



**Audit Report
Central West
Catchment Management Authority**

March 2009



AUDIT REPORT

Central West Catchment Management Authority

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List of acronyms

| | |
|--------|---|
| CAP | Catchment Action Plan |
| CMA | Catchment Management Authority |
| DECC | Department of Environment and Climate Change |
| ESR | Environmental Service Ratio |
| MER | Monitoring, Evaluation and Reporting |
| MERI | Monitoring, Evaluation, Reporting and Improvement |
| NAP | National Action Plan for Salinity and Water Quality |
| NHT | Natural Heritage Trust |
| NRC | Natural Resources Commission |
| NRM | Natural Resource Management |
| NSW | New South Wales |
| SCaRPA | Site and Catchment Resource Planning and Assessment decision support system |

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1 Introduction

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

The NRC has completed audits of seven of these CAPs, one of which was the Central West CAP. Preparing for and conducting these audits involved significant research, development and innovation, as natural resource management auditing is a new and challenging field. We greatly appreciate the patience and cooperation of all the CMAs involved. We made many refinements to our audit process along the way, and are confident that future audits will be more efficient and provide a more comprehensive picture of CMAs' performance in implementing their CAPs.

The conclusions of our audit of the implementation of the Central West CAP, the actions we suggest Central West CMA take to improve this implementation and a summary of the CMA's response to our draft report are provided in full in Attachment 1. The purpose of this report is to promote greater understanding of the Central West CMA's performance and to guide the CMA Board in continued improvement. The report explains:

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

The NRC has also used these conclusions, along with those of other audits and additional information, to prepare a consolidated report to the NSW Government on progress in implementing CAPs to date.¹

1.1 Focus of the audit

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

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

¹ Natural Resources Commission (2008) *Progress report on effective implementation of Catchment Action Plans* – November 2008. NRC, Sydney. Available at www.nrc.nsw.gov.au.

Our analysis of the audit results 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 projects contributing to improved landscape function?
3. Is the CMA actively engaging its communities?
4. Is the CMA effectively using adaptive management?

For each line of inquiry, we assessed 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 considering each of the lines of inquiry, we focussed on a subset of CMA projects that have the 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). It was not practical to look at all CMA programs and projects given the timeframe for the audits.

The NRC visited ten project sites in the Central West region, eight of which used vegetation to address salinity and water quality targets. Activities at these sites included revegetation (such as on riparian areas), establishing pastures, planting paddock tree guards and removing willows.

1.2 Summary of audit findings

To conduct the audit, the NRC identified what we would expect to find if the CMA was doing each of the four activities listed above effectively. For each line of inquiry, we identified three or four criteria we would expect the CMA to be meeting. We 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.

We then assessed the CMA's performance against these expectations using information gained 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, we 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 findings for the Central West CAP audit, including our expectations, our assessment of Central West CMA's performance against these expectations, and the actions we suggest the CMA take to improve its performance. As noted above, the full audit conclusions and suggested actions for Central West 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, we would expect to find that it has a commonly understood definition of what constitutes resilient landscapes in its catchment. For example, its Board members and staff would be able to consistently explain the main natural resource assets in the catchment, 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 the assets. And they would agree on the options for action and how they promote resilient landscapes.

We 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, we 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 Central West CMA's implementation of the CAP found that:

- The CMA's vision for the region, and the approach to achieve it, was a commonly understood definition of what constitutes resilient landscapes in the Central West region.
- The Board and staff demonstrated a consistent understanding of the role of the region's communities in realising the CMA's vision. However, there is little or no spatial mapping to assist the CMA in communicating a 'landscape perspective' to the region's communities.
- The CMA had structured and transparent processes to establish and prioritise its investments and assess and rank projects. The process to prioritise its investments used expert opinion and was supported by documented business systems that ensured the Standard was meaningfully applied to the process.
- The CMA had used a systematic approach to align its shorter-term Investment Strategy and Annual Investment Plans with the longer-term CAP. In addition, the CMA's project development process uses program logic to clearly demonstrate links from a potential project to CAP targets.
- Current funding arrangements have the potential to increase risk that project activities will be implemented at a sub-optimal time (such as tree-planting during drought) to meet funding targets or not implemented at all due to funding cut-offs.
- At the time of the audit, the CMA was in the process of implementing and consolidating new business and information management systems. If these systems are successfully implemented, they should improve the CMA's ability to strengthen and share its understanding of resilient landscapes in the region.

The NRC suggests Central West CMA take a range of actions to continue to improve its approach to prioritising investments to promote resilient landscapes. Key actions include:

- incorporating spatial maps that communicate its 'landscape perspective' to its communities

1.2.2 Delivering projects that contributed to improved landscape function

If a CMA is effectively delivering native vegetation projects that contribute to improved landscape function, we 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. We 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, we 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.

The audit found that:

- The expected long-term outcomes of Central West CMA's projects were understood by the CMA staff responsible for delivering each project. In some cases, the CMA had documented these long-term outcomes but the documentation was inconsistent across the organisation, with some program areas performing better than others. The CMA's new business system, including Project Charters that describe the linkages between project and CAP should drive a more consistent approach for new projects.
- The CMA was successfully achieving most project outputs. As the logic assumptions between the project design and the expected longer term outcomes are sound and the work is of a good standard, it seems likely that the CMA's project delivery will contribute to improved landscape function.
- The CMA was identifying and capturing some opportunities to add further value to project achievements, and was attracting additional resources from other sources. At the time of the audit, it was implementing approaches that are likely to improve its ability to systematically identify opportunities to leverage greater value from initial investments.
- The CMA had established monitoring and evaluation practices, systems and collaborative arrangements that had been implemented with mixed success. The NRC found some concern about whether landholders involved in funded projects would comply with monitoring conditions, and whether the CMA would have the resources to monitor their compliance.
- The CMA has recently developed a Monitoring, Evaluation, Reporting and Improvement (MERI) program which, once fully implemented, should allow it to better track ongoing achievement of projects

The NRC suggests a range of actions to improve the CMA's project delivery performance, including:

- fully implementing the MERI program, investigating options to monitor progress during the life of the project.

1.2.3 Effectively engaging its communities

If a CMA is effectively engaging its communities, we would expect it to have identified the key community groups and stakeholders it should consider in planning and undertaking its work. We'd 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, we 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.

The NRC audit found that:

- Central West CMA had effectively identified key community groups and stakeholders and had implemented a systematic approach to better understand its community and to inform future planning.
- The CMA had implemented engagement strategies that had established sound relationships with stakeholders in its community. This contributed to better decision-making and improved collaboration opportunities.
- In particular, the CMA had made significant progress in engaging local government, Aboriginal and Landcare groups and specific communities on native vegetation regulation to the benefit of all parties.
- The CMA had communicated well with many sectors of the community and there was some evidence that its communication was promoting collaboration and behavioural change.

The NRC suggests the CMA take the following action to improve its community engagement:

- continuing to monitor progress on its current approach for addressing native vegetation regulations issues in its community with the view to expanding the approach and sharing the lessons learnt with other CMAs.

1.2.4 Effectively using adaptive management

If a CMA is effectively using adaptive management, we would expect it to have documented how it will apply the principles of adaptive management in its planning and business systems. We 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 catchment, and how the CMA manages these.

In addition, we 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. And there would be an organisational focus on applying new knowledge (gained from monitoring and evaluation or other sources) to increase the effectiveness of investments. Finally, we would expect the CMA to have and maintain an information management system that supports its adaptive management processes.

Our audit found that:

- Central West CMA had clearly documented adaptive management principles in its Strategic Plan 2007-2010 and in its Business Plan. Staff had applied adaptive management practices and the CMA had commenced steps to improve systems supporting this.
- At the time of initial audit work, the CMA's monitoring and evaluation systems were not able to assess the achievements of projects in a systematic way. The CMA has now completed development of a comprehensive MERI strategy and program that is likely to address this issue in time and enable feedback into its adaptive management and project planning processes.
- Again, at the time of initial audit work the CMA's primary information management systems were operated independently of each other, potentially weakening the efficient and effective use of available information in strategic and operational decision-making.
- The CMA was in the early phase of implementing its new business systems, including new financial management, spatial information and document management systems. The NRC is confident that successful implementation will support more effective adaptive management in the CMA.

The NRC suggests the CMA take a range of actions to address the above issues and better support adaptive management. These actions include:

- fully implementing the MERI strategy and program
- continuing to improve its information management systems.

1.3 Structure of the report

The rest of this report explains the audit conclusions and how we 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 our 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 our 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 and suggested actions, the CMA's response, 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 Central West region and CMA.

2 Prioritising investments to promote resilient landscapes

In analysing the audit findings, our 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 has 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 its 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 catchment improves, and its understanding of best-practice NRM evolves.

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

We identified the elements of the Standard that are most relevant and important for meeting these criteria. We also identified the behaviours and other outcomes we 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.

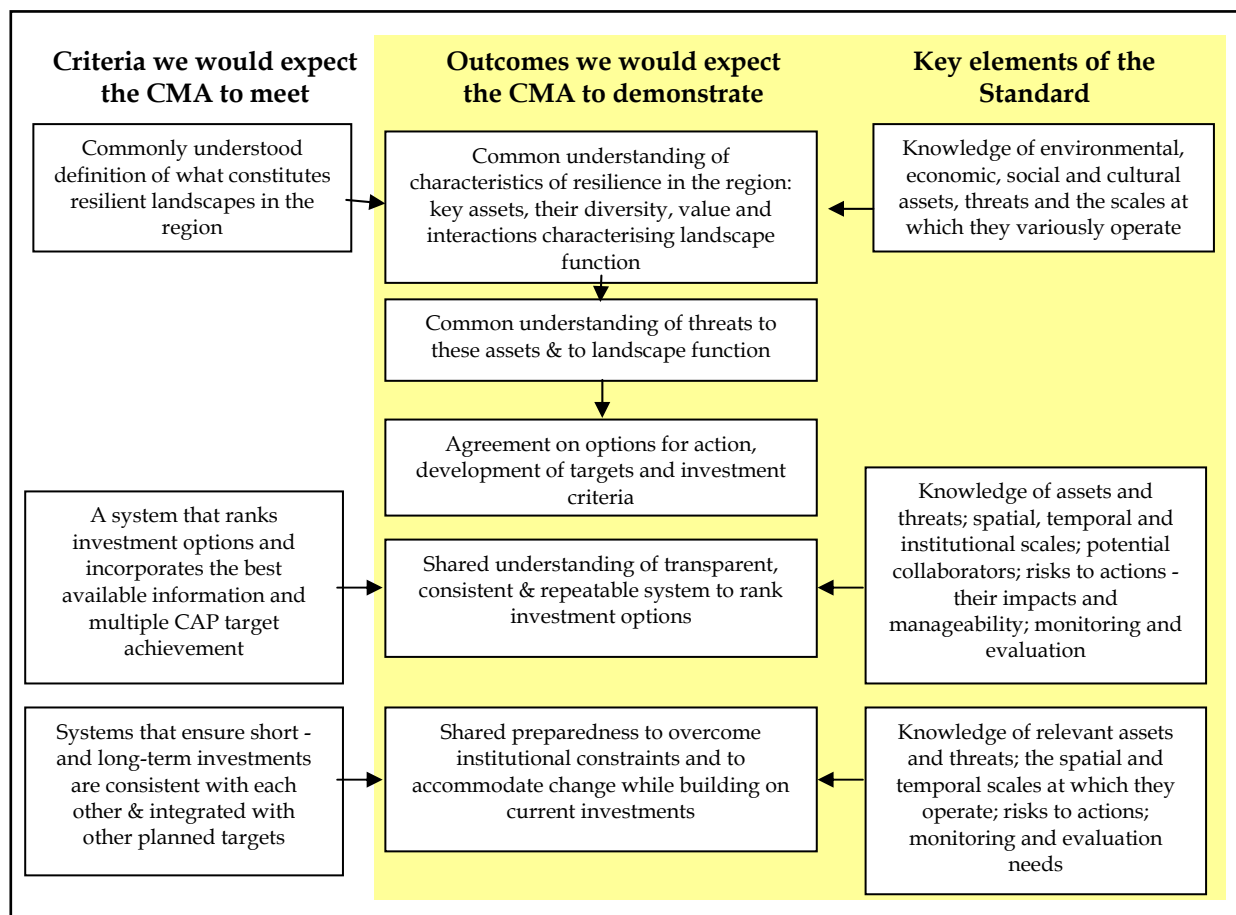
For example, if the CMA is meeting the first criterion (having a commonly understood definition of what constitutes resilient landscapes in its catchment) in a way that complies with the Standard, we would expect it to be collecting and using the best available knowledge on the natural resource assets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

As a result, we would expect to find that its Board members and staff can consistently explain the main natural resource assets in the catchment, and the interactions that characterise healthy landscape function. We would also expect them to understand the main threats to the assets and landscape function, and the environmental, economic, social and cultural value the community places on the assets. In addition, they would agree on the options for action to

address the threats and maintain or improve the quality of the assets, and the criteria for deciding the actions in which the CMA should invest.

Figure 2.1 provides an overview of this assessment framework. The criteria we 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 we 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 NRC 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 our audit of the implementation of the Central West CAP 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 NRC's audit found that Central West CMA's vision for the region, and the approach to achieve it, was a commonly understood definition of what constitutes resilient landscapes in the Central West region.

The CMA's vision for the region is "*vibrant communities and healthy landscapes*", and it intends to achieve this by "*work[ing] with the community to improve and manage natural and cultural resources*".²

One of the key drivers of this vision, and the CMA's direction and business, was the region's community values and preferences. This reflects the CMA's view that people are key agents for promoting improved landscapes – in other words, that vibrant communities will lead to healthy and more resilient landscapes.

The Central West CAP provides a good profile of the region. A reader with reasonable experience in NRM could construct a 'mental map' of how the region's landscapes function. For example, the CAP identifies the key natural resource assets in the region and the biophysical processes that support them, the threats to these assets' resilience, and the social and economic values they support. However, there is little or no spatial mapping to help communicate this landscape perspective to a broader audience.

The Board and staff members demonstrated a consistent understanding of this role of the region's communities in realising the CMA's vision. Some demonstrated a very sophisticated understanding of this concept, and how it translates to the Central West region.

In respect to the Standard, the CMA

- demonstrated that it had documented (and key staff understood) the concept of landscape function and its resilience (*Collection and use of knowledge*).

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.

² Reference to CAP?

The NRC audit found that Central West CMA had a structured and transparent process – including an annual *Natural Resource Management Review* (NRM Review) - that established and prioritised its investments. The process was supported by documented business systems that ensure that the Standard was meaningfully applied to the process. The CMA also had in place repeatable systems to assess and rank projects.

At the regional prioritisation scale, as part of the NRM Review process, the CMA established ‘theme teams’ that included internal and external experts. These teams developed ‘priority statements’ for each of the CAP themes, and the CMA allocated available funding evenly across each theme area. The CMA then developed potential projects for theme areas using program logic. It took account of socio economic and community preferences as part of this process.

At the project scale, when assessing and ranking projects for potential funding, the CMA used a tool to generate an Environmental Services Ratio (ESR)³. However, it didn’t use this tool consistently for all projects. In addition, when demand outstripped the supply of funds, projects were ranked based on their cost per hectare rather than their ESR.

These prioritisation processes had evolved over time. At the end of each funding round to date, the CMA has evaluated how the project selection process worked and then refined the process. The assessment criteria for projects under the Round 5 Incentive Funding Program included the project’s potential to contribute to multiple CAP targets and proposed monitoring processes. Our audit team noted that for some projects, the ESR could be greatly enhanced by a better understanding, for example, of riparian function in different parts of a valley. Knowledge generated by a recent River Function Survey are likely to address this issue.

The CMA’s systems allowed for working collaboratively with stakeholders in project selection and design. For example, it had established an Aboriginal Reference Group and a Local Government forum to incorporate local knowledge and community preferences.

Since the initial audit work, the CMA has advised that in the future it intends to apply catchment modelling software⁴ during prioritisation processes to improve its prioritisation approach.

Box 2.1 outlines how the CMA’s prioritisation approach has evolved to meet its changing needs over time.

In respect to the Standard, the CMA:

- demonstrated it had used good knowledge in a structured and transparent process to rank investment options (*Collection and use of knowledge*)
- demonstrated it had used a structured and transparent process to evaluate the past performance of its annual NRM Review process (*Collection and use of knowledge and Monitoring and evaluation*).

³ Assessment for vegetation projects uses the Native Vegetation Assessment Tool, formerly the PVP Developer.

⁴ SCaRPA - Site and Catchment Resource Planning and Assessment decision support system

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 NRC's audit found that Central West CMA had used a systematic approach – its annual *NRM Review* – to align its shorter-term Investment Strategy and Annual Investment Plans with the longer-term CAP. In addition, the CMA's project development process requires that the program logic linking a potential project to CAP targets be demonstrated. The CMA's priorities appeared to be consistent with investors' priorities.

The audit also found that the CMA's current contract funding arrangements established pressures on short-term investments, in particular project outputs, that increased the risk of weaker alignment with long-term objectives. For example, at the time of the audit, the CMA provided project partners with the entire contract payment before projects were completed. The CMA indicated that the reason for this approach is that under the current funding arrangements, it is required to commit and expend its investment funds before the end of the financial year, or risk being penalised (including having to return unspent funds). To help manage this risk, the CMA has begun to identify 'contingency' projects that can be brought forward, if a funded project needs to be delayed to avoid implementing the outputs at a sub-optimal time (such as during drought).

In respect to the Standard, the CMA:

- demonstrated that current investments were aligned with the CAP's long-term goals (*Determination of scale and Collection and use of knowledge*)
- demonstrated that it had implemented a systematic approach to monitor and track this alignment in a consistent and repeatable manner (*Risk management and Monitoring and evaluation*).

Box 2.1: Evolving the CMA's investment prioritisation system to meet changing needs

Central West CMA has progressively developed a system for prioritising investments that takes into account the cost of 'purchasing' the environmental services defined in its CAP as management targets.

Early in its life, the CMA sought out the best knowledge in relation to developing a prioritisation system. It worked with NSW NRM agencies and the then Murray Darling Basin Commission to design and implement an assessment tool that generates an Environmental Services Ratio (ESR) for management activities that targeted salinity issues (which were considered most critical at that time). This tool sought to integrate biophysical targets with socio economic means to rank activities according to their perceived cost effectiveness in achieving salinity targets.

The CMA has now used this system for five funding rounds, and has continued to improve it incrementally by evaluating the results of the previous funding round to take into account the changing requirements of funding partners and new knowledge.

Another key improvement was to implement annual NRM reviews by four 'theme teams' focused on biodiversity, water, land and community. These teams identify the desired outcomes at different scales, and the potential management activities to achieve these outcomes and their links to program logic. They then establish 'priority statements' for their theme for approval by the Board. In the future, the CMA intends that this process will be informed by the CMA's MERI program as it becomes functional.

Once the priority statements are approved, CMA Program Managers use transparent and accountable tools to rank proposed projects using the CMA's ESR tool, or the Native Vegetation Assessment Tool.

The CMA's investment prioritisation system will evolve further as new knowledge becomes available through its MERI program and better mapping. The system is a good example of the use of the Standard to drive adaptive management and solve NRM problems, particularly the *Collection and use of knowledge*, *Monitoring and evaluation* and *Risk management* components of the Standard.

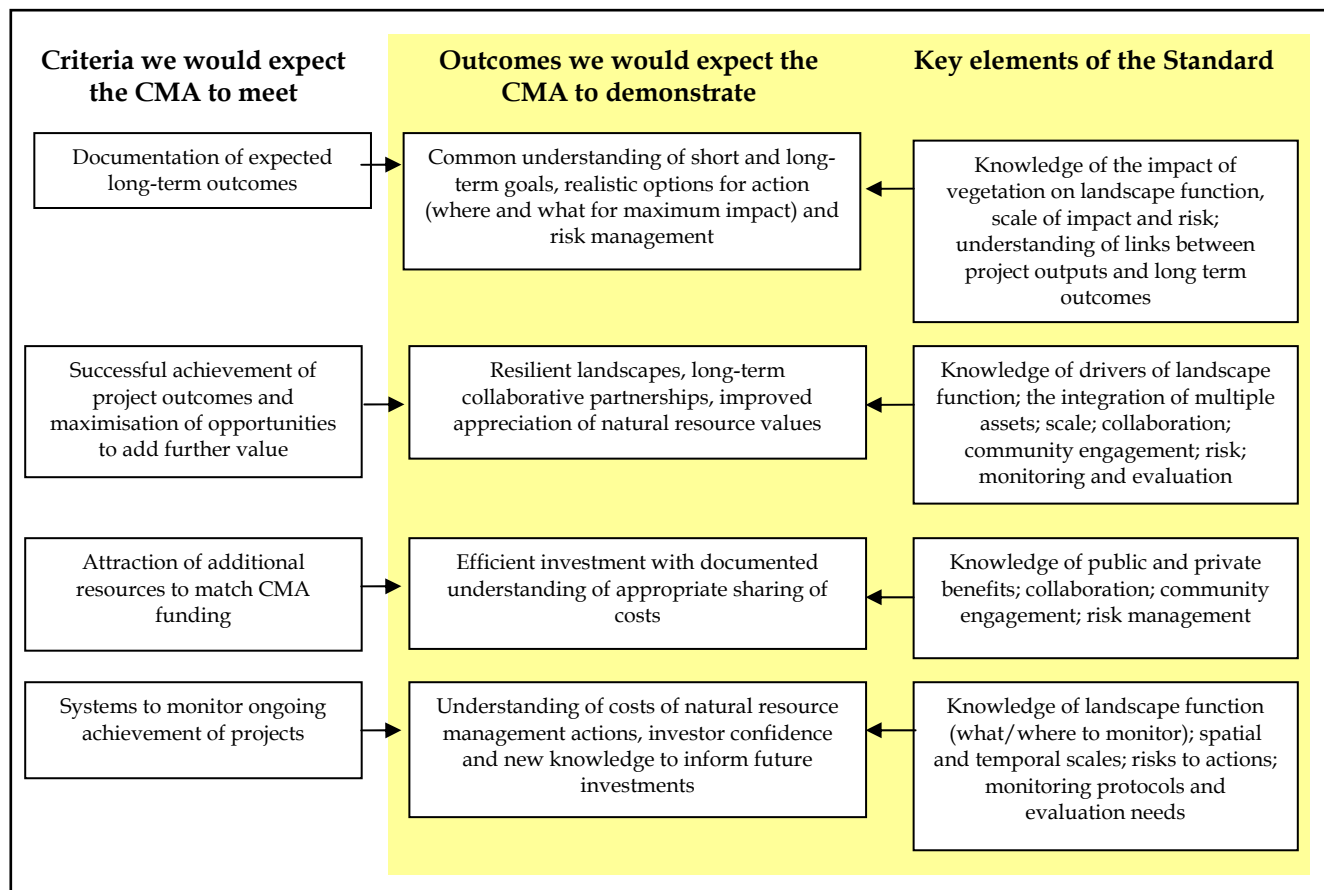
3 Delivering projects that contribute to improved landscape function

The audit's second line of inquiry assessed whether the CMA's 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:

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

As for all lines of inquiry, we also identified the elements of the Standard that are most relevant to meeting these criteria effectively, and the behaviours and other outcomes we 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 NRC 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 our audit of the implementation of the Central West CAP 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 Central West CMA staff responsible for delivering a project understood the expected long-term outcomes of that project. However, the depth of understanding varied, depending on the experience and training of the staff involved. In some cases, the CMA had documented long-term outcomes for past projects but the approach was inconsistent across the organisation, with some program areas performing better than others.

The CMA's new business system now includes *Project Charters* that document long-term outcomes, including program logic tables that describe the linkages between new project and CAP outcomes. This is likely to drive a more consistent approach for new projects but had not been implemented on the projects subject to initial audit work.

Most of the partners and landholders involved in the projects the audit team inspected demonstrated an understanding of the expected long-term outcomes from the projects they were involved in - even though they may not have been familiar with the CMA's project selection process, the CAP or the CAP targets.

In respect to the Standard, the CMA:

- demonstrated understanding in the logic relationships between the long-term expected outcomes and projects' outputs and design (*Determination of scale*)
- could not demonstrate documentation of long-term expected outcomes for all past projects (*Risk management* and *Community engagement*)
- demonstrated that its new business system documentation supports use of its long-term expected outcomes to guide it in selecting the best possible management actions with investors at the project scale (*Risk management* and *Community engagement*).

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.

Our audit found that Central West CMA was successfully achieving most project outputs, and is in some cases was taking up opportunities to add further value to those achievements. Its

projects were likely to lead to improved landscape condition because the logic assumptions between project design and expected outcomes were sound, and the work was of a good standard. In most cases, improved natural resources condition was evident at the project scale, although this could not be quantified with 'hard data'. However, qualified evidence was available through expert opinion and monitoring techniques, such as step-point photos.

Of the ten projects our audit team inspected:

- 80% were supported by strong logic assumptions that linked inputs, outputs and expected resource condition change
- 75% had achieved project outputs, such as fencing riparian zones
- 85% demonstrated improved resource condition change, such as increased groundcover and density, which was likely to lead to improved salinity and water quality outcomes.

Box 3.1 describes one successful, long-term project Central West CMA funded in partnership with a local landholder.

Although the audit team found evidence that project outcomes were being achieved, there was some uncertainty about the potential durability of these outcomes. This issue is discussed further in section 3.4.

While there was evidence that the CMA was taking up opportunities to add further value to its achievements, at the time of initial audit work the CMA did not have a clear systematic approach for identifying opportunities to leverage greater value from its projects. Recently implemented approaches are expected to address this shortcoming. For example, under the CMA's most recent funding incentives program (Round 6), it will implement the Farming Systems Project. This project requires landholders to develop a property plan before any management actions are undertaken. This approach should help the CMA and landholder to identify further investment opportunities on the property, that build from initial investments, to achieve more holistic outcomes.

In respect to the Standard, the CMA:

- demonstrated that it had collaborated with project partners to achieved short-term outcomes which are likely to lead to improve landscape condition and increase the communities appreciation of natural resource values (*Community engagement and Collection and use of knowledge*)
- could not demonstrate it had implemented approaches to ensure the durability of its investments (*Risk management*).

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 team found that Central West CMA had attracted additional resources to match its investments. However, the CMA's success in attracting additional resources varied between projects and programs. At the time of the audit, the CMA was developing an Investment Prospectus to better engage industry and attract more private funding.

The CMA's evaluation found that a total of \$13 million was invested under its Round 5 Incentive Funding Program. Only \$6 million of this was CMA funds – the remaining \$7 million came from stakeholder groups such as Landcare, State agencies, community groups and local Councils. In some projects, private landholders also made significant 'in-kind' contributions (for example, equipment and labour).

The CMA is also leveraging community resources to undertake project monitoring. A range of stakeholders are involved, including landholders, councils and local schools. The CMA provides the stakeholders with monitoring kits and training, and in return they plan to provide regular monitoring of projects (as a contract requirement for landholders) and local waterways (see further comments at section 3.4 below). This approach also builds NRM capacity and knowledge in the broader community.

Landholders expressed concern that private investment in NRM projects may be inhibited by a range of external risks. These include natural processes (such as droughts), economic factors (such as fluctuations in the price of inputs) and funding pressures (such as the need to meet contract milestones in adverse climatic conditions). The CMA is able to manage some of these risks – for example, it can manage fluctuations in input prices by re-negotiating contracts. However, other risks such as funding pressures are outside its control and so are more difficult to manage. For example, the need to meet contract milestones regardless of the climatic conditions is driven by government requirements that the CMA commit and expend its funds within on financial year or lose the funds.

In respect to the Standard, the CMA:

- demonstrated it attracted additional resources to its investments (*Opportunities for collaboration*)
- could not demonstrate that it had implemented mechanisms to systematically identify opportunities to attract additional resources to projects (*Risk Management and Opportunities for collaboration*).

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 team found that Central West CMA had established monitoring and evaluation practices, systems and collaborative arrangements that had been implemented with mixed success. The CMA has recently developed a MERI program which, once fully implemented, should allow it to better track ongoing achievement of projects (see section 5.2 for more detail).

The CMA required landholders to undertake ongoing monitoring of projects as part of their contract. The CMA provided support to the landholders in the first year of the project through training and guidance materials. However, the audit found while project data had been collected, it had not been entered into the CMA's systems in a consistent manner. The CMA's new business system should allow staff to input project data more efficiently.

The audit also found in some cases, landholders had not received monitoring training, or if they had, did not have the capacity to implement the project monitoring program on an ongoing basis. In these cases, CMA staff undertook the monitoring themselves.

More broadly, some CMA staff expressed concern about whether landholders were willing or able to comply with monitoring conditions, and whether the CMA had the long-term resources to monitor their compliance. In general, the CMA's contracts with landholders require them to undertake particular activities – such as excluding stock from a riparian zone. However, there is a risk that they will not do so if the CMA does not monitor their compliance. This will make it difficult to determine the achievement of outputs and outcomes in the long-term.

The audit found that the CMA had put specific MER agreements in place for projects under the Round 5 Incentive Funding Program.⁵ For example, a Landcare group was required to employ a MER officer to undertake comprehensive monitoring of the project it is implementing and report the findings regularly. The group was also required to undertake ongoing monitoring for 10 years after the agreement has expired and report the findings annually. In another example, the Water Quality Improvement Works the CMA undertook in partnership with local councils was supported by a fit-for-purpose MER strategy.

The CMA had taken positive and collaborative approaches to generate new information and help it track the achievement of projects (and targets). For example, it had a contract with DECC to monitor and evaluate the change in condition at a number of sites. It is also one of three CMAs participating in a pilot to develop a catchment health report card (under the NSW Monitoring and Evaluation Strategy). In addition, the CMA is currently working with State monitoring and evaluation theme teams to access outcome monitoring and evaluate assumption and logic links.

The CMA funded the preparation of the Regional State of the Environment Report 2007-08⁶ in collaboration with 17 local councils. This report provided a snapshot of the state of the region's natural resources and environmental assets, the pressures on them, and how the region's natural resource managers are responding to these pressures. The CMA and local councils intend to continue to produce these reports. Over time, they aim to use the information from subsequent reports to evaluate the effect of management actions in improving the condition of the region's environment and natural resources.

In respect to the Standard, the CMA:

- demonstrated that it was actively improving its approach and systems to better track progress of its projects (*Monitoring and evaluation, Risk management and Collection and use of knowledge*)
- demonstrated that it was actively collaborating with partners to minimise costs and deliver multiple benefits (*Opportunities for collaboration*).

⁵ This round of funding focused largely on groups rather than individual landholders.

⁶ This is a supplementary document to the 200405 regional state of the environment report.

Box 3.1: Using innovation and local knowledge in building resilient landscapes

Water ponding projects have been implemented in the Central West region over the last 20 years, and demonstrate the long-term benefits of committed funding and sustained effort over time.

In the semi-desert environment of the western parts of the region, drought interspersed with unpredictable but brief periods of very heavy rain is common. Overgrazing for more than a hundred years has resulted in denuded sodic soils in many areas, which has led to erosion that has not been able to recover naturally even with reduced grazing.

'Water ponding' technology was developed locally to hold water from heavy rain long enough for vegetation to re-establish and recreate top soil. Essentially, earth banks are strategically placed on a property and planted with vegetation to slow moving surface water. Together with controlled grazing, this approach has generated benefits that have been shown empirically to persist for at least 20 years. For example, it has improved the resilience and productivity of land on a property-scale, with much reduced erosion and salty runoff.

The CMA and its predecessor organisations have supported this activity by employing a specialist officer to work closely with landholders over 20 years, and by gradually improving the techniques used for bank design and construction.

Projections for climate change suggest the pattern of unpredictable heavy rainfall will increase in the region, which means that water ponding projects will be even more important in the future.

The NRC is not aware of any research into potential off-site impacts of this activity, such as reduction in surface water flows to neighbouring properties and local waterways.



Left: 'Before and after' – a ponding bank, running through the centre of this photo has promoted increased vegetation growth (left side of photo)

Right: 'Long-term resilience' – water ponding has promoted vegetation growth over 20 years (left top of picture), while sodic soils still occur in areas where the treatment has not been applied



4 Effectively engaging its community

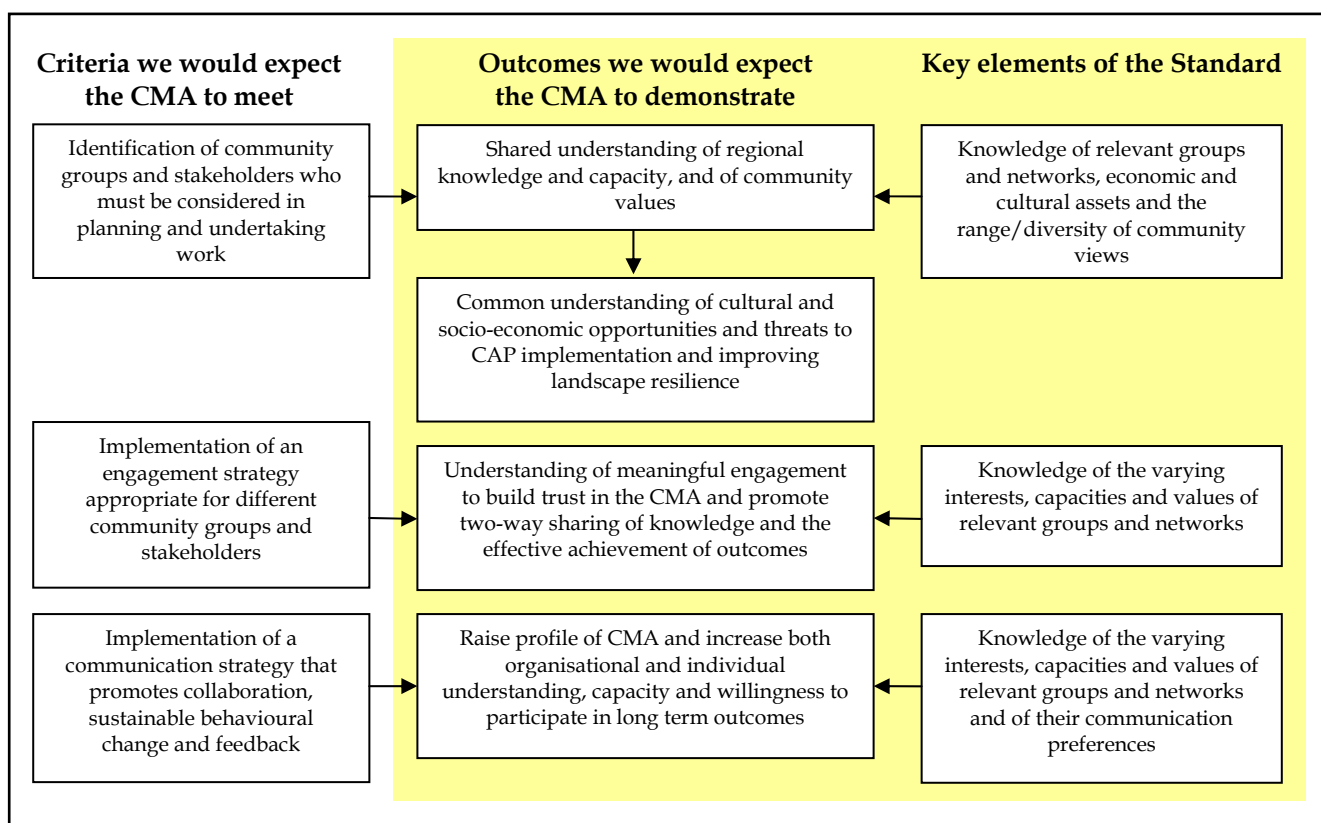
The NRC's third line of inquiry was whether the CMA is effectively engaging its communities. Given that 89 per cent of land in NSW is in private management, it is critical for CMAs to engage private landholders and other stakeholders who manage the natural resources on this land. This allows CMAs to 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.

To assess this line of inquiry, we looked for evidence that the CMA:

- had identified the community groups and stakeholders it must consider in planning and undertaking its work
- was implementing engagement strategies appropriate for different community groups and stakeholders
- was 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 we would expect to see if the CMA was using those elements of the Standard.

Figure 4.1: The framework the NRC used to assess whether the CMA is effectively engaging its communities



The sections below discuss each criterion in more detail, including why it is important and what our 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. It needs to understand how these groups might present opportunities or pose threats to its ability to effectively implement its CAP and meet its catchment-level targets. Developing and maintaining this kind of understanding requires systematic research and analysis.

The NRC audit found that Central West CMA had effectively identified important groups and stakeholders in its community. It had implemented a systematic approach to better understand its community and to inform future planning.

The CMA's project staff demonstrated a good understanding of the different community groups and stakeholders in the region, and had gained knowledge of and access to potential stakeholders through independent surveys and collaboration with local councils and agencies.

The CMA had recently performed a community benchmarking survey to better understand its local communities and to form a benchmark against which further community monitoring can be evaluated. The CMA has mapped this information to inform its prioritisation process.

In respect to the Standard, the CMA:

- demonstrated a fundamental understanding of its community (*Collection and use of knowledge*)
- demonstrated that it used analysis and research to identify the capacity of community groups (*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 productively engaging it. This requires strategic thinking, risk management and processes to identify and fill knowledge gaps.

Our audit found that Central West CMA had implemented engagement strategies that established sound relationships with community groups and stakeholders. This had contributed to better decision-making and improved collaboration opportunities.

The audit team saw independent research indicating that the CMA had improved its community engagement, and built the capacity of its communities to contribute to NRM outcomes in the region. It did this largely through changes in its funding business model (see Box 5.1 for more detail), and the use of 'fit-for-purpose' approaches for engaging different communities (for example, attending community field days in priority areas and forming relationships with groups such as local councils, its Aboriginal Reference Group and Landcare).

At the time of initial audit work, the CMA had a documented community engagement strategy that required project teams to develop a specific community engagement plan for each project. Since then, it had incorporated a project-specific engagement plan into the Project Management Plan for each project.

The CMA had implemented processes to fill knowledge gaps and continually improve its engagement strategy and other activities such as input into the MERI program. For example, it commissioned an independent benchmarking survey of the community's awareness and attitudes towards NRM.

Central West CMA had also made significant efforts to improve its relationship with local government, Aboriginal and Landcare groups across the region. To achieve this, the CMA's Board members and staff were involved in various local committees, such as the CMA's Local Government Reference Group, Aboriginal Reference Group and NRM Working Groups.

The engagement approach was further demonstrated in its Local Government Partnership Agreements, which formalise its relationship with local government and increase opportunities for collaboration and knowledge sharing (see Box 4.1). For instance, our audit team found that the CMA had shared knowledge about NRM technical issues and community engagement strategies with a council to actively build its capacity.

The CMA had also used local knowledge and applied risk management approaches in community engagement. For example, it worked closely with the communities in the region which had strong reservations about the introduction and implementation of the *Native Vegetation Act 2003*.⁷ In collaboration with landholders in one particular community, State agencies and researchers, the CMA initiated a research program to improve knowledge and approaches to the management of invasive native scrub. This knowledge will be used to improve the *Native Vegetation Regulations 2003* and Native Vegetation Assessment Tool over time.

The Central West's community continue to have some reservation about the native vegetation regulations, and this may affect the CMA's ability to more fully engage its community. Nevertheless, the NRC is confident that the CMA's current approach to this issue is likely to continue to reduce this risk.

In respect to the Standard, the CMA:

⁷ CMAs are the consent authority for native vegetation clearing under the *Native Vegetation Act 2003*.

- demonstrated it had developed and maintained engagement networks with a range of relevant and interested community groups and individuals (*Collection and use of knowledge and Community engagement*)
- demonstrated it had implemented strategies to mitigate its exposure (for example risks to its CAP targets and community engagement) from external regulatory controls (*Risk management*).

4.3 Communication promoting collaboration, behavioural change and feedback

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

The audit found that Central West CMA had communicated well with many sectors of the region's community, and there was some evidence of that this communication had promoted collaboration and behavioural change.

The CMA's investment in educating landholders had been effective in promoting sustainable behaviour change. Many landholders expressed the view that the CMA had been very helpful in communicating information and funding opportunities, and this had increased their interest in collaborating with the CMA.

Feedback from external stakeholders suggests the CMA also had some success in engaging Aboriginal communities through its Aboriginal Reference Group. This group has helped the different communities collectively understand the importance of mapping culturally important sites and improving their understanding of the importance of environmental matters.

The CMA had increased its communication and collaboration with councils as a result of forming Local Government Partnership Agreements. This has enabled it to transfer knowledge on NRM technical issues and community engagement strategies to councils in the region.

The MERI program should help the CMA to continue to improve community engagement and collaboration by better managing information about outputs and resource condition.

In respect to the Standard, the CMA:

- demonstrated it had developed communication networks and tools with community groups to increase both individual and organisational understanding and capacity, and the likelihood that the region's communities will be willing to participate in achieving long-term outcomes (*Collection and use of knowledge and Community engagement*).

Box 4.1: Collaborating to achieve more: Central West CMA's local government partnership agreements

CMAs are responsible for leading the planning and delivery of a whole-of-government approach to achieving catchment-level and state-wide targets for NRM in their region through the CAP. This is a complex and challenging task, as most regions have many institutions that contribute to NRM outcomes, including local councils.

In the Central West region, there are 23 local councils, all of which contribute to NRM outcomes through their statutory and non-statutory roles. To ensure the councils' work in fulfilling these roles is focused on achieving the targets in the CAP, the CMA needed to build solid working relationships with them. To facilitate this, it established partnership agreements with the local councils in the region.

Prior to forming these agreements, the CMA found it difficult to fund council projects that required multi-year time scales, and engage councils which required longer times to gain project approval than it. The councils, which have small funding budgets, also found it difficult to address multiple NRM objectives in a coordinated way, even though they had available staff and support resources.

The CMA employed a person with local government experience to engage initially with 11 of the councils in the region, and to develop agreements and methods of operation tailored to both the CMA's and the councils' needs. It took two years to establish a 'pipeline' of projects in partnership with councils that address the targets in the CAP and the state-wide targets across all themes.

At the time of the audit, the CMA's Local Government Partnership Program had good monitoring and evaluation processes in place. For example, feedback from local council reports is incorporated into new planning through the CMA's Local Government Reference Group meetings. In addition, local councils are using data from these processes to develop their Local Environmental Plans.

The partnership program provides an example of:

- practical collaboration between many partners with differing but overlapping objectives or mandates
- an approach for addressing multiple NRM objectives that can deliver results at the local and landscape scale to build long-term landscape resilience
- an approach for overcoming institutional and administrative difficulties to achieve significant additional investment towards social and biophysical sustainability in rural towns.

The Regional State of the Environment Report 2007-08 (discussed in section 2.4) provides a good example of what the partnership program can achieve. Over time, this report will provide a tool for the CMA and the local councils to evaluate the effect of their management actions in achieving the CAP targets.

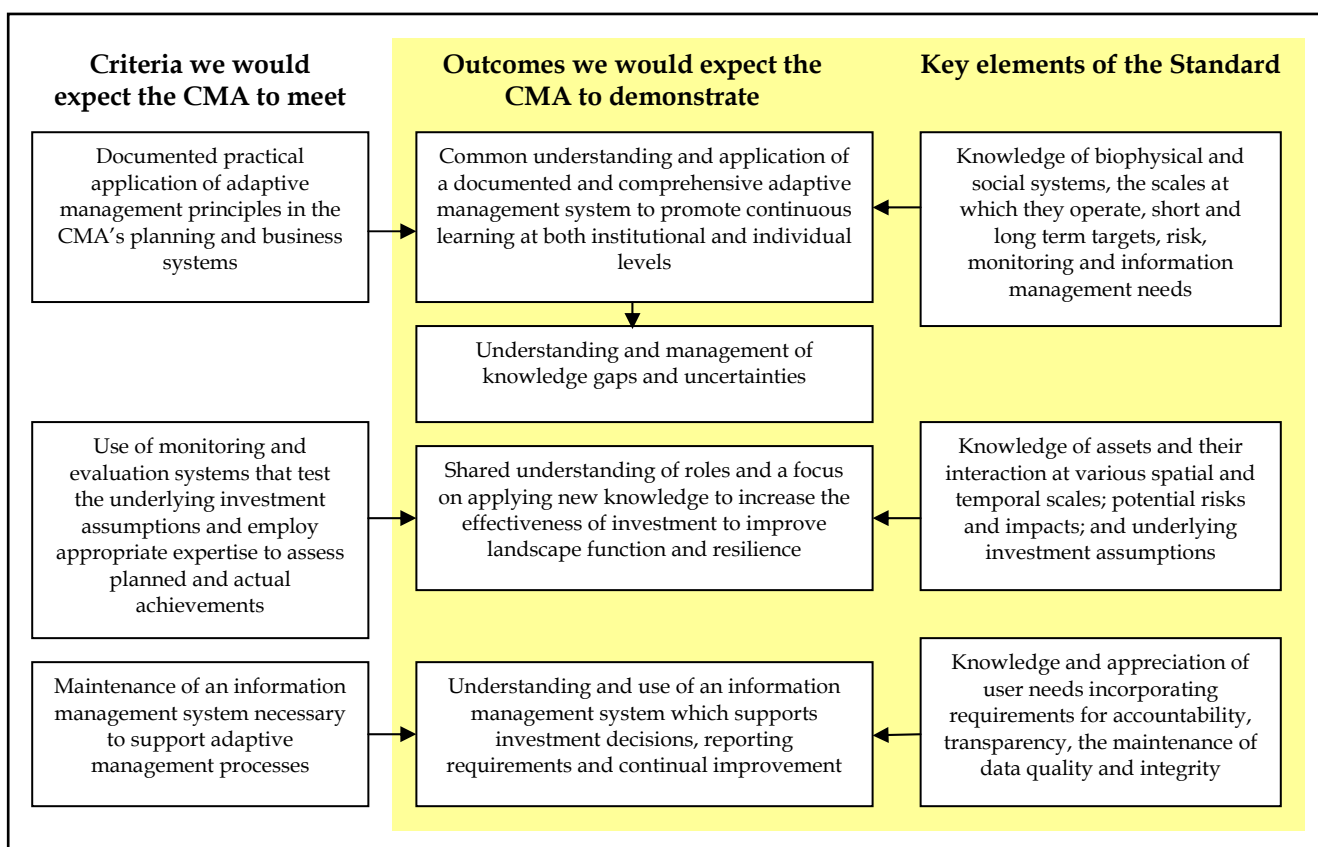
5 Effectively using adaptive management

In the fourth line of inquiry, the NRC assessed whether the CMA is 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 used appropriate experts to assess planned and actual achievements
- maintained an information management system 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 we would expect to see if the CMA is using those elements of the Standard.

Figure 5.1: The framework NRC used to assess whether the CMA is effectively using adaptive management



The sections below discuss each criterion in more detail, including why it is important and what our 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.

Our audit found that Central West CMA had clearly documented adaptive management principles in its Strategic Plan 2007-2010 and in its Business Plan. Staff had applied adaptive management practices, for example, through feedback mechanisms, risk management, program evaluations, and monitoring and evaluation, and there was ongoing improvement. The CMA had developed, and commenced implementing a further range of sound policies, programs and systems to drive adaptive management in the organisation and improve its performance in time.

Box 5.1 provides an example of how the CMA had applied adaptive management to identify, implement and review a new approach to incentive delivery.

The CMA Board had used the work of external auditors to drive continual improvement. For example, it had commissioned a community benchmarking survey and used the results to respond to a National Land and Water Resources Audit of the region. The Board also recently finalised an internal audit policy, and established a program of audits, prioritised based on risk.

In respect to the Standard, the CMA:

- demonstrated that it had used components of the Standard to drive stages of adaptive management in the organisation -- for example, by using internal audits (*Monitoring and evaluation*) and collecting and using knowledge to bridge knowledge gaps (*Collection and use of knowledge*).

Box 5.1: Improving incentive delivery

One of the key challenges CMAs face is dealing with uncertainty about the effectiveness of their management actions when making decisions. Uncertainties exist at different scales -- for example, from whether investment in a threatened species at a particular site will increase its chance of survival in the long-term, to whether a change in the CMA's business approach is likely to improve its chances of achieving the targets in the CAP. Adaptive management is a powerful approach that CMAs can use to meet this challenge.

To effectively apply adaptive management principles, CMAs' programs and projects need to be designed and delivered in ways that facilitate structured learning.

Central West CMA's current approach for incentive delivery represents a change in the CMA's business model. This approach was first used in the Round 5 Incentive Funding Program (or Partnership Round). It provides a good example of the application of adaptive management principles to promote continuous improvement.

Prior to the Partnership Round, the CMA had used a simple model that largely involved delivering incentives through small projects with individual landholders. It also undertook contract and project management in-house. However, the CMA identified this approach had alienated many stakeholder groups in the region with well-established networks, such as Landcare. Continuing with this approach meant the CMA risked further alienating these groups, and potentially hindering progress towards achieving the targets in the CAP.

The CMA actively engaged Landcare and other community groups on the issue, and reached an in-principle agreement with them that all groups needed to work together. It then developed the Partnership Round, beginning in 2006, with the aim to delivery incentives by funding groups to undertake large-scale NRM projects. The minimum threshold for project funding was \$100, 000. The CMA also continued to fund individual landholders for small-scale projects through 'small grants' program.

Under the Partnership Round, the CMA entered into 15 contracts with Landcare groups, State agencies, community organisations and local councils. A total of \$13 million was invested under the Partnership Round - \$6 million from the CMA and \$7 million from its partners.

The CMA recently commissioned an independent performance evaluation of the Partnership Round. This evaluation found that the program, largely through the transfer of project management and implementation skills, had:

- made a significant contribution to building community and landholder capacity
- engaged a significant number of new landholders who were not previously engaged
- delivered projects that made significant contribution to achieving the targets in the CAP.

The evaluation also identified a number of issues associated with the processes, procedures and governance structures supporting the Partnership Round. The CMA will need to review these issues and, where appropriate, address them in planning for subsequent rounds of funding.

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 (for example, 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.

Our audit found that Central West CMA's monitoring and evaluation systems were not able to assess the achievement of projects in a systematic way. The CMA has now completed development of a comprehensive MERI strategy and program. Once fully implemented, the NRC is confident the program will enable the CMA to better evaluate the progress of its programs and projects, and provide a strong platform for improving adaptive management.

Some of monitoring and evaluation processes the CMA had implemented includes participating in state-wide MER coordination forums and in a Catchment Report Card pilot project, investing in baseline studies for soils, vegetation and community targets, and providing collaboration partners with guidance about monitoring and, in some cases monitoring equipment. The audit team identified some concerns about the CMA's approach to assisting collaboration partners in undertaking monitoring, which are discussed in Section 3.4 above.

As part of its new MERI program, the CMA has:

- developed a framework to integrate MERI with performance reporting and project management systems
- continued to invest significant resources in establishing baseline maps to support monitoring for vegetation, biodiversity, water, salinity, soils, cultural heritage and community
- investigated a range of monitoring options including satellite for monitoring ground cover
- started to develop electronic portals and database to upload baseline data and photo points by project officers and landholders
- established a steering committee which will allow information to be related to the wider CMA.

In respect to the Standard, the CMA:

- demonstrated that it was implementing and improving its monitoring and evaluation approach and systems to drive more effective adaptive management (*Monitoring and evaluation, Risk management and Collection and use of knowledge*).

5.3 Information management system that supports 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.

At the time of our audit, the NRC found that Central West CMA's primary information management systems were operated independently of each other, potentially weakening efficient and effective use of available information in strategic and operational decision-making, and adaptive management.

The CMA had a number of procedures in place to distribute information and knowledge within the organisation to help decision-making. These include operations reports that identify emerging issues and community engagement opportunities, and regular emails between staff to update them on project development.

At the project level, the audit team found instances of poor information management. Some project and program files reviewed were incomplete, meaning they would be of limited use in informing project decisions. In one instance, monitoring data for a project had been provided to the CMA, but was not evident in CMA records.

The CMA was in the early phase of implementing new improved business systems, which are likely to address these issues. The new business systems will allow the CMA to store key documents and retain corporate knowledge, upload monitoring data via an electronic portal, and generate report cards with aggregated outputs. The new systems also include components that will enable the CMA to record all project liabilities and track expended and committed funds. For example, the new systems include a new financial management system (the Investment Management/Project System - IM/PS - module of the SAP® financial management systems) and a new document management system (Objective) that are likely to support better information management.

The effectiveness of the CMA's information management had been adversely affected by delays in the provision of system development and training by external parties. This had affected the operation of elements of financial management, spatial information management and document management and the use of information to support decision-making. Delivery of the electronic document management system (Objective) was several months behind schedule.

To overcome problems caused by delays, the CMA had implemented work-a-rounds (for instance establishing a database outside of the SAP® system for management of project information) which meant it incurred additional cost and duplicated some work.

With other CMAs, Central West CMA had adopted the externally supported-Land Management Database to manage spatial information. At the time of the audit, the CMA considered that further training was required by staff in the use of the Land Management Database, but the system provider had not had the capacity to provide such training as would have been required by the applicable service level agreement.

In respect to the Standard, the CMA:

- demonstrated it had implemented information management that met some of the needs of the CMA and external parties (*Monitoring and evaluation*)
- could not demonstrate that it had safeguards in place to ensure the quality and integrity of data was maintained (*Information management*)
- could not demonstrate that it had strategies in place to minimise continued risks of poor performance by third party service level agreements (*Risk Management*).

Attachment 1 Conclusions, suggested actions and CMA response

This Section provides a table summarising conclusions of our audit of the implementation of the Central West CAP, the actions we suggested the CMA take to improve this implementation and a summary of Central West 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 - Prioritising investments to promote resilient landscapes | | |
| <p><i>Criterion 1.1: Commonly understood definition of resilient landscapes</i></p> <ul style="list-style-type: none"> ▪ The CMA's vision for the region, and the approach to achieve it, was a commonly understood definition of what constitutes resilient landscapes in the Central West region. ▪ The CAP provides a good description of the region's key assets, the threats to these assets, and the Central West region's socio-economic profile. However, there is little or no spatial mapping to assist the CMA in communicating a 'landscape perspective' to the region's communities. | <p>The NRC suggests that the CMA take the following action:</p> <ol style="list-style-type: none"> 1. during the review of the CAP, consider how to best incorporate maps that portray the 'landscape perspective'. | <p>Central West CMA agrees with the NRC's suggested action.</p> <p>The CMA will incorporate maps from a landscape perspective at the next CAP review.</p> <p>The CMA notes that some maps are in the process of being developed for community use and will be made available on the CMA's website</p> <p>The CMA also notes it will use the Investment Framework For Environmental Resources (INFFER) process in the next CAP review which will assist with the interaction of community values and the CAP.</p> <p>Central West CMA will undertake this action through to its CAP review process in by December 2009.</p> |

| CONCLUSION | SUGGESTED ACTIONS | CMA RESPONSE |
|--|--|---|
| <p><i>Criterion 1.2: A system for ranking investment options</i></p> <ul style="list-style-type: none"> ▪ The CMA system for ranking investment options included an annual <i>NRM Review</i> that established its regional-scale investment priorities. The process was structured and transparent, supported by documented business systems and meaningfully applying the Standard to the process. ▪ When assessing and ranking projects for potential funding, the CMA used a tool to generate an Environmental Services Ratio (ESR). However, tool had not been applied consistently across all projects and when demand outstripped the supply of funds, the cut off was the cost per hectare of the proposals rather than the ESR. | <p>The NRC suggests that the CMA take the following action:</p> <ol style="list-style-type: none"> 2. where possible, continuing to apply the ESR consistently across all projects, including those run in collaboration with Local Government and Landcare | <p>Central West CMA agrees with the NRC's suggested action.</p> <p>The CMA notes the ESR is used for the majority of projects with the exception of applications that require small amounts of funding for capacity building.</p> <p>Central West CMA will complete this action by December 2009.</p> |
| <p><i>Criterion 1.3: A system that ensures consistent short-and long-term investment priorities</i></p> <ul style="list-style-type: none"> ▪ The NRC audit found that Central West CMA had used its annual <i>NRM Review</i> to ensure that its shorter-term Investment Strategy and Annual Investment Plans were aligned with the longer-term CAP. ▪ Current funding arrangements have the potential to increase risk that project activities will be implemented at a sub-optimal time (such as revegetation during drought) to meet funding targets or not implemented at all due to funding cut-offs. | <p>The NRC suggests that the CMA take the following action:</p> <ol style="list-style-type: none"> 3. establishing with investors a greater flexibility for the CMA to manage unspent investments, to avoid the need for accelerated end-of-period investment decisions | <p>Central West CMA agrees with the intent of the NRC's suggested action.</p> <p>The CMA notes it has previously requested greater flexibility to manage unspent investments but investors have not granted any significant flexibility in expenditure to reflect operational requirements.</p> |

| CONCLUSION | SUGGESTED ACTIONS | CMA RESPONSE |
|---|---|---|
| Line of inquiry 2 - Delivering projects that contribute to improved landscape function | | |
| <p>Criterion 2.1: Documentation of expected long-term outcomes</p> <ul style="list-style-type: none"> ▪ Expected long-term outcomes were understood by the CMA staff responsible for delivery of each project, but at the time of the audit that the CMA had not documented these expected outcomes for all projects. ▪ However, the CMA's new business systems now includes <i>Project Charters</i> that document long-term outcomes, including program logic tables that describe the linkages between project and CAP outcomes. | <p>The NRC suggests that the CMA take the following action:</p> <ol style="list-style-type: none"> 4. revise project contract templates to provide for the recording of long term outcomes for each project. | <p>Central West CMA agrees with the NRC's suggested action.</p> <p>Since the audit, the CMA has advised that it has largely revised its project contract templates.</p> <p>Central West CMA will complete this action by August 2009.</p> |
| <p>Criterion 2.2 : Successful achievement of project outcomes</p> <ul style="list-style-type: none"> ▪ The CMA was successfully achieving most project outputs, and was taking up opportunities to build from those achievements. ▪ At the time of the audit, there was no clear systematic approach the CMA used to seek opportunities to leverage greater value from initial investments to its projects. However, the CMA has recently implemented approaches to address this. | <p>The NRC suggests that the CMA take the following action:</p> <ol style="list-style-type: none"> 5. continuing to explore and implement approaches to seek opportunities to add greater value to its projects. | <p>Central West CMA agrees with the NRC's suggested action and will implement this as an ongoing action.</p> |
| <p>Criterion 2.3: Attraction of additional resources</p> <ul style="list-style-type: none"> ▪ The CMA was attracting additional resources to its investments. ▪ The success of attracting investment varied between projects and programs. | <p>The NRC suggests that the CMA take the following action:</p> <ol style="list-style-type: none"> 6. continuing to improve CMA systems that recognise, value and monitor the additional resources attracted to match CMA funding. | <p>Central West CMA agrees with the NRC's suggested action and will implement this as an ongoing action.</p> |

| CONCLUSION | SUGGESTED ACTIONS | CMA RESPONSE |
|--|---|--|
| <p>Criterion 2.4: A system to track ongoing achievement of projects</p> <ul style="list-style-type: none"> ▪ The CMA had established monitoring and evaluation practices, systems and collaborative arrangements. Some of these had been implemented with mixed success. ▪ There is some concern whether landholders are willing or able to comply with monitoring conditions and whether the CMA has the long term resources to undertake supervision of monitoring. ▪ The CMA has recently developed a MERI program which, once fully implemented should allow it to better track ongoing achievement of projects. | <p>The NRC suggests that the CMA take the following action:</p> <p>7. finalise full implementation of the CMA's MERI Program and investigate options to monitor progress during the life of the project</p> | <p>Central West CMA agrees with the NRC's suggested action.</p> <p>The CMA advises that it already has significant work on its MERI program underway.</p> <p>The CMA notes that delays associated with the NSW state-wide MER strategy have impeded the roll-out of its MERI program.</p> <p>Central West CMA will complete this action by December 2009.</p> <p>The CMA also notes the Australian Government's new funding program - <i>Caring for our Country</i> - may require further changes to its MERI program.</p> |
| Line of inquiry 3 - Effectively engaging its community | | |
| <p>Criterion 3.1: Identification and analysis of community groups and stakeholders</p> <ul style="list-style-type: none"> ▪ The CMA had effectively identified important groups and stakeholders in their community. ▪ The CMA had implemented a systematic approach to better understand its community and to inform future planning | <p>The NRC has no suggested actions for this criterion.</p> | <p>-</p> |
| <p>Criterion 3.2: Appropriate engagement strategies for different community groups and stakeholders</p> <ul style="list-style-type: none"> ▪ The CMA had implemented engagement strategies that established sound relationships with stakeholders in their community. This contributed to better decision making and improved relationships and collaboration opportunities. ▪ The CMA has used local knowledge and risk management to engage its community on native vegetation regulations. | <p>The NRC suggests that the CMA take the following action:</p> <p>8. continue to monitor progress on its current approach to address native vegetation regulations issues in it community with the view to expand the approach and share learnings amongst other CMA</p> | <p>Central West CMA agrees with the NRC's suggested action.</p> <p>The CMA will complete this action by June 2010.</p> <p>The CMA notes there is scope for a state-wide approach led by the NRC or the CMA Chairs Council.</p> |

| CONCLUSION | SUGGESTED ACTIONS | CMA RESPONSE |
|---|---|--|
| <p>Criterion 3.3: Communication promoting collaboration, behavioural change and feedback</p> <ul style="list-style-type: none"> ▪ The CMA was communicating well with many sectors of the community and there was some evidence of that communication promoting feedback, collaboration and behavioural change. | <p>The NRC has no suggested actions for this criterion.</p> | <p>-</p> |
| Line of inquiry 4 - Effectively using adaptive management | | |
| <p>Criterion 4.1: Adaptive management principles in planning and business systems</p> <ul style="list-style-type: none"> ▪ The CMA had clearly documented adaptive management principles and had applied adaptive management practices. ▪ The CMA has developed, and is now implementing a further range of sound policies, programs and systems to drive adaptive management in the organisation and improve its performance in time. | <p>The NRC suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> 9. continuing to develop and implement document management and filing systems at all levels of CMA operations, to improve accessibility of information, shared CMA-wide understanding of expected outcomes, accountability and opportunities for adaptive learning | <p>Central West CMA agrees with the NRC's suggested action.</p> <p>The CMA is currently implementing the initial components of the 'Objective' electronic document management system, with additional components soon to follow.</p> <p>The CMA will also soon undertake a business analysis of their IT systems.</p> <p>Central West CMA will complete these actions by December 2009</p> |

| CONCLUSION | SUGGESTED ACTIONS | CMA RESPONSE |
|---|--|--|
| | <p>10. conducting training for Catchment Support Officers in Landcare groups, in how to apply CMA adaptive learning principles and approaches.</p> | <p>Central West CMA agrees with the NRC's suggested action.</p> <p>The CMA has recently invited all Landcare "Community Support Officers" to training in program logic, which included an element of adaptive learning.</p> <p>The CMA also notes that future funding will determine the ability of the CMA to deliver additional training focussed on adaptive management.</p> <p>Central West CMA will complete these actions by June 2010.</p> |
| <p>Criterion 4.2 :Monitoring and evaluation system</p> <ul style="list-style-type: none"> ▪ At the time of our audit, the CMA's monitoring and evaluation systems were not able to assess the achievement of projects in a systematic way. This impacted the CMA's ability to apply sound adaptive management practice. ▪ The CMA has recently developed a MERI program that covers the entire operations of the CMA. Once fully implemented, the NRC is confident it will allow the CMA to better evaluate progress of projects and programs and provide a strong platform for a more adaptive management approach to their NRM business. | <p>The NRC suggests that the CMA take the following actions:</p> <p>11. finalise full implementation of the MERI program</p> | <p>Central West CMA agrees with the NRC's suggested action.</p> <p>The CMA advises that it already has significant work on its MERI program underway.</p> <p>The CMA notes that delays associated with the NSW state-wide MER strategy have impeded the roll-out of its MERI program.</p> <p>Central West CMA will complete this action by December 2009.</p> <p>The CMA also notes the Australian Government's new funding program, <i>Caring for our Country</i> may require further changes to its MERI program</p> |

| CONCLUSION | SUGGESTED ACTIONS | CMA RESPONSE |
|---|---|---|
| | <p>12. continuing to conduct training and education for landholders to widen the range of technical skills and to support on-ground (project) level adaptive learning</p> | <p>Central West CMA agrees with the NRC's suggested action.</p> <p>The CMA notes that capacity building and training is a focus of the CMA's future delivery model.</p> <p>Central West CMA will complete these actions by December 2009.</p> |
| <p>Criterion 4.3: Information management system that supports adaptive management</p> <ul style="list-style-type: none"> ▪ At the time of our audit, the NRC found that the CMA had largely operated in the past under a number of independent information management systems, potentially weakening the efficient and effective use of available information in strategic and operational decision-making. ▪ The CMA is now in the early phase of implementing its newly established business systems. The NRC is confident that this will promote more effective adaptive management in the CMA. ▪ The effectiveness of the CMA's information management had been impacted by delays in the provision of system development and training by external parties. | <p>The NRC suggests that the CMA take the following actions:</p> <p>13. establishing common data needs with project collaborators including agencies to allow best the use available knowledge in project planning and review</p> <p>14. review the risk (and management) to effective adaptive management from continued delays in the provision of services from third parties.</p> | <p>Central West CMA agrees with the NRC's suggested action.</p> <p>The CMA will establish common data needs with project collaborators by December 2009.</p> <p>Central West CMA agrees with the NRC's suggested action and will implement it as an ongoing action.</p> <p>The CMA Board conducts a thorough review of its risk register at least once a year and it will reassess the risk associated with third party service providers.</p> |

Attachment 2 About this audit

Audit mandate 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.⁸

The NSW Government has adopted an aspirational goal to achieve resilient landscapes that support the values of its communities.⁹ It intends to achieve this by encouraging natural resource managers, such as each Catchment Management Authority (CMA), to make high quality decisions, focused through a coherent set of targets.¹⁰ The NSW State Plan¹¹ establishes the state-wide targets for natural resource management (NRM).

CMAs have developed CAPs that express how each specific region can contribute to the aspirational goal and the State-wide targets. The *Central West Catchment Action Plan*¹² identifies the key natural resource issues (or themes) that need to be managed in the region, including salinity, water, vegetation, biodiversity, soil, people and community and cultural heritage. Within each of these themes, the CMA has identified:

- catchment targets, for longer-term improvements in resource condition that will contribute to achievement of the state-wide targets
- management targets, which identify shorter-term investment priorities, such as specific sub-catchments or particular types of projects, that will contribute to achievement of the resource condition targets.

Audit objective This audit assessed the effectiveness of Central West CMA in promoting resilient landscapes that support the values of its communities, within the scope of the CAP.

Central West CMA is now implementing the CAP, through a mix of programs and projects that simultaneously contribute to more than one management target, and more than one resource condition target. Many of these integrated programs and projects use vegetation to enhance landscape function, to lead to the aspirational goal of resilience.

Lines of inquiry In order to assess the effectiveness of CMA work, the NRC sought to answer the following questions:

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

⁸ *Natural Resources Commission Act 2003, Section 13 (c)*

⁹ As recommended by the NRC in *Recommendations – State-wide standard and targets, September 2005*.

¹⁰ *Ibid.*

¹¹ See Priority E4 in, NSW Government (2006) *A new direction for NSW, NSW Government State Plan*, November 2006

¹² Central West Catchment Management Authority, 2007

The NRC identified that these four key aspects of CMA work should strongly influence effectiveness in achieving resilient landscapes and promote maximum improvement for Central West CMA at this stage in their development.

The NRC structured its analysis of audit evidence to be able to report on these lines of inquiry.

Audit criteria To help report on each line of inquiry, the NRC used the criteria identified below in Table 1, the audit analysis structure.

These criteria address:

- 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.

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

The NSW Government adopted the *Standard for Quality Natural Resource Management* (the Standard), which identifies seven components that are commonly used to reach high quality natural resource decisions. CMAs must comply with the Standard¹³, using it as a quality assurance standard for all planning and implementation decisions.

Audit scope As a sample of the entire range of NRM investments, the audit work was focussed on CMA water and salinity programs and projects, many of which used vegetation to improve landscape function.

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 beyond water quality and salinity, such as soil health and threatened species. The NRC audit sought to audit the effectiveness of these contributions as they arise.

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

Acknowledgements The NRC gratefully acknowledges the cooperation and assistance provided by the Central West CMA and landholders in the Central West region. In particular we wish to thank the Chair, Mr Tom Gavel, General Manager, Tim Ferraro, and other CMA Board members and staff who participated in interviews, provided information and accompanied the audit team on site inspections across the region.

¹³ Section 20 (c), *Catchment Management Authorities Act, 2003*

Table 1. Audit analysis structure

| | |
|---|--|
| 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 analysed using 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 projects contributing to improved landscape function? |
| This line of inquiry was analysed using 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 analysed using 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 analysed using 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 Central West region and Central West CMA.¹⁴ 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 Central West region (the area covered by the Central West CMA) covers 92, 2000 km² from the central tablelands around Oberon, Bathurst and Rylstone to the Western Plains plains around the townships of Nyngan and Coonamble. The area includes the catchments of the Macquarie, Cudgegong, Bogan and Castlereagh Rivers which are part of the Murray-Darling Basin.

The region covers a wide diversity of landforms, vegetation species and communities with ecosystems that range from sub-alpine in the east to semi-arid rangelands in the west of the catchment.

River regulation and water extraction has had substantial effects on river flow volumes and variability on the regions regulated rivers. Many its waterways have had water quality problems that affect consumptive and non-consumptive uses. Groundwater continues to be an important source of water for towns, landholders and industry in the region.

Much of the native vegetation in the region has been cleared and continued to degrade as a result. Remnant vegetation often occur as single trees or small groups of mature or senescent trees which have little or none of the original understory structure or species composition.

The soils of the region range from sandy and low nutrient soil types in the tablelands, more nutrient rich colluvial and alluvial soils in the slopes, to highly fertile alluvial soils of the plains.

Key threats to the health of natural resources in the region include dryland salinity, declining surface water quality, declining condition and extent of native vegetation, declining riparian and wetland ecosystems and deterioration of soils.

The region has highly diverse agricultural industries. Grazing dominate the east and western plains, winter cropping in the western slopes and inner plains and viticulture, horticulture, irrigated cotton and summer crops on the river floodplains. Forestry and mining also occur in the region.

The population of the region is 185, 515, living mainly in the major centres of Bathurst, Orange, Mudgee and Dubbo. Agriculture, manufacturing, retail, education, property/business services and health/community services are the most significant employers in the region.

¹⁴ Key information source: Central West Catchment – Catchment Action Plan 2006-2016.

The region overlays the major Aboriginal nations of the Wiradjuri, Kawambarai, Weilwan and Wongaibon (but also extend into other CMA regions). Small parts of the region also overlay the regions of the Dharuk, Darkinung and the Gamilaroi. The region supports an Aboriginal population of 11, 688.

The CMA at a glance

At the time of the audit, the Board consisted of Tom Gavel (Chair) and six Board members.

The Board is supported by a General Manager, three senior managers and approximately 37 staff.

Adjacent CMAs include the Namoi, Lachlan, Western, Hunter-Central Rivers and the Hawkesbury-Nepean. The Murray Darling Basin Authority is responsible for planning the integrated management of water resources of the Murray-Darling Basin (of which includes the region's Macquarie, Cudgegong, Bogan and Castlereagh Rivers).

To provide services across the region, the CMA maintains offices in Dubbo (principal office), Wellington, Nyngan, Orange, Gilgandra, Mudgee, Bathurst and Trangie.

In implementing its CAP, Central West CMA distributed \$15.2 million¹⁵ in grant funding during 2007/08 to undertake on-ground works or training to improve natural resource management.

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

¹⁵ Central West CMA (2008) *Annual Report 2007-2008*



Figure A3.1: Central West region and sites visited by the NRC