



Upgrading Catchment Action Plans: Lessons for Local Land Services

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List of acronyms

| | |
|-----|--------------------------------|
| CMA | Catchment Management Authority |
| LLS | Local Land Services |
| NRC | Natural Resources Commission |
| NSW | New South Wales |

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Attachment 1 - The NRC Assessment

Executive Summary

Catchment action plans outline strategic regional priorities for sustainably managing the landscape. Catchment Management Authorities (CMAs) recently undertook an upgrade of these plans, after implementing the original catchment action plans for over five years. Under the *Natural Resources Commission Act 2003* (NSW), the Natural Resources Commission (NRC) assessed these upgraded catchment action plans and has recommended all of the plans to the Minister for Primary Industries (the Minister) for approval.

The upgraded catchment action plans deliver a significant improvement in regional landscape planning in NSW, as well as reflecting planning best practice internationally, through:

- **the adoption of new planning practices** – in particular the ground-breaking application of systems analysis and resilience thinking across the state
- **robust and inclusive planning processes** – leading to greater community participation and improved co-operation among and within governments at all scales.

CMA's will soon transition into the Local Land Services (LLS) delivery model. The upgraded catchment action plans will be adapted to guide natural resource investment for the next two years, until LLSs are in a position to review and update their regional plans to cover all LLS functions, including biosecurity, agricultural productivity, emergency and natural resource management.

These LLS strategic planning processes should be informed by what worked in the catchment action plan upgrade process and what needs further improvement, including:

- **leadership and governance** – strong leadership and good adaptive governance are critical to developing high quality strategic plans
- **regional strategic capacity** – the upgraded plans demonstrate there is considerable regional strategic planning capacity to support devolved decision-making
- **knowledge of regional systems** – systems thinking was demonstrated to be meaningful to land managers, and the sub-regional analysis within the plans can be used and built upon by LLSs to help identify the most effective strategies and actions for local areas
- **stakeholder engagement** – the joint consideration of social, cultural, economic and environmental values resonated with stakeholders, leading to greater plan ownership
- **collaboration** – alignment with state and local plans and policies leads to collaborative implementation strategies that are likely to deliver greater returns on investment
- **strategic prioritisation and measurability** – plans are most effective if they have clearly identified priorities to guide on-ground actions, measureable targets and strong monitoring, evaluation and reporting frameworks
- **flexibility and adaptability** – plans that recognise uncertainty and are responsive to change are more likely to maintain their relevance and improve over time.

The NRC recommends that the Minister engage the NRC to develop a strategic planning framework for future LLS planning, in collaboration with LLS leadership and key government, community and industry stakeholders. This framework would help LLSs integrate their functions and identify how to best achieve triple-bottom line outcomes for their communities.

1 Introduction

The NRC has completed the assessment of nine upgraded catchment action plans. Together with two earlier pilot assessments, this provides a comprehensive picture of natural resource management planning across NSW. This report provides an overview of the key achievements and lessons learnt, and how these can contribute to regional planning for the new LLS service delivery model.

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

The NRC advises the Minister for Primary Industries on whether to approve each catchment action plan, based on the quality of the plan. This advice is part of the NRC's wider program of independent performance evaluation and reporting to promote excellence and drive continual improvement in natural resource stewardship.

CMAs developed the first catchment action plans for NSW natural resource management regions in 2004-05. These 10-year plans delivered significant on-ground projects while fostering partnerships for investment. In its *NSW 2021* goals the NSW Government committed to increasing devolved decision-making at the regional scale through upgrading the catchment action plans to facilitate community and government collaboration.¹

1.1 Improving the planning approach

After evaluating the effectiveness of the first catchment action plans, the NRC recognised the opportunity to make a step-change in planning to increase effectiveness and support the Government's commitment to devolved decision-making. A coordinated approach, championed by lead policy agencies, CMA Chairs and the NRC, was undertaken to establish an improved framework for landscape management.

In 2011 the NRC trialled the adoption of new approaches in the Namoi and Central West regions. The trial explored how to best identify investment priorities through the integration of social, economic and environmental values. Landscapes were framed as 'systems' in which these three aspects are interrelated. The trial also explored improved collaborative planning, recognising that efficiencies could be generated by co-ordinating the many parties involved in addressing key landscape management issues.

Informed by the outcomes of the trial, the NRC prepared a framework² for upgrading the remaining nine catchment action plans underpinned by standards expected of regional landscape management planning³. The impacts and outcomes of CMAs applying this framework in their catchment action plan upgrades are discussed in this report.

¹ NSW Government (September 2011), *NSW 2021 – A Plan to Make NSW Number One*. Goals available at: www.2021.nsw.gov.au/sites/default/files/NSW2021_Plan%20Goals_0.pdf

² Natural Resources Commission (2011), *Framework for assessing and recommending upgraded catchment action plans*, Sydney. Available at: <http://nrc.nsw.gov.au/Workwedo/Catchmentactionplanreviews.aspx>

³ Natural Resources Commission (2005), *Standard for quality natural resource management*, Sydney. The NSW Government adopted the *Standard for Quality Natural Resource Management* that identifies seven components that are used to reach high quality natural resource management decisions. CMAs must comply with the Standard, using it as a quality assurance standard for all planning and implementation decisions.

1.2 NRC assessment

The focus of the NRC's assessment is to determine whether a catchment action plan is a quality strategic plan that promotes the state-wide targets for natural resource management and complies with the *Standard for Quality Natural Resource Management* (the Standard).⁴

The *Framework for assessing and recommending catchment action plans* details the assessment criteria and attributes considered (refer to **Attachment A**), and the review process undertaken.⁵

The NRC examined three key criteria in its assessment of the upgraded catchment action plans:

- 1 Was the plan developed using a structured, collaborative and adaptable planning process?
- 2 Does the plan use best available information to develop targets and actions for building resilient landscapes?
- 3 Is it a plan for collaborative action and investment between Government, community and industry partners?

The NRC collected evidence through extensive analysis of more than 500 supporting documents, technical reviews by independent experts, interviews with CMA boards, management and staff, surveys and interviews with stakeholders, and assessment of the CMA's engagement with government, industry and community partners.

All upgraded catchment action plans have now been recommended for approval. Some of the approvals have conditions aimed at addressing specific weaknesses identified in the assessments. For more information on these plans, including details of plan conditions, please refer to individual assessment reports for each of the upgraded catchment action plans.

The relative performance of catchment action plans in the NRC's assessment is outlined in **Table 1**.

⁴ *Ibid.*

⁵ Natural Resources Commission (2011), *op. cit.*

Table 1: Results of NRC catchment action plan assessments

| CMA region | Rank |
|-----------------------|------|
| Border Rivers-Gwydir | A |
| Hawkesbury-Nepean | D |
| Hunter-Central Rivers | C |
| Lachlan | C |
| Murray | A |
| Murrumbidgee | C |
| Northern Rivers | B |
| Southern Rivers | A |
| Western | B |

Performance key

| Rank | Qualities exhibited in the plans |
|------|---|
| A | These plans are characterised by their innovation. They demonstrate a clear vision which is supported by logical goals, strategies and actions highly likely to result in economic, social, cultural and environmental outcomes. They promote co-ordinated delivery with a broad range of partners. |
| B | These are high quality, well-structured plans for guiding co-ordinated actions. They integrate best available knowledge and include logically derived targets. |
| C | These plans provide a good foundation for co-ordinated action and investment. They are based on broad stakeholder engagement and sound community knowledge and scientific information. |
| D | This plan is founded on sound consultation with stakeholders and demonstrates a good understanding of the region's issues. However there is lack of clarity regarding how strategies and actions will achieve goals. |

Note: Upgraded catchment action plans for the Central West and Namoi regions were completed as a pilot study prior to the development of the other upgraded plans, and were evaluated by the NRC in November 2011. These pilot plans led the way for other CMAs in systems analysis and resilience thinking as applied to CMA strategic planning. The NRC refined their assessment process based on lessons learned during the pilot.

2 Key achievements

The upgraded catchment action plans set out priorities for action based on local knowledge and experience together with industry and scientific information. They are much better placed to deliver economic, social, cultural and environmental benefits at local and regional scales than previous catchment action plans.

The upgraded plans represent real reform in regional natural resource planning and introduce a new era in broad-scale landscape management. An independent technical reviewer concluded that the NSW *'approach to recent catchment action plan development is highly regarded . . . and acknowledged to be leading the way in natural resource management by other States [in Australia]'*.⁶

This chapter outlines the upgraded plans' key achievements, which stem from the adoption of:

- **new planning practices** – in particular, the use of systems analysis and resilience thinking across the state to drive a better understanding of the landscape
- **robust and inclusive planning processes** – leading to greater community participation and improved co-operation between and within governments at all scales.

2.1 Systems analysis and resilience thinking

The main change within the upgraded plans is the adoption of resilience thinking and a systems approach to planning. Although systems thinking has been used in different contexts for many years, the upgraded catchment action plans, together with the 2011 Namoi and Central West plans, are the first attempts globally to put resilience theory into regional planning practice at such a broad scale. To the surprise of many who were sceptical or thought it too complex, the new approach was successfully adopted by nearly all CMAs, who found it made sense on the ground.

Using resilience and systems analyses

Multi-scale systems approaches to landscape management are gaining credence around the world. They define landscapes as dynamic, interconnected systems where people and communities are integral to landscape function. Their focus is to ensure social, cultural, economic and environmental processes are properly integrated in planning and investment decisions.

Resilience is a measure of a system's capacity to cope with shocks and undergo change while retaining essentially the same structure and function. In NSW catchment action planning, resilience is used as an overarching conceptual framework into which local knowledge and ideas from other disciplines can be incorporated.

Resilience analysis is about understanding and managing change. Resilience analysis helps identify the relatively small number of factors that are really controlling a system, both from within the system or at other scales. It focuses on causes of problems rather than symptoms and the management actions that will be most critical to supporting increased social and economic demands on natural systems, now and into the future.

⁶ Rod Griffith & Associates (2013), *Positions NSW strategic NRM planning in relation to national and international best practice*, report to the Natural Resources Commission, Sydney.

These new approaches provided the space for more people to be involved, to share their knowledge and identify better ways of working together. CMAs reported that landholders, who work with systems every day, readily understood a systems approach to planning. A CMA staff member commented: *'we are finding this resilience/SES [social-ecological systems] approach really powerful to identify linkages between interventions and drivers – and they (the community) just get it'*.⁷

Independent technical review is mostly positive, while noting room for improvement in what has been a ground-breaking exercise. For example, resilience theory and ecological systems analysis were not used to their full extent in identifying controlling variables (causes of problems) and key points for intervention. Further, more emphasis was placed on local knowledge than scientific sources.

2.1.1 Better understanding of the landscape

The upgraded plans are built on more relevant stakeholder, technical and scientific knowledge than earlier plans. The purposeful inclusion of economic and social drivers in a systems context has improved understanding of how and why different landscapes are managed, and the trade-offs inevitable in resource use.

A technical reviewer noted *'Upgraded catchment action plans are not business as usual . . . Upgrades have created catchment action plans that are more balanced than previously'*.⁸ The integration of conservation and production values needs to be extended and embedded in regional service delivery.

Where previous plans focused on the key biophysical components of landscapes (for instance, soil or water), the new plans describe and analyse dynamic systems with interacting socio-economic and ecological parts. Consequently, the upgraded catchment action plans aim to sustainably manage modified landscapes for improved economic, social and ecological wellbeing rather than to restore biophysical condition to some pre-determined benchmark. This forward looking perspective prioritises management actions that support increasing social and economic demands on natural systems.

For example, the Southern Rivers plan has three overarching goals that reflect a balance between restoring biophysical assets, governance and improving social wellbeing. Similarly the Murray plan prioritises improving production and local decision-making alongside environmental improvement.

Most plans illustrate this interaction with a conceptual model similar to the diagram in **Figure 1** below, which is taken from the Murray Catchment Action Plan.

These conceptual diagrams are then underpinned by evidence and knowledge drawn from both the scientific and local communities. This analysis of evidence against conceptual models of landscape functions helps the CMAs identify interventions that are known to work, and why, and also highlights where there are key knowledge gaps or assumptions that need to be addressed. The CMA can then seek to improve their knowledge over time by addressing these gaps or assumptions through their monitoring and evaluation programs, starting with the most high-risk or critical unknowns.

⁷ *Ibid.*

⁸ Dangerfield, M. (2013), *NRC Catchment Action Plan assessments 2012: Socio-ecological landscapes – commonalities and gaps*, report to the Natural Resources Commission, 13 May, Sydney.

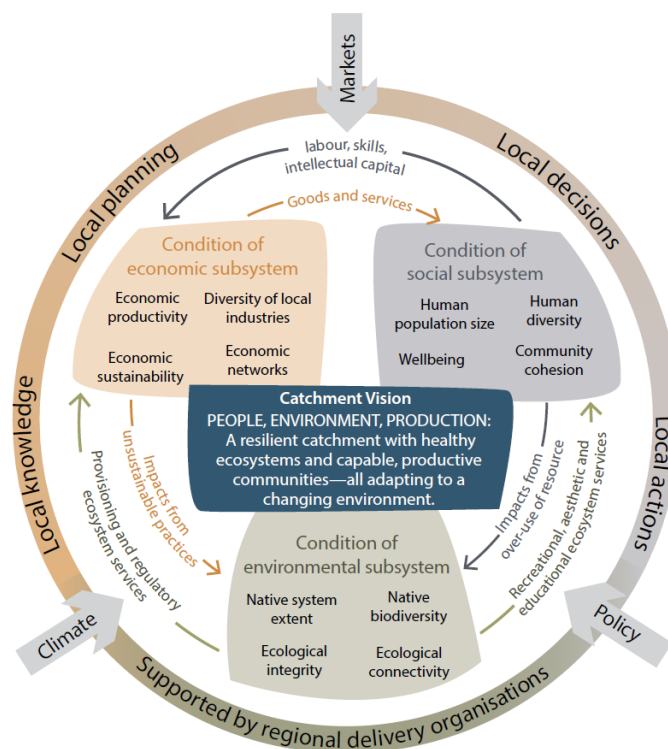


Figure 1: Conceptual model of the interaction between economic, social and ecological subsystems, Murray Upgraded Catchment Action Plan, 2013.

2.1.2 Sub-regional identification of critical issues

The application of systems logic led CMAs to divide their regions into smaller landscapes defined by similar social and ecological characteristics and recognisable by local communities. The upgraded plans describe these as socio-ecological landscapes or systems. This *'marked a great improvement over previous catchment action plans'*.⁹ Issues and actions were then prioritised according to their relevance to sub-regional landscapes.

Input to this work included staff expertise, stakeholder inputs, technical expertise and resilience analysis. This depth of knowledge builds confidence that the upgraded plans identify issues most critical to ensuring sustainable landscape management.

For example, the Border Rivers-Gwydir Catchment Action Plan divides the region into three landscapes that reflect its dominant landforms (tablelands, slopes and plains). It then further divides these into discrete socio-ecological landscapes that reflect local factors. The development of regional goals and investment priorities is informed by an understanding of the functional links between landscapes at different scales.

However, there was often an over-reliance on qualitative information and conventional wisdom, and insufficient analysis and testing of this against quantitative information and relevant theory. An independent technical reviewer praised the CMAs' analysis efforts while noting: *'All they [the CMAs] lack is more science to underpin the thinking and the analytical tools to more reliably set targets (along with the means to measure them).'*¹⁰ The CMAs monitoring, evaluation and reporting frameworks should address these knowledge gaps over time.

⁹ Abel, N. (2013), *Comments on the Catchment Action Plans and the assessment process*, report to the Natural Resources Commission, 22 May, Sydney.

¹⁰ Dangerfield, M. (2013), *op. cit.*

2.2 Robust and inclusive planning processes

Emphasis on the importance of people in the landscape provided the impetus for CMAs to improve their collaboration with community, industry and government stakeholders during the planning process. This provides a platform for ongoing strengthening and broadening of collaborative relationships in the future under LLS.

2.2.1 Increased community ownership

In developing their upgraded plans, CMAs held over 160 community meetings across 120 NSW towns. As a result, stakeholder input was more meaningful and planners could give proper weight to local concerns. A technical reviewer noted that *'when planning instruments convey a sense that community input actually gets translated into learning and action, community members become more motivated to achieve objectives and greater levels of cooperation emerge – these manifestations enhance actual plan outcomes'*.¹¹

Regionally appropriate approaches were used to encourage local input and several CMAs began working with stakeholders that were not effectively engaged in previous planning processes. Most CMAs worked more closely with primary industries, while other examples include Southern Rivers CMA incorporating health issues and Western CMA building closer relationships with Aboriginal elders.

Murray CMA led a highly successful approach to community participation that devolved responsibility for plan development to a skills-based Community Committee reporting to the CMA board. The result was a transparent plan that clearly articulates stakeholder objectives, has extensive community ownership, and provides a strong foundation for successful implementation.

Those involved in the plan upgrade processes now have a shared understanding of their region's landscape and priorities, and have had the opportunity to build new networks and connections within their communities. This has built social capital that will be helpful to draw on as the plans are implemented.

Despite the progress made through the upgrade processes, there is still a need for future planning and service delivery processes to encourage even greater community input, especially given the broader range of stakeholders that will be served through LLS functions.

2.2.2 Stronger whole-of-government collaboration

The former Natural Resource Management Senior Officers Group and its secretariat played a pivotal role in championing the whole-of-government upgrade process, which strengthened partnerships between government agencies and CMAs. Relevant state agencies shared information and knowledge on how their areas of focus (for example, biodiversity or water quality) could be integrated into the upgraded plans. CMAs were encouraged to align catchment priorities with related government policies, co-ordinate action and agree responsibilities for implementation.

For example, during their planning process the Northern Rivers CMA developed strong working relationships with government agencies through a whole-of-government reference

¹¹ Natural Resources Commission (2013), *Catchment Action Plan Assessment NSW*, report prepared by Coakes Consulting (social impact and community consultants), March-April 2013.

group. The CMA intends this same reference group to continue during the implementation of the catchment action plan, with specific project commitments to be made during the business planning stage.

Improved information sharing between agencies also facilitated greater alignment of actions. For example, the NSW Office of Water provided River Condition Index data for each region and was willing to work with CMAs to refine the data so it met regional needs while also ensuring consistency at a State level. Although some CMAs did not use this data during the planning stage, the majority are now working with the Office of Water to better understand priorities for regional river systems.

Relationships with regional delivery partners have also been reinforced and most catchment action plans outline an implementation planning stage that coincides with the delivery planning cycles of local government and State agencies.

All these factors are helping to promote greater collaborative implementation. However some government agencies remain hesitant to make specific commitments until their own priorities and funding are clearer.

A partnership requiring further development is with the Department of Planning and Infrastructure. The effectiveness and efficiency of regional plans would be greatly increased if regional development plans and catchment action plans were more closely aligned. This alignment process needs to work both ways, so that each regional plan informs the other as both are adapted and improved over time.

3 Transition to Local Land Services

During the first few years of Local Land Services (LLS) the upgraded catchment action plans will guide investment in natural resource management. It is critical that the Local Land Services demonstrate success during this transitional period.

While it will be some time before the benefits of the new planning approach can be proved on the ground, an independent technical review of best practice in national and international planning concluded that *'the approach to recent catchment action plan development [in New South Wales] is highly regarded . . . and acknowledged [by other Australian states] to be leading the way in natural resource management . . . The approach also contains all of the broad cutting edge directions in theory and practice evident in other forms of strategic planning'*.¹²

Given the reviewer comment above, there are advantages in carrying forward the best practice approaches developed through the plan upgrades, and identifying which aspects could be further developed and improved under the LLS model. The first two years of LLSs provide an opportunity to further test and refine the effectiveness of the new plans and learn how to apply systems and resilience approaches to plan implementation.

This Chapter aims to capture the lessons learned during the catchment action plan upgrades so that they may be of value to LLSs and their future strategic planning processes, including lessons around:

- leadership and governance
- regional strategic capacity
- knowledge of regional systems
- stakeholder engagement
- collaboration
- strategic prioritisation and measurability
- flexibility and adaptability.

This chapter concludes with the recommendation that the Minister engage the NRC to collaboratively develop a strategic planning framework, building upon lessons from the catchment action plan upgrades to inform the development of future LLS strategic planning processes and outputs.

3.1 Leadership and governance

The LLS concept of integrated regional service delivery has the potential to provide great benefit but also poses challenges. LLS responsibilities will be broader and more complex than those of the CMAs, and the integration of different service providers into one entity may take time as organisations with traditionally different cultures are reluctant to lose their own identity. Shared focus, collective leadership and good governance will be the key drivers in the long term success of the new organisations.

¹² Rod Griffith & Associates (2013), *op. cit.*

CMAs, and now LLSs, have an important role to play as facilitators of change in natural resource management, forming a bridge between government policy and community practice. As has been the case with CMAs, LLSs with good leadership and strong strategic capacity will be well-placed to link with other organisations and influence their thinking.

The NRC's catchment action plan assessments found a strong relationship between high quality plans and 'hands-on' Board participation in the upgrade process. This indicates that active leadership by an engaged board supported by good, adaptive governance arrangements is critical to effective strategic planning and innovation, particularly when the approach is new and challenging. For example, the Murray, Border Rivers-Gwydir and Southern Rivers CMAs all produced high quality plans. In each of these regions, the CMA Board and management were closely involved in developing their regions' plan, as well as demonstrating strong strategic planning capability.

The NRC also found that a much better plan was produced in regions where the CMAs employed the intellectual and creative capacity of their whole organisation rather than relying on a small number of staff.

Other noteworthy leadership strategies in the higher quality plans relate to how the CMA Board and management took advantage of the planning opportunity to:

- make the upgraded plans more relevant in a changing operating environment
- engage in structured community engagement to build relationships ahead of plan implementation
- embed improvements from past performance audits into their operating plans.

For Border Rivers-Gwydir and Murray CMAs in particular, the 2008 NRC catchment action plan implementation audit findings had been unfavourable. New leaders actively used these findings to drive organisational change with innovative approaches to planning resulting in very high quality upgraded plans.

Key finding for LLSs - leadership and governance

- High quality planning has been linked to active leadership by a Board with strong strategic planning capacity and good adaptive governance arrangements in place.

3.2 Regional strategic capacity

Devolution is founded on a belief in localism and that better outcomes are achieved if funding and responsibilities are given to the smallest capable decision-making body. Improvement in regional capacity is a critical component in supporting and building confidence in the devolved LLS model.

The NRC's assessments found that the systems-based, collaborative planning process further developed the already strong strategic capacity of most CMA Board members and staff. Some now have the confidence, strong governance and management skills to take devolution one step further.

The Murray CMA proved that skills-based community organisations are very effective when strong leadership and good governance arrangements are in place. It gave funding and responsibility for plan development to a sub-regional Community Committee that worked independently within the governance arrangements developed by the CMA. The outcome is a high quality catchment action plan with strong community ownership. *'The design and implementation of this strategy . . . underpinned effective community engagement, making communities feel valued and motivated to work with the MCMA'*.¹³ This clearly demonstrates the benefits of cascading devolution to capable, smaller scale committees.

Most CMAs successfully analysed complex economic, social, cultural and environmental factors at a range of scales to find practical solutions to landscape management issues. The plan upgrades have shown that regional bodies are in the best position to understand local priorities and to gain the commitment of relevant stakeholders. A technical reviewer pointed out: *' . . . CMAs lack resources and have no executive, policymaking or regulatory power in NRM [natural resource management]. CMAs are, however, bridging organisations that are able to link other parties, coordinate them and influence their thinking'*.¹⁴ This evidence strongly justifies a devolved approach to regional delivery.

Key finding for LLSs – regional strategic capacity

- Systems-based, collaborative planning processes developed the strategic capacity of most CMA Board members and staff, with some organisations having the confidence, governance and management skills to take devolution to the sub-regional level.

3.3 Knowledge of regional systems

The development of the upgraded plans has been a period of innovation in natural resource management and a demonstration of regional capacity and commitment. However, it is important to highlight the extent of change demanded by, and achieved through, the new systems-based approach. Putting any theory into practice for the first time demands a high degree of adaptability and learning. The upgraded catchment action plans prove the effort was worthwhile and build a strong foundation for learning to continue as the CMAs transition to LLSs.

3.3.1 Relevant knowledge

LLS will provide an important opportunity for production and conservation goals to be integrated institutionally and to be realised on the ground. To achieve this, knowledge must span economic, social and environmental values, animal health, biosecurity, agricultural innovation and emergency management.

While there are some specific biosecurity compliance obligations to be met, LLS will have to consider the linkages and complementarity between a wide range of economic, social, cultural and environmental factors in order to develop effective strategies and priorities for its other functions, such as plant and animal health, invasive species and agricultural advice. These LLS

¹³ Australian Government Rural Industries Research and Development Corporation (2013), *Transformation for resilient landscapes and communities: taking transformative action in the NSW Murray catchment region*, report prepared by R Griffith, P Ryan, M Mitchel, G Walkerden, and S Robinson, February.

¹⁴ Abel, N. (2013), *op. cit.*

functions are well-suited to systems analysis, as it provides a framework for understanding economic, social, cultural and environmental interactions within a region and the likely impacts, trade-offs and benefits associated with different resource uses or interventions.

The upgrade process established systems thinking as meaningful to land managers and a valuable tool for generating relevant and innovative stakeholder input. The accumulated knowledge of landholders, industry, government agencies, scientists and community groups was critical in developing high quality strategic plans.

The ability to capitalise on this knowledge base will depend on LLSs maintaining good information management, and effective monitoring, evaluation and reporting programs. Some CMAs have already developed systems that allow them to manage large amounts of information, meaning staff can readily access relevant knowledge when needed.

LLSs should maintain and further improve the CMAs' information management systems and monitoring, evaluation and reporting programs, preferably in collaboration with state agencies where appropriate. Information should be collected not only about the physical landscape, but also about social, economic and cultural factors within the region, including capturing information about interactions with partners and stakeholders to inform future project and consultation activities. This information should be shared and accessible throughout the LLS organisation.

LLSs could also explore the potential benefits of systems thinking in helping to integrate LLS functions and develop effective and efficient investments across their range of responsibilities.

3.3.2 Sub-regional analysis

LLS responsibilities will include biosecurity and animal health issues, for example diagnosing diseases and managing the risk of wider infection. In this context, knowledge of how social-ecological systems are linked across different scales is important in understanding how a disease might spread and in effectively managing the risks.

The links between landscapes at scales above and below the regional scale is an important part of systems thinking. The sub-regional analysis completed by most CMAs marked a great improvement over previous plans. It was very effective in clarifying links between scales and promoting community understanding of how management actions can impact on others, including those some distance away. This built critical knowledge and increased the likelihood that the right issues and appropriate management strategies were identified.

The sub-regional analysis undertaken in upgrading all catchment action plans, based principally on land use and communities of interest, provides valuable information for regional service delivery across NSW that can benefit the LLS model. These sub-regions have been mapped spatially at the state scale.

Key finding for LLSs - knowledge of regional systems

- Analysis of regional and sub-regional systems within the catchment action plans has laid a foundation that can be used by LLSs to gather new knowledge, integrate LLS functions and prioritise investments across their range of responsibilities.

3.4 Stakeholder engagement

Given the expanded range of functions and responsibilities, LLSs will need to respond to an even broader range of opinion than CMAs. There are potential benefits to LLSs building on CMA engagement strategies, such as Murray CMA's Community Committee, to gain important community acceptance and build effectiveness of the new model.

The improved stakeholder engagement in the upgrade process was driven in part by the priority given to economic and social values, which led CMAs to canvas a broader range of opinion. The systems approach, which made sense to landholders and generated a sub-regional focus, also encouraged more meaningful engagement.

In particular, the NRC found that incorporating input from local and regional industries into landscape analysis resulted in the generation of better strategies for resilient communities. With industry input, planning is more likely to take into account trade-offs where there are multiple potential uses for the same resources.

For example, the Southern Rivers CMA demonstrated particularly effective engagement with its region's industry stakeholders. These included dairy and beef farmers, small-scale producers, and oyster farmers. The result has been strong industry support for the upgraded plan and willingness to collaborate in its delivery.

The Senior Environment and Sustainability Officer at Bega Cheese wrote to the Southern Rivers CMA: *'It is pleasing that people, communities and economic viability of industries has been recognised in the plan and that it hasn't focussed singularly on restoring ecological systems. It is also pleasing that the Catchment Action Plan will continue to support profitable industries and partnerships with industry and community.'*

While the upgraded plans made progress in broadening the focus of community engagement to consider a wider range of economic, social and cultural issues, LLS will need to recognise these factors even more explicitly in future consultation and planning processes. LLSs can use these issues as a means of broadening community engagement beyond those groups and individuals traditionally associated with natural resource management, to try and bring together all those who have a stake in the local community.

Key finding for LLSs – stakeholder engagement

- CMAs have demonstrated the benefits of inclusive planning processes that consider economic, social, cultural and environmental issues, and have developed innovative engagement strategies that can be carried forward into LLSs.

3.5 Collaboration

The breadth of LLSs' responsibilities and their obligation to integrate service delivery brings into focus the relevance and potential benefits of well-structured collaboration between government agencies across all scales.

The upgrade process demonstrated the importance of state level whole-of-government coordination to improving regional plans. Collaboration between state agencies and CMAs

provided a strong knowledge base for planning and greater alignment between catchment action plans and other strategic natural resource management plans. A good outcome of the upgraded plans is the increased use of shared spatial data sets for identifying investment priorities, an example being the use of NSW Office of Water's spatial prioritisation products to identify shared priorities for the improvement of river health.

Greater alignment should lead to improved collaboration in catchment action plan implementation, co-ordination of on-ground action and better social and economic outcomes from investment in natural resource management. However, it is important to ensure that strategic collaboration does not slip into top-down control of regional practice.

Sub-regional landscapes in the upgraded plans have broad community support and will provide a focus for local collaboration in plan implementation. Such collaboration has been shown to increase landholder awareness and lead to ongoing private investment in managing land management issues.

Key finding for LLSs - collaboration

- Whole-of-government collaboration in the plan upgrades led to a better knowledge base, greater alignment within the NSW planning framework and a solid foundation for co-operative implementation of the plans.

3.6 Strategic prioritisation and measurability

Given the breadth of functions integrated within the new LLSs, it will be important to develop approaches to prioritisation and target-setting that will best support the LLSs in fulfilling these responsibilities and achieving desired outcomes. While it is likely that targets and priorities for biosecurity, animal health and some aspects of agricultural productivity will be more specific than those for natural resource management, it is important that planning across all functions provides guidance on strategic priorities and sets measurable targets to help track progress against stated objectives.

Most CMAs have significantly improved their data management and spatial analysis capabilities, often by collaborating with agencies and other CMAs. As a result most upgraded plans include maps showing key issues and priority areas for investment. However, there is much more that can be done in improving regional spatial capacity. The NRC's catchment action plan assessments also identified that most of the upgraded plans did not focus on strategic prioritisation and measurability of targets for natural resource management.

In terms of prioritisation, the CMAs did not extend their resilience and systems analyses to the point of identifying controlling variables to reduce the possible number of interventions to the most cost-effective actions. Further, the Northern Rivers and Hunter-Central Rivers plans both include a large number and range of strategies, and it is not clear which on-ground actions should be taken, or where. These plans have been approved with the condition that they further prioritise their strategies and actions.

Shortcomings in prioritisation within the new plans stem in part from a level of uncertainty around government investor preferences, as well as efforts to recognise the priorities of diverse

collaborators. More institutional and funding certainty, as well as more relevant science via monitoring and evaluation, is likely to promote clarity and refinement of strategic priorities.

When reflecting on previous targets, nearly all CMAs felt that the specific targets set in the first catchment action plans became obsolete in a short period of time. As a result, most upgraded plans now do not balance measurability and flexibility well, instead incorporating targets that are too broad and general in nature, which will make accountability problematic. Progress towards plan targets should be able to be measured through monitoring and evaluation programs linked to streamlined, transparent reporting frameworks.

The Border-Rivers Gwydir Catchment Action Plan is a notable exception. Its targets are specific, measurable, achievable, relevant, time-bound, and contain sufficient detail to enable delivery partners to plan actions that will contribute to the agreed goals. The CMA will use adaptive planning to accommodate changes if needed. The other catchment action plans, however, require more specific and realistic targets for each goal to improve their accountability.

Key finding for LLSs – strategic prioritisation and measurability

- The upgraded catchment action plans would benefit from more work being done by the LLSs in refining strategic priorities and setting more specific targets.
- Plan accountability and prioritisation decisions should be supported by a strong monitoring and evaluation program and streamlined reporting frameworks.

3.7 Flexibility and adaptability

LLSs will be operating in a dynamic space with a complex range of landscape management issues and finite resources with which to address them. In order to be effective in this challenging environment, these organisations will need to be flexible in how they identify, prioritise and address issues within their region. Nearly all of the upgraded catchment action plans include adaptation strategies that will facilitate well-considered responses to change and maintain the relevance of plans over time.

This does not mean that the plans will be changed arbitrarily. A resilience approach emphasises the importance of measuring, and then understanding and managing change both within and across geographic, temporal and institutional scales. Natural landscapes, together with social and economic drivers, are highly variable. Strategic planning therefore needs to be dynamic and responsive.

'There is widespread acceptance that the world is changing fast and is increasingly unpredictable. . . . CMAs can communicate widely with communities, business, departments and local governments troubled by these growing uncertainties, and offer ways of thinking about them and making practical adaptations. Natural resource management will not be 'business as usual' in the coming decades, because it cannot be, because the world will be different. What will determine the effectiveness of natural resource management in these changing circumstances will probably be the numbers and social influence of people who shift the way they think about natural resource management to a new and better paradigm, and the CMAs and NRC are well placed to affect this'.¹⁵

¹⁵ Abel, N. (2013), *op. cit.*

Adaptation strategies within the upgraded plans are supported by a better understanding of regional and sub-regional issues and the range of appropriate management actions. If good monitoring and evaluation systems are established, this will provide a foundation for understanding the implications of change from community and scientific perspectives and if necessary, for re-prioritising investment programs from a range of suitable alternative actions.

In some upgraded plans, for example Northern Rivers and Border Rivers-Gwydir, this understanding extends to looking beyond regional borders to considering cross-border issues. More broadly applied, this approach confers collective adaptability and enables appropriate, agile responses to multi-jurisdictional problems.

Most plans outline the range of events that may trigger the need for adaptation and how this will be carried out. As a result, the CMAs have the flexibility to respond appropriately and in a timely manner to changes in, for example, natural disasters, government policies/legislation, significant new knowledge, or delivery partner priorities or funding.

The upgraded Hunter-Central Rivers Catchment Action Plan does this well by identifying a comprehensive list of the events or changes that may require the plan to be adapted. It also outlines a periodic review process for the four-year rolling implementation plan, the annual investment plan, and the strategic Catchment Action Plan.

Key finding for LLSs - flexibility and adaptability

- The upgraded catchment action plans include adaptation strategies that will facilitate well-considered responses to change and maintain the relevance of plans over time.

3.8 NRC recommendation

The process used to develop the upgraded plans was robust and inclusive and reflects planning best practice internationally. The new LLS strategic planning process for biosecurity, agricultural productivity and emergency management as well as natural resource management should be informed by what worked in the upgrade process.

NRC Recommendation

It is recommended that the NRC be engaged to collaboratively develop a strategic planning framework with new LLS Chairs, General Managers, Department of Primary Industries, Office of Environment and Heritage and other key stakeholders.

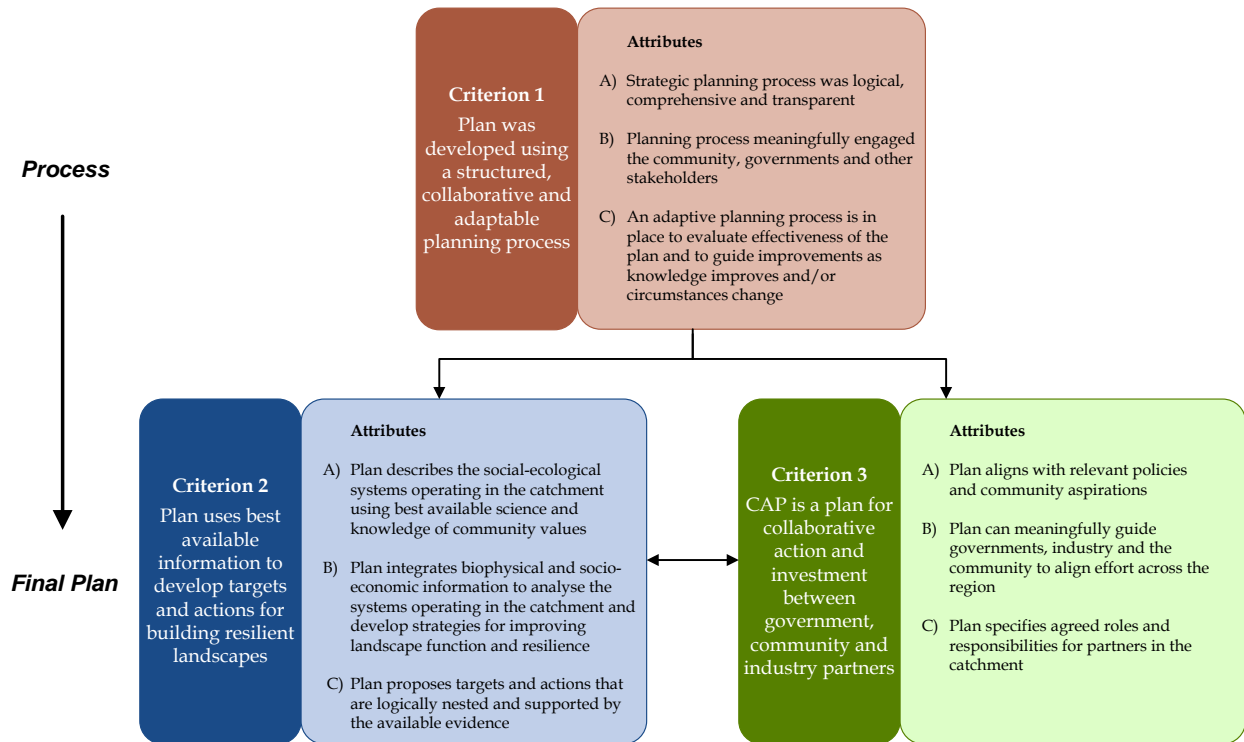
Specific practices that worked in the catchment action plan upgrade process would be used to identify what should be transferred and built upon to inform the development of the future LLS strategic planning process and outputs.

The framework would also be directly informed by good practices and requirements in biosecurity, agricultural productivity and emergency management planning.

Attachment 1 - The NRC Assessment

The NRC, through a pilot assessment with Central West and Namoi CMAs in 2011 and in collaboration with all catchment management authorities and key government agencies, developed a framework for upgrading catchment action plans.¹⁶ The framework outlined the standards expected of regional landscape management planning.

Criteria to assess whether the Catchment Action Plan is a quality, strategic natural resource management plan are shown in the diagram below.



¹⁶ Natural Resources Commission (2011), *Framework for assessing and recommending upgraded catchment action plans*, Sydney. Available at: <http://nrc.nsw.gov.au/Workwedo/Catchmentactionplanreviews.aspx>

