



Environmental Risk Science and Audit

AUDIT REPORT

LOWER MURRAY DARLING CATCHMENT MANAGEMENT AUTHORITY

NOVEMBER 2011

ERSA 1015
28 NOVEMBER 2011

List of acronyms

ACES	Aboriginal Community Engagement Strategy
ACT	Australian Capital Territory
AKMG	Australian Knowledge Management Group
BMP	Best Management Practice
CAP	Catchment Action Plan
CCES	Communications and Community Engagement Strategy
CEMP	Construction Environmental Management Plan
CFOC	Caring For Our Country
CMA	Catchment Management Authority
COAC	Catchment Officer Aboriginal Communities
COPP	Catchment Officer, PVP & Projects
CWA	Country Women's Association
DECC	Department of Environment and Climate Change
DPI	Department of Primary Industries
EBI	Environmental Benefits Index
ECK	Ecological Cultural Knowledge
EFA	Ecosystem Function Analysis
EOAM	Environmental Outcomes Assessment Methodology
ERSA	Environment Risk Science and Audit
GIS	Geographic Information Systems
ICPA	Isolated Children Parents' Association
IP	Investment Plan
IS	Investment Strategy
LMD	Land Management Database
LMD CMA	Lower Murray Darling CMA
LPMA	Land and Property Management Authority
LWMP	Land and Water Management Plan
M&E	Monitoring & Evaluation
MCA	Multi Criteria Analysis
MCS	Manager, Corporate Support
MDB	Murray Darling Basin
MDBA	Murray Darling Basin Authority
MER	Monitoring, Evaluation, Reporting
MERI	Monitoring, Evaluation, Reporting and Improvement
ML	Mega-Litre
MOU	Memorandum of Understanding
NAP	National Action Plan
NCoS	Net Cost of Service
NHT	Natural Heritage Trust
NOW	NSW Office of Water
NRC	Natural Resources Commission
NRM	Natural Resource Management
NSW	New South Wales
OEH	Office of Environment and Heritage
PVP	Property Vegetation Plans
RFAS	River Frontage Action Strategy
SES	State Emergency Services
TEP	Tender Evaluation Process
TGP	Total Grazing Pressure
TLCC	Team Leader, Catchment Coordination
TLPP	Team Leader, PVP & Projects
TOR	Terms of Reference
WLL	Western Lands Lease
WLWHA	Willandra Lakes World Heritage Area

Document Status

Rev No.	Reviewer		Approved for Issue		
	Name	Signature	Name	Signature	Date
1.0	AW Batten	<i>AW Batten</i>	WJ Haslam	<i>WJ Haslam</i>	4 Aug 2011
1.1	AW Batten	<i>AW Batten</i>	WJ Haslam	<i>WJ Haslam</i>	17 Aug 2011
1.2	AW Batten	<i>AW Batten</i>	WJ Haslam	<i>WJ Haslam</i>	19 Aug 2011
1.3	AW Batten	<i>AW Batten</i>	WJ Haslam	<i>WJ Haslam</i>	23 Aug 2011
2.0	T Kirby				
2.1	T Kirby		AW Batten	<i>AW Batten</i>	7 November 2011
2.2	AW Batten	<i>AW Batten</i>	AW Batten	<i>AW Batten</i>	28 November 2011

Table of Contents

1. INTRODUCTION	1
1.1 Focus of the audit	1
1.2 Summary of audit findings	2
1.3 Structure of the report	8
2. PRIORITISING INVESTMENTS TO PROMOTE RESILIENT LANDSCAPES	9
2.1 Commonly understood definition of resilient landscapes	10
2.2 A system for ranking investment options	11
2.3 Systems that ensure consistent short and long-term investments	13
3. DELIVERING PROJECTS THAT CONTRIBUTE TO IMPROVED LANDSCAPE FUNCTION	16
3.1 Documentation of expected long-term outcomes	17
3.2 Successful achievement of project outcomes	17
3.3 Attraction of additional resources	19
3.4 A system to track ongoing achievement of projects	20
4. COMMUNITY ENGAGEMENT	22
4.1 Identification and analysis of community groups and stakeholders	23
4.2 Appropriate engagement strategies for different community groups and stakeholders	24
4.3 Communication promoting collaboration, behavioural change and feedback	26
5. EFFECTIVELY USING ADAPTIVE MANAGEMENT	28
5.1 Adaptive management principles in planning and business systems	29
5.2 Monitoring and evaluation system	30
5.3 Information management systems that support adaptive management	31
Attachment 1 Conclusions, suggested actions and CMA response	34
Attachment 2 About this audit	45
Attachment 3 The CMA and its region	48

1. INTRODUCTION

The Natural Resources Commission (NRC) has a statutory role to audit whether the state's thirteen 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 and 2009 the NRC, and external audit contractors engaged by the NRC, audited how effectively the thirteen Catchment Management Authorities (CMAs) were implementing their regions' CAPs. The NRC's findings and recommendations from the previous Lower Murray Darling CMA audit are contained in the NRC's 2009 *Audit Report Lower Murray Darling Catchment Management Authority*.¹

In 2011 the NRC contracted ERSA Pty Ltd to undertake a second audit of the implementation of the CAP prepared by the Lower Murray Darling CMA.

This Audit Report to the NRC contains the conclusions of the audit of the implementation of the Lower Murray Darling CAP and the actions that the audit team suggests that the Lower Murray Darling CMA Board take to improve this implementation. The full audit conclusions and suggested actions are provided in Attachment 1 and a summary of the CMA's response to the suggested actions has been incorporated in Attachment 1 of the final report.

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

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

The NRC will use the conclusions, along with those of other audits and additional information, to inform its reports 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.

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?

¹ Natural Resources Commission (2009), *Audit Report Lower Murray Darling Catchment Management Authority*, December 2009. Available at: www.nrc.nsw.gov.au
Lower Murray Darling 2011 Audit Report - ERSA Ver 2.2.docx
Version 2.2

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 Lower Murray Darling CMA, including the NRC's expectations, the audit team's assessment of Lower Murray Darling 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 Lower Murray Darling 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 Lower Murray Darling CMA's implementation of the CAP found that:

- CMA Board and staff members did not have a common understanding of what constitutes resilient landscapes in their region and could not clearly articulate priorities for the catchment to maximise contribution to landscape function.
- In response to the 2009 Audit, the CMA had developed a conceptual understanding of resilience and had started to explore what this meant for the landscapes and communities in its region. The CMA was working to build this conceptual understanding into their knowledge of the landscapes in the region but had not yet established a common perspective.
- In the absence of a common understanding, the Board and staff typically considered the key assets in the region were those most closely related to their area of responsibility and expertise.
- The CMA had a system to rank investment options that was transparent and delivered consistency and repeatability. The prioritisation process had recently been documented and linked to detailed process mapping. However, the system was inconsistent in its approach to identifying and using a wide range of best available information.
- Staff members generally had a shared understanding of this ranking system. CMA staff worked closely with Board committees to develop project briefs for approval by the Board and evidence indicated the approval process closely followed documented procedures.
- The CMA had a system that could accommodate change and help them adaptively manage towards long-term targets. The CMA Board closely monitored project progress through progress reports provided to Board meetings. The Board also received an M&E report; however, this provided information on the progress of monitoring projects rather than feedback for adaptive management.
- The CMA had some preparedness to manage within institutional constraints and remain focused on its long-term goals. The CMA had reacted to variations in funding by making adjustments to existing delivery programs. However, there was no evidence that the CMA was endeavouring to secure additional funding to promote the achievement of catchment targets.

The audit team suggests that the Lower Murray Darling 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 the CAP review and upgrade process to further develop a shared understanding of resilient landscapes in the catchment that will guide CMA and stakeholder investment. Clearly reflect this understanding in a strategy that can inform prioritisation and be implemented via the activities, processes and systems of the CMA.
- Reviewing its prioritisation system to ensure the assessment and ranking of projects incorporates the best available knowledge from Board, staff, external expertise and the community. For example, through increasing the participation of experts in prioritisation processes and ensuring the prioritisation criteria reflect the CMAs most up-to-date strategic priorities for the catchment.
- Establishing an effective system to consistently scan the external environment for collaboration opportunities that contribute to the CMA's long term goals, use best available knowledge to develop business cases for funding and ensure the CMA's engagement strategy includes systems to capture feedback from current investors to inform future collaborations.

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 Lower Murray Darling CMA's implementation of the CAP found that:

- The CMA had clearly identified its projects' expected long-term outcomes in its foundation documents, the CAP and its Investment Program. The CMA had also documented its expected long-term outcomes in its strategic studies and program briefs and in project contracts.
- The CMA had demonstrated its understanding of the links between short-term actions and long-term outcomes through its documentation of program logic and its identification of management actions to address risks to achieving the outcomes.
- The CMA's on-ground projects were generally being implemented successfully. Any exceptions were due to circumstances beyond the CMA's control.
- The CMA had built on previous investment to add greater value to the projects proposed by landholders or other stakeholders. However, consideration of 'added value' was undertaken at the project development stage and not considered beyond completion of the project.
- The CMA had not developed long-term collaborative project partnerships that would add value by leveraging further investment and promote appreciation of natural resource values in its region.
- The CMA had attracted additional resources (monetary and in-kind investment) to match its investment in rangeland incentives. Further, it had systems in place to measure and record the agreed landholder contributions. The CMA had a robust system that tracked the progress of projects. This had worked effectively over the investment period on the projects inspected. The system generated reliable information that short-term targets had been met in most cases.
- The CMA had established systems for monitoring long-term objectives but had not yet undertaken evaluation of the monitoring data collected. This lack of evaluation meant it was not possible to assess the effectiveness of the monitoring that was being undertaken and the suggested action of the Audit Report 2009 'Establish an effective system to evaluate and report on how well projects have contributed to achieving the CMA's agreed long-term goals' had not been fully achieved.

The audit team suggests that the Lower Murray Darling 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:

- Reviewing the project delivery system to ensure that opportunities to add greater value and opportunities to build strong collaborative partnerships are consistently identified and developed.

- Developing a strategic approach to attracting and measuring additional investment that promotes the CMA's priorities and is linked to its Communication and Community Engagement Strategy (as suggested in the Audit Report 2009).
- Incorporating monitoring of outputs and outcomes into a comprehensive monitoring and evaluation strategy that will ensure that significant projects are monitored in a way that will produce an understanding of costs and benefits of natural resource management actions and gain new knowledge to inform future investments.

Improvements relating to MERI are dealt with under Line of Inquiry 4 (see Section 1.2.4).

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 Lower Murray Darling CMA's implementation of the CAP found that:

- The CMA had documented, through its CAP and in the Communication and Community Engagement Strategy (CCES), the key community groups and stakeholders it must consider in planning and undertaking its work.
- The CMA Board and staff had a shared understanding of regional knowledge and community capacity and their values. However, stakeholder perceptions were mixed on how well the CMA actually understood regional knowledge and capacity for NRM. In addition, the CMA did not have systematic approaches in place to develop and maintain their understandings at a scale that could sufficiently inform its engagement strategies.
- The CMA had an understanding of meaningful engagement and a number of engagement strategies relating to specific stakeholder groups. However, there were some key weaknesses in the CMA's engagement strategies, starting with the lack of clarity in how they related to each other.
- The CMA had not fully implemented its strategies to engage different sectors of its community, but there were examples of success in what had been implemented. The CMA's particular strength in engagement was with landholders in the region.
- The CMA did not have sophisticated approaches to communicate their messages and for hearing and responding to messages sent by their communities. As with engagement, the communication strategy provided no basis for prioritising resources between particular communication activities. The strategy was last reviewed in July 2009 so it was not clear that they were still relevant to the work of the CMA in 2011.

- The CMA had not implemented appropriate strategies for communication that were tailored to reflect the varied values of their communities. In addition, the effectiveness of its communication was not being evaluated.

The audit team suggests that the Lower Murray Darling 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:

- Reviewing and evaluating the Communication and Community Engagement Strategy to ensure it is comprehensive in its coverage of current stakeholders and engagement processes, clear in its rationale for, and prioritisation of, engagement approaches and clear in its guidance for CMA staff and Board members. It should facilitate a considered, conscious and cohesive approach to all engagement activities performed by the CMA, and be clearly linked to the CMA's business strategy and to subsidiary engagement strategies such as the ACES and local government MOUs.
- Planning for the effective execution of the revised Communication and Community Engagement Strategy, determining how it will be adopted by the CMA and be implemented into its business systems and practices. The revised strategy should be supported by a mechanism that facilitates continuous monitoring and evaluation of its effectiveness to promote continual improvement.
- Reviewing the communication elements of its Communication and Community Engagement Strategy (as part of the overall review suggested above) to ensure it includes promotion of behavioural change. Additionally, it needs to provide clearer rationale for communication approaches that are tailored to specific stakeholder groups. It also needs to provide better guidance for staff to ensure effective execution and implementation.

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 Lower Murray Darling CMA's implementation of the CAP found that:

- The CMA had not documented adaptive management principles in their planning and business systems. The CMA had responded to suggested actions from the 2009 Audit by stating that the CMA had incorporated the Australian Knowledge Management Group (AKMG) Business Excellence Guide to NRM into the Strategic Business Framework Policy and Personal Development Plans. However, it was observed that the Business Excellence Guide had not been used beyond HR management.

- The CMA did not demonstrate a common understanding of how adaptive management principles were applied to their planning and operations. The Board had recently established an Audit and Risk Committee and Board members agreed that it would assist the Board with strategic oversight. However, there was a lack of understanding of adaptive management among Board, management and staff and its application to the activities of the CMA.
- The CMA did not have an understanding of and did not manage knowledge gaps and uncertainties. The Risk Register needed improvement and not all staff with roles in monitoring risks were aware of their responsibilities.
- The CMA's programs were not designed and delivered in ways that facilitated structured learning, generated new knowledge and increased the effectiveness of investment.
- The CMA was undertaking a number of monitoring activities and some improvements to the MER system were observed. MER projects were producing relevant data that could be used to evaluate the effectiveness of management actions and test the validity of underlying assumptions. However, there was no evidence of improved evaluation being undertaken and key elements of the overall strategy, such as a Lessons Learnt Register, were not yet developed.
- A primary responsibility of the MER Officer position was to develop and implement a monitoring, evaluation and reporting framework. The MER Officer had only recently been appointed and had not yet developed such a framework. In the absence of an M&E Officer and an overarching MER strategy or framework, the CMA was unable to apply its monitoring data to facilitate structured learning, generate new knowledge and increase the effectiveness of investment.
- The CMA had relatively sophisticated information management systems to support investment decisions, reporting requirements and continual improvement. However, the CMA had not yet incorporated all knowledge into the Objective Electronic Document Management System (EDMS) and some documents and files were still retained in alternate systems.
- The CMA did not have information management systems which kept track of new knowledge derived from the monitoring and evaluation system. Monitoring data resided in various systems including hard copy files. No strategy for the incorporation of monitoring and evaluation data into the information management system was identified.
- The CMA did not have a shared understanding of the information management system. The effective functioning of the spatial information system was dependent upon the capabilities of an individual staff member. The CMA had no strategy for improving the system and had no budget allocation for system development.

The audit team suggests that the Lower Murray Darling 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:

- Developing a policy for CMA-wide understanding and active use of adaptive management. This would involve building adaptive management principles, such as feedback loops and planning for review and improvement into strategic plans, policies and business systems (and could include the Board Strategic Plan, the Project Management Framework, the Communication and Community Engagement Strategy, the Risk Management Strategy and the MER Strategy).
- Developing and implementing an internal audit framework that would enable the Audit and Risk Committee to monitor implementation of the adaptive management strategy and drive continuous improvement throughout the organisation.

- Developing its monitoring and evaluation system, including ensuring performance and condition data is evaluated and reported from project to catchment scale, and strengthening links between MER and the CMA's risk and information management strategies.
- Undertaking a review of the information management systems to assess data needs, identify gaps in system linkages and resolve system duplication.
- Developing an information management strategic plan and allocating appropriate resources to ensure the information management systems will continue to support investment decisions, reporting requirements and continual improvement.

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 Lower Murray Darling region and CMA. As noted above, a summary of the CMA's response to suggested actions is provided in Attachment 1 of the final report.

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, and
- 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.

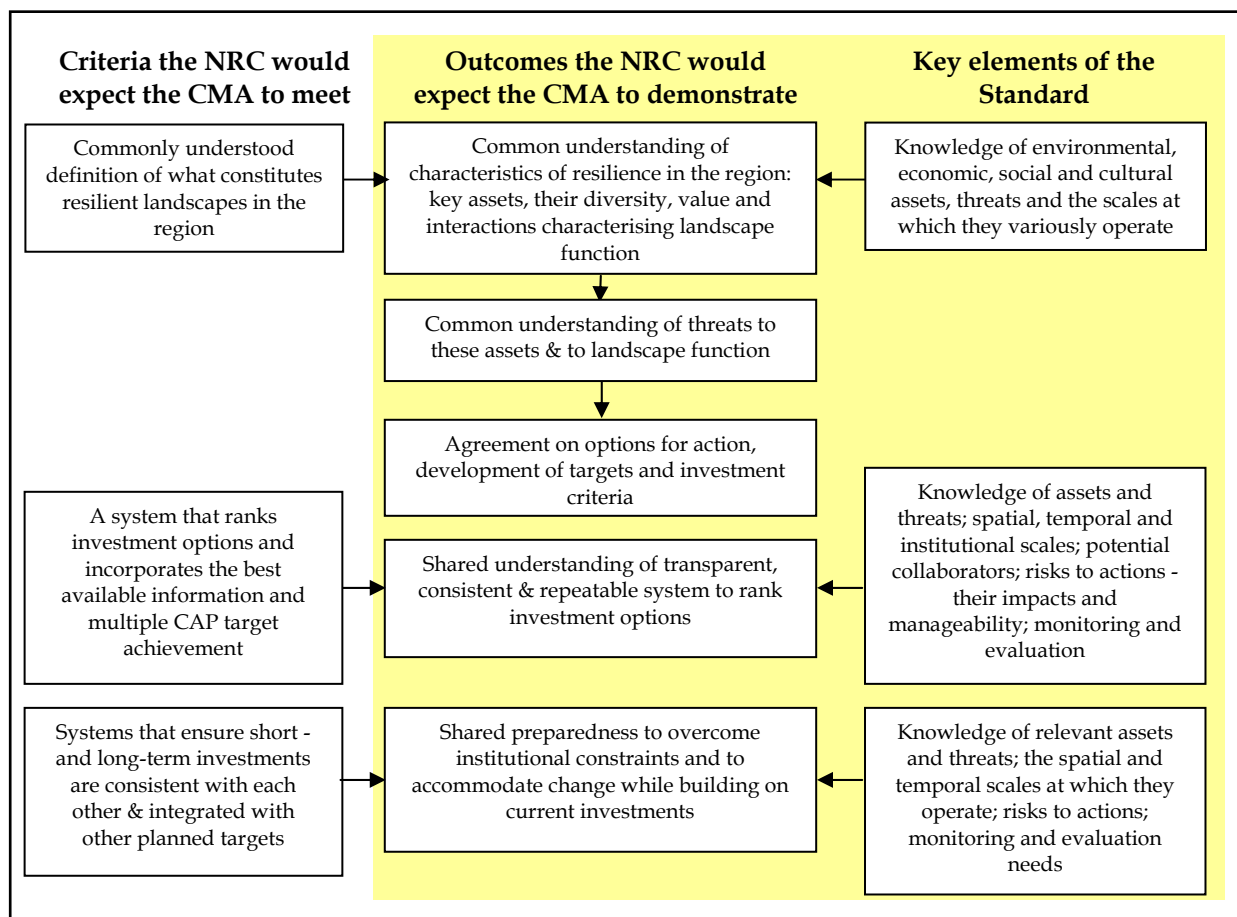
For example, if the CMA is meeting the first criterion (having a commonly understood definition of what constitutes resilient landscapes in its region) in a way that complies with the Standard, the NRC would expect it to be collecting and using the best available knowledge on the ecosystem goods and services provided by the landscape, how the regional landscape functions and the threats to continued desired landscape function. The NRC would also expect landscape analysis to determine the appropriate scale to intervene to ensure continued desired landscape function.

As a result, the NRC would expect to find that its Board members and staff can consistently explain the regional landscape and the value of ecosystem goods and services to the community. The NRC would also expect them to understand the difference between desirable and undesirable landscape function. In addition, they would agree on appropriate strategies to maintain desirable landscape function, 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 Lower Murray Darling CMA Board and staff members did not have a common understanding of what constitutes resilient landscapes in their region and could not clearly articulate priorities for the catchment to maximise contribution to landscape function.

In the absence of this common understanding, the Board and staff typically considered the key assets in the region were those most closely related to their area of responsibility and expertise. Those responsible for the riverine environment recognised riverine assets and those responsible for community engagement focussed on the role of the community. There was an overall emphasis among the Board and staff on the importance of maintaining adequate groundcover to protect soils and prevent wind and water erosion.

In response to the 2009 Audit, the CMA had developed a conceptual understanding of resilience and had started to explore what this meant for the landscapes and communities in its region. The CMA was working to build this conceptual understanding into their knowledge of the landscapes in the region but had not yet established a common perspective. The newly acquired conceptual understanding of resilience was promoting a reassessment of the understanding of threats.

The failure to adequately identify major natural assets, threats to assets and resilience thresholds for assets had been noted by the CMA as 'high risk' in the risk management plan. The CMA had recognised the need for an asset identification process as a means of mitigating this risk but had not yet undertaken this task.

A common understanding of what constitutes resilient landscapes in the region is needed in order to inform the investment priorities that will maximise the contribution to landscape function. Clearly establishing this strategic direction for the catchment will better focus both the CMA's and stakeholders' activities and provide clear guidance for staff and Board members.

In respect to the Standard, the CMA:

- could not demonstrate 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 and Determination of scale*)
- could not demonstrate it had documented its understanding of characteristics of resilience in the region, the key assets, their diversity, value and interactions characterising landscape function, in a way that would build a common understanding. (*Community engagement, Risk management and 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 Lower Murray Darling CMA had a system to rank investment options that was transparent and delivered consistency and repeatability. The system was based on existing CAP targets and prioritised projects within each four (4) year Investment Strategy (IS). Available funding was then allocated to those projects that aligned with investor preferences within a two (2) year Investment Plan (IP). The IP aligned with the two year Caring for our Country funding cycle.

The Rangelands Management and Biodiversity Project delivered incentives within rangeland areas. These incentives used a ranking process to prioritise investment. This ranking process was redesigned each year to ensure incentives matched current priorities. The prioritisation process had recently been documented and linked to detailed process mapping.

The River Frontage Action Strategy (RFAS) implementation project delivered a series of smaller projects targeted at coordinating the management of river frontages, showcasing best management practices and improving community awareness of the importance of river frontages (see Box 2.1). The individual projects across twelve priority river reaches were detailed in the RFAS developed in 2008. The CMA generally used contractors to develop and implement these types of projects. Contractors were selected on the basis of tenders or quotes and once selected, the contractors took responsibility for developing projects, advertising, engaging landholders, ranking applications and delivering on ground works with limited CMA involvement.

The CMA used a Committee process to apply knowledge from Board, staff and stakeholders to its project development process. These Committees included a Think Tank Committee focussed on innovation; a Water and Salinity Projects Committee focussed on riverine health, and a PVP and Projects Committee focussed on delivery of rangelands incentives.

The system was inconsistent in its approach to identifying and using a wide range of best available information. For example, external participation in the Think Tank committee and Technical Assessment Panels was inconsistent.

The Think Tank Committee included representatives of eight (8) Landcare groups whereas the other Committees included only Board and staff. Committee TORs provided opportunity for inclusion of external expertise, however there was no evidence of external parties participating on a consistent basis. Tender Evaluation Panels were used to assess and select contractors to implement projects and Technical Assessment Panels were used to assess and rank incentives applications. Typically these panels included only CMA staff.

Where contractors were heavily relied upon to develop project briefs and deliver projects there was a risk of new knowledge not being properly captured and therefore not becoming part of the accumulated knowledge of the CMA.

The system could take account of any option's potential to contribute to multiple targets. The Multi Criteria Analysis used to rank incentives included an assessment criterion for contribution to multiple targets. CMA staff assisted landholders to develop incentive applications that contributed towards multiple targets and to better meet selection criteria. Changes to the IP and IS over time demonstrated that achievement of multiple targets had resulted in adjustment of investment priorities.

The staff members generally had a shared understanding of the system. CMA staff worked closely with Board committees to develop project briefs for approval by the Board and evidence indicated the approval

process closely followed documented procedures. However, all staff were not yet familiar with the system documentation and consequently there were still inconsistencies in understanding.

In respect to the Standard, the CMA:

- demonstrated it had applied its knowledge of assets and threats and risks to actions to prioritise investment, design programs and assess individual projects (*Collection and use of knowledge and Determination of scale*)
- could not demonstrate it had consistently incorporated best available knowledge to improve its prioritisation of investment (*Collection and use of knowledge, Determination of scale, Risk management and Information Management*)
- demonstrated it had considered the potential of projects to contribute to multiple targets when prioritising investment (*Determination of Scale and Risk Management*); and
- demonstrated it had used documentation to build a shared understanding of a transparent, consistent and repeatable system to rank investment options (*Collection and use of knowledge, Risk management and Information management*).

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 Lower Murray Darling CMA had a system that could accommodate change and help them adaptively manage towards long-term targets. The CMA Board closely monitored project progress through progress reports provided to Board meetings. The Board also received a Monitoring and Evaluation report; however, this provided information on the progress of monitoring projects rather than feedback for adaptive management. Recommendations for adjustment to funding allocations were made by Board Committees. In recent times, reports to the Board had been revised to reduce operational content and focus more on strategic issues.

The CMA had identified "failing to work with other bodies and leverage further contributions" as a medium risk in their risk register. In response to this risk the CMA had used the Think Tank Committee to develop projects that could be used to capitalise on short-term funding opportunities. These projects were recorded in the 'Future Projects Register' and at the time of the audit it contained some fifty (50) projects in various stages of development waiting for funding.

The CMA had some preparedness to manage within institutional constraints and remain focused on its long-term goals. The CMA reacted to variations in funding by making adjustments to existing delivery programs where funding could be readily reallocated. However, where investor preferences had meant there was no readily available funding for some catchment targets, there was no evidence that the CMA was endeavouring to secure additional funding to promote the achievement of targets in those areas.

In respect to the Standard, the CMA:

- demonstrated that it had adapted its short-term investments to promote integrated long-term outcomes (*Collection and use of knowledge, Determination of scale and Information management*).
- could not demonstrate that it was applying best available knowledge and collaboration to secure additional funding and promote long-term achievement of catchment targets. (*Collection and use of knowledge, Collaboration and Risk management*).

Box 2.1: Developing a long-term strategy that targeted investment toward areas of highest priority

The Lower Murray Darling CMA developed and implemented a long-term strategy that targeted investment toward priority reaches of the Murray River, Darling River and Great Darling Anabranch.

In 2008 the CMA used funding from the NSW Catchment Action and the National Action Plan for Salinity and Water Quality programs to develop a comprehensive River Frontage Action Strategy (RFAS) to:

- coordinate the management of river frontages across all land tenures
- showcase best management practices for river frontages to the community and key stakeholders; and
- improve community awareness of the importance of river frontages.

The strategy captured best available knowledge from a wide variety of community groups, stakeholders and collaborating partners. It identified twelve priority river reaches and recommended management actions aimed at protecting, maintaining and improving riparian values.



removed willows on the far river bank

One such project inspected by the audit involved a reach of the Darling River known as Willow Bend. The land adjacent to the river was occupied by a caravan park and the pressures associated with community access threatened the riparian verge.

The project involved removal of willows, revegetation of the river bank with native plant species, construction of a pontoon to channel appropriate community access to the river away from sensitive areas,

Two landuse Best Management Practice (BMP) Guidelines were recommended for development.

From 2008, the CMA allocated available funding within its Investment Strategy and associated Investment Plans to ensure the recommendations were implemented and targets were achieved. Each year applications were sought from landholders within the priority reaches that were willing to implement projects on the riverine areas under their control. Applications were ranked and the funds, allocated according to the IP, were applied to the highest ranked projects.

Above: Informative signage and stumps of



foreground.

construction of a bird hide to encourage bird watching and promote awareness of improved biodiversity, and a review and improvement of the BMP guidelines developed under previous projects.

These BMP Guidelines were distributed to riverine landholders through local authorities to promote improved management of the river edge beyond the priority reaches.

Above: Newly established bird hide with recently planted seedlings in the

The project had created a suitable environment for community awareness programs that could further promote the benefits of improved riverine management. The CMA had completed implementing the recommended actions contained in the RFAS on eleven of the twelve priority reaches and is well situated to incorporate the achievements and the lessons learned into the upcoming review of its CAP.

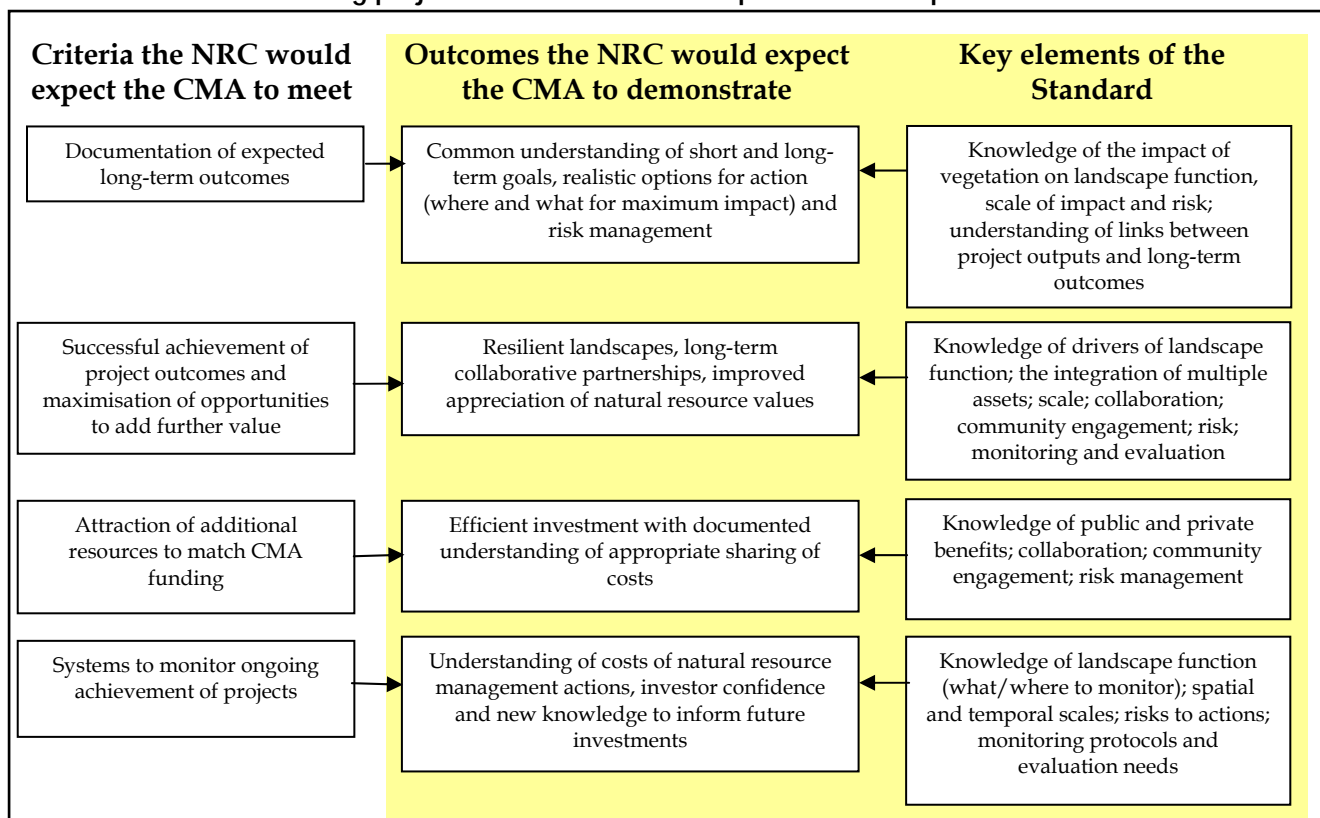
3. DELIVERING PROJECTS THAT CONTRIBUTE TO IMPROVED LANDSCAPE FUNCTION

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, and
- 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 Lower Murray Darling CMA had documented its projects' expected long-term outcomes as suggested in the Audit Report 2009. The expected long-term outcomes were documented in its foundation documents, the CAP and its Investment Program and its strategic studies, such as the River Frontage Action Strategy (RFAS). They were also documented in program briefs and in the project contracts that were reviewed during the selection of projects sites for inspection.

The CMA project documentation, from project brief through to project contracts, demonstrated consideration of the requirements of the Standard in the planning process. However, it was not always clear which planning template had been used to develop the documentation.

Landholders demonstrated an understanding of the expected long-term outcomes of their projects, both in applications for funding and during interviews. They also demonstrated substantial agreement with the expected long-term outcomes documented by the CMA.

The CMA had a common understanding of the relationship between short and long-term goals, realistic options for action (i.e. where and what to implement for maximum impact) and risk management.

The CMA had recorded its understanding of the links between short-term actions and long-term outcomes, through both its documentation of program logic and its documentation of management actions. This documentation would help ensure long-term management actions were understood and continued, and therefore mitigate the risks to achieving long-term outcomes.

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 and associated project management 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*)
- demonstrated 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 Lower Murray Darling CMA's projects had successfully achieved short-term changes, both in natural resource outcomes and the way they were managed.

The intended outputs had been completed in four (4) out of six (6) projects inspected and in one of the exceptions the works were substantially completed but had been delayed by flooding. The remaining project was an experimental project where purchase of the property was being considered, and on this project work had not yet begun.

In two (2) projects inspected it was found that landholder management actions had changed in pursuit of the long-term intended outcomes. These management actions were likely to continue as the interests of the CMA and landholder were well aligned in both biophysical and socio-economic terms.

In another project inspected by the audit, the required management actions needed to produce the intended outcome were being carried out by the state agency responsible for the land. These ongoing management actions were likely to achieve the long-term goal of preserving and enhancing biodiversity in an ecologically significant area.

In two (2) of the projects inspected the intended output of willow removal and other riverine works had been achieved and the long-term intended outcome was being pursued under a detailed River Frontage Action Strategy (RFAS). Achievement of long-term outcomes will depend on follow up by the CMA. The prevention of willow reinfestation, the maintenance of grazing restrictions along the riverbank and the inclusion of all riverine landholders in the removal program will need to be pursued to ensure long-term success.

The CMA had built on previous investment to add greater value to the projects proposed by landholders or other stakeholders in most of the projects inspected (see Box 3.1) This was as a result of 'added value' being built into the overarching RFAS developed in 2008, as well as recent changes to the process used to develop and deliver rangelands incentives. A considered response to 'develop a strategy to help CMA staff identify and maximise opportunities to add value to, or further innovate from project investments' as suggested by the previous audit was not identified. Consequently, consideration of 'added value' was undertaken at the project development stage and not considered beyond completion of the project.

On one of the projects inspected the landholder had made further investments in pursuit of the intended long-term objective and stated he intended investing further. This activity was independent of the CMA. In another location the CMA was funding three (3) loosely linked activities to address multiple outcomes, cultural and biophysical, that were likely to improve resilience in the immediate region but had no plan for further development.

The CMA had not developed long-term collaborative project partnerships that improved appreciation of natural resource values in its region. For example, on one project there were several agencies investing for a similar purpose but there was no evidence of formal collaborative planning to add value to each others' investment. On two more projects, collaboration with local government and extension with landholders was managed through a contracting agency. This was done for efficiency but probably reduced effectiveness in terms of landholder engagement and staff acknowledged landholder engagement was important for long-term success.

Where the CMA had funded the fencing and preservation of a Crown reserve, there were opportunities to further develop the property for use in training, public awareness, aboriginal engagement and use the property to promote improved NRM within the government agency responsible for the land. However, these ideas had not yet been developed beyond the staff member of the agency involved.

The projects inspected by the audit demonstrated potential for the CMA to encourage further investment and coordinate collaboration that would add further value and improve appreciation of natural resources in the region.

In respect to the Standard the CMA:

- demonstrated its ability to successfully plan and implement projects that are likely to achieve outcomes that build resilience and address real landscape processes (*Determination of scale and Community engagement*)
- demonstrated development of opportunities to add greater value to the projects proposed by landholders or other stakeholders (*Community engagement and Risk management*); and
- could not demonstrate the use of strong collaborative partnerships to deliver project outputs and maximise value (*Determination of scale, Community engagement and Opportunities for collaboration*).

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 Lower Murray Darling CMA had attracted additional resources (monetary and in-kind investment) to match its investment in rangeland incentives; and had systems in place to measure and record agreed landholder contributions. However, the CMA did not appear to have 'developed a strategic approach to measuring and attracting additional investment that promotes the CMA's priorities and is linked to its communication and engagement strategies', as suggested by the previous audit.

The importance of landholder contributions and the expectation that landholders would share costs as partners had been published under its rangelands incentives scheme. The CMA had also established photo points for monitoring that encouraged landholders to make ongoing in-kind contributions, maintain stewardship and contribute to the long-term success of the project over time.

However, the CMA had not sought to maximise efficient use of its investments in all situations. In projects where there was an overriding consideration to reach all or most landholders in a region to achieve the desired landscape change, the CMA had not encouraged landholder contributions nor considered shared costs in its ranking of applications.

The CMA had documented its understanding of appropriate sharing of costs in its recent rangelands incentive projects. However, instances were identified where significant ongoing investments were being made by landholders beyond those agreed in the project contracts. These ongoing contributions were not being recorded.

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 was maximising efficient use of its investments in all situations (*Opportunities for collaboration*, *Community engagement* and *Risk management*); and
- 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 Lower Murray Darling CMA had a robust system that tracked the progress of projects. This had worked effectively over the investment period on the projects inspected.

The system generated reliable information that short-term targets had been met in most cases. An audit of rangelands incentives had been undertaken and where problems were encountered remedial action had been implemented.

The CMA had established systems for monitoring long-term objectives but had not yet undertaken evaluation of the monitoring data collected. This lack of evaluation meant it was not possible to assess the effectiveness of the monitoring that was being undertaken and the suggested action of the Audit Report 2009 'Establish an effective system to evaluate and report on how well projects have contributed to achieving the CMA's agreed long-term goals' had not been achieved.

The monitoring system would likely enable the CMA to have an understanding of costs of natural resource management actions and gain new knowledge to inform future investments once it was improved to include evaluation of the monitoring data that was being collected.

In respect to the Standard, the CMA:

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

Box 3.1: Building on previous investment to add value and further enhance a world heritage area.

The Lower Murray Darling CMA built on previous investment to add value and further enhance the Willandra Lakes World Heritage Area (WLWHA).

The WLWHA covers 240,000 hectares of semi-arid landscape and contains a system of ancient lakes formed over the last two million years. Most of these lakes are fringed by a crescent shaped dune or 'lunette'. Aborigines lived on the shores of the lakes and the 40,000 year old remains of a female aboriginal known as 'Mungo Woman' were found in the dunes of Lake Mungo. This is believed to be the world's oldest ritual cremation site.²



One quarter of the WLWHA is included in the Mungo National Park while the remaining 181,154 hectares is maintained as pastoral lease. The CMA has worked with holders of these pastoral leases over a number of years to implement a range of projects that will help to protect the fragile landscapes.

Left: Goat trap and water point established by the project

On one such project inspected by the audit the CMA had invested during 2008 to establish a set of sheep yards that would protect areas of indigenous cultural heritage from grazing stock. During 2009 and 2010 the CMA had invested in a further three successive projects to establish water points and goat traps and construct fencing that would restrict grazing and reduce total grazing pressure. The landholder had matched the CMA's investment of approximately \$85,000 with both a cash investment and an 'in kind' contribution totalling approximately \$75,000.



Left: Example of vegetation cover maintained as a result of management of TGP

The CMA's investment was secured by Property Vegetation Plans (PVPs) established under the Native Vegetation Act. These PVPs detailed the management actions that the landholder would need to implement for the 15 year duration of the agreements to ensure the investment made would deliver long term benefits that would contribute to the preservation of biodiversity and cultural heritage within the WLWHA.

Other landholders in the WLWHA had also undertaken similar projects. By working with landholders in this way the CMA built on previous investment and leveraged landholder contributions to better protect landscape assets and add long-term value to the WLWHA.

² Achievements in the Lower Murray Darling Catchment Management Authority, LMD CMA 2010
Lower Murray Darling 2011 Audit Report - ERSA Ver 2.2.docx
Version 2.2

4. COMMUNITY ENGAGEMENT

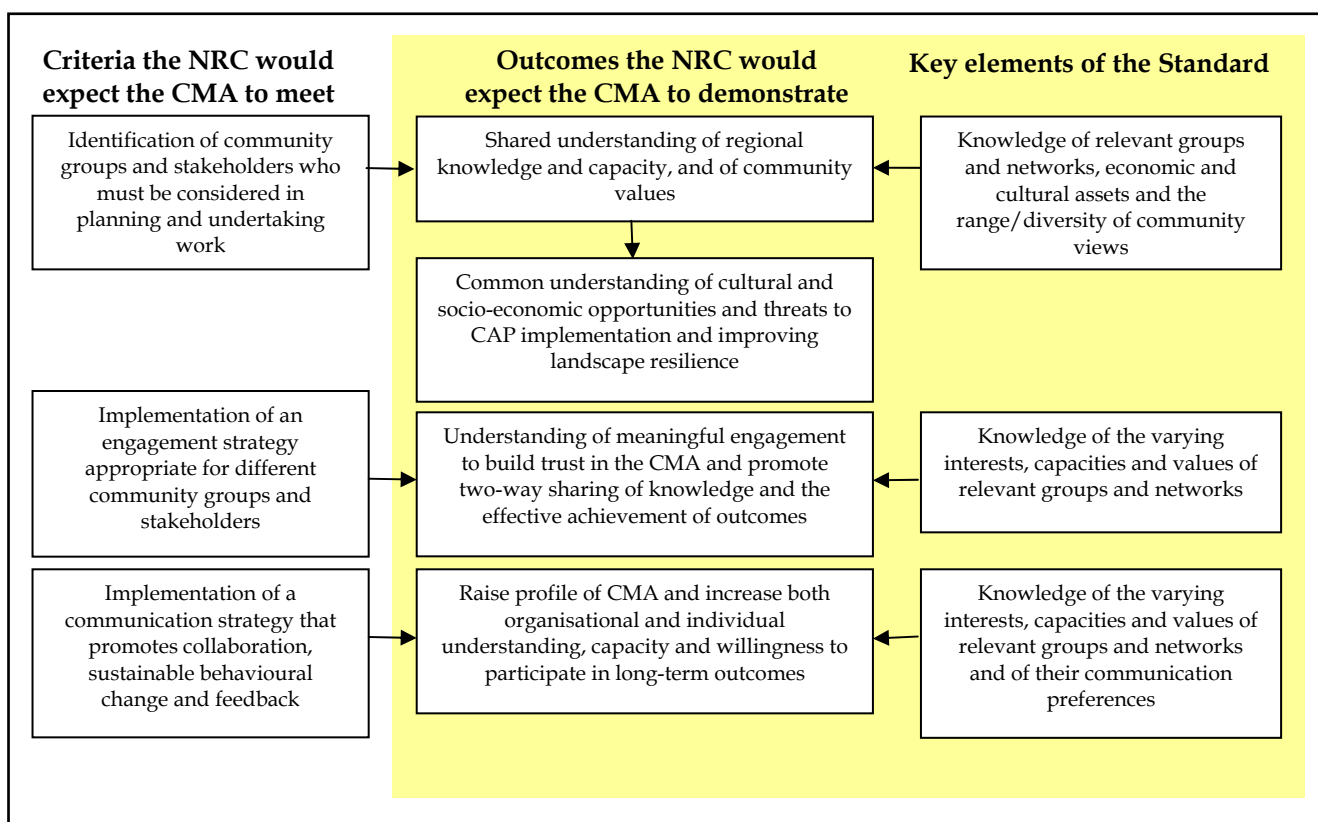
The audit's third line of inquiry was whether the CMA is effectively engaging its communities. Given that 89 per cent of land in NSW is in private management, it is critical for CMAs to engage private landholders and other stakeholders who manage the natural resources on this land. This allows CMAs to 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, and
- 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 Lower Murray Darling CMA had identified and documented, through its CAP and in the Communication and Community Engagement Strategy (CCES), the key community groups and stakeholders it must consider in planning and undertaking its work. While CMA Board members and staff were not able to identify all the key groups, they were clear that landholders in the region were the primary group on which the CMA needed to focus resources.

The CMA Board and staff had a shared understanding of regional knowledge and community capacity and their values. Generally, they considered that landholders' knowledge of NRM in the region was improving. Balancing this, there was clear recognition that volunteerism in the community was reducing across the board, for the State Emergency Service (SES), Country Women's Association (CWA), Isolated Children Parents' Association (ICPA) and for Landcare groups. Despite increased community interest in NRM the Broken Hill Landcare Group, which had formed in the last two years, had encountered difficulties getting numbers to events.

Stakeholder perceptions were mixed on how well the CMA understood regional knowledge and capacity for NRM. Some felt that the CMA and its contractors did understand the community's values and capacity, but others felt that recent changes at the CMA had probably meant that some of this knowledge had been lost. Stakeholders close to CMA boundaries felt that the CMA did not understand that they also wished to access information and assistance from neighbouring (and often closer) CMAs. This sentiment was also noted in the previous audit. Finally, some stakeholders felt that the CMA's understanding and focus was on the southern part of the region more than the northern rangelands.

The CMA Board and staff had a common understanding that socio-economic opportunities were limited in the region and that financial viability remained a key threat to implementing the CAP and improving landscape resilience. Discussions around the issue of financial viability centred on: the limited options for diversification in some areas of the region, the hope that eco-tourism could allow diversification, the loss of market share for dried fruits to other producing nations, the difficulty of obtaining farm finance and insurance, and the uncertain impact of PVP protected areas on farm values.

Some stakeholders also identified a demographic shift from the properties and smaller towns in to the regional centres, such as Buronga, with some interstate migration to land around Buronga and Gol Gol as an emerging threat to community capacity. Examples that were given included retirees and landholders of multiple properties moving into town, and some landholders operating their farm businesses remotely.

There were new subdivision developments underway in the towns of Buronga, Gol Gol, and Mildura in Victoria, at the time of the audit visit.

The CMA did not have systematic approaches in place to develop and maintain its understanding and knowledge of key community groups and stakeholders, their values and changes in their NRM capacity over time. The CMA's key strategies for engagement did not identify how changes in understanding of community groups would be collected, evaluated and used to update strategies. While local government MOUs identified continual improvement as a key principle, this was continual improvement to the MOU, rather than the CMA's understanding of the community's NRM knowledge and capacity. Demonstrating this point, CMA staff and stakeholders indicated that where understanding was not documented, this may have been lost due to high staff turnover over the last two years.

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*); and
- could not demonstrate it had processes in place to develop and maintain knowledge over time to adapt its understanding to current emerging needs (*Collection and use of knowledge*).

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 meaningful engagement. This requires strategic thinking, risk management and processes to identify and fill knowledge gaps.

The Audit found that the Lower Murray Darling CMA had an understanding of meaningful engagement - that is, one that could build trust in the CMA and promote two-way sharing of knowledge and the effective achievement of outcomes. The community engagement policy within the CAP documented this understanding, and it was further reinforced by the group-specific principles established for engagement with the Aboriginal communities in the region.

The CMA's overarching Communication and Community Engagement Strategy (CCES) focused on specific engagement and communication activities and key messages for communication (see discussion at 4.3 below). Specific to engagement with the Aboriginal communities of the region, the CMA had adopted an Aboriginal Community Engagement Strategy (ACES), which was based on principles for engagement that were common to accepted NSW Government practice. Memoranda of Understanding with local governments had also been established to give strategic direction to engagement with the local governments in the region.

There were, however, some weaknesses in the CCES. Stakeholder specific engagement strategies were not referenced to each other, nor did they reference or provide the contextual understanding that was documented within the CAP. While the identified community groupings and the engagement activities in the CCES were consistent with the CAP, the strategic rationale for these activities was not identified, and the relative priority to be given to each activity was not clear. While the ACES was reviewed in 2010, the CCES and the MOUs were overdue for review, and it was not clear that the strategies they detailed were still appropriate.

Furthermore, the CMA had not fully implemented its strategies to engage different sectors of its community and engagement practices were not consistent throughout the CMA. Engagement was heavily reliant on the enthusiasm of individual staff members and the engagement practices were not guided by the overarching CCES. However, the CMA Board and staff members were able to give examples of good engagement across some stakeholder groups. The CMA's particular strength in engagement was with landholders in the region, and this was generally recognised by staff and external stakeholders alike.

Examples of consultation with other groups of stakeholders were generally limited to project-level engagement, including through third parties such as consultants. For instance, staff cited consultative processes that were needed to complete a booklet of 'Guidelines for Urban Development in River Frontages', with local government, state agencies and Victorian CMAs. Another example of engagement cited was undertaken with the Ngiyampaa Aboriginal community (see Box 4.1). The engagement for both of these projects was outsourced to the managing consultant on the project. However, the CCES did not identify or justify outsourcing of engagement as a conscious approach of the CMA and consequently there were no processes in place to manage the risk that such engagement would be limited to the contractor and landholder and make no long term contribution to the CMA's engagement with its community.

Board members considered that community values, as in respect for long-term local knowledge and experience, meant that Board members needed to form a significant part of any CMA engagement approach. These values and this engagement approach were not reflected in the CCES and therefore did not consciously inform the engagement activities of the CMA as a whole.

The Aboriginal Community Engagement Strategy included three main approaches: (limited) direct project funding each year, employment of Aboriginal staff members, and annual forums of Aboriginal Land Managers and Communities. These had been implemented over the last two years. Stakeholders interviewed considered that the CMA's engagement with the Aboriginal communities had been satisfactory. However, at the time of audit, there were some clear deficiencies in the implementation of the ACES. These included there being no active Aboriginal staff members, with the Catchment Officer Aboriginal Communication (COAC) on long-term leave and the aboriginal trainee position vacant.

In addition, despite the CMA's location bordering Victoria and SA, the CMA's identified inter-state engagement activities were not occurring. The Tri-State NRM Forum had not occurred in the last two years, and water responsibilities had been referred to other NSW agencies. Engagement with stakeholders external to NSW was limited to specific projects and some informal connections.

In respect to the Standard, the CMA:

- could not demonstrate it had appropriate strategies to engage all key stakeholders or that recognised the varying interests and capacities to engage (*Collection and use of knowledge, Community engagement and Determination of scale*); and

- could not demonstrate it had effectively engaged with government and interstate agencies at the strategic level (*Determination of scale and Risk management*).

4.3 Communication promoting collaboration, behavioural change and feedback

CMA's 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 Lower Murray Darling CMA did not have sophisticated approaches to communicate their messages and for hearing and responding to messages sent by their communities – that is, a strategy that raises their profile and increases both organisational and individual understanding, capacity and willingness to participate in long-term outcomes.

The CMA's Communication and Community Engagement Strategy (CCES) identified communication messages and activities that the CMA would implement. The CMA's other engagement strategies included elements relevant to the CMA's communications.

These strategies had some weaknesses. The key communication messages in the CCES did not include promotion of sustainable behavioural change or feedback. Additionally, the strategy could have provided clearer rationale for communication approaches so as to provide better guidance for staff. As with engagement activities, the communication strategy provided no basis for prioritising resources between particular communication activities. Furthermore, the strategy, and the communication messages were last reviewed in July 2009 so it was not clear that they were still relevant to the work of the CMA in 2011.

The CMA had not implemented appropriate strategies for communication reflecting the varied values of their communities. The CMA had used media promotions (radio and TV), e-newsletters, email, telephone, flyers and regular mail to communicate with their communities. Face to face communication, through field days and on-farm demonstrations, was also considered important by the CMA and its stakeholders. However, these communication approaches were not coordinated to address specific needs nor targeted to particular community groups. While the CMA maintained a basic website, both stakeholders and staff indicated that the website could be improved to better meet user needs.

It was also not clear how well the communication strategies were being implemented and what impact was being achieved. Reports to the Board on communication did not reference the key communication strategies or messages and CMA Board members and staff did not refer to these messages. There was a similar lack of awareness of, and reference to, the principles for communication set out in the ACES.

Furthermore, no analysis was provided to the Board that evaluated the success of local government MOUs in achieving strategic objectives for communication. Board members interviewed did not seem to be familiar with the communication strategy and the approaches used, despite the general feeling that they were a primary conduit for communication.

The CMA had collated feedback forms that were collected from community forums, and reported to the Board. However, the evaluation of these forms at the time of the audit seemed primarily to measure outputs

and identify issues for future planning, but as with comments above, did not seem sophisticated or referenced to strategic objectives.

External stakeholders' views of the success of the CMA's communication were mixed. Some considered that the CMA's profile had improved in the last couple of years, while others felt that it had not. While most stakeholders interviewed were personally satisfied with CMA communication of activities and initiatives they did not consider that the CMA had adequately sought feedback, or could not identify an example of meaningful feedback.

In respect to the Standard, the CMA:

- could not demonstrate it had effectively implemented a strategy that raised the CMA's profile and promoted feedback between the community and the CMA. (*Collection and use of knowledge and Community engagement*).

Box 4.1: Using a direct project approach to engage with a key community group

In 2010 the Lower Murray Darling CMA published a booklet of the ecological cultural knowledge of the Ngiyampaa people in a direct approach to engage this key community group. This is the fourth in a series of such booklets collecting and sharing knowledge of the Aboriginal communities of the region.

The objective of the project was to build understanding in the community of Aboriginal cultural heritage values in the landscape. The project also aimed to build natural resource management capacity in the community, through engagement with the CMA.

Ngiyampaa people attended workshops and field trips over the course of more than 12 months in 2009/2010. At these events they provided information on their traditional use of native plants and permitted recording of Ngiyampaa traditional language including cultural stories and history. Over the course of the project, more than one hundred hours of filming took place.

This information was collated in to a booklet about the ecological cultural knowledge of the Ngiyampaa people. Commencing with an outline of some oral histories in the area, the booklet described the uses for thirty significant species of native plants found in the area. The descriptions were accompanied by photos to help identification, and were usefully divided into sections for trees, shrubs, bushes, herbs, climbers and grasses.

Ecological cultural knowledge projects have also been undertaken with other Aboriginal communities in the Lower Murray Darling region; such as the Mutthi Mutthi/Yitha Yitha people (2004), the Barkindji people (2007), and the Barkindji/Maraura people (2009).

The project included the production of a 15 minute DVD, as part of the booklet package. This format has successfully provided the CMA with the opportunity to continue work with other communities, and republish earlier dated booklets with attached DVDs.

By funding projects that promote engagement with the Aboriginal communities in the region, the CMA can bolster other more formal consultative arrangements. The value of these projects is recognised across the whole region, and in the working relationships built between the CMA staff and community members. These relationships enable the community and CMA to better share knowledge and resources in the future to improve natural resource management in the region.

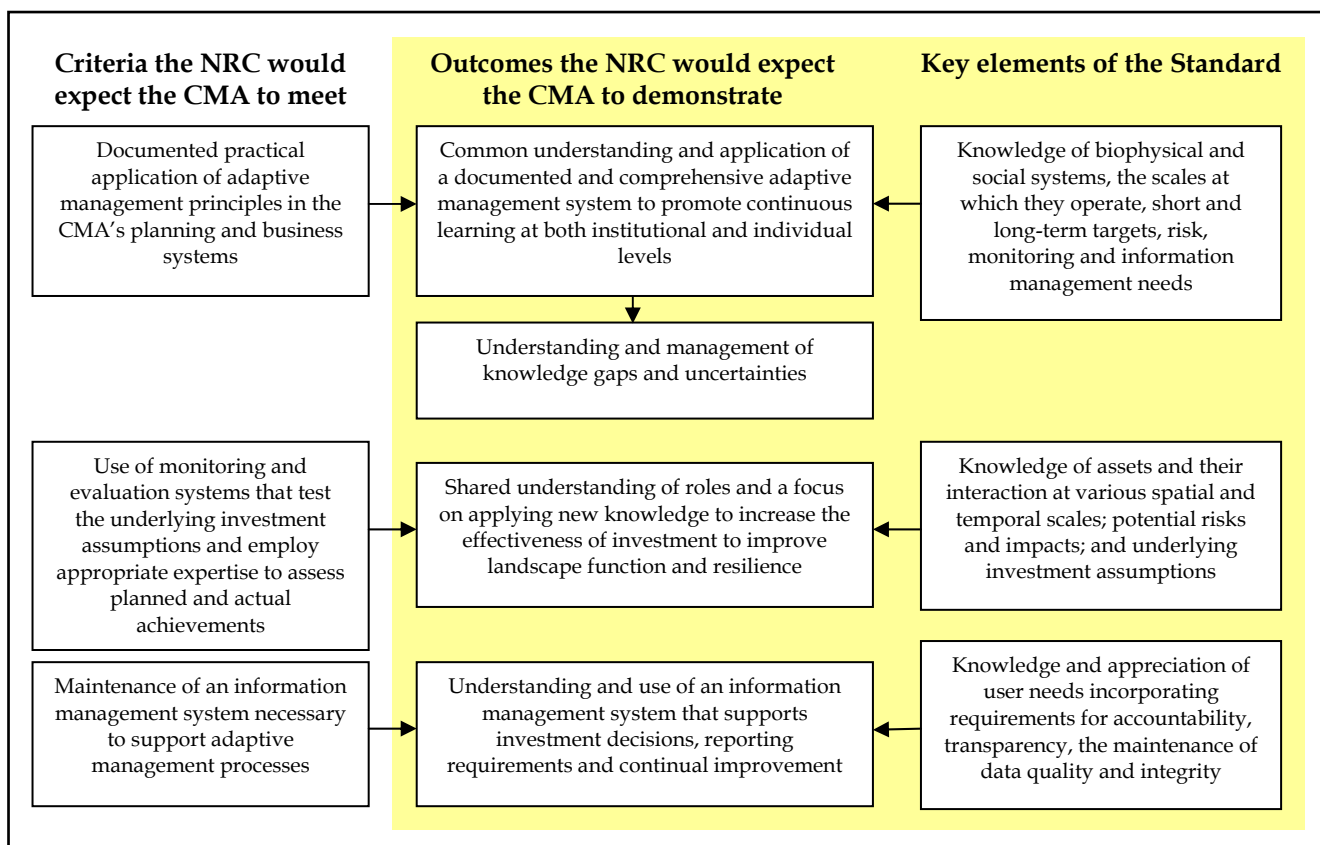
5. EFFECTIVELY USING ADAPTIVE MANAGEMENT

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, and
- 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 that the Lower Murray Darling CMA had not documented adaptive management principles in their planning and business systems. The CMA had responded to suggested actions in the 2009 Audit by stating the CMA had incorporated the Australian Knowledge Management Group (AKMG) Business Excellence Guide to NRM into the Strategic Business Framework Policy and personal Development Plans. However, it was not observed that the Business Excellence Guide was used beyond HR management.

The CMA acknowledged the Board was responsible for setting strategic direction and policy and there were indications that some progress had been made in this area. However, the Board Strategic Plan provided no direction to the Board beyond the vision and mission. This meant that the role of the Board in setting, monitoring and evaluating policy, including adaptive management policy, was unclear and open to individual interpretation.

The CMA stated in the CAP that the Standard would be used as a basis for developing and progressing all CMA activities and both the elements of the Standard and the adaptive management diagram were displayed in various plans, policies and procedural documents. However, evidence indicated that application of the Standard to CMA activities was not well understood and often did not contribute to effective adaptive management.

The CMA did not demonstrate a common understanding of how adaptive management principles were applied to their planning and operations. The Board was heavily involved in operational planning, project development and monitoring of implementation through its committees but had only recently established an Audit and Risk Committee. Board members agreed that this Committee would assist the Board with strategic oversight but were there was a lack of clarity as to how this would be achieved. Overall there was a lack of understanding of adaptive management among Board, management and staff and its application to the activities of the CMA.

The CMA did not have an understanding of and did not manage knowledge gaps and uncertainties. The CMA had recently established a Risk Register that included a Risk Management Policy and detailed strategic, operational and business risks. The Risk Register needed improvement in that the criteria for assessing risks were subjective and did not provide an understanding of risk levels; reporting of risks was based on the residual risk after control measures had been implemented; and there was evidence that not all control measures had been implemented and no monitoring of control measures had been identified.

Staff with risk monitoring roles were not always aware of their responsibilities and there was evidence that risks were not being effectively managed. For example, the PVP and Projects Committee had been given responsibility for managing risks around the implementation of the Native Vegetation Act. A recent external assessment by the Office of Environment and Heritage (OEH) had identified numerous inconsistencies in the CMA's application of PVPs to the management of native vegetation and as a result the CMA ranked at

ninth out of 12 CMAs reviewed. The monitoring of risks by the PVP and Projects Committee had not alerted the CMA to these deficiencies prior to the external review.

While the Risk Register was comprehensive the loss of knowledge due to high staff turnover was not recognised as a risk in the register. However, staff and stakeholders highlighted both the loss of knowledge due to staff turnover and the reluctance of the CMA to learn from feedback as impacting its ability to adaptively manage.

In respect to the Standard, the CMA:

- could not demonstrate 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 its numerous strategies and tools in a consistent CMA-wide approach to drive continual improvement throughout the organisation. (*Information management, Risk 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 (e.g., 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 Lower Murray Darling CMA's programs were not designed and delivered in ways that facilitated structured learning, generated new knowledge and increased the effectiveness of investment.

The CAP incorporated elements of a Monitoring and Audit plan and in 2009 the Audit suggested further development to improve evaluation and reporting and the strengthening of links between the MER, risk management and information management systems.

The CMA was undertaking a number of monitoring activities and some improvements to the MER system were observed. These included detailed Monitoring Standards and Instructions for landholders participating in the 2011-2013 incentives program and the intention of developing a Lessons Learnt Register noted in the risk register. MER projects were producing relevant data that could be used to evaluate the effectiveness of management actions and test the validity of underlying assumptions. However, there was

no evidence of improved evaluation being undertaken and key elements of the overall strategy, such as a Lessons Learnt Register, were not yet developed.

The CMA reported to each Board meeting in detail on the progress of monitoring activities. However this reporting included little evaluation of MER results and management and staff acknowledged that evaluation of data flowing from the MER system had not been a strength to date.

The CMA did not use experts with appropriate skills and knowledge in assessing its planned and actual results and the CMA did not have a shared understanding of individuals' roles within the monitoring and evaluation system. Responsibilities for monitoring and evaluation were linked to the MER Officer, Board committees and the Regional Landcare Coordinator however no linkages between the various roles were documented.

A primary responsibility of the MER Officer position was to develop and implement a monitoring, evaluation and reporting framework. The MER Officer had only recently been appointed and had not yet developed such a framework. In the absence of an M&E Officer and an overarching MER strategy, the CMA was unable to apply its monitoring data to facilitate structured learning, generate new knowledge and increase the effectiveness of investment.

In respect to the Standard, the CMA:

- could not demonstrate 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*); and
- 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*).

5.3 Information management systems that support adaptive management

CMAs 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 2009 Audit of the Lower Murray Darling CMA found that "The CMA had developed an information management system structured to meet investor reporting requirements. However, this system was not designed to record and share the knowledge required by staff to support adaptive management within the CMA." (Audit Report, 2009)

Since the 2009 Audit, the CMA had implemented the Objective Electronic Document Record Management System (EDRMS) to record and manage knowledge across the CMA. Other key CMA systems included SAP, Arc GIS and PADACS.

The information systems typically demonstrated strict data management conventions and layered controls that ensured the quality and integrity of the data in the systems was maintained. Spatial data had been compiled into a single location held locally. This database was supported by a well-designed spreadsheet indexing tool and GIS tutorial that assisted users to locate and use spatial data (see Box 5.1). Data requirements were clearly specified in project contracts that would generate data for inclusion in the CMA's information management system.

The CMA had incorporated much of its knowledge into Objective however this task was not complete and some documents and files were still retained in alternate databases and library systems. The CMA had found after implementation that the Objective system had difficulty managing large files and consequently may not be adequate for handling all monitoring and evaluation data and so much of this data still resided in various systems including hard copy files.

The CMA had not yet developed a strategy for the incorporation of monitoring and evaluation data into the information management system. Monitoring data resided in various systems including hard copy files and the CMA had not assessed the resources needed to assemble and digitally store the data in a way that would support evaluation processes.

The CMA did not have a shared understanding of the information management system. The Board was confident that the information system provided them with the data they needed; however, management and staff acknowledged that there were gaps in the data and missing links between systems.

The spatial system was locally based, independent of the Land Management Database (LMD) used by the majority of NSW CMAs, and the effective functioning of the system was dependent upon the capabilities of an individual staff member. This meant there was a risk that the system could not be adequately supported. The CMA had no strategy for improving the system or covering the risks and no budget had been allocated for system development and upgrades.

In respect to the Standard, the CMA:

- demonstrated it had developed a comprehensive information management system that supported the investment decisions and reporting requirements 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*).

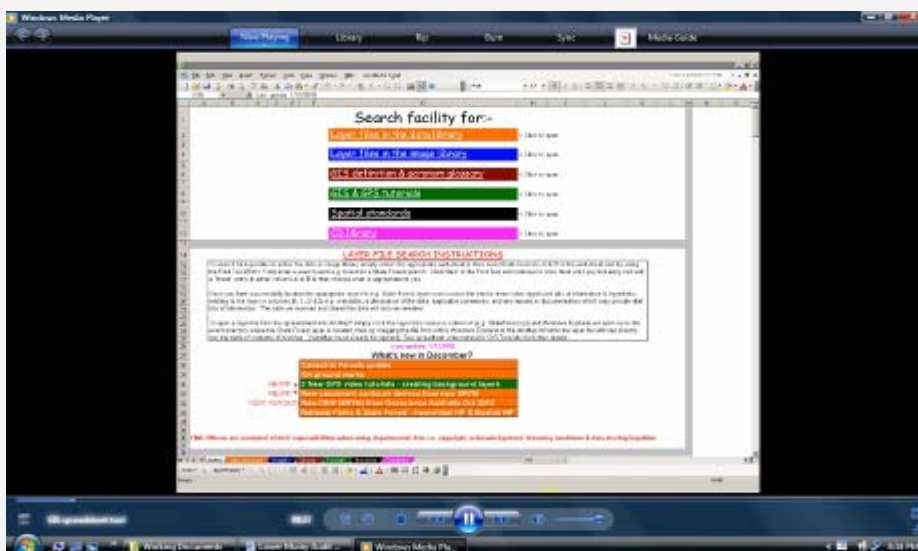
Box 5.1: Developing information systems that support investment decisions, reporting requirements and continual improvement

The CMA had developed information management tools, a data index and GIS tutorials to provide staff with access to its locally supported spatial information system.

The majority of CMAs in NSW have online access to a centrally (Parramatta) supported spatial information system, Land Management Database (LMD). However, accessing this database is difficult over long distances when data transfer speeds are low and staff need a high degree of expertise to access and manipulate the data.

The Lower Murray Darling CMA often experiences low data transfer speeds and has a small staff, making it difficult for staff to access the LMD and maintain the skills needed to operate the system. In recognition of these difficulties the CMA chose to develop and maintain a locally based spatial information system. A comprehensive suite of tools that would provide CMA staff with limited GIS skills the ability to capture, access and manipulate the data was then developed to support the system. This strategy has some inherent risks so the CMA developed a series of measures to mitigate these. These measures include:

- Data access strictly controlled to limit the potential for corruption by unskilled users
- A detailed data structure incorporating extensive metadata
- Secondary GIS layers developed and indexed to enable ready access by staff, and
- A comprehensive GIS tutorial to train all staff in how to access the data layers.



Above: Suite of tools that provide CMA staff with access to spatial data

CMA staff can follow the tutorial, access the data layers through the indexing system, manipulate the data locally without fear of corrupting the database and undertake analysis of the data in real time.

In this way the CMA has enabled ready access to spatial information for all staff without the time delays inherent in long distance communications; has done so with limited risk to data integrity; and has enhanced the ability of the system to support investment decisions, reporting requirements and continual improvement.

Attachment 1 Conclusions, suggested actions and CMA response

This section provides a table summarising conclusions of our audit of the implementation of the Lower Murray Darling CAP, the actions we suggested the CMA take to improve this implementation and a summary of Lower Murray Darling CMA's response to these suggested actions. The NRC expects the CMA Board to monitor the completion of these actions and may review these activities in future audit work.

Conclusion	Suggested actions	CMA response
Line of inquiry #1 – Had Lower Murray Darling 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"> ▪ CMA Board and staff members did not have a common understanding of what constitutes resilient landscapes in their region and could not clearly articulate priorities for the catchment to maximise contribution to landscape function. ▪ In response to the 2009 Audit, the CMA had developed a conceptual understanding of resilience and had started to explore what this meant for the landscapes and communities in its region. The CMA was working to build this conceptual understanding into their knowledge of the landscapes in the region but had not yet established a common perspective. ▪ In the absence of a common understanding, the Board and staff typically considered the key assets in the region were those most closely related to their area of responsibility and expertise. 	<p>The audit team suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> 1. Use the CAP review and upgrade process to further develop a shared understanding of resilient landscapes in the catchment that will guide CMA and stakeholder investment. Clearly reflect this understanding in a strategy that can inform prioritisation and be implemented via the activities, processes and systems of the CMA. 	<p>The Lower Murray Darling CMA agrees with the suggested action.</p> <p>The CMA clarified that the strategy referred to is the CAP.</p> <p>The Lower Murray Darling CMA will complete the action by September 2012.</p>
<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 system to rank investment options that was 	<p>The audit team suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> 2. Review its prioritisation system to ensure the 	<p>The Lower Murray Darling CMA agrees with the</p>

Conclusion	Suggested actions	CMA response
<p>transparent and delivered consistency and repeatability. The prioritisation process had recently been documented and linked to detailed process mapping. However, the system was inconsistent in its approach to identifying and using a wide range of best available information.</p> <ul style="list-style-type: none"> ▪ The system could take account of any option's potential to contribute to multiple targets. The Multi Criteria Analysis used to rank incentives included an assessment criterion for contribution to multiple targets. CMA staff assisted landholders to develop incentives applications that contributed towards multiple targets and better met selection criteria. Changes to the IP and IS over time demonstrated that achievement of multiple targets had resulted in adjustment of investment priorities. ▪ Staff members generally had a shared understanding of the system. CMA staff worked closely with Board committees to develop project briefs for approval by the Board and evidence indicated the approval process closely followed documented procedures. However, all staff were not yet familiar with the system documentation and consequently there were still inconsistencies in understanding. 	<p>assessment and ranking of projects incorporates the best available knowledge from Board, staff, external expertise and the community. For example, through increasing the participation of experts in prioritisation processes and ensuring the prioritisation criteria reflect the CMA's most up-to-date strategic priorities for the catchment.</p>	<p>suggested action.</p> <p>The Lower Murray Darling CMA will complete the action by November 2011.</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 a system that could accommodate change and help them adaptively manage towards long-term targets. The CMA Board closely monitored project progress through progress reports provided to Board meetings. The Board also 	<p>The audit team suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> 3. Establish an effective system to consistently scan the external environment for collaboration opportunities that contribute to the CMA's long term goals, use best available knowledge to develop business cases 	<p>The Lower Murray Darling CMA agrees with the suggested action.</p>

Conclusion	Suggested actions	CMA response
<p>received an M&E report; however, this provided information on the progress of monitoring projects rather than feedback for adaptive management.</p> <ul style="list-style-type: none"> The CMA had some preparedness to manage within institutional constraints and remain focused on its long-term goals. The CMA had reacted to variations in funding by making adjustments to existing delivery programs. However, it was not evident that the CMA was endeavouring to secure additional funding to promote the achievement of catchment targets. 	<p>for funding and ensure the CMA's engagement strategy includes systems to capture feedback from current investors to inform future collaborations.</p>	<p>The Lower Murray Darling CMA will complete the action by March 2012.</p>
<p>Line of inquiry #2 – Had the Lower Murray Darling CMA's vegetation projects contributed to improved landscape function?</p>		
<p>Criteria 2.1: <i>whether the CMA had documented expected long-term project outcomes</i></p> <ul style="list-style-type: none"> The CMA had clearly identified its projects' expected long-term outcomes in its foundation documents, the CAP and its Investment Program. The CMA had also documented its expected long-term outcomes in its strategic studies and program briefs and in project contracts. The CMA had a common understanding of the relationship between short and long-term goals, realistic options for action (where and what for maximum impact) and risk management. The CMA had demonstrated its understanding of the links between short-term actions and long-term outcomes through its documentation of program logic and its identification of management actions to address risks to achieving the outcomes. 	<p>There are no suggested actions for this criterion.</p>	
<p>Criteria 2.2: <i>whether the CMA successfully achieved project</i></p>		

Conclusion	Suggested actions	CMA response
<p><i>outcomes, and maximised opportunities to add further value</i></p> <ul style="list-style-type: none"> ▪ The CMA's on-ground projects were generally being implemented successfully. Any exceptions were due to circumstances beyond the CMA's control. ▪ The CMA had built on previous investment to add greater value to the projects proposed by landholders or other stakeholders. However, consideration of 'added value' was undertaken at the project development stage and not considered beyond completion of the project. ▪ The CMA had not developed long-term collaborative project partnerships that would add value by leveraging further investment and promoting appreciation of natural resource values in its region. 	<p>The audit team suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> 4. Review the project delivery system to ensure that opportunities to add greater value and opportunities to build strong collaborative partnerships are consistently identified and developed. 	<p>The Lower Murray Darling CMA agrees with the suggested action.</p> <p>The Lower Murray Darling CMA will complete the action by March 2012.</p>
<p><i>Criteria 2.3: whether the CMA's projects were attracting additional resources to match CMA funding</i></p> <ul style="list-style-type: none"> ▪ The CMA had attracted additional resources (monetary and in-kind investment) to match its investment in rangeland incentives. Further, it had systems in place to measure and record the agreed landholder contributions. ▪ The CMA had not sought to maximise efficient use of its investments in all situations. The CMA had publicised its expectation that landholders would share costs as partners under its landholder incentives scheme. However, it had not promoted contributions from landholders where it needed to reach all (or most) landholders in a region to achieve the desired landscape change. ▪ The CMA had documented its understanding of appropriate 	<p>The audit team suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> 5. Develop a strategic approach to attracting and measuring additional investment that promotes the CMA's priorities and is linked to its Communication and Community Engagement Strategy (as suggested in the Audit Report 2009). 	<p>The Lower Murray Darling CMA agrees with the suggested action.</p> <p>A strategic approach to attracting additional investment is linked to the new Communication and Community Engagement Strategy.</p> <p>The Lower Murray Darling CMA will complete the action by December 2011.</p>

Conclusion	Suggested actions	CMA response
<p>sharing of costs in its recent rangeland incentive projects. However, instances were identified where significant ongoing investments were being made that were not being recorded.</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 a robust system that tracked the progress of projects. This had worked effectively over the investment period on the projects inspected. The system generated reliable information that short-term targets had been met in most cases. ▪ The CMA had established systems for monitoring long-term objectives but had not yet undertaken evaluation of the data collected. This lack of evaluation meant it was not possible to assess the effectiveness of the monitoring that was being undertaken or draw conclusions from the data. The suggested action of the Audit Report 2009 'Establish an effective system to evaluate and report on how well projects have contributed to achieving the CMA's agreed long-term goals' had not been fully achieved. ▪ The monitoring system would likely enable the CMA to have an understanding of costs of natural resource management actions and gain new knowledge to inform future investments once it was improved to include evaluation of the monitoring data that was being collected. 	<p>The audit team suggests that the CMA take the following actions:</p> <p>6. Incorporate monitoring of outputs and outcomes into a comprehensive monitoring and evaluation strategy that will ensure that significant projects are monitored in a way that will produce an understanding of costs and benefits of natural resource management actions and gain new knowledge to inform future investments.</p>	<p>The Lower Murray Darling CMA agrees with the suggested action.</p> <p>The Lower Murray Darling CMA will complete the MER Framework by March 2012 and complete an MER Strategy within the following 12 months.</p>
<p>Line of inquiry #3 - Had the Lower Murray Darling CMA effectively engaged its communities?</p>		
<p>Criteria 3.1: <i>whether the CMA had identified community groups and stakeholders it must consider in planning and undertaking work</i></p>	<p>The audit team suggests that the CMA take the following actions:</p>	

Conclusion	Suggested actions	CMA response
<ul style="list-style-type: none"> ▪ The CMA had documented, through its CAP and in the Communication and Community Engagement Strategy (CCES), the key community groups and stakeholders it must consider in planning and undertaking its work. ▪ The CMA Board and staff had a shared understanding of regional knowledge and community capacity and their values. ▪ Stakeholder perceptions were mixed on how well the CMA actually understood regional knowledge and capacity for NRM. ▪ The CMA Board and staff had a shared understanding that socio-economic opportunities were limited in the region and that financial viability remained a key threat to implementing the CAP and improving landscape resilience. However, the CMA did not have systematic approaches in place to develop and maintain these understandings at a scale that could effectively inform its engagement strategies. ▪ The CMA's key strategies for engagement did not identify how changes in understanding of community groups were to be collected, evaluated and used to update strategies. 	<p>7. Review and evaluate the Communication and Community Engagement Strategy to ensure it is comprehensive in its coverage of current stakeholders and engagement processes, clear in its rationale for, and prioritisation of, engagement approaches and clear in its guidance for CMA staff and Board members. It should facilitate a considered, conscious and cohesive approach to all engagement activities performed by the CMA, and be clearly linked to the CMA's business strategy and to subsidiary engagement strategies such as the ACES and local government MOUs.</p>	<p>The Lower Murray Darling CMA agrees with the suggested action.</p> <p>The Lower Murray Darling CMA will complete the action by December 2011.</p>
<p>Criteria 3.2: <i>whether the CMA was implementing an engagement strategy appropriate for different community groups and stakeholders</i></p> <ul style="list-style-type: none"> ▪ The CMA had an understanding of meaningful engagement - that is, one that could build trust in the CMA and promote two-way sharing of knowledge and the effective achievement of outcomes. The community engagement policy reflected this understanding, and it was reinforced by the group-specific principles established for engagement with the Aboriginal 	<p>The audit team suggests that the CMA take the following actions:</p> <p>8. Plan for the effective execution of the revised Communication and Community Engagement Strategy, determining how it will be adopted by the CMA and be implemented into its business systems and practices. The revised strategy should be supported by a mechanism that facilitates continuous</p>	<p>The Lower Murray Darling CMA agrees with the suggested action.</p> <p>The Lower Murray Darling CMA will complete the action by December 2011.</p>

Conclusion	Suggested actions	CMA response
<p>communities in the region.</p> <ul style="list-style-type: none"> ▪ The CMA had a number of engagement strategies relating to different stakeholders, however, there were some key weaknesses in these strategies, for example the lack of clarity in how they related to each other. ▪ The CMA had not fully implemented its strategies to engage different sectors of its community, but there were examples of success in what had been implemented. The CMA's particular strength in engagement was with landholders, and this was generally recognised by staff and external stakeholders alike. Examples of consultation with other stakeholders were limited to project-level engagement. ▪ The Aboriginal Community Engagement Strategy included three main engagement approaches that had been implemented over the last two years. Stakeholders interviewed considered that the CMA's engagement with the Aboriginal communities had been satisfactory. However, at the time of the audit there were some clear limitations to continued effective implementation of the ACES. ▪ Despite the CMA's location bordering Victoria and SA, the CMA's identified inter-state engagement activities were not occurring. Some limited specific project level and informal engagement had occurred with non-NSW stakeholders. 	<p>monitoring and evaluation of its effectiveness, to promote continual improvement.</p>	
<p>Criteria 3.3: <i>whether the CMA was implementing a communications strategy that promotes collaboration, sustainable behavioural change and feedback</i></p> <ul style="list-style-type: none"> ▪ The CMA did not have sophisticated approaches to 	<p>The audit team suggests that the CMA take the following actions:</p>	

Conclusion	Suggested actions	CMA response
<p>communicate their messages and for hearing and responding to messages sent by their communities – that is, a strategy that raises their profile and increases both organisational and individual understanding, capacity and willingness to participate in long term outcomes.</p> <ul style="list-style-type: none"> ▪ The CMA Communication and Community Engagement Strategy (CCES) identified communication messages and activities that the CMA would implement, however, these strategies had some weaknesses. As with engagement, the strategy provided no basis for prioritising resources between particular communication activities. The strategy was last reviewed in July 2009 so it was not clear that they were still relevant to the work of the CMA in 2011. ▪ The CMA had not implemented appropriate strategies for communication that were tailored to reflect the varied values of their communities and the effectiveness of its communication was not being evaluated. ▪ External stakeholders' views of the success of CMA communication were mixed. Some considered that the CMA's profile had improved in the last couple of years, while others felt it had not. Most did not consider that the CMA had adequately sought feedback, or could not identify an example of feedback. 	<ol style="list-style-type: none"> 9. Review the communication elements of its Communication and Community Engagement Strategy (as part of the overall review suggested above) to ensure it includes promotion of behavioural change. Additionally, it needs to provide clearer rationale for communication approaches that are tailored to specific stakeholder groups. It also needs to provide better guidance for staff to ensure effective execution and implementation. 10. Review its website to ensure it can facilitate the execution and implementation of the upgraded CCES. 	<p>The Lower Murray Darling CMA agrees with the suggested action.</p> <p>The Lower Murray Darling CMA will develop a new Communication & Engagement Strategy December 2011.</p> <p>The Lower Murray Darling CMA agrees with the suggested action.</p> <p>The Lower Murray Darling CMA will complete the action by December 2011.</p>
<p>Line of inquiry #4 - Has the Lower Murray Darling CMA effectively used adaptive management?</p>		
<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 not documented adaptive management 	<p>The audit team suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> 11. Develop a policy for CMA-wide understanding and 	<p>The Lower Murray Darling CMA agrees with the</p>

Conclusion	Suggested actions	CMA response
<p>principles in their planning and business systems. The CMA responded to suggested actions in the 2009 Audit by stating that the CMA had incorporated the AKMG Business Excellence Guide to NRM into the Strategic Business Framework Policy and personal Development Plans. However, it was observed that the Business Excellence Guide had not been used beyond HR management.</p> <ul style="list-style-type: none"> The CMA did not have an understanding of, and did not manage, knowledge gaps and uncertainties. The Risk Register needed improvement and not all staff with roles in monitoring risks were aware of their responsibilities. 	<p>active use of adaptive management. This would involve building adaptive management principles, such as feedback loops and planning for review and improvement into strategic plans, policies and business systems (and could include the Board Strategic Plan, the Project Management Framework, the Communication and Community Engagement Strategy, the Risk Management Strategy, and the MER Strategy).</p> <p>12. Develop and implement an internal audit framework that would enable the Audit and Risk Committee to monitor implementation of the adaptive management strategy and drive continuous improvement throughout the organisation.</p>	<p>suggested action.</p> <p>The Lower Murray Darling CMA will complete the action by September 2012.</p> <p>The Lower Murray Darling CMA agrees with the suggested action.</p> <p>The Lower Murray Darling CMA will complete the suggested action by February 2012</p>
<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's programs were not designed and delivered in ways that facilitated structured learning, generated new knowledge and increased the effectiveness of investment. The CMA was undertaking a number of monitoring activities and some improvements to the MER system were observed. MER projects were producing relevant data that could be used to evaluate the effectiveness of management actions and test the validity of underlying assumptions. However, there was no evidence of improved evaluation being undertaken and key elements of the overall strategy, such as a Lessons Learnt 	<p>The audit team suggests that the CMA take the following actions:</p> <p>13. Develop its monitoring and evaluation system, including ensuring performance and condition data is evaluated and reported from project to catchment scale, and strengthen links between MER and the CMA's risk and information management strategies.</p>	<p>The Lower Murray Darling CMA agrees with the suggested action.</p> <p>The Lower Murray Darling CMA will complete the action by September 2012</p>

Conclusion	Suggested actions	CMA response
<p>Register, were not yet developed.</p> <ul style="list-style-type: none"> ▪ A primary responsibility of the MER Officer position was to develop and implement a monitoring, evaluation and reporting framework. The MER Officer had only recently been appointed and had not yet developed such a framework. ▪ In the absence of an MER Officer and an overarching MER strategy, the CMA was unable to apply its monitoring data to facilitate structured learning, generate new knowledge and increase the effectiveness of investment and had not progressed significantly beyond the situation noted in the 2009 Audit report. 		
<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 relatively sophisticated information management systems to support investment decisions and reporting requirements. However, the CMA had not yet incorporated all knowledge into Objective and some documents and files were still retained in alternate systems. ▪ The CMA did not have information management systems which kept track of new knowledge derived from the monitoring and evaluation system. Monitoring data resided in various systems including hard copy files. No strategy for the incorporation of monitoring and evaluation data into the information management system was identified. ▪ The effective functioning of the spatial information system was dependent upon the capabilities of an individual staff member. The CMA had no strategy for improving the system and had no 	<p>The audit team suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> 14. Undertake a review of the information management systems to assess data needs, identify gaps in system linkages and resolve system duplication. 15. Develop an information management strategic plan and allocate appropriate resources to ensure the information management systems will support investment decisions, reporting requirements and continual improvement. 	<p>The Lower Murray Darling CMA agrees with the suggested action.</p> <p>The Lower Murray Darling CMA has commenced the review and will complete the action by March 2012.</p> <p>The Lower Murray Darling CMA agrees with the suggested action.</p> <p>The Lower Murray Darling CMA will complete the action by September 2012.</p>

Conclusion	Suggested actions	CMA response
budget allocation for system development.		

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.³</p> <p>The NRC contracted Environmental Risk Science and Audit (ERSA) to undertake the audit of the implementation of the CAP prepared by the Lower Murray Darling Catchment Management Authority (CMA). The NSW Government has adopted an aspirational goal to achieve resilient landscapes that support the values of its communities⁴ 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.⁵</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>Lower Murray Darling Catchment Action Plan</i>⁶ identifies the five objectives for the CMA: Biodiversity, Community Values, Salinity, Soils and Vegetation, and Water Quality and Quantity.⁷ For each of these objectives, the CMA has identified:</p> <ul style="list-style-type: none">▪ catchment 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 Lower Murray Darling CMA in promoting resilient landscapes that support the values of its communities, within the scope of the CAP.</p> <p>Lower Murray Darling CMA is implementing the CAP, through a mix of programs and projects that simultaneously contribute to more than one management target, and more than one catchment 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> <ul style="list-style-type: none">▪ Is the CMA effectively prioritising its investments to promote resilient landscapes that support the values of its communities?▪ Are the CMA's vegetation projects contributing to improved landscape function?▪ Is the CMA effectively engaging its communities?▪ 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 Lower Murray Darling CMA for this stage in their development.</p>

³ *Natural Resources Commission Act 2003, Section 13 (c)*

⁴ As recommended by the NRC in *Recommendations – state-wide standard and targets, September 2005*.

⁵ *Ibid.*

⁶ Lower Murray Darling CMA, *Lower Murray Darling Catchment Action Plan, 2008*

⁷ *Ibid.*

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▪ expected implementation of plans and decisions▪ expected evaluation and reporting of the performance of the CMA work. <p>The criteria were derived from the elements of each line of inquiry, and from the general criteria of the Standard and state-wide targets.</p> <p>The NSW Government adopted the <i>Standard for Quality Natural Resource Management</i> (the Standard), which identifies seven components that are commonly used to reach high quality natural resource decisions. CMAs must comply with the Standard⁸, using it as a quality assurance standard for all planning and implementation decisions.</p>
Audit scope	<p>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.</p> <p>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.</p> <p>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.</p>
Audit approach	<p>In June and July 2011, the ERSA audit team performed the following audit work:</p> <ul style="list-style-type: none">▪ 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 six (6) projects. <p>At the close of the audit field work, the audit team shared preliminary observations with the CMA.</p>
Audit methodology	<p>To plan and conduct this audit, the audit team followed the methodologies set out in the <i>Framework for Auditing the Implementation of Catchment Action Plans</i>, NRC 2007, and the draft <i>NRC Audit Manual</i>.</p>
Acknowledgements	<p>The audit team gratefully acknowledges the cooperation and assistance provided by the Lower Murray Darling CMA and landholders in the Lower Murray region. In particular we wish to thank the Lower Murray Darling CMA Board, the General Manager (Ms Lesley Palmer), the GM's Personal Assistant (Martene West) and the Program Manager (Rob Gregory).</p>

⁸ 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 Lower Murray Darling region and Lower Murray Darling 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 Lower Murray Darling Catchment covers an area of 6.3 million hectares including 523,100 ha of floodplain and 60% of NSW's wetlands.⁹ The catchment extends from Broken Hill in the north to the Murray River in the south and from the Murray/Murrumbidgee junction to the South Australian border in the west. The CMA borders four other CMAs: Western, Murray, Murrumbidgee and Lachlan.

The catchment includes the Willandra Lakes World Heritage Area, Lake Victoria and Menindee Lakes; as well as 143,000 hectares of private conservation reserves.¹⁰

It is dominated by a semi-arid climate with highly variable winter dominant rainfall. Landuse includes irrigated and dryland cropping, horticulture, wool and meat production, water storage (e.g., Lake Victoria), mining, tourism, recreational fishing, forestry and nature conservation.

The region contains three major landscape regions:

- Rangelands – dryland extensive grazing of perennial native shrub and grasslands (90% is under Western Lands Lease)
- Mixed farming – in the southern area of the catchment
- Riverine – including strips of freehold land along rivers and settled areas mainly in the southern area. The region includes 598km of the Murray River, 530km of the Darling River and 460km of the Great Darling Anabranch.¹¹

Approximately 95% of native vegetation has been retained in the catchment, although it has been subject to varying amounts of modification. Threatening factors such as total grazing pressure, altered fire and flood regimes, have brought about broad scale changes to the floristic, structural and ecological integrity of many of the vegetation communities.

The region supports a population of 31,000 people: 20,000 of which reside in Broken Hill.¹² The population has remained relatively stable over the last 10 years, with small fluctuations related to the expansion and construction of mines and horticulture. Approximately 12% of the population is Aboriginal. The catchment is rich in cultural heritage and includes the tribal country of the Barkindji, Mutthi Mutthi, Yitha Yitha, Maraara

⁹ GM NRC Audit Introduction to LMD CMA (May 2011)

¹⁰ <http://www.lmd.cma.nsw.gov.au/catchment/facts.shtml>

¹¹ *ibid.*

¹² <http://www.lmd.cma.nsw.gov.au/catchment/index.shtml>

and Ngyiampaa peoples.¹³

The catchment includes the entire local government areas of Wentworth and Broken Hill City, the majority of the Balranald Shire Council area, and a small area administered by the Land and Property Management Authority (LPMA).

Figure A3.1 provides a map illustrating some of the key characteristics of the region and sites visited by the NRC in this audit.

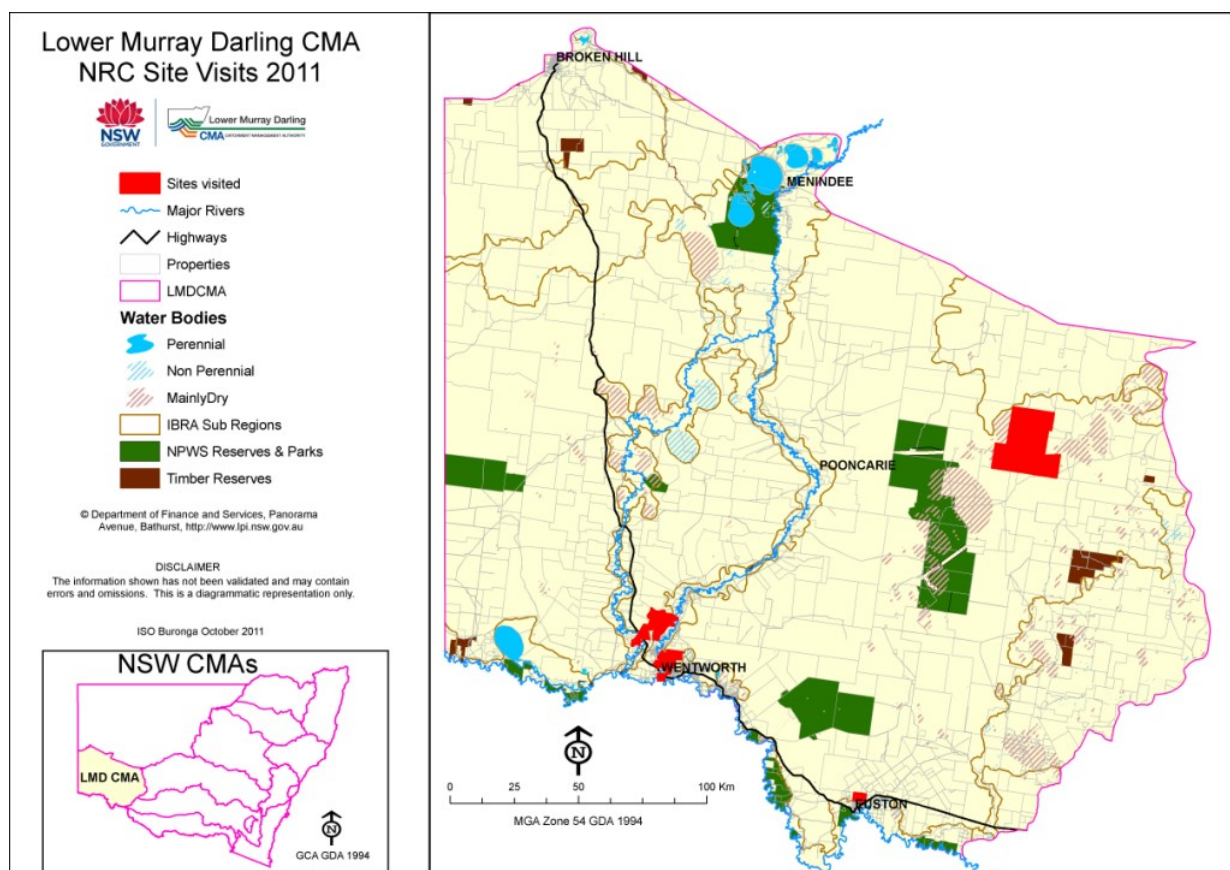


Figure A3.1: Lower Murray Darling region with projects inspected during the audit¹⁴

The CMA at a glance

The principal office of the Lower Murray Darling CMA is situated in Buronga, with a service delivery centre located in Broken Hill.

The CMA was established in 2004 and at the time of the audit, the Board consisted of Mark King (Chair), Patty Byrnes, Gary Doyle, Barrie MacMillan, Tom Hynes, Howard Jones and Paula Doran.

¹³ GM NRC Audit Introduction to LMD CMA (May 2011)

¹⁴ Map of region provided by the CMA

The CMA consists of 14.5 recurrent staff and 8.5 temporary staff. At the time of the audit the CMA management team was a General Manager, one Program Manager and one Manager Corporate Support. Below this level were two Team Leader positions (PVP & Projects, and Catchment Coordination).

In 2009 the CMA was audited by the NRC and the Audit Report identified a range of significant issues that warranted attention. Since 2009 there has been significant staff turnover and a new GM, Program Manager and Manager Corporate Support have been appointed to the CMA. A new Monitoring and Evaluation Officer was appointed in June 2011.

In implementing its CAP in 2010/11 Lower Murray Darling CMA distributed \$1.363mil to improve natural resource management through various delivery mechanisms, including incentive management agreements to undertake on-ground works.

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 investment¹⁵

Investment Period	Invested Amount (\$ mil)¹⁶	Additional Resources (\$ mil)
2006/07	7.184	3.263
2007/08	9.720	4.382
2008/09	9.921	2.849
2009/10	4.105	1.831
2010/11	3.980	1.345

¹⁵ Figures provided by the CMA and not audited by ERSA

¹⁶ The sum of Category 2 (NSW and Federal Government) and Category 3 (all other sources) funding. This figure excludes Category 1 (recurrent expenditure) funding.