



**Review of *Catchment Action NSW*
funding allocations to Catchment
Management Authorities**

FINAL REPORT

October 2010

FINAL REPORT

Review of *Catchment Action NSW* funding allocations to Catchment Management Authorities

October 2010

Enquiries

Enquiries about this report should be directed to:

Carla Bissett

Phone (02) 8227 4305

E-mail carla.bissett@nrc.nsw.gov.au

Postal address GPO Box 4206, Sydney NSW 2001

List of acronyms

CAP	Catchment Action Plan
CMA	Catchment Management Authority
DECCW	Department of Environment and Climate Change
DIWA	Directory of Important Wetlands in Australia
GDE	groundwater-dependent ecosystem
HCR	Hunter – Central Rivers
IBRA	Interim Biogeographic Regionalisation of Australia
MCA	multi-criteria analysis
MER	Monitoring, Evaluation and Reporting
NAP	National Action Plan for Salinity and Water Quality
NHT	Natural Heritage Trust
NRC	Natural Resources Commission
NRM	Natural Resource Management
NSW	New South Wales
SoC	State of Catchment
SRA	Sustainable Rivers Audit

This work is copyright. The *Copyright Act 1968* permits fair dealing for study, research, news reporting, criticism and review. Selected passages, table or diagrams may be reproduced for such purposes provided acknowledgement of the source is included.

Document No. D10/1986

ISBN: 978 1 921050 61 9

Table of Contents

1	Introduction	2
1.1	Scope of and process for this review	2
1.2	Recommendations	3
1.3	Improvements to the existing funding process	5
1.4	Proposed changes to weightings, data sources and assessments	5
1.5	Issues for further consideration or future reviews	9
1.6	Next steps	10
1.7	Structure of this report	12
2	Context for and experience with the funding process	13
2.1	<i>Catchment Action NSW</i> investment funding in context	13
2.2	Summary of the current funding allocation process	14
2.3	How has the decision-making process been applied since 2008?	15
3	Applying Stages 1–4 of the allocation process	17
3.1	Confirming the investment principles and assessment criteria	17
3.2	Updating the assessments results	20
3.3	Determining modelled allocations	21
3.4	What is driving the assessments and modelled outcomes?	23
4	Applying Stages 5 and 6 of the allocation process	26
4.1	Risks associated with CMA funding continuity	26
4.2	Risks associated with the overall quantum of funding	27
4.3	Imposing a ‘no reductions below a threshold’ rule	28
4.4	Risks associated with the timing of updates	29
	Appendices	31
	Attachment 1 – Terms of Reference	33
	Attachment 2 – Summarised results of <i>priorities</i> assessment	36
	Attachment 3 – Results for <i>effectiveness</i> assessment	38
	Attachment 4 – Extended results and rationale for <i>priorities</i> assessment	39
	A4.1 Cross-regional natural resource values per theme	39
	A4.2 Community assessment	59
	Attachment 5 – Approach to assessment	63
	A5.1 Priorities: Cross-regional values assessment	64
	A5.2 Priorities: Community	71
	A5.3 Effectiveness	72

1 Introduction

For the past three years *Catchment Action NSW* investment funds have been allocated using a six-stage decision process, which includes a multi-criteria analysis (MCA) decision support tool. The NSW Government asked the Natural Resources Commission (NRC) to recommend improvements to this process, and to recommend how the pool of *Catchment Action NSW* funding is to be allocated between the 13 Catchment Management Authorities (CMAs) in 2011-12 and 2012-13 (see Attachment 1 for the full Terms of Reference).

This report explains the NRC's recommended improvements for the decision-making process. The report explains the rationale for and issues involved in making the proposed changes, including the resultant funding profiles if they are implemented.

1.1 Scope of and process for this review

The Terms of Reference for this review confirm the Government remains committed to the six-stage decision-making process and the MCA tool which supports it. As such, the NRC has concentrated on updating the data used in the MCA tool and addressing issues raised by CMAs and agencies reflecting on three years' experience in using the existing process. We have not assessed alternative funding methodologies.

The NRC has had the MCA tool peer reviewed, updated the data used in the tool, and reassessed the weightings and valuations with the benefit of three years' experience. During August 2010 we held meetings and teleconferences with nominated CMA and agency representatives, seeking input on the existing investment principles, criteria, assessments, weightings and any risks associated with the funding allocation process.

On 21 September, the NRC held workshops with CMA General Managers and agency representatives to explain the feedback we had received, some proposed changes in data and assessments we were considering, and how that might affect CMAs' funding allocations. With the benefit of feedback at the 21 September workshop, the NRC released a consultation paper seeking comment on the proposed changes. On 12 October 2010 the NRC held a second workshop with CMA General Managers and agency representatives to discuss their feedback and explain the NRC's response.

1.2 Recommendations

This report explains the NRC's recommendations that:

1. The Minister should adopt the recommended funding profile in Figure 1 below, subject to consideration of the following risks (discussed further in Chapter 4 of this report):
 - If funding is at or above \$25 million, the risks associated with the funding profile relate to data limitations and assessment uncertainty. However, the NRC is confident these risks will not have a significant impact on Government's return on investment.
 - If funding is between \$22 million and \$25 million, the above risks apply, along with additional risks associated with lower-funded CMAs being subject to further funding reductions (refer to Figure 2 below, showing proposed changes in CMA's proportional allocations between 2010-11 and 2011-13). These funding reductions may impact upon continuity of CMAs' projects and long-term community engagement.
2. The recommended funding profile is suitable for allocating aggregate funding at or above \$25 million; this is the NRC's preferred scenario. However, if the funding pool is between \$22 million and \$25 million, the Minister should put in place a 'no reductions below a threshold' rule applied to all CMAs' with an allocation less than \$1.6 million.
3. The Premier should task the NRC to conduct the next full review of the decision-making process following the release of the 2013 State of the Catchment reporting and when all CMAs have had the opportunity to upgrade their Catchment Action Plans (CAPs) and audit results.
4. To balance availability of improved information with issues of continuity, CMA equity and transaction cost, the Premier should task the NRC to carry out the following interim updates between now and the next full review of the decision-making process:
 - The *CMA progress and results* assessment should be updated annually by the NRC with any new audit findings along common lines of inquiry.
 - The *CMA plans for investment* assessment should be updated by the NRC when all CMAs have had the opportunity to upgrade their CAPs.
 - The *priorities* assessment for community should be updated by the NRC if and when better information is available.

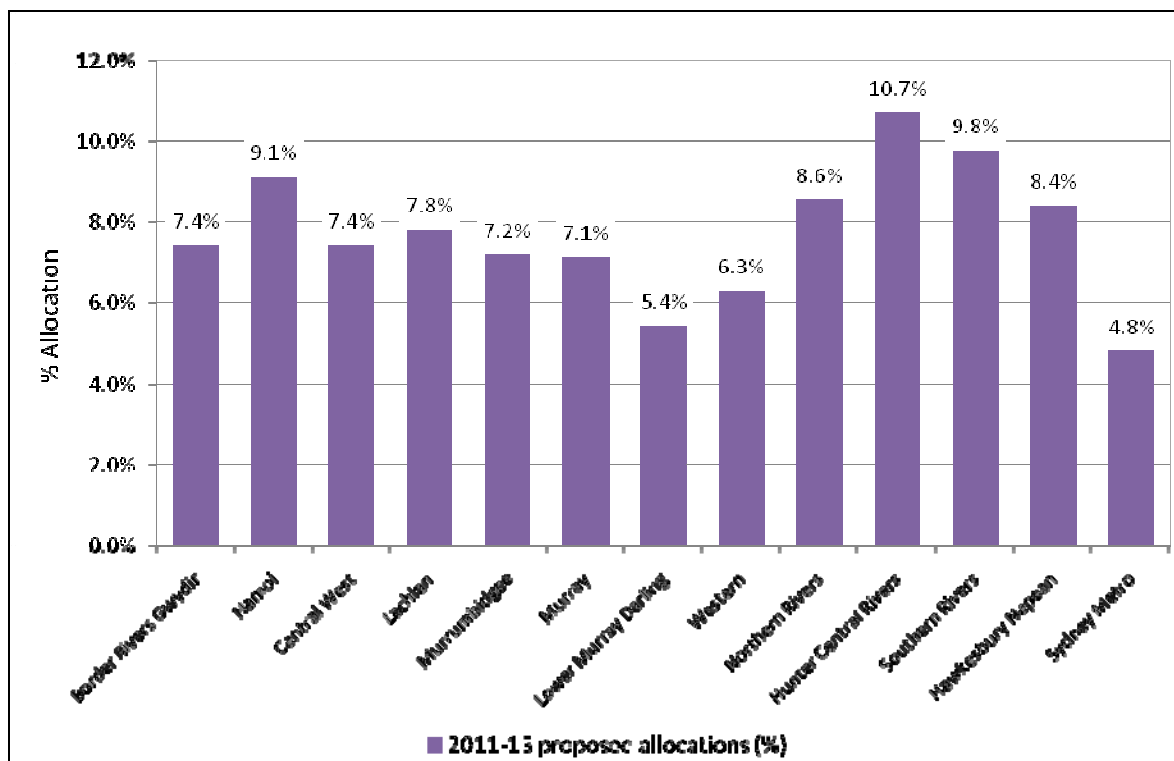


Figure 1: 2011-13 proposed proportional allocation per CMA based on *priorities and effectiveness*

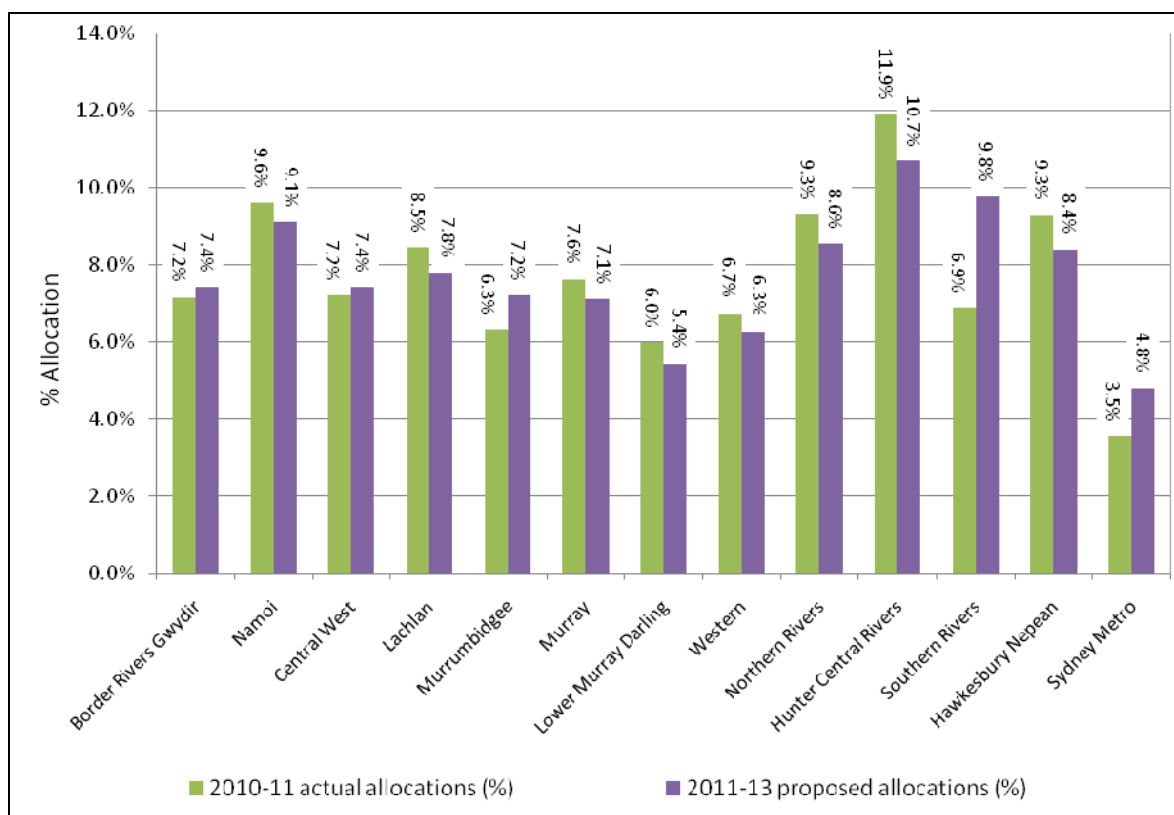


Figure 2: Comparison of 2010-11 actual proportional allocations and 2011-13 proposed proportional allocations

1.3 Improvements to the existing funding process

NSW agencies and nominated CMA representatives confirmed they continue to support the existing investment principles identified in the NRC's 2008 report and built into the MCA tool.

Based on consultation with CMAs and agencies, a peer review process and the NRC's own work, the following improvements have been made to the decision-making process:

- improved transparency of the allocation process (and the MCA tool in particular) so that CMAs can more readily understand (and explain to others) their funding allocation
- structured stakeholder engagement throughout all stages of the process
- introduction of a 'no reduction below a threshold' rule, whereby some minimum level of NSW investment funding to each CMA is maintained to ensure there is a threshold level of community engagement in natural resource management
- explicit consideration of community as an asset class in the MCA tool
- updated data and assessments to include new information, especially from State of the Catchment 2010 reports (unpublished)
- updated assessment criteria weightings to reflect our relative confidence in various data sets, and
- deactivation of the *synergies* component of the *priorities* assessment to reduce uncertainty in the assessment outcomes.

1.4 Proposed changes to weightings, data sources and assessments

The NRC reported publicly on how it arrived at the 2008–09 funding allocations.¹ In subsequent years there has been some inconsistency and lack of transparency in how the decision-making process and MCA tool have been applied. In this report, the NRC has attempted to better explain how the funding process and MCA tool operate, and in Table 2 has explained why each CMA's proportional funding allocation would change under the proposed changes to the MCA tool (refer to Section 3.4 for table).

Figure 3 below illustrates how we have updated the MCA tool, including:

- revised weightings (between the *priorities* investment principle and the *effectiveness* investment principle, and between the two *effectiveness* assessment criteria), given our increased confidence in the CMA audits relative to other data sets
- activating an assessment of relative community capacity between regions, and
- deactivating the *synergies* component of the *priorities* assessment to improve stakeholder confidence in the assessment outcomes.

Previously the MCA tool was weighted 60% to *priorities* and 40% to *effectiveness*, and within the *effectiveness* principle, the tool was weighted 60% to *CMA plans for investment* and 40% to *CMA progress and results* (see Section 3.1).

¹ See NRC, *Investment funding allocations to Catchment Management Authorities in 2008/09, Final Report*, May 2009, which explains how the NRC applied the funding methodology in April 2008 to advise the Government on CMA funding allocations that were made in May 2008. See also, NRC, *Allocating NRM funding between NSW Catchment Management Authorities, Final Report*, April 2008, which recommended the funding methodology.

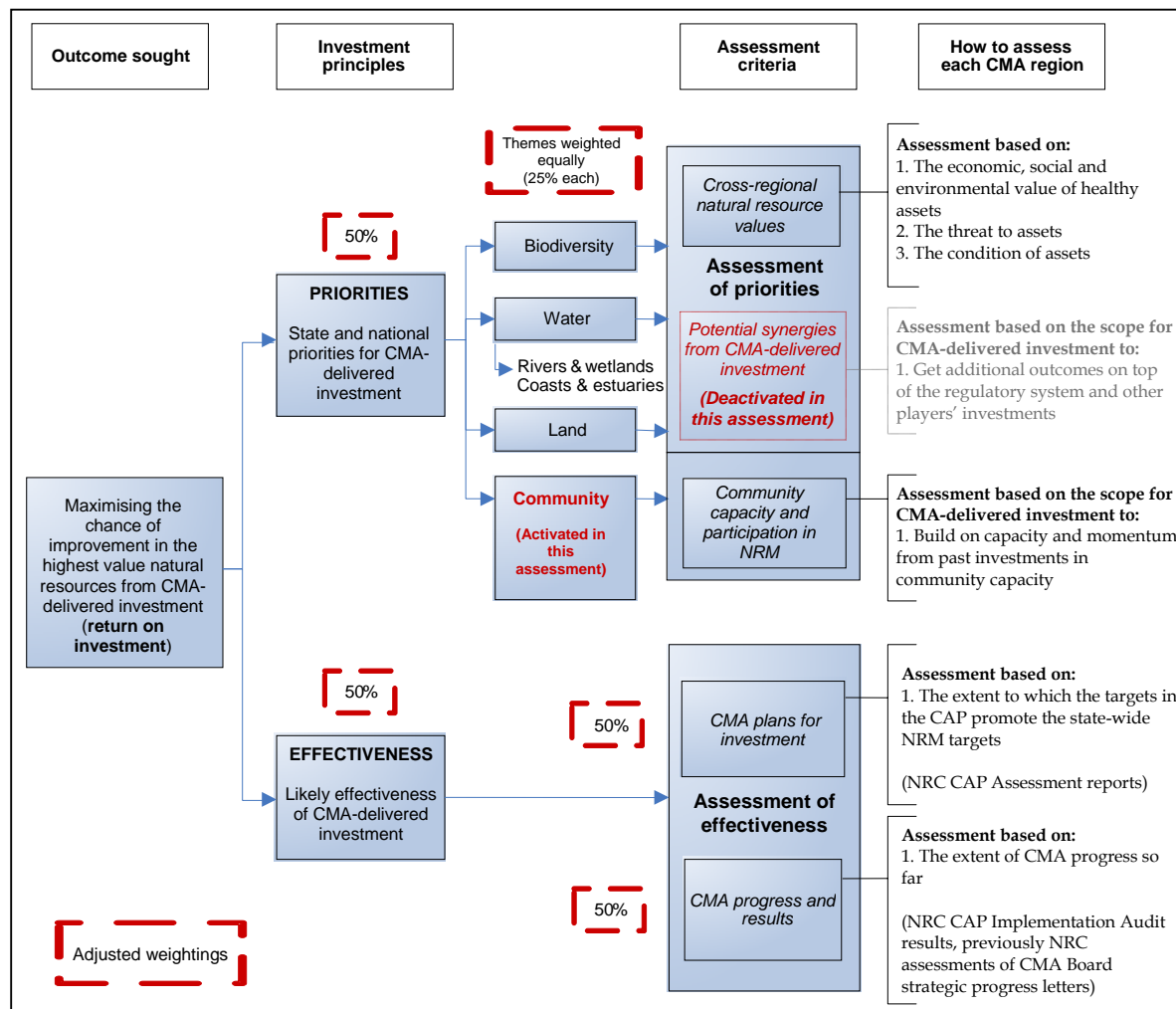


Figure 3: Proposed changes to the MCA tool

Within the regional model, one of the CMAs' key roles is to engage with their communities, gain their trust, build their ownership of the regional CAP and targets, and support voluntary adoption of sound NRM practices. During consultation, CMA representatives stressed that CMAs' core business of building community capacity is currently under-represented in the funding allocation process. In response, the NRC has included an explicit assessment of community capacity as an asset in the *priorities* assessment.

Conversely, the *synergies* component of the *priorities* assessment has been temporarily deactivated in this decision-making process. Many CMAs expressed concern about the fairness of the decision rules, information sources and judgement being used within the *synergies* assessment.

In addition, we have updated the assessments of cross-regional natural resource values for each of the *biodiversity*, *water* and *land* assessment criteria. In particular, we have included new data from the State of the Catchment 2010 reports (unpublished to date), and updated the weightings between data sets in each assessment to reflect relative confidence in new and existing data sets.

The attachments to this report explain the data sets and weightings used in making each of these assessments. Whilst the data can always be improved, it does provide a consistent and transparent way of allocating funding between CMAs.

1.4.1 Funding allocations if these changes are made

The funding profile presented in Figure 1 (refer to page 4) reflects the NRC's best estimate of ideal allocations between CMAs. This profile was produced using the MCA tool, based on the investment principles of *priorities* and *effectiveness*, best available data as at October 2010, and the assumptions and assessments set out in the attachments to this report. Figure 2 shows the likely changes in proportional funding allocations between the 2010-11 and 2011-13 allocations, if CMA funding allocations are based solely on the MCA tool.

The precise amount of *Catchment Action NSW* funding for 2011-12 will not be confirmed until the budget is passed in mid 2011. As such, the NRC is not able to predict whether this proportional funding allocation would result in individual CMAs getting more or less funding in 2011-12 when compared with their dollar funding in 2010-11.

The total quantum of investment funding from both the Commonwealth and NSW is less than historic levels. The NRC would be concerned about the viability of some CMAs should total funding fall any further. The NRC strongly encourages both governments to increase investment funding to CMAs.

In 2010-11, the aggregate funding pool was \$22 million. If the funding pool were to increase to \$25 million or more, no CMA would experience a monetary reduction in NSW investment funding under the new funding profile. This is the NRC's preferred scenario.

However, if the aggregate funding profile is between \$22 million and \$25 million, the NRC believes it would be sensible to impose a 'no reduction below a threshold' rule. This rule would mean CMAs with funding below a nominal threshold can increase their allocation, but would not be subject to further funding reductions. This rule should manage emerging risks associated with the ongoing reduction of funding to lower-ranked CMAs (refer to Chapter 4 for more details).

1.4.2 Imposing a 'no reductions below a threshold rule'

Figure 4 below shows the impact of a 'no reduction below a threshold' rule applied to the proposed funding profile. For comparative purposes, this figure is based on the 2010-11 \$22 million pool of funding. The model is sensitive to where the threshold is set, and the NRC has nominated \$1.6 million as a pragmatic level given the current aggregate level of funding.

For funding between \$22 million and \$25 million, the NRC would provide the Department of Environment, Climate Change and Water (DECCW) and Treasury with an adjusted funding profile based on the actual amount of *Catchment Action NSW* funding specified in the budget. As mentioned above, if the overall funding pool is \$25 million or above, this rule would have no impact on allocations as no CMAs would be subject to funding reductions.

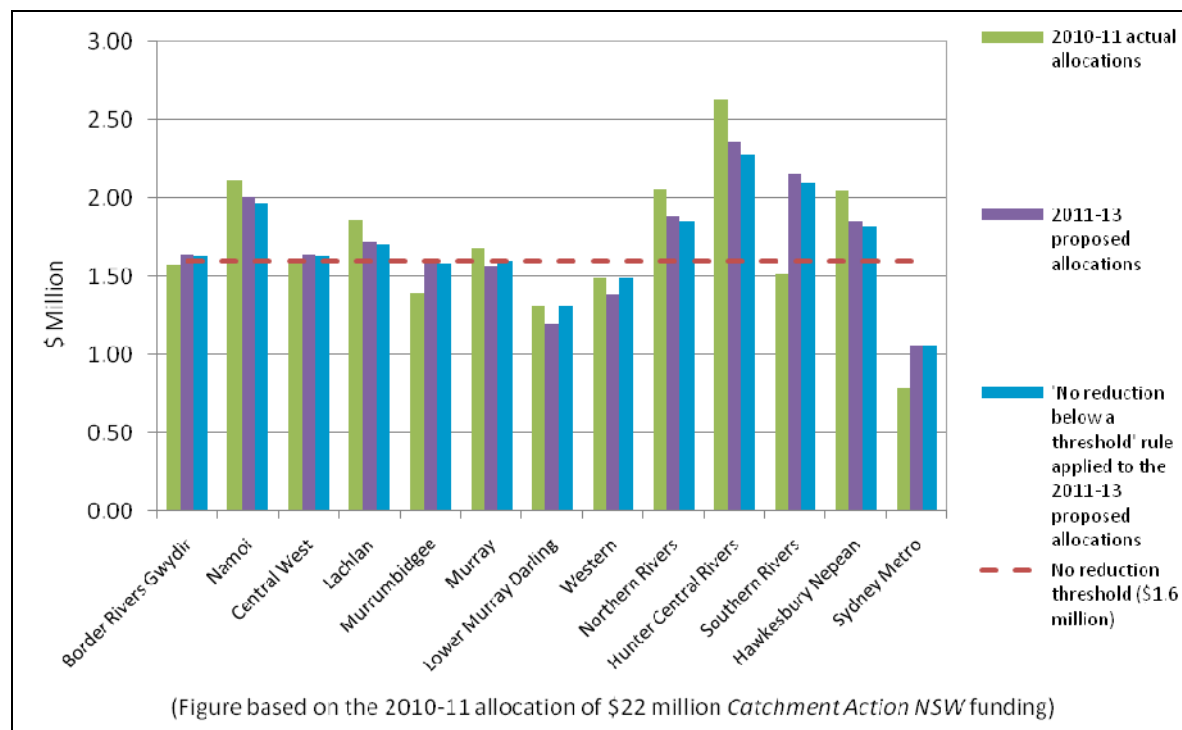


Figure 4: Impact of a 'no reductions below a threshold' rule

Given the allocation process is a zero sum exercise, imposing a 'no reduction below a threshold' rule requires some offsetting reduction to all CMAs that are above the threshold. This is the reason the blue columns show a slight decline by comparison to the purple 'ideal' allocation for all CMAs above the threshold.

The NRC has modelled other possible methods of imposing a minimum funding threshold, but each alternative modelled produces more significant negative deviations from the 'ideal' relative funding profile.

1.4.3 Explanation of changes in funding proportions

An individual CMA's allocation depends not only on the assessment of its region and its performance, but also on the assessment of other regions and other CMAs' performance, and any changes in the aggregate pool to which the funding proportions are applied. The MCA tool measures and weights a range of criteria to arrive at a single proportional allocation to each CMA.

Each CMA should spend the time to get familiar with the workings of the MCA model. The tool is explained in this report and (as in 2008) the Excel model will be republished on the NRC's website when it has been updated to reflect the recommended changes.

In the interim, the NRC has prepared Table 2 in Section 3.4 to identify the main factors that are driving changes in each CMA's proportional funding allocations. The NRC hopes Table 2 can provide the clarity stakeholders need to satisfy themselves on how the MCA tool operates.

Changes between the 2010–11 and proposed 2011–13 profiles can be attributed to one or more of the following:

- **Updated *priorities* assessment (using best available data)**
This changed some CMAs' assessment scores and relative rankings, particularly as the updated cross-regional values assessments generally trended towards less variation between regions.
- **Updated weightings** (as shown in Figure 3)
CMAs with stronger audit results gain a greater share of the overall funding pool. The new weightings particularly influence the allocations of CMAs with a significant relative difference between their CAP assessment results and their audit results.
- **Improved performance of previously mid-ranking CMAs, relative to higher ranking CMAs**
This led to a more even spread of funding. Given the zero sum nature of the funding allocation process, some CMAs that previously had very high allocations experienced a decrease in their proportional allocation.

1.5 Issues for further consideration or future reviews

Some CMAs or agency representatives have raised issues that are effectively beyond the capacity or scope of the current review, but which they feel are relevant to CMA funding allocations. These include:

- addressing regional equity issues, particularly the apparent correlation between some CMAs' ability to effectively implement their CAPs (as assessed in the NRC's audits), and their:
 - relative level of operational funding, and/or
 - relative regional disadvantage
- managing the impact of performance incentives, for example:
 - by including in the MCA tool an assessment of each CMA's relative contribution to collaborative learning and performance improvement across the group of CMAs
 - by addressing the zero sum nature of the current allocation process
- accounting for positive and negative externalities (or spill-over impacts) between CMAs, where actions in one region have benefits or costs beyond that region
- creating incentives to collect better data now to improve the MCA tool into the future
- applying the funding allocation process to other sources of funding, and
- integrating resilience thinking into future funding allocation processes.

The current review has also identified how the next assessments could be enhanced by improving the data supporting the model. Suggested improvements include:

- use of expert panels to improve confidence in judgement-based assessment of the economic, social and environmental values of healthy assets
- integration of catchment- and state-scale data in the next State of the Catchment reporting, and

- better reporting on community targets (including indigenous participation in NRM), capacity to leverage external funding and CMA collaboration.

However, the evolution of the state's Monitoring, Evaluation and Reporting strategy and State of the Catchment reporting should be driven by wider state priorities, not just the needs of the funding allocation process.

1.6 Next steps

Informed by the recommendations in this report, the Minister for Climate Change and Environment will make a final decision about CMAs' proportional allocations. CMAs' actual monetary allocations for 2011-12 and 2012-13 are determined by applying the Minister's chosen funding profile to the quantum of *Catchment Action NSW* funding announced in the budget (announced mid year ahead of each funding period).

The next major review and update of the decision-making process and allocation profiles should occur following the release of updated State of the Catchment reporting in 2013 and when all CMAs have had the opportunity to upgrade their CAPs and audit results.

Between now and the next major review of the decision-making process, the NRC recommends interim updates of some data sources and assessments within the MCA tool. Table 1 outlines the NRC's recommended approach to these updates, and associated actions that are needed to support the update process. These updates aim to balance availability of improved information with issues of continuity, CMA equity and transaction cost. Any new data needs to be finalised by 28 February each year, allowing the NRC time to update the MCA tool and risk assessment and advise DECCW and Treasury of new funding profiles in time for the following year's budget announcement.

CMAs and DECCW should also investigate the regional equity issues raised during the stakeholder consultation process for this review. More work is needed to determine if there is a causal relationship between CMAs' *effectiveness* results and factors such as regional disadvantage and/or Category 1 funding, and how best to deal with disparities in CMAs' *effectiveness* that may potentially be a result of these factors.

Table 1: Recommended interim updates of data used in the MCA tool

Assessment criteria	Recommended timing of interim updates	Rationale	Actions
<i>Effectiveness</i> assessment for <i>CMA progress and results</i>	Updated annually with any new audit information along common lines of inquiry.	The funding profile should recognise the progress of CMAs that have made an effort to improve their performance. However, maintaining equity between CMAs requires consistency in audit criteria and implementation of audits if they are to be included in the MCA tool.	Audits should be completed by 28 February each year if they are to influence the next funding allocation.
<i>Effectiveness</i> assessment for <i>CMA plans for investment</i>	Updated when all CMAs have had the opportunity to upgrade their CAPs.	The funding profile should recognise improvements in CMAs' strategic planning and CAPs. However, maintaining equity between CMAs dictates the <i>CMA plans for investment</i> assessment should only be updated when all CMAs have had the opportunity to upgrade their CAPs.	Following the evaluation of the Namoi and Central West CAP pilots, the NRC, CMAs and agencies should agree on a timetable for CAP upgrades.
<i>Priorities</i> assessment for community	Updated when better information is available.	CMAs support inclusion of the community attribute. However, stakeholders and the NRC acknowledge there is a lack of suitable and comparable information, and concern about the current data sources. This approach allows for the use of best available knowledge if better assessments of community capacity can be determined.	The NRC should collaborate with CMAs and agencies to review state-wide targets 12 and 13, and determine how the assessment of community assets can be improved.
<i>Priorities</i> assessment for biodiversity, land and water	No interim updates.	These criteria should only be reviewed when new State of the Catchment data is available (current timeframe October 2013).	The NRC should collaborate with CMAs and agencies to achieve better alignment of catchment- and state-scale data in 2013 State of the Catchment reporting.

1.7 Structure of this report

The remainder of this report provides more details on aspects of the NRC's review.

- Chapter 2 provides background to the allocation process and its use to date.
- Chapter 3 describes how the NRC has applied the allocation process in this instance.
- Chapter 4 considers the risks involved in the recommended funding profile.

2 Context for and experience with the funding process

The current funding allocation process is a six-stage decision-making process supported by a multi-criteria analysis (MCA) decision support tool. Importantly, the later stages of the process require a risk assessment of the allocation produced by the MCA tool, and the consideration of these risks by the Minister when deciding on the final allocations.

There has been some inconsistency and lack of transparency in how the decision-making process and MCA tool have been applied over the past three years, which has created a degree of concern in some CMAs.

CMAs' operational costs are funded by the NSW Government, but they receive investment funding from the NSW Government, the Australian Government and other sources. When assessing the risks of particular allocations of NSW CMA investment funding, the NRC and other stakeholders should be aware of how *Catchment Action NSW* funding fits in the context of other funding sources available to CMAs.

2.1 *Catchment Action NSW* investment funding in context

In 2010–11, *Catchment Action NSW* funding accounts for between 10% and 25% of individual CMAs' total annual funding, and approximately 40% of CMAs' Category 2 investment funding. While *Catchment Action NSW* funding for 2010–11 is \$22 million, total operating and investment funding to CMAs from all sources in 2010–11 is approximately \$147 million.

Catchment Action NSW funding is CMA-delivered project funding to address state priorities. For 2010–11, CMAs also receive Commonwealth *Caring for our Country* base-level project funding of approximately \$35 million to address national investment priorities. CMAs also receive approximately \$49 million in 2010–11 for project-based funding from a number of other state and federal funding sources, including:

- Federal Government Water for the Future initiative (approximately \$30 million)
- Federal Government *Caring for our Country* contestable funding
- NSW Environment Trust
- NSW Floodplain Management Program
- NSW Estuary Management Program
- local government contributions.

Further, CMAs are allocated approximately \$41 million in State Government funding to cover operational costs, including salaries, Board operating costs, CMA advertising, communication costs, office rental and maintenance costs.

Operating budgets are allocated in accordance with other investment principles and do not directly influence the allocation of *Catchment Action NSW* funds. Some CMAs have argued that their effectiveness is undermined by insufficient operating funding.

2.2 Summary of the current funding allocation process

The NRC developed the current decision-making process and MCA tool to allocate block funding to maximise the likelihood of improving natural resource condition across NSW. The process is transparent, repeatable and adaptable. It was originally designed to be used when allocating joint state and federal funding to CMAs, and was broadly accepted by agencies and CMAs at the time.

The process has six stages, as shown in Figure 5.

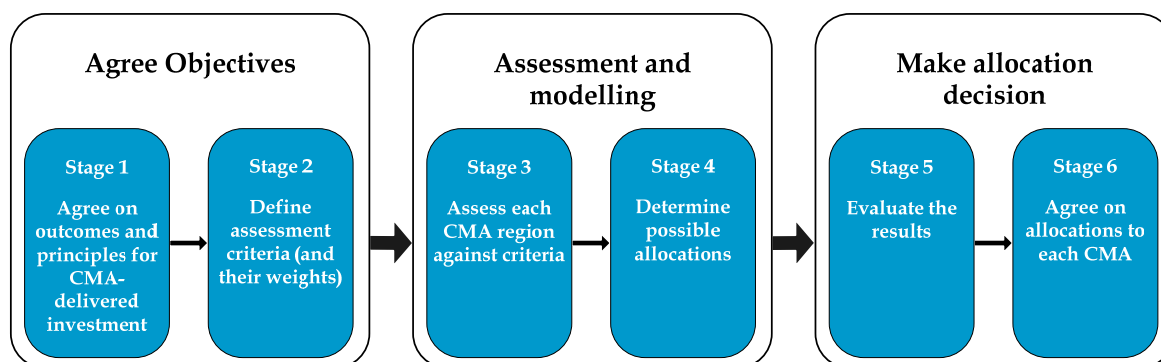


Figure 5: Decision-making process for allocating funding to CMAs

In 2008, the NRC sought input from NSW agencies and CMAs on the appropriate investment principles and assessment criteria for Stages 1 and 2, and recommended the following two principles to Government:

- **Invest in priority natural resources issues**
(as measured by where the natural resources are under the greatest threat, in the best condition and where they are most valued by local, state and national communities [*cross-regional natural resource values*], and where CMA-delivered funding can have the most impact [*potential synergies from CMA-delivered investments*]), and
- **Invest cost-effectively and provide incentives to perform effectively**
(as measured by the quality of CMAs Catchment Action Plans [*CMA plans for investment*] and their effectiveness in implementing those plans [*CMA progress and results*])

Figure 6 illustrates the way which these two investment principles were then incorporated in the logic, weightings and assessments of an MCA tool the NRC developed to guide Stages 3 and 4 of the process.

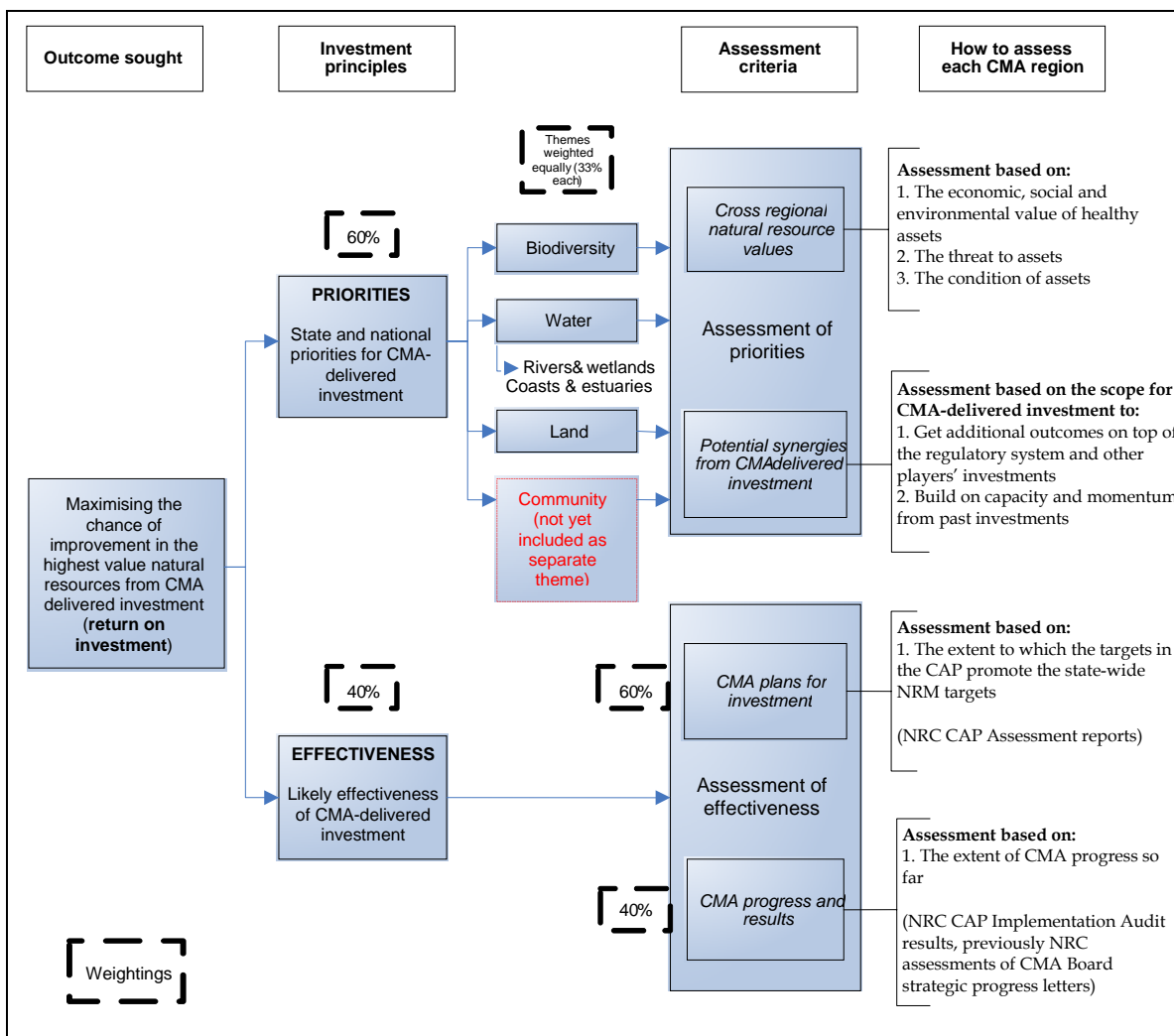


Figure 6: 2008 analytical framework within the MCA tool

The NRC's 2008 report recommended that the Minister consult with CMAs and other key stakeholders throughout the process, particularly during the risk assessment and evaluation stage of the process (Stage 5).

2.3 How has the decision-making process been applied since 2008?

In 2008, the NSW Government allocated *Catchment Action NSW* funds for 2008-09 using the first rapid assessments produced by the MCA tool, but noted the NRC's recommendation that a comprehensive review of the MCA tool was needed.

The MCA tool was subsequently also used to allocate 2009-10 and 2010-11 *Catchment Action NSW* funding. In both years, NRC staff helped DECCW to run the MCA tool and in 2010-11 the NRC assisted DECCW to include the results from the NRC's CAP implementation audits. The weightings used in the MCA tool in previous years have been inconsistent, with the weightings

between *priorities* and *effectiveness* being changed each year without a clear explanation to CMAs. This has resulted in a lack of transparency about why allocations have changed in particular years.

Figure 7 shows the proportional allocations between CMAs over the three-year period in question and how these have changed and why. In 2008-09 and 2010-11, the MCA tool was weighted 60% to *priorities* and 40% to *effectiveness*. By contrast, in 2009-10 the MCA tool was weighted 100% to *priorities* and 0% to *effectiveness*.

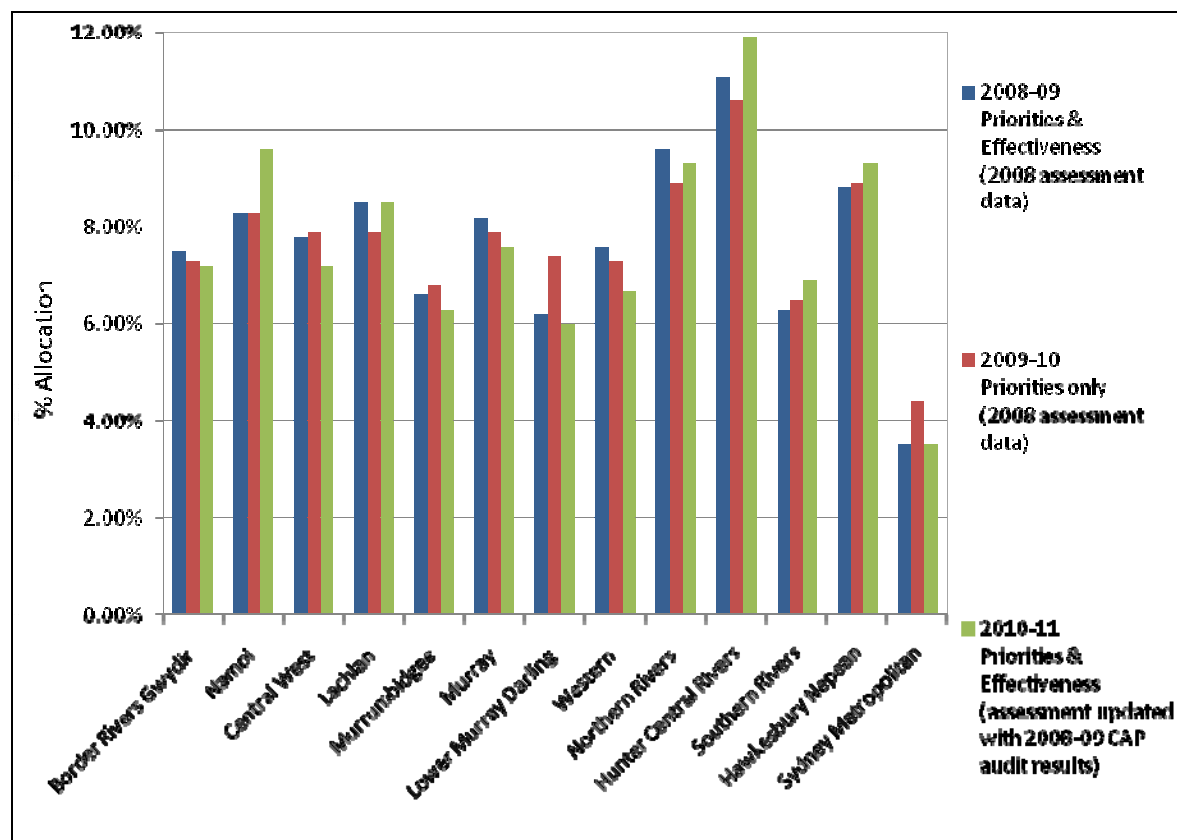


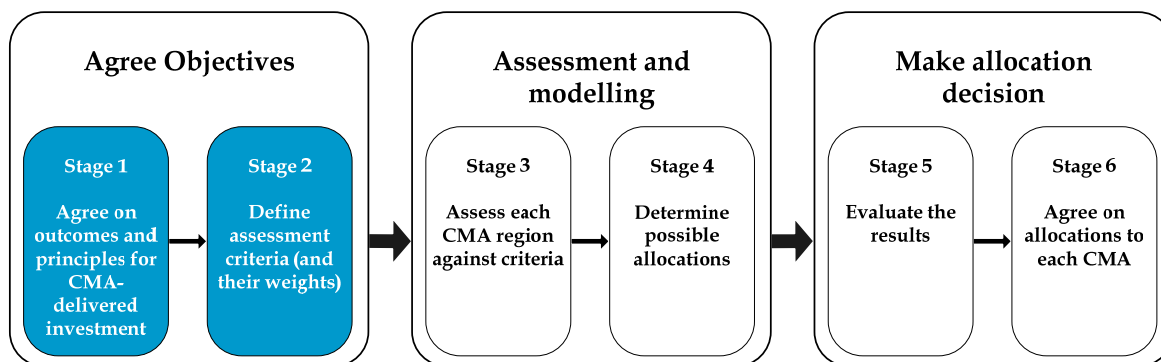
Figure 7: Proportional allocations for 2008-09, 2009-10 and 2010-11

CMA engagement is an important contributor to the success of the six-stage decision-making process, particularly during the risk assessment and evaluation stage of the process (Stage 5). Focussing on CMA engagement is also likely to improve CMAs’ understanding of how the decision-making process and MCA tool works and enhance their ability to explain their funding allocations to their own stakeholders.

3 Applying Stages 1–4 of the allocation process

The NRC has updated the MCA tool and applied the first five stages of the decision-making process to identify potential funding profiles for *Catchment Action NSW* funding. This chapter summarises key points arising from the application of Stages 1–4 of the allocation process.

3.1 Confirming the investment principles and assessment criteria



Agency and CMA representatives have confirmed that the existing investment principles of *priorities* and *effectiveness* should continue to form the basis for allocating funding.

Investors can weight the investment principles and assessment criteria in the MCA tool to reflect their relative importance. In 2008, consensus was not reached and the NRC recommended a weighting of 60% to *priority* and 40% to *effectiveness* in the short term because:

- agencies indicated that the investor priorities should be of primary importance
- in the short term there is more data available to assess priorities than to compare CMA effectiveness.

The NRC also proposed that within the *effectiveness* analysis a 60% weighting be given to *CMA plans for investment*, and a 40% weighting applied to *CMA progress*. This was because at the time there was good data about the quality of each CMA's CAP from the NRC's assessments, but data on CMA progress and effectiveness was not as robust at the time.

Based on improved data confidence and CMA and agency feedback, the NRC is now proposing the following revisions to the weightings used in the MCA tool:

- **Equally weight the investment principles of *priorities* (50%) and *effectiveness* (50%)**

There is now improved confidence in the data in the *effectiveness* assessment (coming from the NRC audit program), compared with the data within the *priorities* assessment.

- **Equally weight both lines of inquiry in the *effectiveness* assessment (50% each)**

The NRC's CAP Audit results are focussed on CMAs' operational capacity, progress and results and currently represent the best available knowledge available about CMA *effectiveness*.

Figure 8 shows the updated analytical framework with the new weightings.

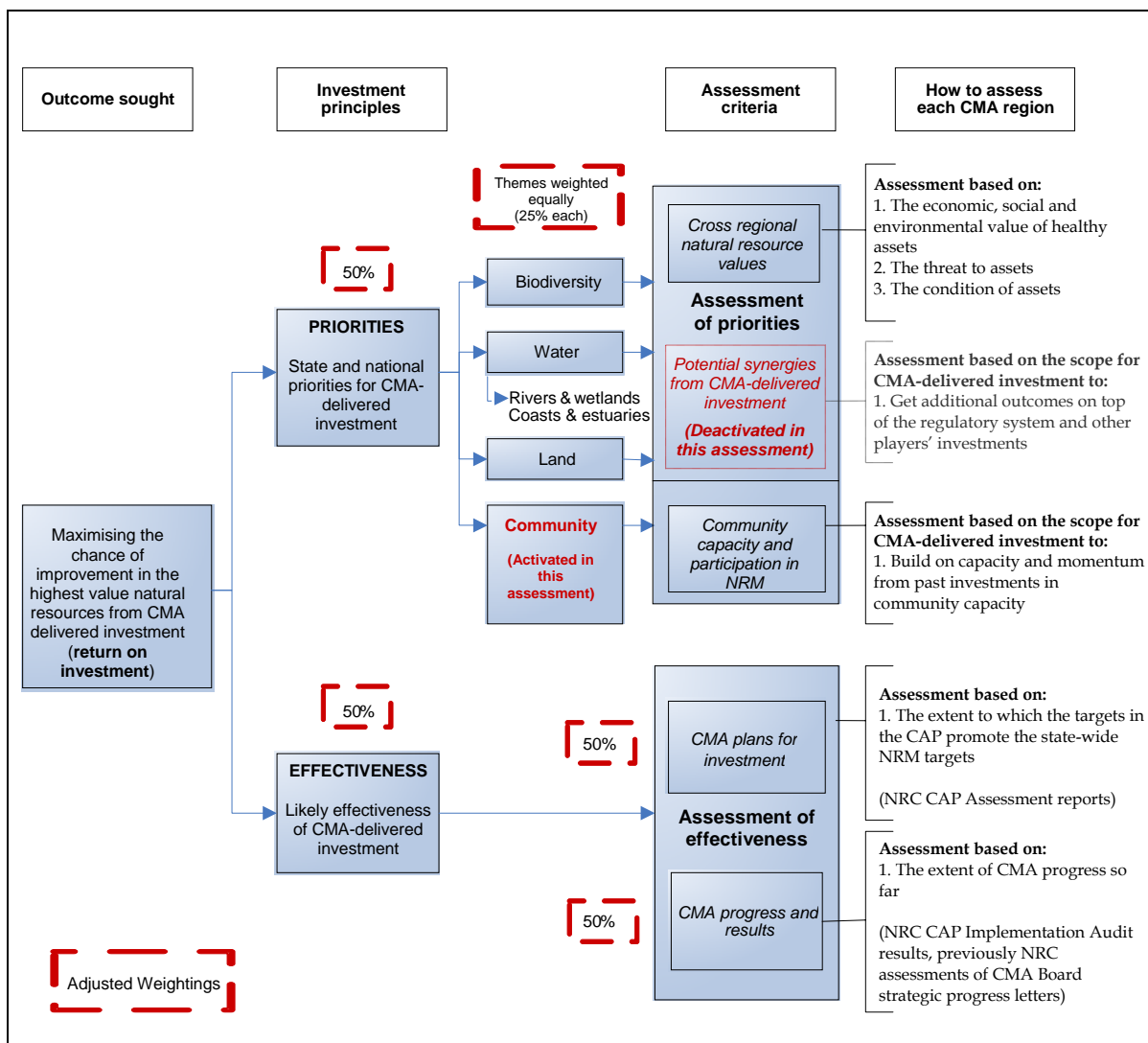


Figure 8: Proposed updates to weightings and assessments in MCA tool

As shown in Figure 8, the NRC has included community capacity as a separate theme in the *priorities* assessment. Eighty-nine percent of NSW land is privately managed,² and state-wide NRM outcomes depend on voluntary private stewardship of environmental assets. A key part of the CMAs' role is to engage with their communities, gain their trust, build their ownership of the regional CAP and targets, and support voluntary adoption of sound NRM practices. During consultation, CMA representatives stressed that CMAs' core business of building community capacity has been under-represented in the funding allocation process. As a result of the inclusion of the community theme, the weightings between *biodiversity*, *land*, *water* and *community* have been set to 25% each. The data used to assess community capacity is explained in the attachments to this report.

² Freehold and leasehold, AUSLIG land tenure database 1993. NSW has a total of 801.6 thousand square kilometres of land of which approximately 50.6% is private freehold title, 38.5% is crown leasehold managed privately and 10.7% is public land.

Figure 8 also shows the *synergies* assessment has been temporarily deactivated; this is due to high levels of assessment uncertainty. The *synergies* assessment is about identifying the synergies or trade-offs at a state scale between CMA-delivered investment, NRM-related investments by others, and alternative or complementary policy mechanisms such as regulation or statutory planning available to address resource management issues. The *synergies* assessment is the line of inquiry most reliant on judgement, and high levels of uncertainty remained in the updated assessment approach. Information about the proposed updates and assessment results was provided to CMAs and agencies during the consultation process. Many stakeholders expressed concern about the fairness of the decision rules and the information sources being used within the *synergies* assessment. The *synergies* criteria should be reactivated when there is sufficient time to review and gain stakeholder consensus about the decision rules, judgements and data sources.

3.1.1 Issues associated with the CMA *effectiveness* assessment criteria

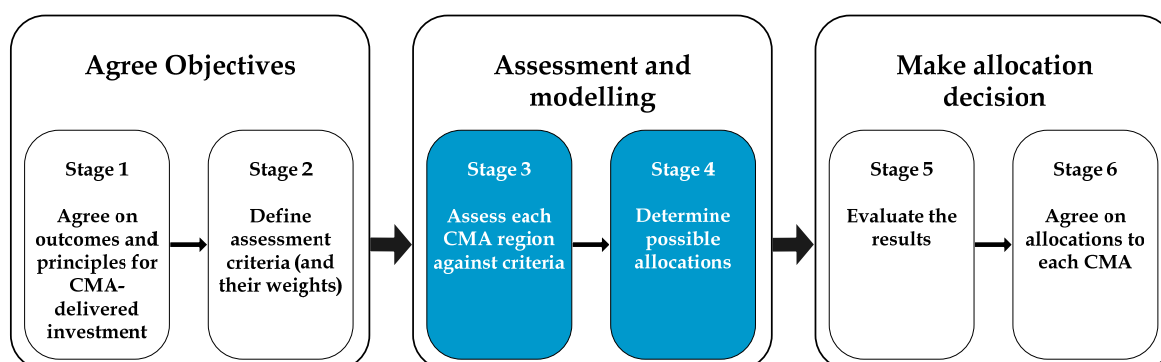
Some CMA stakeholders have suggested CMA *effectiveness* is affected by relative regional disadvantage, and/or Category 1 funding and staff numbers. More work is needed to determine whether there is a correlative or causative relationship between these external factors and CMAs' *effectiveness* results. Regardless of the nature of the relationship, artificially adjusting CMAs' *effectiveness* scores is unlikely to provide the best means of addressing these issues, or provide the best return on investment for *Catchment Action NSW* funds. For example, the impact of regional disadvantage may be better addressed through targeted training and capacity-building programs to help improve the performance of disadvantaged CMAs. Additionally, offsetting or reviewing the investment principles for operational Category 1 funding is outside of the scope of the NRC's Terms of Reference, and would require a separate review.

CMA stakeholders have also suggested the competitive element of the *effectiveness* assessment is discouraging CMA collaboration and sharing of best practice. While incentives for collaboration could be factored into the analytical framework or future audit programs, better results are likely to be achieved by removing the zero sum aspect of the funding allocation process. This would require a complete revision of funding arrangements to allow for allocations based on performance benchmarks.

Both of these issues warrant further investigation to establish what impact they have on CMA effectiveness, and how to address this impact. In the interim, it is proposed that potential risks to smaller CMAs are managed through the 'no reduction threshold'.

3.2 Updating the assessments results

This section relates to Stages 3 and 4 of the decision-making process, where CMA regions are ranked against assessment criteria and the MCA tool is used to calculate relative funding profiles.



The NRC has updated the data sources and assessment results informing the current decision-making process. A more detailed summary of the data used in this assessment can be found in Attachment 5.

When identifying new data sources, the NRC followed these decision rules:

1. How well does this data source answer the question being assessed?
2. Is this data source an improvement on the previous data used? (in terms of data quality and confidence, and/or being the most recent data available)
3. Can this question be answered more simply using a different data set, or different combination of data sets? (For example, could a single index provide a better surrogate for answering the question than an amalgamation of multiple indices?)
4. Is the data suitable for state-wide benchmarking? (The data should be available across all CMA regions.)
5. Are we double counting data within the assessment? (either within a question, across questions or across themes)

For some assessment criteria, judgement (or a mix of judgement, data and spatial information) may represent the best available knowledge. Use of judgement is acceptable for the purposes of this decision-making process, providing the rankings are transparent and defensible.

For the *effectiveness* assessment, the NRC's assessment of CMA CAPs and audit of those plans' effective implementation continues to represent best available knowledge.

For the *priorities* assessment, a number of new data sources were identified. In particular, updated State of the Catchment and State of the Environment reporting was used, representing best available knowledge at the state scale. Some CMA submissions have raised concerns about the use of specific State of the Catchment data sets and indices, particularly as the state-wide data sometimes differs from catchment-scale data. The timeframe for this review did not allow the NRC to build stakeholder consensus on acceptable principles or methodologies for aligning catchment and state scale data. Better integration of catchment- and state-scale data should be a priority in the next State of the Catchment reporting.

Within the *priorities* assessment, there is CMA support for including the community attribute. However, stakeholders and the NRC acknowledge there is a lack of suitable and comparable information, and concern about the current data sources. The NRC proposes that the community assessment, including information about indigenous participation in NRM, be updated when better information is available (likely following the NRC's review of Targets 12 and 13).

During the consultation process for this review, it was suggested that data about third-party investments could enhance future decision-making processes. However, it is currently unclear how third-party investment should be linked to state funding, and building stakeholder consensus around its inclusion in the analytical framework may be challenging.

3.3 Determining modelled allocations

In Stage 4, the qualitative rankings derived through assessment against the criteria are used within an MCA tool to determine possible allocations for each CMA.

The MCA tool has been run using the Excel spreadsheet developed in 2008, and involves:

1. converting the qualitative assessments into standardised scores
2. applying the weightings within the analytical framework to each of these scores
3. adding the weighted scores together to arrive at an overall weighted score for each CMA, and
4. determining CMAs' proportional allocations based on their overall weighted scores.

CMAs are allocated funds in direct proportion to the ratio of their individual weighted scores over the total of all weighted scores. For example, if a CMA's weighted score is equal to 10% of the sum of all the weighted scores, then that CMA would receive 10% of the total funds available.

Figure 9 shows the modelled allocation based on updated data and assessments.

The actual percentage allocations in 2010-11 and proposed percentage allocations for 2011-13 are provided in Table 2, Section 3.4.

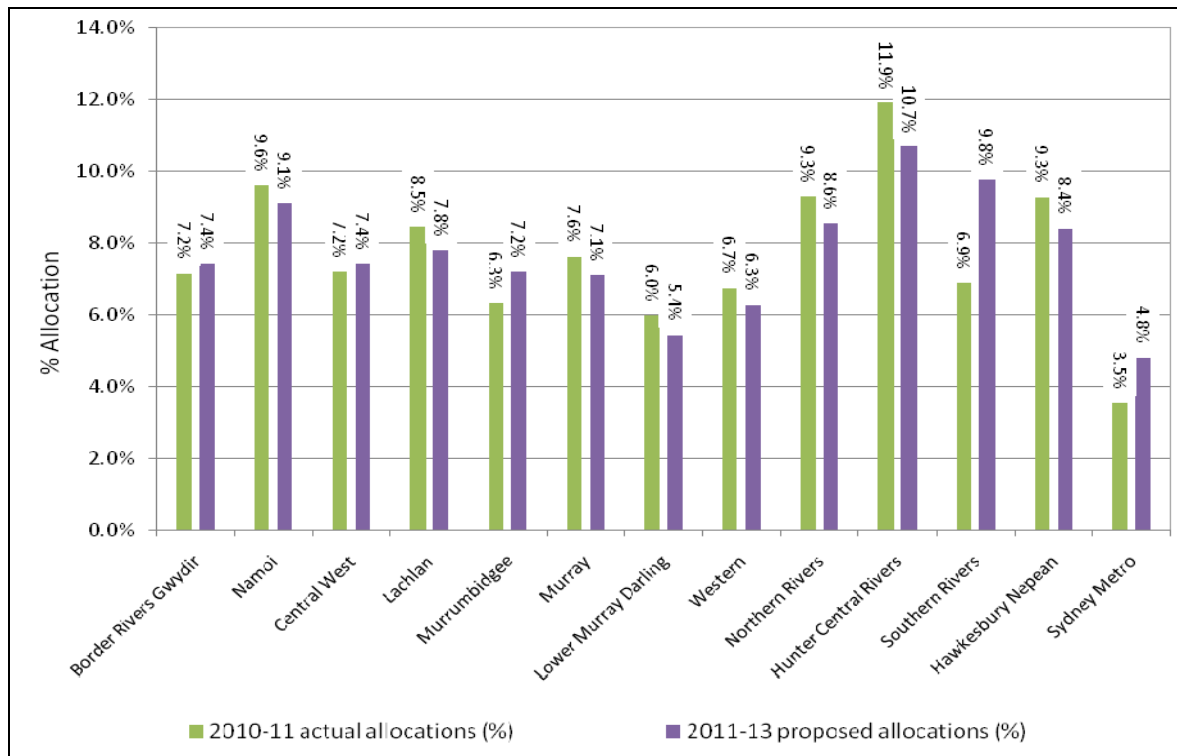


Figure 9: Comparison of proportional allocations between CMAs

Figure 10 provides a comparison between the proposed allocations for 2011–13 and the proportional allocations in the past three years.

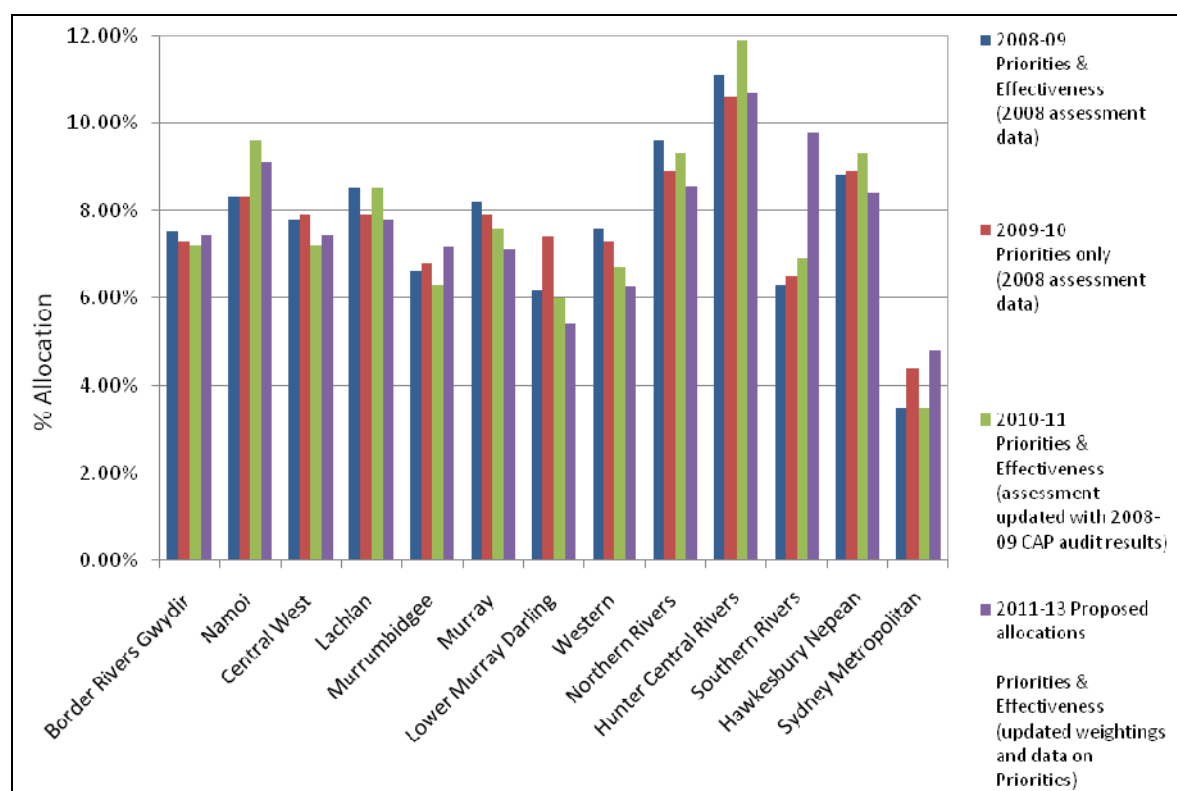


Figure 10: Multi-year comparison of proportional allocations

3.4 What is driving the assessments and modelled outcomes?

This section of the report explains what factors are driving changes in each CMA’s proportional funding allocation. As shown in Figure 9, the use of new data sources and updated assessment results means the proposed funding profile differs from the 2010–11 allocation profile.

Compared to previous years, the range of proportional allocations in the proposed funding profile has narrowed. Indices taken from the State of the Catchment reporting do not greatly differentiate between the CMA regions. This has contributed to an overall trend towards less variation in the *priorities* assessment results, ultimately resulting in a more even spread of funding between the CMA regions.

Additionally, increasing the weighting of the *effectiveness* assessment, and the *CMA progress and results* component of this assessment, has rewarded those CMAs with stronger audit results. At the same time, this means CMAs with stronger CAP Assessment results but weaker audits have decreased their proportional allocations.

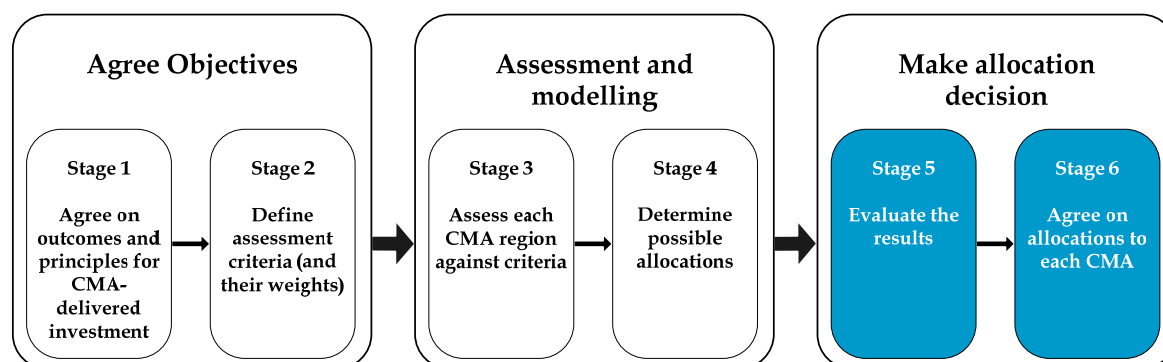
The trends driven by changes in State of the Catchment reporting and CMA *effectiveness* weightings have meant proportional allocations for three CMAs have increased significantly, and others have increased slightly. Within the zero-sum confines of this assessment, gains for these CMAs have meant other CMAs’ proportional allocations have been affected.

Table 2: Summary explanation of shifts in proportional allocations

CMA region	Change in allocation	Trend		Explaining the trends
Northern Rivers	2010: 9.3% 2011: 8.6%	Overall	↓	▪ Relatively lower scores for <i>effectiveness</i> , affected by improved performance of other CMAs
		Priorities score	↓	▪ Updated <i>community</i> assessment has reduced relative score
		Effectiveness score	↓	▪ Weightings to audit has increased, and scale of audit results has been refined to provide greater differentiation
Hunter - Central Rivers	2010: 11.9% 2011: 10.7%	Overall	↓	▪ Main driver is relatively lower scores for <i>priorities</i> , especially <i>cross-regional values</i> ▪ Affected by strongly improved performance of other CMAs in both <i>priorities</i> and <i>effectiveness</i>
		Priorities score	↓	▪ Updated 'threat' scores in biodiversity, land and coasts are now more similar to those of other coastal CMAs
		Effectiveness score	↓	▪ Weighting to audits has increased
Southern Rivers	2010: 6.9% 2011: 9.8%	Overall	↑	▪ Significant gain driven by relative improvement in both <i>priorities</i> and <i>effectiveness</i>
		Priorities score	↑	▪ Updated 'condition' scores for <i>cross-regional values</i> ▪ Very strong results for <i>community</i>
		Effectiveness score	↑	▪ Weighting to audits has increased
Hawkesbury - Nepean	2010: 9.3% 2011: 8.4%	Overall	↓	▪ Main driver is relatively lower scores for <i>community</i>
		Priorities score	↓	▪ Updated scores for <i>community</i>
		Effectiveness score	↑	▪ Weighting to audits has increased
Sydney Metropolitan	2010: 3.5% 2011: 4.8%	Overall	↑	▪ Main driver is relative improvement in <i>priorities</i>
		Priorities score	↑	▪ Updated 'threat' and 'condition' scores in <i>cross-regional values</i> are now more similar to those of other coastal CMAs, especially for land
		Effectiveness score	↓	▪ Weightings to audits and CAPs has increased
Border Rivers - Gwydir	2010: 7.2% 2011: 7.4%	Overall	↑	▪ Main driver is relatively higher scores for <i>community</i>
		Priorities score	↑	▪ Updated scores for <i>community</i>
		Effectiveness score	↓	▪ Weighting to audits has increased
Namoi	2010: 9.6% 2011: 9.1%	Overall	↓	▪ Main driver is relatively lower scores for <i>priorities</i> ▪ Affected by strongly improved performance of other CMAs in both <i>priorities</i> and <i>effectiveness</i>
		Priorities score	↓	▪ Improved performance of other CMAs for <i>community</i> ▪ Updated 'threat' and 'condition' scores in the <i>cross-regional values</i> assessments, particularly land

CMA region	Change in allocation	Trend		Explaining the trends
		<i>Effectiveness</i> score	↔	▪ No change
Central West	2010: 7.2% 2011: 7.4%	Overall	↑	▪ Main driver is relative improvement in <i>effectiveness</i>
		<i>Priorities</i> score	↓	▪ Updated 'threat' and 'condition' scores for <i>cross-regional values</i>
		<i>Effectiveness</i> score	↑	▪ Weighting to audits has increased
Lachlan	2010: 8.5% 2011: 7.8%	Overall	↓	▪ Main driver is relatively lower scores for <i>priorities</i>
		<i>Priorities</i> score	↓	▪ Decreased 'threat' and 'condition' scores in <i>cross-regional values</i> , particularly land threat and riverine condition
		<i>Effectiveness</i> score	↑	▪ Weighting to audits has increased
Murrumbidgee	2010: 6.3% 2011: 7.2%	Overall	↑	▪ Main driver is relative improvement in <i>effectiveness</i>
		<i>Priorities</i> score	↑	▪ Updated scores for <i>community</i>
		<i>Effectiveness</i> score	↑	▪ Weighting to audits has increased
Murray	2010: 7.6% 2011: 7.1%	Overall	↓	▪ Main driver is relative lower scores for <i>effectiveness</i> ▪ Relatively lower scores for <i>priorities</i>
		<i>Priorities</i> score	↓	▪ Updated 'threat' and 'condition' scores for <i>cross-regional values</i> , particularly biodiversity
		<i>Effectiveness</i> score	↓	▪ Weighting to audits has increased
Western	2010: 6.7% 2011: 6.3%	Overall	↓	▪ Main driver is lower scores in <i>effectiveness</i>
		<i>Priorities</i> score	↓	▪ Updated scores for <i>community</i>
		<i>Effectiveness</i> score	↓	▪ Weightings to audit has increased, and scale of audit results has been refined to provide greater differentiation ▪ Affected by stronger performance of other CMAs in <i>effectiveness</i>
Lower Murray - Darling	2010: 6.0% 2011: 5.4%	Overall	↓	▪ Lower scores in <i>priorities</i>
		<i>Priorities</i> score	↓	▪ Updated scores for <i>community</i>
		<i>Effectiveness</i> score	↓	▪ Weighting to audits has increased ▪ Affected by stronger performance of other CMAs in <i>effectiveness</i>

4 Applying Stages 5 and 6 of the allocation process



This section relates to Stages 5 and 6 of the decision-making process. It summarises the results of the NRC's evaluation of the MCA modelling outputs, and describes how the NRC arrived at the proposed funding allocation profile.

4.1 Risks associated with CMA funding continuity

The biggest risks in the funding allocation process are driven by changes in the actual dollar-amount of funding a CMA receives, not by changes in a CMA's proportional allocation. This is particularly true if a CMA experiences a reduction in its monetary funding allocation. As a result, risk will be reduced if total CMA-delivered funding increases in the next round of funding, but will become more significant if the total funding pool remains static or decreases.

Continuity in NRM delivery infrastructure has emerged as a key governance principle supporting sustainable NRM and the maintenance of healthy social-ecological systems.³ Long-term continuity in both the regional model and funding for NRM is essential for maintaining communities' trust, ownership and engagement in NRM.⁴ CMA planning and investment outcomes are also improved when funding continuity is established. Over the last three years, continuity issues have arisen as some individual CMAs have experienced significant variations in annual allocations of *Catchment Action NSW* funding. In some cases, CMAs' allocations have varied by 10% to 20% of their previous quantum of *Catchment Action NSW* funding.

Given the current quantum of funding, some CMAs have indicated they have very limited capacity to accommodate funding decreases without impacting on the continuity of longer-term projects or monitoring programs. This may undermine the value of past CMA investments in building community momentum towards resource stewardship.

³ See Ryan, S, Broderick, K, Sneddon, Y, Andrews, K 2010, *Australia's NRM Governance System—Foundations and Principles for Meeting Future Challenges*, Australian Regional NRM Chairs, Canberra; Senate Standing Committee on Rural & Regional Affairs & Transport 2010, *Natural Resource Management and Conservation Challenges*, Senate Printing Unit, Canberra.

⁴ See, for instance, Marshall, G 2008, *Community-based Regional Delivery of Natural Resource Management – Building System-wide Capacities to Motivate Voluntary Farmer Adoption of Conservation Practices*, RIRDC Publication No 08/175; Keogh, K, Chant, D & Frazer, B 2008, *Review arrangements for regional delivery of natural resource management programmes: Final report*, Ministerial Reference Group for Future NRM Programme Delivery, Departments of Agriculture, Fisheries and Forestry and Environment and Heritage, Canberra; Lane, M 2006, *Critical issues in regional natural resource management*, paper prepared for Australian SOE Committee.

While the current review and application of the decision making process aims to provide better continuity outcomes, stakeholder feedback has indicated that allocations should continue to reflect CMAs' relative performance over time. Further, funding outcomes will always be affected by the 'zero-sum' nature of *Catchment Action NSW* proportional allocations; meaning that for some CMAs to gain a greater share of funding, other CMAs must lose an equal share of the funding pool. Our decision making process aims to minimise the risks associated with funding variation, not to eliminate variation altogether.

4.2 Risks associated with the overall quantum of funding

The NRC advises that increasing the quantum of funding will reduce risks associated with funding reductions and continuity (described above in Section 4.1). As shown below in Figure 11, for allocations above \$25 million all CMAs will receive a proportional allocation equivalent to or greater than their funding in the previous year. If aggregate funding to CMAs is greater than \$25 million, the remaining risk associated with the funding profile is that the allocation is non-ideal due to data limitations (see attachments for details of data limitations).

Despite the listed data limitations, the NRC is confident that the proposed funding profiles do not pose a significant risk to the Government's return on investment for *Catchment Action NSW* funding. While this review represents a significant improvement on the NRC's 2008 rapid assessment, there will always be some level of assessment uncertainty due to the complex nature of NRM. In particular, the data informing the community capacity assessment has especially low confidence levels and should be a priority for improvement in the next review process.

On the other hand, if *Catchment Action NSW* is between \$25 million and \$22 million, the ongoing reduction of funding to lower ranked CMAs emerges as a significant risk. This trend can be also seen in Figure 11, by comparing the 2010/11 profile with the profile for 2011-13 if the historical allocation of \$22 million is maintained. If high performing CMAs continue to improve and build momentum, there is a real risk that the disparity between CMAs with higher and lower *effectiveness* scores will be magnified over time. Repeated funding reductions in lower performing CMAs may impact staff morale, which then limits the affected CMA's capacity to improve performance.

The NRC proposes that imposing a 'no reduction below a threshold' rule would provide a practical means of managing the risks associated with funding cuts by ensuring a stable, minimum level of project funding. This is discussed further in the following section (Section 4.3).

Finally, if aggregate *Catchment Action NSW* funding to CMAs was to drop below \$22 million there is limited marginal benefit in applying the decision making process and recommended funding profiles; both in terms of transaction costs and in terms of the relative size of each CMA's allocation.

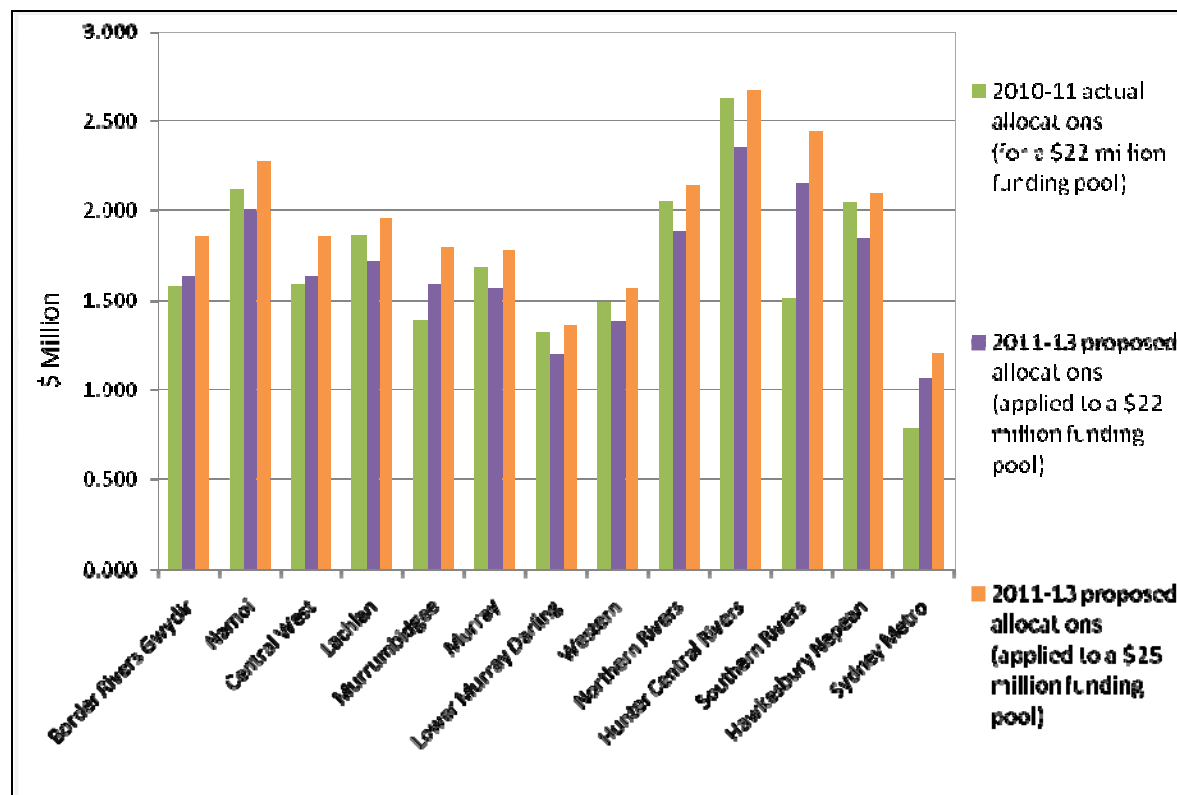


Figure 11: Impact of quantum of funding relative funding allocations

4.3 Imposing a ‘no reductions below a threshold’ rule

The NRC recommends that CMAs with NSW investment funding below \$1.6 million should not experience further funding reductions. This is to ensure there is some capacity for ongoing community engagement in natural resource management across NSW on behalf of the NSW Government.

If such a rule were imposed, CMAs whose funding is below the threshold level would be able to improve their allocation, however they would not receive a lower amount of funding than their previous year’s allocations (in monetary terms). The NRC has nominated \$1.6 million as a pragmatic level given the current aggregate level of funding.

Figure 12 below compares the outcomes of the proposed funding profile with the outcomes of applying a ‘no reductions below a threshold’ rule. The 2010/11 funding allocation value of \$22 million has been chosen for comparative purposes.

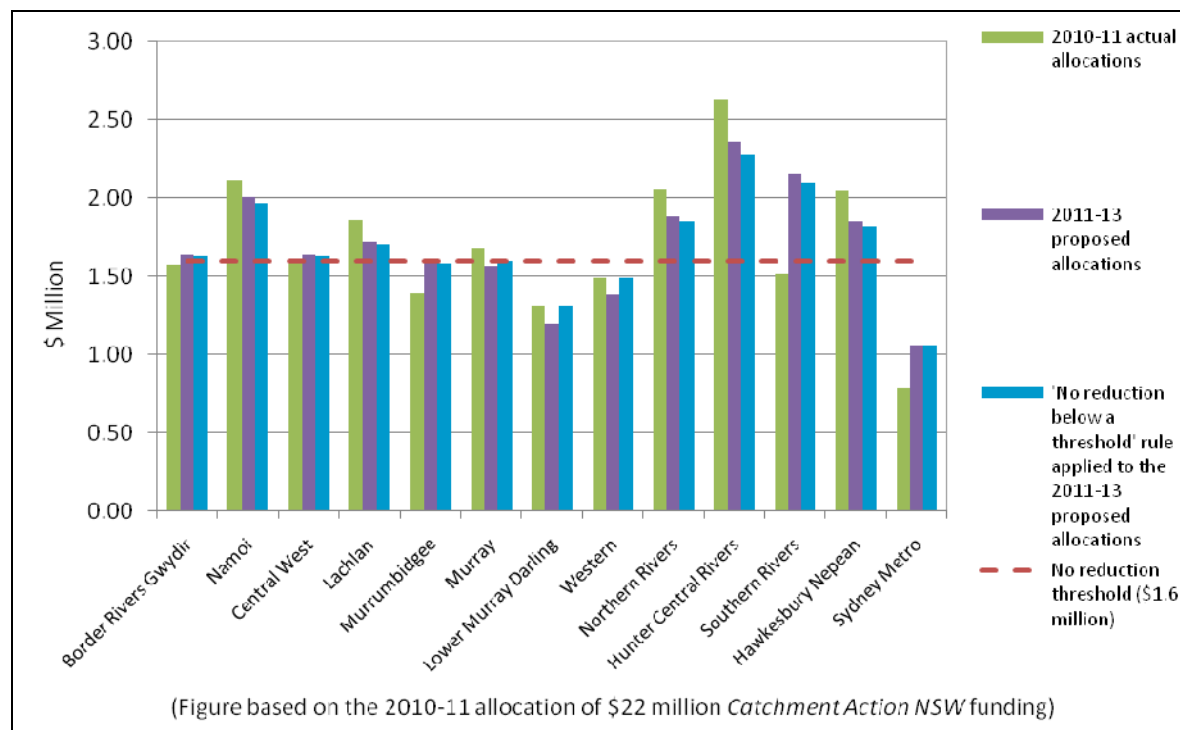


Figure 12: Impact of a 'no reductions below a threshold' rule

4.4 Risks associated with the timing of updates

The current Terms of Reference indicates provisional CMA funding allocations will be advised for 2011-12 and 2012-13.

There are some advantages in also applying the recommended funding profile to 2013-14 *Catchment Action NSW* funding. It would provide CMAs with greater certainty about future years' funding allocations and assist their investment planning processes. Extending this decision making process across three years of funding also reduces the transactions costs associated with the review relative to the total quantum of funding being allocated. Finally, it should help align the next review of the funding allocation process with updated State of the Catchment and NRC Audit Program reporting, providing access to best available data within the next funding allocation process.

However, CMAs are adaptive organisations and some are concerned that their funding forecasts for the period 2011-13 would be influenced by 2008-09 audit results. This particularly affects those CMAs with poorer audit results, some of which will be undertaking new audits to assist in their organisational development. These CMAs have suggested the funding allocation should be updated using results from the most recent NRC audits to reflect progress they have made following the 2008-09 audit.

When addressing the issue of updating CMAs' audit results, the use of best available knowledge must be balanced against CMAs' previous desire for greater funding continuity and certainty. Funding allocation is a zero-sum game, and a change in the audit score of one CMA has the potential to affect allocations to all other CMAs. Previous applications of the decision making process have highlighted the undesirable implications of annual fluctuations of the

funding profile. The NRC's recommendation to update the *community* assessment if and when better information is available also engenders some level of risk to continuity.

Principles of fairness and equity across all CMAs also emerge as key considerations. New CAP assessment results should only be included in the assessment when all CMAs have had a chance to upgrade their CAP. Similarly, if audits are to influence annual funding allocations, all CMAs should have the opportunity to participate in an audit (noting that CMAs are required to be audited every five years).

In addition, linking funding to audits also risks obscuring the strategic purpose of voluntary performance reviews. These strategic planning decisions, intended to drive continuous improvement and provide assurance to the Government, should not be affected by consideration of secondary incentives such as funding outcomes.

4.4.1 Recommended approach to the timing of updates

Based on the discussion of risk outlined above, the NRC is recommending the following approach to updating the assessments and funding profiles:

- The *CMA progress and results* assessment will be updated annually with any new audit information along common lines of inquiry
- The *CMA plans for investment* assessment will be updated when all CMAs have had the opportunity to upgrade their CAPs
- The *priorities* assessment for community will be updated when better information is available
- The *priorities* assessment for biodiversity, land and water will next be reviewed when new State of the Catchment data is available (current timeframe 2013), and

The rationale and associated actions supporting this approach are detailed in Table 1.

This approach aims to balance availability of improved information with issues of continuity, CMA equity and transaction cost. Further, change in the biophysical landscape occurs over long timeframes, so it is appropriate to update the *priorities* assessment for biodiversity, land and water less frequently than the community or CMA *effectiveness* assessments.

Appendices

This page intentionally left blank.

Attachment 1 – Terms of Reference



TERMS OF REFERENCE: *Catchment Action NSW* Funding Allocations to CMAs

The New South Wales Government has been utilising the process and multi-criteria methodology developed by the Natural Resources Commission (the Commission) to inform the allocation of *Catchment Action NSW* funding between Catchment Management Authorities (CMAs) since 2008-09. The Government intends to continue to use this as a transparent and effective process which prioritises investment between the 13 CMA regions based on the Government's policy priorities and CMAs likely effectiveness in delivering natural resource outcomes.

The Commission is requested to:

1. review its funding methodology and recommend how the methodology can be refined and applied
2. recommend a potential funding profile for allocating *Catchment Action NSW* funds between the CMAs for 2011-12 and 2012-13
3. review differences between current funding and the potential funding profile and advise on related risks that should be considered by the Government in making final funding allocation decisions.

The Commission should have regard to the following in undertaking this work:

- NSW Government natural resource management policies, plans and the 13 State-wide targets for Natural Resource Management
- the best available data on natural resource assets and threats in each CMA region
- each CMA's capacity to implement their Catchment Action Plan effectively and efficiently
- the appropriate timeframe for future updates to the funding methodology.

The Commission will not give consideration to other sources of CMA funding in recommending a modified methodology.

The Commission should consult with relevant NSW agencies including the Department of Premier and Cabinet, NSW Treasury, the Department of Environment, Climate Change and Water, the Department of Industry and Investment, CMAs and other relevant stakeholders.

The Commission is to provide a draft report by 31 August 2010 and a final report containing its advice to the Premier and the Minister for Climate Change and the Environment by 17th September 2010.

This page intentionally left blank.

Attachment 2 – Summarised results of *priorities* assessment

This attachment summarises the results of the assessments that are explained in more detail in Attachment 4. These tables are for ease of reference given the size of Attachment 4.

Table A2.1: Results of *priorities* assessment

CMA Region	Biodiversity			Riverine and Wetland			Coasts and Estuary			Land			Community
	Value	Threat	Condition	Value	Threat	Condition	Value	Threat	Condition	Value	Threat	Condition	Momentum and Capacity
Coastal													
Northern Rivers	Very High	Low	High	Very High	Medium	High	High	Medium	High	High	Medium	High	Medium
Hunter – Central Rivers	High	Low	High	Very High	High	High	High	Medium	High	High	Medium	High	High
Hawkesbury – Nepean	High	Low	High	High	High	Medium	Medium	Medium	Medium	Medium	Medium	High	Medium
Sydney Metropolitan	Medium	High	Low	Medium	Medium	Medium	Medium	Medium	Medium	Low	Medium	High	Low
Southern Rivers	Very High	Low	Very High	High	Medium	High	High	Low	High	Medium	Medium	Medium	Very High
Sheep/Wheat Belt													
Border Rivers – Gwydir	Medium	Medium	Low	High	High	Medium	Not Applicable			Very High	Medium	High	High
Namoi	Medium	Medium	Low	Medium	High	Medium				Very High	Medium	High	High
Central West	Medium	Medium	Low	High	High	Very Low				Very High	Medium	High	High
Lachlan	Medium	Medium	Low	Medium	Medium	Very Low				Very High	Medium	Medium	High
Murrumbidgee	Low	Medium	Low	High	High	Very Low				Very High	Medium	High	High
Murray	Low	Low	Very Low	High	Medium	Low				Very High	Medium	High	Very High
Western													
Western	High	Low	Very High	High	Medium	Medium	Not Applicable			Medium	Low	High	Medium
Lower Murray – Darling	High	Low	Very High	Low	Medium	Low				Medium	Medium	High	Medium

Notes:

- These rankings are inputs to the model, converted into standardised scores, then weighted and aggregated. A summary of the rationale for these rankings is explained in Attachment 4. The approach and methods for ranking each region against the assessment questions are explained in Attachment 5.
- The Coastal CMAs total Water Priorities Assessment comprises 66% riverine ecosystem and wetlands assessment and 34% estuaries and coastal lakes.

This page intentionally left blank

Attachment 3 – Results for *effectiveness* assessment

Table A3.1: Assessment of likely effectiveness of CMA-delivered investment

CMA Region	Likely effectiveness of CMA-delivered investment	
	How confident are we that CAP targets will promote state targets? (Note 1)	What is the extent of CMA progress and results so far? (Note 2)
	Rank level of confidence (Very High, High, Medium, Fair, Low)	Rank progress (Very High, High, Medium, Fair, Low)
Northern Rivers	High	Medium
Hunter – Central Rivers	Very High	High
Hawkesbury – Nepean	High	High
Sydney Metropolitan	Medium	Fair
Southern Rivers	Medium	Very High
Border Rivers – Gwydir	High	Fair
Namoi	High	Very High
Central West	Medium	High
Lachlan	High	High
Murrumbidgee	Medium	High
Murray	High	Fair
Western	Medium	Medium
Lower Murray – Darling	Medium	Fair

Note 1 – Data sources

- NRC CAP Assessment results (2007–08)

Note 2 – Data sources

- NRC CAP Implementation Audit results (2008–09)

This page intentionally left blank

Attachment 4 – Extended results and rationale for *priorities* assessment

A4.1 Cross-regional natural resource values per theme

For each theme – biodiversity, water (riverine ecosystems and wetlands, and coasts and estuaries) and land (soil) – this part of the framework asks:

- **How dependent are the nation’s environmental, social and economic values on the landscape functions supported by the natural assets in the region?**
Analysts are guided to consider benefits to regional, state and national communities and industries, and any existing policies that state the governments’ values.
- **What is the level of threat to those assets, and hence the landscape functions and values dependent on those assets, in the region?**
Analysts are guided to use available scientific information.
- **What is the condition of those assets in the region compared with the condition needed to support landscape function and values?**
Analysts are guided to use available scientific information.

This is shown in the figure below:

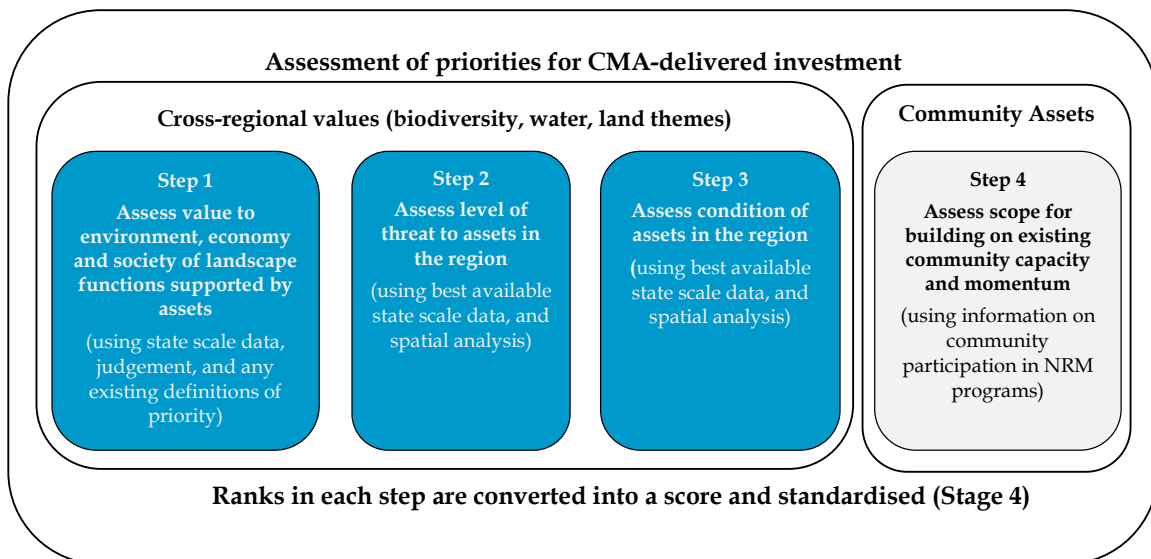


Figure A4.1: Assessment of priorities for CMA-delivered investments

Responses are recorded as rankings, which can then be input to the multi-criteria analysis model.

The NRC has conducted a new assessment, the results of which replace the results of the 2008 rapid assessment. The following tables summarise the rankings and the rationale for each CMA region. Attachment 5 contains further details on the data sets used, weightings, and limitations of the ranking assessment.

Table A4.1: Results and rationale – cross-regional values – BIODIVERSITY threat and condition

CMA	Criteria	Rank	Why it was assigned this biodiversity ranking
Northern Rivers	<i>National economic, social and environmental VALUES of healthy biodiversity</i>	Very High	<ul style="list-style-type: none"> Southern part of the Border Ranges a national biodiversity hotspot Large proportion of the catchment is reserved in national parks High value for nature-based tourism and recreation, and the region's tourism sector is very dependent on nature-based activities High value for sea/tree change 'lifestyle' values
	<i>THREAT to biodiversity assets</i>	Low	<ul style="list-style-type: none"> Pressure on native vegetation is low Impact of invasive species is medium
	<i>CONDITION of biodiversity assets</i>	High	<ul style="list-style-type: none"> Extent of native vegetation is high Vegetation condition is medium Proportion of over-cleared Mitchell Landscapes is very high Proportion of over-cleared vegetation types is medium
Hunter – Central Rivers	<i>National economic, social and environmental VALUES of healthy biodiversity</i>	High	<ul style="list-style-type: none"> High value for nature-based tourism and recreation High value for sea/tree change 'lifestyle' values Low priority to include under-represented IBRA regions into the National Reserve System
	<i>THREAT to biodiversity assets</i>	Low	<ul style="list-style-type: none"> Pressure on native vegetation is low Impact of invasive species is medium
	<i>CONDITION of biodiversity assets</i>	High	<ul style="list-style-type: none"> Extent of native vegetation is high Vegetation condition is medium Proportion of over-cleared Mitchell Landscapes is high Proportion of over-cleared vegetation types is medium
Hawkesbury – Nepean	<i>National economic, social and environmental VALUES of healthy biodiversity</i>	High	<ul style="list-style-type: none"> Very high proportion of the catchment is reserved in national parks Elsewhere is degraded/modified but poses high value to the large Sydney population from amenity, recreational and tourism value Large area in drinking water catchment of greater Sydney Low priority to include under-represented IBRA regions into the National Reserve System
	<i>THREAT to biodiversity assets</i>	Low	<ul style="list-style-type: none"> Pressure on native vegetation is low Impact of invasive species is medium
	<i>CONDITION of biodiversity assets</i>	High	<ul style="list-style-type: none"> Extent of native vegetation is high Vegetation condition is high Proportion of over-cleared Mitchell Landscapes is high Proportion of over-cleared vegetation types is medium

CMA	Criteria	Rank	Why it was assigned this biodiversity ranking
Sydney Metropolitan	<i>National economic, social and environmental VALUES of healthy biodiversity</i>	Medium	<ul style="list-style-type: none"> Degraded and highly urbanised/developed landscape, but offers value to the large Sydney population from amenity, recreational and tourism values Very high value for nature-based tourism and recreation Low priority to include under-represented IBRA regions into the National Reserve System
	<i>THREAT to biodiversity assets</i>	High	<ul style="list-style-type: none"> Pressure on native vegetation is very high Impact of invasive species is medium
	<i>CONDITION of biodiversity assets</i>	Low	<ul style="list-style-type: none"> Extent of native vegetation is medium Vegetation condition is low Proportion of over-cleared Mitchell Landscapes is medium Proportion of over-cleared vegetation types is low
Southern Rivers	<i>National economic, social and environmental VALUES of healthy biodiversity</i>	Very High	<ul style="list-style-type: none"> High value for nature-based tourism and recreation, and the region's tourism sector is very dependent on nature-based activities Large proportion of the catchment is reserved in national parks Moderate priority to include under-represented IBRA regions into the National Reserve System High value for sea/tree change 'lifestyle' values
	<i>THREAT to biodiversity assets</i>	Low	<ul style="list-style-type: none"> Pressure on native vegetation is low Impact of invasive species is medium
	<i>CONDITION of biodiversity assets</i>	Very High	<ul style="list-style-type: none"> Extent of native vegetation is high Vegetation condition is high Proportion of over-cleared Mitchell Landscapes is very high Proportion of over-cleared vegetation types is high
Border Rivers – Gwydir	<i>National economic, social and environmental VALUES of healthy biodiversity</i>	Medium	<ul style="list-style-type: none"> Southern part of the Brigalow Belt national biodiversity hotspot region Highly modified agricultural landscapes, some economic and social benefits can be derived from biodiversity Relatively fewer urban settlements than other CMA regions Very High priority to include under-represented IBRA regions into the National Reserve System
	<i>THREAT to biodiversity assets</i>	Medium	<ul style="list-style-type: none"> Pressure on native vegetation is medium Impact of invasive species is medium
	<i>CONDITION of biodiversity assets</i>	Low	<ul style="list-style-type: none"> Extent of native vegetation is medium Vegetation condition is medium Proportion of over-cleared Mitchell Landscapes is very low Proportion of over-cleared vegetation types is very low

CMA	Criteria	Rank	Why it was assigned this biodiversity ranking
Namoi	<i>National economic, social and environmental VALUES of healthy biodiversity</i>	Medium	<ul style="list-style-type: none"> Low value for nature-based tourism Highly modified agricultural landscapes, some economic and social benefits can be derived from biodiversity Very High priority to include under-represented IBRA regions into the National Reserve System
	<i>THREAT to biodiversity assets</i>	Medium	<ul style="list-style-type: none"> Pressure on native vegetation is medium Impact of invasive species is medium
	<i>CONDITION of biodiversity assets</i>	Low	<ul style="list-style-type: none"> Extent of native vegetation is medium Vegetation condition is medium Proportion of over-cleared Mitchell Landscapes is low Proportion of over-cleared vegetation types is very low
Central West	<i>National economic, social and environmental VALUES of healthy biodiversity</i>	Medium	<ul style="list-style-type: none"> Low to moderate value for nature-based tourism Highly modified agricultural landscapes, some economic and social benefits can be derived from biodiversity Very High priority to include under-represented IBRA regions into the National Reserve System
	<i>THREAT to biodiversity assets</i>	Medium	<ul style="list-style-type: none"> Pressure on native vegetation is medium Impact of invasive species is medium
	<i>CONDITION of biodiversity assets</i>	Low	<ul style="list-style-type: none"> Extent of native vegetation is medium Vegetation condition is medium Proportion of over-cleared Mitchell Landscapes is very low Proportion of over-cleared vegetation types is very low
Lachlan	<i>National economic, social and environmental VALUES of healthy biodiversity</i>	Medium	<ul style="list-style-type: none"> Low to moderate value for nature-based tourism Highly modified agricultural landscapes, some economic and social benefits can be derived from biodiversity Very High priority to include under-represented IBRA regions into the National Reserve System
	<i>THREAT to biodiversity assets</i>	Medium	<ul style="list-style-type: none"> Pressure on native vegetation is low Impact of invasive species is medium
	<i>CONDITION of biodiversity assets</i>	Low	<ul style="list-style-type: none"> Extent of native vegetation is medium Vegetation condition is medium Proportion of over-cleared Mitchell Landscapes is very low Proportion of over-cleared vegetation types is very low
Murrumbidgee	<i>National economic, social and environmental VALUES of healthy biodiversity</i>	Low	<ul style="list-style-type: none"> Moderate value for nature-based tourism Highly modified agricultural landscapes, limited 'lifestyle' value from biodiversity High priority to include under-represented IBRA regions into the National Reserve System

CMA	Criteria	Rank	Why it was assigned this biodiversity ranking
	<i>THREAT to biodiversity assets</i>	Medium	<ul style="list-style-type: none"> Pressure on native vegetation is medium Impact of invasive species is medium
	<i>CONDITION of biodiversity assets</i>	Low	<ul style="list-style-type: none"> Extent of native vegetation is medium Vegetation condition is medium Proportion of over-cleared Mitchell Landscapes is very low Proportion of over-cleared vegetation types is low
Murray	<i>National economic, social and environmental VALUES of healthy biodiversity</i>	Low	<ul style="list-style-type: none"> Low value for nature-based tourism Highly modified agricultural landscapes, limited 'lifestyle' value from biodiversity High priority to include under-represented IBRA regions into the National Reserve System
	<i>THREAT to biodiversity assets</i>	Low	<ul style="list-style-type: none"> Pressure on native vegetation is low Impact of invasive species is medium
	<i>CONDITION of biodiversity assets</i>	Very Low	<ul style="list-style-type: none"> Extent of native vegetation is low Vegetation condition is low Proportion of over-cleared Mitchell Landscapes is very low Proportion of over-cleared vegetation types is very low
Western	<i>National economic, social and environmental VALUES of healthy biodiversity</i>	High	<ul style="list-style-type: none"> Relatively undisturbed ecosystems, and relatively high preservation and future option values Low value for nature-based tourism Relatively less agricultural activity and fewer urban settlements compared with other regions High priority to include under-represented IBRA regions into the National Reserve System
	<i>THREAT to biodiversity assets</i>	Low	<ul style="list-style-type: none"> Pressure on native vegetation is low Impact of invasive species is medium
	<i>CONDITION of biodiversity assets</i>	Very High	<ul style="list-style-type: none"> Extent of native vegetation is very high Vegetation condition is medium Proportion of over-cleared Mitchell Landscapes is very high Proportion of over-cleared vegetation types is very high
Lower Murray – Darling	<i>National economic, social and environmental VALUES of healthy biodiversity</i>	High	<ul style="list-style-type: none"> Relatively undisturbed ecosystems, and relatively high preservation and future option values Low value for nature-based tourism Relatively less agricultural activity and fewer urban settlements compared with other regions Moderate priority to include under-represented IBRA regions into the National Reserve System
	<i>THREAT to biodiversity assets</i>	Low	<ul style="list-style-type: none"> Pressure on native vegetation is low Impact of invasive species is medium

CMA	Criteria	Rank	Why it was assigned this biodiversity ranking
	<i>CONDITION of biodiversity assets</i>	Very High	<ul style="list-style-type: none">▪ Extent of native vegetation is very high▪ Vegetation condition is medium▪ Proportion of over-cleared Mitchell Landscapes is very high▪ Proportion of over-cleared vegetation types is very high

Table A4.2: Results and rationale - cross regional values - WATER (RIVERINE ECOSYSTEMS AND WETLANDS) threat and condition

CMA	Criteria	Rank	Why it was assigned this water ranking
Northern Rivers	<i>National economic, social and environmental VALUES of healthy riverine ecosystems and water</i>	Very High	<ul style="list-style-type: none"> ▪ No. of Ramsar wetlands is medium ▪ No. of DIWA wetlands and area of significant wetlands is high ▪ No. of high priority GDEs is very high ▪ Use of water on farms in the region is very low ▪ Value of agricultural production is high ▪ Nature based tourism is high
	<i>THREAT to riverine ecosystems and wetland assets</i>	Medium	<ul style="list-style-type: none"> ▪ Pressure on wetlands is high due to catchment and habitat disturbance caused by land use and vegetation clearing in the catchment, feral animals and recreational facilities ▪ Environmental stress classification is high ▪ Hydrological stress classification is low
	<i>CONDITION of riverine ecosystems and wetland assets</i>	High	<ul style="list-style-type: none"> ▪ Wetland condition is very low ▪ Hydrology and macroinvertebrate condition generally good to fair in the catchment ▪ Ecosystem health and condition assessment is very high
Hunter – Central Rivers	<i>National economic, social and environmental VALUES of healthy riverine ecosystems and water</i>	Very High	<ul style="list-style-type: none"> ▪ No. of Ramsar wetlands is high ▪ No. of DIWA wetlands is high ▪ No. of high priority GDEs is high ▪ Use of water on farms in the region is low ▪ Value of agricultural production is medium ▪ High value for amenity, nature based tourism and recreation
	<i>THREAT to riverine ecosystems and wetland assets</i>	High	<ul style="list-style-type: none"> ▪ Pressure on wetlands is high due to habitat disturbance caused by feral animals, recreational facilities in the wetlands and roads crossing or adjoining wetlands ▪ Environmental stress classification is high ▪ Hydrological stress classification is high
	<i>CONDITION of riverine ecosystems and wetland assets</i>	High	<ul style="list-style-type: none"> ▪ Wetland condition is very low ▪ Ecosystem health and condition assessment is high
Hawkesbury – Nepean	<i>National economic, social and environmental VALUES of healthy riverine ecosystems and water</i>	High	<ul style="list-style-type: none"> ▪ No. of Ramsar wetlands is very low ▪ No. of DIWA wetlands is high ▪ No. of high priority GDEs is very high ▪ Use of water on farms in the region is very low ▪ Value of agricultural production is high ▪ Nature based tourism is medium ▪ High value to the greater Sydney population for amenity, recreational and tourism values ▪ Large area in drinking water catchment for greater Sydney

CMA	Criteria	Rank	Why it was assigned this water ranking
	<i>THREAT to riverine ecosystems and wetland assets</i>	High	<ul style="list-style-type: none"> Pressure on wetlands is high due to habitat disturbance from feral animals, grazing and roads Environmental stress classification is medium Hydrological stress classification is high
	<i>CONDITION of riverine ecosystems and wetland assets</i>	Medium	<ul style="list-style-type: none"> Wetland condition is very low Ecosystem health and condition assessment is high
Sydney Metropolitan	<i>National economic, social and environmental VALUES of healthy riverine ecosystems and water</i>	Medium	<ul style="list-style-type: none"> No. of Ramsar wetlands is medium No. of DIWA wetlands is medium No. of high priority GDEs is very low Use of water on farms in the region is very low Value of agricultural production is very low Nature based tourism is very high Degraded, but high value to the greater Sydney population from amenity and recreational values
	<i>THREAT to riverine ecosystems and wetland assets</i>	Medium	<ul style="list-style-type: none"> Pressure on wetlands is high due to habitat disturbance from vegetation clearing/modification and infrastructure in the catchment. Road crossings and feral animals are also a problem Environmental stress classification is medium Hydrological stress classification is medium
	<i>CONDITION of riverine ecosystems and wetland assets</i>	Medium	<ul style="list-style-type: none"> Wetland condition is very low SRA and coastal catchments hydrological condition is medium
Southern Rivers	<i>National economic, social and environmental VALUES of healthy riverine ecosystems and water</i>	High	<ul style="list-style-type: none"> No. of Ramsar wetlands is medium No. of DIWA wetlands is very high No. of high priority GDEs is medium Use of water on farms in the region is very low Value of agricultural production is low Nature based tourism is high as is amenity and recreation
	<i>THREAT to riverine ecosystems and wetland assets</i>	Medium	<ul style="list-style-type: none"> Pressure on wetlands is high due to habitat disturbance from vegetation clearing, grazing and feral animals Environmental stress classification is high Hydrological stress classification is low
	<i>CONDITION of riverine ecosystems and wetland assets</i>	High	<ul style="list-style-type: none"> Wetland condition is very low Ecosystem health and condition assessment is very high

CMA	Criteria	Rank	Why it was assigned this water ranking
Border Rivers – Gwydir	<i>National economic, social and environmental VALUES of healthy riverine ecosystems and water</i>	High	<ul style="list-style-type: none"> ▪ No. of Ramsar wetlands is medium ▪ No. of DIWA wetlands is very low ▪ No. of high priority GDEs is low ▪ Use of water on farms in the region is very high ▪ Value of agricultural production is high ▪ Nature based tourism is low ▪ Relatively less agriculture and urban settlements
	<i>THREAT to riverine ecosystems and wetland assets</i>	High	<ul style="list-style-type: none"> ▪ Pressure on wetlands is high due to habitat disturbance caused by vegetation clearing/modification, grazing and feral animals ▪ Environmental stress classification is very high ▪ Hydrological stress classification is moderate
	<i>CONDITION of riverine ecosystems and wetland assets</i>	Medium	<ul style="list-style-type: none"> ▪ Wetland condition is very low ▪ Ecosystem health and condition assessment is medium
Namoi	<i>National economic, social and environmental VALUES of healthy riverine ecosystems and water</i>	Medium	<ul style="list-style-type: none"> ▪ No. of Ramsar wetlands and DIWA wetlands is very low ▪ No. of high priority GDEs is medium ▪ Use of water on farms in the region is high ▪ Value of agricultural production is high ▪ Nature based tourism is low
	<i>THREAT to riverine ecosystems and wetland assets</i>	High	<ul style="list-style-type: none"> ▪ Pressure on wetlands is high due to habitat disturbance caused by vegetation clearing/modification, catchment land use, groundwater bores and lack of protection of wetlands ▪ Environmental stress classification is high ▪ Hydrological stress classification is high
	<i>CONDITION of riverine ecosystems and wetland assets</i>	Medium	<ul style="list-style-type: none"> ▪ Wetland condition is low ▪ Ecosystem health and condition assessment is medium
Central West	<i>National economic, social and environmental VALUES of healthy riverine ecosystems and water</i>	High	<ul style="list-style-type: none"> ▪ No. of Ramsar wetlands is medium ▪ No. of DIWA wetlands is very low ▪ No. of high priority GDEs is high ▪ Use of water on farms in the region is medium ▪ Value of agricultural production is high ▪ Nature based tourism is low
	<i>THREAT to riverine ecosystems and wetland assets</i>	High	<ul style="list-style-type: none"> ▪ Pressure on wetlands is high due to habitat disturbance caused by vegetation clearing/modification, grazing, feral animals and impoundments ▪ Environmental stress classification is high ▪ Hydrological stress classification is medium
	<i>CONDITION of riverine ecosystems and wetland assets</i>	Very Low	<ul style="list-style-type: none"> ▪ Wetland condition is low ▪ Ecosystem health and condition assessment is very low

CMA	Criteria	Rank	Why it was assigned this water ranking
Lachlan	<i>National economic, social and environmental VALUES of healthy riverine ecosystems and water</i>	Medium	<ul style="list-style-type: none"> ▪ No. of Ramsar wetlands is very low ▪ No. of DIWA wetlands is medium ▪ No. of high priority GDEs is medium ▪ Use of water on farms in the region is medium ▪ Value of agricultural production is high ▪ Nature based tourism is low
	<i>THREAT to riverine ecosystems and wetland assets</i>	Medium	<ul style="list-style-type: none"> ▪ Pressure on wetlands is high due to catchment disturbance caused by vegetation clearing/ modification, point sources, grazing and impoundments ▪ Environmental stress classification is low ▪ Hydrological stress classification is low
	<i>CONDITION of riverine ecosystems and wetland assets</i>	Very Low	<ul style="list-style-type: none"> ▪ Wetland condition is very low ▪ Ecosystem health and condition assessment is very low
Murrumbidgee	<i>National economic, social and environmental VALUES of healthy riverine ecosystems and water</i>	High	<ul style="list-style-type: none"> ▪ No. of Ramsar wetlands is very low ▪ No. of DIWA wetlands is high ▪ No. of high priority GDEs is low ▪ Use of water on farms in the region is very high ▪ Value of agricultural production is very high ▪ Nature based tourism is medium
	<i>THREAT to riverine ecosystems and wetland assets</i>	High	<ul style="list-style-type: none"> ▪ Pressure on wetlands is high due to habitat disturbance caused by feral animals, grazing, vegetation clearing/ modification in the catchment, and lack of protection of wetlands ▪ Environmental stress classification is high ▪ Hydrological stress classification is medium
	<i>CONDITION of riverine ecosystems and wetland assets</i>	Very Low	<ul style="list-style-type: none"> ▪ Wetland condition is very low ▪ Ecosystem health and condition assessment is very low
Murray	<i>National economic, social and environmental VALUES of healthy riverine ecosystems and water</i>	High	<ul style="list-style-type: none"> ▪ No. of Ramsar wetlands is medium ▪ No. of DIWA wetlands is medium ▪ No. of high priority GDEs is very low ▪ Use of water on farms in the region is medium ▪ Value of agricultural production is high ▪ Nature based tourism is low
	<i>THREAT to riverine ecosystems and wetland assets</i>	Medium	<ul style="list-style-type: none"> ▪ Pressure on wetlands is high due to catchment and hydrological disturbance caused by river regulation, impoundments, vegetation clearing/ modification in the catchment, low percentage of protection for wetlands and point sources ▪ Environmental stress classification is very high ▪ Hydrological stress classification is very low

CMA	Criteria	Rank	Why it was assigned this water ranking
	<i>CONDITION of riverine ecosystems and wetland assets</i>	Low	<ul style="list-style-type: none"> Wetland condition is low Ecosystem health and condition assessment is low
Western	<i>National economic, social and environmental VALUES of healthy riverine ecosystems and water</i>	High	<ul style="list-style-type: none"> No. of Ramsar wetlands is very high No. of DIWA wetlands and No. of high priority GDEs is very high Use of water on farms in the region is low Value of agricultural production is low Nature based tourism is very low Relatively less agriculture and urban settlements
	<i>THREAT to riverine ecosystems and wetland assets</i>	Medium	<ul style="list-style-type: none"> Pressure on wetlands is high due to vegetation clearing/modification, feral animals and impoundments in the catchment Environmental stress classification is low Hydrological stress classification is low
	<i>CONDITION of riverine ecosystems and wetland assets</i>	Medium	<ul style="list-style-type: none"> Wetland condition is very low Ecosystem health and condition assessment is high
Lower Murray – Darling	<i>National economic, social and environmental VALUES of healthy riverine ecosystems and water</i>	Low	<ul style="list-style-type: none"> No. of Ramsar wetlands and DIWA wetlands is very low No. of high priority GDEs is very low Use of water on farms in the region is low Value of agricultural production is low Nature based tourism is very low Relatively less agriculture and urban settlements
	<i>THREAT to riverine ecosystems and wetland assets</i>	Medium	<ul style="list-style-type: none"> Pressure on wetlands is high due to catchment and hydrological disturbance caused by river regulation, impoundments without fish passage, vegetation clearing/modification in the catchment and point sources Environmental stress classification is medium Hydrological stress classification is medium
	<i>CONDITION of riverine ecosystems and wetland assets</i>	Low	<ul style="list-style-type: none"> Wetland condition is low Ecosystem health and condition assessment is medium

Table A4.3: Results and rationale - cross regional values - WATER (ESTUARIES AND COASTAL LAKES) threat and condition

CMA	Criteria	Rank	Why it was assigned this water ranking
Northern Rivers	<i>National economic, social and environmental VALUES of healthy estuaries and coastal lakes.</i>	High	<ul style="list-style-type: none"> Over \$100 million generated from fisheries in region from Coastal estuaries in the region Mid North Coast regional strategy notes region's natural icons include long stretches of beach including estuarine habitats High value of nature-based tourism North coast is a highly valued place to live (more recently with sea changers) and the coast is a major influence on the community and the economy of the region
	<i>THREAT to estuaries and coastal lake assets</i>	Medium	<ul style="list-style-type: none"> Medium pressure on NSW estuaries and coastal lakes and medium 2006 population Main pressures occur along the more developed and populated northern and central parts of the region
	<i>CONDITION of estuaries and coastal lake assets</i>	High	<ul style="list-style-type: none"> High condition of NSW estuaries and coastal lakes 30 of the 46 estuaries were rated, with the remaining 16 having limited or no data Overall ratings for individual indicators were: chlorophyll – fair; macro-algae and turbidity – not rated; seagrass – good (but with significant variability from very good to very poor); mangroves – not rated; saltmarsh – very good; and fish condition – fair
Hunter – Central Rivers	<i>National economic, social and environmental VALUES of healthy estuaries and coastal lakes.</i>	High	<ul style="list-style-type: none"> Over \$100 million generated from fisheries in region from Coastal estuaries in the region Estuaries of Central Coast and Wallis lakes each have 20% of the remaining seagrass beds in NSW – a key habitat for valued species of commercial and recreational fish, molluscs and crabs and nursery area for juvenile fish Estuaries are used extensively for recreational activities including fishing, boating and swimming
	<i>THREAT to estuaries and coastal lake assets</i>	Medium	<ul style="list-style-type: none"> Medium pressure on NSW estuaries and coastal lakes and low 2006 population Pressures on the HCR estuaries are spread evenly along the coastline, with a slight increase in the more developed and populated areas
	<i>CONDITION of estuaries and coastal lake assets</i>	High	<ul style="list-style-type: none"> High condition of NSW estuaries and coastal lakes 13 of the 20 estuaries were rated with the remaining seven having limited or no data Overall ratings for individual indicators were: chlorophyll – good; macro-algae – not rated; turbidity – fair; seagrass – fair (but with significant variability from very good to very poor)

CMA	Criteria	Rank	Why it was assigned this water ranking
Hawkesbury – Nepean	<i>National economic, social and environmental VALUES of healthy estuaries and coastal lakes.</i>	Medium	<ul style="list-style-type: none"> \$30 million generated in revenue from Coastal estuaries in the region Hawkesbury River estuary has high social and economic values including high recreational use and fishing. The region has outstanding environmental qualities including Hawkesbury River, Brisbane waters, Tuggerah lakes, coastal lagoons
	<i>THREAT to estuaries and coastal lake assets</i>	Medium	<ul style="list-style-type: none"> Moderate pressure on NSW estuaries and coastal lakes Major pressure along the Sydney Metropolitan coastline
	<i>CONDITION of estuaries and coastal lake assets</i>	Medium	<ul style="list-style-type: none"> Medium condition of NSW estuaries and coastal lakes sourced from MER reporting 9 of the 16 estuaries were rated, with the remaining 7 having limited or no data Overall ratings for individual indicators were: chlorophyll – good; macro-algae – not rated; turbidity – poor; seagrass – fair (but with significant variability from very good to very poor); mangroves – not rated; saltmarsh – good; and fish – good
Sydney Metropolitan	<i>National economic, social and environmental VALUES of healthy estuaries and coastal lakes.</i>	Medium	<ul style="list-style-type: none"> \$8 million generated in revenue from Coastal estuaries in the region High amenity and tourism values of the estuaries and coastal lakes of Sydney
	<i>THREAT to estuaries and coastal lake assets</i>	Medium	<ul style="list-style-type: none"> Medium pressure on NSW estuaries and coastal lakes
	<i>CONDITION of estuaries and coastal lake assets</i>	Medium	<ul style="list-style-type: none"> Medium condition of NSW estuaries and coastal lakes sourced from MER reporting Nine of the 46 estuaries were rated, with the remaining seven having limited or no data Overall ratings for individual indicators were: chlorophyll – good; macro-algae – not rated; turbidity – poor; seagrass – fair (but with significant variability from very good to very poor); mangroves – not rated; saltmarsh – good; and fish – good
Southern Rivers	<i>National economic, social and environmental VALUES of healthy estuaries and coastal lakes.</i>	High	<ul style="list-style-type: none"> \$38 million generated in revenue from Coastal estuaries in the region Contains over 50% of NSW coastal lakes and lagoons and significant areas of the region’s estuaries and marine environments are protected in marine parks including Jervis Bay Marine Park and Bateman’s Bay Marine Park Tourism is playing an increasingly important role, especially in coastal towns such as Merimbula, Ulladulla, Bateman’s Bay, Narooma and Bermagui
	<i>THREAT to estuaries and coastal lake assets</i>	Low	<ul style="list-style-type: none"> Low pressure on NSW estuaries and coastal lakes Main pressures occur along the more developed and populated northern part of the region, around Illawarra, Nowra and Ulladulla

CMA	Criteria	Rank	Why it was assigned this water ranking
	<i>CONDITION of estuaries and coastal lake assets</i>	High	<ul style="list-style-type: none"> ▪ High condition of NSW estuaries and coastal lakes sourced from MER reporting ▪ 48 of the 102 estuaries were rated, with the remaining 54 having limited or no data ▪ Overall ratings for individual indicators were: chlorophyll – fair; macro-algae– not rated; turbidity – good; seagrass – good; mangroves – not rated; saltmarsh – good; and fish – fair

Table A4.4: Results and rationale - cross regional values - LAND (SOIL)

CMA	Criteria	Rank	Why it was assigned this land ranking
Northern Rivers	<i>National economic, social and environmental VALUES of healthy land assets</i>	High	<ul style="list-style-type: none"> Proportion of CMA under agricultural use is high Value of agricultural commodities is high Economic and social wellbeing of the region not as directly linked to health of land assets, but health of ecosystems related to health of land assets
	<i>THREAT to land (soil) assets</i>	Medium	<ul style="list-style-type: none"> Land managed beyond its capability is medium Land managed beyond capability in at least one Soil Management Unit for each of the hazards except wind erosion and acid sulfate soils Gully erosion and acidification are increasing in region
	<i>CONDITION of land (soil) assets</i>	High	<ul style="list-style-type: none"> Soil condition is high Ratings for all Soil Management Units range from fair to good Lowest scoring indicators across region is sheet erosion, gully erosion, acidity and organic carbon, which were rated as poor
Hunter – Central Rivers	<i>National economic, social and environmental VALUES of healthy land assets</i>	High	<ul style="list-style-type: none"> Proportion of CMA under agricultural use is high Value of agricultural commodities is medium Some agricultural landscapes but overall economic wellbeing of the region not as directly linked to health of land assets
	<i>THREAT to land (soil) assets</i>	Medium	<ul style="list-style-type: none"> Land managed beyond its capability is medium Ratings for all Soil Management Units range from poor to good Land managed beyond capability in at least one Soil Management Unit for each of the hazards except wind erosion and acid sulfate soils
	<i>CONDITION of land (soil) assets</i>	High	<ul style="list-style-type: none"> Soil condition is high Ratings for all Soil Management Units range from fair to good Lowest scoring indicator across region is sheet erosion, which rated very poor
Hawkesbury – Nepean	<i>National economic, social and environmental VALUES of healthy land assets</i>	Medium	<ul style="list-style-type: none"> Proportion of CMA under agricultural use is low Value of agricultural commodities is high Some agricultural landscapes but overall economic wellbeing of the region not as directly linked to health of land assets
	<i>THREAT to land (soil) assets</i>	Medium	<ul style="list-style-type: none"> Land managed beyond its capability is medium Ratings for all Soil Management Units range from poor to good Land managed beyond capability in at least one Soil Management Unit for each of the hazards except wind erosion and structure decline Land management within capability tending to be stable, except for organic carbon decline and salinity/waterlogging decline

CMA	Criteria	Rank	Why it was assigned this land ranking
	<i>CONDITION of land (soil) assets</i>	High	<ul style="list-style-type: none"> ▪ Soil condition index is high ▪ Ratings for all Soil Management Units range from fair to good ▪ Lowest scoring indicators across region is sheet erosion, acidity, soil salinity and organic carbon, which were rated as poor ▪ Two Soil Management Units are expected to improve in condition, one is expected to decline
Sydney Metropolitan	<i>National economic, social and environmental VALUES of healthy land assets</i>	Low	<ul style="list-style-type: none"> ▪ Proportion of CMA under agricultural use is very low ▪ Value of agricultural commodities is very low ▪ Largely developed and limited value to economic and social values, though health of land assets very linked to health of water assets
	<i>THREAT to land (soil) assets</i>	Medium	<ul style="list-style-type: none"> ▪ Land managed beyond its capability is medium ▪ Ratings for all Soil Management Units range from poor to fair ▪ Land managed beyond capability in at least one Soil Management Unit for each of the hazards except gully erosion and acid sulfate soils ▪ Land management within capability tending to be decline in the region, except for organic carbon decline and salinity/ waterlogging (which are stable) and acid sulfate soils (which is improving)
	<i>CONDITION of land (soil) assets</i>	High	<ul style="list-style-type: none"> ▪ Soil condition is high ▪ Ratings for all Soil Management Units range from fair to very good ▪ Lowest scoring indicators across region is sheet erosion, organic carbon and soil salinity, which were rated as poor ▪ Two Soil Management Units are expected to decline
Southern Rivers	<i>National economic, social and environmental VALUES of healthy land assets</i>	Medium	<ul style="list-style-type: none"> ▪ Proportion of CMA under agricultural use is medium ▪ Value of agricultural commodities is low ▪ Economic wellbeing of the region not as directly linked to health of land assets, but health of ecosystems related to health of land assets
	<i>THREAT to land (soil) assets</i>	Medium	<ul style="list-style-type: none"> ▪ Land managed beyond its capability is medium ▪ Ratings for all Soil Management Units range from poor to fair ▪ Land managed beyond capability in at least one Soil Management Unit for each of the hazards except acid sulfate soils ▪ Land management within capability tending to improve in the region, except for acidification and salinity/ waterlogging (which are stable) and organic carbon decline and structure decline (which are declining)

CMA	Criteria	Rank	Why it was assigned this land ranking
	<i>CONDITION of land (soil) assets</i>	Medium	<ul style="list-style-type: none"> Soil condition index is medium Ratings for all Soil Management Units range from fair to good Lowest scoring indicators across region is sheet erosion, gully erosion, organic carbon, coastal acid sulfate soils and soil salinity, which were rated as poor Two Soil Management Units are expected to decline
Border Rivers – Gwydir	<i>National economic, social and environmental VALUES of healthy land assets</i>	Very High	<ul style="list-style-type: none"> Proportion of CMA under agricultural use is very high Value of agricultural commodities is high Agricultural landscapes, economic and social wellbeing of the region closely related to health of land
	<i>THREAT to land (soil) assets</i>	Medium	<ul style="list-style-type: none"> Land managed beyond its capability is medium Ratings for all Soil Management Units range from poor to fair Land managed beyond capability in at least one Soil Management Unit for each of the hazards except acid sulfate soils Land management within capability is tending to be stable across region, except for wind erosion and acidification which are improving
	<i>CONDITION of land (soil) assets</i>	High	<ul style="list-style-type: none"> Soil condition index is high Ratings for all Soil Management Units range from fair to good Lowest scoring indicators across region is sheet erosion and soil structure, which were rated as poor Three Soil Management Units are expected to improve
Namoi	<i>National economic, social and environmental VALUES of healthy land assets</i>	Very High	<ul style="list-style-type: none"> Proportion of CMA under agricultural use is very high Value of agricultural commodities is high Agricultural landscapes, economic and social wellbeing of the region closely related to health of land
	<i>THREAT to land (soil) assets</i>	Medium	<ul style="list-style-type: none"> Land managed beyond its capability is medium Ratings for all Soil Management Units were fair Land managed beyond capability in at least one Soil Management Unit for each of the hazards except acidification Land management within capability is tending to decline for organic carbon and soil structure, improve for wind erosion and acidification and be stable for other indicators
	<i>CONDITION of land (soil) assets</i>	High	<ul style="list-style-type: none"> Soil condition index is high Ratings for all Soil Management Units range from fair to good Lowest scoring indicators across region is sheet erosion, wind erosion, soil structure and soil salinity, which were rated as poor Five Soil Management Units are expected to improve

CMA	Criteria	Rank	Why it was assigned this land ranking
Central West	<i>National economic, social and environmental VALUES of healthy land assets</i>	Very High	<ul style="list-style-type: none"> Proportion of CMA under agricultural use is very high Value of agricultural commodities is very high Agricultural landscapes, economic and social wellbeing of the region closely related to health of land
	<i>THREAT to land (soil) assets</i>	Medium	<ul style="list-style-type: none"> Land managed beyond its capability is medium Ratings for all Soil Management Units were fair Land managed beyond capability in at least one Soil Management Unit for each of the hazards except sheet erosion, gully erosion and wind erosion Land management within capability is tending to improve across all indicators except acidification (which is declining) and sheet erosion (which is stable)
	<i>CONDITION of land (soil) assets</i>	High	<ul style="list-style-type: none"> Soil condition index is high Ratings for all Soil Management Units range from fair to good Lowest scoring indicators across region is sheet erosion, soil structure and soil salinity, which were rated as poor One Soil Management Unit is expected to improve
Lachlan	<i>National economic, social and environmental VALUES of healthy land assets</i>	Very High	<ul style="list-style-type: none"> Proportion of CMA under agricultural use is very high Value of agricultural commodities is high Agricultural landscapes, economic and social wellbeing of the region closely related to health of land
	<i>THREAT to land (soil) assets</i>	Medium	<ul style="list-style-type: none"> Land managed beyond its capability is medium Ratings for all Soil Management Units were fair Land managed beyond capability in at least one Soil Management Unit for each of the hazards except acidification Land management within capability is tending to decline across all indicators except sheet erosion, gully erosion and salinity/waterlogging which are stable
	<i>CONDITION of land (soil) assets</i>	Medium	<ul style="list-style-type: none"> Soil condition index is medium Ratings for all Soil Management Units range from fair to good Lowest scoring indicators across region is acidity, organic carbon, soil structure and soil salinity, which were rated as poor One Soil Management Unit is expected to decline
Murrumbidgee	<i>National economic, social and environmental VALUES of healthy land assets</i>	Very High	<ul style="list-style-type: none"> Proportion of CMA under agricultural use is very high Value of agricultural commodities is very high Agricultural landscapes, economic and social wellbeing of the region closely related to health of land

CMA	Criteria	Rank	Why it was assigned this land ranking
	<i>THREAT to land (soil) assets</i>	Medium	<ul style="list-style-type: none"> Land managed beyond its capability is medium Ratings for all Soil Management Units were poor to fair Land managed beyond capability in at least one Soil Management Unit for each of the hazards Land management within capability is tending to improve across all indicators except acid sulfate soils (which is declining) and wind erosion (which is stable)
	<i>CONDITION of land (soil) assets</i>	High	<ul style="list-style-type: none"> Soil condition index is high Ratings for all Soil Management Units range from fair to good Lowest scoring indicators across region is sheet erosion, soil structure and soil salinity, which were rated as poor Three Soil Management Units are expected to decline
Murray	<i>National economic, social and environmental VALUES of healthy land assets</i>	Very High	<ul style="list-style-type: none"> Proportion of CMA under agricultural use is very high Value of agricultural commodities is high Agricultural landscapes, economic and social wellbeing of the region closely related to health of land
	<i>THREAT to land (soil) assets</i>	Medium	<ul style="list-style-type: none"> Land managed beyond its capability is medium Ratings for all Soil Management Units were poor to fair Land managed beyond capability in at least one Soil Management Unit for each of the hazards except sheet erosion Land management within capability is tending to be stable across all indicators except wind erosion, acidification and acid sulfate soils (which is improving)
	<i>CONDITION of land (soil) assets</i>	High	<ul style="list-style-type: none"> Soil condition index is high Ratings for all Soil Management Units range from fair to good Lowest scoring indicator across region was soil structure, which was very poor Five Soil Management Unit are expected to decline
Western	<i>National economic, social and environmental VALUES of healthy land assets</i>	Medium	<ul style="list-style-type: none"> Proportion of CMA under agricultural use is very high Value of agricultural commodities in is low Economic and social wellbeing of the region linked to health of land, but less agricultural and urban landscapes
	<i>THREAT to land (soil) assets</i>	Low	<ul style="list-style-type: none"> Land managed beyond its capability is low Ratings for all Soil Management Units range from fair to good
	<i>CONDITION of land (soil) assets</i>	High	<ul style="list-style-type: none"> Soil condition index is high Ratings for all Soil Management Units range from fair to good Lowest scoring indicator across region is wind erosion
Lower Murray - Darling	<i>National economic, social and environmental VALUES of healthy land assets</i>	Medium	<ul style="list-style-type: none"> Proportion of CMA under agricultural use is very high Value of agricultural commodities in is low Economic and social wellbeing of the region linked to health of land, but less agricultural and urban landscapes

CMA	Criteria	Rank	Why it was assigned this land ranking
	<i>THREAT to land (soil) assets</i>	Medium	<ul style="list-style-type: none"> ▪ Land managed beyond its capability is medium ▪ Land management within capability appears stable across all indicators except wind erosion and structure decline ▪ Land managed beyond capability in at least one Soil Management Unit for each of the hazards except sheet erosion, structure decline and salinity/ waterlogging ▪ Ratings for all Soil Management Units range from fair to good
	<i>CONDITION of land (soil) assets</i>	High	<ul style="list-style-type: none"> ▪ Soil condition index is high ▪ Ratings for all Soil Management Units range from fair to good ▪ Lowest scoring indicators across region are wind erosion and organic carbon, which were rated as poor

A4.2 Community assessment

For each CMA, this part of the framework asks:

- What is the scope for CMA-delivered investment to build upon existing community capacity and momentum from previous investments in NRM using the NSW regional model?

This is shown in the figure below:

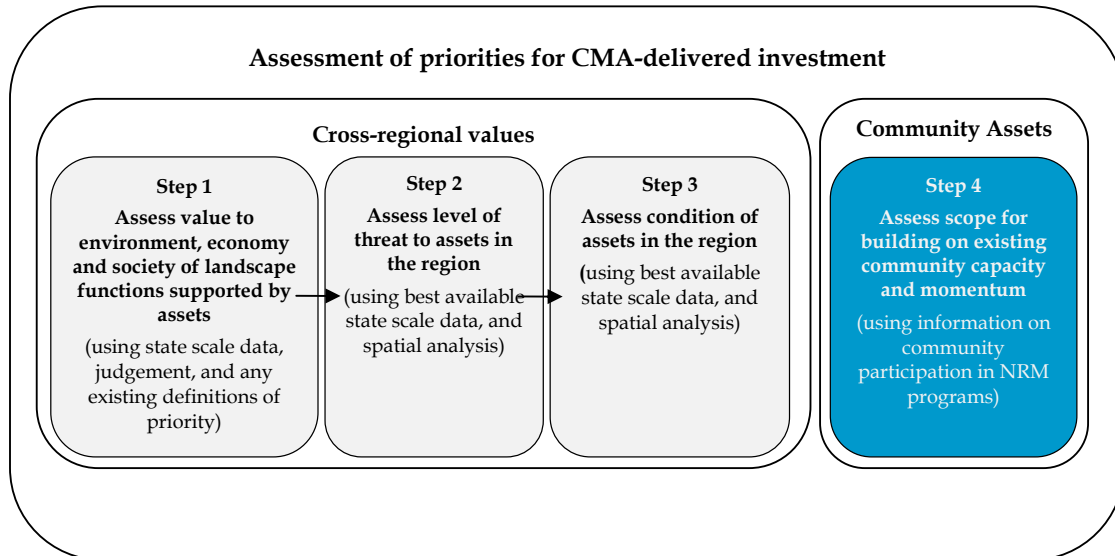


Figure A4.2: Assessment of priorities for CMA-delivered investments

The NRC has conducted a new assessment of *community* as a discrete asset class separate from the *synergies* assessment. Previously, part of the data used in this step was included in the *synergies* assessment in Step 5. In addition to updating data that was previously in the 2008 *synergies* assessment, we have also drawn on State of the Catchment Report data on Target 13.

The following tables summarise rankings and the rationale for each CMA region. Attachment 5 contains further details on the principles and methods behind assigning rankings.

Table A4.5: Results and rationale – Community assets assessment

CMA	Criteria	Rank	Why it was assigned this community ranking
Northern Rivers	<i>Scope for CMAs to build on community momentum & capacity</i>	Medium	<ul style="list-style-type: none"> Moderate land management capacity and engagement amongst agricultural businesses; ABS data indicates previous collaboration between neighbours and future willingness to collaborate are strengths in this region Rated as poor in the DECCW State of the Catchment reporting on Target 13

CMA	Criteria	Rank	Why it was assigned this community ranking
Hunter – Central Rivers	<i>Scope for CMAs to build on community momentum & capacity</i>	High	<ul style="list-style-type: none"> Moderate land management capacity and engagement amongst agricultural businesses; ABS data indicates previous collaboration between neighbours and future willingness to collaborate are strengths in this region Rated as fair in the DECCW State of the Catchment reporting on Target 13
Hawkesbury – Nepean	<i>Scope for CMAs to build on community momentum & capacity</i>	Medium	<ul style="list-style-type: none"> Lower land management capacity and engagement amongst agricultural businesses than in other CMA regions; ABS data indicates land managers are less likely to collaborate with neighbours, change practices, be involved in Landcare or participate in other projects Rated as fair in the DECCW State of the Catchment reporting on Target 13
Sydney Metropolitan	<i>Scope for CMAs to build on community momentum & capacity</i>	Low	<ul style="list-style-type: none"> Lower land management capacity and engagement amongst agricultural businesses than in other CMA regions; ABS data indicates land managers are less likely to collaborate with neighbours, change practices, be involved in Landcare or participate in other projects Rated as poor in the DECCW State of the Catchment reporting on Target 13
Southern Rivers	<i>Scope for CMAs to build on community momentum & capacity</i>	Very High	<ul style="list-style-type: none"> High land management capacity and engagement amongst agricultural businesses; ABS data indicates high proportion of land managers in this region have participated in Landcare projects and have collaborated with neighbours in the past five years Rated as fair in the DECCW State of the Catchment reporting on Target 13
Border Rivers – Gwydir	<i>Scope for CMAs to build on community momentum & capacity</i>	High	<ul style="list-style-type: none"> High land management capacity and engagement amongst agricultural businesses; ABS data indicates high proportion of land managers in this region have changed at least one farming practice and collaborated with neighbours in the last five years Rated as poor to fair in the DECCW State of the Catchment reporting on Target 13
Namoi	<i>Scope for CMAs to build on community momentum & capacity</i>	High	<ul style="list-style-type: none"> High land management capacity and engagement amongst agricultural businesses; ABS data indicates high proportion of land managers in this region have changed at least one farming practice in the last five years and are willing to collaborate with neighbours in the future Rated as poor to fair in the DECCW State of the Catchment reporting on Target 13
Central West	<i>Scope for CMAs to build on community momentum & capacity</i>	High	<ul style="list-style-type: none"> High land management capacity and engagement amongst agricultural businesses; ABS data indicates high proportion of land managers in this region have changed at least one farming practice and collaborated with neighbours in the last five years, and are willing to collaborate with neighbours in the future Rated as poor to fair in the DECCW State of the Catchment reporting on Target 13

CMA	Criteria	Rank	Why it was assigned this community ranking
Lachlan	<i>Scope for CMAs to build on community momentum & capacity</i>	High	<ul style="list-style-type: none"> High land management capacity and engagement amongst agricultural businesses; ABS data indicates high proportion of land managers in this region have changed at least one farming practice and collaborated with neighbours in the last five years Rated as poor to fair in the DECCW State of the Catchment reporting on Target 13
Murrumbidgee	<i>Scope for CMAs to build on community momentum & capacity</i>	High	<ul style="list-style-type: none"> High land management capacity and engagement amongst agricultural businesses; ABS data indicates consistently good results across all data sets for land managers in this region Rated as poor to fair in the DECCW State of the Catchment reporting on Target 13
Murray	<i>Scope for CMAs to build on community momentum & capacity</i>	Very High	<ul style="list-style-type: none"> High land management capacity and engagement amongst agricultural businesses; ABS data indicates consistently very good results across all data sets for land managers in this region Rated as fair in the DECCW State of the Catchment reporting on Target 13
Western	<i>Scope for CMAs to build on community momentum & capacity</i>	Medium	<ul style="list-style-type: none"> High land management capacity and engagement amongst agricultural businesses; ABS data indicates high proportion of land managers in this region have participated in Landcare projects and collaborated with neighbours in the last five years, and are willing to collaborate with neighbours in the future Rated as poor in the DECCW State of the Catchment reporting on Target 13
Lower Murray - Darling	<i>Scope for CMAs to build on community momentum & capacity</i>	Medium	<ul style="list-style-type: none"> High land management capacity and engagement amongst agricultural businesses; ABS data indicates consistently good results across all data sets for land managers in this region, particularly in willingness to collaborate with neighbours in the future Rated as poor in the DECCW State of the Catchment reporting on Target 13

Attachment 5 – Approach to assessment

Attachment 4 outlined the results from NRC's updated assessment. This attachment describes the approach taken, including the data, limitations, confidence and weighting.

Priorities

The *priorities* assessment is split into four themes: biodiversity, water, land and community.

For each of the biodiversity, water and land themes, the analytical framework asks:

- **How dependent are the nation's environmental, social and economic values on the landscape functions supported by the natural assets in the region?**
Analysts are guided to consider benefits to regional, state and national communities and industries, and any existing policies that identify the governments' values.
- **What is the level of threat to those assets, and hence the landscape functions and values dependent on those assets, in the region?**
Analysts are guided to use the best available scientific information.
- **What is the condition of those assets in the region compared with the condition needed to support landscape function and values?**
Analysts are guided to use the best available scientific information.

For the community theme, the analytical framework asks:

- **What is the scope for CMA-delivered investment to build upon existing community capacity and momentum from previous investments in NRM, using the NSW regional model?**

Effectiveness

The *effectiveness* assessment is split into two streams: *CMA plans for investment* and *CMA progress and results*.

To evaluate *CMA plans for investment*, the analytical framework asks:

- **How confident are we that the CMAs' plans for investment will lead to achieving the 13 state-wide targets?**

To evaluate *CMA progress and results*, the analytical framework asks:

- **What progress are CMAs making to improve their effectiveness and achieve targets?**

A5.1 Priorities: Cross-regional values assessment

A5.1.1 Biodiversity

Table A5.1: Approach to assessment – Biodiversity

How dependent are the nation's environmental, social and economic <u>values</u> on the health of the biodiversity in the region?			
2011-13 Data Sources	Limitations	Weight	Confidence
<p>Judgement - informed by a number of data sources, for example:</p> <ul style="list-style-type: none"> ▪ Land use as per Australian Land Use and Management system (DECCW, 2006) ▪ Nature based tourism to NSW for year ended December 2009 (Tourism NSW, 2010) ▪ Extracts from draft NSW Biodiversity Strategy (DECCW, 2010) ▪ Proportion of under-reserved IBRAs within CMA (IBRA 6 boundaries and National Parks Estate Layer Version 4, 2009) ▪ Natural Resources Management Ministerial Council (2004) Directions for the National Reserve System – a partnership approach, Australian Government, DEWHA, Canberra. ▪ Economic sustainability and social well-being (2010 State of the Catchment Reports). ▪ Population density and population change data for 2008-09 (ABS, 2010) 	Relies upon staff judgement based upon published and unpublished data. Social values are difficult to analyse on a catchment basis.	100 %	Medium
What is the level of <u>threat</u> to biodiversity assets in the region?			
2011-13 Data Sources	Limitations	Weight	Confidence
Vegetation Pressure (2010 State of the Catchment Reports)	Data focuses predominantly on vegetation as a surrogate for biodiversity threat.	60%	Medium
Impact of invasive species index (2010 State of the Catchment Reports).	Invasive species data varies considerably across catchments	40%	Medium

What is the <u>condition</u> of biodiversity assets in the region?			
2011-13 Data Sources	Limitations	Weight	Confidence
Extent of Native Vegetation (2010 State of the Catchment Reports)	Data focuses predominantly on vegetation as a surrogate for biodiversity condition.	40%	Medium
Vegetation Condition (2010 State of the Catchment Reports)	Data focuses predominantly on vegetation as a surrogate for biodiversity condition.	20%	Medium
Proportion of Mitchell Landscapes Not Over-cleared (DECCW November 2007)	Mitchell landscapes captured at coarse 1:250,000 scale	20%	Medium
Proportion of Vegetation Types Not Over-cleared (DECCW June 2008).	Over-cleared status has been estimated for many vegetation types	20%	Medium

A5.1.2 Riverine Ecosystems and Wetlands (All CMAs)

Table A5.2: Approach to Assessment - Riverine Ecosystems and Wetlands

How dependent are the nation's environmental, social and economic <u>values</u> on the health of the riverine ecosystems and wetlands in the region?			
2011-13 Data Sources	Limitations	Weight	Confidence
<p>Judgement - informed by a number of data sources, for example:</p> <ul style="list-style-type: none"> ▪ Value of agricultural commodities produced by CMA region for 2007-08 (ABS, 2009) ▪ Use of Water on Australian Farms by CMA Region for 2008-09 (ABS, 2010) ▪ Number of Ramsar Wetlands per CMA (sourced from http://www.environment.nsw.gov.au/wetlands/NswRamsarSites.htm) ▪ Number of Groundwater Dependant Ecosystems per CMA-Data sourced from DECCW data layer of GDEs ▪ The area of significant wetlands by CMA (DECCW data layer of Significant Wetlands) ▪ Economic sustainability and social well-being (2010 State of the Catchment Reports) ▪ Population density and population change data for 2008-09 (ABS, 2010). 	<p>Data to measure 'values' of riverine ecosystems and water difficult to define and source</p> <p>Assumed that number/area of wetlands and GDEs relates to value</p> <p>Use of water on Australian farms for one year only. Trend data may also be an important measure</p> <p>No measure of whether water use is above sustainable level</p> <p>Accuracy of mapping for wetlands and GDEs variable across the State</p> <p>Little input regarding the values of riverine ecosystems</p>	100%	Medium
What is the level of <u>threat</u> to riverine ecosystems and wetland assets in the region?			
2011-13 Data Sources	Limitations	Weight	Confidence
Pressure on Wetlands (2010 State of the Catchment Reports)	Confidence in SoC wetlands data is low as only a subset of wetlands monitored for SoC measure	30%	Low
Environmental Stress Classification (NSW Office of Water)	Stress classification layers do not cover entire State	35%	Low
Hydrological Stress Classification (NSW Office of Water).	Lack of catchment scale data	35%	Low

What is the <u>condition</u> of riverine ecosystems and wetland assets in the region?			
2011-13 Data Sources	Limitations	Weight	Confidence
Wetlands Condition (2010 State of the Catchment Reports)	Confidence in SoC wetlands data is low as only a subset of wetlands monitored for SoC measure	20%	Medium
Ecosystem Health and Condition Assessments for NSW Murray Darling Rivers (2008) & Coastal Rivers (2008). Source: SoE (2009).	Data for ecosystem health and condition covers major catchments. Data was interpreted to make relevant for each CMA.	80%	Medium

A5.1.3 Estuaries and Coastal Lakes (Coastal CMAs)

Table A5.3: Approach to Assessment - Estuaries and Coastal Lakes

How dependent are the nation's environmental, social and economic <u>values</u> on the health of the estuaries and coastal lakes in the region?			
2011-13 Data Sources	Limitations	Weight	Confidence
<p>Judgement - informed by a number of data sources, for example:</p> <ul style="list-style-type: none"> ▪ Nature based tourism to NSW for year ended December 2009 (Tourism NSW, 2010) ▪ Commercial Catch Records for Selected NSW Fisheries for a period between 1997-98 to 2008-09 (Department of Industry and Investment, 2010) ▪ Coastal Lakes Independent Inquiry into Coastal Lakes Final Report (Healthy Rivers Commission, 2002) ▪ Population density and population change data for 2008-09 (ABS, 2010) ▪ Economic sustainability and social well-being (2010 State of the Catchment Reports). 	Commercial catch data only captured where more than six fishing businesses operate in estuary	100%	Low
What is the level of <u>threat</u> to estuaries and coastal lake assets in the region?			
2011-13 Data Sources	Limitations	Weight	Confidence
Pressures on NSW Estuaries and Coastal Lakes (2010 State of the Catchment Reports).	<ul style="list-style-type: none"> ▪ Additional MER data for estuaries and coastal lakes will increase accuracy of assessment ▪ Lack of catchment scale data 	100%	Medium
What is the <u>condition</u> of estuaries and coastal lake assets in the region?			
2011-13 Data Sources	Limitations	Weight	Confidence
Condition of NSW Estuaries and Coastal Lakes (2010 State of the Catchment Reports).	<ul style="list-style-type: none"> ▪ Additional MER data for estuaries and coastal lakes will increase accuracy of assessment ▪ Lack of catchment scale data 	100%	Medium

A5.1.4 Land

Table A5.4: Approach to Assessment - Land

How dependent are the nation's environmental, social and economic <u>values</u> on the health of the land (soil) in the region?			
2011-13 Data Sources	Limitations	Weight	Confidence
<p>Judgement - informed by a number of data sources, for example:</p> <ul style="list-style-type: none"> ▪ Value of agricultural commodities produced by CMA region for 2007-08 (ABS, 2009) ▪ Proportion of CMA under agricultural land use (area of 'production' landscapes in DAFF Land Use Mapping, 2006). ▪ Land use as per Australian Land Use and Management (ALUM) system (DECCW, 2006) ▪ Population density and population change data for 2008-09 (ABS, 2010) ▪ Economic sustainability and social well-being (2010 State of the Catchment Reports). 	<ul style="list-style-type: none"> ▪ Data to measure 'values' of land difficult to define and source ▪ ABS data for one financial year only. Trend or average data over a number of years may be more appropriate ▪ Analysis relies on some subjectivity in standardising classes for some inputs ▪ Difficult to capture cross border values /externalities 	100%	Low
What is the level of <u>threat</u> to land (soil) assets in the region?			
2011-13 Data Sources	Limitations	Weight	Confidence
<p>Land Management within Capability Index (2010 State of the Catchment Reports).</p>	<ul style="list-style-type: none"> ▪ Results for land management within capability range between medium and low. Additional information for more soil units may further inform assessment ▪ Lack of catchment scale data 	100%	Low

What is the <u>condition</u> of land (soil) assets in the region?			
2011-13 Data Sources	Limitations	Weight	Confidence
Soil Condition Index (2010 State of the Catchment Reports).	<ul style="list-style-type: none"> ▪ Results for soil condition range between medium and high. Additional information for more soil units may further inform assessment ▪ Lack of catchment scale data 	100%	Low

A5.2 Priorities: Community

Table A5.5: Approach to Assessment - Community

What is the scope for CMA-delivered investment to build on the community capacity and momentum from past investments?			
2011-13 Data Sources	Limitations	Weight	Confidence
<p>ABS Land Management and Farming in Australia 2007-08 survey data (ABS, 2009), including information about the proportion of agricultural businesses that:</p> <ul style="list-style-type: none"> ▪ have changed one or more farming practices in the last five years ▪ include a member of a Landcare group ▪ are participating in projects or receiving funding from (a) Landcare programs or (b) any program ▪ have worked on NRM issue with neighbours in the last five years ▪ are willing to work with neighbours on NRM issues in the future. 	<ul style="list-style-type: none"> ▪ Confidence in ABS and SoC as a surrogate for community capacity is low ▪ Low confidence in SoC Target 13 rankings ▪ High levels of uncertainty in ABS data 	30%	Low
2010 State of the Catchment reporting against Target 13 – Capacity to manage natural resources.		70%	Low

A5.3 Effectiveness

Table A5.6: Approach to Assessment - Effectiveness

How confident are we that CAP targets will promote state targets?			
2011-13 Data Sources	Limitations	Weight	Confidence
Same as 2008 - NRC CAP Assessment results still represent best available knowledge.	<ul style="list-style-type: none"> ▪ No current limitations. ▪ If CAPs are upgraded in coming years, assessment results may need to be updated. 	50%	Medium
What is the extent of progress made so far on the NRC's recommended actions from CAP reviews?			
2011-13 Data Sources	Limitations	Weight	Confidence
NRC CAP Implementation Audit results.	CMAs in the first round of audits feel that the second round of audited CMAs benefited from the first rounds' experience. This claim is not supported by the NRC.	50%	High

