



ASSESSMENT AND RECOMMENDATION REPORT

CENTRAL WEST UPGRADED CATCHMENT ACTION PLAN

November 2011

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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 Central West 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 their plan to reflect new science and knowledge about landscape management, and evolving policy settings.

The NRC has reviewed the upgraded Central West 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 Central West 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 Central West catchment. The CMA has brought together government and the community to build a shared understanding of important issues in the catchment. 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 Central West 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 Namoi 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 Central West Catchment Action Plan and provided recommendations to the Minister in 2006. Refer to Natural Resources Commission (2006), *Central West Catchment Action Plan Recommendation* report, September. The existing Central West Catchment Action Plan was approved by the Minister for Natural Resources in February 2007.

³ August 2011, available at <http://cw.cma.nsw.gov.au/AboutUs/2011capconsultation.html>

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 Central West 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 NRC found that the upgraded Central West Catchment Action Plan is a major advance on previous regional planning approaches. The efforts of the Central West CMA, in partnership with agencies and the community, has substantially advanced knowledge nationally about what can be achieved through regional planning.

The CMA led the development of the plan through a structured, collaborative and adaptive planning process, guided by experience and knowledge gained over the last six years of planning and implementation. This upgrade is just one step in the CMA's ongoing process for reviewing and improving their strategic planning over time. The Central West plan provides good foundations 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 and community knowledge. Using systems thinking and resilience concepts, this evidence was used to articulate an improved understanding of the Central West's landscape, and what should be done to maintain its ability to function.
- **Determining targets based on systems analyses** - The catchment action plan explains how the region's landscape systems support various social, economic and environmental values. It effectively uses state and transition models to identify drivers, variables and 'thresholds of potential concern' which if crossed put a landscape system at risk of decline. For example, the plan identifies that soil and groundcover are important for supporting a productive pastoral landscape. If groundcover is reduced below a threshold of 70 per cent cover, soil structure and function degrades. Therefore, the plan proposes targets and actions to manage threats to groundcover and keep their pastoral systems in good condition, including managing total grazing pressure and encouraging zero or no-till farming practices.
- **Aligning with other government policies and plans** - The Central West is one of the first CMAs to trial a whole-of-government and community approach to regional planning. At a policy level, the CMA and agencies have collaborated to align the catchment action plan with other government plans and policies, using alignment frameworks and spatial analysis. For example, the plan shows how to coordinate catchment management activities like riparian revegetation with water flow regimes specified in water sharing plans. It also specifies investments that will target priorities identified in the draft NSW Biodiversity Strategy.

- **Gaining broad support from partners to create a platform for coordinated action by government and the community** – The planning process has identified shared strategic priorities to guide and align CMA, government and community action on the ground, which should lead to greater return on investment. Previously, planning focussed more on what the CMA alone could achieve. This time, by better co-ordinating their actions and investments, the CMA, government agencies, local government, and community groups such as Landcare, 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 investors, partners and themselves of the values, risks and priorities in their catchment. The spatial analysis has helped the CMA to prioritise investment to the most high risk systems and to align investor preferences in those systems. Maps and graphics help to clearly communicate the intent of the plan to partners and provide a platform for wider engagement and strategic decision-making.

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 has good plans in place to coordinate this process, and all partners will need to demonstrate the same commitment to collaborative action.

The other challenge will be to adaptively manage the plan and lay the basis for future upgrades. 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. 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 Central West 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 Central West Catchment Action Plan without alteration.⁷

Conditions of approval

The NRC does not recommend any conditions on the approval of this catchment action plan.

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 and improve knowledge. The CMA will also need to consider overall adaptive management of the plan, including how partners will be involved, and evaluating 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 and ecological systems.
- **Using the plan for decision-making and implementing other plans and policies** – To get the most value out of the upgraded plan, the plan 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 Central West 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.

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

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
- reporting to Government and other stakeholders on what is working in NRM, what needs fixing and how the regional model is progressing towards its stated policies and targets.⁸

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*.⁹

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 CAPs 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 Central West 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 and staff, agency and community stakeholders
- technical reviews (focusing on criterion 2).

⁸ The NRC has already assessed and recommended all 13 of the current CAPs in place across NSW, and we have audited how effectively all CAPs are being implemented. Murray CAP 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.

⁹ Natural Resources Commission (2011), *Framework for assessing and recommending CAPs*, 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.¹⁰

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.

¹⁰ GHD (2011), *Review of evidence against NRC attributes: Central West upgraded catchment action plan*, November.

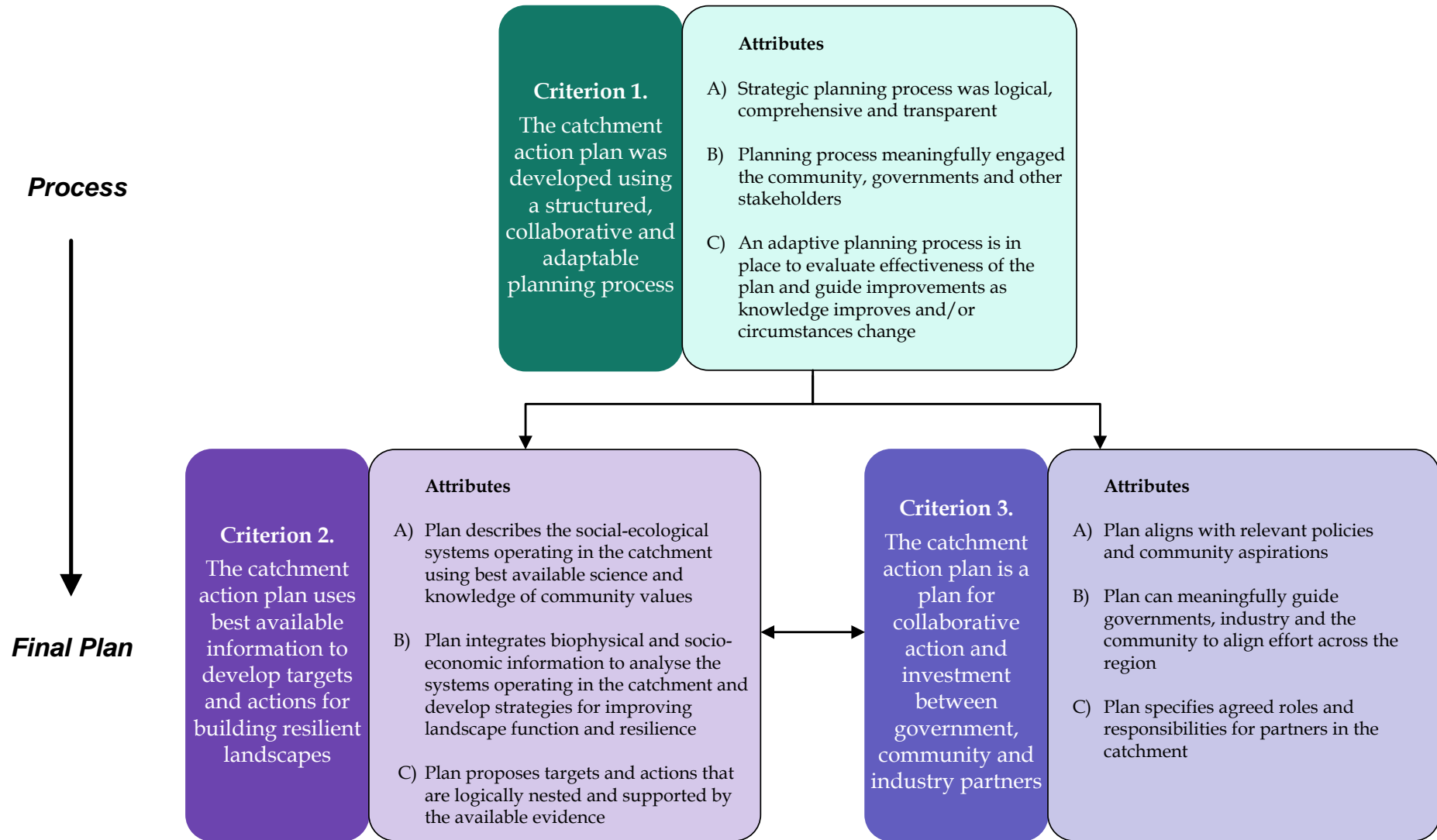


Figure 1: Criteria and attributes for assessing upgraded catchment action plans



Figure 2: NRC process for assessing upgraded catchment action plans

3 Results of the NRC's assessment

The upgraded Central West Catchment Action Plan advances the quality of regional strategic planning for managing natural resources, both within NSW and nationally. The planning process brought together the region's natural resource managers to improve the collective understanding of how the Central West landscape functions, and the social, economic and environmental values it supports.

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. Natural resource management is moving away from conservation-based practices focussed on restoring landscapes to pre-1750 conditions. Instead, the Central West plan reflects a growing understanding that landscapes are made up of social and ecological systems that are constantly changing as they interact and shape each other.

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 balance the demands of its productive agricultural landscapes and major population centres with the needs of its ecological assets, such as culturally significant areas and the internationally recognised Macquarie Marshes.

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 state and transition model thresholds and interventions 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 better understand the linkages between the social, economic and biophysical systems in the landscape.

The following sections summarise the strengths of the upgraded Central West 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 2.¹¹

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 Central West the NRC has found that a structured, collaborative planning process has resulted in a quality plan with widespread stakeholder support.

The Central West CMA led the development of the plan, and the CMA's strategic capacity was improved by their work in planning and conducting the upgrade.

¹¹ Further evidence collected during the assessment can be found in GHD (2011), *Review of evidence against NRC attributes: Central West upgraded catchment action plan*, November.

The CMA was also learning and innovating while developing the plan. The CMA adapted their planning process along the way as they identified what planning approaches worked. For example, Central West's process highlighted how analytical tools should be carefully chosen and adapted to suit the strategic needs of the planning process. The CMA used the prioritisation tool 'Investment Framework for Environmental Resources' (INFFER) to map community values and to rank natural assets.¹² The CMA found that mapping community values was a valuable input to the resilience assessment, but that ranking assets was not useful at this stage of systems-based strategic planning, and they adapted their planning process accordingly.

Engaging with stakeholders

The Central West Catchment Action Plan is one of the first to trial a whole-of-government and community approach to regional planning. Previously, the plan focussed more on what the CMA could achieve. This time, the CMA sought to involve all stakeholders in the planning process to get broad agreement on what needs to be done.

Their collaborative planning process allowed the Central West planners to draw on the knowledge and values of all stakeholders, and provide a basis for greater alignment of CMA, government and community action on the ground. The resulting plan captures information about the Central West's landscape, incorporates regional community values and supports the regional delivery of other government policies and plans guiding natural resource management. All stakeholders contacted during the assessment reported meaningful engagement, including that there were suitable opportunities to provide input.

During the planning process, the Central West CMA engaged with:

- landholders, Aboriginal groups and community groups, such as Landcare - to understand important values and systems in the region
- agencies - to access best available science and spatial information, and ensure alignment with government policies and plans,
- local governments - to coordinate priorities and actions.

Case Study 1 below provides more information about the outcomes of the CMA's engagement process for developing the upgraded plan.

Progress made in collaborative planning in the Central West was based on considerable effort and goodwill from all involved. This experience has built co-operative relationships between stakeholders that should continue to develop as the plan is implemented, and has helped build stronger strategic capacity within natural resource managers in the region.

¹² <http://www.inffer.org/>

Adaptively managing the plan

The upgrade process is an important step in the ongoing improvement of the Central West's catchment action planning. Catchment action plans are meant to focus on a ten-year strategic timeframe, but be updated more frequently through an ongoing review and improvement process.

Central West CMA's monitoring, evaluation, reporting and improvement plan (MERI Plan) is being updated to support adaptive management of the plan, using a risk-based approach to determine investigation priorities. The CMA has also considered how its MERI plan can align with the NSW Monitoring, Evaluation and Reporting Strategy.

The CMA will also need to consider overall adaptive management of the plan, including how partners will be involved in ongoing adaptation of the plan, and processes for responding to major policy changes, for example, introduction of the Murray Darling Basin Plan¹³, and NSW Strategic Regional Land Use Plans¹⁴.

Case Study 1: Strengthening regional partnerships

The Central West CMA undertook the upgrade process with a strategic focus on improving stakeholder engagement, and has succeeded in initiating stronger regional partnerships. The Central West is dominated by agricultural landscapes, and as such key stakeholders include private landholders and Landcare groups. Other important stakeholders are government agencies, Aboriginal groups, community groups, non-government organisations, local government and industry.

Stakeholders' responses collected during our assessment process reinforce the value of their involvement in the Central West's collaborative planning process:

- **Landcare representative** - *"People other than CMA staff were involved in the development of the CAP and were able to make suggestions etc. To have external people involved is a terrific thing – in the early days that was unheard of"*
- **Landholder** - *"I was very flattered to be invited to participate; it was very generous of them. It was very interesting to watch the whole process – very insightful to understand the CMA's budget constraints and how they work to use the budget most effectively"*
- **Local government representative** - *"The fact that the CMA invited local government to be a part of the process was an important recognition of the role local government plays in resource management and the human element of that; for example, everyone pays rates"*
- **NSW government representative** - *"Involvement in the pilot CAP upgrade significantly improved our understanding of what 'whole-of-government' catchment management means".*

While collaborative planning processes will become more efficient as whole-of-government and community planning becomes the norm, the Central West Catchment Action Plan represents a significant first step towards achieving collaborative regional planning.

¹³ Murray Darling Basin Authority (2011), website: www.mdba.gov.au/basin_plan

¹⁴ <http://planning.nsw.gov.au/StrategicPlanning/StrategicRegionalLandUse/tabid/495/language/en-US/Default.aspx>

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 Central West plan has looked at how to manage their dynamic social and ecological systems so that they remain in, or move towards, a productive and healthy state. This is particularly important in a productive agricultural landscape such as the Central West.

The Central West plan is one of the first examples in Australia of regional natural resource management planners using resilience concepts to help analyse regional systems.¹⁵ Resilience thinking recognises that landscapes are made up of linked social and 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 up-to-date science and local knowledge from community and agency sources. It collated and analysed a comprehensive 'evidence library' to support its landscape analysis (see following section for more information about this analysis).

The evidence collection focused on supporting the drivers identified in the plan's state and transition models, and the interventions, delivery mechanisms and barriers to adoption in the plan's program logics. The CMA also conducted community workshops to map community values. The plan itself documents and integrates this information, presenting it in a way that is accessible to all partners. The plan's science and regional knowledge base can support decision-making and policy development at multiple scales.

The plan identifies information gaps and key assumptions. The plan addresses this issue by indicating the reliability of information used, and highlighting where more analysis is needed to verify key assumptions. The CMA is adopting a risk-based prioritisation approach in its MERI Plan, and intends to work with agencies to further improve their analysis and understanding. In particular, more work is needed around some biophysical thresholds and interventions, and generating better knowledge about the Central West's social systems. The NRC is confident that these plans are appropriate for addressing these risks.

By being transparent about what we do and don't know about the region, the plan helps stakeholders make informed decisions.

Analysing systems to develop strategies

By applying systems thinking and resilience concepts, the Central West Catchment Action Plan articulates a better understanding of the Central West's landscape, and what should be done to

¹⁵ An example of a CMA previously exploring resilience analysis is the Goulburn-Broken CMA in Victoria: Walker, B. H., N. Abel, J. M. Anderies, and P. Ryan. 2009. *Resilience, adaptability, and transformability in the Goulburn-Broken Catchment, Australia*. *Ecology and Society* 14(1): 12.

maintain its ability to function. The Central West's approach looks at both social and ecological systems, encourages cross-scale thinking, and helps planners and stakeholders focus on the few important variables that are really controlling the health and function of a system. The plan focuses on identifying systems that are most at risk of crossing undesirable thresholds, and finding strategies to manage these at-risk systems.

The CMA used a combination of tools to analyse their landscape and prioritise issues. For instance, the prioritisation tool 'Investment Framework for Environmental Resources' (INFFER) was adapted to map community values. Informed by these community values, a series of stakeholder workshops helped identify and analyse important social and ecological systems in the Central West.

The CMA then developed state and transition models to describe the region's systems; outlining how they function, their drivers and controlling variables, critical thresholds and priority actions for managing a healthy landscape. The models' underlying assumptions are either supported by evidence, or have been clearly identified as needing further testing and investigation over time. **Case Study 2** shows an example of a state and transition model, and how it is used to determine what needs to be done to manage the health of a system. The CMA has also completed an analysis of the potential impacts of climate change for each state and transition model.¹⁶

Overall, biophysical systems analysis is strong in the Central West plan, as the CMA was able to rely on established methods, scientific evidence and experienced facilitators. However, the Central West 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.

The Central West CMA also plans to strengthen its analysis and targets for building general adaptive capacity in the Central West catchment; that is, the region's capacity to cope with unknown or unexpected shocks and disturbances. The current upgraded plan looks at community adaptive capacity, which is seen as the first step towards building general resilience in the region. Expanding the adaptive capacity of both the Central West's communities and landscapes over time is central to being able to adapt to the potential impacts of climate change.

Developing targets and actions

The systems analyses and supporting evidence discussed above are used to develop targets and actions for keeping at-risk systems from crossing thresholds to undesirable states, or helping degraded systems transition back to a healthy state. Program logics show how priority actions emerging from state and transition models will contribute to the region's interlinked management targets and catchment goals, including how individual actions can contribute to multiple outcomes.

The CMA's approach to target setting highlights that the success of the plan is dependent on the support and action of actors and drivers outside of the CMA, including agencies, community and industry groups, individual landholders, policy makers and government investors. Some targets are represented by a range of percentages. The higher percentage represents what could be achieved if more investment is co-ordinated through the Central West plan, be it through

¹⁶ Refer to Appendix 3.1 of the Central West Upgraded Catchment Action Plan Support Document.

increased investment in the CMA or through improved alignment and collaboration with key partners. The lower percentage represents progress that can be achieved under a 'business as usual' scenario based on static regional alignment, CMA resources and landholder participation. By using a range, the targets are meaningful and measurable, while still promoting ambitious progress across the catchment.

If achieved, the Central West management targets and catchment goals should promote the state-wide targets and improve catchment function. The NRC is confident that the targets provide a suitable basis for the CMA and other stakeholders to develop shorter-term, more specific and time bound (SMART) targets in their own investment programs, taking into account investor preferences and funding availability.

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 Central West CMA's adaptive management strategy should evaluate the benefits of systems analysis and resilience concepts in practice, and refine and improve how it continues to use these assessments to identify critical variables and thresholds.

Case Study 2: Describing and analysing the regions systems

The Central West is one of the first examples of a strategic plan using state and transition models. State and transition models capture important information which helps inform how the Central West's systems should be managed, including information about:

- different alternative 'states' within the system, including desirable or degraded states
- controlling processes and their overarching drivers that move the system between states
- critical thresholds at which the system may change to an alternative state
- actions that can be used to prevent a system crossing a threshold, or move a system from a degraded to healthy state
- the assumptions and evidence supporting the model.

State and transition models help managers target their actions to ensure systems remain in, or transition towards, a healthy and productive state. This includes prioritising actions that protect systems at high risk of crossing thresholds into undesirable states, from which it may be hard or sometimes impossible to transition back from.

Central West's model of its native vegetation system provides a good example of how state and transition models work. The state and function of this system is controlled by the shape, size and proximity of native vegetation patches. The system is being driven into transitional and degraded states by vegetation removal and fragmentation. The CMA has used science and regional knowledge to identify the following thresholds for the system:

- vegetation cover shifting below 70% results in an initial drop in biodiversity
- vegetation cover shifting below 30% results in another major drop in biodiversity
- patches should be greater than 10 hectares, and less than 1000 metres from the next patch
- patch shape - low edge to area ratios are beneficial, though exact threshold is unknown.

Case Study 2: continued

This information has allowed the CMA to identify improving patch shape, size and connectivity as the most important things that can be done to address native vegetation issues. These actions also align with priorities in the draft NSW Biodiversity Strategy. Stakeholders should target their actions at areas where native vegetation is at risk of crossing into a less desirable state.

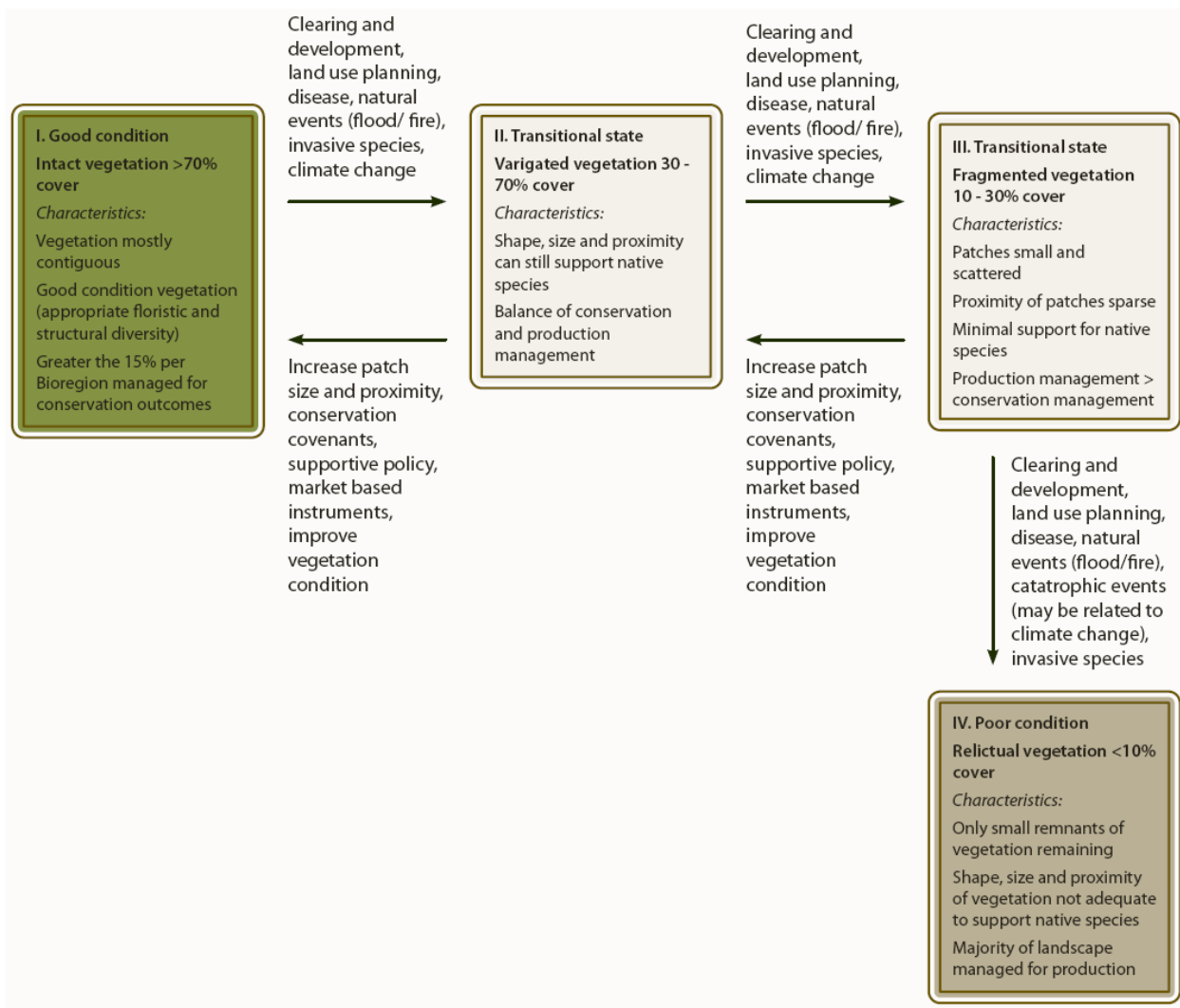


Figure 3: Central West state and transition model for native vegetation

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 Central West plan clearly highlights that achieving healthier landscapes requires coordinated effort by a range of stakeholders. The planning process has provided an opportunity for stakeholders to come together to share information, identify regional priorities and work out how their own actions and investments can be most effective. The plan also aligns relevant government plans and policies and helps deliver them at a regional scale.

Aligning with relevant policies and community aspirations

The plan incorporates the region's community values, which were initially mapped through an INFFER-based process and used to inform the resilience assessment. Central West CMA has also worked extensively with key agencies to ensure the plan aligns with and helps deliver key government plans and policies.

The alignment process is helpful in:

- allowing the CMA and agencies to identify where co-ordinating efforts should lead to more efficient investment and better outcomes on the ground
- identifying state and regional priority issues or areas that the plan can help address
- supporting and encouraging government involvement in catchment action planning
- identifying CMA and stakeholder roles and responsibilities for various actions in the plan
- providing a basis for the CMA and agencies to develop aligned investment programs.

The CMA aligned the plan with the spatial priorities, objectives or principles set out in other relevant government plans and policies, using common statements of intent, spatial analyses or alignment logics. The CMA's use of alignment logics are discussed in more detail in **Case Study 3**. The plan particularly focuses on aligning with two important policy areas; water sharing plans and the draft NSW Biodiversity Strategy.

The plan also incorporates national priorities, such as listed vegetation communities and threatened species under the *Environment Protection and Biodiversity Conservation Act 1999*, wetlands under the Ramsar Convention and Caring for Our Country objectives. These national plans and priorities are incorporated into the plan's alignment logics, and also into its spatial analysis; for example, listed vegetation communities are included in the plan's high priority vegetation mapping.

As whole-of-government alignment is a new focus for regional planning, there is room for further progress as the plan is implemented. For example, the Central West CMA and the Department of Planning and Infrastructure plan to work together to identify alignment opportunities between the catchment action plan and land use planning. The CMA is also building stronger relationships with local governments.

Further, while the Central West was developing their upgraded plan, agencies were identifying a list of priority policies and plans for catchment action plans to align with. The Central West will be able to apply the alignment logics approach to these other policy priorities while

implementing the plan. 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 Central West Catchment Action Plan can meaningfully guide the decision making, actions and investments of the CMA, community and other stakeholders. Stakeholders wishing to inform their own NRM investments or activities should easily gain a good appreciation of regional landscape function and management priorities within the Central West catchment. Stakeholders, such as Landcare representatives, have reported that the plan is a valuable document for providing a platform for collaborative partnerships to improve the catchment.

The Central West plan demonstrates that spatial analysis is an effective way of communicating information to stakeholders and informing decision making. Catchment-scale maps show stakeholders where the region's high risk systems and investment priorities are. The plan also used three-dimensional graphic diagrams to explain issues and priorities relating to five sub-catchment systems that resonate with the local community (Northern Slopes, Western Plains, Western Floodplain, Tablelands and Southern Slopes).

The Central West plan shows high-level spatial priorities that can be used to inform regional-scale strategic land use planning processes. However, some stakeholders and decision makers will be looking for much finer scale, issue-specific analysis. The spatial products presented in the plan should act as a starting point for the Central West CMA and their partners to work together on an as-needs basis to produce maps and spatial data at finer scales to support decision-making and planning. For example, the CMA has already been providing mapped information to local government for some time. Through this relationship, the CMA is starting to influence strategic land-use planning decisions at the local government level.

The Central West CMA was able to draw upon its substantial spatial capacity and resources to develop the plan. The NRC does not expect that all CMAs will have similar spatial capacity. 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 or local governments.

Identifying roles and responsibilities for implementing the plan

The plan has high-level support from partners as a guiding strategic document, and the CMA has consulted with agency contacts to identify who is involved in implementing priority actions.

The NRC has received confirmation that the following agencies support the strategic intent of the Central West 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 plan broadly outlines which stakeholders can contribute to each of the region's targets and actions and the CMA is adopting a partnership approach to implementing the plan. They intend to work with their partners to develop 'NRM Activity Plans' as the mechanism for annually confirming individual roles and responsibilities for implementing specific components of the plan. The decision to build operational synergies and partnerships gradually through investment planning reflects both the strategic nature of the Central West Catchment Action Plan, and the early stage of maturity of the collaborative planning process.

Case study 3: New ways of aligning with government policies

The Central West Catchment Action Plan has picked up and progressed recent work on policy alignment in NSW. The CMA has adopted the innovative alignment logic framework for Water Sharing Plans successfully piloted by Hunter-Central Rivers CMA, the NSW Office of Water, the former Department of Environment Climate Change and Water and the NRC, with funding from National Water Commission. The alignment component of this framework focuses on:

- identifying areas of overlap between plans (as shown in the example in **Figure 4**)
- working on integrated planning and delivery of NRM activities in these areas of overlap.

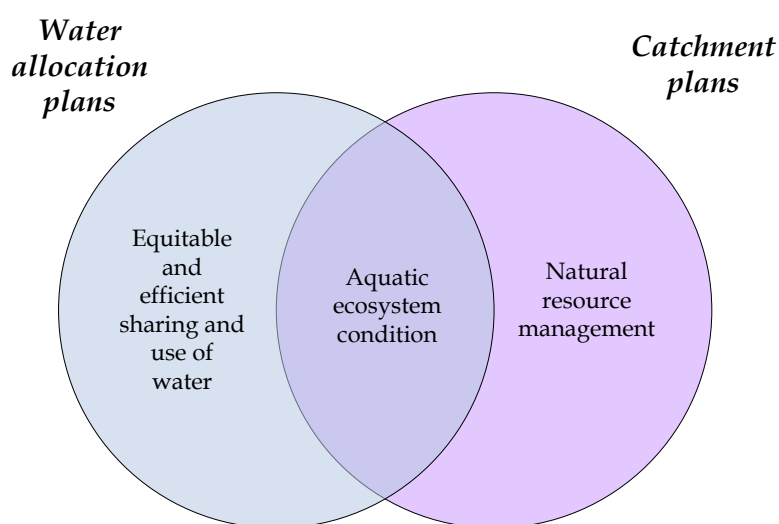


Figure 4: Overlap between water allocation plans and catchment plans¹⁷

The Central West plan has taken this framework for aligning Water Sharing Plans, and has applied it to a range of other government plans and policies. The plan includes separate alignment logics for Water Sharing Plans and the draft NSW Biodiversity Strategy, which have also been informed by in-depth spatial analysis of priority areas. Other plans and policies have been grouped and addressed within generalised alignment logics for biodiversity, water, salinity and land themes. Full details of these alignment logics are provided in Section 5 of the Central West Catchment Action Plan's Support Document.¹⁸

¹⁷ Adapted from: Hamstead, M. (2010), *Alignment of water planning and catchment planning*, Waterlines report, National Water Commission, Canberra

¹⁸ Available at <http://cw.cma.nsw.gov.au/AboutUs/2011capconsultation.html>

4 Recommendations and strategic issues

The NRC has made a series of recommendations for the CMA and its partners covering:

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

The NRC has 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 Central West Catchment Action Plan without alteration.¹⁹

4.2 Conditions of approval

The NRC does not recommend any conditions on the approval of this catchment action plan.

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.

The Central West CMA is developing a partnership approach to implementing the plan. The CMA is developing NRM Activity Plans with partners as a mechanism for confirming roles and responsibilities for implementing specific components of the plan. It intends to build operational synergies and partnerships gradually through annual investment planning.

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.

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

4.4 Implementing and adapting the plan

Adaptively managing the plan

The CMA has comprehensive plans for using a risk management approach to test assumptions and fill knowledge gaps. The CMA's MERI program will be updated to meet the needs of the new plan.

More broadly, the CMA needs to consider how partners can be involved in the overall adaptive management. This will include adapting the plan in response to upcoming policy changes, for example, the Murray Darling Basin Plan and new Strategic Regional Land Use Plans.

This is also among the first examples of applying resilience thinking in regional planning in Australia.²⁰ Therefore, it will be important for the plan's monitoring and evaluation to help 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 and 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.

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:

- NSW Government's Strategic Regional Land Use planning process
- NSW Government's state-wide Knowledge Strategies (through the Office of Environment and Heritage)
- the Murray Darling Basin Plan

²⁰ An example of a CMA previously exploring resilience analysis is the Goulburn-Broken CMA in Victoria: Walker, BH, Abel, N, Anderies, JM, and Ryan, P (2009), *Resilience, adaptability, and transformability in the Goulburn-Broken Catchment*. *Ecology and Society* 14(1): 12.

- Australian Government's National Wildlife Corridors Plan²¹
- climate change initiatives under the Australian Government's Clean Energy Future program²², including the Carbon Farming Initiative²³ and the Biodiversity Fund.²⁴

To achieve this, government and other stakeholders should be looking to the upgraded plan and the Central West CMA for:

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

The Central West CMA should also be considering how its resources can best inform and implement these government initiatives. For example, this may involve identifying opportunities to participate in regional policy development processes, or continuing to strategically invest in spatial capacity to support carbon sequestration initiatives.

²¹ <http://www.environment.gov.au/biodiversity/wildlife-corridors/index.html>

²² www.cleanenergyfuture.gov.au

²³ <http://www.climatechange.gov.au/cfi>

²⁴ <http://www.cleanenergyfuture.gov.au/biodiversity-fund/>

