



## RECOMMENDATIONS

# STATE-WIDE STANDARD AND TARGETS

May 2005



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## List of acronyms

CAP	Catchment Action Plan
CMA	Catchment Management Authority
DEC	Department of Environment and Conservation
DIPNR	Department of Infrastructure, Planning and Natural Resources
DLWC	Department of Land and Water Conservation (now part of DIPNR)
DPI	Department of Primary Industries
MDBC	Murray-Darling Basin Commission
NLWRA	National Land and Water Resources Audit
NRC	Natural Resources Commission
NRM	Natural resource management
NSW	New South Wales
SoE	State of the Environment

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# 1 Introduction

The Natural Resources Commission (NRC) has been tasked with recommending state-wide standards and targets for natural resources to the NSW Government. Over the past eleven months, it has conducted an extensive consultation process (see Table 1.1) to develop its recommendations, including releasing draft standards and targets in November 2004.

It has now finalised a recommended standard and set of targets that build on the existing frameworks for natural resource management (NRM) in NSW, and are widely recognised by stakeholders as a logical next step in the continuous improvement of NRM practices. The recommended standard and targets also provide an effective means of addressing the inherent complexities of NRM in a systematic and rigorous way.

The purpose of this report is to present and explain the NRC's recommendations.

**Table 1.1: Key steps in NRC's process for developing standard and targets\***

Activity	Timing
Consult with key stakeholders	Jun - Sep 2004
Pilot process with 5 CMAs and regional stakeholders to develop draft standards and targets	Sep - Dec 2004
Release framework paper	Oct 2004
Release consultation paper	Nov 2004
Receive submissions on consultation paper	Feb 2005
Run workshops with non-pilot CMAs and regional stakeholders on draft standards and targets	Feb - Mar 2005
Consult with more than 100 scientists and technical experts	Dec 2004 - Mar 2005
Advice from inter-agency indicator working group	Feb - Apr 2005
Hold seminars and meetings with other stakeholder groups	Oct 2004 - Mar 2005

\* More detail on the NRC's consultation process is provided in Attachment 3.

## 1.1 Importance of state-wide standards and targets

State-wide standards and targets are part of a new institutional model for delivering NRM in NSW. This model follows more than 10 years of reforms in NRM at both the national and state level, and includes the devolution of significant planning and investment responsibilities to 13 newly established regional Catchment Management Authorities (CMAs). It flows from agreements between the Australian and NSW Governments, which have jointly committed \$436 million for investment by CMAs over the period 2004 to 2007.

Within the new model, the role of state-wide standards and targets is to help ensure that this initial investment (and expected future investment) results in the achievement of natural resource outcomes that are in the environmental, social and economic interests of the state. It is also to help make CMAs and other natural resource managers accountable for achieving these outcomes, while allowing for the regional flexibility and innovation that is critical to the success of the model.

The adoption of state-wide standards and targets presents an important opportunity to focus NRM investment on our most important natural assets, and the critical opportunities and threats they face. Both the Australian State of the Environment Report 2001 and the NSW State of the Environment Report 2003 concluded that our natural systems are in decline, due to excessive human alteration of ecosystems, and a lack of recognition of the processes that need to be maintained so that essential ecosystem services continue to be delivered.<sup>1</sup> The decline of these systems threatens to undermine the resource base on which the state's people and economy depend. For example, recent assessments have found that:

- 97% of all rivers in NSW have been modified, resulting in degradation such as elevated levels of nutrients and suspended sediments, altered hydrologic regimes and modified aquatic habitats<sup>2</sup>
- nearly 60% of native vegetation cover has been cleared in the central and eastern parts of NSW, and the condition of remaining vegetation is threatened by weeds, pests, changed fire regimes and pressures from urban and agricultural development<sup>3</sup>
- the estimated average rate of sheet and rill erosion is five times the estimated rate of soil formation and almost three times the natural rate of erosion.<sup>4</sup>

But managing natural resources and addressing these declines is a complex task. One of the major challenges of NRM is balancing competing values. Ultimately, NRM aims to achieve a balance between the maintenance, restoration and protection of landscapes and the use of these landscapes to support people's needs and aspirations – recognising that this use may result in degradation of some environmental assets. This means NRM must be informed by science, as well as the values of the communities involved and the policy decisions that are made on how natural resources will be used.

For example, establishing and supporting the population growth of cities like Sydney results in the loss of many natural values that cannot be recovered. This altered landscape remains dependent on natural resources, such as clean water, but it is generally accepted that these resources will persist in a modified rather than a natural form to allow for the development needed to support the cities' own concentrated populations and the services they provide to wider populations. At the same time, the value of protecting natural assets, especially those that are in pristine condition, is widely recognised. In many cases, it is also desirable to restore landscapes or, as a starting point, slow their decline where it is recognised that past use has not been sustainable and has resulted in unacceptable costs to both current and future populations.

NRM involves actively managing the landscape so that it can continue to serve and sustain different communities in ways that are consistent with these communities' values. In some cases, these values are best identified at a state level because the costs and benefits are important at this scale. However, in many cases, they are best identified by the local communities most directly affected by any decision made. If these values and the associated trade-offs are not identified at these different scales, it is difficult for natural resource managers, including CMAs, to deliver NRM that meets both local and state-wide aspirations.

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<sup>1</sup> DEC (2003) *New South Wales State of the Environment Report 2003*, Department of Environment and Conservation, Sydney, p. 7.

<sup>2</sup> NLWRA (2002) *Australian Catchment, River and Estuary Assessment 2002 Volume 1*, National Land and Water Resources Audit, Canberra, p. 81.

<sup>3</sup> DEC (2003) *New South Wales State of the Environment Report 2003*, Department of Environment and Conservation, Sydney, p. 177.

<sup>4</sup> *Ibid*, p. 98.

Another major challenge of NRM stems from the complexity and interdependency of the natural systems involved. Human intervention can have unintended adverse consequences on these systems. Similarly, efforts to restore natural systems can be overwhelmed by unpredictable climatic events, such as drought or flood, and may not have perceptible impacts for many years. In addition, natural processes operate at different scales. For example, the erodibility of soils may vary from paddock to paddock, whereas groundwater recharge and discharge sites affecting dryland salinity may be hundreds of kilometres apart. Land managers and institutions engaged in NRM also operate at different scales, and these often don't correspond with the most appropriate scale for effective management of natural resources.

The state-wide standards and targets will provide a framework for identifying state and regional values for natural resources at the most appropriate scales, and for approaching the complexities of NRM in a systematic and rigorous way.

## 1.2 Overview of recommended standard and targets

The 13 CMAs are building on 21 Catchment Blueprints developed in 2002 by advisory Catchment Management Boards. Together with the national framework for standards and targets,<sup>5</sup> the reforms resulting from recommendations of the Wentworth Group of Scientists<sup>6</sup> and various other regional plans, these Blueprints provide a platform for the continued evolution of NRM in NSW. To date, the focus of efforts to implement the national framework has been on developing 'SMART'<sup>7</sup> regional targets and delivering against these targets, with little emphasis on developing standards. The existing Blueprints reflect this focus.

To build on this past work, the NRC recommends that the NSW Government adopt:

- one *Standard for Quality Natural Resource Management*
- one overarching goal for NRM
- fourteen resource condition targets for the key natural resource assets of biodiversity, water, land and community.

The standard is designed to promote high-quality management of natural resources in NSW by ensuring the process is robust and rigorous. Requiring CMAs to comply with the standard (and auditing this compliance) will provide assurance to the government that investment in NRM is efficient and effective, consistent with community values, and promotes the achievement of the recommended state-wide targets. Properly applied, the standard will ensure sensible and integrated NRM outcomes at all scales through the use of best available information, meaningful community engagement, strong partnerships, effective risk management, and monitoring and evaluation systems that inform adaptive management and can be used to drive continuous improvement.

The aspirational goal is a long-term vision for healthy, functional landscapes in NSW that support the environmental, social, economic and cultural values of the community. It is designed to provide a 'big picture' view of what the long-term outcome of NRM in NSW should

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<sup>5</sup> NRM Ministerial Council (2003) *National Framework for Natural Resource Management Standards and Targets*, revised 8 April 2003. Available at <http://www.nrm.gov.au/monitoring>.

<sup>6</sup> Wentworth Group of Concerned Scientists (2003) *Report to Premier Carr, A New Model for Landscape Conservation in New South Wales*, February 2003. Available at <http://www.clw.csiro.au/new>.

<sup>7</sup> Specific, Measurable, Achievable, Realistic and Timebound.

be, and of what achieving the targets should deliver. The goal is relevant to all areas of the state, regardless of the particular type of landscape or natural systems they include.

Six of the recommended state-wide targets and their indicators focus on the fundamental functions of the key natural resource assets of land, water and biodiversity. They describe the key parameters that should be monitored to gauge the overall health of NSW landscapes, and be the focus of policy decisions aimed at ensuring their capacity to continue to support the aspirations of the NSW population. Indicators for these targets could be described as the natural resource equivalent of macro economic indices such as Gross Domestic Product or the Consumer Price Index.

A further five targets and indicators have been developed where it has been possible to identify explicit state priorities and values, or where an approach or method for delivering improvements can be defined in a target that applies state-wide. For example, targets for wetlands and threatened species have been developed because clearly defined priorities exist for these assets in specific agreements and under legislation. A target for managing land within its capability has been developed because this approach has been identified as an effective means of achieving desirable outcomes for land, and there are tools available to apply it state-wide.

The final three targets focus on the community. These targets recognise that people are the critical success factor in NRM. They reflect the fact that community capacity for planning and implementing NRM is necessary to achieve natural resource outcomes – and in turn, achieving natural resource outcomes is critical for sustaining healthy communities.

The state-wide targets are expressed broadly, to ensure they are applicable to the whole state. Some stakeholders suggested that targets be developed for a wider range of (and some very specific) issues. The NRC believes that the focus at the state level should be on overall health of the landscape and any clear state priorities that might not otherwise be considered at a regional level. The NRC expects that CMAs will translate the state-wide targets into more specific, locally relevant targets where these are the best tool for defining their explicit priorities under the umbrella of the state-wide targets. Applying the standard will help bring rigour to this process, and ensure that the targets or other instruments developed are underpinned by the best available information including science, local knowledge, community values and state priorities. Further additional targets could also be developed at the state level when new policies or agreements are in place that define other state priorities for regional outcomes, or where methods for NRM are developed that are useful state-wide and are best implemented through a target.

Aboriginal values and interests in NRM have not been addressed separately in the standard or targets, but are integrated within them. This avoids these issues being considered as an 'add on', rather than as an integral aspect of NRM. The standard provides guidance on how to incorporate the consideration of Aboriginal concerns in good process, to ensure meaningful engagement and partnerships with Aboriginal communities, consideration of their values in decision making, and appropriate respect and use of Aboriginal knowledge. The way in which the targets incorporate specific consideration of Aboriginal values of natural resources is discussed in the detailed explanation of each target provided in Attachment 2.

The NRC will audit the implementation and effectiveness of Catchment Action Plans (CAPs) developed by CMAs for compliance with the standard and promotion of the targets. This will help to lock in an adaptive management approach to NRM in NSW. The elements of adaptive management are included in the standard and are designed to support achievement of regional and state-wide targets. The NRC has started to develop an audit process which provides a

means of assessing how effectively the standard is being applied, whether it is successfully helping to achieve the targets, and whether the standard and targets themselves can be improved.

Together, the recommended standard and targets and audit process will contribute to institutional stability and continuity after a long period of change and restructuring. This is important for achieving landscape changes that reflect communities' values, occur over long timeframes, are affected by lots of factors beyond natural resource managers' control, and are difficult to measure in the short term. Because of these complexities in NRM, critical reviews of institutional arrangements and their effectiveness tend to focus on the quality of the processes in place, particularly monitoring and evaluation systems. Having quality systems in place from the outset – systems that are delivered by application of the standard and driven by the targets – will help to avoid destabilisation of the new institutional model, and establish a basis for continuous improvement in NRM.

The NRC believes that the recommended standard should be adopted as soon as it has been considered by the government. It believes that the targets should be adopted when resources are committed to the monitoring and evaluation programs needed to assess progress towards them. If resources are not committed to adopting the recommended indicators, the targets should be reviewed. The following policy issues should also be considered when final decisions are made on adopting targets:

- coordinating and streamlining natural resource reporting and auditing processes
- extending the requirement to comply with the state-wide standard and promote the state-wide targets from CMAs to NSW government agencies and other organisations engaged in NRM
- developing an NRM policy that indicates the policy, program and/or investment changes needed to achieve the targets, identifies other priorities and determines the methodology for distributing resources between regions to ensure the state-wide targets are achieved
- establishing links between the new NRM framework and government planning processes such as Regional Environment Plans and Local Environment Plans.

### **1.3 Structure of this report**

The following chapters discuss the NRC's recommended standard and targets in more detail, including explaining their purpose and application, and how they and the proposed audit process fit together to drive a process of adaptive management that leads to continuous improvement in NRM:

- Chapter 2 discusses the content and form of the recommended standard, and how it is applicable to natural resource managers at all scales and in diverse environmental, social, economic and cultural conditions
- Chapter 3 sets out the recommended aspirational goal and resource condition targets, and describes their intent and applicability at the regional level
- Chapter 4 explains how the NRC intends to audit compliance with the standard and promotion of targets through the development and implementation of CAPs
- Chapter 5 outlines important issues that the NRC believes should be considered by the NSW Government for effective implementation of the state-wide standard and targets.

Further detailed information is provided in attachments. Attachment 1 contains the full text of the recommended standard. Attachment 2 sets out detailed information that supports the application of each recommended resource condition target. Additional attachments provide more information on the NRC's process for developing the standard and targets, cost estimates for adopting the recommended indicators and the NRC's proposed audit program.

Further background information can also be found in the NRC's previously released papers on standards and targets, including:

- *A Framework for State-wide Standards and Targets*, October 2004, PSTR0001
- *Draft State-wide Standards and Targets*, November 2004, PSTR0007.

These documents are available from the NRC's website, [www.nrc.nsw.gov.au](http://www.nrc.nsw.gov.au).

## 2 State-wide standard

The NRC recommends one state-wide standard which, together with the state-wide targets and audit process, will help create a framework for quality NRM in NSW and for decisions that maximise the benefits achieved by investment in NRM. The recommended standard – which is provided in full in Attachment 1 – is a 17-page document that sets out seven auditable outcomes of good NRM process:

1. **Collection and use of knowledge** – use of the best available knowledge to inform decisions in a structured and transparent manner
2. **Determination of scale** – management of natural resource issues at the optimal spatial, temporal and institutional scale to maximise effective contribution to broader goals, deliver integrated outcomes and prevent or minimise adverse consequences
3. **Opportunities for collaboration** – collaboration with other parties to maximise gains, share or minimise costs of delivering multiple benefits is explored and pursued wherever possible
4. **Community engagement** – implementation of strategies sufficient to meaningfully engage the participation of the community in the planning, implementation and review of natural resource management strategies and the achievement of identified goals and targets
5. **Risk management** – consideration and management of all identifiable risks and impacts to maximise efficiency and effectiveness, ensure success and avoid, minimise or control adverse impacts
6. **Monitoring and evaluation** – quantification and demonstration of progress towards goals and targets by means of regular monitoring, measuring, evaluation and reporting of organisational and project performance and the use of the results to guide improved practice
7. **Information management** – management of information in a manner that meets user needs and satisfies formal security, accountability and transparency requirements.

For each component, the standard provides guidance on how to achieve the required outcomes and lists the type of evidence CMAs will need to provide to show compliance with the standard. It has been drafted in a style similar to ISO<sup>8</sup> or Australian Standards.

The recommended state-wide standard is consistent with the *National Framework for Natural Resource Management Standards and Targets*, in both concept and content. This framework, which NSW committed to adopt under a bilateral agreement with the Australian Government,<sup>9</sup> envisages the development of 'Best Practice Management or Governance Standards' for NRM.<sup>10</sup> It intends that these standards assist in the achievement of natural resource condition outcomes expressed in targets. It also intends that standards cover the scope of issues addressed in integrated catchment plans, and be able to apply broadly to NRM systems established by governments (including legislation, policy, process and institutions). The framework proposes that they support among other things:

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<sup>8</sup> International Organization for Standardisation.

<sup>9</sup> *Bilateral Agreement Between the Commonwealth of Australia and The State of New South Wales to Deliver the Natural Heritage Trust*, 14 August 2003.

<sup>10</sup> NRM Ministerial Council (2003) *National Framework for Natural Resource Management Standards and Targets*, revised 8 April 2003, p. 8. Available at <http://www.nrm.gov.au/monitoring>.

- decision making that is integrated, comprehensive and transparent, including adequate stakeholder consultation
- decision-making that is based on sound science, economic analysis, the best available information and, where appropriate, predictive modelling
- adequate monitoring and evaluation
- application of adaptive management and continuous improvement.<sup>11</sup>

Application of the whole standard will mean that trade-offs made between social, economic, environmental and cultural outcomes are transparent and have been informed by best available information and analysis. Specific tools or methods for making these trade-offs are not prescribed, as the best tool to use will vary with scale and particular circumstances.

The recommended standard is also a good fit with the new institutional model for NRM in NSW (see Chapter 1), and will underpin its long-term stability. The standard supports regional planning, investment and decision making, allowing flexibility and innovation while ensuring quality in the NRM process so that all stakeholders can be confident that best-practice NRM is being delivered. For example, it does not prescribe or recommend methods for managing salinity. Instead, it requires that a range of matters be systematically considered to inform decisions on investment to tackle salinity issues – including local knowledge, relevant science, understanding of local farming practices, potential impacts on ground and surface water systems at all scales and broader economic impacts. That is, the standard provides a framework for using science and information in the most appropriate ways, rather than imposing scientific rules or benchmarks that are more appropriately determined at local and regional scales.

In addition, the recommended standard has widespread support among stakeholders. Although the standard's format has been revised since the NRC released draft standards as part of its November consultation paper (see Box 2.1), the overall approach of the standard (and much of its content) is the same as in the draft standards. This approach is widely accepted by state agencies, CMAs, environment groups and others. For example, in its submission in response to the consultation paper, the Department of Environment and Conservation stated that it:

*'supports the use of process-based standards as a means to ensure the rigour and consistency in identifying resource based outcomes and management actions needed. In taking this approach, the NRC is recognising that regional variation in the type, condition and status of natural resources, economic conditions, community aspirations and technical capacity requires a level of flexibility for both Government and CMAs in identifying achievable resource outcomes'*.<sup>12</sup>

Importantly, compliance with the standard will not be shown via a 'check the box' approach. Rather, the NRC will audit the CMAs' application of the standard. Each CMA will be required to demonstrate that it has usefully embedded the standard in its day-to-day operational and business activities, and that it is applying the individual components of the standard in an integrated way. By requiring high-quality business and planning processes, the standard aims to promote consistent rigour, accountability and transparency in NRM. It also aims to support the coordination and cooperation that is needed to achieve improvements in natural resource outcomes at all scales, and to promote adaptive management.

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<sup>11</sup> Ibid.

<sup>12</sup> Department of Environment and Conservation (March 2005) *Submission to NRC on draft consultation paper on standards and targets*, p. 1.

CMA's have experienced Board members and staff, many of whom implicitly follow practices consistent with some parts of the standard. However, there is value in CMA's formally adopting all parts of the standard and, where necessary, documenting the quality procedures that they apply. This will help to identify and implement improvements in process, achieve a consistent approach within and across CMA's, and also provide for continuity when circumstances change (such as when new CMA Board members are appointed).

While the standard applies especially to CMA's, it is widely applicable and could equally be implemented by government agencies or any group or organisation associated with the management of natural resources. Indeed, the standard will be most effective if applied broadly. For example, CMA's will be required by the standard to use best available information to inform decision making. However in many cases, the quality of the information available to them, and its fitness for purpose, will depend on other organisations, particularly state agencies applying the standard. This will improve the outcomes that CMA's can achieve by applying the standard. The NRC's recommendations for broader application of the standard and targets are discussed in section 5.2.

The rest of this chapter discusses important aspects of the recommended standard in more detail, and some of the NRC's key considerations in developing the standard:

- Section 2.1 describes the scope and structure of the standard, including the importance and interdependence of the components
- Section 2.2 discusses the relationship between the state-wide standard and the use of targets and other instruments to express priorities
- Section 2.3 explains why the NRC is not recommending minimum benchmarks or specific best management practices as standards
- Section 2.4 outlines NRC's approach to auditing compliance of CMA's and their CAPs with the standard.

## 2.1 Scope and structure of the standard

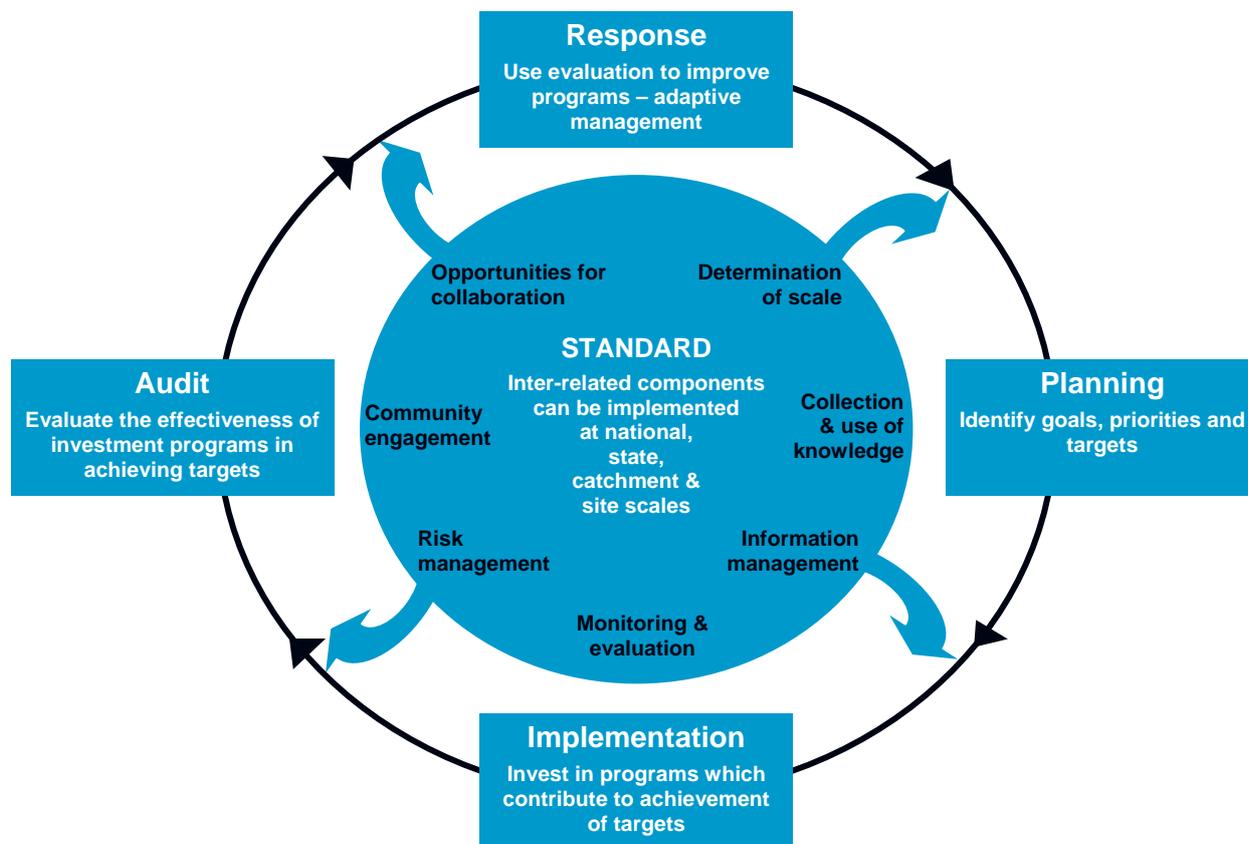
The standard identifies seven components involved in high-quality NRM (see Table 2.1). Each of these components is interdependent. In addition, each is critical to elements of adaptive management, including planning, implementation, audit and response (see Figure 2.1).

In general, the components have been included in the state-wide standard because they:

- add value to past work by ensuring a focus on integrated and coordinated outcomes
- help to achieve a consistent approach and quality in NRM across NSW while allowing for regional variation to suit diverse circumstances
- were consistently identified at workshops, in submissions and through other consultations as being important for successful delivery of NRM.

**Table 2.1: Summary of components in the standard and their importance**

Component of the standard	Why important
Collection and use of knowledge	Will drive use of best available information to inform decisions and best practice management. Will increase transparency of decisions and help to identify information gaps and the ways these can be addressed.
Determination of scale	Will affect all aspects of quality NRM, including approaches to collaboration, risk management, types of community engagement, monitoring and evaluation, and evaluation of costs and benefits.  Must be applied alongside all other components so that sensible outcomes are achieved at all scales and adverse impacts across boundaries are avoided.
Opportunities for collaboration	Will encourage NRM based on partnerships, shared knowledge and resources. Partners will include individual land managers, local environment or landcare groups, local government and government agencies. Will promote coordinated effort and resources, which will be much more effective than individual organisations working in isolation.
Community engagement	Will ensure that NRM is based on shared commitment and values. Will encourage listening to and acknowledging the views of others, by maintaining good, open communication with all interested parties and by building understanding of natural resource issues.
Risk management	Will ensure that possible constraints on achieving outcomes – including social and economic impacts – are considered and managed appropriately. Will focus natural resource managers on addressing key (rather than all) risks and their appropriate management in relation to potential scale, probability, severity and frequency. Will ensure that risks are identified and managed appropriately, rather than being avoided.
Monitoring and evaluation	Will ensure that both monitoring and evaluation are planned and implemented, and that the lessons learned from evaluation are fed into an improved information base and future decision making processes. Both will meet quality standards that ensure that the outputs are useful, fit for purpose and can be integrated with other monitoring and evaluation efforts.
Information management	Will ensure quality, accessibility, consistency and applicability of information. Should drive coordinated management and maintenance of integrated information management systems that meet the needs of stakeholders.



**Figure 2.1: Components of standards drive adaptive management at all scales**

The standard is structured so that the main focus is on outcomes, supported by guidance material and evidence requirements to satisfy an audit process. For each component there is:

- a statement of the *required outcome*
- *Guidance* on how to achieve the outcome
- *Evidence requirements* that indicate possible ways of satisfying a compliance auditing process. To provide flexibility, the standard allows for alternative evidence to be used if it can be demonstrated that it effectively achieves the outcome.

Table 2.2 illustrates this structure for the component 'Determination of scale'.

**Table 2.2: Example of component: ‘Determination of scale’**

Required outcome	
Management of natural resource issues at the optimal spatial, temporal and institutional scale to maximise effective contribution to broader goals, deliver integrated outcomes and prevent or minimise adverse consequences.	
Guidance	Evidence requirements
<ul style="list-style-type: none"> <li>▪ Assess the scale – spatial, institutional, temporal – relevant to each issue</li> <li>▪ Evaluate the potential for delivery of multiple benefits – environmental, social and economic</li> <li>▪ Consider socio-economic impacts and their implications for making trade-offs</li> <li>▪ Assess the potential positive and negative impacts on resources and stakeholders at different scales</li> <li>▪ Assess the potential contribution to regional or state-wide targets</li> <li>▪ Maximise benefits by incorporating assessments of scale into project planning, implementation, review and making trade-offs</li> <li>▪ Learn from and/or build on previous projects and experiences</li> <li>▪ Have regard to risk management strategies when considering impacts on stakeholders</li> </ul>	<ul style="list-style-type: none"> <li>▪ Evidence of research and analysis of information relevant to determining appropriate scale</li> <li>▪ Evidence of a good understanding of relevant regional, state and national issues and social and economic factors associated with scale</li> <li>▪ Documented evidence showing that analysis of scale has meaningfully informed planning, implementation, review and making trade-offs</li> <li>▪ Documented evidence of risk identification, evaluation and management arising from the identified scale for management</li> <li>▪ Evidence to demonstrate that the application of this component has been informed by the application of other components</li> </ul> <p style="text-align: center;">AND/OR</p> <ul style="list-style-type: none"> <li>▪ Documented evidence of additional or alternative strategies used to achieve the required outcome</li> </ul>

The components of the standard are inter-related. The achievement of each required outcome depends on and is related to the achievement of other required outcomes. For example, there are links between the ‘Collection and use of knowledge’ and ‘Community engagement’ components. Community engagement will involve both the provision of information to stakeholders and the collection of information from them on their values, priorities and local knowledge. Successful application of the standard depends on achieving the required outcomes for all components rather than isolated components.

However, not all components will be equally important for all decisions or activities. The way CMAs apply the standard needs to sensibly correspond to the nature and magnitude of the decision or activity involved. (For example, risk analysis for multi-million dollar investments will be more detailed and sophisticated than for small one-off projects.) In addition, their decisions about the appropriate application of the components of the standard need to be clearly justified.

The standard does not include specific protocols for monitoring and evaluation or information management, nor does it include or reference detailed methods for delivering 'on-ground' action. Specific protocols for monitoring and evaluation and information management that can be applied state-wide are important, and the standard requires that these be adopted consistently where they are agreed. However, the standard itself is not a central repository for these. The standard does not include methods for on-ground action because they are so often specific to particular circumstances, and the intent is for the standard to allow for regional flexibility.

The NRC plans to develop additional guidance material for using the standard. The content of this guidance will initially be generated in response to testing the use of the standard in a pilot process with three CMAs. This will help to identify where additional guidance is most needed and the most appropriate form for that guidance. The guidance material is likely to continue to develop as lessons are learnt from applying the standard and from auditing against it. It will also be modified to adapt to changes in NRM policy and legislation that will help inform application of the standard.

## **2.2 How does the standard relate to targets and other instruments?**

Application of the standard will support natural resource managers to both identify their region's specific priorities, and methods for addressing these priorities under the umbrella of state-wide targets. These priorities may be expressed as regional targets, but may also be appropriately expressed using other instruments such as maps or plans where it is important to express a spatial priority. (For example, priorities for biodiversity could be expressed spatially by a map of a bioregion that identifies areas of high conservation value.)

Applying the standard to the development of regional targets or other instruments that express regional priorities will mean these instruments are based on best available information, coordinate outcomes across catchment and institutional boundaries, are consistent with state-wide targets and reflect community capacity to implement them. For example, CMAs that apply the standard in developing their catchment targets for improving the condition of particular native vegetation communities will take into account:

- best available vegetation mapping that shows the extent and significance of those communities in a bioregion
- local and state-wide priorities for the recovery of threatened species
- the state-wide target for improving condition of native vegetation
- the potential impact on productive capacity of the land.

Applying the standard will also ensure that activities are implemented that maximise the outcomes achieved. This is because the standard encourages CMAs to get the most out of the available resources through effective coordination of partnerships, a focus on achieving multiple benefits from single investments, meaningful engagement with stakeholders and sharing of information. Again, the benefits of the standard will be greatest if it is applied broadly. For example, CMAs can pursue partnerships and coordination of projects, but cannot control the response of others and their willingness to participate. Application of the same standard by others will reduce such barriers.

### Box 2.1 Changes to draft standards

Since the NRC released its draft standards in its November 2004 consultation paper, it has refined these standards in response to stakeholder feedback and further development of its ideas. In summary:

- The 5 draft standards have been developed as components of one standard, reflecting their interdependency and the need to consider and apply them together
- The NRC has rewritten the standard using, as a foundation, the format of other recognised standards such as ISO or Australian Standards to ensure clarity, avoid ambiguity in interpretation and make it easier for external auditors to audit
- Components of the standard relating to information management and monitoring and evaluation have been developed (these were flagged but not developed in the consultation paper)
- The social and economic elements of the draft standards have been incorporated into other components, to reflect the integrated nature of social and economic considerations
- Planning and prioritisation is not identified as a separate component of the standard because all components contribute to both planning and prioritisation processes
- A new component for community engagement has been included in response to strong stakeholder feedback that this is a critical component.<sup>13</sup>

Despite these changes, the overall intent of the standard and much of the content remains the same as in the draft standards.

## 2.3 Why not minimum benchmarks or best management practices?

During its consultation process, the NRC noted that many stakeholders expected it to develop standards that were based on minimum benchmarks, or best management practices for implementing NRM in specific circumstances. The NRC considered both of these approaches but concluded that they were inappropriate for state-wide standards because they generally don't allow for flexibility across diverse landscapes. However, it believes both approaches can be useful at a regional level.

For example, a minimum benchmark for protecting and restoring riparian zones of 50 metres either side of first-order streams is unlikely to be equally appropriate in western and coastal parts of NSW. The appropriate width for riparian zones depends on a range of factors, including the geomorphology and flow of the stream, the existing land-use and the vegetation type. However, within a sub-catchment or landscape it may be possible to set a meaningful benchmark that takes into account available information on these factors. The science and supporting information needed to set these benchmarks comes from a range of sources, including government agencies, local knowledge, and research bodies. Applying the standard will help to identify this information and the circumstances where it is appropriate to use benchmarks.

Best management practices are generally also applied in regionally specific circumstances. For example, a manual for managing acid sulfate soils is a valuable tool in coastal regions but is not applicable inland where this problem doesn't occur.

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<sup>13</sup> For example, Sydney Metropolitan CMA stated in its submission that '*the provision of a state-wide standard for consultation with all stakeholders would provide certainty to the community and CMAs that stakeholder consultation was rigorous and consistent throughout the State*' p. 1.

The NRC has found that most stakeholders now accept that its recommended approach to the state-wide standard is more meaningful than minimum benchmarks or very specific best management practices, even if they had originally expected these other approaches.

## 2.4 Auditing compliance with the standard

The NRC's proposed audit process is critical for embedding adaptive management in NRM – it is intended to be part of a wider learning and continuous improvement process. The audit process is discussed in detail in Chapter 4. This section briefly outlines how it will be applied to assessing compliance with the standard.

The audit of CMAs' compliance with the standard will focus on whether or not they achieve the required outcome for each component of the standard. CMAs will need to demonstrate this compliance. The standard contains *Evidence requirements* to help them understand what they are expected to provide to satisfy the audit process.

Ideally, the provision of evidence for compliance with the standard can be integrated with other reporting requirements and business needs. For example, papers presented to CMA Boards are likely to satisfy many of the requirements if proposals put to the Board are adequately supported by analysis and information consistent with the standard. Similarly, minutes and records of meetings will provide the necessary evidence for some components. Information management systems should be in place to ensure these documents are retained and are accessible.

The NRC is currently planning system reviews with three CMAs. This will help to further identify the kinds of evidence already produced and anything additional that is required. Following this process, samples of required evidence and suggested templates will be generated and made available to CMAs.

### ***Recommendation***

***That the NSW Government adopt the state-wide Standard for Quality Natural Resource Management presented in Attachment 1.***

### **3 State-wide targets and indicators**

The NRC recommends two types of state-wide targets for natural resource management in NSW: one aspirational goal, and a suite of resource condition targets that contribute to the achievement of this goal. It also recommends one or more indicators to help measure progress towards each resource condition target. These indicators have been developed with input from an indicators working group that included representatives from state and national agencies.

The aspirational goal centres around maintenance of healthy, functioning landscapes in the long term. A core set of resource condition targets identifies the fundamental elements of these healthy, functioning landscapes. Additional resource condition targets focus attention on NRM issues of specific importance. The underlying intent of all the resource condition targets is to maintain natural resources that are currently in good condition and improve those that are degraded.

The recommended targets are ambitious because, for some natural resource issues, it will be difficult to even slow the current rates of decline. Degradation may continue for many years before we begin to see an improvement in, or even maintenance of, the condition of some assets. This is well documented for some natural resource issues, such as salinity. However, for many assets, there is insufficient information to accurately determine baselines, trends or rates of change but we know the threats to the assets are considerable and growing. In these cases, it is not possible to determine what is achievable within a 10-year period. As additional data are collected on the recommended indicators for the resource condition targets, we will be able to develop a more accurate picture of what is realistic and achievable.

To successfully promote the state-wide targets, the CMAs will need to plan and conduct NRM activities that address regional priorities and simultaneously contribute to the outcomes that are important at the state level. In doing so, they will depend on the cooperation of the state agencies responsible for providing the guidance, monitoring and evaluation that will support their efforts.

This chapter discusses the NRC's recommendations for state-wide targets and indicators in more detail. Section 3.1 explains the purpose of state-wide targets. Section 3.2 presents the state-wide targets and indicators, summarises their intent, and explains how they would be applied at the regional level.

#### **3.1 Purpose of state-wide targets**

The recommended state-wide targets will provide focus, coordination and a means of tracking NRM progress within the new institutional model. Their overall purpose is to ensure that natural resources continue to support a range of community values in the long term. This is a significant challenge given the current status and trends in resource condition. It will require trade-offs between environmental, economic, social and cultural values at local, regional and state scales.

All CMAs are required to promote the achievement of the state-wide targets through their CAPs. However, the way in which they do this will be different for each CMA, and will reflect regional priorities.

### 3.1.1 Maintaining healthy, functioning landscapes

Ultimately, the achievement of the state-wide targets is expected to result in healthy, functional landscapes in NSW. This overall purpose is captured in the NRC's recommended aspirational goal (see Table 3.1). This goal is a long-term statement, which describes natural resource assets in terms of the desirable functions that they serve. It reflects the integrated nature of NRM and the relevance of environmental, social, economic and cultural values. It expresses a vision of a desirable long-term outcome.

**Table 3.1: State-wide aspirational goal**

#### State-wide aspirational goal

Resilient ecologically sustainable landscapes functioning effectively at all scales and supporting the environmental, economic, social and cultural values of communities.

A resilient landscape

- maintains basic functions at all space scales including nutrient cycling, water cycling, provision of food and shelter for biota
- maintains viable populations of all native species of plants and animals at appropriate space and time scales
- reliably meets the long-term needs (material, aesthetic and spiritual) of people and communities.

This goal will be applied in different ways across different landscapes, according to the current and desired balance between competing uses in each region, but can be applied to ensure that natural resources function in a way that support the community's values for the environment, economy, society and culture. The resource condition targets break the aspirational goal down into 'steps' that are more immediate and measurable.

### 3.1.2 Identifying fundamental elements of healthy, functioning landscapes

A core set of state-wide resource condition targets focus on the 'macro-environmental' parameters that contribute to healthy, functioning landscapes:

- **Biodiversity** – in particular the extent and condition of native vegetation and the sustainability of key native fauna populations
- **Water** – in particular the condition of riverine, groundwater and marine ecosystems
- **Land** – in particular the condition of soil.

These elements are fundamental to a solid natural resource base, and are recognised as issues of significance at the state scale. They should be measured at the state scale and should inform the state's 'macro-environmental' policy settings.

The core resource condition targets that focus on these elements (see Table 3.2) provide a means for this measurement to occur. Detailed supporting information on these and the other targets is presented in Attachment 2. These core targets identify the aspects of the landscape that we need to maintain and improve, and provide focus for the state's natural resource managers. Careful management of these aspects should ensure that proper landscape functioning is restored and maintained and the natural resource base is retained in the long term.

The complexity of landscape features and functions means that the core resource condition targets are closely linked. Progress towards any one of them is likely to be mirrored by progress in others. For example, improving the condition of riverine ecosystems will require improvements in the extent and condition of riparian vegetation. This will contribute to improvements in overall native vegetation extent and condition. It will also reduce the likelihood of wind and water erosion in the riparian zone, and so contribute to improvements in overall soil condition.

Many different players will contribute to the achievement of these core targets to ensure that, in the long term, healthy functioning landscapes are maintained. These players include CMAs, local government, state agencies, research institutions and the broader community. The CMAs' application of the state-wide standard will drive the coordination that is necessary to achieve the state-wide targets.<sup>14</sup> In turn, the targets will provide a focus for coordinated efforts among all players, so they can deliver the outcomes that the NSW community is seeking from the natural resource base.

**Table 3.2: Core state-wide resource condition targets**

Core resource condition targets	
Biodiversity	<ul style="list-style-type: none"> <li>1. By 2015 there is an increase in native vegetation extent and an improvement in native vegetation condition</li> <li>2. By 2015 there is an improvement in the sustainability of key native fauna populations</li> </ul>
Water	<ul style="list-style-type: none"> <li>5. By 2015 there is an improvement in the condition of riverine ecosystems</li> <li>6. By 2015 there is an improvement in the ability of groundwater systems to support groundwater dependent ecosystems and designated beneficial uses</li> <li>7. By 2015 there is no decline in the condition of marine waters and ecosystems</li> </ul>
Land	<ul style="list-style-type: none"> <li>10. By 2015 there is an improvement in soil condition</li> </ul>

Note: The recommended indicators for these targets are included in Tables 3.3, 3.4 and 3.5.

### 3.1.3 Providing guidance on specific issues of importance

Additional resource condition targets focus on a number of specific issues of importance in NSW. These targets support the achievement of the core set of targets described above. They provide additional guidance to natural resource managers on aspects of where, how or why to focus NRM investment. By applying the standard, CMAs will identify other such guidance from regional strategies, policy documents and other sources, as appropriate to the NRM issue being managed.

Three of these additional targets focus on community, because landscapes have a fundamental human element. Indeed, the capacity for community to implement NRM is the critical factor in achieving NRM outcomes. The negative impacts of human activity on the landscape have been widespread, but there is enormous potential for the state's community to have a significant, positive influence on natural resources. The community resource condition targets direct

<sup>14</sup> Although, as noted previously, this will be more effective if the standard is applied by all players, not just CMAs.

investment towards those aspects of community capacity that can improve NRM investment, to realise this potential.

A further five targets focus on specific issues related to biodiversity, water and land. In the case of water, for example, there is an additional target for wetlands. Wetlands are a part of riverine ecosystems, but they have distinct bio-physical characteristics, support unique values, and are managed under different frameworks. Furthermore, wetlands have already been prioritised at international and national levels, under The Convention on Wetlands (Ramsar, 1971)<sup>15</sup> and the Directory of Important Wetlands in Australia. The recommended target for wetlands recognises these facts, and distinguishes wetland condition and extent as a specific issue of importance at the state level.

It is important to note that proper application of the state-wide standard will support CMAs in contributing to the outcomes described by this group of targets. For example, in the case of wetlands, CMAs complying with the standard will use best available information when planning activities to improve riverine ecosystem condition, vegetation condition and the sustainability of fauna populations. This information should include a range of scientific information, policies, existing priorities and obligations (including those under The Convention on Wetlands). In turn, the assessment of progress towards the state-wide target and indicators for wetlands will help to determine how effective the standard is at ensuring that appropriate available information is considered.

As discussed in Section 2.2, CMAs may translate these additional targets into regional targets, or express the priorities that they reflect through a variety of other mechanisms such as regional and local plans and strategies, maps or listings of priority areas, and decision support systems. In many cases, these mechanisms may provide better guidance than the state-wide target, because they can be more explicit about technical and spatial details. For example, they may include necessary information about appropriate management approaches, and can identify the most suitable locations for NRM investment. This level of detail cannot be expressed sensibly in a state-wide resource condition target. In the case of native vegetation, for example, specifying the proportion of native vegetation to be retained across the state is not helpful. It is far better to express priorities for vegetation management through a map of a bioregion that shows areas of high conservation value and for this to be developed in cooperation with appropriate state agencies and other stakeholders. For all natural resource assets, the mechanism used to express priorities at the regional level should reflect the scale and nature of the issue.

### **3.1.4 Assessing progress and improving long-term management**

Ideally, NRM policy decisions for NSW would be based on a comprehensive, state-level measure of natural resource condition and trends. Under this scenario, the health and functionality of the landscape would be assessed and communicated using an index<sup>16</sup> that incorporates information about biodiversity, water, land and community. Alternatively, it may be assessed using a number of related indices that, together, give a good picture of how the landscape is changing. An index, or indices, of this type would integrate data from a number of indicators and would be similar in concept to the Consumer Price Index.

Developing a natural resource condition index would improve the state's ability to measure the success of investment and management actions and, as a consequence, to establish appropriate

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<sup>15</sup> *The Convention on Wetlands, 1971*, signed in Ramsar, Iran. Available at <http://www.ramsar.org>.

<sup>16</sup> An 'indicator' is defined as a measurement of a single parameter. An 'index' typically consists of an amalgamation of a number of indicator datasets, according to a specified protocol.

policies for the future. There are very few indices of resource condition currently available, but some do exist. For example, the Murray-Darling Basin Commission and partners have developed a useful index of river health, as part of the Sustainable Rivers Audit. Stakeholder feedback suggests that it may be possible to develop a similar index of soil condition in the near future.

The NRC recommends a suite of indicators that state NRM agencies should invest in for monitoring and evaluating progress towards the state-wide resource condition targets. These indicators are recommended with a long-term goal of developing a natural resource condition index. They offer some information about the state of a natural resource, but are not expected to provide a complete description of that resource. They will not identify every fluctuation in resource condition, nor will they highlight the impacts of all management activities. Still, they are the best available means for measuring overall progress at a state scale. For these indicators to be effective in assessing progress it will be necessary to:

- develop monitoring protocols for indicators that are not currently established or being monitored in NSW
- verify the most appropriate baselines for assessing progress towards the state-wide targets, according to the type and quantity of data available for different natural resource assets, and
- monitor and evaluate the recommended indicators across NSW, to develop a more complete understanding of the status and trends in natural resource condition.

## **3.2 State-wide resource condition targets and indicators**

The recommended state-wide resource condition targets and indicators for biodiversity, water, land and community are presented below, together with an explanation of the intent of the targets, why they are important and how CMAs would apply them at the regional level. Further supporting information for each resource condition target is contained in Attachment 2.

### **3.2.1 Biodiversity targets**

The state-wide resource condition targets and indicators for biodiversity are shown in Table 3.3.

The intent of these targets is to ensure that biodiversity is retained and enhanced in the long term. The targets are intended to protect a variety of fundamental ecological processes, including nutrient cycling, oxygen production, carbon storage and water cleansing. The two core targets for biodiversity will focus NRM investment on the native flora and fauna that are important in supporting these ecological processes. The target for native vegetation covers both remnant vegetation and native vegetation that has re-grown after being cleared or disturbed. Remnant vegetation and 'protected regrowth' is protected from broadscale clearing under the *Native Vegetation Act 2003*. The focus of incentives and investment to achieve this target should be on improving the condition of remnant native vegetation, protecting and improving the condition of native vegetation regrowth and, in some landscapes, revegetation.

The two additional targets for biodiversity will focus NRM investment on specific issues that the community has identified as important for biodiversity management. The NSW community places significant value on the existence of diverse flora and fauna species. The priorities for managing threatened species are defined under NSW legislation; the additional target communicates this priority. The inclusion of a target for invasive species reflects the fact that

invasive species are one of the greatest threats to biodiversity and productivity. It is therefore appropriate, at a state level, to guide investment towards addressing this threat.

**Table 3.3: State-wide resource condition targets and indicators for biodiversity**

	Resource condition targets	Indicators
Core	1. By 2015 there is an increase in native vegetation extent and an improvement in native vegetation condition	Extent of each vegetation type by IBRA sub-region Vegetation condition (monitoring protocol to be developed) Area of each vegetation type managed for conservation (until monitoring protocols are developed for vegetation condition)
	2. By 2015 there is an improvement in the sustainability of key native fauna populations	State-wide progress can be monitored through indicators of distribution, abundance, survival and reproduction of key native fauna groups such as waterbirds and native fish. Surrogates such as measures of connectivity could be used for each key species Methodology for the measurement of these parameters at the state-scale needs to be developed
Additional	3. By 2015 there is an increase in the recovery of key threatened species, populations and communities	Implementation of high priority actions in Priorities Action Statements Recovery of key threatened species, populations and communities
	4. By 2015 there is a reduction in the impact of invasive species	Distribution and abundance of key invasive species (possibly new and emerging threats) Number of invasive species established Success of control programs in reducing the impact of key invasive species

Biodiversity is vital for healthy, functioning landscapes, has intrinsic value, and is part of the indigenous cultural landscape. It supports primary industries and is valued by the community for environmental, social and cultural reasons. Healthy, functioning native vegetation communities are valuable in themselves. They provide ecosystem services and habitat for native species, support Aboriginal cultural values, have extractive uses and have potential to provide other benefits in the future. Native fauna provide essential ecosystem services such as pollination and nutrient cycling; without them there would be widespread system collapse.

While there are limited data to describe biodiversity in NSW, available information suggests it is declining. The condition and extent of native vegetation in NSW has declined significantly since European settlement, through pressures such as clearing, grazing, the introduction of exotic species, altered fire regimes and urbanisation. Further, in most experts' opinion, the populations of many native fauna species are declining due to processes such as habitat loss, habitat simplification, and predation and competition by exotic species. Achieving the core biodiversity targets will mean preventing key fauna populations from becoming threatened or over-abundant.

Promoting the biodiversity targets at the regional level will require many different management approaches. Applying the standard should help CMAs to identify the approach that best addresses regional priorities. It should help them make decisions such as:

- whether it is more appropriate to focus on increasing the extent and connectivity of native vegetation (eg, in heavily cleared landscapes) or on improving vegetation condition of both remnant vegetation and regrowth (eg, in highly vegetated landscapes)
- what actions are most appropriate to improve the sustainability of key native fauna populations, once these are identified at the state and regional levels
- whether it is more effective to identify areas of high biodiversity and treat invasive species in those areas, or to identify the invasive species causing most impact and treat those species
- whether it is better to focus activities on recovery of threatened species, populations and communities or to focus on managing threatening processes.

### 3.2.2 Water targets

The state-wide resource condition targets and indicators for water are shown in Table 3.4.

In accordance with the aspirational goal, the intent of the water targets is to ensure the long-term maintenance of:

- fully functioning aquatic and water-dependent ecosystems, supported by adequate river flows
- viable populations of native aquatic and riparian flora and fauna species
- water-dependent environmental, cultural, social and economic values.

Progress towards this long-term vision will depend on significant shorter term improvements in the condition of water resources. The three core targets focus on the need to improve the condition of riverine ecosystems and groundwater, as well as maintain the current good condition of marine ecosystems, because these are fundamental elements of a functioning landscape.

The additional targets for wetlands and for coastal lakes and estuaries (all components of riverine ecosystems) focus on specific issues of importance at the state scale. As outlined in Section 3.1.3, it is possible to give state level guidance on wetlands because there has already been prioritisation of wetlands under The Convention on Wetlands (Ramsar, 1971) and the Directory of Important Wetlands in Australia. Australia and NSW have committed to protect wetlands with international and national significance, and it is appropriate to highlight this commitment in a state-wide target. In the case of estuaries and coastal lakes, the additional target is included to distinguish these systems from freshwater riverine ecosystems, recognising that the coast has 'unique physical, ecological, cultural and economic attributes'.<sup>17</sup>

Properly functioning aquatic ecosystems support environmental values, human health and wellbeing, cultural activities and primary production. However, many of the state's riverine and groundwater systems are extensively degraded. Riverine ecosystems remain under threat, particularly from water extraction. Other threats include flow regulation, poor water quality, changes in land use, clearing of vegetation and destruction of habitat. Continuing pressures on groundwater include over-extraction, salinity and other contamination. While marine waters in NSW remain in relatively good condition, they too are subject to pressures of urban

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<sup>17</sup> NSW Government (1997) *NSW Coastal Policy 1997: A Sustainable Future for the New South Wales Coast*, p. 8. Available at <http://www.coastalcouncil.nsw.gov.au>.

development, inappropriate land management and recreational use. Without intervention, degradation of many riverine ecosystems and groundwater systems is likely to continue and the integrity of marine systems may be lost.

By applying the standard, CMAs will be able to promote the state-wide water targets and simultaneously incorporate state and regional priorities for the management of water resources and aquatic ecosystems, including those listed under the *Water Management Act 2000* and numerous water sharing plans for surface and ground water systems. Other regional priorities are expressed in a broad range of documents, including the Water Quality and River Flow Interim Environmental Objectives, and the NSW Government's statements of intent in response to the Healthy Rivers Commission inquiries. The standard, particularly the required outcome in relation to 'Collection and use of knowledge', will guide CMAs through a rigorous process to consider these priorities.

**Table 3.4: State-wide resource condition targets and indicators for water**

Resource condition targets	Indicators
Core	5. By 2015 there is an improvement in the condition of riverine ecosystems  River health, through the Sustainable Rivers Audit. Parameters include fish, macroinvertebrates, hydrology, riparian vegetation/floodplain and physical form  Salinity levels according to electrical conductivity and flow data collected at MDBC end-of-valley target sites  Chlorophyll
	6. By 2015 there is an improvement in the ability of groundwater systems to support groundwater dependent ecosystems and designated beneficial uses  Ratio of groundwater extraction to sustainable yields (long-term average extraction limits) Groundwater base flow in rivers Electrical conductivity at nominated bores Artesian pressure
	7. By 2015 there is no decline in the condition of marine waters and ecosystems  Frequency of algal blooms (including monitoring of upwelling events to distinguish between natural and human-induced blooms) Species abundance in rocky reef communities Extent of Marine Protected Areas
Additional	8. By 2015 there is an improvement in the condition of important wetlands, and the extent of those wetlands is maintained  Extent of important wetlands Inflow hydrology Waterbird distribution and abundance Status and success of waterbird breeding colonies Vegetation condition (monitoring protocol to be developed)
	9. By 2015 there is an improvement in the condition of estuaries and coastal lake ecosystems  Extent of mangroves, saltmarsh, seagrass, macroalgae, emergent macrophytes and foreshore/entrance development Fish assemblages Pelagic chlorophyll Stress biomarkers Freshwater inflows Datasets describing sea level and modified entrance opening/closing could provide contextual information to assist the evaluation of these indicators

### 3.2.3 Land targets

The state-wide resource condition targets and indicators for land are shown in Table 3.5.

**Table 3.5: State-wide resource condition targets and indicators for land**

	Resource condition targets	Indicators
Core	10. By 2015 there is an improvement in soil condition	<p>Area of land subject to the following (where they are regionally relevant): water erosion, wind erosion, dryland salinity, induced soil acidity, acid sulfate soil, soil sodicity and improved soil carbon</p> <p>A state-wide soil condition index could be developed using these parameters</p> <p>Groundcover and land use will need to be monitored as part of the monitoring program for this target as they inform the above indicators</p>
Additional	11. By 2015 there is an increase in the area of land that is managed within its capability	<p>Area of land used and managed within its capability</p> <p>Land capability will be determined using the Land and Soil Capability System (recently developed by DIPNR)</p> <p>Groundcover and land use will need to be monitored as part of the monitoring program for this target as they inform the above indicators</p>

The intent of the resource condition targets for land is to promote biological diversity within soils, conserve ecosystem functioning provided by land, improve the profitability of industries supported by soils, and limit off-site impacts of soil degradation (such as water quality degradation). The achievement of these targets will reduce specific degradation processes, such as erosion, dryland salinity and induced soil acidity.

The core land target reflects the fundamental importance of soil condition within a healthy, functioning landscape. Healthy soils have nutrient cycling and moisture and carbon holding capability, and support diverse populations of flora and fauna both above and below ground. They are also more stable than soils in poor condition, and are less subject to erosion and other degradation pressures. The additional land target identifies the management of land within its capability as the single most important factor affecting long-term soil condition. This target also encourages consideration of other aspects of 'land' apart from soil (such as slope).

There are limited state-wide data describing soil condition and the extent of land managed within its capability. Current trends in the condition of land resources are therefore difficult to identify. Available data indicate that the area affected by salinity in NSW is increasing, as is the area affected by acidity.<sup>18</sup>

Applying the standard will help CMAs to promote these two targets and incorporate regional priorities for management of land resources. For example, the standard's required outcome in relation to 'Collection and use of knowledge' might prompt CMAs to use the Land and Soil Capability System developed by DIPNR. This provides a method for assessing hazards at the regional and local levels. CMAs may then choose to offer incentives for activities that deal with the greatest hazards. The required outcome in relation to 'Determination of scale' means that CMAs will consider the nature and scale of expected public and private benefits that might

<sup>18</sup> DEC (2003) *New South Wales State of the Environment Report 2003*, Department of Environment and Conservation, Sydney.

result from management actions that improve soil condition. The required outcome for 'Community engagement' means that CMAs will employ appropriate strategies to improve community awareness of the implications of certain land management techniques, and build the capacity for participation in projects that will improve soil condition.

### 3.2.4 Community targets

The state-wide resource condition targets and indicators for community are shown in Table 3.6.

**Table 3.6: State-wide resource condition targets and indicators for community**

Resource condition targets	Indicators <sup>19</sup>	
Additional	12. There is a continual increase in land managers' awareness, knowledge and skills in NRM and adoption of practices which improve natural resource outcomes	Increase in awareness, knowledge or skills, and change in behaviour by land managers (e.g. adoption of NRM practices)
	13. Land managers and other natural resource managers are actively engaged in collaborative action to improve the management of natural resources through the development and implementation of regionally relevant NRM	Involvement of key stakeholders in collaborative action and impact of this process on management practices
	14. There is a continual increase in the willingness of land managers, other stakeholders and the community to partner NRM organisations to deliver natural resource outcomes	Land manager and key stakeholder willingness to engage in collaborative action with NRM organisations

The intent of the community targets is to develop the capacity of state and regional communities to achieve the biodiversity, water and land resource condition targets and to efficiently achieve NRM goals in the future. These targets focus specifically on building the capacity of individuals, social networks and institutions. Building the capacity of individuals will increase the likelihood of private land managers adopting appropriate land management practices. Building social and institutional capacity will foster better collaboration, coordination and direction.

The condition of natural resources depends on people and their interaction with the landscape.<sup>20</sup> State-wide targets have been developed for community because the community's capacity to implement NRM is the critical factor in achieving NRM outcomes. CMAs and other stakeholders support this approach, despite the fact that communities are not biophysical assets and this theme does not appear in other state or national classifications. CMAs recognise the importance of communities in achieving natural resource outcomes, as demonstrated in the Catchment Blueprints.

<sup>19</sup> These indicators are recommended for assessment at the state scale; additional indicators for assessment of community targets by CMAs are suggested in Attachment 2.

<sup>20</sup> NLWRA (2004) *Social and economic information for NRM: an initial discussion paper*, National Land and Water Resources Audit, Canberra.

The NRC has not recommended any core community targets or indicators of overall community health or prosperity. It believes that it is beyond the capacity of CMAs to influence these significantly, although it acknowledges that it may be important to include core community targets in a set of state-wide targets that are applied more broadly and are used to inform trade-offs between social, cultural, environmental and economic interests. Instead, the recommended core targets focus solely on the health of the natural resource base, which is fundamental to supporting healthy communities.

Application of the state-wide standard will promote all three community targets and, in particular, the target for increased confidence in NRM organisations. For example, the standard's required outcome for 'Community engagement' should help CMAs to employ appropriate strategies for building community awareness and capacity to participate in NRM. The required outcome for 'Opportunities for collaboration' should help them to investigate opportunities for collaborative action, such as the formation of partnerships that may contribute to the target for social capacity.

By applying the standard, CMAs should be able to effectively integrate regional priorities with the state priorities expressed in the community targets. CMAs will need to determine the current level of capacity within their catchments and then implement capacity building strategies accordingly. The nature and focus of these activities will necessarily vary across the state. However, all CMAs could refer to the principles to guide community capacity building in the *National Natural Resource Management Capacity Building Framework*.<sup>21</sup>

***Recommendation***

***That the NSW Government adopt the state-wide aspirational goal and resource condition targets and indicators discussed above.***

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<sup>21</sup> NRM Ministerial Council Programs Committee (2002) *National Natural Resource Management Capacity Building Framework*. Available at <http://www.nrm.gov.au/publications/capacity-building/index.html>.

## 4 NRC's draft audit process

The NRC has started to develop a process for auditing CMAs' compliance with the standard and promotion of targets that will drive learning and embed adaptive management of natural resources in NSW. This audit process will help to identify the linkages and information flows that will bring accountability and coherence to the NRM system as a whole. These linkages and flows include:

- the science used to identify the best course of action in the short and medium terms that leads to the outcomes defined in longer term targets or other instruments
- the flow of priorities from international agreements, national and state legislation, policies and plans into CAPs, alongside regional priorities
- the social and economic assessment of potential impacts of proposals and the capacity of communities to implement them.

The audit process will ensure these flows and linkages are transparent, and that the standard is applied so that CMAs and others adaptively manage towards state-wide and catchment targets or other expressed priorities.

The NRC's auditing function is limited to CMAs and the effective implementation of their CAPs. However, any organisation or natural resource manager that applies the standard will benefit from self assessment or independent audits to ensure that they are using the standard effectively and to identify and use lessons learned.

This chapter describes the draft audit process (section 4.1), and discusses the potential for using the NRC's audit process to satisfy other auditing and reporting requirements that are imposed on CMAs or are related to natural resource condition (section 4.2).

### 4.1 Draft audit process

The NRC's draft audit process spans the 10-year life of CAPs. It reflects the relationship between the standard and targets, and recognises that state-wide and catchment resource condition targets will be achieved over long timeframes. For this reason, early audits will focus on compliance with the standard and, where relevant, on the outputs from past investments. Compliance with the standard provides the best indicator of likely long-term success in the initial audit phase. Later audits can be extended to focus on achievement of medium-term catchment targets and their links to the longer term catchment and state-wide resource condition targets. The establishment of state-wide monitoring and evaluation of resource condition will ultimately enable the assessment of progress toward long-term targets. This monitoring and evaluation is critical for understanding the status of natural assets and the need for investment in NRM, and to improve scientific understanding and inform policy priorities.

The draft audit process is summarised in Figure 4.1 and mapped in greater detail in Attachment 5. It includes audits for all CMAs at three milestones within the life of the CAPs, and additional audits for some CMAs where there are identified risks.

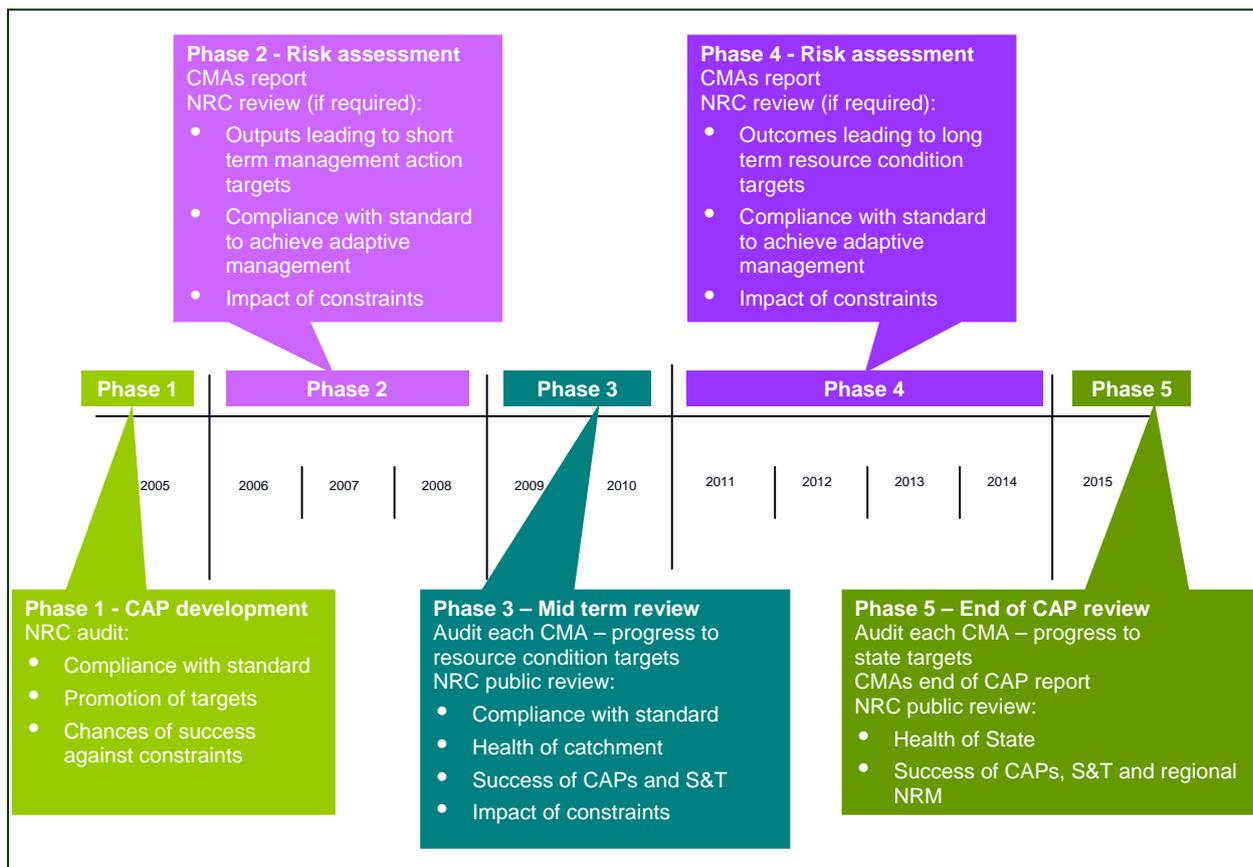


Figure 4.1: Summary of draft audit process

#### 4.1.1 Three milestones for all CMAs

The first milestone audits will occur prior to the CMAs finalising their CAPs in October to November 2005. The focus of these early audits will be on building capacity to comply with the standard, and putting in place the foundations to build the linkages and information flows necessary to achieve integrated outcomes in the long term. This will help to ensure that early in the life of CAPs, CMAs are ‘doing business’ in a way that is consistent with the standard, and that they can build on over time as information is gathered and state-wide and other priorities become better defined.

The second and third milestone audits will occur prior to the mid-term review of CAPs, and just prior to the end of CAPs’ 10-year term. At these milestones, each CMA’s progress in implementing its CAP consistent with the standard and achieving its targets can be assessed. Initially, the assessment of progress towards meeting targets will focus on short- and medium-term management action targets and the scientific links between these targets and the achievement of longer term resource condition targets.

For example, a CMA may adopt a management action target to revegetate a specified length of riparian corridor by the mid-term of its CAP. If it applied the standard properly, it would have developed this target on the basis that science indicates this action will contribute to the achievement of longer term catchment and state-wide resource condition targets for biodiversity and water quality. An audit at the mid-point of the CAP would focus on whether the target had been achieved, and the credibility of the scientific links to resource condition targets given results of monitoring and evaluation and any new research or information. In

addition, factors such as the rate of uptake of incentives for this work or levels of voluntary participation would be used to assess community capacity and the effectiveness of CMA programs to increase this capacity, which are critical to achieving the outcome. This information would also feed into the mid-term review of the CAP.

Towards the end of the first 10-year CAP cycle and beyond, monitoring and evaluation against resource condition targets can be increasingly used to assess the CMAs' progress. Resource condition outcomes will be detectable over different time periods. For example, improvements in vegetation condition could be expected for relatively responsive vegetation types within 10 years. Changes in salinity will be harder to detect and to separate from variation related to climate. Despite the need to commit resources over the long term and the uncertainty about timeframes, monitoring and evaluation of resource condition outcomes is essential for understanding the status of natural resource assets and the need for further investment, and to improve capacity for NRM. It is also important to establish the scientific credibility of the regional model and NRM generally.

#### **4.1.2 Additional audits for some CMAs based on identified risks**

Additional NRC audits will occur between the three milestones (start, mid-point and end of CAP) for particular CMAs where there are identified risks. For example, CMAs that are less developed organisationally can expect more frequent audits than those that successfully demonstrate compliance with the standard and achievements against targets. This acts as an incentive for improved performance and an opportunity for the NRC, the CMAs and others to focus attention on resolving any difficulties. Well performing CMAs may also initiate their own additional audits as a good business practice.

Equally, CMAs hampered by significant external constraints, whether institutional, social or economic, may also benefit from more frequent audits. For example, Sydney Metro and Hawkesbury Nepean CMAs face considerable institutional and economic constraints to achieving successful implementation of their CAPs. This is because other institutions – including water authorities and local government – have significantly more control over natural resources in these catchments, and much greater capacity for investment than the CMAs. Uncertainty about the evolution of institutional arrangements in these catchments may mean that it is appropriate to trigger more frequent audits and reviews of CAPs to maximise the potential for cooperative and coordinated effort.

These additional audits are intended to be constructive rather than punitive. They will provide opportunities for identifying what is and isn't working, and for applying and sharing the lessons learned. Therefore, a high audit frequency should not be interpreted as an indicator of poor performance.

## **4.2 Potential to meet multiple reporting requirements with single audit**

Joint funding of NRM by the Australian and NSW Governments means there are multiple reporting and auditing requirements imposed on CMAs. There are also potential overlaps with other requirements, such as State of the Environment (SoE) reporting and the National Land and Water Resources Audit. The NRC is consulting closely with the Australian Government and seeking to coordinate with NSW agencies to ensure that all audit and reporting processes are streamlined and can satisfy requirements of all stakeholders.

Under the bilateral agreements between the Australian and NSW Governments for the National Action Plan for Salinity and Water Quality and for the Natural Heritage Trust, CMAs are required to monitor, evaluate and report on funded management actions that contribute to progress towards management and catchment targets. This information will also inform NRC audits of the implementation and effectiveness of CAPs.

In addition, CAPs must meet specific criteria for national accreditation under these agreements. These criteria are consistent with the NRC's state-wide standard. They include (among other things) that CAPs be underpinned by scientific analysis, have effective involvement of all key stakeholders in plan development and implementation, and demonstrate consistency with other planning processes and legislative requirements applicable to the region. The NRC's recommended standard comprehensively addresses all these criteria. If CMAs apply the standard from the start of CAP development, they should automatically satisfy the national accreditation process. The NRC will continue its efforts to ensure its processes are coordinated with the national accreditation process to avoid duplicated effort.

At the mid-term and end of the life of the CAP, the NRC believes that the aggregated achievements in catchments on a state-wide basis should be assessed, using the collated audit assessments of each CMA as well as state-wide monitoring of state-wide targets and indicators.<sup>22</sup> Such an assessment would provide consistent and credible information for a 'NSW State of the Environment' report. For example, the biodiversity, water and land resource condition targets correspond with three of the key themes that are used in SoE reporting. Similarly, local government is required to regularly produce SoE reports. There is potential to use resource condition information collected at the catchment level to inform these local government reports. Currently, a NSW SoE report must be produced every three years and relies on collating best-available information from a wide range of sources with varying frequency and reliability. Ideally, the timing and frequency of the state-wide assessment would be aligned with SoE reporting.

In addition, the National Land and Water Resources Audit collects and collates primary national NRM data and information, and reports on trends in natural resource condition. Monitoring and evaluation of the NRC's recommended state-wide resource condition indicators will satisfy the quality and consistency requirements of the NLWRA and ensure that a comprehensive set of NSW data can be used to inform nation-wide assessment of resource condition. Previously, NSW has not been able to provide state-wide coverage for key datasets that other states have provided, which limits the overall national assessment.

The NRC is consulting with the relevant state and national agencies to identify common needs and assist in the development of a streamlined approach to reporting and auditing. Success of this approach requires strong government commitment.

### ***Recommendation***

***That the NSW Government endorse a coordinated and streamlined approach to natural resource reporting that meets the needs of the Australian and NSW Governments.***

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<sup>22</sup> The NRC would not necessarily do this assessment. For example, it could be part of the State of the Environment reporting process.

## 5 Actions required for effective implementation of the standard and targets

The NRC has considered what supporting actions the NSW Government needs to take to ensure the recommended state-wide standard and targets can be effectively implemented. It believes that the recommended standard can be adopted immediately which will allow it to be used in the development of CAPs. It believes that targets should not be adopted unless resources are reallocated to the monitoring and evaluation programs that are needed to assess progress towards them. It also recommends that the government consider a range of critical actions when adopting a final set of targets including: extending the requirement to apply the standard and promote the targets to a broader group of natural resource managers (not just CMAs); developing a consistent state-wide natural resources policy; and establishing links between the standard and targets and other government planning processes.

This chapter discusses the critical actions required for implementation of the state-wide standard and targets.

### 5.1 Commit resources to state-wide monitoring and evaluation

Effective monitoring and evaluation at both regional and state levels is critical to the success of the state-wide standard and targets and needs whole-of-government support. The NRC has developed recommended indicators for assessing progress towards the state-wide targets with significant input from an inter-agency working group. The intent is that these state-wide indicators be supplemented by regional monitoring of the implementation of CAPs by CMAs, and other existing monitoring from a variety of sources that will help to interpret state-wide results.

Resource condition targets that are not supported by a monitoring and evaluation program will be ineffective. The NRC's recommended indicators are based on advice from many technical specialists who have considered the existing monitoring programs, the practicality and feasibility of the recommended indicators, and the long-term need for resource condition monitoring to inform future investment and policy priorities. If these indicators are not adopted, the recommended targets are likely to need revision – for example, to focus on shorter term management actions.

Investment in these indicators by state NRM agencies will provide the datasets necessary to begin to assemble aggregated indices of overall landscape health in NSW. These will be valuable for informing future policy directions and investment in NRM.

Adopting the recommended indicators, other than the Sustainable Rivers Audit, would require a reallocation of approximately \$8.3 million per annum from some existing region specific monitoring programs.<sup>23</sup> Willingness, or otherwise, to support state-wide monitoring and evaluation is a fundamental question to be resolved prior to the government's adoption of the state-wide targets.

Indicative costs for the recommended indicators are included in Attachment 4.

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<sup>23</sup> This is an estimate based on advice from staff in NSW government agencies.

***Recommendation***

***Prior to adoption of recommended targets, the NSW Government should ensure relevant agencies have committed to reallocate resources required for effective state-wide monitoring and evaluation of progress towards state-wide targets.***

## **5.2 Extend requirement to apply the standard and targets**

The recommended standard and targets will be much more powerful and effective if applied by all natural resource managers rather than CMAs alone. This broader application is the best way to achieve effective information management and integrated monitoring and evaluation at all scales. It is also the best way to support CMAs, who will rely heavily on support services provided by state agencies and effective partnerships with regional stakeholders, in particular local government, to achieve the outcomes identified in their CAPs.

The state-wide standard has been developed so that it can be used by any natural resource manager at any scale. State-wide targets are also broadly applicable and contributions to their achievement can occur at all scales. Feedback from state agencies suggests willingness to adopt the state-wide standard and targets, particularly where there is no conflict with existing reporting and governance obligations.

If the standard and targets are not broadly applied, CMAs face significant constraints, particularly in coastal and urban areas where the influence of local government and other authorities on natural resources is greatest. For example, Hawkesbury Nepean CMA estimates that it spends more than 50% of its budget on actions to improve river health.<sup>24</sup> This is less than 10% of the annual investment needed to restore environmental flows to the Hawkesbury Nepean system.<sup>25</sup> It is an even smaller proportion of the cost of other actions to improve river health, which include upgrades to sewage treatment plants, improved stormwater management or management of on-site sewage. Clearly, the achievement of improved catchment health depends heavily on the collective efforts of a number of organisations including the state government, water authorities and local government.

Ideally, all CMAs will develop CAPs that set out a strategic vision for the whole of the catchment in consultation with stakeholders. A CAP focused only on what can be achieved under direct control of CMAs would have limited scope and reduced potential for making meaningful contributions to state-wide targets. Application of the standard and targets by other organisations will improve the opportunities for cooperative and collaborative action that ultimately achieves the outcomes defined in a CAP that has a broader vision.

Any decision to extend the requirement to apply the standard and promote the targets to local government would require extensive consultation. While representatives of local government have been involved in the NRC's consultation process, the uncertainty about the relationship between the state-wide standard and targets and local government planning processes and NRM activities has limited the consideration of how and whether the standard and targets could be applied by local government.

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<sup>24</sup> Kerry Brew, pers. comm., August 2004.

<sup>25</sup> Hawkesbury – Nepean River Management Forum (2004) *Water and Sydney's Future – Balancing the values of our rivers and economy*.

### ***Recommendations***

***That all state agencies with responsibilities for NRM be required to apply the standard where it does not conflict with existing reporting and governance obligations.***

***That a review of the applicability of the standard and targets to local government be conducted that includes a comprehensive consultation process.***

## **5.3 Develop consistent policy and programs**

Successful application of the standard and achievement of the targets will depend on these instruments' consistency with the policies and programs of state government agencies. The development of the standard and targets has been informed by existing policy and, in turn, they inform policy development at a range of levels as outlined below.

Firstly, state agencies should develop a high-level policy that defines any additional state priorities for natural resource management. This may involve identifying particular assets in a geographic location that have state value, or developing strategies and policies for particular themes. For example, DEC and DPI are currently developing a new Biodiversity Strategy, which may include specific targets and actions that fit under the umbrella of the state-wide biodiversity targets and are consistent with application of the state-wide standard. State agencies may also wish to develop policy around broad socio-economic issues, which may lead to definition of core targets and indicators that specifically address community health and prosperity.

Secondly, state agencies have a critical role as knowledge generators and brokers. This function includes providing and/or developing tools, methods and guidance that support best practice implementation of the state-wide standard. It also involves conducting research or establishing programs for collecting information to meet identified gaps significant at a state level. State agencies have the scientific expertise and experience needed for this role.

Thirdly, state agencies have an important role in ensuring the infrastructure for information management and monitoring and evaluation is in place, and that the information is accessible and (where possible) integrated at all scales. This is critical for effective implementation of adaptive management using the standard and targets.

Lastly, state agencies have a regulatory role. They are responsible for developing and implementing policy to enforce compliance with existing regulations and plans that are critical to achieving natural resource outcomes consistent with the standard and targets. These include Water Sharing Plans, Water Licences and Property Vegetation Plans.

### ***Recommendation***

***That the NSW NRM agencies develop a Natural Resources Policy that indicates the policy, program and/or investment changes necessary to achieve the targets, any other specific priorities that should be expressed in targets or other instruments, and the methodology for expending state resources across regions to ensure the state-wide targets are achieved.***

## **5.4 Establish links between the standard and targets and planning processes**

There is no clearly established link between the state-wide standard and targets for natural resources and government planning processes including Regional Environment Plans, Local Environment Plans and Development Control Plans. These statutory planning processes significantly affect the capacity to achieve natural resource outcomes, particularly in more densely populated areas along the coast.

Consistent feedback through the NRC's consultation process suggests widespread confusion and concern from local government and CMAs on the relationship between their respective plans. If CAPs are not considered in other planning processes, their effectiveness is severely constrained. There is a need to clearly articulate the respective roles and influence of these plans.

### ***Recommendation***

***That the NSW Government's policy on the respective roles of CAPs and other planning instruments be clearly articulated and communicated.***



# Attachment 1

## STANDARD FOR QUALITY NATURAL RESOURCE MANAGEMENT

## Foreword

This Standard was prepared by the Natural Resources Commission (NRC) for the New South Wales Government. This responsibility was assigned to the NRC under the *Natural Resources Commission Act 2003*.

This Standard addresses quality practice in natural resource management. It is intended to be read in conjunction with the *Guide to Using the Standard for Quality Natural Resource Management*.<sup>26</sup> While it will have general application, the *Guide* will specifically assist NSW Catchment Management Authorities (CMAs) to interpret and apply the Standard.

The Standard is designed to apply to natural resource management at all scales including at the state, regional or catchment, local and property levels. Specifically, the development and implementation of Catchment Action Plans (CAPs) by Catchment Management Authorities (CMAs) must comply with this Standard under s. 13(c) and (d) of the *Natural Resources Commission Act 2003* and s. 20(2)(c) of the *Catchment Management Authorities Act 2003*. The NRC will conduct formal audits of CAPs to assess their compliance with this Standard.

In the development of this Standard, the NRC consulted widely with NSW Catchment Management Authorities, state and Australian Government natural resource management agencies, stakeholders in natural resource management including landholders and environmental interest groups, research organisations and consultants working in natural resource management.

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<sup>26</sup> To be finalised during May and June 2005 as part of a pilot process with three Catchment Management Authorities.

# 1 Introduction

## 1.1 Title of this Standard

This is the Standard for Quality Natural Resource Management (the Standard).

References to state-wide standards for natural resource management in NSW in the *Natural Resources Commission Act 2003* and the *Catchment Management Authorities Act 2003* are references to this Standard.

## 1.2 Scope

The Standard addresses quality practice in natural resource management.

Additional guidance to assist Catchment Management Authorities in applying the Standard is provided in the *Guide to Using the Standard for Quality Natural Resource Management*.<sup>27</sup>

## 1.3 Purpose of the Standard

The purpose of the Standard is to give confidence to the public, government, other interested parties and to natural resource managers themselves that investment in natural resource management is cost effective, protects and improves high value natural resource assets and maximises benefits through actions which contribute to integrated outcomes at all scales. The standard does this by establishing quality processes to deliver best practice natural resource management.

Its aim is to support flexible and innovative regional planning, investment and decision making while ensuring consistency, rigor and accountability in natural resource management.

Under the *Natural Resources Commission Act 2003*, the NRC will assess the consistency of CMA Catchment Action Plans (CAPs) with this Standard and with state-wide targets through a formal audit process. It will also audit the effectiveness of the implementation of those plans in achieving compliance with this Standard and with state-wide targets.

### 1.3.1 Prioritisation

The Standard comprises a number of inter-dependent components which, when applied successfully and together, will support natural resource managers in identifying specific investment priorities and in developing methods for addressing these in the context of state-wide targets. It will promote quality and balanced social, economic and environmental outcomes at local, catchment, state and national scales through transparent decision making and trade-offs.

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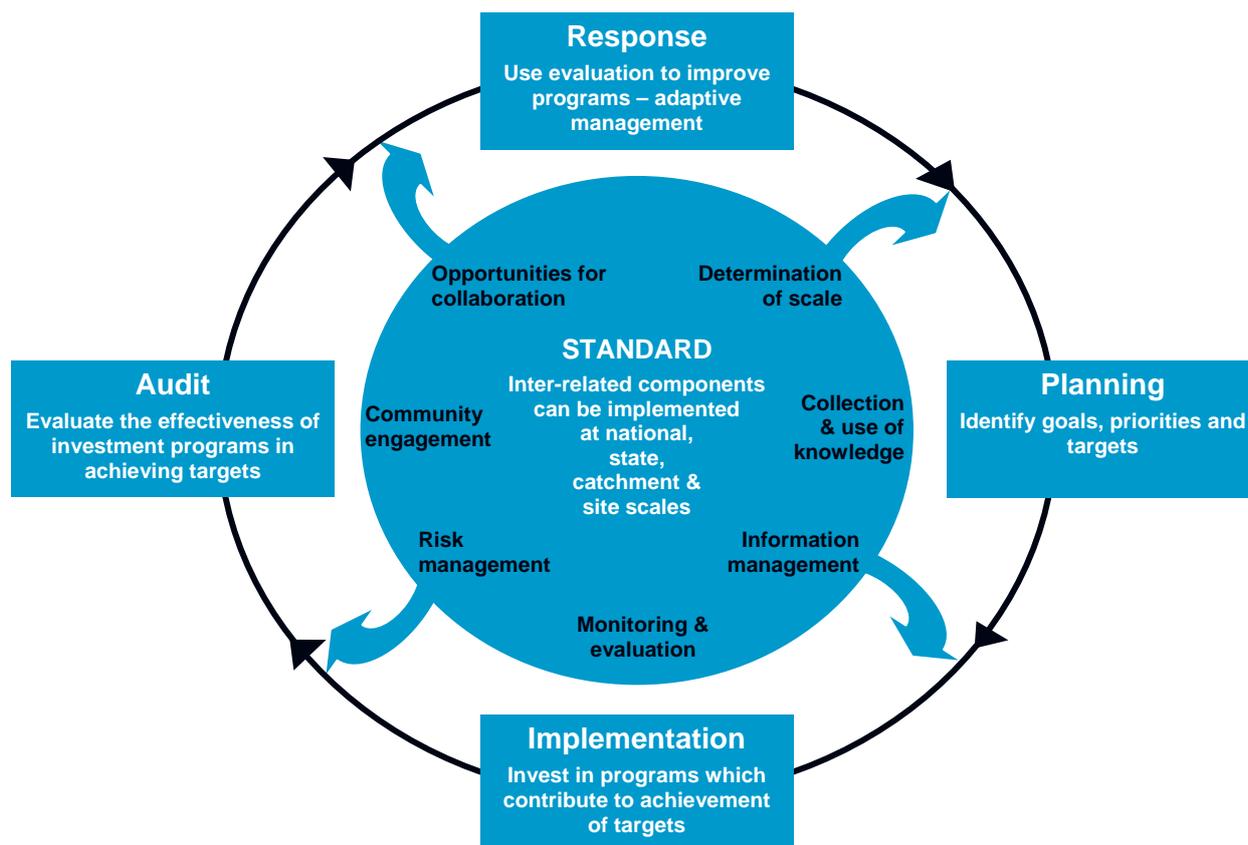
<sup>27</sup> To be finalised during May and June 2005 as part of a pilot process with three Catchment Management Authorities.

### 1.3.2 Continual improvement

Importantly, the Standard, the NRC audit process and the state-wide targets together constitute an integrated approach to achievement of natural resource management goals.

They all inform and drive the application of an adaptive management process by enabling natural resource managers to identify opportunities for improvement and to implement strategies for their achievement (see Figure A1.1).

In a similar manner and in consultation with stakeholders, the Standard itself will be the subject of a continual improvement process.



**Figure A1.1: The standard, together with the state-wide targets and a learning based audit process, will promote the achievement of state-wide and catchment goals through applied adaptive management.**

### 1.4 Who should apply the Standard?

In addition to the legal obligation that applies to CMAs, the Standard is applicable to any organisation that wishes to:

- Develop and implement natural resource management strategies in an efficient, effective and transparent manner
- Address consistency and comparability with others
- Assure itself that it is using quality processes
- Demonstrate such conformance to others, or
- Make a self-declaration of conformance with the Standard.

Such organisations may include:

- State agencies
- Local government
- Regional and community natural resource management groups
- Industry groups concerned with natural resource management, and
- Landholders.

## 1.5 Compatibility with other standards

The Standard is compatible with other national and international quality, environmental and other related standards and complements existing legislation on natural resource management. Natural resource managers are encouraged to integrate the Standard with other business management and compliance systems that they may have in place.

## 1.6 Definitions

**Continuous improvement:** a systematic approach to increasing the efficiency, effectiveness and appropriateness of any NRM process to achieve desired NRM outcomes, including the revision of the desired outcomes themselves.

**Multiple benefits:** outcomes that occur when management actions deliver benefits across institutions, spatial areas, resource assets, time scales and interest groups within the community.

**Natural resource management:** for the purpose of auditing CMAs, the management of water, native vegetation, salinity, soil, biodiversity, coastal protection, marine environment (except for a matter arising under the *Fisheries Management Act 1994* or the *Marine Parks Act 1997*) forestry and any other matter concerning natural resources prescribed by the regulations, as per s. 5 of the *Natural Resources Commission Act 2003*.

**Natural resource manager:** any individual or organisation with responsibility for natural resource management.

**Resource assets:** natural resources that are valued within a community for environment, economic, social or cultural purposes.

**Scale:** the spatial, temporal or institutional dimension of any biophysical, social, economic or cultural aspect of a natural resource management issue.

**Self-declaration:** a declaration made by a natural resource manager that is not formally accredited compliance with the Standard.

**State-wide targets:** targets recommended by the Natural Resources Commission under the *Natural Resources Commission Act 2003* and adopted by the NSW Government for natural resource management in NSW.

## 2 How to use the Standard

The Standard should be used as a tool to improve natural resource management and is designed to be outcome focused. It is not prescriptive in how managers will achieve the required outcomes except when an outcome depends on the common use of an agreed protocol – for example in information management. It encourages innovation and flexibility at all scales. Importantly, it is not intended to be used as a checklist but different components should be used variably in all aspects and stages of natural resource management.

The Standard comprises 7 components. These are: Collection and use of knowledge; Determination of scale; Opportunities for collaboration; Community engagement; Risk management; Monitoring and evaluation; and Information management.

Each component of the Standard specifies a mandatory *Required outcome* which defines the quality of a natural resource management practice that must be achieved.

*Guidance* is provided on how each outcome may be achieved; but it is not mandatory that the guidance be followed. Where there are other means of achieving the required outcome, natural resource managers are free to adopt strategies of their own choice, provided they can demonstrate equivalence of outcome and that the intent of the Guidance has been met.

The Standard describes *Evidence requirements* which indicate the type of objective evidence that an auditor would expect to find to demonstrate that a required outcome is being achieved, that it has been achieved in the past, and is capable of being achieved in the future. The extent of evidence provided should be commensurate with the issue being managed and the strategy being used.

The Standard should be read as a whole and not as a series of independent requirements. Each of the requirements is inter-related with the others, and compliance depends on their being used in an on-going and integrated manner.

Additional assistance, such as technical guidelines on socio-economic analysis, is provided in the *Guide to the Application of the Standard for Quality Natural Resource Management*.

## 3 The Standard

### 3.1 Collection and use of knowledge

#### 3.1.1 Required outcome:

**Use of the best available knowledge to inform decisions in a structured and transparent manner.**

#### 3.1.2 Guidance:

The types of information important to quality natural resource management decisions might include: biophysical characteristics; community social and economic profiles and impact assessments; regionally relevant and scientifically supported technical guidelines; local experience and expertise; Aboriginal traditional and contemporary knowledge; community and stakeholder values; NRM legislation, policies and strategies, cultural heritage assessments; and evaluation results.

The best available knowledge is the most current information that has wide acceptance. Knowledge will continue to develop and should be reviewed and updated as appropriate. Uncertainty should not prevent action, although any uncertainty should be made transparent and addressed through risk management and an adaptive approach.

Possible steps to achieve this outcome include:

- Identify the information applicable to each decision; including datasets, tools, references, regionally relevant technical guidance and other knowledge sources; proportionate to the potential significance of the decision
- Identify all priorities, policies, strategies and legal, social and other obligations that are already in place at a national, state or local level
- Establish mechanisms to access relevant knowledge and expertise, which may include:
  - technical or scientific working groups
  - links with research organisations
  - subscriptions to appropriate publications and circulation lists
  - attendance at appropriate conferences/seminars/field days, and
  - participation in community forums
- Keep records or minutes of consultations
- Assess and document the credibility, validity, reliability, relevance and accessibility of available information
- Research and consider the socio-economic profile of the geographical area and its key constituents
- Incorporate lessons learned from previous experiences and evaluation processes
- Keep a copy of all documented information that was used as the basis for decisions
- Record how the information was applied, including any data analysis and manipulation/interpretation tools
- Record any adaptations or assumptions made and their impact on decisions
- Identify and resolve any inconsistencies or contradictions in information

- Document any gaps in the knowledge required and identify opportunities for the proposed investment to supplement existing data.

### **3.1.3 Evidence requirements:**

- Staff members are able to identify appropriate information sources
- Mechanisms to maintain technical knowledge and expertise and awareness of community issues
- Records of the identities, sources and locations of all information used and reasons for decisions on their acquisition and use
- Sample records indicate a depth and breadth of literature search and consultation commensurate with the potential level of investment and significance of the project
- Demonstrated understanding of the socio-economic profile of the area
- Sample records reflect the analysis and application of current scientific, social, economic and cultural knowledge
- Records or minutes of consultations
- Evidence of how inconsistencies or contradictions were addressed
- Evidence to demonstrate that the application of this component has informed and been informed by the application of other components

AND/OR

- Documented evidence of additional or alternative strategies used to achieve the required outcome.

## 3.2 Determination of scale

### 3.2.1 Required outcome:

**Management of natural resource issues at the optimal spatial, temporal and institutional scale to maximise effective contribution to broader goals, deliver integrated outcomes and prevent or minimise adverse consequences.**

### 3.2.2 Guidance:

Correct identification of the scale of an issue is fundamental to the effective integrated management of natural resources and to appropriately make trade-offs between social, economic, environmental and cultural outcomes.

The optimal scale for management will depend on the spatial and temporal scales of natural systems and the factors influencing them, the scale that communities engage with natural resources and the scales at which individuals and organisations manage natural resources. These scales do not always align. As a result, managers may need to operate across a variety of scales to address different natural resource issues. This will have implications for the type of knowledge required, the nature of collaborative arrangements and the community engagement necessary to achieve outcomes.

Possible steps to achieve this outcome include:

- Assess the scale – spatial, institutional, temporal – relevant to each issue
- Evaluate the potential for delivery of multiple benefits – environmental, social and economic
- Consider socio-economic impacts and their implications for making trade-offs
- Assess the potential positive and negative impacts on resources and stakeholders at different scales
- Assess the potential contribution to regional or state-wide targets
- Maximise benefits by incorporating assessments of scale into project planning, implementation and review
- Learn from and/or build on previous projects and experiences
- Have regard to risk management strategies when considering impacts on stakeholders.

### 3.2.3 Evidence requirements:

- Evidence of research and analysis of information relevant to determining appropriate scale
- Evidence of a good understanding of relevant regional, state and national issues and social and economic factors associated with scale
- Documented evidence showing that analysis of scale has meaningfully informed planning, implementation, review and making trade-offs
- Documented evidence of risk identification, evaluation and management arising from the identified scale for management
- Evidence to demonstrate that the application of this component has informed and been informed by the application of other components

AND/OR

- Documented evidence of additional or alternative strategies used to achieve the required outcome.

### 3.3 Opportunities for collaboration

#### 3.3.1 Required outcome:

**Collaboration with other parties to maximise gains, share or minimise costs or deliver multiple benefits is explored and pursued wherever possible.**

#### 3.3.2 Guidance:

Collaboration with other parties is a key component of effective natural resource management. It promotes the achievement of integrated outcomes at the optimal scale and can enable managers to access additional resources, properly address the needs of diverse stakeholders, minimise risks and share information.

Parties that may be involved in collaborative action include: state agencies; regional and industry organizations; local and community groups; Aboriginal communities; individual land managers; and local government. Contributions to collaborative action may include the delivery of on-ground works, access to communication networks, resources or equipment and expertise or experience in delivering particular projects.

Possible steps to achieve this outcome include:

- Apply an understanding of the physical scale of each issue and the roles, responsibilities and activities of other parties to identify those that may have a common interest
- Involve potential partners in investigating opportunities for collaboration and in planning action to optimise the management of natural resource issues at the appropriate scale
- Analyse the costs and benefits of possible collaborations
- Define and allocate roles and responsibilities appropriate to each partner's interest and capacity
- Maintain meaningful communication and coordination of collaborative arrangements appropriate to the nature of the partnership
- Define a process for the early identification and timely resolution of conflicts.

#### 3.3.3 Evidence requirements:

- Evidence that collaborative arrangements are sufficient and appropriate to managing issues and maximising benefits at the appropriate scale
- Records of communication and meetings with other parties appropriate to the nature of collaborative arrangements
- Evidence that sufficient responsibility is assigned for the effective management of partnerships
- Formal or informal arrangements with other parties including MoUs or other agreements
- Evidence that the risk of insufficient or ineffective collaboration is identified early and managed or resolved in a timely manner (where necessary with the assistance of third parties)
- Evidence to demonstrate that the application of this component has informed and been informed by the application of other components

AND/OR

- Documented evidence of additional or alternative strategies used to achieve the required outcome.

## 3.4 Community engagement

### 3.4.1 Required outcome:

**Implementation of strategies sufficient to meaningfully engage the participation of the community in the planning, implementation and review of natural resource management strategies and the achievement of identified goals and targets.**

### 3.4.2 Guidance:

Community engagement is critical to the achievement of natural resource goals. Landholders, Aboriginal communities, environmental and other interest groups, government and the general community are all important stakeholders in natural resource management. Between them these groups own or manage natural resources, have experience or knowledge of natural systems, are traditional owners and maintain diverse environmental, economic, social, cultural or spiritual values.

Successful engagement strategies will build a broader understanding of community values, educate, raise awareness, enable participation, anticipate and resolve conflict and increase knowledge of the social and economic impacts of natural resource management actions. Their extent will be proportionate to the potential level of the investment and the possible socio-economic impact.

Possible steps to achieve this outcome include:

- Develop and maintain effective communication networks with all relevant and interested community groups
- Incorporate the range and diversity of community views and values in the development of goals and targets, implementation and review
- Determine the purpose and nature of engagement required to achieve the desired natural resource management outcomes for each project
- Develop and employ engagement strategies at an organisational and project level that recognise diversity within the community, are culturally appropriate, voluntary, and are appropriate to building community capacity and willingness to contribute
- Develop and implement a procedure for handling complaints in a positive and timely manner, commensurate to the extent of operation
- Monitor and evaluate the effectiveness of community engagement strategies.

### 3.4.3 Evidence requirements:

- Evidence of networks that can accommodate diversity within the community and are sufficient to support effective two-way communication
  - Evidence of analysis and response to community views and issues including environmental, social and economic, cultural and spiritual values, particularly where they may be diverse, competing, negative or obstructive
  - Evidence of the assessment of the effectiveness of community engagement strategies and the application of lessons learned from previous experiences
  - Documented complaint handling procedures or a demonstrated intent to respond positively to complaints
  - Evidence that claims will be corroborated by community representatives
  - Evidence to demonstrate that the application of this component has informed and been informed by the application of other components
- AND/OR
- Documented evidence of alternative strategies used to achieve the required outcome.

## 3.5 Risk management

### 3.5.1 Required outcome:

**Consideration and management of all identifiable risks and impacts to maximise efficiency and effectiveness, ensure success and avoid, minimise or control adverse impacts.**

### 3.5.2 Guidance:

Risk is a measure of the likelihood that some external factor will reduce the ability to achieve a desired outcome. In natural resource management risk can be associated with, for example, biophysical, socio-economic, institutional, technical, financial, temporal and cultural factors.

Impacts are the positive and negative consequences of management actions and may be environmental, economic, social and/or cultural.

It is important to assess risk properly and manage it appropriately. High risk does not necessarily preclude an action but rather dictates the need for a management strategy and appropriately focused monitoring and evaluation.

Possible steps to achieve this outcome include:

- Determine key environmental, economic, social, cultural and institutional risk
- Assess all risks on the basis of potential scale, probability, severity and frequency of identified impacts
- Develop prevention and management strategies for risks of all types commensurate with the significance of investment
- Be aware of all potential impacts and manage or mitigate their effects
- Regularly review risk management strategies and update when necessary
- Incorporate the consideration of risks and impacts and any relevant management strategies into monitoring and evaluation activities.

### 3.5.3 Evidence requirements:

- Records of risk and impact identification and assessment of their scale, probability, severity and frequency
  - Records of the development and implementation of strategies for the management of risks and impacts, including monitoring and control protocols
  - Evidence of regular review and subsequent adjustment of risk ratings and management strategies
  - Evidence to demonstrate that the application of this component has informed and been informed by the application of other components
- AND/OR
- Documented evidence of alternative strategies used to achieve the required outcome.

## 3.6 Monitoring and evaluation

### 3.6.1 Required outcome:

**Quantification and demonstration of progress towards goals and targets by means of regular monitoring, measuring, evaluation and reporting of organisational and project performance and the use of the results to guide improved practice.**

### 3.6.2 Guidance:

Evaluation should assess the efficiency, effectiveness and appropriateness of strategies in progressing towards catchment and state-wide targets and compliance with the Standard. Evaluation should inform ongoing management, post-program review and an adaptive approach to promoting continuous improvement in natural resource strategies.

Commitment to monitoring and evaluation programs is essential to the effective assessment of progress and will require cooperation between CMAs, agencies and other natural resource managers at different spatial, temporal and institutional scales. Data collection, management and analysis at these different scales should meet the evaluation and monitoring needs of other parties relying on the use of the data.

Possible steps to achieve this outcome include:

- In association with relevant parties identify performance indicators and information necessary to measure program success and progress towards desired outcomes
- Identify and conform with pre-determined monitoring protocols to ensure quality, objectivity, quantum, confidence levels and credibility of data
- Allocate roles and responsibilities and negotiate any contractual arrangements with third parties sufficient to ensure adequate resourcing, continuity, maintenance and review of the monitoring approach
- Implement a program of internal audit and management review to ensure compliance with this standard
- Develop and employ a procedure for using evaluation in adaptively managing the achievement of goals and targets
- Actively administer the approach to meet the organisation's own needs and to contribute to the needs of external parties
- Ensure that the development of goals and targets include monitoring and evaluation requirements.

### 3.6.3 Evidence requirements:

- Evidence of a documented monitoring and evaluation approach which encompasses all strategies and projects and audit of compliance with the Standard
- Sample documentation that indicates appropriate monitoring and evaluation design, taking into account the specific outcomes and targets being measured, the relevant variables and the prioritisation of monitoring activities on the basis of risk management
- Sample monitoring records that indicate appropriate personnel, methodology, sample sizes, records, auditing and compliance with the predetermined approach
- Sample documentation that indicates appropriate analysis of data and justification of conclusions
- Evidence that monitoring and evaluation meets the needs of the organisation and identified external parties
- Evidence of monitoring and evaluation being used as a tool for corrective and preventative action and continual improvement
- Evidence to demonstrate that the application of this component has informed and been informed by the application of other components

AND/OR

- Documented evidence of alternative strategies used to achieve the required outcome.

## 3.7 Information management

### 3.7.1 Required outcome:

**Management of information in a manner that meets user needs and satisfies formal security, accountability and transparency requirements.**

### 3.7.2 Guidance:

Effective management of information - scientific, economic, social and cultural - is critical to its utility in increasing the quality of natural resource management decisions. Information management systems should accommodate the needs of users operating at different scales and with different capacities.

Such systems will require cooperation between different organisations and agencies to ensure that information capture, storage, description and affordability satisfy user needs, respect confidentiality and facilitate useful interpretation to deliver required products.

Possible steps to achieve this outcome include:

- Design and/or implement information management systems that meet the needs of all users and that all contributors can comply with
- Identify roles and responsibilities for information collection, capture, storage, custodianship, access, use, protection and archiving
- Ensure information management is consistent with any relevant existing protocols
- Document data in a way that allows users to easily determine the suitability of information for their purposes, using the ANZLIC metadata format
- Use information in a manner commensurate with its reliability, sensitivity, intellectual property arrangements (including ownership of Aboriginal information) and commercial confidentiality
- Make information available to potential users in an easily accessible form and at a cost appropriate for the extent and importance of its potential use.

### 3.7.3 Evidence requirements:

- An information management system which meets the needs of the organisation and relevant external parties and is objectively fit-for-purpose given the scale of investment and the nature of decisions
  - Evidence that the quality and integrity of data and other information is maintained through safeguards to ensure its responsible management and use
  - Documentation of responses to user feedback
  - Evidence to demonstrate that the application of this component has informed and been informed by the application of other components
- AND/OR
- Documented evidence of alternative strategies used to achieve the required outcome.

## Attachment 2

# SUPPORTING INFORMATION FOR STATE-WIDE TARGETS

This attachment contains supporting information for the suite of resource condition targets that the NRC is recommending. These include both 'core' and 'additional' targets. The core resource condition targets focus on the key elements of healthy, functioning landscapes (see Table A2.1). Additional resource condition targets focus on a number of specific issues of importance in NSW and they support the achievement of the core targets (see Table A2.2).

**Table A2.1: Core state-wide resource condition targets**

Core resource condition targets	
Biodiversity	<p>1. By 2015 there is an increase in native vegetation extent and an improvement in native vegetation condition</p> <p>2. By 2015 there is an improvement in the sustainability of key native fauna populations</p>
Water	<p>5. By 2015 there is an improvement in the condition of riverine ecosystems</p> <p>6. By 2015 there is an improvement in the ability of groundwater systems to support groundwater dependent ecosystems and designated beneficial uses</p> <p>7. By 2015 there is no decline in the condition of marine waters and ecosystems</p>
Land	<p>10. By 2015 there is an improvement in soil condition</p>

**Table A2.2: Additional state-wide resource condition targets**

Additional resource condition targets	
Biodiversity	<p>3. By 2015 there is an increase in the recovery of key threatened species, populations and communities</p> <p>4. By 2015 there is a reduction in the impact of invasive species</p>
Water	<p>8. By 2015 there is an improvement in the condition of important wetlands, and the extent of those wetlands is maintained</p> <p>9. By 2015 there is an improvement in the condition of estuaries and coastal lake systems</p>
Land	<p>11. By 2015 there is a increase in the area of land that is managed within its capability</p>
Community	<p>12. There is a continual increase in land managers' awareness, knowledge and skills in NRM and adoption of practices which improve natural resource outcomes</p> <p>13. Land managers and other natural resource managers are actively engaged in collaborative action to improve the management of natural resources through the development and implementation of regionally relevant NRM</p> <p>14. There is a continual increase in willingness of land managers, other stakeholders and the community to partner NRM organisations to deliver natural resource outcomes</p>

The NRC expects that the information contained in the following tables will assist the application of these targets at the regional level. For each target, the tables present:

- Rationale and intent of target
- Key links to other state-wide targets
- Key supporting state-wide policies and actions
- How CMAs should apply this state-wide target in their regions
- Examples of how key components of the state-wide standard will assist CMAs to promote this target
- Example of a catchment target (or catchment management target) contributing to this target
- State-wide indicators to assess progress
- Relevant national matter/s for targets.

All documents cited in the supporting information tables are included in the Reference List at the back of this Attachment. The list does not include references to all documents that were consulted in the development of the targets. The list includes many state policies and other documents that will have an impact on the regional application of the targets.

Core Target

# Native Vegetation

## 1. By 2015 there is an increase in native vegetation extent and an improvement in native vegetation condition

<p><b>Rationale and intent of target</b></p>	<p>The intent of this target is to protect the ecological processes supported by native vegetation that underpin primary industries and the community's environmental, social and cultural values. Healthy, functioning native vegetation communities are a fundamental element in healthy, functioning landscapes. They are valuable in themselves, provide habitat for native species, support industries such as native forestry and honey production and have potential to provide other benefits in the future. Native vegetation is also of particular importance to Aboriginal communities and provides ecosystem services such as carbon storage and oxygen production.</p> <p>The overall condition and extent of native vegetation across the state has declined significantly since European settlement, due to pressures such as clearing, grazing, the introduction of exotic species, altered fire regimes and urbanisation. Many NSW coastal areas remain relatively vegetated, and in some areas coverage is increasing. Western landscapes also remain well vegetated, but there is pressure for further clearing in a few locations. Most central landscapes are relatively cleared. Comprehensive native vegetation mapping exists in some areas of NSW, but quantification of the current condition across the state remains unclear. There is very little information on the extent and condition of aquatic and marine vegetation.</p> <p>Progress towards this target will be measured from 2005, where appropriate information and monitoring protocols are available. Where monitoring protocols do not currently exist, the baseline will be the first year that monitoring occurs. Any historical information will be used to provide context for the trend identified between 2005 and 2015.</p>
<p><b>Key links to other state-wide targets</b></p>	<p>This target links to many of the other state-wide targets. For example it is linked to the targets for:</p> <ul style="list-style-type: none"> <li>▪ <i>Riverine ecosystems</i>: Healthy riparian and instream vegetation is vital for fully functioning riverine ecosystems</li> <li>▪ <i>Soil condition and land capability</i>: Native vegetation supports soil processes and limits the area affected by degradation processes such as salinity and erosion.</li> </ul>
<p><b>Key supporting state-wide policies and actions</b></p>	<p>This target builds on existing state-wide policies and legislation such as the <i>Native Vegetation Act 2003</i> and associated regulations, the <i>National Parks and Wildlife Act 1974</i>, and the <i>Fisheries Management Act 1994</i>. The 1999 NSW Biodiversity Strategy contains many objectives and actions relating to native vegetation extent and condition. DEC and DPI are preparing a revised NSW Biodiversity Strategy which is expected to provide further priorities and actions that will contribute to this target.</p> <p>State agencies are working towards providing CMAs and other natural resource managers with comprehensive modelling and information on the condition of native vegetation across NSW.</p>

<b>How CMAs should apply this state-wide target in their regions</b>	<p>The <i>Native Vegetation Act 2003</i> encourages protection of native vegetation regrowth, revegetation and rehabilitation of land. Through Property Vegetation Plans, the Act encourages private landholders to protect regrowth of high conservation value and manage native vegetation consistent with regional, state and national priorities. To a large extent, CMAs will be able to contribute to the achievement of this target by providing incentives for Property Vegetation Plans. Regional vegetation priorities will be reflected in the incentives component of the PVP Developer. CMAs should target areas of their catchment consistent with regional priorities and achieving the state-wide target. Regional values have been identified in some regions in Draft Regional Vegetation Management Plans and in Catchment Blueprints.</p> <p>The value of native vegetation should be assessed on an IBRA sub-region basis,<sup>28</sup> and in the context of how cleared that IBRA sub-region and vegetation type is. Increasing extent might be a focus in more heavily cleared landscapes, or where development pressure is very high. Improvements in condition may be more important in more highly vegetated landscapes.</p>
<b>Examples of how key components of the state-wide standard will assist CMAs to promote this target</b>	<p>All elements of the state-wide standard could be applied by CMAs when promoting this target. Some examples are:</p> <ul style="list-style-type: none"> <li>▪ <i>Risk Management:</i> To a large extent, achieving this target will rely on the voluntary contributions of private landholders. This may be just one risk considered by CMAs when applying appropriate risk identification, assessment, prevention and management strategies.</li> <li>▪ <i>Opportunities for collaboration:</i> As native vegetation is managed on both private and public land, it will be important for CMAs to identify and communicate with other parties that have related responsibilities such as the National Parks and Wildlife Service, Forests NSW and local private landholders.</li> </ul>
<b>Example of a catchment target contributing to this target</b>	<p>By 2012 increase native vegetation cover by 25,000 hectares across the Tablelands, Escarpments and Ranges and Coastal Hills Landscapes to enhance catchment protection while maintaining productive potential (<i>Mid North Coast Blueprint</i>).</p>
<b>State-wide indicators to assess progress</b>	<p>State-wide progress should be monitored by:</p> <ul style="list-style-type: none"> <li>▪ Extent of each vegetation type by IBRA sub-region</li> <li>▪ Vegetation condition (monitoring protocol to be developed)</li> <li>▪ Area of each vegetation type managed for conservation (until monitoring protocols are developed for vegetation condition)</li> </ul> <p>A methodology for measuring native vegetation condition at the state-scale needs to be developed, possibly through site measurements and/or remote sensing technology.</p>
<b>Relevant national matter for targets</b>	<ul style="list-style-type: none"> <li>▪ Native vegetation communities' integrity</li> </ul>

<sup>28</sup> Interim Biogeographic Regionalisation for Australia (IBRA) is a landscape based approach to classifying the land surface. This approach has been developed by the Australian Government Department of Environment and Heritage.

Core Target

# Native Fauna

## 2. By 2015 there is an improvement in the sustainability of key native fauna populations

<p><b>Rationale and intent of target</b></p>	<p>The intent of this target is to protect the ecological processes supported by native fauna (both vertebrates and invertebrates) that underpin the community's environmental, social and cultural values as well as underpinning primary industries. Native fauna are a fundamental element in healthy functioning landscapes. Without native fauna there would be widespread system collapse as native fauna provide essential ecosystem services such as pollination and nutrient cycling. Fauna are therefore important for terrestrial vegetation systems, soil processes and terrestrial ecosystems in general.</p> <p>Most experts believe that the population trend, distribution, survival and reproductive ability of most non-threatened native fauna is declining due to processes such as habitat loss, habitat simplification and predation and competition by exotic species. However, some species have adapted to modified environments and are now over-abundant. Achieving this target will mean preventing key populations from becoming threatened or over-abundant. Extensive monitoring of native fauna extent only exists for waterbirds and kangaroos, although some long-term studies have been conducted for other species in specific locations or regional areas.</p> <p>Progress towards this target will be measured from the first year in which monitoring of the key populations occurs after this target is adopted. Any historical information will be used to provide context for the trend identified between 2005 and 2015. For example, if waterbirds are selected, the baseline for monitoring will be the first study performed after 2005, using data collected since 1983 to provide context to data collected between 2005 and 2015.</p>
<p><b>Key links to other state-wide targets</b></p>	<p>This target links to many of the other state-wide targets. For example it is linked to the targets for:</p> <ul style="list-style-type: none"> <li>▪ <i>Riverine ecosystems</i>: Managing riverine fauna may contribute to improving the sustainability of key native fauna populations</li> <li>▪ <i>Native vegetation</i>: The native vegetation target partners the native fauna target, acknowledging the interactions between native vegetation and fauna.</li> </ul>
<p><b>Key supporting state-wide policies and actions</b></p>	<p>This target builds on existing state-wide policies and legislation such as the <i>National Parks and Wildlife Act 1974</i>, the <i>Threatened Species Conservation Act 1995</i> and the <i>Fisheries Management Act 1994</i>. The 1999 NSW Biodiversity Strategy and the Native Fish Strategy contain many objectives and actions relating to native fauna sustainability. DEC and DPI are preparing a revised NSW Biodiversity Strategy, which is expected to provide further priorities and actions that will contribute to this target.</p> <p>State agencies currently support long-term monitoring of some native fauna populations. Agencies will need to expand or target their support of long-term studies in abundance, distribution and reproductive ability of some native fauna.</p>
<p><b>How CMAs should apply this state-wide target in their regions</b></p>	<p>The application of this target relies on the identification of key fauna populations, either state-wide, regionally or locally. State agencies will need to work collaboratively with CMAs, the community and other partners to determine the high value species for the state. CMAs may also choose to manage species that are regionally important. The specific actions needed to meet this target will depend on the key populations selected, balancing state and regional priorities, and the environmental, economic, social and cultural values the key populations represent to the community. The distribution of key populations may affect the balance of state, regional and local priorities.</p>

<p><b>Examples of how key components of the state-wide standard will assist CMAs to promote this target</b></p>	<p>All elements of the state-wide standard could be applied by CMAs when promoting this target. Some examples are:</p> <ul style="list-style-type: none"> <li>▪ <i>Collection and use of knowledge:</i> There may be very little information available on individual species, so it may be important that CMAs identify the available information applicable to each decision, including datasets, tools, references, information sources and other knowledge bases</li> <li>▪ <i>Opportunities for collaboration:</i> As actions related to native fauna protection will be required on both private and public land, it will be important for CMAs to identify and communicate with other parties with related responsibilities such as the National Parks and Wildlife Service, Forests NSW and local private landholders.</li> </ul>
<p><b>Example of a catchment target contributing to this target</b></p>	<p>No Catchment Blueprints contain targets related directly to key native fauna populations although many contain targets to increase the area managed for conservation, which may improve habitat and contribute to the achievement of this target. For example: By 2012, protect, connect, enhance and manage for biodiversity conservation, a minimum of 30% of the original distribution of each native vegetation community type of the catchment (<i>Southern Blueprint</i>).</p>
<p><b>State-wide indicators to assess progress</b></p>	<p>State-wide progress can be monitored through indicators of distribution, abundance, survival and reproduction of key native fauna groups such as waterbirds and native fish. Surrogates such as measures of connectivity could be used for each key species. Methodology for the measurement of these parameters at the state-scale needs to be developed.</p>
<p><b>Relevant national matter for targets</b></p>	<ul style="list-style-type: none"> <li>▪ Significant native species and ecological communities</li> </ul>

**Additional Target**

# Threatened Species

## 3. By 2015 there is an increase in the recovery of key threatened species, populations and communities

<p><b>Rationale and intent of target</b></p>	<p>The intent of this target is to slow the potential rate of extinction of native species and conserve their current and future economic, social and environmental value. This value exists, for example, in potential food crops and pharmaceuticals and in ecosystem functioning. The conservation of threatened species is also important because of the intrinsic value they hold for many people. Native species, populations and communities are important to Aboriginal culture, and it is important to recover species for cultural reasons as well as ecosystem function and economic and social purposes.</p> <p>Current recovery of threatened species, populations and communities is difficult to determine because comprehensive data are expensive to obtain and often not collected. Expert opinion is that few threatened species have recovered, while more species, populations and communities are becoming threatened. Expert opinion also indicates that it is unrealistic to expect that all threatened species can be recovered. As a result the focus of the target is on key species. These should have both significant value and potential for recovery.</p> <p>Progress towards this target will be measured from 2005 where the information and monitoring protocols exist. Where monitoring protocols do not currently exist, the baseline will be the first year that monitoring occurs. Any historical information will be used to provide context for the trend identified between 2005 to 2015.</p> <p>This target could apply to any key species, population or community that is identified as threatened at state, regional or local scales, not only to those species, populations or communities listed as threatened in legislation (the NSW <i>Threatened Species Conservation Act 1995</i>, NSW <i>Fisheries Management Act 1994</i> and the Commonwealth <i>Environment Protection and Biodiversity Conservation Act 1999</i>). The target allows for flexibility in managing the threatened species, populations and communities that are most likely to benefit from the available resources and capacity.</p>
<p><b>Key links to other state-wide targets</b></p>	<p>This target links to many of the other state-wide targets. For example it is linked to the targets for:</p> <ul style="list-style-type: none"> <li>▪ <i>Invasive species</i>: Many actions required to promote the recovery of threatened species will involve managing invasive species</li> <li>▪ <i>Riverine ecosystems</i>: Threatened species management will promote the effective functioning of riverine ecosystems.</li> </ul>
<p><b>Key supporting state-wide policies and actions</b></p>	<p>This target builds on existing state-wide policies and legislation such as the <i>Threatened Species Conservation Act 1995</i> (as amended) and the <i>Fisheries Management Act 1994</i>. The 1999 NSW Biodiversity Strategy contains many objectives and actions relating to the recovery of threatened species, populations and communities. DEC and DPI are preparing a revised NSW Biodiversity Strategy, which is expected to provide further priorities and actions that will contribute to this target.</p> <p>DEC and DPI currently work collaboratively with other organisations and individuals to recover individual species, populations and communities of high value, and to ameliorate key threatening processes (listed under the <i>Threatened Species Conservation and Fisheries Management Acts</i>).</p>

<b>How CMAs should apply this state-wide target in their regions</b>	CAPs and associated investment activities will need to balance regional priorities with state priorities where they have been identified in the state policies listed above, with particular attention on the lists of threatened species, populations and communities. Some threatened species, populations or communities will be of particular value to a catchment community. CMAs may focus threatened species actions on the recovery of those high-value species, populations or communities if available resources are likely to be effective in reversing declining trends. Many recovery actions are likely to focus on managing threatening processes. Threatened species profiles produced by DEC and DPI can provide guidance on identifying regional priorities and actions, as can recovery plans where they have been prepared, Priorities Action Statements, and priorities identified within Catchment Blueprints.
<b>Examples of how key components of the state-wide standard will assist CMAs to promote this target</b>	All elements of the state-wide standard could be applied by CMAs when promoting this target. Some examples are: <ul style="list-style-type: none"> <li>▪ <i>Collection and use of knowledge:</i> CMAs will need to identify the threatened species information appropriate to each decision. Relevant information may include current known distribution and modelling tools.</li> <li>▪ <i>Community engagement:</i> To encourage community awareness, capacity and participation, CMAs need to ascertain community views and values, including those of Aboriginal communities, when prioritising actions that may impact on threatened species, populations and communities.</li> </ul>
<b>Example of a catchment target contributing to this target</b>	Improve from their 2001 status threatened species, populations or ecological communities found naturally within the Gwydir catchment listed under the <i>Threatened Species Conservation Act 1995</i> or <i>Commonwealth Environmental Protection and Biodiversity Conservation Act 1999</i> , by 2010 ( <i>Gwydir Blueprint</i> ).
<b>State-wide indicators to assess progress</b>	State-wide progress should be monitored through the following indicators: <ul style="list-style-type: none"> <li>▪ Implementation of high priority actions in Priorities Action Statements (prepared by DEC and DPI for species listed under the <i>Threatened Species Conservation Act 1995</i> and <i>Fisheries Management Act 1994</i>)</li> <li>▪ Recovery of key threatened species, populations and communities.</li> </ul>
<b>Relevant national matter for targets</b>	<ul style="list-style-type: none"> <li>▪ Significant native species and ecological communities</li> </ul>

**Additional Target**

# Invasive Species

## 4. By 2015 there is a reduction in the impact of invasive species

<p><b>Rationale and intent of target</b></p>	<p>The intent of this target is to reduce the impact of one of the greatest threats to biodiversity (Morton <i>et al</i>, 2002) - predation, competition and habitat degradation by invasive species. These processes commonly threaten the survival of native flora and fauna, and interfere with the natural functioning of ecosystems. Invasive species also threaten the social and economic values of many local communities through their impact on agricultural systems. It is estimated that invasive species cost NSW hundreds of millions of dollars in control and lost production (NSW Weed Strategy).</p> <p>Invasive species (both pest animals and plants) continue to have a large negative effect on biodiversity and are expected to remain a major problem. Despite successful control programs for some species, the abundance and extent of most invasive species in NSW has not reduced and new invasive species have continued to establish themselves (DPI Submission on NRC Consultation Paper).</p> <p>Progress towards this target will be measured from 2005 where information and monitoring protocols exist. Where monitoring protocols are not yet developed, the baseline will be the first year that monitoring occurs. Historic information will be used to provide context for the trend identified between 2005 and 2015.</p> <p>'Invasive species' includes exotics and natives, aquatic, terrestrial and marine flora and fauna species, vertebrates and invertebrates. It includes, but is not limited to, listed noxious weeds and pest animals and may include over-abundant natives. This target recognises that some species will be invasive in some areas but not others, and the species targeted for action should reflect the impact they are having on high value assets. It does not necessarily include all exotics, as these may not be considered invasive. Actions should focus on those species that are having the greatest negative impact on assets with environmental, economic, social or cultural values and for which there is potential to reverse the negative impact with available resources.</p>
<p><b>Key links to other state-wide targets</b></p>	<p>This target links to many of the other state-wide targets. For example it is linked to the targets for:</p> <ul style="list-style-type: none"> <li>▪ <i>Native vegetation</i>: Invasive species are an important process threatening the natural functioning of native vegetation</li> <li>▪ <i>Riverine ecosystems</i>: Invasive species threaten the ability of riverine ecosystems to function effectively.</li> </ul>
<p><b>Key supporting state-wide policies and actions</b></p>	<p>This target builds on existing state-wide policies and legislation such as the <i>Noxious Weeds Act 1993</i>, the <i>Rural Lands Protection Act 1998</i>, the <i>Native Vegetation Act 2003</i> and associated regulations, the <i>Threatened Species Conservation Act 1995</i>, the <i>Fisheries Management Act 1994</i>, and the 1998 NSW Weed Strategy. The 1999 NSW Biodiversity Strategy contains objectives and actions related to the management of invasive species. DEC and DPI are preparing a revised strategy, which is expected to provide further priorities and actions that will contribute to this target. The responsibility for the control of pests and weeds is shared by DPI, DEC, local councils, Rural Lands Protection Boards and landholders. DPI regularly collates information on pest animal distribution and abundance and is investigating the possibility of collecting similar information on weeds. This will provide data for the indicators, as well as information for CMAs and other organisations wishing to promote this target.</p>

<p><b>How CMAs should apply this state-wide target in their regions</b></p>	<p>Regional priorities and values will need to be balanced with the direction provided by the state policies listed above, and with local values, depending on the distribution and impact of targeted weeds and pests. Catchment Blueprints will express regional priorities, as will Regional Weed Management Plans where they have been prepared. CMAs may choose to identify high-value areas for treatment of invasive species. Alternatively, they may choose to manage invasive species by targeting those that are causing major impacts or those that can be treated most effectively with available resources.</p>
<p><b>Examples of how key components of the state-wide standard will assist CMAs to promote this target</b></p>	<p>All elements of the state-wide standard could be applied by CMAs when promoting this target. Some examples are:</p> <ul style="list-style-type: none"> <li>▪ <i>Determination of scale:</i> The expected public and private benefits of management actions for invasive species will need to be assessed across different spatial, temporal and institutional scales. As many actions likely to be funded through CMAs will involve the control of invasive species on private land, the public benefit of these actions should be identified.</li> <li>▪ <i>Opportunities for collaboration:</i> Communication with other parties with related roles, interests and responsibilities such as Rural Lands Protection Boards may identify opportunities for coordinated management of pest animals.</li> </ul>
<p><b>Example of a catchment management target contributing to this target</b></p>	<p>By 2012 the area of public and private land and waters infested with listed high priority weeds will not exceed year 2000 levels (<i>South East Blueprint</i>).</p>
<p><b>State-wide indicators to assess progress</b></p>	<p>State-wide progress should be monitored through the following indicators:</p> <ul style="list-style-type: none"> <li>▪ Distribution and abundance of key invasive species (possibly new and emerging threats)</li> <li>▪ Number of invasive species established</li> <li>▪ Success of control programs in reducing the impact of key invasive species</li> </ul>
<p><b>Relevant national matter for targets</b></p>	<ul style="list-style-type: none"> <li>▪ Ecologically significant invasive species</li> </ul>

Core Target

# Riverine Ecosystems

## 5. By 2015 there is an improvement in the condition of riverine ecosystems

<p><b>Rationale and intent of target</b></p>	<p>The intent of this target is to protect functioning riverine ecosystems and the environmental, social, economic and cultural values they support. Healthy riverine ecosystems supported by adequate river flows are a fundamental element of healthy, functioning landscapes. Improving the condition of rivers, riparian zones and floodplains across the state will maintain primary ecological production, maintain high-value habitat and viable native flora and fauna populations, and replenish soils. It will also promote the health and well being of rural and urban communities, as well as profitable primary industries across the state. People rely on riverine ecosystems for drinking-water supplies, irrigation, stock watering, industrial use, aquaculture and recreational use. These ecosystems are also of great social, cultural and spiritual importance to Aboriginal and non-Aboriginal communities.</p> <p>Many NSW river systems are extensively degraded and remain under threat, particularly from water extraction but also from flow regulation, poor water quality, changes in land use, clearing of vegetation and destruction of habitat. Improvements in river health will depend largely upon allocation of water for ecological purposes. Without this and other intervention, degradation of many riverine ecosystems is likely to continue in response to past and present activities.</p> <p>Progress towards this target will be measured from 2005. Progress will be reported in terms of the degree of departure from pre-European condition (consistent with the Sustainable Rivers Audit reporting procedures).</p>
<p><b>Key links to other state-wide targets</b></p>	<p>This target links to many of the other state-wide targets. For example it is linked to the targets for:</p> <ul style="list-style-type: none"> <li>▪ <i>Wetlands</i>: The wetlands target will contribute to the broader target of improving the condition of riverine ecosystems</li> <li>▪ <i>Native vegetation</i>: Any improvement in condition or increase on extent in native aquatic, riparian or floodplain vegetation will contribute to the achievement of the native vegetation target</li> <li>▪ <i>Invasive species</i>: Reducing the impact of invasive aquatic flora and fauna species will contribute to improvements in the condition of riverine ecosystems.</li> </ul>
<p><b>Key supporting state-wide policies and actions</b></p>	<p>This target builds on existing state-wide policies and legislation such as the <i>Water Management Act 2000</i> and water sharing plans, Water Quality and River Flow Interim Environmental Objectives, NSW Government Statements of Intent and Healthy Rivers Commission Inquiry Recommendations, NSW Salinity Strategy 2000, NSW Weirs Policy, and the State Water Management Outcomes Plan 2002. State agencies have indicated that development of a state floodplain management and harvesting policy is a high priority.</p> <p>The MDBC is leading the Sustainable Rivers Audit and is in the process of developing further monitoring protocols.</p> <p>To implement the <i>Water Management Act 2000</i>, DIPNR is developing macro plans for parts of NSW not covered by existing Water Sharing Plans.</p>

<p><b>How CMAs should apply this state-wide target in their regions</b></p>	<p>The values provided by riverine ecosystems vary at local, regional and state scales. The scale of each issue the CMA is addressing will determine which values their actions should reflect. For example, issues relating to flow often need to be addressed at the state scale, so decisions related to flow should reflect state-wide priorities. CMAs should also consider regional values and priorities for water management, including allocation, that are expressed in state policies and other documents, such as water sharing plans. Water quality can often be addressed at the local or regional scale, so catchment targets for this issue probably need to reflect regional and local priorities.</p> <p>A variety of other guidance material is also available. For example, the <i>Australian and New Zealand Guidelines for Fresh and Marine Water Quality</i> (ANZECC and ARMCANZ, 2000) provides technical guidance on water monitoring, and the <i>Rehabilitation Manual for Australian Streams</i> (Rutherford <i>et al</i>, 2000) provides guidance on planning and conducting rehabilitation activities.</p>
<p><b>Examples of how key components of the state-wide standard will assist CMAs to promote this target</b></p>	<p>All elements of the state-wide standard could be applied by CMAs when promoting this target. Some examples are:</p> <ul style="list-style-type: none"> <li>▪ <i>Opportunities for collaboration:</i> CMAs are encouraged to investigate opportunities for collaborative action with neighbouring CMAs to address cross-boundary issues - for example, they may collaborate with an upstream CMA on aquatic habitat issues</li> <li>▪ <i>Risk management:</i> CMAs should be aware of all the potential impacts of their activities, and manage or mitigate these impacts. For example, they must manage the potential impacts of floods on riparian works funded through CMA investment.</li> </ul>
<p><b>Example of a catchment target contributing to this target</b></p>	<p>An identifiable net improvement in riverine health across the Lower Murray Darling Catchment by 2012. This will be determined by:</p> <ul style="list-style-type: none"> <li>▪ an improvement in the native to introduced fish ratio (55% improvement in species ratio, 25% improvement in abundance ratio, measurable improvement in biomass ratio)</li> <li>▪ a 20% reduction in the number of days subject to blue green algal alerts</li> <li>▪ the reinstatement of more natural flow patterns as modelled in each of five river management zones (<i>Lower Murray Darling Blueprint</i>).</li> </ul>
<p><b>State-wide indicators to assess progress</b></p>	<p>State-wide progress should be monitored through the following indicators:</p> <ul style="list-style-type: none"> <li>▪ River health through the Sustainable Rivers Audit, which is currently operational within the Murray-Darling Basin. It is proposed that the Audit methods be extended to apply to areas of NSW outside the Murray-Darling Basin. Parameters measured within this Audit include fish, macroinvertebrates and hydrology. Protocols are being developed to measure riparian vegetation/floodplain and physical form</li> <li>▪ Salinity levels according to electrical conductivity and flow data collected at MDBC end-of-valley target sites</li> <li>▪ Chlorophyll.</li> </ul>
<p><b>Relevant national matters for targets</b></p>	<ul style="list-style-type: none"> <li>▪ Inland aquatic ecosystems integrity (rivers and other wetlands)</li> <li>▪ Nutrients in aquatic environments</li> <li>▪ Turbidity/suspended particulate matter in aquatic environments</li> <li>▪ Surface water salinity in freshwater aquatic environments</li> <li>▪ Significant native species and ecological communities</li> <li>▪ Ecologically significant invasive species</li> </ul>

Core Target

# Groundwater

## 6. By 2015 there is an improvement in the ability of groundwater systems to support groundwater dependent ecosystems and designated beneficial uses

<p><b>Rationale and intent of target</b></p>	<p>The intent of this target is to ensure that groundwater continues to support ecosystem functioning, human health and economic activity. Groundwater supports a wide range of ecosystems in NSW, both above and below the ground and healthy groundwater systems are fundamental elements of healthy, functioning landscapes. Many native plant species use groundwater during their lifecycle. A variety of animal species, such as invertebrates and microscopic organisms, live within aquifers and depend on groundwater. Where groundwater is an important contributor to surface flow, terrestrial and aquatic fauna also depend on this resource. Groundwater is a vital resource for human use in both inland and coastal areas. More than 200 towns in NSW use groundwater as their principal water source, and many regional economies rely on it for irrigation, stock watering, industrial purposes and human consumption.</p> <p>Pressure on groundwater resources has increased over recent years and many systems in NSW are at high risk of over-extraction or contamination. Salinity has a major impact on groundwater quality, but contamination by nitrates, pesticides, pathogens, hydrocarbons and other substances is also known to occur. Limited data on water quality are available, so it is difficult to quantify the extent of the problem, the fate of pollutants or the impact on dependent ecosystems.</p> <p>Progress towards this target will be measured from 2006. If 2006 data are not available, the first year that data become available for the selected indicators will be the baseline from which trends are measured. Any historical information will be used to provide context for the trend identified between 2006 and 2015.</p>
<p><b>Key links to other state-wide targets</b></p>	<p>This target links to many of the other state-wide targets. For example it is linked to the targets for:</p> <ul style="list-style-type: none"> <li>▪ <i>Wetlands</i>: Groundwater discharges into and recharges from wetlands. The volume and quality of water in one will affect the other</li> <li>▪ <i>Native vegetation</i>: Many native vegetation species rely on groundwater.</li> </ul>
<p><b>Key supporting state-wide policies and actions</b></p>	<p>This target builds on existing state-wide policies and legislation, such as the Groundwater Quality Protection Policy 1998, <i>Water Management Act 2000</i>, State Water Management Outcomes Plan 2002, and the Groundwater Dependent Ecosystems Policy 2002.</p> <p>DIPNR is developing groundwater Macro Water Sharing Plans for parts of NSW not already covered by existing water sharing plans.</p> <p>DIPNR has developed a register of groundwater dependent ecosystems, but the information it contains is currently limited and could be reviewed.</p>

<p><b>How CMAs should apply this state-wide target in their regions</b></p>	<p>Regional community values and identified state priorities should influence the way in which this target is implemented through CAPs. Many groundwater systems cross regional boundaries. Where this is the case, a cross-regional focus will be required to implement this target. Regional values are identified in documents such as gazetted Water Sharing Plans and Catchment Blueprints. The Macro Plans being developed by DIPNR will list beneficial uses of groundwater for the remainder of the state. Cross-regional priorities can be identified through documents such as the Great Artesian Basin Strategic Management Plan 2000 and the MDBC's Projections of Groundwater Extraction Rates and Implications for Future Demand and Competition for Surface Water. The state policies listed above provide direction on state priorities.</p>
<p><b>Examples of how key components of the state-wide standard will assist CMAs to promote this target</b></p>	<p>All elements of the state-wide standard could be applied by CMAs when promoting this target. Some examples are:</p> <ul style="list-style-type: none"> <li>▪ <i>Opportunities for collaboration:</i> CMAs will need to collaboratively manage groundwater reserves with some or all of the following stakeholders: DIPNR, irrigators, local government, the MDBC and the Great Artesian Basin Consultative Council</li> <li>▪ <i>Collection and use of knowledge:</i> CMAs will need to identify all priorities and actions that are identified in existing strategies, and obligations that are already in place. Documents such as Water Sharing Plans for groundwater can provide guidance on regional priorities.</li> </ul>
<p><b>Example of a catchment target contributing to this target</b></p>	<p>The Surface Water System Health Index Rating and the Groundwater System Health Index Rating improved at 60% of relevant monitoring sites and maintained at all other monitoring sites by 2010 (<i>Western Blueprint</i>).</p>
<p><b>State-wide indicators to assess progress</b></p>	<p>State-wide progress should be monitored through the following indicators:</p> <ul style="list-style-type: none"> <li>▪ Ratio of groundwater extraction to sustainable yields (long-term average extraction limits)</li> <li>▪ Groundwater base flow in rivers</li> <li>▪ Electrical conductivity at nominated bores</li> <li>▪ Artesian pressure</li> </ul>
<p><b>Relevant national matters for targets</b></p>	<p>No national matters refer specifically to groundwater, but many are indirectly related. For example 'Inland aquatic ecosystems integrity'.</p>

Core Target

# Marine Waters

## 7. By 2015 there is no decline in the condition of marine waters and ecosystems

<p><b>Rationale and intent of target</b></p>	<p>The intent of this target is to maintain the current integrity of NSW marine ecosystems<sup>29</sup> that underpin the social, economic and cultural values of all NSW communities. Healthy marine ecosystems are a fundamental element of healthy, functioning landscapes. Marine waters support commercial industries such as fisheries and aquaculture and have an important role in coastal recreation. In addition, access to a healthy coastal environment is important for many location-specific values for Aboriginal and non-Aboriginal communities.</p> <p>NSW marine waters are generally in good condition but are subject to a range of threats and impacts - particularly from urban development, inappropriate land management (point and diffuse source pollution) and recreational use (DEC, 2003). These pressures are increasing, although no comprehensive state scale data for the condition of marine water ecosystems are available to establish current (baseline) condition.</p> <p>Progress towards this target will be measured from 2006. If 2006 data are not available, the first year that data become available for the selected indicators will be the baseline from which trends are measured. Any historical data will be used to provide context for the trend identified between 2006 and 2015.</p>
<p><b>Key links to other state-wide targets</b></p>	<p>This target links to many of the other state-wide targets. For example it is linked to the targets for:</p> <ul style="list-style-type: none"> <li>▪ <i>Land capability</i>: Promoting the use and management of land within its capability will reduce pollutants entering marine waters</li> <li>▪ <i>Riverine ecosystems</i>: The riverine ecosystem target promotes freshwater quality, improved habitat and the integrated management of fresh and salt water environments and species that inhabit both zones.</li> </ul>
<p><b>Key supporting state-wide policies and actions</b></p>	<p>This target builds on existing state-wide policies and legislation such as the Coastal Policy 1997, <i>Marine Parks Act 1997</i>, <i>Fisheries Management Act 1994</i>, <i>Marine Protected Areas in NSW: An Overview 2001</i>, and the Strategic Framework for the Evaluation and Monitoring of Marine Parks in NSW 2004. Consistent with the <i>Natural Resources Commission Act 2003</i>, this target applies unless there is a conflict with a matter arising under the <i>Fisheries Management Act 1994</i> or the <i>Marine Parks Act 1997</i>.</p> <p>NSW is committed to developing a comprehensive, adequate and representative system of marine protected areas and implementing a monitoring, research and evaluation program for all marine parks (MPA, 2000).</p> <p>DIPNR has prepared a draft Coastal Zone Management Manual to guide the integrated management the coastal zone. The manual is being updated to consider initiatives such as regional strategies and the establishment of CMAs.</p> <p>A draft set of Marine Water Quality Objectives for NSW Marine Waters 2004 has been prepared.</p>

<sup>29</sup> NSW marine waters extend 3 nautical miles off the NSW coast.

<p><b>How CMAs should apply this state-wide target in their regions</b></p>	<p>The values of marine waters vary at the local and regional scales. It is expected that specific targets and actions will implement state priorities (to maintain or improve marine ecosystems, including their water quality, for their integrity) consistent with regional community values, local characteristics and the capacity of communities. Guidance on other state and regional priorities is available from the state policy documents listed above. Regional priorities may also be included in the Catchment Blueprints.</p> <p>In many cases CMAs, themselves, will have limited direct influence on achieving this target since key actions are more directly controlled by other bodies. Through application of the state-wide standard, CMAs may decide that contributing to this target is a relatively low priority for them.</p> <p>DIPNR's current work to develop regional strategies along the NSW coast will produce further location-specific guidance for the implementation of this target, particularly in relation to the integration of planning reforms with natural resource management in the coastal zone.</p>
<p><b>Examples of how key components of the state-wide standard will assist CMAs to promote this target</b></p>	<p>All elements of the state-wide standard could be applied by CMAs when promoting this target. Some examples are:</p> <ul style="list-style-type: none"> <li>▪ <i>Risk management:</i> Local councils have an important role in approving and managing coastal development and urban issues such as storm water pollution. The environmental objectives of local councils, and the ability of the CMA to collaborate with councils, are likely to be key institutional risks associated with achieving catchment targets for marine waters.</li> <li>▪ <i>Collection and use of knowledge:</i> The Coastal Policy and Marine Water Quality Objectives may be examples of information applicable to each decision. The Coastal Policy provides information on state priorities, whereas the proposed Marine Water Quality Objectives can provide guidance on regional priorities.</li> </ul>
<p><b>Example of a catchment management target contributing to this target</b></p>	<p>A 2000 ha increase in the area of identified aquatic and marine ecosystems under conservation management by 2007 (<i>Upper North Coast Blueprint</i>).</p>
<p><b>State-wide indicators to assess progress</b></p>	<p>State-wide progress should be monitored through the following indicators:</p> <ul style="list-style-type: none"> <li>▪ Frequency of algal blooms (including monitoring of upwelling events to distinguish between natural and human-induced blooms)</li> <li>▪ Species abundance in rocky reef communities</li> <li>▪ Extent of Marine Protected Areas</li> </ul>
<p><b>Relevant national matter for targets</b></p>	<ul style="list-style-type: none"> <li>▪ Estuarine, coastal and marine habitats integrity</li> </ul>

**Additional Target**

# Wetlands

## 8. By 2015 there is an improvement in the condition of important wetlands, and the extent of those wetlands is maintained

<p><b>Rationale and intent of target</b></p>	<p>The intent of this target is to ensure long-term protection of a diverse range of wetlands and the social, economic, environmental and cultural services they provide. It focuses on ‘important’ wetlands, which are those listed under The Convention on Wetlands (Ramsar, 1971) or the Directory of Important Wetlands in Australia. Wetlands have many social, economic and environmental values, and are linked to Aboriginal and non-Aboriginal religious and spiritual beliefs. Healthy, fully functioning wetlands are important for primary ecological production, water storage, storm protection, flood mitigation, groundwater recharge and discharge, water purification and retention of nutrients and sediments (Ramsar Convention Secretariat, 2004). They contain a diverse range of flora, are important storehouses of plant genetic material, provide permanent and temporary habitat for many animal populations and are breeding grounds for many fish and bird species.</p> <p>Despite their importance, wetlands are some of the most degraded of Australia’s natural resources and they remain under threat, particularly through altered flow regimes, loss of habitat, water harvesting and pollution. Wetlands can only be maintained by the maintenance or reintroduction of a relatively natural hydrological regime.</p> <p>Progress towards this target is to be measured from 2006. Where monitoring protocols are not yet developed the baseline will be the first year that monitoring occurs. Historic information will be used to provide context for the trends identified between 2006 and 2015.</p>
<p><b>Key links to other state-wide targets</b></p>	<p>This target links to many of the other state-wide targets. For example it is linked to the targets for:</p> <ul style="list-style-type: none"> <li>▪ <i>Riverine ecosystems</i>: As wetlands are one component of riverine ecosystems, there is a strong link between these targets</li> <li>▪ <i>Groundwater</i>: A close relationship exists between some groundwater systems and wetlands, as certain groundwater systems discharge into wetlands and are recharged by wetlands.</li> </ul>
<p><b>Key supporting state-wide policies and actions</b></p>	<p>This target builds on existing state-wide policies and legislation such as the Water Quality and River Flow Interim Environmental Objectives, Healthy Rivers Commission Statements of Intent and Inquiry Recommendations, the <i>Water Management Act 2000</i>, State Water Management Outcomes Plan 2002, SEPP 14 – Coastal Wetlands and the MDBC’s Floodplain Wetlands Management Strategy and Floodplain Management Strategy.</p> <p>State agencies are in the process of revising the 1996 Wetlands Management Policy, and have indicated that developing a state floodplain management and harvesting policy is a high priority. DEC and DIPNR are developing a watering plan for the Macquarie Marshes and Gwydir Wetlands.</p>
<p><b>How CMAs should apply this state-wide target in their regions</b></p>	<p>CMAs will need to balance national, state, regional and local priorities when promoting this target. National priorities (expressed through listings under The Convention on Wetlands and the Directory of Important Wetlands) will need to be implemented in line with the values of the local and regional communities. Regional values and priorities for wetlands are expressed in a variety of policies and documents including accredited Catchment Blueprints. Of particular importance are the state policies listed above, Water Sharing Plans and macro plans (under development).</p>

<p><b>Examples of how key components of the state-wide standard will assist CMAs to promote this target</b></p>	<p>All elements of the state-wide standard could be applied by CMAs when promoting this target. Some examples are:</p> <ul style="list-style-type: none"> <li>▪ <i>Community engagement:</i> CMAs should ascertain community views and values, including those of Aboriginal communities, to identify regional priorities that will influence management actions. For example, many wetlands have particular value to local Aboriginal communities.</li> <li>▪ <i>Monitoring and evaluation:</i> To improve their knowledge of wetland systems, CMAs should identify causal links between outputs and project objectives.</li> </ul>
<p><b>Example of a catchment management target contributing to this target</b></p>	<p>By 2006 re-establish natural wetting and drying regimes in three sites totalling an area that accounts for 10% of coastal floodplain wetlands (<i>Mid North Coast Blueprint</i>).</p>
<p><b>State-wide indicators to assess progress</b></p>	<p>State-wide progress should be monitored through the following indicators:</p> <ul style="list-style-type: none"> <li>▪ Extent of important wetlands</li> <li>▪ Inflow hydrology</li> <li>▪ Waterbird distribution and abundance</li> <li>▪ Status and success of waterbird breeding colonies</li> <li>▪ Vegetation condition (monitoring protocol to be developed)</li> </ul>
<p><b>Relevant national matters for targets</b></p>	<ul style="list-style-type: none"> <li>▪ Aquatic ecosystems integrity (rivers and other wetlands)</li> <li>▪ Nutrients in aquatic environments</li> <li>▪ Turbidity/suspended particulate matter in aquatic environments</li> <li>▪ Surface water salinity in freshwater aquatic environments</li> <li>▪ Significant native species and ecological communities</li> <li>▪ Ecologically significant invasive species</li> </ul>

**Additional Target**

# Estuaries and Coastal Lakes

## 9. By 2015 there is an improvement in the condition of estuaries and coastal lake ecosystems

<p><b>Rationale and intent of target</b></p>	<p>The intent of this target is to sustain functional and resilient estuary and coastal lake ecosystems that reflect the social, economic, cultural and environmental values of NSW communities. Estuaries and coastal lakes have an important environmental and economic role as a breeding ground for many fish and shellfish species, and as the site of oyster production. They also have other environmental functions, such as filtering pollutants, and provide opportunities for recreational activities, such as fishing and boating, which also support coastal tourism. Access to healthy estuaries and coastal lakes supports many location-specific values for Aboriginal and non-Aboriginal communities.</p> <p>Most NSW estuaries and coastal lakes are modified or degraded to some extent - very few remain pristine (NLWRA, 2002 and HRC, 2002). Importantly, the condition of estuaries and coastal lakes that are considered 'pristine' (NLWRA, 2002 and HRC, 2002) should be maintained. Estuaries and coastal lakes are variously subject to threats and pressures, particularly from urban development, inappropriate land management (point and diffuse source pollution) and recreational use.</p> <p>Progress towards this target will be measured from 2005 where data exists. Where monitoring protocols are not yet developed, the baseline will be the first year that monitoring occurs. Any historic information will be used to provide context for the trend identified between 2005 and 2015.</p>
<p><b>Key links to other state-wide targets</b></p>	<p>This target links to many of the other state-wide targets. For example it is linked to the targets for:</p> <ul style="list-style-type: none"> <li>▪ <i>Riverine ecosystems</i>: The riverine ecosystems target promotes freshwater quality, improved habitat, and the integrated management of downstream water bodies such as estuaries and coastal lakes</li> <li>▪ <i>Land capability</i>: Management of land within capabilities will reduce off-site pollutant impacts in estuaries and coastal lakes.</li> </ul>
<p><b>Key supporting state-wide policies and actions</b></p>	<p>This target builds on existing state-wide policies and legislation such as the <i>Coastal Protection Act 1979</i>, <i>Fisheries Management Act 1994</i>, <i>Coastal Policy 1997</i>, <i>Water Quality and River Flow Interim Environmental Objectives</i>, <i>Water Management Act 2000</i>, <i>State Water Management Outcomes Plan 2002</i>, <i>SEPP 71 - Coastal Protection</i>, the NSW Government's Statements of Intent (in particular for Coastal Lakes of NSW), and other Healthy Rivers Commission Inquiry Recommendations.</p> <p>The NSW Government has committed to implementing the first stage of the Coastal Lakes Strategy (HRC, 2003). This includes preparing sustainability assessments and strategies for eight priority coastal lakes.</p> <p>NSW Estuary Management Plans are the basis for estuary management in NSW. These are developed at a local scale and should be based on best available information and community consultation.</p> <p>DIPNR has prepared a draft Coastal Zone Management Manual to guide the integrated management of estuaries and the coastal zone. The manual is being updated to consider initiatives such as regional strategies and CMAs.</p>

<p><b>How CMAs should apply this state-wide target in their regions</b></p>	<p>The values provided by estuaries and coastal lakes vary at the local, regional and state scales. Specific targets and actions within CAPs should aim to improve degraded estuaries and coastal lakes ecosystems consistent with regional community values and capacity, NRM priorities and local characteristics. Regional targets and actions should also aim to protect estuaries and coastal lakes identified as 'pristine' or of high conservation value in resource assessments. Regional priorities may be identified in the Statement of Intent for the Coastal Lakes of NSW, Water Quality and River Flow Interim Environmental Objectives and Catchment Blueprints.</p> <p>DIPNR's current work to develop regional strategies and manuals along the NSW coast will produce further location-specific guidance for this target, particularly in relation to the integration of planning reforms with natural resource management in the coastal zone.</p>
<p><b>Examples of how key components of the state-wide standard will assist CMAs to promote this target</b></p>	<p>All elements of the state-wide standard could be applied by CMAs when promoting this target. Some examples are:</p> <ul style="list-style-type: none"> <li>▪ <i>Collection and use of knowledge:</i> The <i>Statement of Intent for NSW Coastal Lakes</i> is an example of a priority or strategy that should be identified, as it is already in place at a state level</li> <li>▪ <i>Opportunities for collaboration:</i> CMAs should identify and communicate with groups such as local estuary committees, which have related roles, interests or responsibilities.</li> </ul>
<p><b>Example of a catchment target contributing to this target</b></p>	<p>No decline, and where appropriate an improvement, in Estuarine Ecosystem Functioning as reflected in key indicators by 2012 (<i>Central Coast Blueprint</i>).</p>
<p><b>State-wide indicators to assess progress</b></p>	<p>State-wide progress should be monitored by the Sustainable Rivers Audit, through the expansion of the current audit activities into coastal areas. The following indicators should be incorporated into the Sustainable Rivers Audit assessments of estuaries and coastal lakes:</p> <ul style="list-style-type: none"> <li>▪ Extent of mangroves, saltmarsh, seagrass, macroalgae, emergent macrophytes and foreshore/entrance development</li> <li>▪ Fish assemblages</li> <li>▪ Pelagic chlorophyll</li> <li>▪ Stress biomarkers</li> <li>▪ Freshwater inflows</li> </ul> <p>Data describing sea level and modified entrance opening/closing could provide contextual information to assist the evaluation of these indicators.</p>
<p><b>Relevant national matter for targets</b></p>	<ul style="list-style-type: none"> <li>▪ Estuarine, coastal and marine habitats integrity</li> </ul>

## Soil Condition & Land Capability

<b>Core Target</b>	<b>10. By 2015 there is an improvement in soil condition</b>
<b>Additional Target</b>	<b>11. By 2015 there is an increase in the area of land that is managed within its capability</b>
<b>Rationale and intent of targets</b>	<p>The intent of these targets is to conserve ecosystem functioning provided by land, improve the profitability of industries supported by soils, promote the biological diversity within soils, and limit off-site impacts of soil degradation (such as water quality degradation). The achievement of these targets will reduce specific degradation processes such as erosion, dryland salinity and induced soil acidity.</p> <p>Soil is the most important resource within the 'land' asset, and awareness of the fundamental importance of soil condition needs to be improved. Healthy soils are a fundamental element of healthy, functioning landscapes as they have nutrient cycling and moisture holding capability and support diverse populations of flora and fauna both above and below the ground. They are also more stable than soils in poor condition and are less subject to erosion and other degradation pressures.</p> <p>Increasing the area of land managed within its capability focuses on management practices rather than resource condition, however managing land within its capability is the single most important factor affecting long-term soil condition. This target also provides a way of considering other aspects of 'land' apart from soil (such as slope).</p> <p>Current trends in soil condition and land management are difficult to determine as limited recent state-wide data are available. Available data indicate that the area affected by salinity in NSW is increasing, as is the area affected by acidity (DEC, 2003).</p> <p>Progress towards these targets is to be measured from 2006. If 2006 data are not available, the first year data become available for the selected indicators will be the baseline from which trends are measured. Any historical information will be used to provide context to the trend identified between 2006 and 2015.</p>
<b>Key links to other state-wide targets</b>	<p>These targets link to many of the other state-wide targets. For example they are linked to the targets for:</p> <ul style="list-style-type: none"> <li>▪ <i>Riverine ecosystems</i>: Improving soil condition and land management will lead to an associated improvement in water quality</li> <li>▪ <i>Native fauna</i>: Improvements in soil condition will improve the habitat of fauna that live in soil.</li> </ul>
<b>Key supporting state-wide policies and actions</b>	<p>These targets build on existing state-wide policies and legislation such as the Policy for Sustainable Agriculture 1998, the State Soils Policy 1987, the Salinity Strategy 2000, and the <i>Soil Conservation Act 1938</i>. DIPNR and DPI are working to enhance state-wide data on land use and are collaborating with CMAs to promote appropriate land management.</p>

<p><b>How CMAs should apply these state-wide targets in their regions</b></p>	<p>CMAs will need to balance regional community values with state-wide priorities when promoting these targets through CAPs. Actions that are focused on specific degradation processes to improve soil condition and actions to promote land managed within its capability will vary at regional and local scales, although they should reflect state priorities where these are identified (such as the policy goal of the State Soils Policy). Cross-regional values may need to be considered where there are cross-regional impacts associated with land degradation. The Land and Soil Capability System<sup>30</sup> provides a method for assessing hazards at the regional and local levels. Application of these targets may prompt CMAs to assess the land in their catchment according to that classification system and target incentives towards the greatest hazards. Regional priorities may already be identified in Catchment Blueprints.</p> <p>CMAs will be able to assess their contribution to these targets through supplementing data collected to inform state-wide progress or by monitoring surrogates such as groundcover.</p>
<p><b>Examples of how key components of the state-wide standard will assist CMAs to promote these targets</b></p>	<p>All elements of the state-wide standard could be applied by CMAs when promoting this target. Some examples are:</p> <ul style="list-style-type: none"> <li>▪ <i>Determination of scale:</i> Management actions that improve soil condition will be assessed by considering the different scales of expected public and private benefits. For example, funds to improve soil health may be directed towards actions that reduce the impacts of erosion on water quality downstream.</li> <li>▪ <i>Community engagement:</i> As actions on private land will have the greatest impact on the achievement of this target, CMAs should engage private landholders in the promotion of appropriate land management practices.</li> </ul>
<p><b>Example of a catchment target contributing to these targets</b></p>	<p>Soil degradation in high hazard areas identified in 2001 is reduced by a minimum of 50 ha by 2012 (<i>Central Coast Blueprint</i>).</p>
<p><b>State-wide indicators to assess progress</b></p>	<p>Soil Condition: State-wide progress should be monitored through changes in the area of land subject to the following (where they are regionally relevant): water erosion, wind erosion, dryland salinity, induced soil acidity, acid sulfate soil, soil sodicity and improved soil carbon. A state-wide soil condition index could be developed using these parameters.</p> <p>Land Capability: State-wide progress should be monitored through changes in area of land used and managed within its capability. Land capability will be determined using the Land and Soil Capability System.</p> <p>Groundcover and land use will need to be monitored as part of the monitoring program for these targets as they inform the above indicators.</p>
<p><b>Relevant national matter for targets</b></p>	<ul style="list-style-type: none"> <li>▪ Soil condition</li> <li>▪ Land salinity</li> </ul>

<sup>30</sup> The Land and Soil Capability System has been recently developed by DIPNR and applied within the PVP Developer.

**Additional Targets**

# Community

**12. There is a continual increase in land managers' awareness, knowledge and skills in NRM and adoption of practices which improve natural resource outcomes**

**13. Land managers and other natural resource managers are actively engaged in collaborative action to improve the management of natural resources through the development and implementation of regionally relevant NRM**

**14. There is a continual increase in the willingness of land managers, other stakeholders and the community to partner NRM organisations to deliver natural resource outcomes**

<p><b>Rationale and intent of targets</b></p>	<p>The intent of these targets is to ensure that the NSW community at all levels is appropriately engaged in managing natural resources and has the capacity to do this effectively. The condition of natural resources depends fundamentally on people and their interaction with the landscape (NLWRA, 2004). Conversely, healthy and prosperous communities rely on natural resources in good condition. The targets focus on the characteristics of communities that can be directly influenced by NRM investment. They are not intended to be targets for overall community wellbeing or socio-economic assessment.</p> <p>Building the capacity of individuals (target 12) will increase the likelihood that private land managers, who manage most of the NSW landscape, will adopt the NRM practices required to achieve the biophysical state-wide resource condition targets. Building social and institutional capacity (targets 13 and 14) will increase the effectiveness of individual action in progressing towards the biophysical targets through partnerships, coordination and focused action. It will also increase the efficiency of individual, collaborative and organisational contributions to future NRM actions.</p> <p>Progress towards these targets is to be measured from 2006. Any historical information will be used to provide context to information collected between 2006 and 2015. Differences in the existing capacity of regional communities will need to be accommodated when considering progress against the baseline data.</p>
<p><b>Key links to other state-wide targets</b></p>	<p>Developing community capacity for NRM will contribute to the achievement of all state-wide resource condition targets. Community capacity is both a short-term and ongoing requirement for progression towards natural resource outcomes.</p>
<p><b>Key supporting state-wide policies and actions</b></p>	<p>Many state NRM policies include actions focused on building community capacity and engaging the community in NRM decisions. Agencies' responsibilities under <i>Learning for Sustainability</i>, the NSW Environmental Education Plan 2002-2005, should contribute to achieving the community targets. These responsibilities are being reviewed as part of the development of a new education plan beginning in 2006.</p> <p>State agencies will need to undertake a state-wide survey to establish a baseline and assess progress towards state-wide community targets. These data will complement project data reported by CMAs and other organisations reporting contributions to the state-wide targets.</p>

<b>How CMAs should apply these state-wide targets in their regions</b>	<p>Implementing these targets will require balancing regional and local needs with state priorities where they have been identified. CMAs already have some responsibilities for education, training and the provision of material for NRM under the <i>Catchment Management Authorities Act 2003</i>. Actions fulfilling this responsibility will contribute to the achievement of the state-wide community targets.</p> <p>Catchment targets and management actions that are developed to contribute to these state-wide targets can also contribute to the achievement of catchment targets for biophysical resource condition.</p> <p>CMAs will be able to implement strategies appropriate for the existing capacity in their catchments in contributing to the state-wide targets. Principles to guide community capacity building are identified in the <i>National Natural Resource Management Capacity Building Framework</i> (NRM Ministerial Council Programs Committee, 2002).</p> <p>CMAs can assess their contribution to the achievement of these targets using the following indicators: CMA investment and land manager participation in education, training and skills transfer through CMA programs (target 12); CMA investment and land manager participation in collaborative action with regional, community or industry groups (target 13); and compliance with the state-wide standard (target 14)</p>
<b>Examples of how key components of the standard will assist CMAs to promote these targets</b>	<p>All components of the state-wide standard could be applied by CMAs when promoting these targets. Importantly, compliance with the standard will contribute to the state-wide target to build institutional capacity (target 14). Some specific examples of how the state-wide standard could be applied by CMAs are:</p> <ul style="list-style-type: none"> <li>▪ <i>Community engagement</i>: It is important that CMAs employ appropriate strategies to create awareness and build capacity to participate in NRM, thereby increasing the community's knowledge and skills (target 12)</li> <li>▪ <i>Opportunities for collaboration</i>: CMAs should investigate opportunities for formation of partnerships. This will contribute to improved management of natural resources through collaboration of land managers and other natural resource managers (target 13).</li> </ul>
<b>Example of a catchment target contributing to these targets</b>	<p>Increase the percentage of landholders using conservation farming practices (minimum till cropping, crop and pasture rotation, sustainable stock management, stubble retention and soil/water conservation works) from 60% to at least 75% by 2010 (<i>Gwydir Blueprint</i>).</p>
<b>State-wide indicators to assess progress</b>	<p>State-wide progress should be monitored by:</p> <ul style="list-style-type: none"> <li>▪ Increase in awareness, knowledge or skills, and change in behaviour of land managers (e.g. adoption of NRM practices)</li> <li>▪ Involvement of key stakeholders in collaborative action and impact of this process on management practices</li> <li>▪ Land manager and key stakeholder willingness to engage in collaborative action with NRM organisations.</li> </ul>
<b>Relevant national matters for targets</b>	<p>The National Framework recognises community capacity as an intermediate outcome, and not a Matter for Target. The Australian and NSW Government Joint Steering Committee requires CMAs' 3 year Investment Strategies to not include community targets separate from catchment targets. However, promotion of these state-wide community targets can contribute to achieving biophysical targets and intermediate outcomes identified in the National Framework.</p>

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## Attachment 3

# PROCESS USED TO DEVELOP THE STATE-WIDE STANDARD AND TARGETS

The NRC consulted with a wide range of stakeholders to develop its recommended state-wide standard, targets and indicators. It held meetings and workshops with all CMAs, regional stakeholders nominated by CMAs, and state government agencies. It also held discussions with more than 100 scientists and technical specialists.

Table A3.1 outlines the key steps in the process used to develop the state-wide standard and targets, and the stakeholders consulted at different stages of the process.

**Table A3.1: Process for developing the state-wide standard and targets**

Month	Step	Details
Jun 2004 - Sep 2004	Hold initial consultations with agencies, CMAs and key stakeholders	
Sep 2004 - Dec 2004	Pilot process to develop working drafts of standards and targets	CMAs involved in the pilot process: Lachlan, Murrumbidgee, Namoi, Southern Rivers and Western
Oct 2004	Release ' <i>A Framework for State-wide Standards and Targets</i> '	
Nov 2004	Release ' <i>Consultation Paper – Draft State-wide Standards and Targets</i> '	Submissions invited on draft standards and targets
Dec 2004 – Apr 2005	Receive feedback on the draft state-wide standards and targets and discuss possible approaches for further development. Feedback received through:	
	<ul style="list-style-type: none"> <li>▪ Workshops and visits with CMAs</li> </ul>	Workshops and/or visits with all CMAs that were not involved in the pilot process
	<ul style="list-style-type: none"> <li>▪ Meetings and phone hook-ups</li> </ul>	Over 100 scientists and technical specialists consulted
	<ul style="list-style-type: none"> <li>▪ Working group</li> </ul>	Inter-agency working group from State and Australian Government agencies established to provide advice on indicators for draft targets
	<ul style="list-style-type: none"> <li>▪ Formal submissions</li> </ul>	22 formal submissions were received on the Consultation Paper

Month	Step	Details
Dec 2004 – Apr 2005	<ul style="list-style-type: none"> <li>▪ Seminars and Meetings</li> </ul>	<ul style="list-style-type: none"> <li>▪ Natural Resources Advisory Council</li> <li>▪ Ministerial Reference Group</li> <li>▪ NRM CEO's Forum (Directors General from various state government departments)</li> <li>▪ Australian Government NRM Team</li> <li>▪ Australian Government and NSW NRM Joint Steering Committee</li> <li>▪ CMA Chairs' meeting</li> <li>▪ CMA General Managers' Workshop</li> <li>▪ DIPNR and DEC Deputy Directors General</li> <li>▪ Australian Government Department of Agriculture, Fisheries and Forestry</li> <li>▪ Policy officers from DIPNR, DEC, DPI and The Cabinet Office</li> <li>▪ Environment groups</li> <li>▪ NSW Farmers Association</li> <li>▪ Agencies and organisations with Aboriginal NRM responsibilities and interests</li> <li>▪ Aboriginal staff from DIPNR and CMAs</li> </ul>
May 2005	Release draft recommendations to government on state-wide standard and targets	Report on draft recommended standard, targets and indicators plus recommendations for effective implementation.
Jun 2005	Release final recommendations to government on state-wide standard and targets	



## Attachment 4

# COST OF MONITORING STATE-WIDE INDICATORS

The NRC estimates that monitoring of the recommended state-wide indicators will require reallocation of approximately \$8.3 million from existing agency expenditure on monitoring and one-off development costs of \$9.5 million. These costs are estimated on the basis of advice to the NRC from an independent scientific expert Working Group<sup>31</sup> and other specialists from NSW agencies.

Established monitoring programs will provide data for some of the recommended biodiversity and land indicators. The existing budget for monitoring these indicators is estimated to be approximately \$6.5 million per annum. Where the state-wide targets and indicators have relevance to the national resource condition matters for target, there may be options for securing funding from Commonwealth monitoring and evaluation programs.

Tables A4.1 and A4.2 provide a breakdown of annual operating costs and development costs, respectively. The following four tables provide a breakdown of costs for monitoring against each group of resource condition targets: biodiversity (Table A4.2), water (Table A4.3), land (Table A4.4) and community (A4.5).

**Table A4.1 Annual operating costs for monitoring the recommended state-wide indicators**

Asset area	Estimated operating cost (\$ 000 p.a.)		Existing budget (\$ 000 p.a.)		Reallocation from existing monitoring programs (\$ 000 p.a.)	
	Core	Additional	Core	Additional	Core	Additional
Biodiversity	3,435	2,530	115	1,355	3,320	1,175
Water	6,658	820	4,961	40	1,697	780
Land	180	700	-	-	180	700
Community	-	413	-	-	-	413
Sub total	10,273	4,463	5,076	1,395	5,197	3,068
<b>Total</b>	<b>14,736</b>		<b>6,471</b>		<b>8,265</b>	

<sup>31</sup> *Suggested indicators for statewide targets*, report to the NRC by an independent scientific expert group, April 2005. The group comprised experts from DIPNR, DEC, DPI, UNSW, DEH and NLWRA.

**Table A4.2 Development costs for recommended state-wide indicators**

Asset area	Core targets (\$000 p.a.)	Additional targets (\$000 p.a.)
Biodiversity	4,790	1,450
Water	-	950
Land	290	1,850
Community	-	120
Sub total	5,080	4,370
<b>Total</b>		<b>9,450</b>

**Table A4.3 Estimated cost for biodiversity indicators**

Target	Indicator	Operating cost (\$ 000 p.a.)	Existing budget (\$ 000 p.a.)	Development cost (\$ 000 one-off)	
Core	Target 1 (Native vegetation)	Extent of each vegetation type by IBRA sub-region	1,660	-	-
		Vegetation condition	1,660	-	3,140
	Target 2 (Native fauna)	Area of each vegetation type managed for conservation	75	75 <sup>32</sup>	1,200 <sup>33</sup>
		Distribution, abundance, survival and reproduction of key native fauna groups	40 <sup>34</sup>	40	450 <sup>35</sup>
	Sub total	3,435	115	4,790	
Additional	Target 3 (Threatened species)	Implementation of high priority actions in Priorities Action Statements	50	50	- <sup>36</sup>
		Recovery of key threatened species, populations and communities	120 <sup>37</sup>	100	450 <sup>38</sup>
	Target 4 (Invasive species)	Distribution and abundance of key invasive species (possibly new and emerging threats)	860	705	1,000
		Number of invasive species established			
	Success of control programs in reducing the impact of key invasive species	1,500 <sup>39</sup>	500	-	
	Sub total	2,530	1,355	1,450	
	<b>Total</b>	<b>5,965</b>	<b>1,470</b>	<b>6,240</b>	

<sup>32</sup> A total of \$225 k over 3 years.

<sup>33</sup> Figure represents funding required to complete database. To date, database has been funded by both the Commonwealth and State.

<sup>34</sup> This includes existing costs for waterbird surveys. Future operating cost will be determined from pilot projects (i.e. development costs) in three years.

<sup>35</sup> \$150 k p.a. over 3 years.

<sup>36</sup> \$500k is committed to develop database as per legislative requirements.

<sup>37</sup> \$6k per species.

<sup>38</sup> \$150 k p.a. over 3 years to identify key species.

<sup>39</sup> \$250k per invasive species.

**Table A4.4 Estimated cost for water indicators**

Target	Indicator	Operating cost (\$ 000 p.a.)	Existing budget (\$ 000 p.a.)	Development cost (\$ 000 one-off)		
Core	Target 5 (Riverine ecosystems)	Fish, macroinvertebrates, hydrology	1,666 <sup>40</sup>	666 <sup>41</sup>	-	
		Riparian vegetation/floodplain	- <sup>42</sup>	-	-	
		Physical form				
		Salinity levels at end-of-valley target sites	345	345	-	
	Target 6 (Groundwater)	Chlorophyll	5	0	-	
		Ratio of groundwater extraction to sustainable yields (long-term average extraction limits)	2,460	2,460	-	
		Groundwater base flow in rivers	1,140	1,140	-	
		Electrical conductivity at nominated bores	500	-	-	
	Target 7 (Marine waters and ecosystems)	Artesian pressure	350	350	-	
		Frequency of algal blooms (including monitoring of upwelling events to distinguish between natural and human-induced blooms)	70	-	-	
		Species abundance in rocky reef communities	120	-	-	
		Extent of Marine Protected Areas	2	-	-	
	Sub total		6,658	4,961	-	
	Additional	Target 8 (Wetlands)	Extent of important wetlands	10	-	-
			Inflow hydrology	- <sup>43</sup>	-	-
Waterbird distribution and abundance			80	40	-	
Status and success of waterbird breeding colonies			120	-	30	
Vegetation condition			80	-	400	
Target 9 (Estuaries & Coastal lakes)		Extent of mangroves saltmarsh, seagrass, macroalgae, emergent macrophytes and foreshore/entrance development	300	-	400 <sup>44</sup>	
		Fish Assemblages	120	-	-	
		Pelagic chlorophyll	80	-	-	
		Stress biomarkers	30	-	120	
		Freshwater inflows	-	- <sup>45</sup>	-	
Sub total		820	40	950		
<b>Total</b>		<b>7,478</b>	<b>5,001</b>	<b>950</b>		

<sup>40</sup> Figure includes current SRA funding for the Murray-Darling Basin (over 6 years including Commonwealth, MBDC and NSW contributions) and additional funding required p.a. for adopting the SRA method for NSW coastal rivers.

<sup>41</sup> Figure is current funding for SRA p.a. (over 6 years) in the Murray-Darling Basin only, including Commonwealth MDBC and NSW contributions.

<sup>42</sup> MDBC is funding development cost over 3 years. Approximate cost is \$2.2 m. Operating costs will be determined post methodology development.

<sup>43</sup> Existing surface water monitoring programs and infrastructure. Costs are shared between DIPNR, MDBC, State Water and other clients.

<sup>44</sup> Develop satellite image methodology.

<sup>45</sup> Existing network but may need expansion.

**Table A4.5 Estimated cost for land indicators**

Target	Indicator	Operating cost (\$ 000 p.a.)	Existing budget (\$ 000 p.a.)	Development cost (\$ 000 one-off)	
<b>Core</b>	Target 10 (Soil condition)	Area of land subject to the following (where they are regionally relevant): water erosion, wind erosion, dryland salinity, induced soil acidity, acid sulfate soil, soil sodicity and improved soil carbon	180	-	290
		Sub total	180	-	290
<b>Additional</b>	Target 11 (Land management)	Area of land used and managed within its capability (using the Land and Soil Capability System)	700	-	1,850
		Sub total	700	-	1,850
		<b>Total</b>	<b>880</b>	<b>-</b>	<b>2,140</b>

**Table A4.6 Estimated cost for community indicators**

Target	Indicator	Operating cost (\$ 000 p.a.)	Existing budget (\$ 000 p.a.)	Development cost (\$ 000 one-off)	
<b>Additional</b>	Target 12 (Awareness, knowledge and skill)	Increase in awareness, knowledge or skills, and change in behaviour by land managers	195	-	50
	Target 13 (Collaboration)	Involvement of key stakeholders in collaborative action and impact of this process on management practices	195	-	50
	Target 14 (Trust and confidence)	Land manager and key stakeholder willingness to engage in collaborative action with NRM organisations	23	-	20
		<b>Total</b>	<b>413</b>	<b>-</b>	<b>120</b>

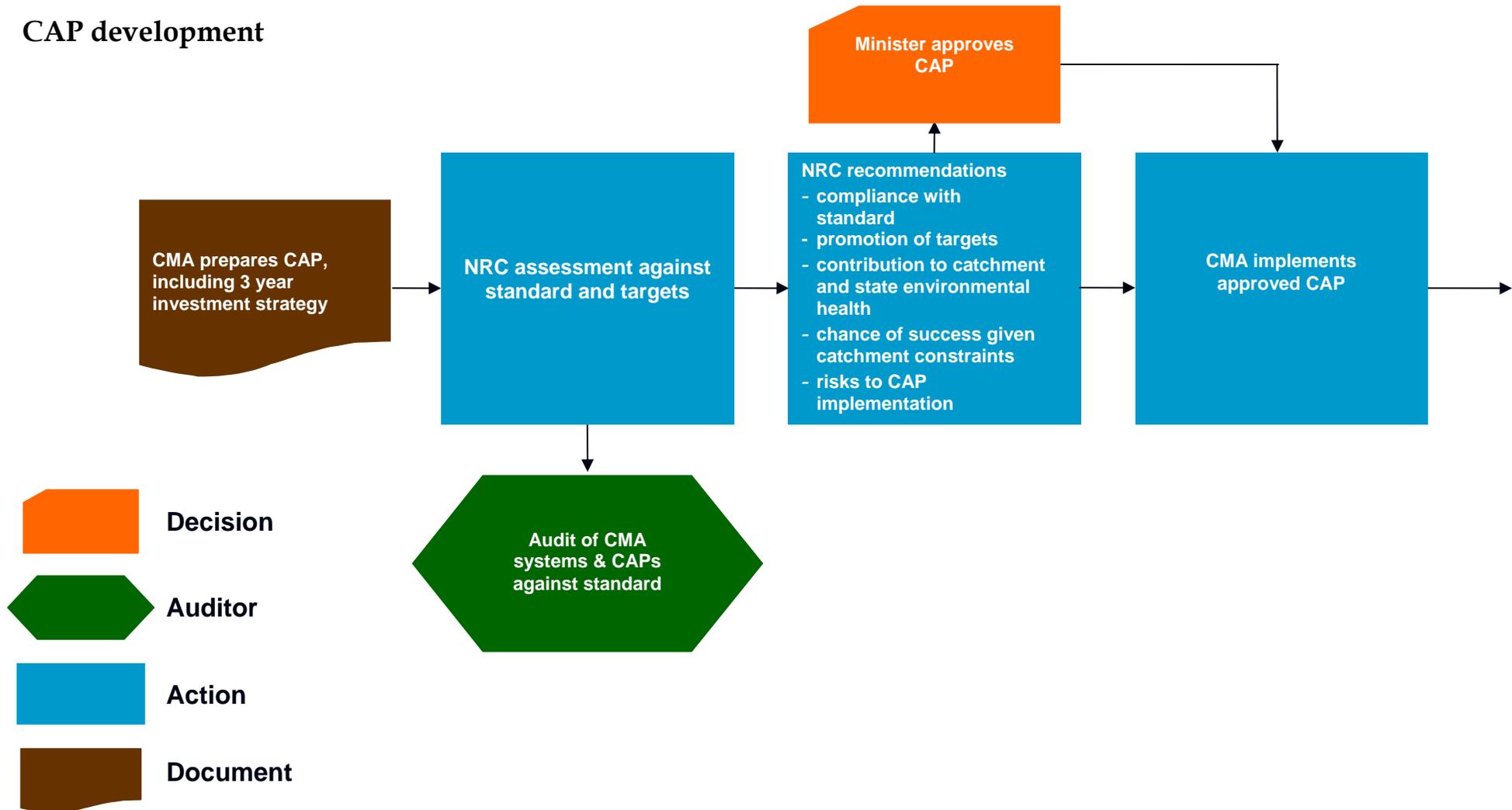


## Attachment 5

# DRAFT AUDIT PROGRAM

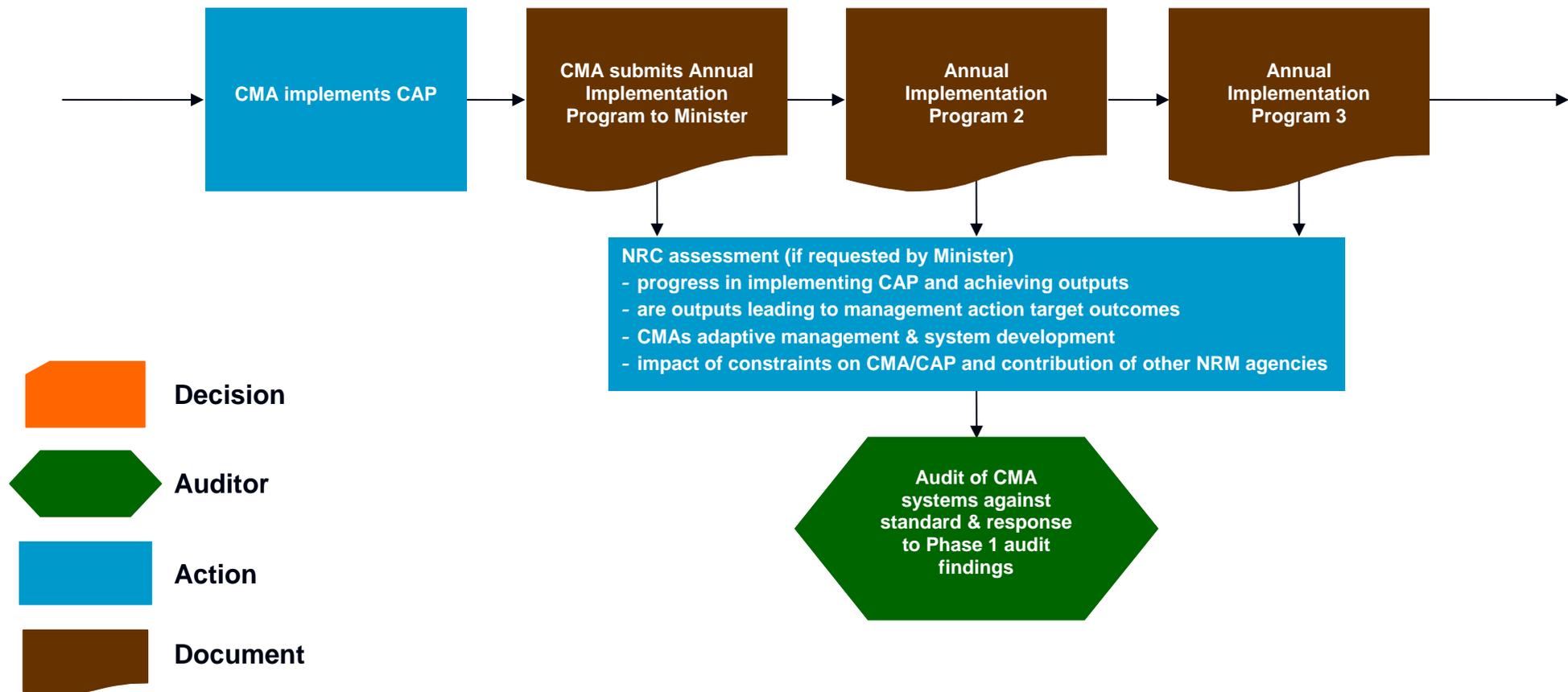
# Phase 1

## CAP development



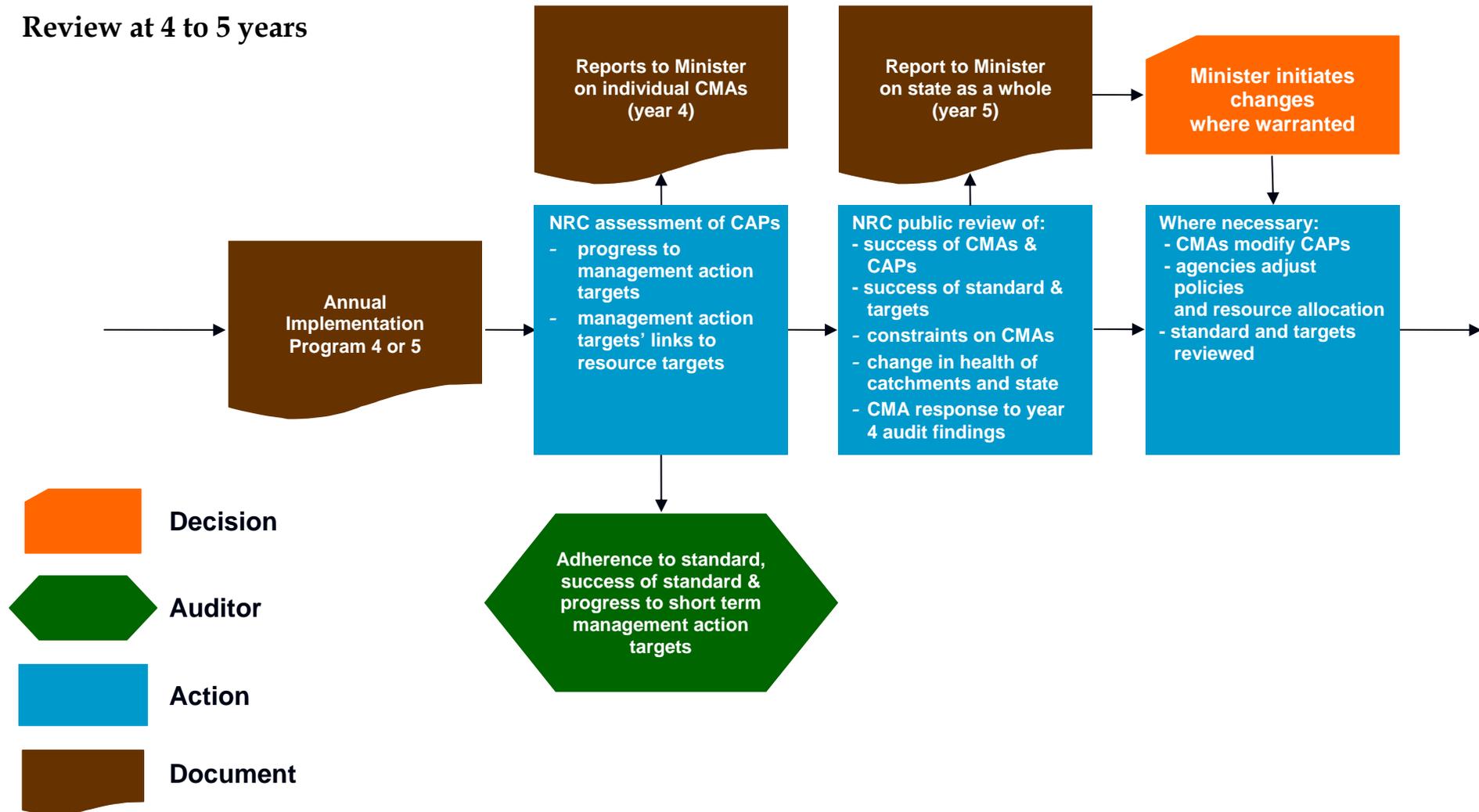
# Phase 2

## Reviews of Annual Implementation Programs at request of Minister



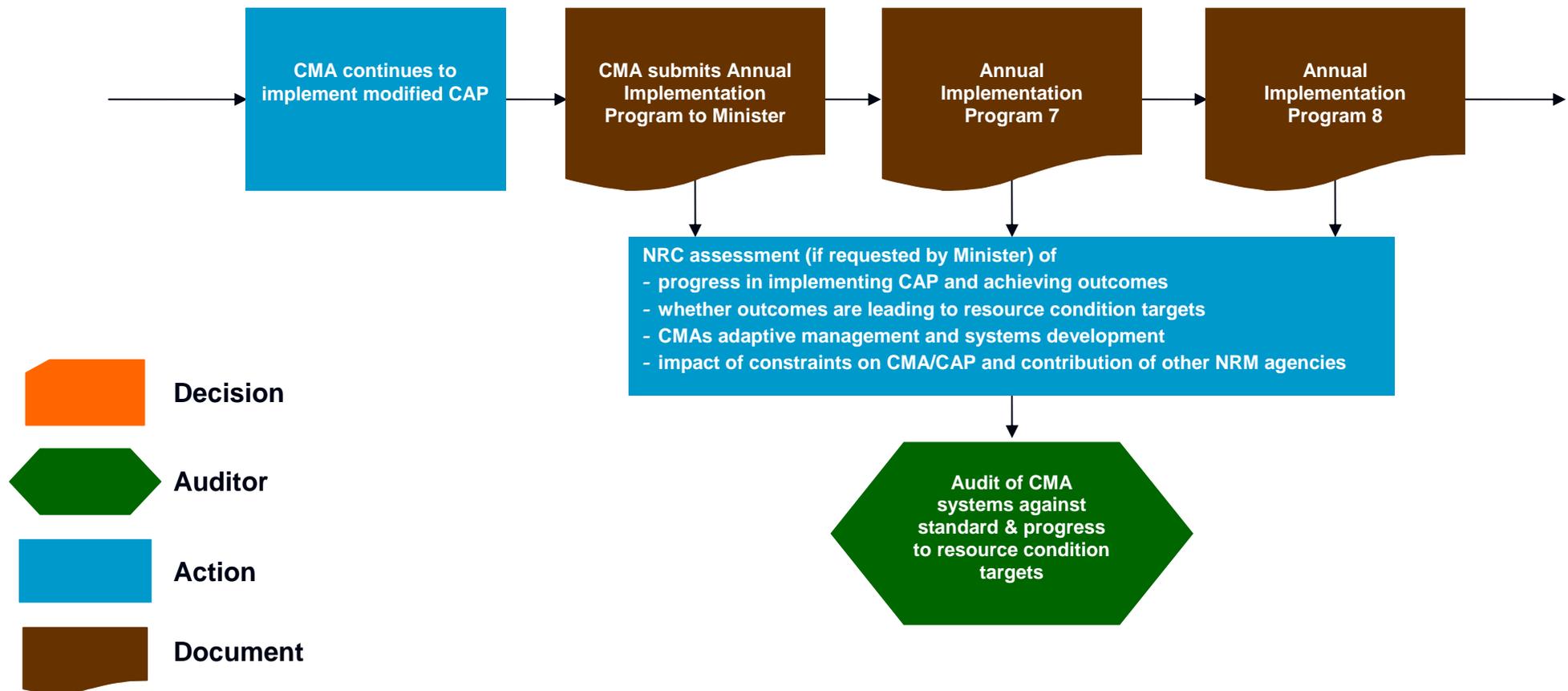
# Phase 3

## Review at 4 to 5 years



# Phase 4

## Reviews of Annual Implementation Programs at request of Minister



# Phase 5

## End of CAP review

