



ASSESSMENT AND RECOMMENDATION REPORT

NAMOI UPGRADED CATCHMENT ACTION PLAN

November 2011

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Enquiries

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1 Introduction

Catchment action plans are strategic regional plans for improving the health and resilience of our landscapes. They identify what the community and government value about these landscapes, and explain what needs to be done to ensure long-term, sustainable management of a region's natural resources.

The Natural Resources Commission (NRC) advises the Minister for Regional Infrastructure and Services (the Deputy Premier) and the Minister for Primary Industries (the Ministers) on whether or not to approve the catchment action plans prepared by each of the 13 catchment management authorities (CMAs) in New South Wales.¹ The first Namoi Catchment Action Plan was approved in 2007 by the then Minister for Natural Resources.² Natural resource management in the state has evolved since then, and the CMA has upgraded the Namoi plan to reflect new science and knowledge about landscape management, and evolving policy settings.

The NRC has reviewed the upgraded Namoi Catchment Action Plan³ to determine whether it is a quality, strategic plan that government and other stakeholders can confidently use as the basis for whole-of-government and community catchment management in the Namoi region.

The NRC recommends that the upgraded plan be approved. It is a significant improvement on the existing plan, and provides a strong platform for more coordinated and efficient investment to improve landscape health in the Namoi catchment. The plan has used evidence-based systems analysis and resilience concepts to identify the most important issues in the catchment, and to develop strategies for how these issues will be addressed. The plan sets a strategic foundation for working together to maintain and improve the productive capacity, natural environment and social well-being of the region.

In developing the plan, the CMA has appropriately addressed the required outcomes of the *Standard for Quality Natural Resource Management* (the Standard).⁴ The NRC is confident that, with effective whole-of-government and community implementation, the plan will lead to progress towards the state-wide targets.⁵

The Namoi CMA is one of the first to upgrade its region's plan, and submit it to the NRC for assessment. The upgraded plan is the result of a pilot process which trialled some innovative approaches to improve regional landscape planning in NSW, including using resilience concepts. The Central West CMA also developed an upgraded plan as part of this pilot. All other CMAs intend to upgrade their plans over the next 18 months so that the whole state is covered by improved plans by March 2013, as required in the NSW Government's 10-year plan *NSW 2021*.⁶

¹ This function is specified in Section 13 of the *Natural Resources Commission Act 2003* and Sections 22 and 23 of the *Catchment Management Authorities Act 2003*. The NRC determines whether the catchment action plans are consistent with the *NSW Standard for Quality Natural Resource Management* and promote the achievement of the state-wide targets.

² The NRC reviewed the existing Namoi Catchment Action Plan and provided recommendations to the then Minister for Natural Resources in 2006. Refer to Natural Resources Commission (2006), *Namoi Catchment Action Plan Recommendation* report, September. The existing Namoi Catchment Action Plan was approved by the then Minister for Natural Resources in January 2007.

³ September 2011, available at <http://www.namoi.cma.nsw.gov.au/931351.html?5>.

⁴ Natural Resources Commission (2005), *Standard for quality natural resource management*, September

⁵ Natural Resources Commission (2005), *State-wide targets*, September.

⁶ NSW Government (2011), *NSW 2021 – a 10 year plan for our State*, September. At <http://2021.nsw.gov.au/>

1.1 Overview of findings

The NRC assessed the upgraded Namoi plan against three criteria to determine whether:

- it was developed using a structured, collaborative and adaptable planning process
- it uses best available information to develop targets and actions for building resilient landscapes
- it is a plan for collaborative action and investment between government, community and industry partners.

The upgraded Namoi Catchment Action Plan advances the quality of regional strategic planning for managing natural resources, both within NSW and nationally. The planning process has helped give the region's natural resource managers strategic direction by identifying the most important management priorities for supporting a healthy, productive landscape.

The CMA led the development of the plan through a structured planning process, guided by experience and knowledge gained over the last six years of planning and implementation, and drawing on expert knowledge about their region. This upgrade is just one step in the CMA's ongoing process for reviewing and improving their strategic planning. The Namoi plan provided a good foundation for its implementation and adaptive management over time.

The upgraded plan does several things particularly well:

- **Describing key systems supporting the region's landscape function** – The CMA has collated a comprehensive evidence-base of scientific knowledge and spatial information. Using systems thinking and resilience concepts, this evidence was used to articulate an improved understanding of the Namoi landscape, and what should be done to maintain its ability to function.
- **Setting targets based on what is really important in the landscape** – The plan uses theme-based conceptual models to identify 'critical' components for each system, meaning those which contribute the most to the system's overall function. The plan's targets and actions focus on managing around the thresholds associated with these critical components; the system's 'critical thresholds'.
- **Understanding and responding to overarching issues in the region** – The plan discusses the potential impacts of significant shocks and drivers that may impact on the region's systems, including issues like climate change and land use change due to the expansion of mining in the Namoi area. The plan also identifies 'buffers' that might help their region adapt to change without compromising its values and functions. Examples of buffers include increased vegetation extent, connectivity or community adaptive capacity.
- **Creating an evidence-based platform for coordinated action by government and the community** – The planning process has identified strategic priorities to guide and align CMA, government and community action on the ground, which should lead to greater return on investment. Previously, planning focused more on what the CMA alone could achieve. This time, by better co-ordinating their actions and investments, the CMA, government agencies, local government, industry and community groups can work together to achieve common goals, build on the work of existing programs and avoid embarking on duplicative projects.

- **Demonstrating what can be achieved using spatial analysis** – The CMA used spatial analysis to help inform their partners and themselves of the values, risks and priorities in their catchment. The spatial analysis has helped the CMA to identify the most high risk systems. Maps and graphics help to communicate the intent of the plan to partners and provide a starting point for wider engagement and strategic decision-making, including working with partners to inform strategic regional land use planning.

As this is one of the first strategic plans to trial a whole-of-government and community approach, the challenge now is to ensure that the plan is implemented collaboratively and individual partners commit to specific roles and responsibilities. The CMA had variable success in engaging and collaborating with key stakeholders when developing the plan. As a result, there is a risk that some stakeholders may not be motivated to deliver the plan. However, to address this issue, Namoi CMA has put good plans in place for facilitating co-ordinated action during implementation. In particular, the CMA plans to form Community Reference Panels and Whole-of-Government Reference Groups. The success of the plan will depend on the CMA, agencies and the wider community all committing to collaborative action in the Namoi region.

The other challenge will be to adaptively manage the plan and lay the basis for future revisions. The strong planning process and evidence base means that the plan provides a sound explanation of what is happening in the catchment, and is transparent about knowledge gaps. The CMA expects to keep learning and improving its strategic thinking and decision-making. It has good plans in place to systematically test and investigate some of the plan's untested assumptions and unknowns over time; for instance, more work is needed around the plan's groundwater thresholds. The CMA and its partners will also need to build knowledge more broadly, particularly about the socio-economic dynamics in the region.

Chapter 3 explains the NRC's findings against the assessment criteria in more detail.

1.2 Recommendations

The NRC has made a series of recommendations about:

- whether the Ministers should approve the upgraded plan
- whether the Ministers should place any conditions on the approval of the upgraded plan
- further issues relevant to the plan approval.

The following table summarises the NRC's advice to the Ministers.

Table 1: Summary of the NRC's recommendations for the Namoi Catchment Action Plan

Approval

In accordance with section 13 (b) of the *Natural Resources Commission Act 2003*, the NRC recommends that the Ministers approve the upgraded Namoi Catchment Action Plan without alteration.⁷

Conditions of approval

1. Facilitating government and community collaboration

The CMA should implement its plans to form Whole-of-Government Reference Groups and Community Reference Panels, and involve these groups in implementing and adaptively managing the plan. This should occur by May 2012.

The CMA should report to the NRC on how they have met this condition of approval in their Strategic Progress Letters.⁸

2. Improving analysis at multiple scales

The CMA should implement its plans to conduct an analysis of sub-regional social-ecological systems in the Namoi catchment (tablelands, slopes and plains). This should occur by May 2013.

The CMA should report to the NRC on how they have met this condition of approval in their Strategic Progress Letters.⁸

Further recommendations

Whole-of-government and community implementation

The Ministers should seek whole-of-government support for coordinated delivery of agreed investment priorities through agency corporate and divisional planning processes.

1.3 Issues for implementing and adapting the plan

The NRC has also identified a number of strategic issues that the CMA and its partners should consider in implementing and adapting the plan:

- **Adaptively managing the plan** – The CMA has good plans in place to test assumptions, improve knowledge and adaptively manage the plan, including plans to involve other stakeholders through Community Reference Panels and Whole-of-Government Reference Groups. As part of its adaptive management plan, the CMA should also consider how it will evaluate the benefits and risks of using resilience concepts in strategic planning.
- **Understanding social systems** – The CMA has identified knowledge gaps around social systems in the catchment, and how the social and biophysical systems interact. The CMA and its partners will, over time, need to find ways of strengthening the analysis of linked social-ecological systems.
- **Looking at systems above and below the catchment scale** – The CMA should continue with its current plans to carry out resilience and spatial analyses for systems below the catchment scale. It should also consider how the scales above the catchment impact on the Namoi region.

⁷ Under Section 23(1) of the *Catchment Management Authorities Act 2003*.

⁸ The CMA should provide a Strategic Progress Letter annually, or as conditions are met.

- **Using the plan for decision-making and implementing other plans and policies** – To get the most value out of the upgraded plan, the information in the plan and the CMA’s strategic planning capacity and links to the community should be used to help inform and implement other government plans and policies at different scales.

These issues are described in more detail in Chapter 4.

1.4 Structure of this document

The rest of this document explains the NRC’s assessment process, findings and recommendations in more detail:

- Chapter 2 explains the NRC’s criteria and methods for assessing upgraded catchment action plans
- Chapter 3 describes the main achievements of the upgraded Namoi plan, the benefits of systems analysis and whole-of-government and community planning, and any limitations of these new approaches
- Chapter 4 outlines the NRC’s recommendations on approval of the plan, and raises issues for effective implementation and adaptive management of the plan over time.

2 How are catchment action plans assessed?

The NRC advises the Ministers on whether a catchment action plan is a quality, strategic plan for natural resource management that meets the Standard and promotes the achievement of state-wide targets. The NRC's review of these plans is part of a wider program of independent auditing and reporting, through which the NRC focuses on:

- promoting excellence and driving continual improvement in CMAs' strategic planning and resource stewardship actions
- letting Government and other stakeholders know what is working in NRM, what needs fixing and how the regional model is progressing towards its stated policies and targets.⁹

The NRC collaborated with CMAs and government representatives through a pilot process to develop an assessment framework setting out our expectations for upgraded plans, and how we would develop advice to the Ministers. Full details of the assessment process, and rationale and guidance for the assessment criteria, can be found in the NRC's *Framework for assessing and recommending catchment action plans*.¹⁰

The NRC assesses catchment action plans against three criteria relating to both the quality of the planning process, and the quality of the final plan. The NRC is looking at whether the plan:

1. was developed using a structured, collaborative and adaptable planning process
2. uses best available information to develop targets and actions for building resilient landscapes
3. is a plan for collaborative action and investment between government, community, and industry partners.

Each criterion is supported by three attributes, which reflect the quality requirements of the Standard when applied to a strategic planning process. The criteria and attributes forming the NRC's assessment framework are set out in **Figure 1**.

The NRC's overall process for assessing upgraded catchment action plans is shown in **Figure 2**. Through this process, the NRC determines what represents a reasonable level of performance against the criteria at a point in time.

To inform its assessment the NRC has collected evidence as to how the Namoi plan meets the assessment criteria and attributes. The evidence is used to identify the plan's strengths and benefits, and limitations and risks. The following methods were used to obtain evidence:

- desktop reviews of the plan, supporting documents and other CMA records
- interviews with CMA Board, CMA staff and agency and community stakeholders
- technical reviews (focusing on Criterion 2).

⁹ The NRC has already assessed and recommended all 13 of the current catchment action plans in place across NSW, and we have audited how effectively all plans are being implemented. The Murray plan has been audited twice, and the NRC is in the process of auditing Lower Murray Darling CMA for the second time. The NRC has also produced three biennial progress reports for the NSW Government summarising progress across the state, and areas for improvement. Refer to www.nrc.nsw.gov.au for all publications.

¹⁰ Natural Resources Commission (2011), *Framework for assessing and recommending upgraded catchment action plans*, August.

During the pilot phase of the plan upgrade, the NRC also observed planning workshops and community consultation events.

Specialist consultants assisted with evidence collection against the attributes, and this evidence is detailed in a separate report.¹¹

In developing its recommendations, the NRC also considered:

- issues and risks specific to the plan and its region
- the current maturity of the regional model, and any barriers to meeting the criteria
- what actions may be needed to ensure effective implementation
- what short and longer-term changes will help support and improve the plan over time.

The final stage of the process shown in **Figure 2** is for the Ministers to consider the NRC's advice and to seek whole-of-government endorsement of the plan. As part of this step agencies will provide separate advice to their respective Ministers.

¹¹ GHD (2011), *Review of evidence against NRC attributes: Namoi upgraded catchment action plan*, November.

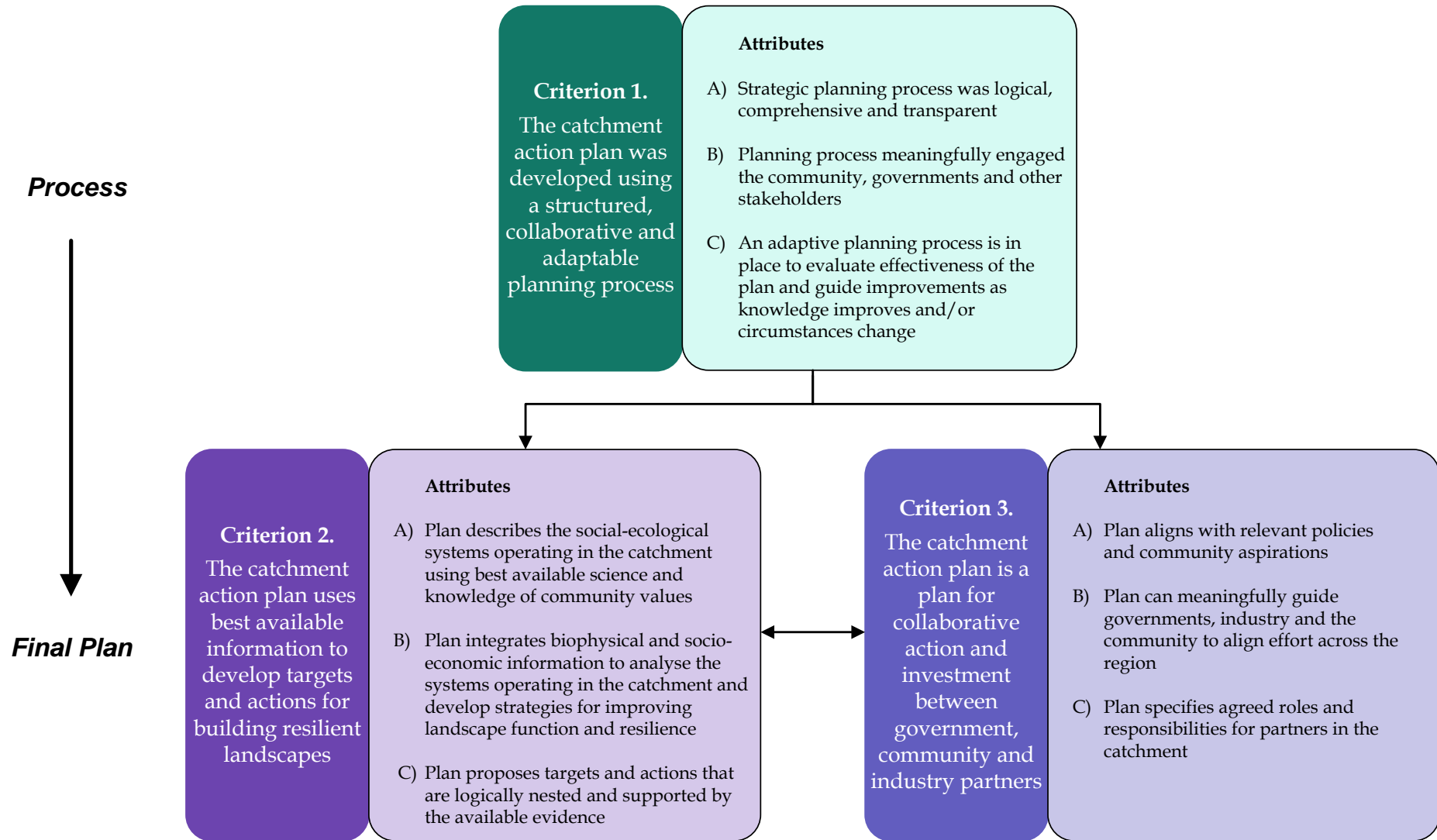


Figure 1: Criteria and attributes for assessing upgraded catchment action plans



Figure 2: NRC process for assessing upgraded catchment action plans

3 Results of the NRC's assessment

The upgraded Namoi Catchment Action Plan advances the quality of regional strategic planning for managing natural resources, both within NSW and nationally. The planning process has helped give the region's natural resource managers strategic direction by identifying the most important management priorities for supporting a healthy, productive landscape. Through the plan, the region's stakeholders can combine their on-ground and policy efforts to ensure their landscapes and communities remain healthy and productive.

The plan aims to provide a fresh and innovative look at how to achieve a vision for the region of vibrant communities and landscape for the future. The plan was developed in light of some changes that are occurring in the region since the last plan was developed, including increased coal and coal-seam gas developments and increasing carbon sequestration activities.

Importantly, by taking a systems and resilience approach, the plan supports a shift in thinking towards managing for change in dynamic landscapes and adapting to uncertain futures. The Namoi plan reflects a growing understanding that landscapes are made up of social-ecological systems that are constantly changing as they interact and shape each other.

The planning process tested new ways of analysing landscapes and planning collaboratively, uncovering both the benefits and limitations of these approaches. It is important to note that the catchment action plan is not a static document. The CMA has good plans in place to test and reduce the uncertainty around assumptions underpinning some thresholds as they update and improve the plan over time. The CMA will also need to consider other issues as it adapts the plan, for example, the need to strengthen understanding of the linkages between the social and economic components of the landscape and the biophysical systems.

The following sections summarise the strengths of the upgraded Namoi Catchment Action Plan, and where there are opportunities to improve the plan in the future. This information was obtained through our assessment of the plan against the NRC's criteria and attributes described in Chapter 2.¹²

3.1 Structured, collaborative and adaptive planning

The NRC examined the process used to develop the upgraded plan, and how the CMA and its partners will adapt the plan over time. Much of the value from strategic planning is realised through the planning process itself.

Developing the plan

In the Namoi, the NRC has found that a systematic planning process has resulted in a quality plan that stakeholders can use to guide their natural resource management efforts.

The Namoi CMA led the development of the plan, and the CMA's strategic capacity was improved by their work in planning and conducting the upgrade. In particular, the intellectual framework of resilience thinking helped the CMA, informed by NRM expert panels and other

¹² Further evidence collected during the assessment can be found in GHD (2011), *Review of evidence against NRC attributes: Namoi upgraded catchment action plan*, November.

stakeholders, to re-evaluate the plan's evidence base and priorities, and to clarify and re-focus their targets and actions. The CMA's enhanced strategic capacity is now helping to improve the CMA's internal business systems, as described in **Case Study 1**.

Namoi CMA conducted an internal review of its existing catchment action plan to see what aspects of that plan worked well, what could be improved and what assumptions needed testing or revising. The CMA also looked into how relevant and realistic their previous plan's targets and actions were, and what progress has been made against them. The CMA was also learning while developing the plan, and has carried these lessons into the implementation phase. For example, the CMA is moving towards a more structured and collaborative approach to implementation and adaptation of the plan.

Engaging with stakeholders

The CMA involved their community, technical experts and scientists, agencies, local government and resilience experts in different ways during the planning process, guided by a documented consultation plan.

Overall, the community and local government partners reported more meaningful engagement than some state government agencies. In particular, the CMA found that resilience concepts were a very effective way to communicate with and engage the community in the planning process.

The CMA's priority for engagement was to draw together available knowledge to inform the resilience analyses of the systems in the Namoi catchment. Consequently, their engagement process was weighted more towards evidence gathering and analysis, than fostering partnerships and shared buy-in to the plan, particularly among agencies.

Further, as this was one of two pilots testing the feasibility of whole-of-government planning, both the CMA and the agencies were learning as the process unfolded. Agency engagement was at times limited by participants' available time and resources during the upgrade process, and by the CMA's consultation timeframes. In addition, some agencies did not initially see engagement in catchment action planning as a core business activity, and were also concerned about transparency, timing and expectations for their engagement.

Due to the early focus on engagement for evidence gathering and analysis, the CMA has had to work hard towards the end of the process to bring agencies on board with the upgraded plan and its priorities. Many of these issues have now been resolved, and the CMA is establishing processes for further collaboration with its regional partners as the plan is implemented and adaptively managed. A whole-of-government co-ordinator has also been appointed whose role in streamlining agency input into upgrading plans should support more effective agency engagement in the remaining 11 upgrades.

Adaptively managing the plan

The upgrade process is an important step in the ongoing improvement of the Namoi's catchment action planning. Catchment action plans typically focus on a ten year strategic timeframe, but should be updated more frequently via an ongoing review and improvement process.

The Namoi plan sets out how it will be adaptively managed, particularly through an annual internal review. The CMA recognises that the plan will have to adapt in response to:

- recommendations from evaluations and audits
- new research findings and information
- major policy changes such as the Murray Darling Basin Plan, NSW Biodiversity Strategy, Water Sharing Plan reviews and the Overarching Agreement on Aboriginal Affairs.

Namoi CMA's monitoring, evaluation, reporting and improvement plan (MERI Plan) is being updated to support adaptive management of the plan, including the continual improvement of its evidence base. The CMA is also considering how its MERI plan can align with the NSW Monitoring, Evaluation and Reporting Strategy.

The Namoi CMA has good plans to involve stakeholders in these ongoing reviews of the plan. Namoi CMA plans to collaborate with the Namoi Local Government Group and Namoi Aboriginal Advisory Group, as well as with its newly established Community Reference Panels and Whole-of-Government Reference Groups. The CMA intends that revised versions of the plan will be delivered to the wider Namoi community biennially.

Case Study 1: Improved strategic capacity leading to better CMA business systems

The enhanced strategic capacity and comprehensive knowledge base that Namoi CMA has built through upgrading its catchment action plan has also led to improvements and innovations in the CMA's internal business systems.

In particular, the Namoi CMA is already using the information and resilience concepts in their upgraded plan in an innovative way to support prioritisation in its annual investment plans.¹³ Using internal CMA systems, including some relevant components adapted from the tool 'Investment Framework for Environmental Resources' (INFFER)¹⁴, investment priorities are determined by ranking thresholds and controlling variables across themes based on their:

- contribution to critical catchment functions
- current closeness to the threshold value, and temporal risk of breaching the threshold
- impact, cost and achievability of actions
- time lag to benefits.

Namoi CMA's internal work prioritisation flow diagrams are a good example of a CMA adapting and applying appropriate decision support tools for the task at hand¹⁵, and give confidence that they have good business support systems to use when working towards targets. The Namoi CMA have also identified that they need to work on better integrating social and economic considerations into their investment prioritisation.

¹³ Refer to pages 74-76 of the Namoi Catchment Action Plan for further information on investment planning.

¹⁴ <http://www.inffer.org/>

¹⁵ Refer to Department of Climate Change, Environment and Water (2010), *Decision support tools – choosing and using the right tool*, October.

3.2 Developing targets and actions

The NRC assessed how the CMA and partners used information to decide what action was needed to build resilient landscapes. The Namoi plan has looked at how to manage their dynamic social-ecological systems so that they remain in, or move towards, a productive and healthy state. This is particularly important in a productive agricultural landscape like the Namoi region.

The Namoi plan is one of the first examples in Australia of regional natural resource management planners using resilience concepts to help analyse regional systems.¹⁶ Resilience thinking recognises that landscapes are made up of linked social-ecological systems that change in response to various pressures, shocks or disturbances. Resilient landscapes can cope with shocks and undergo change while continuing to support the same social, economic and environmental values.

Resilience concepts align well with the required outcomes of the Standard and assist in identifying key thresholds and priorities for management. However, the NRC recognises that other analytical frameworks can be used to comply with the Standard.

Describing how the catchment functions using best available knowledge

The CMA invested considerable effort in collecting and integrating scientific knowledge. The Namoi area is considered data rich compared with many other areas of the state, helped by the CMA's significant investment in spatial resources, monitoring, evaluation and reporting and extensive university research in the region.

The Namoi CMA used theme-based expert workshops to draw out knowledge about the region and inform its resilience assessment. The CMA also collated and analysed a comprehensive evidence base to support its resilience analysis, including drawing on spatial information and analysis.¹⁷ The CMA prioritised the use of regional-specific evidence, followed by results extrapolated from similar systems or regions. The plan documents and integrates this information.

The plan also identifies information gaps and key assumptions, and includes a number of priority actions that relate to acquiring better knowledge. The CMA will address knowledge gaps through its Monitoring, Evaluation, Reporting and Improvement (MERI) and adaptive management process.

In general, it is expected that the CMA will continue to build up the plan's scientific evidence base to better support their targets and actions. More work is needed to verify or revise current "placeholder" and best estimate values used for biophysical thresholds; for instance, the assumptions informing the plan's groundwater thresholds need testing. Some thresholds could also be better defined; for example, more explanation about natural frequency and duration could be provided to help improve the plan's surface water flow quantity threshold. Further, the plan would benefit from better knowledge about the Namoi's social systems, particularly about how social elements of the system link with the biophysical elements. The NRC is confident that the CMA has processes that are appropriate for addressing these risks.

¹⁶ An example of a CMA previously exploring resilience analysis is the Goulburn-Broken CMA in Victoria: Walker B, Abel N, Anderies J, and Ryan P (2009) *Resilience, adaptability, and transformability in the Goulburn-Broken Catchment, Australia*. *Ecology and Society* 14(1): 12.

¹⁷ See the following section for more information about the CMA's resilience analysis

The plan's science and regional knowledge base can support decision-making and policy development at multiple scales. By being transparent about what we do and don't know about the region, the plan and its supporting documents helps stakeholders make informed decisions.

Analysing systems to develop strategies

By applying systems thinking and resilience concepts, the Namoi Catchment Action Plan articulates a better understanding of the Namoi landscape, and what should be done to maintain its ability to function. Namoi's approach looks at both social and ecological systems, and helps planners and stakeholders identify the most important variables that determine the health and function of a system.

Namoi's expert workshops focused on identifying condition, trends, drivers and threats, thresholds and conceptual models relating to various social and ecological components of the landscape. The plan uses theme-based conceptual models to identify 'critical' components for each system. The CMA identifies critical components as those which have the greatest number of linkages and functions, therefore contributing the most to the system's overall function. The plan also identifies thresholds associated with these critical components as being the system's 'critical thresholds'. These conceptual models are a good first attempt at documenting complex interactions between landscape components. However, these models should be refined over time as the CMA and their partners' understanding of their region's systems increases.

The plan also looks ahead to consider shocks and drivers that may impact on the region's systems in the future, including issues like climate change and land use change due to the expansion of mining in the Namoi area. The plan identifies 'buffers' that might help the region adapt to change without compromising the system's values and functions; examples include increased vegetation extent, connectivity and community adaptive capacity. Building the general resilience of the Namoi's communities and landscapes through the targets and actions in the plan is a way of ensuring the region can adapt to the potential impacts of climate change.

Overall, biophysical systems analysis is strong in the Namoi plan, as the CMA was able to rely on established methods, scientific evidence and experienced facilitators. However, the Namoi CMA found it more difficult to integrate social elements into its biophysical systems, or identify controlling variables and thresholds for social systems. These analyses and linkages are quite complex and will require further attention as part of ongoing adaptive management of the plan.

For practical purposes the plan's resilience analysis is structured around asset-based themes, though the CMA's analysis demonstrates a good understanding of the linkages between different social-ecological systems. Also, at this time the Namoi Catchment Action Plan focuses primarily on the catchment scale, although thresholds and controlling variables were identified at several scales. It is important that strategic regional planning considers scales above and below the catchment scale. To address this current limitation, the CMA has plans to extend its assessment to include three sub-regional systems analyses (tablelands, slopes and plains).

Developing targets and actions

A key strength of the Namoi plan is the way in which it has used resilience concepts to help the CMA and its partners to re-focus their limited resources on addressing the most important priorities in their regions. The plan's catchment targets focus on managing around the system's

critical thresholds. The actions associated with each target are evidence based and were tested with government and community stakeholders to ensure they are practical.

Case Study 2 gives a good example of how the Namoi plan has used resilience concepts to simplify the region's management targets and strategies.

If achieved, the Namoi catchment targets and actions should promote the state-wide targets and improve catchment function. As described in **Case Study 1**, the plan's targets, actions and evidence base are already providing a suitable basis for the CMA to identify shorter-term, more specific and time bound (SMART) priorities in their own investment programs, taking into account investor preferences and funding availability. The NRC is confident that other stakeholders' investment prioritisation can also be informed and assisted by the plan.

While implementing the plan the CMA has an important role to play in monitoring and evaluating the use of systems analysis to inform target setting. The Namoi CMA's adaptive management strategy should evaluate the benefits of systems analysis and resilience concepts in practice. The CMA should use this information to refine and improve how it uses these assessment frameworks in strategic catchment planning.

Case Study 2: Using resilience concepts to simplify management targets and strategies

The Namoi plan has effectively used the results of its resilience assessments to simplify its targets and management strategies to focus on what is really important in the region.¹⁸ The importance of groundcover thresholds in the catchment is a good example.

The CMA's systems analysis indicated that all assets in the Namoi catchment are dependant to some extent on the ecosystems services provided by healthy soils, as shown in **Figure 3**.

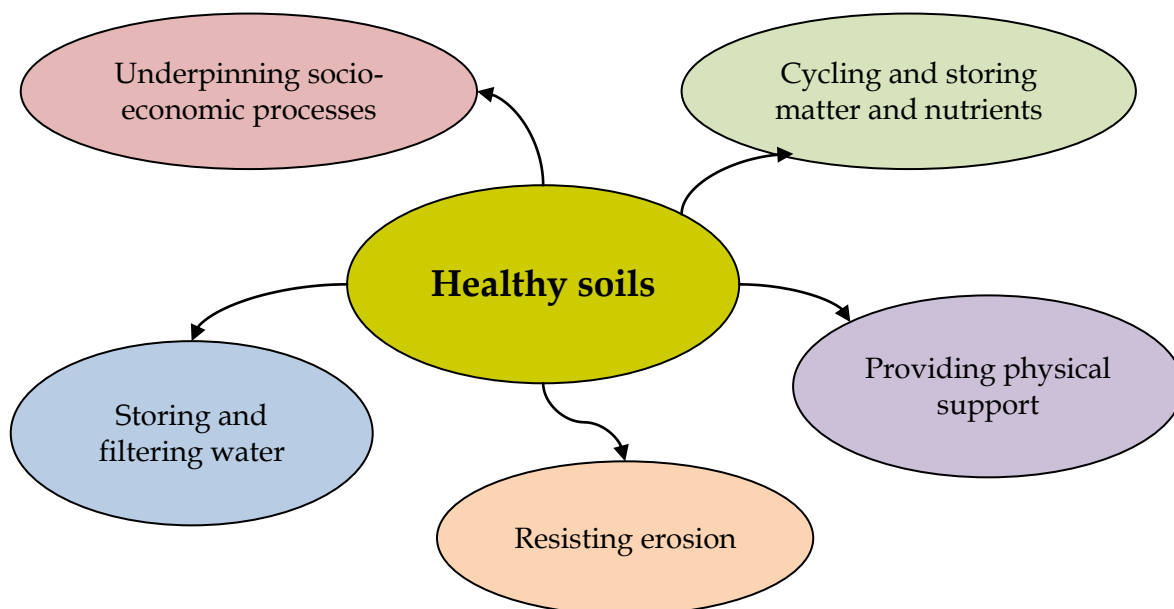


Figure 3: Ecosystem services provided by soil health (DPI Victoria)

¹⁸ Refer to Chapter 4 of the upgraded Namoi Catchment Action Plan

Case study 2 cont'd

The CMA developed a conceptual model of soil health and found that organic matter, soil structure and soil type contributed the most to healthy soils, and that groundcover is a key controlling variable and critical threshold in the soil system. As a result, the plan's land management strategy has been simplified to one catchment target focusing on increasing groundcover. The plan's evidence base and resilience analysis indicates that maintenance or improvement of groundcover at or above 70 per cent is the key intervention that will be most effective in delivering healthy soils.

3.3 Collaborative action and investment

The NRC assessed the extent to which the plan provides an effective basis for community, government and industry to partner with the CMA in building resilient landscapes.

The Namoi plan clearly demonstrates that achieving healthier landscapes requires coordinated effort by a range of stakeholders. The planning process has identified regional priorities that regional stakeholders can use to ensure their own actions and investments can be most effective. The plan also sets out how its targets and actions will contribute to delivering a range of government plans and policies.

Aligning with relevant policies and community aspirations

The plan's catchment targets and actions are informed by community values and its resilience assessment. For example, the plan was informed by recent initiatives the CMA had undertaken to understand its catchment's community values, such as ongoing Community Benchmarking Evaluations and a targeted Living Culture Study undertaken with the Aboriginal Community.

The Namoi CMA also made an attempt to align the upgraded catchment action plan with relevant government plans and policies. The CMA reviewed a range of policies, and has articulated how the plan's catchment targets will contribute to key government plans and policies through a series of Benefit Statements. National priorities were considered within the plan's resilience assessment; for example, threatened species as listed under the *Environment Protection and Biodiversity Conservation Act 1999*.

However, the CMA did not engage agencies in a structured alignment process while developing the plan. In this instance, alignment issues emerged during the plan's consultation and feedback phase. For example, the plan focuses on managing native vegetation extent, whereas the draft NSW Biodiversity Strategy also prioritises rarity, connectivity and condition. The issue was resolved through discussions between the CMA and Office of Environment and Heritage about the rationale and scientific basis for each approach to native vegetation management. The Namoi experience highlights the importance of early and meaningful engagement between CMAs and agencies to facilitate alignment between upgraded catchment action plans and government plans and policies.

Whole-of-government alignment remains an ongoing priority for regional planning, and there is room for further progress in alignment as the Namoi plan is implemented. For example, Namoi's proposed adaptive management strategy will help improve alignment over time by:

- establishing whole-of-government reference groups that can advise on alignment issues
- reviewing new plans or policies to identify alignment opportunities and barriers.

Agencies have also identified a list of priority policies and plans for catchment action plans to align with. Agencies are currently working to improve the alignment of plans, policies and strategies at the state scale so it will be more efficient for CMAs to invest resources in aligning catchment action plan priorities.

Guiding collaborative action and investment

The Namoi Catchment Action Plan can meaningfully guide the decision making, actions and investments of the CMA, community and other stakeholders. Through the plan, stakeholders wishing to inform their own NRM investments or activities should gain a good appreciation of regional landscape function and management priorities within the Namoi catchment. Stakeholders, including local government, identified that resilience thinking, thresholds and catchment targets were useful concepts to help guide their own decision making and planning.

Spatially expressed information and priorities are seen as being increasingly important for effective communication and an aid to analysis, decision making and planning. The Namoi plan has used maps to identify and communicate areas of risk and vulnerability in the catchment's ecological systems. The presentation of some of these detailed maps could be improved to make them easier to read and interpret, and at this point in time no spatial information is provided for the community theme.

The plan's spatial analysis focuses on the catchment scale, and can help inform regional-scale strategic land use planning processes. The CMA also has the capacity to work with partners individually to produce useful spatial analyses that can inform planning processes and decision making. Further, it is expected that the CMA's proposed sub-regional analyses will expand the range and clarity of spatial information within the plan, providing more information for stakeholders at a finer scale.

The Namoi CMA was able to draw upon its substantial spatial capacity to develop the plan. The NRC does not expect that all CMAs will have similar spatial capacity in the short-term. However, it is critical that regional planners are able to access quality spatial information and tools when upgrading their plans; for example, by collaborating with agencies, local governments or other CMAs.

Identifying roles and responsibilities for implementing the plan

The Namoi plan demonstrates that achieving healthier landscapes requires coordinated effort by a range of stakeholders. The CMA only has direct influence on some of the issues requiring attention; this issue is explored further in **Case Study 3**. However, the thresholds identified in the plan provide a basis for coordinating the efforts of partners around the most critical issues in the catchment.

The Namoi plan shows how different stakeholders can contribute to the targets and actions set out within the plan. The plan identifies a lead organisation for each catchment action, and a list of other key parties who should be involved. This device reinforces that the successful implementation of the plan requires the co-operation of the CMA, key agencies and other stakeholders. It is important that agencies commit to and act on these roles and responsibilities as the plan is implemented.

The NRC has received confirmation that the following agencies support the strategic intent of the Namoi plan and in principle the roles and responsibilities outlined in the plan: the Department of Primary Industries; the Office of Environment and Heritage; Aboriginal Affairs NSW; and the State Water Corporation. The Department of Planning and Infrastructure has also confirmed support for the upgraded plan in terms of seeking a collaborative approach to improving natural resource outcomes, and is committed to working with the CMA when developing Strategic Regional Land Use Plans.

The Namoi CMA plans to develop a Whole-of-Government Reference Group, and sub-regional Community Reference Panels that can help co-ordinate stakeholders' approach to implementing the plan.

Case study 3: Co-ordinated action to address key issues

The Namoi plan has identified important issues affecting the catchment, and which actors and investors can influence these issues (see **Figure 4**).

Importantly, many of these lie outside of the Namoi CMA’s direct sphere of influence. For the plan’s targets to be achieved and the important catchment issues addressed, the other actors and investors identified in **Figure 4** need to actively use the plan’s broad targets, actions and thresholds to guide their own actions and decision making.

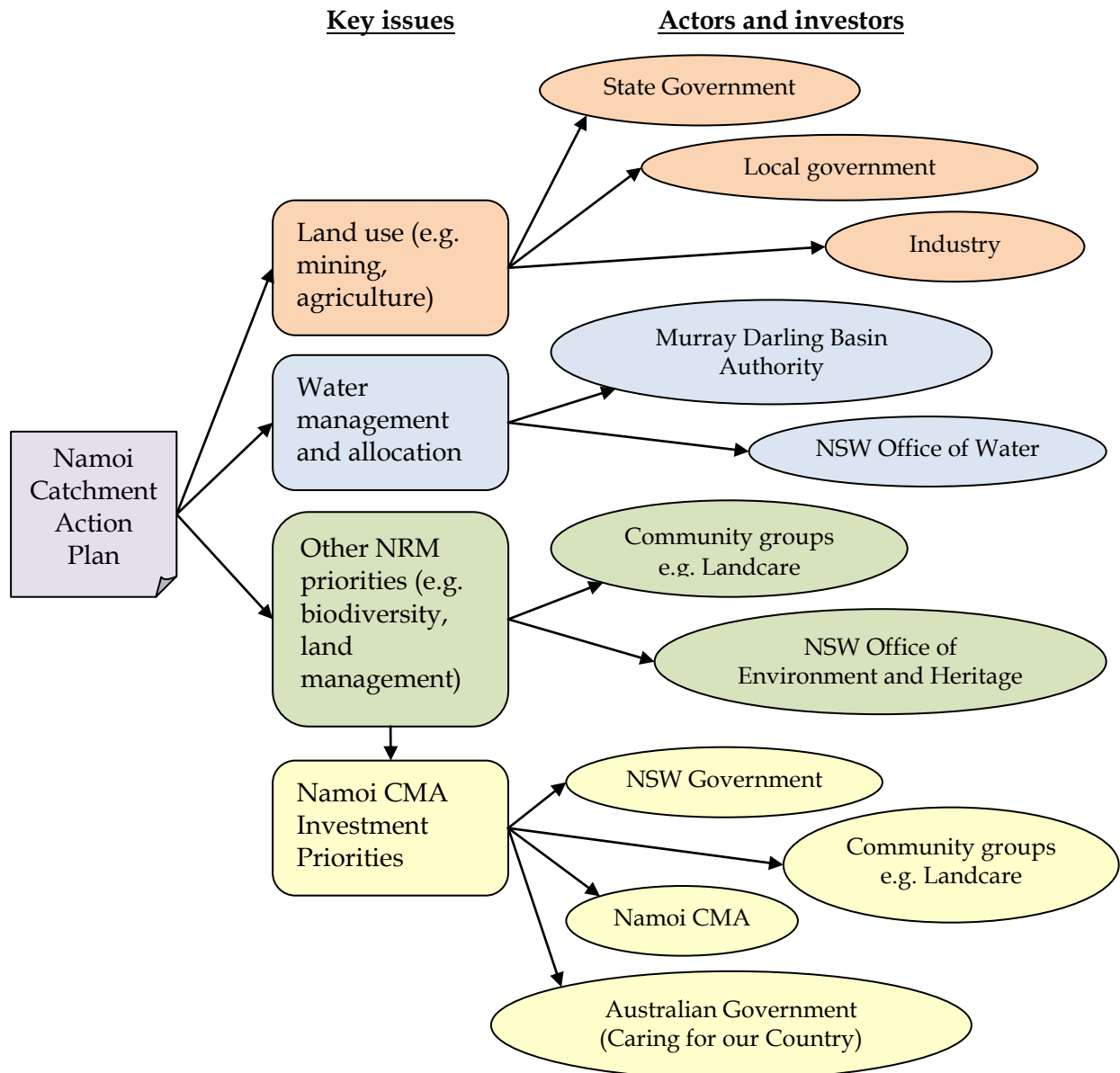


Figure 4: Key issues and actors identified in the upgraded Namoi plan

Case study 3 cont'd

For example, the Namoi plan identifies land use as a key driver of change in the catchment. It describes the tension between extractive and agricultural land uses, and the ecological and economic consequences of land use change. While Namoi CMA can represent community views in discussions about this issue, ultimate responsibility for land use decisions lies with state and local governments and industry partners. The thresholds and priority areas in the plan should inform strategic land use planning, including the NSW Government's upcoming Strategic Regional Land Use Plans. The CMA has the capacity and resources to work with these key actors to deliver suitable spatial products to inform land use decision making.

Similarly, changes in water allocation are another potential shock that the CMA has little control over. However, Namoi CMA's work in building the Namoi community's adaptive capacity should assist the catchment community in adapting to changes in water availability, and Namoi CMA should also look for opportunities to work with environmental water holders.

4 Recommendations and strategic issues

The NRC has made a series of recommendations covering:

- whether the Ministers should approve the upgraded plan
- whether the Ministers should place any conditions on the approval of the upgraded plan
- further issues relevant to plan approval.

The NRC has also identified a number of strategic issues for the CMA and its partners to consider as they collaboratively implement and adapt the plan.

4.1 Approval

In accordance with section 13 (b) of the *Natural Resources Commission Act 2003*, the NRC recommends that the Ministers approve the upgraded Namoi Catchment Action Plan without alteration.¹⁹

4.2 Conditions of approval

The NRC recommends placing the following conditions on the approval of the plan:

- **Facilitating government and community collaboration** – The CMA should implement its plans to form Whole-of-Government Reference Groups and Community Reference Panels, and involve these groups in implementing and adaptively managing the plan. This should occur by May 2012.
- **Improving analysis at multiple scales** – The CMA should implement its plans to conduct an analysis of sub-regional social-ecological systems in the Namoi catchment (tablelands, slopes and plains). This should occur by May 2013.

The CMA should report to the NRC on how they have met these conditions of approval in their Strategic Progress Letters. The CMA should provide a Strategic Progress Letter annually, or as conditions are met.

4.3 Further recommendations

Whole-of-government and community implementation

Recommendation: The Ministers should seek whole-of-government support for coordinated delivery of agreed investment priorities through agency corporate and divisional planning processes.

As this is one of the first strategic plans to trial a whole-of-government and community approach, the challenge now is to ensure that the plan is implemented collaboratively and individual partners commit to specific roles and responsibilities for meeting regional goals and targets.

¹⁹ Under Section 23(1) of the *Catchment Management Authorities Act 2003*.

For this to be effective, NSW agencies will need to engage with the CMA when negotiating their annual coordinated investment priorities through their operational planning processes. This is consistent with the final step of the process shown in Section 2 of this report. The Namoi CMA plans to develop a Whole-of-Government Reference Group to support a co-ordinated approach to implementing the plan.

4.4 Implementing and adapting the plan

Adaptively managing the plan

The CMA has comprehensive plans for testing assumptions and filling knowledge gaps. The CMA's MERI program will be updated to meet the needs of the new plan.

The CMA also plans to involve other stakeholders in the ongoing adaptive management and improvement of the plan through Community Reference Panels and Whole-of-Government Reference Groups. This will include adapting the plan in response to upcoming policy changes; for example, the Murray Darling Basin Plan²⁰ and new Strategic Regional Land Use Plans²¹.

This is also among the first examples of applying resilience thinking in regional planning in Australia.²² Therefore, it will be important that the plan's monitoring and evaluation helps us collectively understand the benefits and risks of this approach, and share the lessons with other planners.

Understanding social systems

The CMA has identified knowledge gaps around social systems in the catchment, and how the social and biophysical systems interact. The CMA and its partners will, over time, need to find ways of strengthening the analysis of linked social-ecological systems. Next steps may include:

- the CMA and their partners increasing the level of resources directed towards social systems analysis and monitoring
- the CMA strengthening their adaptive capacity assessments, and including them in their analysis of landscape function when reviewing and adapting the upgraded catchment action plan
- the CMA and partners working collaboratively to investigate potential approaches and methods to assist CMAs in better understanding the linked social-ecological systems operating in their catchment
- CMAs and partners developing and implementing a plan to address the knowledge gap around analysing social systems in the catchment and their interaction with biophysical systems.

²⁰ Murray Darling Basin Authority (2011), website: www.mdba.gov.au/basin_plan

²¹ <http://planning.nsw.gov.au/StrategicPlanning/StrategicRegionalLandUse/tabid/495/language/en-US/Default.aspx>

²² An example of a CMA previously exploring resilience analysis is the Goulburn-Broken CMA in Victoria: Walker B, Abel N, Anderies J, and Ryan P (2009), *Resilience, adaptability, and transformability in the Goulburn-Broken Catchment*. *Ecology and Society* 14(1): 12.

Looking at systems above and below the catchment scale

The CMA should expand its resilience and spatial analyses to include systems above and below the catchment scale. The CMA currently plans to extend its assessment to include systems analyses for three broad socio-economic sub-regions (tablelands, slopes and plains). The CMA has plans to establish Community Reference Groups for the sub-regions to define and test sub-regional variation.

The CMA should also consider systems operating above the catchment scale. This may involve collaborating with neighbouring CMAs to analyse systems across multiple catchments. At a higher scale, the CMA should continue to look at how outcomes of the Murray Darling Basin planning process will impact on their region and remain involved in the basin planning process.

Using the plan for decision-making and implementing other plans and policies

To get the most value out of the upgraded plan, it should be used to help inform and implement other government plans and policies at different scales. Given its increased strategic planning capacity and improved regional knowledge base, the plan and CMA should be well placed to help in developing and delivering other government plans, including:

- NSW Government's Strategic Regional Land Use planning process
- NSW Government's state-wide Knowledge Strategies (Office of Environment & Heritage)
- Murray Darling Basin Plan
- Australian Government's National Wildlife Corridors Plan²³
- climate change initiatives under the Australian Government's Clean Energy Future program²⁴, including the Carbon Farming Initiative²⁵ and the Biodiversity Fund.²⁶

To achieve this, governments and other stakeholders should be looking to the upgraded plan and the Namoi CMA for:

- an overview of regional landscape function and management priorities in the catchment
- assistance in implementing government plans and policies
- relevant science and regional knowledge to support decision-making and policy development at multiple scales.

The Namoi CMA should also keep considering how its resources can best inform and implement these government initiatives. The CMA should continue to identify opportunities to participate in regional policy development processes, including contributing its substantial spatial capacity.

In addition to their upgraded catchment action plan, the Namoi CMA have invested in other work that can be used to aid others' strategic planning and decision making, such as a framework for a proposed methodology for calculating and managing the cumulative risks to environmental assets from mining in the Namoi Catchment.²⁷

²³ <http://www.environment.gov.au/biodiversity/wildlife-corridors/index.html>

²⁴ www.cleanenergyfuture.gov.au

²⁵ <http://www.climatechange.gov.au/cfi>

²⁶ <http://www.cleanenergyfuture.gov.au/biodiversity-fund/>

²⁷ <http://www.namoi.cma.nsw.gov.au/41885.html>

