMA is using those elements of the Standard. These are shown in Figure 3.1.

Figure 3.1: The framework the audit team used to assess whether the CMA was effectively delivering projects that contribute to improved landscape function



The sections below discuss each criterion, including why it is important and what the audit found in relation to it.

3.1 Documentation of expected long-term outcomes

Natural resource management is a long-term process, and it can take many years to achieve intended improvements in landscape function. In addition, our knowledge of natural systems and best practice in managing them continues to evolve, so natural resource managers need to continually adapt their actions to take account of new knowledge. The documentation of projects' expected long-term outcomes is important to help ensure projects stay on track over time. For example, it can help landholders and CMA field staff in continually managing towards those outcomes in the longer term as circumstances change.

The audit found that the Murrumbidgee CMA had documented its long-term objectives in its CAP. The objectives were consistently expressed in supporting plans and strategies such as the Corporate Strategic Plan, the MER (Monitoring, Evaluation and Reporting) Framework and associated templates. The planned management activities to achieve these objectives were logical and practically achievable. The linkages between these outcomes, major project activities and management actions were logically sound and clearly described in planning documents. Further, the CMA had a common understanding of the linkages between short-term targets in annual implementation plans and its long-term targets in the CAP.

However, the long-term objectives of both the CMA and landholders were seldom expressed in any detail in individual project contracts. This meant that the linkages between the short-term activities and management actions in contracts and the expected long-term outcomes of both parties were not always clear to landholders. As a result, there is a risk that the importance of changed management actions could be lost during the 10 - 15 years of the project contracts. This would reduce the likelihood that the intended long-term outcomes would be achieved.

In respect to the Standard, the CMA:

- demonstrated it had clearly documented expected outcomes in its CAP and these were consistently expressed in all supporting plans such as the strategic plan, the MER Framework and associated templates (*Determination of scale and Risk management*)
- demonstrated a common understanding of the logical relationships between project outputs, management actions and the long-term expected outcomes (*Determination of scale, Community engagement and Risk management*)
- could not demonstrate that long-term objectives of both parties were clearly documented in project contracts (*Risk management and Information management*).

3.2 Successful achievement of project outcomes

CMAs' projects need to successfully achieve short-term changes in the way natural resources are managed in their region to maintain credibility with their communities, and create confidence in their investors. However, as CMAs often engage with their communities on the community's terms (at least initially), they also need to seek opportunities to add greater value to the projects proposed by landholders or other stakeholders.

The audit found that the Murrumbidgee CMA had achieved most planned outputs and these were robust and had strong logic linkages to long-term outcomes. Demonstrated changes in management practices and some changes in resource condition were also observed. Together these indicated that achievement of long term outcomes was likely if appropriate management actions were continued.

The CMA was also developing long-term project partnerships with landholders and was promoting a shared appreciation of natural resource values (Box 3.1).

On three projects inspected the CMA had engaged with collaborative partners including local councils, aboriginal corporations and one of the Livestock Health and Pest Authorities (LHPA). In two of these three projects that were being implemented by collaborating institutions, the outputs had not been fully completed and project participants suggested that, due to a variety of reasons, it was now unlikely that all the designed outputs would be delivered. In the third project, management actions were not being adequately applied.

Furthermore, the CMA had made payments to the project partners ahead of completion of the projects. The ability of the CMA to influence these partners to comply with management actions for the balance of the 10-15 year contract period was therefore uncertain. The consequence of these weaknesses is that intended long-term outcomes may not be achieved.

In respect to the Standard, the CMA:

- demonstrated the use of knowledge to develop sound logic assumptions linking outputs to management actions and long-term outcomes (*Collection and use of knowledge*)
- demonstrated the use of strong collaborative partnerships to deliver project outputs and maximise value (*Determination of scale, Community engagement and Opportunities for collaboration*)
- could not demonstrate successful achievement of all project outputs on collaborative projects (*Risk management, Monitoring and evaluation*).

Box 3.1: Achieving outcomes in a difficult landscape by building long-term partnerships with landholders

The Jugiong sub-catchment is considered to be the most salinised catchment in the Murray Darling Basin (MDB). The CMA needed to build long-term partnerships to achieve outcomes in this difficult environment.

The CMA had consciously targeted landholders that demonstrated a willingness to engage in project activities and apply best available knowledge. When landholders undertook a helicopter survey of saline affected areas in the sub-catchment they saw the full impact of salt across the landscape. Some landholders immediately recognised that unless they changed management practices their farming businesses would be unsustainable.

One project inspected was the result of the CMA establishing a long term partnership with one of these landholders and funding a series of 7 investments (or projects) over a 5-year period. Each had built on the lessons learned from the previous project and addressed progressively more difficult issues.

The first project restricted grazing and improved ground cover and soil condition in the discharge zone using salt tolerant vegetation species. This was followed by planting productive deep-rooted perennial vegetation in selected high priority recharge zones, planting native vegetation in lower priority zones and establishing farm forestry in other zones to diversify income.

In response to drought conditions, the farmer established a 'sacrifice paddock' and alternative water points in a less eroded area to reduce grazing pressure in the more fragile areas of the property.

Through the series of projects, the CMA had significantly enhanced its knowledge of how best to deal with this salt affected landscape. The CMA was also able to promote the projects' achievements to both CMA staff and other landholders through field days.

The landholder had benefited by establishing a more resilient farming enterprise. He had retired his poorer country from active use to preserve the biodiversity and now managed a 50:50 mix of grazing and farming with some protection of income from forest harvesting.

Right: *New vegetation growth in a discharge site of approx. 8 ha that was previously denuded of vegetation. Achieving this result in this difficult landscape was a slow process requiring persistence and several replantings.*



In particular, his formerly unproductive salt discharge area had the potential to develop into some of his better grazing land. Improved ground cover had greatly reduced salt deposition at the surface through evapo-transpiration and soil moisture, which had formerly been 'locked up' by the salt at the surface, was available for plant growth.

By building a long-term collaborative relationship with the landholder the CMA had achieved significant project outcomes and maximised the opportunity to add further value in this difficult landscape.

3.3 Attraction of additional resources

To make the most of the small amount of funding CMAs have to invest in their regions, they need to look for opportunities to attract matching funding. They also need to encourage private landholders to make ongoing in-kind contributions, as this promotes resource stewardship and can increase the likelihood of landholders remaining committed to the success of the project over time.

The audit found that the Murrumbidgee CMA had attracted additional resources from landholders and project collaborators, including both monetary and in-kind investments. The CMA had also encouraged ongoing in-kind contributions through stewardship contracts on all projects inspected.

The CMA had sought to maximise efficient use of its investment and had documented the intended value of additional investment in its project files. However these figures reflected what had been negotiated in the initial contracts rather than what had actually been contributed over the project period.

Project inspections indicated that in some cases the additional in-kind contributions had been underestimated. However, in other projects landholders had made significant savings and this meant the recorded inputs were overestimated. For example, in the slopes at the eastern end of the catchment landholders stated that fencing costs had been underestimated. Conversely, in the Hay plains area landholders explained that these costs were probably only one half of those estimated in the project contract.

This suggests that while the CMA was attracting in-kind contributions the extent of these was not always being accurately recorded. Consequently, there is a risk that the CMA may be discouraging landholder engagement in some areas by requiring a higher contribution than anticipated. In other areas the CMA could be failing to obtain full value for money by requiring a lesser contribution from landholders.

In respect to the Standard, the CMA:

- demonstrated it had attracted additional resources to its investments and promoted community awareness of appropriate cost sharing (*Opportunities for collaboration and Community engagement*)
- could not demonstrate it had accurately collated and recorded the extent of the additional resources it had attracted (*Monitoring and evaluation and Information management*).

3.4 A system to track ongoing achievement of projects

Long-term projects to encourage resource stewardship need monitoring – particularly given the significant time lapses between investments and resulting improvements in resource condition, the gaps in our understanding of how to manage dynamic natural systems, and the unavoidable flux in social, economic and climatic conditions. Investors require reliable information that short-term targets have been met, and progress towards longer term objectives is being made.

The audit found that the Murrumbidgee CMA had developed a comprehensive MER system to track the achievement of project outputs and the ongoing achievement of project outcomes. This system was being progressively implemented. The CMA made extensive use of contractors to deliver project inputs and tight control of these contractors provided an accurate understanding of the costs of its natural resource actions.

The CMA had also developed an innovative Landholder Log Book system to engage landholders in the systematic monitoring and reporting of outputs and outcomes. The intent of the system was that landholders would record all project activities and personal observations of project outcomes in their Log Books. These would be periodically inspected by CMA staff and any issues noted in the Log Books could be discussed and key lessons fed back to the CMA through the Incident Reporting system (see Section 5.2). The Log Books had the potential to build a shared understanding of the costs of natural resource management actions and capture new knowledge that could then be used to inform future investments.

However, while the CMA could provide examples of where the log books had been used effectively, on all projects inspected, the landholders had not yet made any use of their Log Books. This indicated that despite the apparent strengths of the system it was not yet being consistently implemented.

In respect to the Standard, the CMA:

- demonstrated it was implementing a comprehensive MER system to monitor and report on project outputs and outcomes and evaluate the effectiveness of its investments (*Collection and use of knowledge, Monitoring and evaluation and Risk management*)
- could not demonstrate it was effectively monitoring outcomes and capturing landholder knowledge that could inform future investments (*Collection and use of knowledge and Monitoring and evaluation*).

4. COMMUNITY ENGAGEMENT

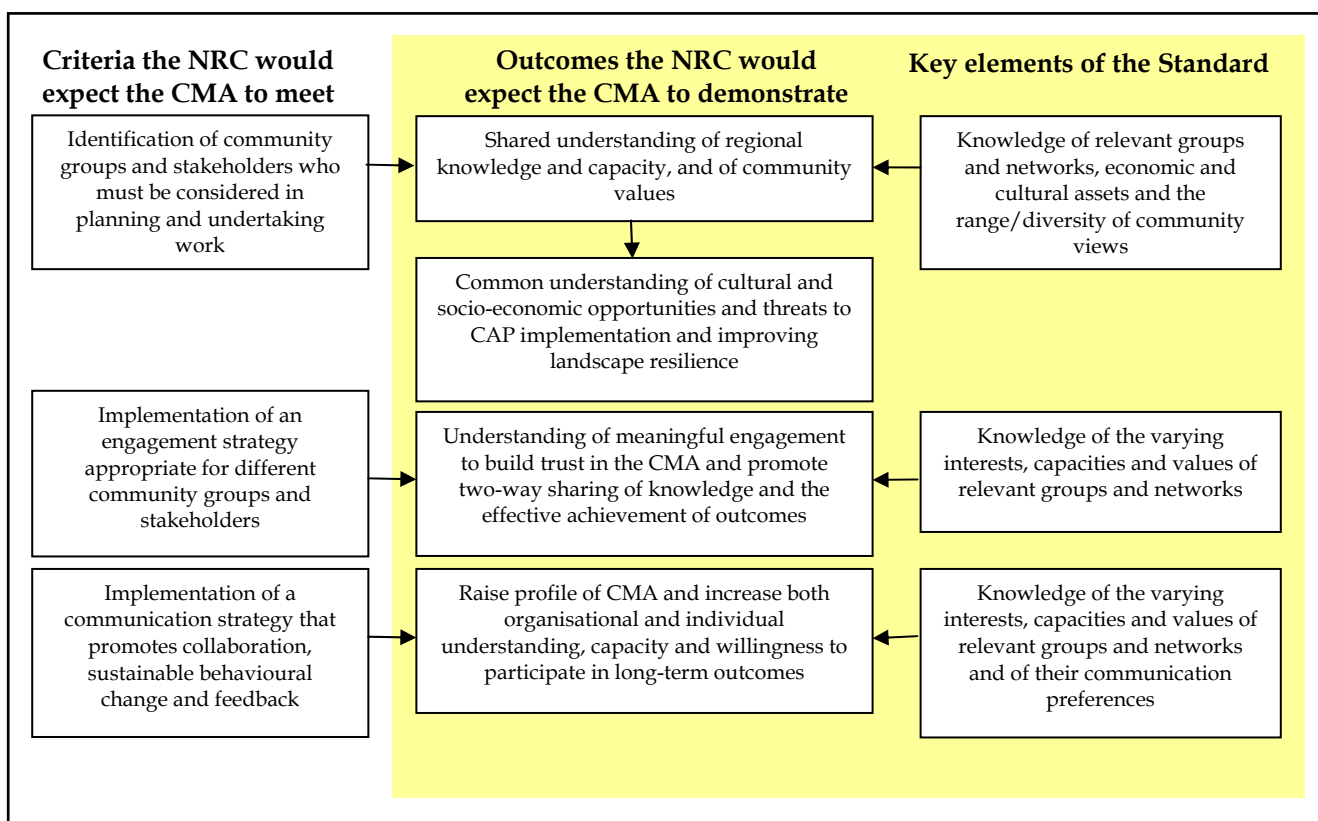
The audit's third line of inquiry was whether the CMA is effectively engaging its communities. Given that 89 per cent of land in NSW is in private management, it is critical for CMAs to engage private landholders and other stakeholders who manage the natural resources on this land. This allows CMAs to access the local knowledge of their communities, and understand the values placed on the natural resource assets in their region. It also enables them to influence how natural resources on private land are managed, and to maximise the effectiveness of government investment in NRM by establishing collaborative partnerships with landholders and other stakeholders, and strengthening the capacity of their communities.

The NRC identified three criteria that a CMA would be expected to meet in order to effectively engage its communities in compliance with the Standard. These criteria include that the CMA:

- has identified the community groups and stakeholders it must consider in planning and undertaking its work
- is implementing engagement strategies appropriate for different community groups and stakeholders
- is implementing a communications strategy that promotes collaboration, sustainable behaviour change and feedback.

Each of these criteria is shown on Figure 4.1, along with the key elements of the Standard for meeting it effectively, and the CMA behaviour and other outcomes the NRC would expect to see if the CMA was using those elements of the Standard.

Figure 4.1: The framework the audit team used to assess whether the CMA was effectively engaging its communities



The sections below discuss each criterion, including why it is important and what the audit found in relation to it.

4.1 Identification and analysis of community groups and stakeholders

A CMA's logical first step in engaging the community is to identify the key community groups and other stakeholders it must consider in planning and undertaking its work. To be effective, it also needs to understand these groups – for example, what they know about the natural resource assets and threats in the region, what is important to them, and to what extent they have the capacity to participate in NRM designed to improve landscape function. In addition, it needs to understand how these groups might present opportunities or pose threats to its ability to effectively implement the CAP and meet the catchment-level targets in the CAP. Developing and maintaining this kind of understanding requires systematic research and analysis.

The audit found that the Murrumbidgee CMA had identified the key stakeholders it must consider in planning and undertaking its work. The CMA had documented its stakeholders, partners and community groups in the CAP and other strategies, as well as external reports commissioned by the CMA. The CMA maintained a contracts database with contact information about landholders with PVPs. CMA staff also maintained a local contact database for each of the twelve offices.

The CMA Board and staff demonstrated a shared understanding of community attitudes, capacity and values across the catchment. The CMA had processes in place to develop and maintain this understanding, including community consultation in 2008 to identify NRM priorities across the catchment. The CMA had appointed a staff member as 'Knowledge Broker' for the Community Asset (one of the four CAP themes). The main responsibility of the Knowledge Broker was to capture knowledge about its communities and stakeholders and to feed this information into CMA decision-making processes.

The CMA had used a range of consultation and engagement processes including engaging individuals on a one-on-one basis through the PVP process, and tapping into existing Landcare networks. However, members of both the CMA Board and staff believed that the CMA may have missed potential stakeholders and community groups as a result of this approach, most likely those not already involved in NRM.

In respect to the Standard, the CMA:

- demonstrated a good understanding of community groups and stakeholders across the catchment including their capacity, attitudes and values (*Collection and use of knowledge* and *Determination of scale*)
- demonstrated it had processes in place to develop and maintain knowledge over time (*Collection and use of knowledge*)
- had recognised that they may have missed potential stakeholders and community groups that are not already involved in NRM (*Determination of scale*).

4.2 Appropriate engagement strategies for different community groups and stakeholders

Most regions of NSW include a variety of communities, community groups and other stakeholders, which the CMA should consider in planning and undertaking its work. These groups have different knowledge

and capacity for NRM, and value the region's natural resources in different ways. For example, they might include rural communities, farmers and graziers, urban communities, Landcare groups, mining companies, tourism operators, local councils, relevant government agencies and other government institutions. To effectively engage these diverse groups, a CMA needs to use its understanding of each group to develop an appropriate strategy for productive engagement. This requires strategic thinking, risk management and processes to identify and fill knowledge gaps.

The audit found that the Murrumbidgee CMA's Community Engagement and Communication Strategy identified the CMA's key stakeholder groups and the appropriate engagement mechanisms for each group. The CMA was implementing the strategies in ways that demonstrated a meaningful understanding of engagement and stakeholder needs.

The Murrumbidgee Traditional Owners Reference Group provided a forum for representatives to provide input on project planning and to hear about what was happening across the catchment. The CMA had also engaged with the Aboriginal community at the project level through a third party arrangement with local councils and TAFE. This arrangement had fostered trust between all parties, built the capacity of council and the trainees and delivered on-ground outcomes (see Box 4.1).

The CMA had initiated a Memorandum of Understanding (MOU) with a number of councils in the catchment to provide a framework within which they could collaborate. Under these arrangements, the CMA had worked with councils to share information and technical expertise in undertaking NRM activities; review the alignment between the CAP, Local Environment Plans (LEPs) and Development Control Plans; and support and engage local indigenous organisations (as outlined above and in Box 4.1).

The CMA had effectively engaged with Landcare groups and networks (made up of a number of groups) at the local level. This view was supported by stakeholders. Natural Resource Officers in each office supported their local Landcare groups, providing guidance on available funding and project planning, producing newsletters (see Section 4.3), attending local meetings and acting as Landcare point of contact for the community during office hours. Catchment Co-ordinators from each office also liaised with local networks.

The CMA had mechanisms in place to engage with Landcare at all levels. This included quarterly meetings between the CMA General Manager (GM) and Chairs of the Landcare networks and a partnership agreement with Murrumbidgee Landcare Incorporated (an umbrella organisation, with a committee of the network Chairs). However, meetings with the whole group had not been held within the last eighteen months. Furthermore, stakeholders believed that the format of the meetings could be improved to better promote a two-way flow of information and build trust. Difficulties engaging with Landcare at the higher level threatened to undermine the solid relationships built locally.

The CMA had established strong collaborative relationships with key industry groups, such as Murrumbidgee Irrigation (MI). This had extended to MI preparing draft PVPs, on behalf of the CMA, within the Murrumbidgee Irrigation Area. However, there was a wider variety of collaborative activities with the irrigation industry that had not been fully explored by the CMA, such as delivery of NRM training and education modules across the catchment and the potential to share spatial analysis skills and data (see Section 5.3). Broadening the collaboration would provide further opportunity to contribute towards the achievement of CAP targets.

In respect to the Standard, the CMA:

- demonstrated it had appropriate strategies to engage key stakeholders that recognised the varying interests and capacities to engage (*Collection and use of knowledge, Community engagement and Determination of scale*)
- had not effectively engaged with Landcare at all levels (*Determination of scale and Risk management*).

Box 4.1: Collaborating to deliver sustainable communities and sustainable cultures

The Murrumbidgee CMA had partnered with councils to protect native vegetation and biodiversity and increase the capacity and involvement of Traditional Owners and Aboriginal people in NRM.

The CMA contracted Yass Valley Council (YVC) as Project Manager for the “Yass Sustainable Communities - Sustainable Culture” project. The aims of the project included:

- increasing the capacity and involvement of Traditional Owners and Aboriginal people in NRM
- increasing the wider communities' capacity to improve NRM by incorporating Aboriginal cultural heritage sites and values in the catchment, and
- undertaking NRM works on YVC managed land and other areas of public and private land.

The collaborative project was designed to contribute to management targets for biodiversity, water and community in the Murrumbidgee CAP.

The project involved the recruitment of a Yass Sustainable Communities – Sustainable Cultures team, consisting of 10 local members of the Aboriginal community, to undertake training and on-ground works within the project areas.

The training included weed control, revegetation, sediment and erosion control, track construction, operation and maintenance of equipment and machinery, fence erection and First Aid. The training was in accordance with TAFE requirements and equivalent to Certificate II or III in Conservation and Land Management.

The team were contracted to deliver on-ground works across the YVC area including:

- protecting native vegetation and revegetating biodiversity areas in Binalong and Yass
- establishing wetlands in Yass and Waterwise Gardens in Murrumbateman, Sutton and Yass, and
- undertaking major riparian restoration and maintenance in Yass and Sutton townships.

The collaborative arrangement delivered additional benefits for both parties. For example, the project provided YVC with an opportunity to effectively engage with local Aboriginal people while increasing the Aboriginal community's understanding of how councils operate. The participants on the Sustainable Communities – Sustainable Cultures team were provided with access to resources such as machinery and a training supervisor, as well as employment opportunities.

The agreement with YVC included quarterly reporting and a requirement to undertake on-going works and regular maintenance of the project area for ten years. This long-term arrangement should help deliver sustainable on-ground outcomes and provide on-going employment opportunities for members of the Sustainable Communities – Sustainable Cultures team.

4.3 Communication promoting collaboration, behavioural change and feedback

CMAs are also required to lead their diverse communities in understanding natural resource management. To do this, they need sophisticated approaches to communicating their messages, and for hearing and responding to the messages sent by communities. To capture the attention of diverse stakeholders such as Aboriginal communities, landholders, industry sectors, and urban and environmental organisations, their communication strategies need to reflect the varied values of their communities. This broad focus also helps to attract the widest possible funding and support across the region.

The audit found that the Murrumbidgee CMA had effectively implemented its Community Engagement and Communication Strategy to communicate the role of the CMA to the community and target activities to key partners. The CMA was implementing the strategy through a range of approaches including publications, promotional DVDs, Board and staff participation in community meetings, field days and events and community consultation. Collectively these approaches had raised the profile of the CMA and promoting collaboration, behavioural change and feedback.

The CMA's Board meetings rotated across the catchment and were often held in council chambers. The Board meetings were held over two days, with a mix of both formal and informal meetings. Stakeholders, such as local councils, were invited to attend meetings and provide information on existing projects and emerging collaboration opportunities. On Day 2 participants in local projects, such as Traditional Owners, were encouraged to lead Board members on site visits and describe their anticipated aims and outcomes of the project. The format and inclusive nature of the Board meetings provided opportunities for stakeholder collaboration and feedback.

The CMA had established Project Liaison Committees (PLCs) for some projects, comprising representatives from key stakeholder groups, such as local council, Landcare groups and Traditional Owners. The PLCs were responsible for raising community awareness of the project's purpose and activities and encouraging community participation. The PLC for the Yass River Renewal (willow removal) project had been instrumental in delivering maximum landholder participation in the area. However, there was a shared view between CMA staff and stakeholders that the PLCs should be reviewed for their effectiveness in building ownership of the projects and promoting engagement of stakeholders in the long-term.

The CMA provided communications support to local Landcare groups. The Natural Resource Officers in each office were responsible for producing bi-monthly newsletters, which were delivered to all registered mail boxes in the region. The newsletters displayed both CMA and Landcare logos and contained information about existing and upcoming projects and field days in the local area. Both CMA staff and stakeholders found the newsletters to be an effective and cost efficient way of distributing information to the broader community.

In respect to the Standard, the CMA:

- demonstrated it had effectively implemented a strategy that raised the CMA's profile and promoted feedback from the community (*Collection and use of knowledge* and *Community engagement*)
- could not demonstrate that the PLCs were effectively building ownership of projects and promoting engagement of stakeholders in the long-term (*Determination of scale* and *Community engagement*).

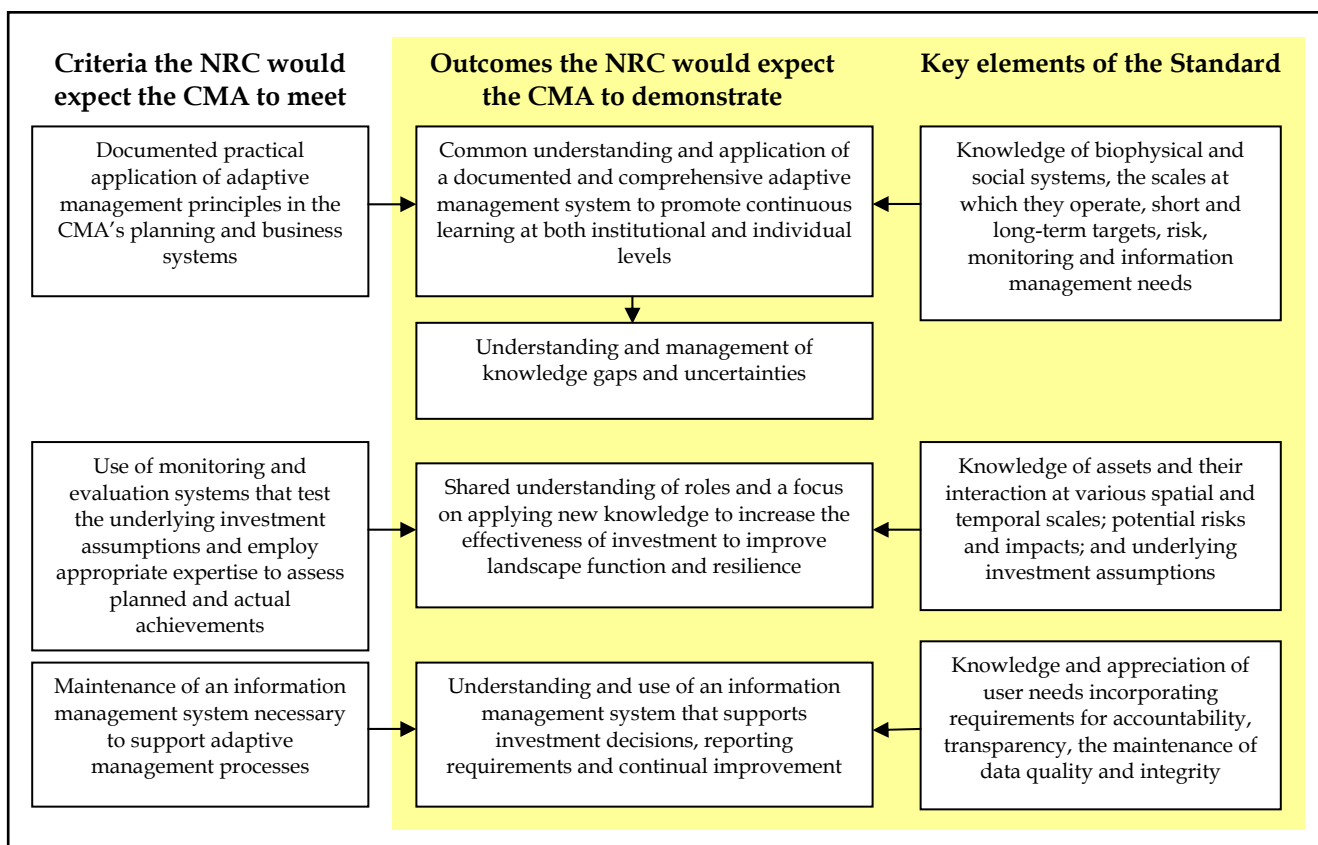
5. EFFECTIVELY USING ADAPTIVE MANAGEMENT

The audit's fourth line of inquiry assessed whether the CMA was effectively using adaptive management. It looked at whether the CMA:

- had documented the practical application of adaptive management principles to its planning and business systems
- had monitoring and evaluation systems that test its underlying investment assumptions and use appropriate experts to assess planned and actual achievements
- maintained information management systems necessary to support the adaptive management process.

Each criterion is shown on Figure 5.1, together with the elements of the Standard that are most relevant to meeting it effectively, and the CMA behaviour and other outcomes the NRC would expect to see if the CMA is using these elements of the Standard.

Figure 5.1: The framework the audit team used to assess whether the CMA was effectively using adaptive management



The sections below discuss each criterion in more detail, including why it is important and what the audit found in relation to it.

5.1 Adaptive management principles in planning and business systems

Adaptive management is 'learning by doing'. It is a structured, iterative process of decision-making that is intended to gradually reduce uncertainty and improve performance through monitoring, evaluation and response. It adds transparency and accountability to decision-making and the allocation of resources, while providing a framework for learning and ongoing improvement.

At a practical level, it is important that CMAs document, within their planning and business systems, how staff can apply adaptive management principles. This will help ensure their staff and collaborators can readily apply those principles in the many, diverse circumstances in which they work.

The audit found the Murrumbidgee CMA had clearly and consistently documented the principles of adaptive management in its planning and business systems. For example, the recently developed maps of the CMA's 12 key business systems incorporated the 'plan', 'implement', 'audit' and 'respond' stages of the adaptive management cycle. This demonstrated a strategic approach to effectively applying adaptive management across the CMA.

The CAP also promoted adaptive management and described the role of the MER system in adaptive management, both with regard to improving NRM outcomes and the CMA's operating systems. This had been followed through by the development of two complimentary streams within the MER system. These are further discussed in Section 5.2.

The Corporate Strategic Plan noted that the Core Business of the CMA included continually improving how NRM is being delivered across the catchment by being innovative and flexible in their response to better science and new and emerging issues. The CMA's goals in the Corporate Strategic Plan also included elements of reviewing and enhancing the governance framework and robust business systems. In addition, the CMA's recently mapped 12 key business systems were clearly documented and included a detailed review process.

However, much of this development had been undertaken in 2009. The Corporate Strategic Plan had been approved by the Board in May 2009 and the system maps were in draft and not yet approved for implementation. Some process maps demonstrated inconsistencies, particularly in relation to linkages with other systems.

The CMA had an Organisational Risk business system and maintained a Risk Management and Governance Committee. Comprehensive risk assessments had been undertaken every two years. The Board also maintained an Audit and Finance Committee that was responsible for ensuring that the Board's corporate governance responsibilities and financial/administrative accountabilities were met. This committee was also responsible for monitoring the effectiveness of the internal audit program and liaising with external auditors. Monitoring the implementation of any findings of internal and external auditors was also included in the Committee's responsibilities.

The Audit & Finance Committee also monitored project milestones and expenditure. The Committee used a 'traffic light system' to monitor deliverables and cashflow. This system demonstrated sound practical adaptive management and managed the risk of not meeting end of year expenditure targets.

The CMA demonstrated a wide range of adaptive management strategies and tools. However, there was evidence that development and implementation of these systems contained significant gaps and inconsistencies. For example, the Knowledge system was one of the CMA's 12 key business systems. The

basis of this system was established in 2005 with enhancements developed over time. It was designed to capture and apply knowledge to all other CMA business systems and was regarded as a significant achievement by members of the Board.

However, while this system demonstrated an innovative approach to the capture and use of knowledge it was not well supported by the CMA's existing information management systems. Much of the knowledge was in hardcopy in the custody of individual staff and several software packages and library catalogues of varying vintage were in use. Furthermore, recommendations to the Board in 2008 to incorporate Board knowledge into the Knowledge Bank appeared to have not been implemented yet and Board Members and their relevant skills and expertise did not feature in the Knowledge Register.

Incompleteness and inconsistencies in the Corporate Strategic Plan, the business system process maps and the Knowledge Base suggested that the systems that support adaptive management had not yet developed to where they could actively drive continual improvement throughout the organisation.

In respect to the Standard, the CMA:

- demonstrated that it had applied the Standard to incorporate the principles of adaptive management into its planning and business systems (*All Required Outcomes of the Standard*)
- could not demonstrate that it had implemented all of its numerous strategies and tools in a consistent CMA-wide approach to drive continual improvement throughout the organisation (*Information management and Monitoring and evaluation*).

5.2 Monitoring and evaluation system

To effectively apply adaptive management principles, CMAs' programs need to be designed and delivered in ways that facilitate structured learning. For example, investment programs need to record what changes to defined indicators are expected to result from the management actions within the program. Only then can CMAs undertake quantitative monitoring of these actions, and evaluate how successful they were in producing the expected changes.

It is not enough for a CMA to monitor and evaluate whether its projects have delivered the expected outputs (eg, that the expected quantity of native grasses were planted, or that the expected kilometres of fencing was installed). It also needs to test whether or not the assumptions about how each management action would lead to changes in landscape function were correct and so resulted in these changes (for example whether fencing and revegetation of a riparian zone resulted in improved water quality and riverine ecosystem health). In addition, the CMA needs to use experts with appropriate skills and knowledge in assessing its planned and actual results. This will allow it to apply new knowledge – gained from the monitoring and evaluation process and other sources – to increase the effectiveness of ongoing and future projects in improving landscape function and resilience.

The audit found that the Murrumbidgee CMA had designed a comprehensive MER business system to drive the strategic and operational use of monitoring and evaluation. However, the system was not testing the underlying investment assumptions and employing appropriate expertise to assess planned and actual achievements.

This system contained two components, the CAP MER strategy and the Strategic Plan MER strategy. The CAP MER strategy was designed to monitor progress towards CAP targets while the Strategic Plan MER strategy was intended to monitor progress against the Corporate Strategic Plan.

The CAP MER strategy was well developed and included definitions of the key indicators the CMA would need to monitor. These included the 33 resource condition indicators recently agreed to by all CMAs, plus additional indicators specific to the Murrumbidgee CMA's landscapes and activities.

However, the Strategic Plan MER strategy was not complete. While the Corporate Strategic Plan identified the areas where key performance indicators were required, these indicators had not yet been developed. The means of monitoring these key indicators had also not been established.

While the overarching MER strategies were still being developed, there was evidence of well established monitoring and evaluation processes at various scales, particularly at the project level. Some of these processes included quite innovative MER tools such as the Operational Implementation Group (OIG) (see Box 5.1) and Landholder Log Books (see Section 3.4). Both of these tools were designed to capture and institutionalise new knowledge to increase the effectiveness of the CMA's investments.

The MER strategies contained clear linkages to other business systems and strategies including Investment Prioritisation, the Knowledge System and the Community Engagement and Communications Strategy. However, it was evident that these systems depended on the effective implementation of the MER system for ongoing feedback and improvement.

In respect to the Standard, the CMA:

- demonstrated that it had designed a comprehensive MER system and had begun implementing a consistent approach to monitoring and evaluating the effectiveness of its investments (*Monitoring and evaluation, Collection and use of knowledge and Risk management*).
- could not demonstrate that the MER system was testing the underlying investment assumptions and employing appropriate expertise to assess planned and actual achievements (*Monitoring and evaluation, Collection and use of knowledge and Risk management*).

Box 5.1: A tool to capture and institutionalise learning from operational experience

The CMA established an Operational Implementation Group (OIG) to learn from its operational experience, deal with problems in a timely manner and apply new knowledge to its project delivery system.

The CMA used an Integrated Project Delivery (IPD) system to deliver a suite of investment products to landholders. This enabled an individual Catchment Officer to offer multiple products developed through theme based programs to landholders. For example, by using the IPD a CMA officer could promote the use of tree planting to reduce salinity recharge, riparian fencing to reduce stream bank erosion, stewardship of remnant vegetation to maintain biodiversity and changed farming practices to reduce loss of topsoil to an individual landholder without needing specialist expertise in any particular area.

However, this meant that there were questions and difficulties that needed to be addressed by staff with a higher level of expertise. The IPD system established a formal incident reporting procedure to feedback difficulties experienced during project delivery to senior management. The OIG was formed to consider the feedback flowing from the incident reports, develop solutions to problems that arose and integrate these

solutions into the IPD.

The group was convened by the MER officer and reported directly to the Management Team. It included the Catchment Coordinators responsible for each of the themes or key assets in the CAP. These Catchment Coordinators were the Knowledge Brokers for each of the key assets and were responsible for collecting knowledge and maintaining the CMA's Knowledge Base in relation to their area of expertise.

The process had worked both efficiently and effectively, supported by electronic incident reporting and regular OIG meetings, to deal with issues raised by CMA staff. An inspection of the system and CMA files demonstrated that both lessons learned in the field, and operational issues raised by officers and landholders, had flowed through from the field to the OIG. Responses to these problems had been incorporated into the IPD demonstrating that the system worked as intended.

In one example of the system's effectiveness farmers had raised concerns about the appropriateness of the native vegetation species mix recommended for planting in their area. This was particularly related to the use of Acacia species, a pioneering plant with a short life span and a habit of growing quickly and interfering with powerlines.

The Catchment Officer raised the issue through the IPD incident reporting system. This was noted in the Incident Log and the discussion and resulting recommendations were recorded in the minutes of the OIG. Additional technical information about the important role of pioneering species in the establishment of native vegetation was produced to educate staff and landholders. This material included a warning not to plan Acacia plantings near power lines.

Another issue dealt with by the OIG concerned the need for different ripping and mounding shapes for different levels of rainfall. Staff in the dry Hay plains area suggested that survival rates of planted seedlings would improve if a furrow that could collect moisture runoff was used, rather than the mound typically used in wetter areas of the catchment. This suggestion had been similarly addressed by the OIG with the result that technical information recommending different ripping and mounding techniques for different land systems was prepared and distributed to staff and landholders.

The OIG was a simple but effective tool that enabled the CMA to capture lessons learned from its operational activities, quickly address problems and apply new knowledge to increase the effectiveness of its investments.

Above right: The CMA learned that applying a press wheel to the mounds on either side of ripped furrows would direct more runoff to planted seedlings and improve survival rates in the dry Hay Plains



5.3 Information management systems that support adaptive management

CMA's need relatively sophisticated information management systems to support adaptive management. For example, these systems need to keep track of the changes in landscape function expected as a result of the management actions within a project, and provide ready access to this and other necessary information when the project is being evaluated and decisions on improving its effectiveness are being made. These systems also need to keep track of new knowledge that is derived from the monitoring and evaluation process and other sources, so this can be used in making decisions.

The audit found that the Murrumbidgee CMA had not maintained an information management system necessary to support adaptive management processes.

The CMA had identified information management as one of the CMA's 12 key business systems and had undertaken process mapping of the system. However the CMA had historically accepted that the provision of suitable information management systems was the responsibility of external agencies. This had led to information management systems that were unable to adequately support many of the CMA's business systems including financial management, the capture and use of knowledge, investment prioritisation and MER. While adequate financial management information had been consistently provided to the Board and reported to investors, this was largely the result of staff dedication and innovative work-arounds.

The CMA had recognised the need to improve its information management capacity and had embarked on a program to implement a suite of new systems and upgrades. However, the CMA's information management systems were linked by a complex set of data needs and transactions. There was also a large reserve of data that needed to be transferred from old systems or entered into the new systems from hardcopy sources.

Despite the history of difficulties and delays, the CMA did not have a strategic plan to guide the implementation and improvement of information management systems although the need for an Information Technology (IT) plan been identified in the Corporate Strategic Plan. Data sources within the CMA had not been catalogued and external data sources that could be used to enhance the CMA's information management, such as those held by irrigation companies, councils and state and federal agencies, had not been identified. There was no apparent detailed testing of data capture processes and staff estimates of the workload involved varied significantly.

Consequently, there was a significant risk that the implementation of the various systems would be inadequately resourced and suffer extended delays. This could mean that, despite a major investment in new information technology, the CMA's information management system would still not adequately support its key business functions and adaptive management.

In respect to the Standard, the CMA:

- could not demonstrate it had developed a comprehensive information management system that met the needs of the CMA (*Collection and use of knowledge, Determination of scale, Monitoring and evaluation and Information management*)
- demonstrated it had identified the need to enhance its information management systems and had embarked on a program to implement a suite of new systems and upgrades (*Risk management and Information management*)

- could not demonstrate it had a clear strategy for continued improvement of its information system, and the quality and integrity of the data (*Collection and use of knowledge, Determination of scale, Monitoring and evaluation and Information management*).

Attachment 1 Conclusions, suggested actions and CMA response

This Section provides a table summarising conclusions of the audit of the implementation of the Murrumbidgee CAP, the actions the audit team suggested the CMA take to improve this implementation and a summary of the Murrumbidgee CMA's response to the suggested actions. The CMA Board is expected to monitor the completion of these actions and the NRC may review these activities in future audit work.

Conclusion	Suggested actions	CMA response
Line of inquiry #1 – Has Murrumbidgee CMA effectively prioritised its investments to promote resilient landscapes that support the values of its communities?		
<p>Criteria 1.1: <i>whether the CMA had a commonly understood definition of what constitutes resilient landscapes in their region</i></p> <ul style="list-style-type: none"> ▪ The CMA had a commonly understood definition of what constitutes resilient landscapes in the region. This understanding was expressed in the CMA's vision of "<i>a healthy and productive Murrumbidgee catchment and its communities working together – Yindymarra</i>" and further explained in the CAP. ▪ There was a common understanding of the characteristics of resilience in the region among the Board and staff. This understanding included the ability of the landscape to respond to change and the importance of the adaptive capacity of the community. ▪ The CMA had updated its understanding of resilience over time and this was detailed in recently developed strategies and communication tools such as the "Creating Resilient Landscapes in the Murrumbidgee Catchment" presentation. 	<p>There are no suggested actions for this criterion.</p>	<p>The Murrumbidgee CMA will continue to update and use the best available science to support and promote our understanding of resilient landscapes and how these can be best achieved. This understanding will be enhanced through our adaptive management process and promoted to staff, Board and our stakeholders throughout the community.</p>

Conclusion	Suggested actions	CMA response
<p>Criteria 1.2: <i>whether the CMA had a system that ranked investment options, which incorporated the best available information and multiple CAP target achievement</i></p> <ul style="list-style-type: none"> The CMA had a clearly documented and well-defined system that ranked investment options and incorporated the best available information and multiple CAP target achievement. The Board and staff demonstrated a shared understanding of a transparent, consistent and repeatable system to rank investment options. However, prioritisation was not yet able to consistently include spatial analysis due to the limitations of the CMA's information management systems. 	<p>There are no suggested actions for this criterion.</p> <p>The suggested improvements to information management are dealt with in Criteria 4.3.</p>	<p>The Murrumbidgee CMA will continue to use and improve the Investment Prioritisation Business System to ensure the most effective and efficient delivery of CAP target and other stakeholder NRM priorities. As spatial and other data management systems are further developed the ease and consistency of use of this information in the prioritisation process will be enhanced.</p>
<p>Criteria 1.3: <i>whether the CMA had a system that ensures short and long-term investment priorities are consistent with each other and integrated with other planned NRM targets</i></p> <ul style="list-style-type: none"> The CMA had systems that ensured short and long-term investments were consistent with each other and that these investments aligned with other planned targets. 	<p>There are no suggested actions for this criterion.</p>	<p>The Murrumbidgee CMA will continue to adaptively manage and use the Investment Prioritisation and Project Development Business Systems to ensure short and long term investments are consistent and aligned to other planned targets.</p>

Conclusion	Suggested actions	CMA response
Line of inquiry #2 – Have the Murrumbidgee CMA's vegetation projects contributed to improved landscape function?		
<p>Criteria 2.1: <i>whether the CMA has documented expected long-term project outcomes</i></p> <ul style="list-style-type: none"> ▪ The CMA had documented its long term objectives in its CAP, The objectives were consistently expressed in supporting plans and strategies such as the Corporate Strategic Plan, the MER (Monitoring, Evaluation, Reporting) Framework and associated templates. The planned management activities to achieve these objectives were logical and practically achievable. ▪ Project contracts included information about planned management actions. However, the long-term objectives of both the CMA and landholders were less well documented. There was therefore a risk that misunderstandings about the original objectives could occur, in particular when conditions and staff change and properties are sold within the 10 year contract period. 	<p>The audit team suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> 1. Ensure the long-term objectives of both the CMA and the landholders are clearly documented in project contracts to facilitate long-term attention to the desired outcomes of the joint investment. 	<p>The Murrumbidgee CMA agrees with the suggested action.</p> <p>The Murrumbidgee CMA has updated the Property Vegetation Plan template to include simple “outcome statements” which align with investor preferences and Caring for our Country priorities and targets.</p> <p>The “outcome” statements will be reviewed (and amended as required) to ensure they clearly articulate the long term objective of both the CMA and landholders in undertaking the joint investment. The review will be conducted by the Operational Implementation Group (OIG).</p> <p>The Murrumbidgee CMA will complete the action by 18 December 2009.</p>
<p>Criteria 2.2: <i>whether the CMA successfully achieves project outcomes, and maximised opportunities to add further value</i></p> <ul style="list-style-type: none"> • The CMA had successfully achieved most project outputs on all projects inspected and these were robust and had strong logic linkages to long-term outcomes. Demonstrated changes in management practices and some changes in resource condition were also observed. Together these indicated that in most cases, achievement of long-term outcomes was likely if appropriate management actions were continued. • The CMA was building good long-term collaborative relationships with landholders and other stakeholders and these 	<p>The audit team suggests that the CMA take the following action:</p> <ol style="list-style-type: none"> 2. Strengthen the monitoring and evaluation of project implementation by collaborative partners to ensure the delivery of outputs and maintenance of management actions. 	<p>The Murrumbidgee CMA agrees with the suggested action.</p> <p>The CMA notes that the Project Implementation Business System includes a process to accommodate the inevitable variations to project outputs and milestones due to changing circumstances and seasonal conditions. This includes a section in quarterly and final report templates to list and justify variations to project milestones and project outputs and support these (if</p>

Conclusion	Suggested actions	CMA response
<p>relationships were fostering improved appreciation of natural resource values. However, on two projects being implemented by collaborating institutions, inspections showed that not all the outputs planned in the project designs had been achieved and on a third collaborative project not all management actions were being implemented.</p>		<p>and when required according to the Variation Protocol), with a request for Formal Variation,. This information is explained to all collaborating institutions as part of negotiating Project Services Agreements to deliver projects with the Murrumbidgee CMA.</p> <p>To refine this process the Project Services Agreement (PSA) template will be reviewed by staff in the Investment Unit and amended to include the Variation Protocol and a template for Request for Formal Variation.</p> <p>The Murrumbidgee CMA will complete the action by 18 December 2009.</p>
<p>Criteria 2.3: <i>whether the CMA's projects are attracting additional resources to match CMA funding</i></p> <ul style="list-style-type: none"> ▪ The CMA had attracted additional resources from landholders and project collaborators and recorded the contracted contribution in project files. ▪ However, significant differences were noted between what had been negotiated during project design and what had actually been contributed during project delivery. These differences had not been quantified nor recorded. Inspections identified projects where additional inputs had been underestimated and others where there were considerable overestimations. ▪ Consequently while it was apparent that the CMA had attracted additional inputs to match its investments the full extent of additional resources attracted by the CMA had not been 	<p>The audit team suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> 3. Develop a methodology that could be used to more accurately estimate and record additional resources contributed by stakeholders. 	<p>The Murrumbidgee CMA agrees with the suggested action.</p> <p>The Murrumbidgee CMA notes that it has a consistent methodology (the "cost calculator") to estimate landholder input and in-kind contributions to PVP contracts. Similarly Project Services Agreements with collaborating partners to deliver projects include a mechanism to estimate and include contributions (cash and in-kind) toward costs of delivering projects.</p> <p>The CMA advises that to capture changes between estimated cash and in-kind contribution toward the cost of delivering on ground outcomes and actual cash and in-kind contributions made throughout the</p>

Conclusion	Suggested actions	CMA response
<p>accurately recorded.</p>		<p>duration of the PVP, the Landholder Project Logs will be updated. This “log” update will include a specific section requesting information on actual time and other contributions made toward implementation of works, to be updated for each year of the PVP contract.</p> <p>The Quarterly and Final reporting templates attached to Project Services Agreements negotiated with collaborating partners to implement projects, will also be updated to provide clearer opportunity to capture the cash and in-kind investment in addition to the CMA’s investment.</p> <p>These template updates will be undertaken by the Investment Unit.</p> <p>The Murrumbidgee CMA will be complete the action by 18 December 2009.</p>
<p>Criteria 2.4: <i>whether the CMA had a system to monitor ongoing achievement of project.</i></p> <ul style="list-style-type: none"> ▪ The CMA had established a comprehensive MER system to track achievement of project outputs and the ongoing achievement of project outcomes. This system included the use of contracted inspectors to monitor project implementation and innovative ‘Landholder Log Books’ to engage landholders in the systematic monitoring and reporting of outputs and outcomes. In particular, these Log Books had the potential to build a shared understanding of the costs of natural resource management actions and capture new knowledge that could then be used to inform future investments. 	<p>The audit team suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> 4. Further strengthen the monitoring of the outcomes of its investments by assisting landholders to effectively implement the Log Book system. 	<p>The Murrumbidgee CMA agrees with the suggested action.</p> <p>The Murrumbidgee CMA notes that it has developed a “Landholder Project Log” to enable landholders to self assess and evaluate the effective implementation of their on ground projects. These ‘logs’ are to be distributed on commencement of projects and updated annually. New landholder worksheets are provided each year along with follow up contact from the CMA case officer. As the initial development and distribution of ‘landholder logs’ was a major logistical exercise – considering the over 900</p>

Conclusion	Suggested actions	CMA response
<ul style="list-style-type: none"> However, on the projects inspected the landholders had not made any use of their Log Books. This indicated that, despite the apparent strengths of the system, it was not consistently delivering effective results. 		<p>contracts negotiated – the mail out occurred in two stages, October 2008 and March 2009. Case officers have subsequently been providing support to landholders to complete their monitoring and evaluation requirements under the conditions of the PVP contract by filling out the “landholder logs”.</p> <p>The Murrumbidgee CMA advises it will ensure all case officers make contact with their landholders to remind them of their PVP obligations to complete the “landholder log” and offer them support in this task. This will be communicated to Case Officers at the Regional Workshop 16-18 November by Program Managers. All landholders will be contacted by 31 March 2010. A random audit of “landholder logs” will be undertaken by Investment Unit staff by 30 June 2010.</p> <p>The Murrumbidgee CMA will complete the action by 30 June 2010.</p>

Conclusion	Suggested actions	CMA response
Line of inquiry #3 - Has the Murrumbidgee CMA effectively engaged its communities?		
<p>Criteria 3.1: <i>whether the CMA has identified community groups and stakeholders it must consider in planning and undertaking work</i></p> <ul style="list-style-type: none"> ▪ The CMA had identified the key community groups and stakeholders it must consider in planning and undertaking its work. This was documented in both strategic and project specific documents. ▪ The CMA Board and staff had a shared understanding of community attitudes, capacity and values across the catchment. The CMA had developed and maintained this understanding through a number of both internal and external processes. ▪ The CMA had focused on building relationships with individuals through PVPs and by tapping into existing Landcare networks and groups. The CMA Board and staff had a shared understanding that there may be gaps in engagement outside of these key focus areas, in particular community groups and stakeholders not already involved in NRM. 	<p>The audit team suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> 5. Use its review of the CAP to identify any potential stakeholders or community groups missed to date. 	<p>The Murrumbidgee CMA agrees with the suggested action.</p> <p>The Murrumbidgee CMA notes that it has been actively engaging with its communities consistent with our Communication and Engagement Strategy and capacity to meaningfully engage based on available staff time and other resources.</p> <p>The Murrumbidgee CMA advises that, in the context of an increasingly competitive NRM funding environment, it is seeking to identify and engage with a broader range of stakeholders to identify new and emerging opportunities for collaboration. To facilitate this process the updated Communication and Engagement Strategy will be operationally approved and implemented by 18 December 2009. The Murrumbidgee CMA will finalise the Promoting Partnerships promotional information flyer by 31 March 2010. Both actions will be undertaken by the Communication and Media unit.</p> <p>The Murrumbidgee CMA will complete the action by 31 March 2010.</p>

Conclusion	Suggested actions	CMA response
<p>Criteria 3.2: <i>whether the CMA is implementing an engagement strategy appropriate for different community groups and stakeholders</i></p> <ul style="list-style-type: none"> ▪ The CMA had engagement strategies that identified the CMA's stakeholder groups and the appropriate engagement mechanisms. ▪ The CMA was implementing the strategies in ways that demonstrated a meaningful understanding of engagement and stakeholder needs. This implementation was facilitated by the CMA's regional office structure and staff. ▪ The CMA had effectively engaged with councils, industry and the Aboriginal community at both local and strategic levels. This engagement had built trust and delivered on-ground outcomes. However, there was scope to extend collaboration with the irrigation industry to further contribute to achievement of CAP targets. ▪ The CMA had effectively engaged with Landcare groups and networks through regional offices and local projects. However, the mechanisms in place were not fully effective, in that they did not promote two-way sharing of knowledge or build trust. This threatens to undermine the solid relationships built locally. 	<p>The audit team suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> 6. Explore opportunities for broader collaboration with irrigation companies, institutions and other agencies to further contribute to the achievement of CAP targets. 7. Review its mechanisms to engage with Landcare for their effectiveness in promoting a two-way sharing of knowledge and building trust. 	<p>The Murrumbidgee CMA agrees with the suggested action.</p> <p>The Murrumbidgee CMA advises that it will build on existing Memorandums of Understanding with Institutions such as Murrumbidgee Irrigation, Coleambally Irrigational and others, to identify and capitalise on further collaboration opportunities. The database of such institutions and stakeholder groups will be expanded by 30 October and contact made to discuss such opportunities by 18 December 2009. This will be undertaken by the Management Team.</p> <p>The Murrumbidgee CMA will complete the action by 18 December 2009.</p> <p>The Murrumbidgee CMA agrees with the suggested action.</p> <p>The CMA advises that the GM and Chair will actively engage with the catchment Landcare body to cement a collaborative working relationship to support a joint project for a 'Regional Landcare Facilitator' and explore other opportunities through 'Community Engagement Projects'.</p> <p>The Murrumbidgee CMA will undertake contact and an initial meeting by 16 November 2009.</p>

Conclusion	Suggested actions	CMA response
<p>Criteria 3.3: <i>whether the CMA is implementing a communications strategy that promotes collaboration, sustainable behavioural change and feedback</i></p> <ul style="list-style-type: none"> ▪ The CMA's Community Engagement and Communication Strategy aimed to communicate the role of the CMA and to target activities to key partners. The CMA was implementing the strategy through a range of approaches, such as publications, community consultation and rotational Board meetings. Collectively these approaches had raised the profile of the CMA and promoted collaboration, behavioural change and feedback. ▪ The CMA used project liaison committees (PLCs) to inform project planning and raise community awareness. However, there was a shared view between CMA staff and stakeholders that the effectiveness of PLCs should be reviewed to strengthen ownership and promote engagement in the long-term. 	<p>The audit team suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> 8. Review the effectiveness of the Project Liaison Committees to build ownership of the projects and promote engagement in the long-term 	<p>The Murrumbidgee CMA agrees with the suggested action.</p> <p>The Murrumbidgee CMA and its stakeholders established several Project Liaison Committees to guide and assist the successful implementation of many projects across the catchment. PLCs were established for specific projects and were generally dissolved on completion of these projects. To continue to utilise the valuable input of PLCs in the delivery of on ground works, the Murrumbidgee CMA will invite PLCs and Landcare Networks to discuss opportunities to establish long-term liaison of reference groups to provide this important supporting role.</p> <p>Previous and existing PLCs and Landcare Networks will be contacted by their CMA contact (catchment co-ordinator) to discuss long-term collaboration opportunities.</p> <p>The Murrumbidgee CMA will complete the action by 31 March 2010.</p>

Conclusion	Suggested actions	CMA response
Line of inquiry #4 - Has the Murrumbidgee CMA effectively used adaptive management?		
<p>Criteria 4.1: <i>whether the CMA had documented the practical application of adaptive management principles in its planning and business system</i></p> <ul style="list-style-type: none"> ▪ The CMA had clearly and consistently documented the principles of adaptive management in its planning and business systems. The recently developed maps of the CMA's 12 key business systems incorporated the 'plan', 'implement', 'audit' and 'respond' stages of the adaptive management cycle. This demonstrated a strategic approach to effectively applying adaptive management across the CMA. ▪ Several good examples of adaptive management were observed. These included the Integrated Project Delivery System (IPD), the Knowledge System and the 'traffic light system' for monitoring project delivery and cash flow. ▪ However, the Corporate Strategic Plan and the business system mapping had only been developed in 2009 and the systems had not yet been finalised. There was also evidence that the development and implementation of some systems, such as the Knowledge System and the MER system, contained gaps and inconsistencies. 	<p>The audit team suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> 9. Plan and prioritise the completion of the 12 key business systems and ensure the Corporate Strategic Plan and the business systems are fully implemented in a timely manner. 	<p>The Murrumbidgee CMA agrees with the suggested action.</p> <p>The Murrumbidgee CMA notes that it has an adaptive management process established for all operational business systems, the corporate Strategic Plan and other operating policies and procedures. The recent review and improvement of key business systems is part of this adaptive management process.</p> <p>The Murrumbidgee CMA will prioritise and plan the work associated with implementing improvements to our key business systems and the Strategic Plan at the Annual Regional Workshop on 16-18 November 2009.</p> <p>All key Business Systems and the operational components of the Strategic Plan will be operationally approved and implemented by 30 June 2010. This will be the responsibility of the Business System Champions in conjunction with the Management Team and the Board.</p> <p>The Murrumbidgee CMA will complete this action by 30 June 2010.</p>

Conclusion	Suggested actions	CMA response
<p>Criteria 4.2: <i>whether the CMA had monitoring and evaluation systems that test underlying investment assumptions and employ appropriate expertise to assess planned and actual achievement</i></p> <ul style="list-style-type: none"> ▪ The CMA had designed a comprehensive MER business system to drive the strategic and operational use of monitoring and evaluation. However, the system was not testing the underlying investment assumptions and employing appropriate expertise to assess planned and actual achievements. ▪ This system contained two components, the CAP MER strategy and the Strategic Plan MER strategy. While the CAP MER strategy was more developed neither strategy was complete nor fully implemented. 	<p>The audit team suggests that the CMA take the following action:</p> <ol style="list-style-type: none"> 10. Complete the development of the MER business system and implement both the CAP MER strategy and the Strategic Plan MER strategy. 	<p>The Murrumbidgee CMA agrees with the suggested action.</p> <p>The Murrumbidgee CMA notes that it has a comprehensive Monitoring, Evaluation and Review Framework which covers all critical performance areas of the CMA including NRM and CAP implementation as well as non-NRM strategic, governance and business system performance measures.</p> <p>The Murrumbidgee CMA has a standard set of 33 NRM outputs and associated monitoring protocols to monitor CAP implementation. The CMA will continue to review, identify and develop additional NRM standard outputs required to effectively measure progress toward CAP outcomes and other investor preferences, targets and Caring for Our Country priorities. In addition the Murrumbidgee CMA will identify outputs and suitable Key Performance Indicators to monitor effectiveness and performance of Strategic Governance and Business Operating Systems across the organisation.</p> <p>The Murrumbidgee CMA will identify all NRM and non-NRM Standard Outputs/Performance Indicators (and develop associated monitoring protocols) necessary to monitor organisational performance by 18 December 2009.</p> <p>The comprehensive MER Framework will be operationally approved and implemented by the MER</p>

Conclusion	Suggested actions	CMA response
		<p>Business System Champion.</p> <p>The Murrumbidgee CMA will complete the action by 30 March 2010.</p>
<p>Criteria 4.3: <i>whether the CMA maintained an information management system necessary to support adaptive management</i></p> <ul style="list-style-type: none"> The CMA had not maintained an information management system necessary to support adaptive management processes. The CMA had identified information management as one of its 12 key business systems. However the CMA had historically accepted that the provision of suitable information management systems was the responsibility of external agencies. This had led to inadequate systems and a lack of planning for improvements. Consequently, the systems were still not able to support other key business systems including financial management, knowledge, investment prioritisation and MER. The CMA was implementing a suite of new systems sourced from agencies and other CMAs. However, there was no IT Plan or detailed data modelling to guide implementation. Inadequacies in the systems being implemented. Delays in transferring and entering data and a shortage of staff resources and skills were already emerging. There was a significant risk that despite the investment in new technology, the implementation of these systems would still not deliver the information management necessary to support adaptive management processes. 	<p>The audit team suggests that the CMA take the following action:</p> <ol style="list-style-type: none"> Develop and implement an IT plan, as referred to in the Corporate Strategic Plan, to ensure a clear strategy for continued improvement of its information management system. Undertake an analysis of the MBCMA's data needs, and an audit of available data both within the CMA and externally, to identify data that could support the information management systems. 	<p>The Murrumbidgee CMA agrees with the suggested actions.</p> <p>The Murrumbidgee CMA has identified the limitations of the existing information management system developed and maintained by external agencies to support the Native Vegetation legislation and the development of PVPs as part of this process. As the Murrumbidgee CMA remains committed to delivering a significant proportion of on ground NRM investment through PVPs (to ensure legally binding long-term land management change) the continued use of many of these systems is necessary. To address the limitations identified in this context, the Murrumbidgee CMA has been developing a fit for purpose information management system which will minimise duplication of effort and integrate textual, spatial and financial information and data to support key business systems.</p> <p>The fit for purpose information management system which has been developed includes the integration of LMD, IMPS and CIMS. Training for staff in its use will be completed by 16 October 2009. Full functionality is anticipated by 30 March 2010. This will be the responsibility of the Program Manager</p>

Conclusion	Suggested actions	CMA response
		<p>(Ecosystems) and the Implementation Team of Investment Unit, Business Unit, MER Officer and GIS staff.</p> <p>The Murrumbidgee CMA will also actively seek opportunities for joint development, refinement of the system through discussion at MER Officer forums and General Manager Meetings.</p> <p>The Murrumbidgee CMA will complete the actions by 30 March 2010.</p>

Attachment 2 About this audit

Audit mandate	<p>The NRC is required to undertake audits of the effectiveness of the implementation of catchment action plans (CAPs) in achieving compliance with those State-wide standards and targets as it considers appropriate.¹</p> <p>The NRC contracted the Institute for International Development (IID) to undertake the audit of the implementation of the CAP prepared by the Murrumbidgee Catchment Management Authority (CMA). The NRC also contracted IID to undertake the audits of Lachlan CMA and Namoi CMA.</p> <p>The NSW Government has adopted an aspirational goal to achieve resilient landscapes that support the values of its communities.² It intends to achieve this by encouraging natural resource managers, such as each CMA, to make high quality decisions, focused through a coherent set of targets.³ The NSW State Plan⁴ establishes the State-wide targets for natural resource management (NRM).</p> <p>CMAs have developed CAPs that express how each specific region can contribute to the aspirational goal and the State-wide targets. The <i>Murrumbidgee Catchment Action Plan</i>⁵ identifies the key natural resource assets (or themes) that need to be managed in the region, including Community, Biodiversity, Water and Land. Within each of these assets, the CMA has identified:</p> <ul style="list-style-type: none">▪ resource condition targets, for longer-term improvements in resource condition that will contribute to achievement of the State-wide targets; and▪ management targets, which identify shorter-term investment priorities that will contribute to achievement of the resource condition targets.
Audit objective	<p>This audit assessed the effectiveness of Murrumbidgee CMA in promoting resilient landscapes that support the values of its communities, within the scope of the CAP.</p> <p>Murrumbidgee CMA is now implementing the CAP, through a mix of programs and projects that simultaneously contribute to more than one management target, and more than one resource condition target. Many of these integrated programs and projects use vegetation to enhance landscape function, to lead to the aspirational goal of resilience.</p>
Lines of inquiry	<p>In order to assess the effectiveness of CMA work, the NRC directed the audits to answer the following questions:</p> <ol style="list-style-type: none">1. Is the CMA effectively prioritising its investments to promote resilient landscapes that support the values of its communities?2. Are the CMA's vegetation projects contributing to improved landscape function?3. Is the CMA effectively engaging its communities?4. Is the CMA effectively using adaptive management? <p>The NRC identified that these four key aspects of CMA work should strongly influence effectiveness in achieving resilient landscapes, and promote maximum improvement for Murrumbidgee CMA for this stage in their development.</p>
Audit criteria	<p>To help answer each line of inquiry, the NRC formulated the criteria identified below in Table 1, the audit plan summary.</p> <p>These criteria address:</p> <ul style="list-style-type: none">▪ expected documentation of the particular key aspect of CMA work

¹ *Natural Resources Commission Act 2003, Section 13 (c)*

² As recommended by the NRC in *Recommendations – State-wide standard and targets, September 2005*.

³ *Ibid.*

⁴ See Priority E4 in, NSW Government (2006) *A new direction for NSW, NSW Government State Plan*, November 2006

⁵ Murrumbidgee CMA, *Murrumbidgee Catchment Action Plan, 2008*

- expected implementation of plans and decisions
- expected evaluation and reporting of the performance of the CMA work.

The criteria were derived from the elements of each line of inquiry, and from the general criteria of the Standard and state-wide targets.

The NSW Government adopted the *Standard for Quality Natural Resource Management* (the Standard), which identifies seven components that are commonly used to reach high quality natural resource decisions. CMAs must comply with the Standard⁶, using it as a quality assurance standard for all planning and implementation decisions.

Audit scope

As a sample of the entire range of NRM investments, the audit work was focused on CMA programs and projects that use vegetation to improve landscape function.

The NRC considered this to be the appropriate focus as vegetation remains a key tool for CMAs to use to achieve integrated NRM outcomes. This is due to a number of factors, including the lack of certainty in the management framework for other aspects of NRM such as water.

As most NRM programs and projects contribute to more than one NRM target, the NRC expects audited projects to also contribute to other targeted outcomes, such as river health and threatened species. The audit sought to audit the effectiveness of these contributions as they arise.

Audit approach

In August 2009, the audit team performed the following audit work:

- interviewing a number of CMA Board and staff members, landholders and stakeholders external to the CMA
- reviewing a range of CMA and public documents
- visiting multiple sites on five projects.

At the close of the audit field work, the audit team shared preliminary observations with the CMA.

Audit methodology

To plan and conduct this audit, the audit team followed the methodologies set out in the *Framework for Auditing the Implementation of Catchment Action Plans*, NRC 2007.

Acknowledgements

The audit team gratefully acknowledges the cooperation and assistance provided by the Murrumbidgee CMA and landholders in the Murrumbidgee region. In particular we wish to thank the Murrumbidgee CMA Board, the Acting General Manager (Mr Greg Bugden), Program Manager (Mr John Francis) and Catchment Co-ordinator (Mr John Franklin).

⁶ Section 20 (c), *Catchment Management Authorities Act, 2003*

Table 1. Audit plan summary

Line of Inquiry 1	Is the CMA effectively prioritising its investments to promote resilient landscapes that support the values of its communities?
This line of inquiry was tested against the following criteria:	
Criterion 1.1	The CMA has a commonly understood definition of what constitutes resilient landscapes in their region.
Criterion 1.2	The CMA has a system that ranks investment options, which incorporates factors including scientific and local knowledge, socio-economic information, community and investor preferences, leverage of investment and multiple CAP target achievement.
Criterion 1.3	The CMA has a system that ensures short and long-term investment priorities are consistent with each other and integrated with other planned NRM targets.
Line of Inquiry 2	Are the CMA's vegetation projects contributing to improved landscape function?
This line of inquiry was tested against the following criteria:	
Criterion 2.1	The CMA has documented expected long-term project outcomes.
Criterion 2.2	The CMA is successfully achieving project outcomes, and maximising opportunities to add further value.
Criterion 2.3	The projects are attracting additional resources to match CMA funding.
Criterion 2.4	The CMA has a system to monitor ongoing achievements of projects.
Line of Inquiry 3	Is the CMA effectively engaging its communities?
This line of inquiry was tested against the following criteria:	
Criterion 3.1	The CMA has identified community groups and stakeholders it must consider in planning and undertaking work.
Criterion 3.2	The CMA is implementing an engagement strategy appropriate for different community groups and stakeholders.
Criterion 3.3	The CMA is implementing a communication strategy that promotes collaboration, sustainable behavioural change and feedback.
Line of Inquiry 4	Is the CMA effectively using adaptive management?
This line of inquiry was tested against the following criteria:	
Criterion 4.1	The CMA has documented the practical application of adaptive management principles in its planning and business systems.
Criterion 4.2	The CMA has monitoring and evaluation systems that test underlying investment assumptions and employ appropriate expertise to assess planned and actual achievement.
Criterion 4.3	The CMA maintains an information management system necessary to support adaptive management processes.

Attachment 3 The CMA and its region

CMAs have a challenging task to encourage communities across their particular regions to improve how they manage natural resources on private land for the benefit of the landholders, the broader community and future generations.

This section provides context for the audit by summarising key features of the Murrumbidgee region and Murrumbidgee CMA. This context is important in considering both the way in which a CMA's effectiveness should be assessed and the options for improving that effectiveness.

The region at a glance

The Murrumbidgee CMA area of operation covers 84,000 square kilometres. It extends from Cooma in the south east of NSW to Balranald in the south west.⁷

The broad vegetation types of the Murrumbidgee catchment include alpine herb fields, native grasslands, forests, woodlands, wetlands and shrublands (see Figure A3.1). Approximately 15% of the catchment is managed publicly, including National Parks, State Forests and Crown Lands.⁸

The Murrumbidgee landscape ranges from the alpine areas of Kosciusko National Park and the Monaro plains, through to the South West Slopes and Plains and the semi-arid western Riverina.

The Murrumbidgee River is the main watercourse in the catchment and flows for a distance of approximately 1,600km. The Murrumbidgee catchment is home to sites of international ecological significance including the Fivebough and Tuckerbil Swamps and the Lowbidgee Wetlands.⁹

Both the Murrumbidgee Irrigation Area and the Coleambally Irrigation Area are situated in the lower Murrumbidgee catchment and supported by more than 10,000km of irrigation channels from Burrinjuck Dam near Yass and Blowering Dam near. The irrigation industry provides 25% of NSW's fruit and vegetable production, 42% of the State's grapes and half of Australia's rice production. Other major industries in the catchment include dryland agriculture, including beef production, intensive poultry production, sheep and wool, cropping and softwood plantations. Agricultural production is worth in excess of \$1.9 billion annually. Tourism in the Murrumbidgee is valued at \$500million per annum.¹⁰

Approximately 500,000 people live in the catchment, which includes Canberra (314,000 people), NSW's largest inland city Wagga Wagga (57,000 people) and other major urban centres including Balranald, Coleambally, Cooma, Cootamundra, Griffith, Gundagai, Hay, Henty, Junee, Leeton, Narrandera, Queanbeyan, Yass and Tumut.

Major environmental threats to the health of natural resources in the catchment are urban and dryland salinity, water quality decline, incursion of weeds, erosion and soil structure problems, destruction of native wildlife habitat, and biodiversity decline.¹¹

⁷ Murrumbidgee CMA website, www.murrumbidgee.cma.nsw.gov.au, accessed 19 August 2009

⁸ Murrumbidgee CMA, 2008, Annual Report 2007-08

⁹ *ibid*

¹⁰ Murrumbidgee CMA, 2008, Catchment Action Plan

¹¹ see footnote 8

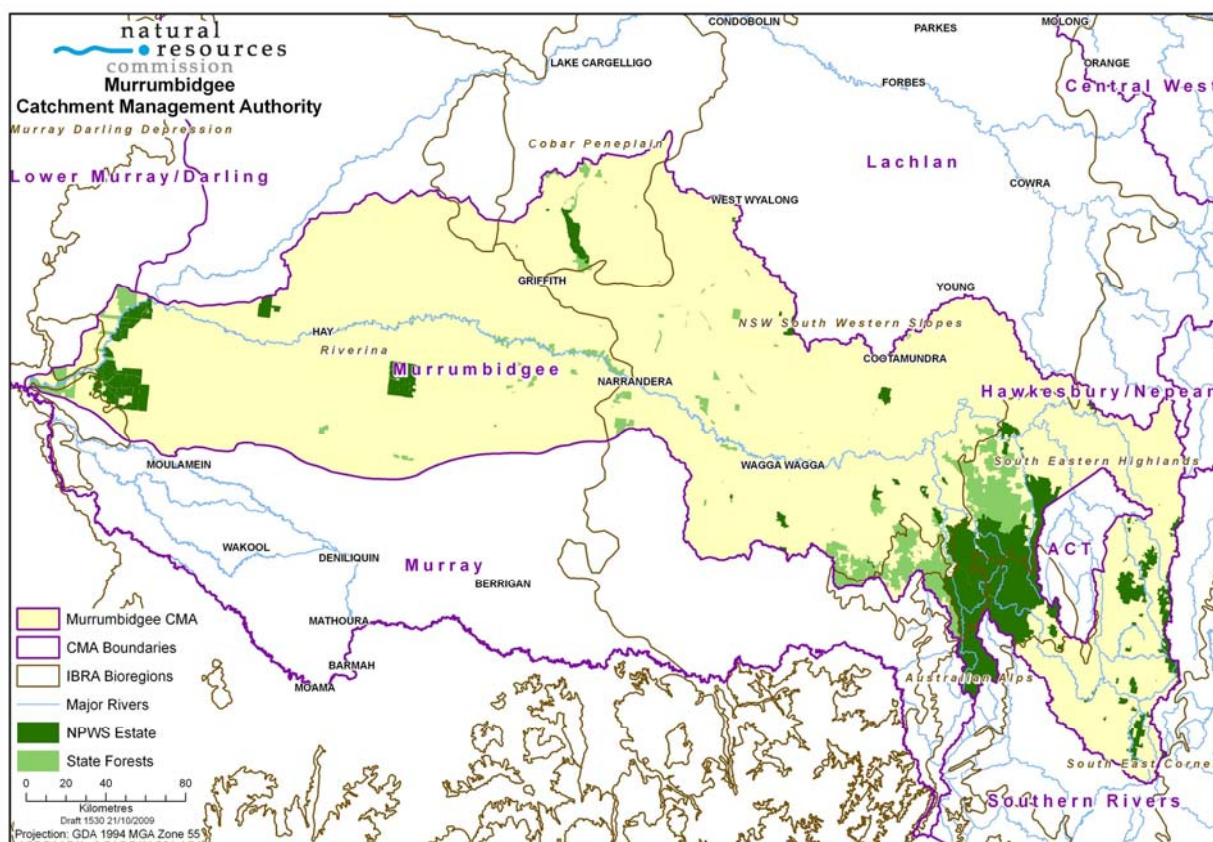


Figure A3.1: Murrumbidgee region¹²

The CMA at a glance

The head office of the Murrumbidgee CMA is situated in Wagga Wagga and there are another 11 offices located across the catchment in Cooma, Queanbeyan, Yass, Tumut, Cootamundra, Harden, Junee, Henty, Leeton, Coleambally and Hay.¹³

At the time of the audit, the Board consisted of Lee O'Brien (Chair) and six Board members. The Board has two sub-committees: Audit & Finance and Risk & Governance. The CMA also receives input from the Murrumbidgee Traditional Owners Reference Group.

The CMA management team comprises the General Manager, Business Manager and three Program Managers (Investment, Sustainable Ecosystems and Sustainable Landscapes).¹⁴

In 2007/08 Murrumbidgee CMA invested in excess of \$30 million to deliver projects and programs aimed at improving the quality and extent of native vegetation, addressing salt affected sites, rehabilitating creeks and river banks, conserving wetlands and training landholders in best management practices for natural resources on-farm.¹⁵

¹² Map of region provided by the NRC

¹³ see footnote 7

¹⁴ *ibid*

¹⁵ see footnote 8

The amount of additional resources attracted against investment as reported by the CMA is shown in Table A3.1.

Table A3.1 Additional resources matched against investment¹⁶

Investment Period	Invested Amount (\$ mil)¹⁷	Additional Resources (\$ mil)¹⁸
2006/07	\$30.374mil	\$66.823mil
2007/08	\$33.431mil	\$73.548mil
2008/09	\$22.805mil	\$50.171mil

¹⁶ Figures provided by the CMA in response to the Draft Audit Report 10 October 2009.

¹⁷ The sum of Category 2 (NSW and Federal Government) and Category 3 (all other sources) funding. This figure excludes Category 1 (recurrent expenditure) funding.

¹⁸ The methodology used by the CMA to estimate this amount is discussed in section 3.3 Attraction of Additional Resources.