



**Audit Report  
Hawkesbury-Nepean  
Catchment Management Authority**

**February 2009**





## AUDIT REPORT

# Hawkesbury-Nepean Catchment Management Authority

February 2009

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## List of acronyms

AAC	Aboriginal Advisory Committee
CAP	Catchment Action Plan
CMA	Catchment Management Authority
CIMS	Catchment Information Management System
HNCMA	Hawkesbury-Nepean Catchment Management Authority
LGAG	Local Government Advisory Group
LMD	Land Management Database
MER	Monitoring, Evaluation and Reporting
MERI	Monitoring, Evaluation, Reporting and Program Improvement
NRC	Natural Resources Commission
NRM	Natural Resource Management
NSW	New South Wales

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# 1 Introduction

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

The NRC has completed audits of seven of these CAPs, one of which was the Hawkesbury-Nepean CAP. Preparing for and conducting the 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 CAPs.

The conclusions of our audit of the implementation of the Hawkesbury-Nepean CAP, the actions we suggest Hawkesbury-Nepean 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 Hawkesbury-Nepean CMA 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 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.<sup>1</sup>

## 1.1 Focus of the audit

Although a range of government agencies have a role in implementing CAPs, the NRC focused its first seven audits on the actions of the CMAs. 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 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.

To do this, we 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?

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<sup>1</sup> Natural Resources Commission (2008) *Progress report on effective implementation of Catchment Action Plans – November 2008*, NRC, Sydney. Available at [www.nrc.nsw.gov.au](http://www.nrc.nsw.gov.au).

2. Are the CMA's vegetation projects contributing to improved landscape function?
3. Is the CMA actively engaging its communities?
4. Is the CMA effectively using adaptive management?

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

## **1.2 Summary of audit findings**

To conduct the audit, the NRC identified what 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 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 audit findings for the Hawkesbury-Nepean CAP, including our expectations, our assessment of Hawkesbury-Nepean 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 Hawkesbury-Nepean 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 region. For example, its Board members and staff would be able to consistently explain the main natural resource assets in the region, and the interactions that characterise healthy landscape function. They would know the main threats to the assets and landscape function, and the environmental, economic, social and

cultural value the community places on those assets. In addition, they would also agree on the options for action and how these actions promote resilient landscapes.

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 Hawkesbury-Nepean CMA's implementation of the CAP found that:

- The CMA Board and staff demonstrated a good understanding of the long-term biophysical priorities underpinning resilience for the region. However, the CMA had focused on what it could achieve with its expected funding, rather than using the CAP to communicate and promote integrated investment by all stakeholders and the community in the region. The NRC considers this is particularly important given the complexity of the Hawkesbury-Nepean region (eg, due to urban development pressures and the many institutions whose actions influence NRM in the region).
- The CMA had prioritised investment to meet the short-term requirements of investors within the scope of the current CAP. For example, the CMA's internally run incentive projects were strongly focused on achieving outputs that linked back to the targets in the CAP. This was supported by the CMA's internal contracts and project management system.
- The CMA's systems for prioritising investments varied in quality at different scales. At the program scale, the CMA's prioritisation processes did not take account of all relevant information. For example, these processes did not consider the relative value of the asset/natural resource the CMA was trying to protect, or consider the costs and benefits involved in achieving different outcomes or the effectiveness of different delivery responses.
- At the individual project identification scale, the CMA staff drew on good available knowledge (eg, biophysical and spatial knowledge, access to best practice guidelines) and were guided by well-documented and repeatable processes. However, the process and criteria used to rank and decide investment priorities between individual projects was not transparent. Therefore, it was not clear if the projects selected were the most effective use of investment to achieve the planned NRM outcomes.

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

- using its review of the CAP to establish and promote a vision for 'resilient landscapes' in the region that provides strategic guidance for integration of the investments by the community and stakeholders, as well as the CMA
- reviewing how the data in its information systems can be better used in prioritisation (eg, to consider the efficiency and effectiveness of different delivery mechanisms)
- reviewing management targets and output performance indicators to ensure they continue to support the effective achievement of long-term priorities for the region.

## 1.2.2 Delivering projects that contributed to improved landscape function

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

Our audit found that:

- Hawkesbury-Nepean CMA was effectively delivering projects that are likely to contribute to improved landscape function. The projects visited by the audit team were well executed, supported by a good project management system and sound logic assumptions based on the available information. CMA staff had access to good knowledge (eg, the River Health Strategy<sup>2</sup>, best practice guidelines, other experienced staff) to assist them in assessing and delivering individual projects.
- The CMA had clearly documented long-term project outcomes (as defined by condition and management targets in the CAP) within its internal project contracts and operations manuals. CMA staff demonstrated understanding of how each project's outputs contributed to the longer term outcomes targeted by the CAP.
- The CMA had taken opportunities to build on project achievements. However, the CMA did not have a well-established system to document and communicate learnings on projects to relevant landholders, stakeholders and staff, which may be restricting its ability to reduce the risks and maximise the effectiveness of future projects.
- The CMA had attracted additional resources from other sources to match its investment and was recording this 'in-kind' investment in its information management system.

The NRC suggests the Hawkesbury-Nepean CMA Board take a range of actions to address the issues identified by the audit including:

- finalising and implementing the draft Knowledge Strategy to fill knowledge gaps and further improve the logic between project outputs and targeted improvements in natural resource condition at the catchment scale.
- implementing its draft Monitoring Evaluation Reporting and Program Improvement (MERI) Framework to support monitoring of outcomes and assessment of natural resource condition improvement at the catchment scale. This includes implementing ongoing monitoring of project outputs and property-scale natural resource change (outcomes) to support the monitoring of catchment-scale outcomes.

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<sup>2</sup> HNCMA (2006) *Hawkesbury Nepean River Health Strategy*, HNCMA, Goulburn NSW.

### 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's audit found that:

- Hawkesbury-Nepean CMA was effectively implementing a strategy to engage the region's communities in ways that leverage the CMA's NRM investment and build the communities' capacity.
- CMA Board members and staff possessed a good understanding of the socio-economic profile and networks of the region. The CMA's strong links through a Local Government Advisory Group (LGAG), and the inherited knowledge of community networks that had been built by the organisations that preceded the CMA had been important in fostering this understanding.
- The CMA had a Collaboration and Communication Engagement Strategy that documented approaches to different stakeholders and had been implemented effectively with most stakeholders. The CMA supported its engagement with communities by the geographic spread of its Catchment Officers and by developing a community-specific Community Relation Plan.
- The CMA had established communication channels to receive feedback from project partners through both specifically established and informal communication channels, and to facilitate engagement with key stakeholders through an Aboriginal Advisory Committee (AAC) and the LGAG.

The NRC suggests the CMA take a range of actions to further improve community engagement, including:

- implementing and evaluating the effectiveness of the Local Community Relation Plan for Lithgow, and considering whether this approach can potentially be used to improve the effectiveness of community engagement in other priority areas of the region.

### 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 region, 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. There would also be an organisational focus on applying new knowledge (gained from monitoring and evaluation or other sources) to increase the effectiveness of investments. Finally, we would expect the CMA to have and maintain information management systems that support its adaptive management processes.

Our audit found that:

- The Hawkesbury-Nepean CMA Board and staff demonstrated a good understanding of adaptive management principles and the CMA's strategic plan recognised the importance of adaptive management in NRM. However, the CMA had not yet documented a strategy for how adaptive management should be consistently implemented and proactively used across the organisation at both a strategic and operational level.
- The CMA had developed some systems that could support adaptive management, and had improved these over time. However, the CMA had only recently developed strategies for knowledge, risk management, and monitoring and evaluation. As these strategies had not yet been implemented, the CMA did not have some of the key frameworks in place to support adaptive decision making.
- The CMA Board and staff understood the importance of monitoring and evaluation in adaptive management. However, the CMA Board had not yet decided how it would allocate and integrate its MER resources with State agency work on the NSW MER Strategy. The CMA had taken steps to improve knowledge gaps through the development of its draft Knowledge Strategy.
- The CMA had developed a good information management system. The CMA was developing and continuing to improve this system to support both the needs of the CMA and its investors.

The NRC suggests Hawkesbury-Nepean CMA take a range of actions to further improve adaptive management, including:

- finalising and implementing its draft Risk Management Strategy, draft MERI Framework and draft Knowledge Strategy, all of which are important for supporting adaptive management
- continuing to refine its information management system to effectively collect, store and provide data in a form that meets the CMA's needs for decision making and adaptive management.

### **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, 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 Hawkesbury-Nepean region and CMA.

## 2 Prioritising investments to promote resilient landscapes

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

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

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

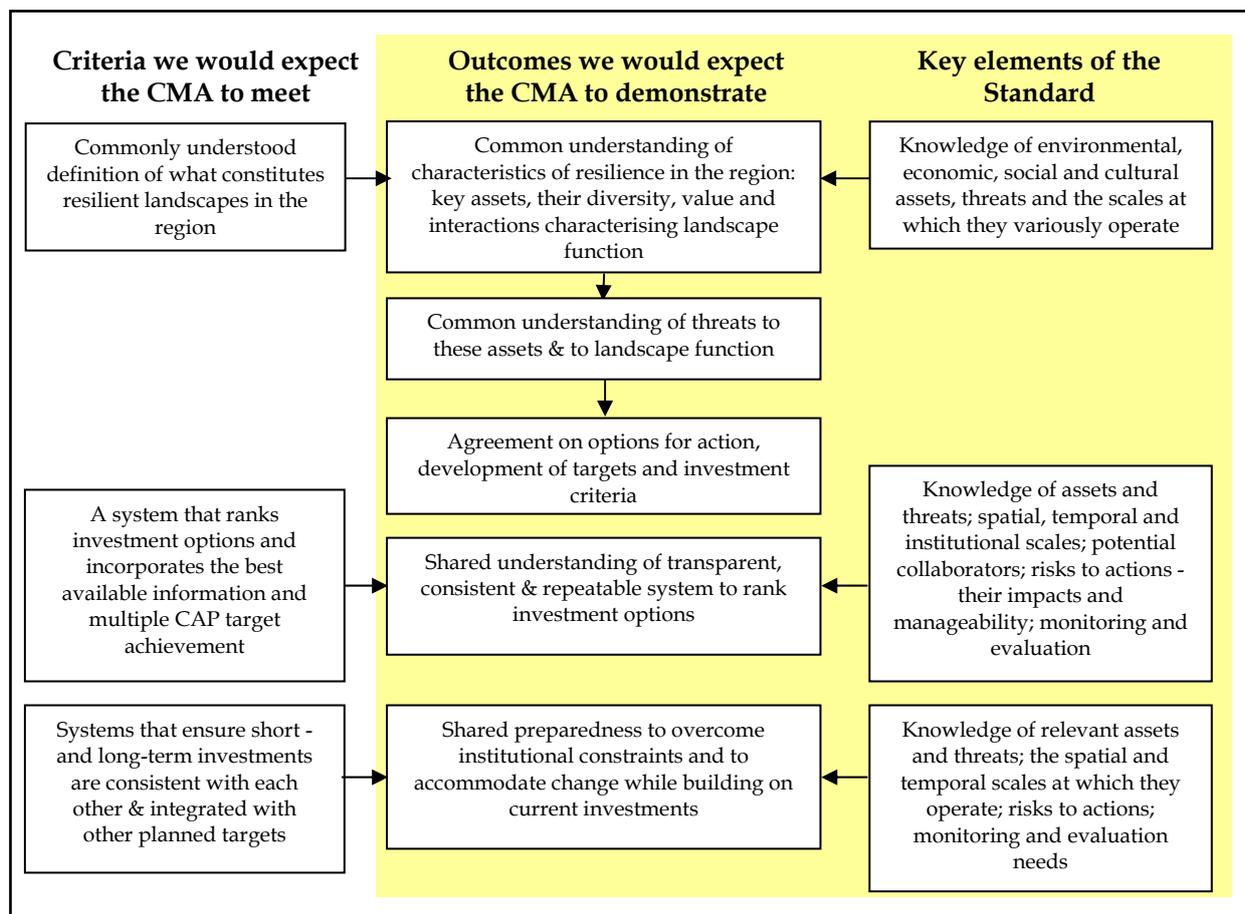
We identified the elements of the Standard that are most relevant and important for meeting these criteria. We also identified the behaviours and other outcomes we would expect the CMA to demonstrate if it is properly using these elements of the Standard, and thus meeting the criteria to a level of quality 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 region) 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 region, 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 region, 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 Hawkesbury-Nepean 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”.<sup>3</sup> 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 region – its Board and staff members need a consistent understanding of what the goal means for the particular landscapes and communities in its region.

<sup>3</sup> NRC (2008) *Healthy landscapes and communities*. NRC, Sydney. Available at [www.nrc.nsw.gov.au](http://www.nrc.nsw.gov.au).

The NRC's audit found the Hawkesbury-Nepean CAP established a vision for the region: "to achieve a healthy and productive landscape valued now and in the future".<sup>4</sup> The CMA developed this vision, and the targets and actions described in the CAP, by building on the existing Catchment Blueprints<sup>5</sup> and consulting with the region's communities.<sup>6</sup> The CMA Board and staff had a good understanding of the socio-economic profile of the region (see Chapter 4 for more details).

The CAP and the CMA's other planning documents (such as the River Health Strategy developed in consultation with the community and stakeholders) contained definitions and concepts of resilience, including a good understanding of the longer term biophysical priorities of the region. The CMA Board and senior staff also demonstrated an understanding of resilience. While there was some variation in individual interpretations, there was a strong shared focus on protecting high-value or good-condition assets.

However, rather than promoting a strategic goal for all NRM investment in the region, the CMA had focused on the priorities that it thought it could address with its available funding. The CMA's strategic promotion of the region's longer term priorities across institutions was not yet fully developed.

In respect to the Standard, the CMA demonstrated it had built knowledge about key assets and threats (including spatial knowledge) in developing its understanding of the concept of resilience (*Collection and use of knowledge* and *Determination of scale*).

## 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 region, as well as information on the values the community places on the assets, and on potential collaborators and their capacity.

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

The NRC's audit found that Hawkesbury-Nepean CMA had established systems for prioritising investments in the context of the CAP. However, these systems varied in quality at different scales and could be further developed to support more effective prioritisation. For example, the CMA used a decision tool developed for it in 2006 to prioritise funding between condition and management targets, and hence for program prioritisation. This tool considered a number of variables, including spatial scale, risks (economic, environmental and social) and available knowledge (trends). However, it did not appear to take into consideration issues such as:

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<sup>4</sup> HNCMA 2008, CAP

<sup>5</sup> DLWC 2002, *Warragamba Catchment Blueprint* and *Hawkesbury-Lower Nepean Catchment Blueprint*

<sup>6</sup> NRC 2006, *Recommendation – Hawkesbury Nepean Catchment Action Plan*

- the relative value of the asset/natural resource the CMA was trying to protect
- the costs and benefits of achieving different outcomes
- the effectiveness of different delivery responses.

The CMA had made progress in building good biophysical and spatial knowledge – for example, in developing the River Health Strategy (described in Box 2.1 below) and improving the data collected in its information management system. However, the CMA did not demonstrate that it had transparently and strategically used all of its knowledge and data to evaluate:

- how it prioritised investments at a program level (eg, which forms of program and project delivery were most effective in achieving multiple outcomes and ultimately resilient landscapes)
- how it assessed and prioritised between individual internal projects and between third-party projects to optimise its effectiveness.

The CMA had also not yet implemented its draft MERI Framework, which may provide relevant information to inform prioritisation in the future. For instance, this framework identifies methods to review and improve the effectiveness, efficiency and impacts of its programs, and to evaluate immediate and longer term outcomes to assess improvements in resource condition change. (This issue is discussed further in Chapter 5.)

The CMA provided incentive funds through the Catchment Protection Scheme, River Restoration Projects, the Bushland Conservation Project and the Wetlands Management Program. CMA staff used well-documented and repeatable systems to identify and assess individual projects within its internal incentive projects. These systems included documented processes, operational guidelines and documentation templates which guided a multi-criteria analysis. CMA staff had access to good knowledge to assist them in assessing individual projects.

The CMA used assessment panels to evaluate the viability of projects and project design. The CMA advised that projects had already been prioritised by Catchment Officers prior to being submitted to these assessment panels, but the process and criteria (including relative assessments of risk) used to prioritise between potential projects were not transparent. Therefore it was not clear if investment decisions were making maximum contribution to the CMA's strategic priorities and NRM return on investment.

In respect to the Standard, the CMA:

- demonstrated it had incorporated available knowledge of assets, threats and spatial priorities for assessing individual projects (*Collection and use of knowledge and Determination of scale*)
- could not demonstrate it had used all relevant knowledge and a fully transparent process to evaluate the effectiveness of its allocation of investments between targets, programs and projects to achieve the region's priority NRM outcomes (*Collection and use of knowledge, Determination of scale and Risk Management*).

## 2.3 Consistent short-term and long-term priorities

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 audit found that Hawkesbury-Nepean CMA's current approach for prioritising investments promoted 'compliance' with the targets in the CAP and the short-term requirements of government investors. The CMA's internally run incentive projects were strongly focused on achieving outputs that linked back to the targets in the CAP, and this was supported by its internal contracts and project management system. The CMA had over-achieved most output targets: for example, it reported achieving 126 km of 'riverbank undergoing intensive rehabilitation' against an annual target of 79km.<sup>7</sup> The CMA Board members and staff were aware that these results needed to be evaluated to inform future planning.

The NRC considers that while such an 'outputs' focus provides direction for the CMA's short-term investments, the CMA needs to continually assess whether it is effectively investing in activities that are consistent with the long-term NRM goals for the region and will lead to integrated outcomes. This is particularly important given the land-use planning issues in the region arising from the growing urban community, and the significance of other institutional stakeholders in the region.

In respect to the Standard, the CMA could not demonstrate it had evaluated and adapted its short-term investments to promote integrated long-term outcomes (*Collection and use of knowledge, Determination of scale and Monitoring and evaluation*).

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<sup>7</sup> HNCMA 2007, *Annual Report 2006/07*

## Box 2.1: Taking a long-term strategic approach to prioritisation

For optimal NRM return on investment, the CMA, the community and stakeholders need to understand what, and where, are the most important priorities for investment in the region.

Hawkesbury-Nepean CMA developed the Hawkesbury-Nepean River Health Strategy to support a long-term approach for improving the health of the Hawkesbury-Nepean catchment and rivers, following a major outbreak of the aquatic weed *Salvinia molesta*. The outbreak of this weed required a costly weed removal exercise, had negative economic impacts, and was an indication of the poor health of some of the region's rivers.

In developing the River Health Strategy, the CMA drew on science, input from experts, and the experience of its communities and stakeholders. In doing so, it built a strong foundation for prioritising where investment should be targeted to improve long-term river health in the region. The strategy provides a common understanding of the key river assets and threats. For example, it includes an assessment of river reaches, and identifies priorities for action and the type of management activities that are appropriate.

The initial investment in developing the strategy is now generating returns for the CMA, as the strategy enables it to assess options for investment, and spatially and temporally target its investments. The strategy also provides guidance for other investors in the region.

There is evidence that the strategy is influencing priorities and investment in the region – for example:

- The CMA has used the strategy to inform the targets in the CAP. These targets relate to improving the management of riparian lands, managing severe immediate threats and downstream impacts (eg, weeds and soil erosion), managing important wetlands and improving aquatic habitat and connectivity.
- CMA staff can use the strategy a practical tool to assess applications for funding from councils and landholders in the catchment. For instance, staff can see if an application falls into one of the priority reaches the CMA is seeking to address. They can assess what type of management action category the reach falls under (eg, for riparian land management, whether the river reach falls into the category of a focus on conservation, assisted regeneration or revegetation).
- The CMA can also use the strategy to help it develop targeted communication and engagement strategies aimed at attracting landholder interest in high-priority reaches. For instance, in September 2008 the CMA invited landholders on seven 'focus' rivers in the lower Hawkesbury-Nepean catchment to apply for funding.

While river health is only one aspect of achieving resilient landscapes in the region, the CMA's development of the River Health Strategy is a significant achievement to support better decision making and NRM outcomes in the long-term.

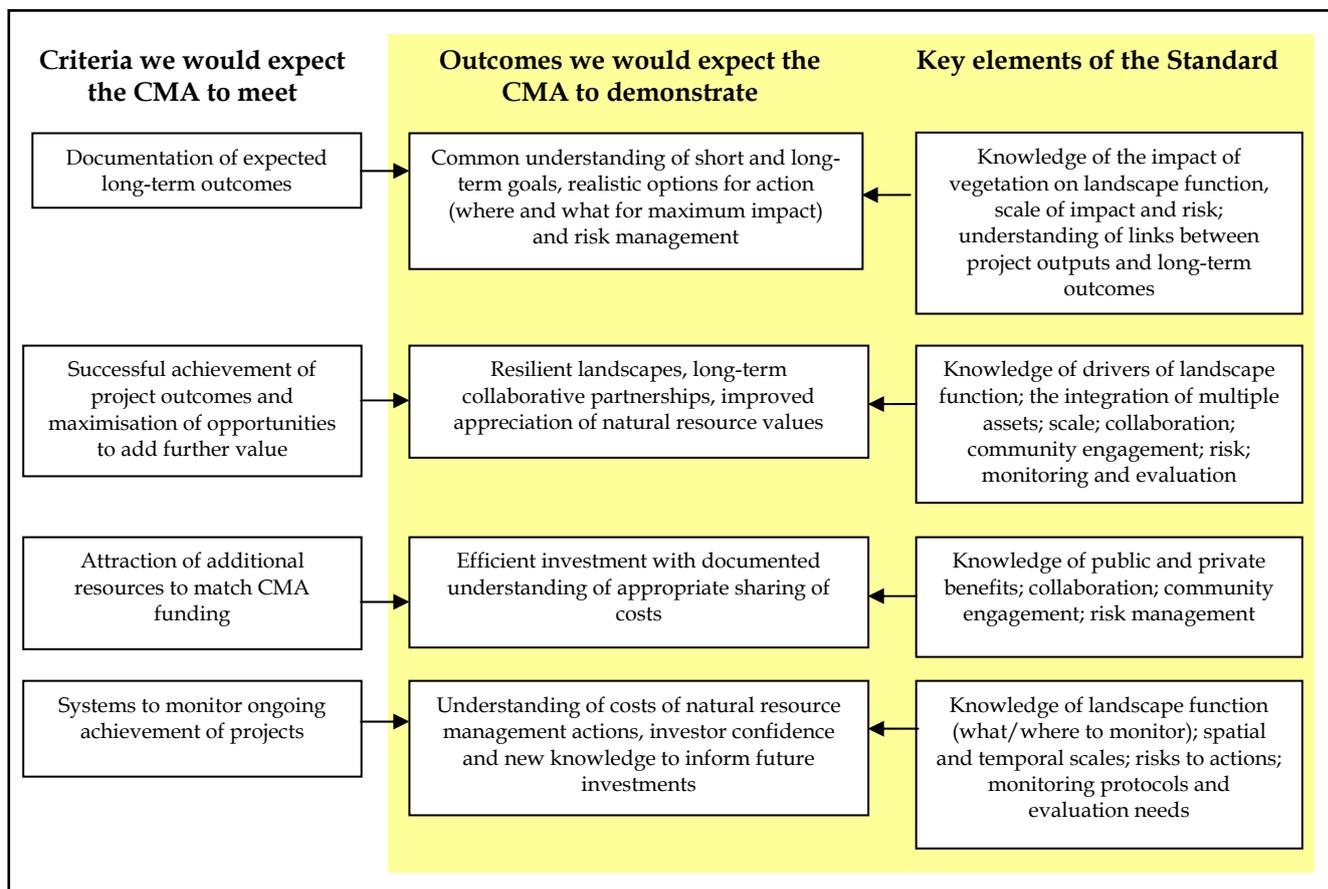
### 3 Delivering projects that contribute to improved landscape function

The audit's second line of inquiry assessed whether the CMA's vegetation projects are contributing to improved landscape function. CMAs should promote short-term improvements in the management of natural resources in their regions 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 the 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 Hawkesbury-Nepean 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 NRC found that Hawkesbury-Nepean CMA had clearly documented each project's expected long-term outcomes (expressed in terms of contributions to condition and management targets in the CAP) within its internal project contracts and operations manuals. CMA staff also demonstrated an understanding of how each project's outputs contributed to longer term outcomes targeted by the CAP, although staff were aware of the CMA's current limitations in being able to measure outcomes. For instance, the internal contracts for the Catchment Protection Scheme for both 2007/08 and 2008/09 set out the condition and management targets to which the scheme was expected to contribute. These included targets related soil and land, as well as to river health and biodiversity.

Staff, landholders and partners understood the purpose of projects, although at different scales. The CMA staff understood how individual projects fitted with other CMA work and longer-term goals. Landholders understood the purpose of projects at their sites and the broader outcomes sought, for instance that undertaking works to reduce erosion at a particular site would in turn help improve downstream water quality. CMA staff used site assessment sheets to consider and document how certain impacts and risks from project activities would affect long-term outcomes, although detailed consideration of risk was not always apparent.

In respect to the Standard, the CMA:

- demonstrated that it had documented and staff understood the logical relationships between project outputs and the long-term expected outcomes, but could not always adequately consider risks to achieving long-term outcomes (*Determination of scale, Collection and use of knowledge and Risk management*)
- demonstrated that it engaged with its partners and landholders and raised their awareness of intended long-term outcomes (*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.

The NRC's audit found that Hawkesbury-Nepean CMA had successfully delivered the on-ground and community-level projects reviewed by the audit team. For example, of the six

projects inspected, all had achieved project outputs, such as fencing riparian zones. The CMA had effective and transparent project management systems that guided staff and tracked and documented all stages of project assessment, development, implementation and completion. CMA staff had access to good knowledge (eg, through the River Health Strategy, best practice guidelines, other experienced staff) to assist them in assessing and delivering individual projects. The CMA understood how to identify and capture opportunities to integrate and protect multiple assets.

The CMA's effective approaches for engaging the community and experience in collaborating with partners (discussed in Chapter 4) also supported project delivery. The audit team noted that the CMA had not yet implemented its draft MERI Framework or Risk Strategy, both of which will assist it in evaluating and improving its projects (see Chapter 5).

The logic assumptions behind every project inspected were sound and well researched. The CMA had used scientific knowledge obtained from tertiary and government sectors, input from skilled and experienced CMA staff who were highly familiar with the local region, and knowledge from experienced stakeholders and local community members.

The CMA's draft MERI Framework and draft Knowledge Strategy may also fill knowledge gaps in the future. The CMA had commenced an internal review of the reasoning and logic used in its usual projects designs and activities, including assessing whether the scientific evidence is up-to-date and relevant to the region's unique catchment and subcatchment needs.

Based on the projects the audit team visited, the project assumptions and the CMA's systems, the NRC considers that project outputs are likely to contribute to improved landscape function. However, as monitoring and evaluation data on outcomes was not yet available, the audit team could not verify that project outcomes had been achieved and had led to natural resource condition improvement at a catchment scale.

The CMA also demonstrated that it sought to identify opportunities to add further value to and build on project achievements, for instance by seeking to achieve multiple outcomes at one site or targeting engagement to increase connectivity between projects or build on work in a specific subcatchment.

The CMA had also taken opportunities to build on project achievements by transferring knowledge to CMA staff, stakeholders and landholders for use on future projects. The Hanging Swamps project (described further in Box 3.1 below) is one example of this. However, the CMA did not have a well-established system to document and communicate useful project learning experiences to relevant CMA staff, stakeholders and landholders.

In respect to the Standard, the CMA:

- demonstrated sound and well-researched project assumptions and staff understanding of the integration and protection of multiple assets (*Collection and use of knowledge and Determination of scale*)
- demonstrated effective engagement with landholders and collaboration with partners to support successful project delivery (*Community engagement and Opportunities for collaboration*).

### 3.3 Attraction of additional resources

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

The NRC's audit found that Hawkesbury-Nepean CMA had attracted additional resources from other sources to match its investments in NRM, including in-kind contributions from landholders and co-funding from collaboration partners. The CMA had recorded in-kind contributions in its information management system. The CMA's primary strategy for its incentive projects was to provide landholders/stakeholders with funding equal to their in-kind contribution, in recognition of the public and private benefits that would be gained. Under the Catchment Protection Scheme, monetary contributions from landholders were sought and the ratio could be as high as 90% investment by the CMA to 10% by the landholder, recognising that even with this cost sharing ratio, landholder contributions can still be large (eg, on one project visited the landholder contribution was \$34,000).

The CMA used the leverage provided by the success of certain projects to raise community awareness and attract investment in similar projects in the future. The CMA had also developed an Investment Prospectus to promote investment from the private sector. The effectiveness of the CMA's engagement and collaboration strategies to leverage its investment is discussed further in Chapter 4.

In respect to the Standard, the CMA:

- demonstrated it had attracted additional resources to its investments, and recorded data on the additional resources it attracts in its information management systems (*Opportunities for collaboration, Community engagement and Monitoring and Evaluation*)
- demonstrated it understood and had strategies in place to raise community awareness and promote an appropriate sharing of cost (*Opportunities for collaboration and Community engagement*).

### 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 NRC's audit found that while Hawkesbury-Nepean CMA planned to monitor a percentage of completed projects during and after the 10-year incentive period, this had not occurred at the time of the audit. The CMA's program logic assumed that project outputs, such as fencing around remnant vegetation, could result in long-term outcomes, such as improved extent and condition of threatened species habitat. The lack of verification that project outputs, such as fences or weed removal, were being maintained over the long term reduced the CMA's ability to demonstrate that these projects were contributing to the long-term goal of resilient landscapes.

The CMA was aware of the need to measure project outcomes as well as outputs, but considered that it did not have sufficient information and funding to do this. The CMA had included requirements for some property-scale monitoring by landholders in its incentive agreements, but the audit team did not find evidence that the CMA systematically checked that this requirement was being fulfilled over the long-term.

The CMA's recently developed systems for monitoring and evaluation and information management (discussed in Chapter 5) should help the CMA in doing this.

In respect to the Standard, the CMA:

- demonstrated it was implementing and improving its information management systems to collect and report on project outputs (*Information management*)
- could not demonstrate it had implemented its strategies or put in place a consistent approach to evaluate the effectiveness of its investments (*Monitoring and evaluation and Risk management*).

### Box 3.1: Investing through partnerships

One of the projects the NRC's audit team visited was the Hanging Swamps project, intended to restore and preserve hanging swamps in the Blue Mountains. The CMA invested in this project in collaboration with the Blue Mountains City Council (the Council) as part of its Wetland Management project, providing \$137,000 of funding in 2006/07.

Hanging swamps are unique ecosystems found in the Blue Mountains. The swamps are vital for maintaining clean water flows to creeks and providing habitats for the highly threatened Giant Dragonfly and the Blue Mountains Water Skink. Improving hanging swamps enhances the quality and quantity of water flowing into surrounding aquatic environments including Warragamba Dam. Many of these swamps are located in the urban-bushland interface and are subject to pressure such as stormwater run-off, soil erosion, weed invasions, inappropriate development and recreational activities.

The CMA supported the Council and community groups to protect the hanging swamps and overcome difficulties encountered during early works. The project team devised a range of activities including innovative 'soft-engineering' works such as coir logs, jute matting, wooden stakes and hessian sand bags to stabilise erosion gullies. These had the added advantage of not needing heavy machinery to install or move most of materials onto the site, with minimal impact on the surrounding vegetation.

Following bush regeneration work and the installation of coir-log structures, there are encouraging signs that key plants such as Button Grass and Coral Fern are regenerating. More pools of standing water can also be seen, and frogs are returning to the system. Information about the ecology of the systems and how to manage them has been communicated to the wider community, and Marmion Swamp has been promoted as a demonstration site for how to design and install soft-engineering structures.

This project is a good example of:

- local parties developing professional trust and working collaboratively towards multiple goals to improve local and regional landscape function
- parties using local knowledge and adaptive learning to implement innovative solutions to a regionally specific NRM problem, and
- education and awareness programs that encourage additional investment by the community.



**As part of rehabilitation, coir logs made from coconut fibres and jute are used to spread water laterally through the system and prevent channelisation.**

## 4 Community engagement

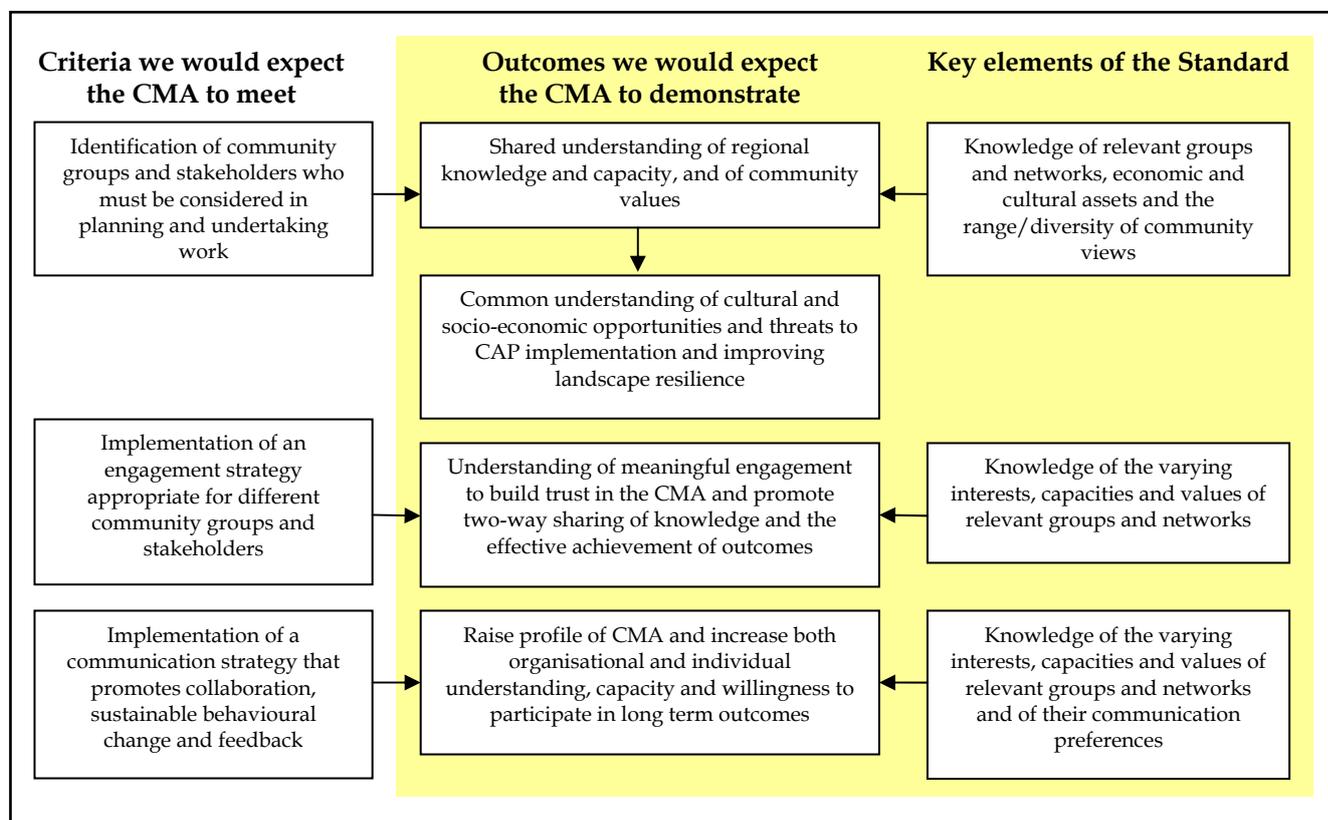
The NRC's third line of inquiry was whether the CMA is effectively engaging its communities. Given that 89 per cent of land in NSW is in private management, it is critical for CMAs to engage private landholders and other stakeholders who manage the natural resources on this land. This allows CMAs to 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 in 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 was 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. In addition, it needs to understand how these groups might present opportunities or pose threats to its ability to effectively implement the CAP and meet the catchment-level targets in the CAP. Developing and maintaining this kind of understanding requires systematic research and analysis.

The NRC's audit found that the Hawkesbury-Nepean CMA's Board and staff demonstrated a good understanding of the socio-economic profile of the communities in its catchment. It had benefited from knowledge it inherited from the organisations that preceded it, and from its staff's involvement with and links to community organisations, such as Landcare Groups and networks. The CMA also had strong links with a Local Government Advisory Group (LGAG), and was aware of the differing levels of capacity and resources of the local councils it funded under its Local Government Partnerships Program.

In addition, the CMA had effectively involved the community in appropriate aspects of strategic and operational planning. For example, community and institutional stakeholders were involved in developing the region's CAP<sup>8</sup>, and stakeholders expressed a positive view of involvement in CMA planning through program 'theme' teams.

In respect to the Standard, the CMA demonstrated a good understanding of community groups and stakeholders and their views, and used this understanding to inform engagement strategies and support planning and delivery of NRM outcomes in the region (*Community engagement and Opportunities for collaboration*).

## **4.2 Appropriate engagement for different community groups and stakeholders**

Most regions of NSW include a variety of communities, community groups and other stakeholders which the CMA should consider in planning and undertaking its work. These groups have different knowledge and capacity for NRM, and value the region's natural resources in different ways. For example, they might include rural communities, farmers and graziers, urban communities, Landcare groups, mining companies, tourism operators, local councils, relevant government agencies and other government institutions.

To effectively engage these diverse groups, a CMA needs to use its understanding of each group to develop an appropriate strategy for productive engagement. This requires strategic thinking, risk management and processes to identify and fill knowledge gaps.

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<sup>8</sup> NRC 2006, *Recommendation – Hawkesbury Nepean Catchment Action Plan*

The NRC found that Hawkesbury-Nepean CMA was effectively implementing a strategy to engage the region's communities, and the groups and institutional stakeholders that represent those communities, in ways that leveraged the CMA's NRM investment and built the communities' capacity.

The CMA had a Collaboration and Community Engagement Strategy that documented approaches appropriate to different stakeholders. The CMA Board and staff understood these engagement approaches and had implemented them effectively with most stakeholders. The CMA funded Catchment Support Officers located across the catchment to engage a geographic spread of communities. For the growing urban population in the region, the CMA adopted education approaches as the best method of engagement.

The CMA had developed a community-specific Community Relation Plan to better target engagement in Lithgow, one of its priority areas. This plan identified specific approaches for raising the community's awareness of NRM issues and participation in NRM activities.

Box 4.1 discusses how the CMA has continued to build on previously established partnerships with local councils.

In respect to the Standard, the CMA:

- demonstrated it had developed and maintained engagement strategies with a wide range of relevant and interested community groups and individual landholders (*Community engagement*)
- demonstrated it had strategies in place to meaningfully engage and promote two-way sharing of knowledge with some important stakeholders in the region (*Opportunities for collaboration and Community engagement*).

### **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 NRC's audit found that Hawkesbury-Nepean CMA had identified communication approaches in its Collaboration and Community Engagement Strategy, ranging from general communication with the community, through to 'formally agreed' approaches to support collaboration with key partners like the LGAG. General communication was supported by a centralised stakeholder database.

There was evidence that the CMA's approach to communication had been effective. The CMA's stakeholders had a good understanding of the CMA's work and goals and were collaborating with it. The CMA's work with NSW Maritime, a State authority that did not traditionally have a strong NRM focus, had raised awareness and motivated it to engage with boat-owners to

encourage 'seagrass-friendly mooring' and reduce the contribution of wake to riverbank erosion.

The CMA had successfully established communication channels to receive feedback from project partners through both specifically established and informal communication channels, and to facilitate engagement with key stakeholders through an Aboriginal Advisory Committee (AAC) and the LGAG. (The CMA established the ACC to facilitate engagement to support CAP delivery, rather than as a representative body.)

In respect to the Standard, the CMA demonstrated it had developed communication approaches with community groups and some stakeholders to increase both individual and organisational understanding, capacity and willingness to participate in achieving long-term outcomes (*Community Engagement, Opportunities for collaboration and Collection and use of knowledge*).

## Box 4.1: Collaborating with local government

The Hawkesbury-Nepean CMA has built a strong approach for engaging and collaborating with local councils (which are some of the key stakeholders, landholders, investors and NRM deliverers in the region). It also sees local councils as a means to increase the CMA's knowledge of local issues and NRM priorities. This is especially important in urban areas in the region, as local councils facilitate Bushcare groups.

The CMA has benefited from the historical relationships its predecessors (such as the Hawkesbury-Nepean Catchment Management Trust) had with local government in the region. It has also continued to build and expand these relationships. For instance:

- A formal advisory group, the Local Government Advisory Group (LGAG), is established as a subcommittee of the CMA Board and meets at least four times a year. The LGAG comprises representatives from each of the 23 councils in the region, including an elected representative and a professional staff member from each council.
- There is a formal Memorandum of Understanding between the CMA and the LGAG, which sets out the benefits of working strategically together to achieve NRM outcomes. The LGAG provides an opportunity for councils to share best practice and provide input to the CMA and vice versa.
- Changes within local government structures mean the CMA is now investigating how to adapt its approach to engagement, to ensure it is still relevant and beneficial to support better NRM outcomes in the region. The CMA is also planning a review of the effectiveness of its past engagement with the LGAG to inform improvements to the engagement model.

The NRC visited two projects the CMA was undertaking with local councils, the Hanging Swamps and the River Lett projects. The Hanging Swamps project is discussed in Box 3.1

The River Lett project was undertaken with the Lithgow City Council, and included rehabilitation works at four council reserves adjoining River Lett, a high-priority river reach. The project targeted sites that had ecological, social and cultural values. The project also provided for knowledge transfer to council staff at Lithgow, who were able to consult with council staff at the Blue Mountain City Council on erosion control techniques as well as the CMA on project delivery issues.

These projects illustrate how the Hawkesbury-Nepean CMA works with local councils on specific NRM issues, and facilitates capacity building and knowledge sharing across local councils.

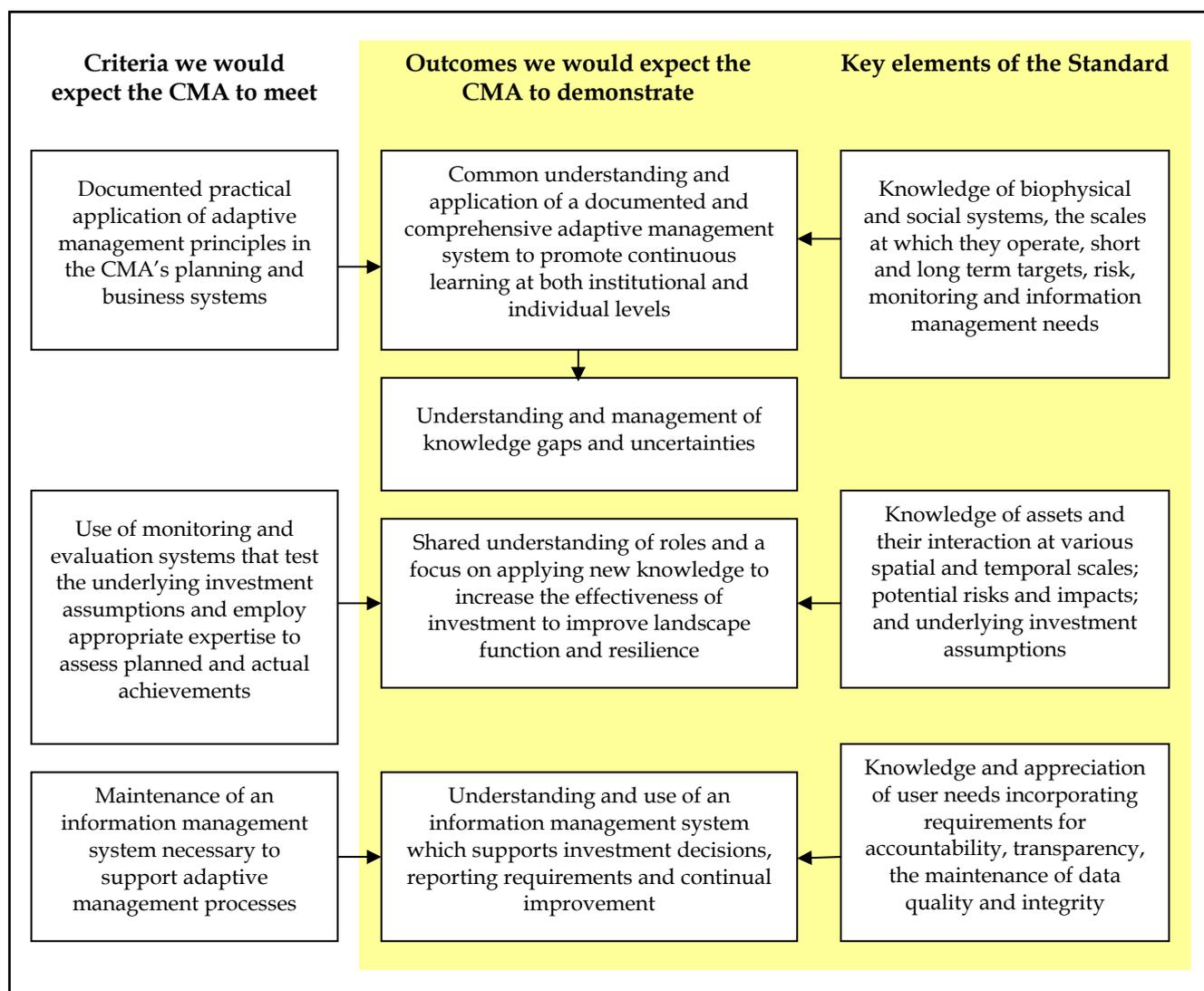
## 5 Effectively using adaptive management

In the fourth line of inquiry, the NRC assessed whether the CMA was effectively using adaptive management. It looked at whether the CMA:

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

Each of these criterion is shown in 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 these elements of the Standard.

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



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

The NRC's audit found that Hawkesbury-Nepean CMA's Board and staff had a good understanding of adaptive management. However, the CMA had only recently developed strategies for knowledge, risk management and monitoring and evaluation, which are required to support adaptive management.

Hawkesbury-Nepean CMA's strategic plans recognised the importance of adaptive management. For example, the Corporate Plan 2008-12 stated that monitoring and evaluation is an important component of the CMA's work that supports meaningful feedback to the community and government investors. The Corporate Plan outlined a strategic direction that incorporated adaptive management principles, including:

- transparency in priority-setting to facilitate evaluation and learning
- documented feedback loops to improve the effectiveness of future projects
- investigating, adapting and investing in the best solutions to manage risks posed by knowledge gaps and changing external risks.

In addition to feedback loops established through the Strategic Planning Committee, the CMA Board had used internal audits to encourage adaptive management and improve the CMA's operations.

At the operational level, the CMA had developed or evolved new techniques to support better project outcomes. For example, the CMA had improved on existing NRM tools and techniques at the project-scale including:

- the direct seeding technology developed by Greening Australia
- the use of autumn planting to capture winter rain, in response to climate change (as part of the Catchment Protection Scheme)
- the composting and mulching trial at the Elizabeth MacArthur Agricultural Institute that led to new techniques on Catchment Protection Scheme projects
- the construction of rock walls instream away from the river bank to better manage bank erosion.

However, these activities were not underpinned by a strategy that clearly identified the highest priorities for such strategic experimentation and design.

Across all the projects visited, planning documents did not demonstrate a consistent CMA-wide approach to planning for adaptive management. Where the CMA had systems to facilitate adaptive management, CMA staff had not always implemented the established feedback loops, evaluation processes and risk management aspects of adaptive management because:

- the strategies to support use of knowledge, risk management and monitoring and evaluation were only recently developed
- the corporate priority was to implement on-ground works, rather than undertaking monitoring and evaluation.

In respect of the Standard, the CMA:

- demonstrated that it had applied some elements of the Standard to drive adaptive management – for example, using internal audits (*Monitoring and evaluation*) and collecting and using knowledge to refine future projects (*Collection and use of knowledge*) and improving its information management systems (*Information management*)
- could not demonstrate that it had implemented a clear strategy and consistent CMA-wide approach to drive continual improvement in the organisation to meet internal and external needs (all components of the Standard).

## 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 length 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 or revegetation of a riparian zone resulted in improved water quality and riverine ecosystem health). In addition, it needs to use experts with appropriate skills and knowledge in assessing its planned and actual results. This will allow it to apply new knowledge – gained from the monitoring and evaluation process and other sources – to increase the effectiveness of ongoing and future projects in improving landscape function and resilience.

The NRC's audit found that Hawkesbury-Nepean CMA understood the important function monitoring and evaluation plays in adaptive management and had recently begun to formalise a CMA-wide framework for its use. The CMA had committed to 'collaborative' processes for monitoring and evaluation, including the use of community meetings and newsletters to discuss and report on the performance of programs and progress towards targets.

The CMA Board had not yet decided how it would integrate the resources it allocates to monitoring, evaluation, reporting and program improvement (MERI) with State agency work on the NSW MER Strategy. The Board had followed 2005 Ministerial guidelines limiting CMAs' expenditure on monitoring to 5 per cent of their total budget.

The CMA's staff had undertaken *ad hoc* project-scale monitoring and collaborative evaluation of project achievements to improve future project design. These activities were not consistently documented across projects. In the projects the audit team reviewed, the CMA was not yet extensively monitoring and evaluating natural resource condition change. However, the CMA indicated that it intends to monitor a percentage of projects during and after the 10-year incentive period.

The CMA had recently developed a comprehensive draft MERI Framework to improve the strategic and operational use of monitoring and evaluation. The draft framework included a strong emphasis on building a results or program 'logic' for evaluation and reporting. This should link the CMA's output monitoring with property-level and State-level natural resource condition monitoring.

The CMA had also acquired scientific knowledge from staff and through collaborations with government agencies and local stakeholders on project design. The CMA had recently developed a draft Knowledge Strategy to improve the consistent use of knowledge in CMA-wide decision-making.

While it is too early to assess the effectiveness of the draft MERI Framework and draft Knowledge Strategy, if implemented appropriately these strategies should provide a sound base to allow the CMA to evaluate the success of and improve its prioritisation processes and projects.

In respect to the Standard, the CMA could not yet demonstrate that it had a consistent approach for monitoring and evaluating the effectiveness of its investments (*Monitoring and evaluation, Collection and use of knowledge and Risk management*).

### **5.3 Information management systems that support adaptive management**

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

The NRC audit found that Hawkesbury-Nepean CMA had developed a good information management system incorporating SAP (for managing financial information), CIMS (for managing performance information), and LMD (for managing geospatial records). This system is discussed further in Box 5.1 below.

The CMA was continuing to develop its information management system to improve its ability to support MER and adaptive management. For example, recent upgrades to CIMS had increased its functionality by:

- allowing the CMA to record and track individual landholder incentives grants and activities
- improving links to the LMD for more accurate activities reporting

- installing an alerts system for overdue activities.

In respect to the Standard, the CMA:

- demonstrated it had implemented good information management systems that met some of the needs of the CMA and external parties (*Monitoring and evaluation and Information management*)
- demonstrated that it had improved and was seeking to further improve the quality and integrity of data maintained in its information system, and the usefulness of the reports produced by this system (*Information management*).

### Box 5.1: Building NRM information systems

The Hawkesbury-Nepean CMA has invested in developing and expanding its information system to collect data on the projects it invests in, and to produce a number of different reports to track progress and report to investors.

The CMA had developed a system that incorporates SAP (for managing financial information), CIMS (for performance information) and LMD (for managing spatial records). It has also made concerted efforts to enter historic data and integrate the separate system components. With the support of the Department of Commerce, it also developed CIMS so that it is a stable system sitting on a shared server which means all CMA staff can access the database.

Some of the benefits of the CMA's information management system include the following:

- The CMA's staff and management can use the system as a financial and project management tool. They can access SAP financial data through CIMS, in report formats they can understand, and can track project milestones.
- The CMA has started entering data on in-kind investment so that it can understand the level of in-kind investment it attracts. Over time, it can use this information to analyse the leverage it obtains from different delivery mechanisms. The CMA is still working through data accuracy issues to ensure the system data is reliable.
- CIMS system and LMD also track 'output' data and the spatial location of projects. The CMA can use LMD to build a profile of where it has invested across the catchment.

While the integrated information management system was initially developed to allow the CMA to manage its projects and meet reporting requirements, it is increasingly producing data that is useful to inform decision making. For instance, the CMA recently used project and spatial data in discussions with Greening Australia to plan activities that could be undertaken in a proposed 'Southern Highlands Link' project. Using LMD mapping, the CMA could readily identify its current projects along regional biodiversity corridors in the Southern Highlands. This helped the parties to make better decisions about how and where they still need to invest.

The information management system can be further refined over time, as the CMA accesses more data and investigates how to make better use of the system's data and reports to inform decision making. The initial CMA effort in building its information system puts it in a strong position to keep improving how it attracts, prioritises, manages and reviews investment to support resilient landscapes in the region.

## Attachment 1 Conclusions, suggested actions and CMA response

This Section provides a table summarising conclusions of our audit of the implementation of the Hawkesbury-Nepean CAP, the actions we suggested the CMA take to improve this implementation and a summary of Hawkesbury-Nepean 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 - Has Hawkesbury-Nepean CMA effectively prioritised its investments to promote resilient landscapes that support the values of its communities?		
<p>Criteria 1.1: <i>whether the CMA had a commonly understood definition of what constitutes resilient landscapes in their region.</i></p> <ul style="list-style-type: none"> <li>▪ The CMA's strategic documents contained definitions and concepts of resilience, including the CAP vision, but there was no one definition of the understanding of resilient landscapes for the region. The CMA Board and staff understood resilience, with some variance in individual interpretation but a strong focus on protecting high value or good condition assets. However, the CMA was primarily focused on what it could achieve with available funding, and not on promoting a long-term vision for integrated investment by all stakeholders and the community in the region.</li> </ul>	<p>The NRC suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> <li>1. Use its review of the CAP to establish and promote a vision for 'resilient landscapes' in the region that provides strategic guidance for integration of the investments by the community and stakeholders, as well as the CMA.</li> </ol>	<p>Hawkesbury-Nepean CMA <b>agrees</b> with the NRC's suggested action. The CMA plans to develop a definition of resilient landscapes to augment its vision by <b>December 2009</b>.</p> <p>The CMA is also planning:</p> <ul style="list-style-type: none"> <li>▪ a review of its CAP targets and vision to identify the region's priorities for NRM investment with its stakeholders. A draft Plan for CAP Review will be presented to the CMA's Strategic Planning Committee and Board in April 09.</li> <li>▪ Theme team meetings from May 09 to commence the review and development of revised targets.</li> </ul> <p>The CMA's first stage in review of the CAP, community consultation to identify priorities and emerging issues, has taken place, and will feed into its review of targets. This included including weekend meetings throughout the catchment, a telephone survey and an on-line survey.</p>

CONCLUSION	SUGGESTED ACTIONS	CMA RESPONSE
		<p>The CMA notes that the institutional complexity of the Hawkesbury-Nepean region creates particular difficulties for development of a shared vision that promotes integrated investment.</p>
<p>Criteria 1.2 : <i>whether the CMA had a system that ranked investment options, which incorporated the best available information and multiple CAP target achievement</i></p> <ul style="list-style-type: none"> <li>▪ The CMA had systems for prioritising investment in the context of the CAP, but they are not yet fully transparent and still have gaps. The CMA used a decision tool to prioritise funding between condition and management targets but it was not clear how the CMA distributes funding between different forms of project delivery (internal and external) and prioritises between projects. The CMA had documented and repeatable systems including access by staff to relevant knowledge to identify and assess individual projects within its internal incentive projects.</li> <li>▪ The CMA had built up access to good biophysical knowledge and improved data collected in its information systems but was not transparently using all available knowledge in prioritisation.</li> </ul>	<p>The NRC suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> <li>2. Review how data within its information management system can be better used in prioritisation, including use of performance data to evaluate the efficiency and effectiveness of different investment methods.</li> <li>3. Increase the transparency of and review the effectiveness of its processes to distribute funding between its existing programs and other projects, and to rank and select individual projects with the highest NRM return on investment.</li> </ol>	<p>Hawkesbury-Nepean CMA <b>agrees</b> with the NRC's suggested action.</p> <p>The CMA is making stepped improvements to its reporting systems and plans to trial integrated CIMS and LMD reporting processes by <b>April 2009</b>.</p> <p>The next step of improvements includes the development of reports that draw information from CIMS and the LMD to generate individual project agreements. This reporting phase will also support comparisons of cost to achieve outcomes which will improve prioritisation processes.</p> <p>Hawkesbury-Nepean CMA <b>agrees</b> with the NRC's suggested action.</p> <p>The CMA is also moving towards Landscape investment which will see a streamlining of prioritisation processes. Landscape based assessment will improve targeting of investment for multiple outcome and highest return on investment.</p>

CONCLUSION	SUGGESTED ACTIONS	CMA RESPONSE
<p>Criteria 1.3 : <i>whether the CMA had a system that that ensures short and long term investment priorities are consistent with each other and integrated with other planned NRM targets</i></p> <ul style="list-style-type: none"> <li>▪ The CMA's system for setting output targets in projects that link to CAP targets was designed to align its short term and long term priorities. However, the overachievement of annual output indicators on many targets indicates the CMA's short-term priorities need to be reviewed to ensure they are still consistent and maximising contribution to long-term goals and integrated outcomes.</li> </ul>	<p>The NRC suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> <li>4. Review management targets and output performance indicators to ensure they continue to support the effective achievement of long-term priorities for the region.</li> </ol>	<p>Hawkesbury-Nepean CMA <b>agrees</b> with the NRC's suggested action.</p> <p>The CMA will review its management targets as part of its review of the CAP.</p> <p>The review of targets will be a focus of the Theme Team meetings commencing in <b>May 2009</b>. The Theme Teams will also provide key input into review of methods of reporting at meaningful scales to improve the feedback loops.</p>
<p>Line of inquiry #2 – Have the Hawkesbury-Nepean CMA's vegetation projects contributed to improved landscape function?</p>		
<p>Criteria 2.1: <i>whether the CMA has documented expected long-term project outcomes</i></p> <ul style="list-style-type: none"> <li>▪ The CMA had clearly documented long-term project outcomes as defined by condition and management targets in the CAP, allowing staff, partners, supporters and residents to envisage how their project fits within the CMA's CAP targets. CMA staff also demonstrated understanding of how each project's outputs contributed to longer-term CAP outcomes.</li> </ul>	<p>The NRC suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> <li>5. Finalise and implement the draft Knowledge Strategy, to fill knowledge gaps and further improve the program logic between project outputs and natural resource condition improvement at a catchment scale.</li> </ol>	<p>Hawkesbury-Nepean CMA <b>agrees</b> with the NRC's suggested action.</p> <p>The CMA Board adopted its Knowledge Strategy in <b>July 2008</b>. A review of the Knowledge Strategy and Action Plan is scheduled by <b>June 2009</b>.</p> <p>The CMA's review of targets (see Actions 1 and 4) will also involve reviewing and improving program logic for targets. This is planned to occur by <b>December 2009</b>.</p> <p>The CMA notes the Theme Teams identified knowledge gaps in 2007. Also, the CMA now uses Program Logic as an integral component of the development of all new programs and projects. The CMA's use of Program Logic is assisting it identify knowledge gaps.</p>

CONCLUSION	SUGGESTED ACTIONS	CMA RESPONSE
<p>Criteria 2.2 : <i>whether the CMA successfully achieves project outcomes, and maximised opportunities to add further value</i></p> <ul style="list-style-type: none"> <li>▪ The CMA had delivered the on-ground and community-level projects reviewed by the audit team well. The CMA's project logic assumptions were sound and well-researched and evolving with new knowledge, but the CMA did not yet have a system to adequately measure whether its on-ground projects are successfully achieving project outcomes. The CMA had effective and transparent project management systems that guided, tracked and documented all stages of project assessment, development, implementation and completion.</li> <li>▪ The CMA had taken opportunities to build further from project achievements.</li> <li>▪ The CMA had not implemented its draft MERI Framework and this prevented the CMA from assessing effectiveness in achieving outcomes and landscape scale improvement in the region.</li> </ul>	<p>The NRC suggests that the CMA take the following actions:</p> <ol style="list-style-type: none"> <li>6. Implement its draft MERI Framework to support monitoring of outcomes and assessment of natural resource condition improvement at a catchment scale.</li> </ol>	<p>Hawkesbury-Nepean CMA <b>agrees</b> with the NRC's suggested action.</p> <p>The CMA's MERI Action Plans to implement the MERI Strategy will be developed by <b>December 2009</b>.</p> <p>The CMA advised that in <b>July/August 2008</b> it held workshops with its staff to develop MERI Action plans according to its major program areas.</p>
<p>Criteria 2.3 <i>whether the CMA's projects are attracting additional resources to match CMA funding</i></p> <ul style="list-style-type: none"> <li>▪ The CMA attracted additional resources to match CMA funding and kept records of the 'in kind' resources it attracted.</li> </ul>	<p>There are no suggested actions for this criterion</p>	

CONCLUSION	SUGGESTED ACTIONS	CMA RESPONSE
<p>Criteria 2.4 <i>whether the CMA had a system to monitor ongoing achievement of project:</i></p> <ul style="list-style-type: none"> <li>▪ The CMA had a system to record outputs based on agreements with landholders and third parties. The CMA was only recently starting to design and implement MER and the CMA had not yet implemented a system to monitor that actual outputs remain in place over the long-term, and to assess whether projects are contributing to long-term outcomes.</li> </ul>	<p>The NRC suggests that the CMA take the following actions:</p> <p>7. The CMA should finalise the draft MERI Framework to implement ongoing monitoring of project outputs and property scale natural resource change (outcomes) to support monitoring of catchment scale outcomes. See also Action 6.</p>	<p>Hawkesbury-Nepean CMA <b>agrees</b> with the NRC's suggested action.</p> <p>The CMA will develop MERI Action Plans to implement its MERI strategy by <b>December 2009</b>.</p> <p>The Project Implementation MERI Action Plan will support monitoring of property scale natural resource change to enhance the CMA's considerable existing ability to monitor outputs. This Plan will detail how longer term outcomes are recorded, evaluated and reported.</p> <p>The CMA expects that the introduction of TOOLS 2 will assist in review of effectiveness of outcomes at a catchment scale and in prioritisation of projects.</p>
<p>Line of inquiry #3 - Has the Hawkesbury-Nepean CMA effectively engaged its communities?</p>		
<p>Criteria 3.1 <i>whether the CMA has identified community groups and stakeholders it must consider in planning and undertaking work</i></p> <ul style="list-style-type: none"> <li>▪ The CMA had a good understanding of its communities, networks and stakeholders, including their resources and NRM capacity, that would support effective community engagement. However, the CMA's understanding was not well documented, increasing the risk of loss of knowledge as staff leave.</li> <li>▪ The CMA has a centralised stakeholder database but it has limited capacity within the database for analysis to inform effective engagement.</li> </ul>	<p>There are no suggested actions for this criterion</p>	

CONCLUSION	SUGGESTED ACTIONS	CMA RESPONSE
<p>Criteria 3.2 <i>whether the CMA is implementing an engagement strategy appropriate for different community groups and stakeholders</i></p> <ul style="list-style-type: none"> <li>▪ The CMA had a Collaboration and Community Engagement Strategy that documented approaches appropriate to different stakeholders. The CMA had also tailored local engagement through a Local Community Relation Plan for Lithgow, but had not yet implemented this plan.</li> <li>▪ The CMA had also effectively involved the community in appropriate aspects of strategic and operational planning.</li> <li>▪ The CMA Board and staff understood the engagement strategy and were implementing it effectively with most stakeholders.</li> <li>▪ The CMA's had formed an Aboriginal Advisory Committee to facilitate engagement with the Aboriginal community to support CAP delivery.</li> </ul>	<p>The NRC suggests that the CMA take the following actions:</p> <p>8. Implement and then evaluate the effectiveness of the Local Community Relation Plan for Lithgow as a potential approach to further improve community engagement in other priority areas of the region.</p>	<p>Hawkesbury-Nepean CMA <b>agrees</b> with the NRC's suggested action.</p> <p>The CMA is finalising its plan for the Lithgow area and will then begin implementation. The CMA will evaluate the plan and assess its effectiveness as a tool to improve community engagement by <b>December 2009</b>.</p>
	<p>9. Periodically review its approach to engagement with the Aboriginal communities to improve engagement methods over time.</p>	<p>Hawkesbury-Nepean CMA agrees with the NRC's suggested action and will review Aboriginal community engagement by <b>December 2010</b>.</p> <p>The CMA has established a process to engage the diverse Aboriginal community within the catchment that involves:</p> <ul style="list-style-type: none"> <li>▪ regular network meetings that are widely advertised and open to all</li> <li>▪ regular meeting of an Advisory committee that includes committee members from 5 spatial regions within the catchment.</li> <li>▪ meetings throughout the catchment to improve access to community.</li> </ul> <p>The CMA will review the effectiveness of this approach over time.</p>

CONCLUSION	SUGGESTED ACTIONS	CMA RESPONSE
<p>Criteria 3.3 <i>whether the CMA is implementing a communications strategy that promotes collaboration, sustainable behavioural change and feedback</i></p> <ul style="list-style-type: none"> <li>▪ The CMA has identified communication approaches within its Collaboration and Community Engagement Strategy, ranging from general communication with the community, to priorities for collaboration with key partners like LGAG.</li> <li>▪ The CMA's stakeholders had a good understanding of the CMA's work and goals, were collaborating effectively, were demonstrating behavioural change and providing feedback.</li> </ul>	<p>The NRC suggests that the CMA take the following actions:</p> <p>10. Develop action plans focused on key collaboration priorities to support the implementation of its Collaboration and Community Engagement Strategy.</p>	<p>Hawkesbury-Nepean CMA <b>agrees</b> with the NRC's suggested action.</p> <p>The CMA will review the Collaboration and Community Engagement Strategy and associated Action Plans by <b>October 2009</b>.</p>
<p>Line of inquiry #4 - Has the Hawkesbury-Nepean CMA effectively used adaptive management?</p>		
<p>Criteria 4.1 <i>whether the CMA had documented the practical application of adaptive management principles in its planning and business system</i></p> <ul style="list-style-type: none"> <li>▪ Adaptive management was well-understood by the CMA Board and staff and adaptive management principles were established in strategic plans. Operationally the CMA was at a stage where the CMA was trialling new techniques to support better project outcomes, but its adaptive management activities were not underpinned by a clear strategy of the priority gaps it should target by strategic experimentation and design. However, CMA staff had successfully evolved new NRM tools and techniques at the project scale.</li> </ul>	<p>The NRC suggests that the CMA take the following actions:</p> <p>11. Document both the definition of adaptive management and the principles it intends to consistently employ throughout its planning and business systems.</p>	<p>Hawkesbury-Nepean CMA <b>agrees</b> with the NRC's suggested action.</p> <p>An adaptive management principles discussion paper will be prepared by <b>December 2009</b>.</p>

CONCLUSION	SUGGESTED ACTIONS	CMA RESPONSE
<ul style="list-style-type: none"> <li>▪ The CMA had only recently drafted a number of strategies that will assist it adaptively manage, including its draft Risk and Knowledge strategies and MERI Framework, and still needs to implement them. The CMA had made a significant effort to develop and can continue to refine its information management system to systematically collect relevant information to inform adaptive management.</li> </ul>	<p>12. Finalise and implement its Risk Management Strategy 2008-11. The CMA should undertake an early review of the implementation to evaluate the success of the strategy in managing external and strategic risks.</p>	<p>Hawkesbury-Nepean CMA agrees with the NRC's suggested action.</p> <p>The CMA Board adopted the Risk Management Strategy in July 2008 and will review implementation of the Risk Management Strategy by <b>July 2010</b>.</p> <p>The CMA has or will undertake final actions to support effective implementation of the strategy including:</p> <ul style="list-style-type: none"> <li>▪ development of a Project Implementation Risk Management Action plan. This component is complete and being actively implemented.</li> <li>▪ development of a CAP implementation Risk Management Action Plan nearing finalisation Final Draft.</li> <li>▪ development of a Business Risk Management Action Plan.</li> </ul> <p>Review of the Risk Strategy and its implementation including the Risk Management Action Plans is included in the annual calendar.</p>
<p>Criteria 4.2 <i>whether the CMA had monitoring and evaluation systems that test underlying investment assumptions and employ appropriate expertise to assess planned and actual achievement</i></p> <ul style="list-style-type: none"> <li>▪ The CMA understood the important function that monitoring and evaluation plays in adaptive management and has recently developed a comprehensive draft MERI Framework to improve the</li> </ul>	<p>The NRC suggests that the CMA take the following actions:</p> <p>13. Finalise and resource the implementation of the draft MERI Framework to improve the use of monitoring and evaluation in adaptive management. See Also Actions 6 &amp; 7.</p>	<p>Hawkesbury-Nepean CMA <b>agrees</b> with the NRC's suggested action.</p> <p>The CMA is currently finalising the Draft MERI Strategy that will be proposed for Board adoption in April 2009. The MERI Strategy and associated MERI Action Plans will be reviewed by <b>December 2009</b>.</p>

CONCLUSION	SUGGESTED ACTIONS	CMA RESPONSE
<p>strategic and operational use of monitoring and evaluation.</p> <ul style="list-style-type: none"> <li>▪ The CMA had also acquired scientific knowledge to inform project design. The CMA had recently developed a draft Knowledge Strategy to improve the collection and use of best knowledge in CMA-wide decision-making.</li> <li>▪ The CMA needs to demonstrate that it is implementing these strategies to underpin improvement in adaptive management.</li> </ul>	<p>14. Finalise and implement the draft Knowledge Strategy to improve the collection and use of knowledge in adaptive management. See also Action 4.</p>	<p>Hawkesbury-Nepean CMA <b>agrees</b> with the NRC's suggested action.</p> <p>The Knowledge Strategy and Action Plan were adopted by the CMA Board in <b>July 2008</b>.</p> <p>The CMA has scheduled a review of the Knowledge Strategy and Action Plan by <b>June 2009</b>.</p>
<p>Criteria 4.3 <i>whether the CMA maintained an information management system necessary to support adaptive management</i></p> <ul style="list-style-type: none"> <li>▪ The CMA had developed a good information management system based on key databases, financial management (SAP), managing performance information (CIMS) and geospatial records (LMD).</li> <li>▪ The CMA was continuing to develop its information management system to improve its ability to support adaptive management.</li> </ul>	<p>The NRC suggests that the CMA take the following actions:</p> <p>15. Continue to refine its information management system so it can be used to effectively collect, store and provide data, including MER data, in a form that meets the CMA's information needs for decision making and adaptive management.</p>	<p>Hawkesbury-Nepean CMA <b>agrees</b> with the NRC's suggested action.</p> <p>The CMA's activities to address this action will be <b>ongoing</b>.</p> <p>The CMA is continuing to refine its information management systems. The LMD can currently record spatial data including vegetation condition, soil and land condition, river reach condition, weed cover etc. The CMA has the TOOLS 2 software with decision support capability. The CMA is aware that further information is required to allow use of these systems for decision support.</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.<sup>9</sup>

The NSW Government has adopted an aspirational goal to achieve resilient landscapes that support the values of its communities.<sup>10</sup> 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.<sup>11</sup> The NSW State Plan<sup>12</sup> 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 *Hawkesbury-Nepean Catchment Action Plan*<sup>13</sup> identifies the key natural resource issues (or themes) that need to be managed in the region, including river health, biodiversity, soil and land and community and partnerships. Within each of these themes, the CMA has identified:

- condition 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 that will contribute to achievement of the resource condition targets.

**Audit objective** This audit assessed the effectiveness of Hawkesbury-Nepean CMA in promoting resilient landscapes that support the values of its communities, within the scope of the CAP.

Hawkesbury-Nepean 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 vegetation projects contributing to improved landscape function?
3. Is the CMA effectively engaging its communities?
4. Is the CMA effectively using adaptive management?

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

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<sup>9</sup> *Natural Resources Commission Act 2003, Section 13 (c)*

<sup>10</sup> As recommended by the NRC in *Recommendations – State-wide standard and targets, September 2005*.

<sup>11</sup> *Ibid.*

<sup>12</sup> See Priority E4 in, NSW Government (2006) *A new direction for NSW, NSW Government State Plan*, November 2006

<sup>13</sup> HNCMA, *Hawkesbury-Nepean Catchment Action Plan 2007-2106*, April 2008

**Audit criteria** To help answer each line of inquiry, the NRC used the criteria identified below in Table 1, the audit plan summary.

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 Standard<sup>14</sup>, using it as a quality assurance standard for all planning and implementation decisions.

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

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

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

**Audit approach** In August 2008, the audit team performed the following audit work:

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

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

**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 Hawkesbury-Nepean CMA and landholders in the Hawkesbury-Nepean region. In particular we wish to thank the Chair John Klem, Acting General Manager Steve Nichols, Program Managers Kerry Brew and Garry Hogan and other CMA Board members and staff who participated in interviews, provided information and accompanied the audit team on site inspections across the region.

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<sup>14</sup> Section 20 (c), *Catchment Management Authorities Act, 2003*

**Table 1. Audit plan summary**

<b>Line of Inquiry 1</b>	<b>Is the CMA effectively prioritising its investments to promote resilient landscapes that support the values of its communities?</b>
This line of inquiry was tested against the following criteria:	
<b>Criterion 1.1</b>	The CMA has a commonly understood definition of what constitutes resilient landscapes in their region.
<b>Criterion 1.2</b>	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.
<b>Criterion 1.3</b>	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.
<b>Line of Inquiry 2</b>	<b>Are the CMA's vegetation projects contributing to improved landscape function?</b>
This line of inquiry was tested against the following criteria:	
<b>Criterion 2.1</b>	The CMA has documented expected long-term project outcomes.
<b>Criterion 2.2</b>	The CMA is successfully achieving project outcomes, and maximising opportunities to add further value.
<b>Criterion 2.3</b>	The projects are attracting additional resources to match CMA funding.
<b>Criterion 2.4</b>	The CMA has a system to monitor ongoing achievements of projects.
<b>Line of Inquiry 3</b>	<b>Is the CMA effectively engaging its communities?</b>
This line of inquiry was tested against the following criteria:	
<b>Criterion 3.1</b>	The CMA has identified community groups and stakeholders it must consider in planning and undertaking work.
<b>Criterion 3.2</b>	The CMA is implementing an engagement strategy appropriate for different community groups and stakeholders.
<b>Criterion 3.3</b>	The CMA is implementing a communication strategy that promotes collaboration, sustainable behavioural change and feedback.
<b>Line of Inquiry 4</b>	<b>Is the CMA effectively using adaptive management?</b>
This line of inquiry was tested against the following criteria:	
<b>Criterion 4.1</b>	The CMA has documented the practical application of adaptive management principles in its planning and business systems.
<b>Criterion 4.2</b>	The CMA has monitoring and evaluation systems that test underlying investment assumptions and employ appropriate expertise to assess planned and actual achievement.
<b>Criterion 4.3</b>	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 Hawkesbury-Nepean region and Hawkesbury-Nepean CMA. This context is important in considering both the way in which a CMA's effectiveness should be assessed and the options for improving that effectiveness.

### The region at a glance

The Hawkesbury-Nepean CMA area of operation covers 21 400 square kilometres.<sup>15</sup> It extends from Putty in the north to Goulburn in the south, to Jenolan Caves in the west and extends 3 nautical miles seaward from the coastal boundaries near Gosford.

The map below shows the location of the Hawkesbury-Nepean region.<sup>16</sup> The region's natural landscapes include rainforests, open woodlands, grasslands and wetlands. Almost half of the catchment is protected via national parks and reserves including the Greater Blue Mountains World Heritage Area.

The region includes the catchments for Warragamba and the Upper Nepean dams – which supply 97% of the reticulated water supply for metropolitan Sydney<sup>17</sup> – and the Mangrove Creek and Mooney Mooney Creek dams which provide much of the water supply for Gosford and Wyong.

However, parts of the region have been extensively cleared. There is increasing pressure from rural subdivisions from people seeking rural/residential lifestyles. The region is also under pressure from urban growth, and it is expected to accommodate a major part of Sydney's growing population in the future as well as face increased demand by Sydney residents for water and resources.

Agriculture is a significant industry in the region, especially the supply of fruit, vegetables and flowers to the Sydney area, turf farming and the horse breeding industry. There are 19 coal mines in the catchment as well as sand and gravel resource sites. Former mine and quarry sites also support waste management for greater Sydney.

The region is also home to a number of research institutions including Sydney University, the University of Western Sydney and the Blue Mountains World Heritage Institute.

Approximately one million people<sup>18</sup> live in the region, over 90% of these in the suburbs of western, south-west and north-western Sydney including Baulkham Hills, Hornsby, Penrith and Liverpool. Other major cities and towns of the catchment include Lithgow, Katoomba, Goulburn, Moss Vale and Camden.

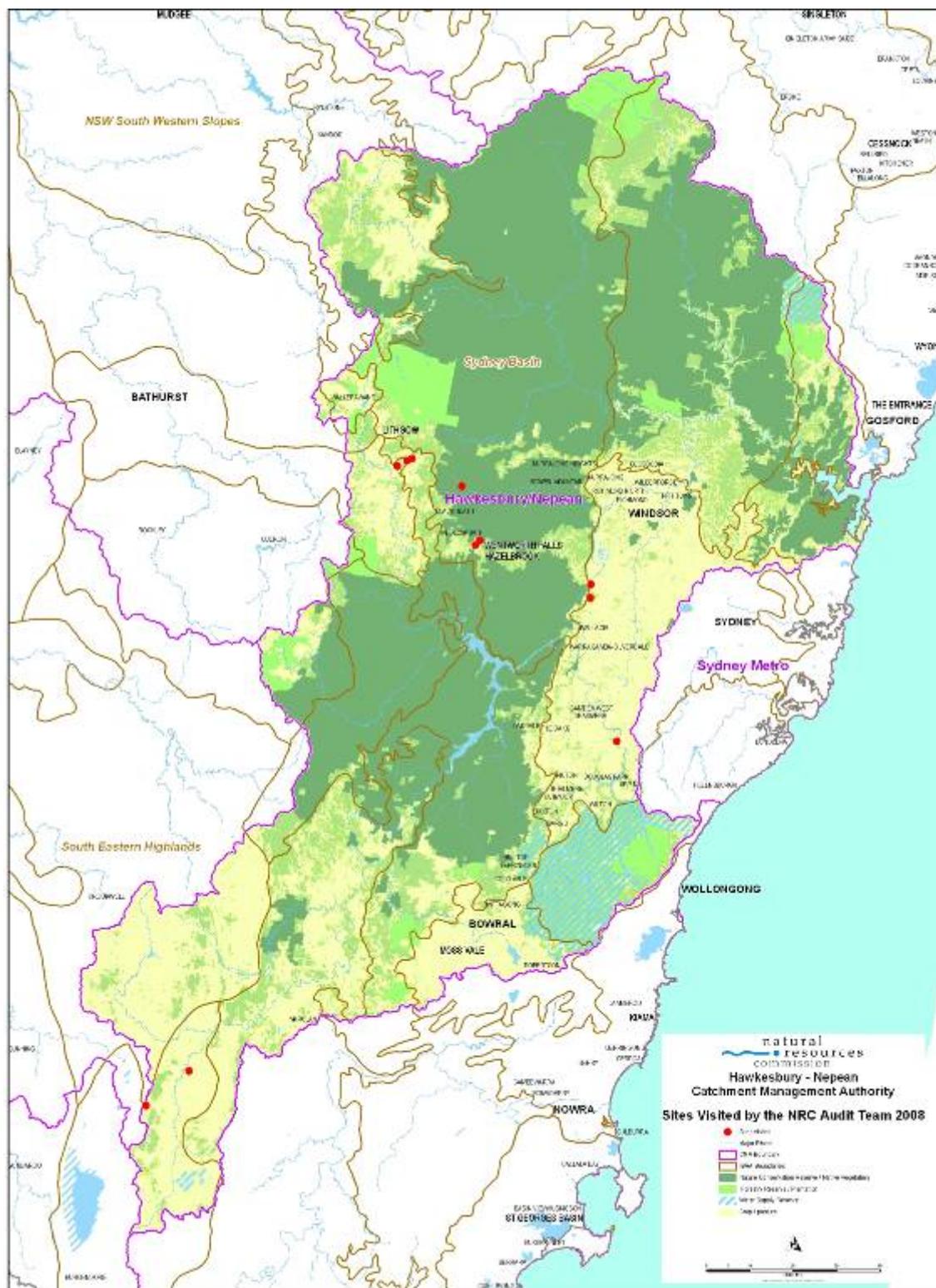
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<sup>15</sup> HNCMA 2008, CAP

<sup>16</sup> Sourced from the CAP

<sup>17</sup> *ibid*

<sup>18</sup> *ibid*



**Figure A3.1: Hawkesbury-Nepean region**

The catchment spans 23 Local Government Areas (LGAs)<sup>19</sup> and 10 Local Aboriginal Land Councils<sup>20</sup> – 15.6% of the Aboriginal population of NSW live within the region.

<sup>19</sup> Baulkham Hills Shire, Blacktown City, Blue Mountains City, Camden, Campbelltown City, Cessnock City, Fairfield City, Gosford City, Goulburn Mulwaree, Greater Argyle, Hawkesbury City, Hawkesbury River County, Hornsby Shire, Ku-ring-gai, Lithgow City, Liverpool City, Manly, North Sydney, Penrith City

## The CMA at a glance

The head office of the Hawkesbury-Nepean CMA is situated in Goulburn and there are also offices located in Moss Vale, Lithgow and Windsor.

The CMA is governed by a Board of six directors. Board committees include a Finance, Audit and Corporate Governance Committee and a Strategic Planning Committee. The Board receives input from a Local Government Advisory Group (comprising representatives from all LGAs in the catchment) and an Aboriginal Advisory Committee.

The CMA management team comprises the General Manager, Business Manager and two program managers responsible for program development and implementation.

In 2007/08 approximately \$12.9M was invested in on-ground improvements.<sup>21</sup> The CMA delivered these investments through a mix of internally delivered incentive projects and collaborative partnerships with other stakeholders such as local government and government agencies.

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<sup>20</sup> Pittwater, Wingecarribee Shire, Wollondilly Shire, Wollongong City,  
Bathurst, Darkinjung, Deerubbin, Gandangarra, Illawarra, Metropolitan, Onerwal, Pejar, Tharawal,  
Wanaruah.

<sup>21</sup> HNCMA 2008, *Annual Report 2007/08*

