Central Tablelands
Local Land Services
Transitional Catchment Action Plan

NSW GOVERNMENT | Local Land Services Central Tablelands

Disclaimer

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Executive Summary

About the Transitional Catchment Action Plan

2014 will see the establishment of Local Land Services (LLS) in NSW. LLS will bring together the Livestock Health and Pest Authorities and Catchment Management Authorities and part of the Department of Primary Industries into an organisation focussed on effective and efficient regional service delivery. LLS will have broad roles across natural resource management (NRM), provision of agricultural advice, biosecurity and plant and animal pest control.

Eleven LLS regions will be established. Each will be led by a local Board, with local staff responsible for day to day management and delivery. Over its first few years of operation, each LLS Board will develop a Local Strategic Plan covering all its areas of activity.

In the initial stages of LLS operation, Catchment Action Plans (CAPs) provide the best framework for strategic delivery of NRM. Given the existing CAPs do not align with LLS regions, some have been amended into Transitional CAPs.

This Transitional Central Tablelands CAP has been primarily developed from the Central West and Lachlan CAPs, supplemented by input from the Hawkesbury Nepean CAP and Hunter Central Rivers CAP. New CAPs for these four regions were only recently approved by the Minister for Primary Industries, therefore a complete rewrite of the CAPs was not required. Instead, the key components of those CAPs have been retained, with a particular focus on:

- utilising the existing information and knowledge base
- keeping the strong community ownership
- using the existing vision, goals, strategies and actions. This has required a synthesis of the approaches in the individual CAPs and the development of a new set of priorities to reflect the LLS region and operations
- maintaining the whole of government approach

The previous work of the CMAs, community and government has not been lost in the development of the Transitional CAP, instead it has been reviewed, synthesised and prioritised to meet LLS requirements. Some new data and information has been generated, especially for the new local landscape profiles, but the strategic foundation of the Transitional CAP remains strongly grounded in the previous work of the CMAs and their local communities and government agencies. No new actions, goals or strategies have been developed, but the Transitional CAP does have a stronger focus on priority actions. As the CMAs have recently liaised extensively with NSW natural resource management agencies and the community, consultation was not required to be undertaken during the transition phase.

The Central Tablelands Transitional CAP deliberately shares a large number of common elements with the Central West Transitional CAP. This is seen as a strength in the initial stages of the Central West and Central Tablelands LLSs, because it will allow the robustness of the previously developed and assessed CAPs to be used for NRM delivery and also facilitate whole of catchment approaches where required (eg for surface water management issues).

The Transitional CAP is intended for internal use by the CMAs and Central Tablelands LLS. It is focussed on synthesising NRM goals, strategies, actions and targets with considerable additional background available in the four CAPs used in its development. As an interim document, it will not be formally reviewed by the Natural Resources Commission or submitted to the Minister for Primary Industries for approval, but an informal appraisal by the NRC and Minister will take place.

The Central Tablelands LLS Region

The Central Tablelands region is located in central NSW and covers an area of approximately 31,365 km^2. It includes the major towns of Bathurst, Blayney, Cowra, Lithgow, Molong, Mudgee, Oberon and Orange and falls predominantly within Wiradjuri Aboriginal country.

The region is home to over 156,000 residents including an Aboriginal population of 7,012 (4.5% of the population). The area includes properties that together make up 4.2% of NSW's annual value of agricultural production, includes almost 10% of NSW's agricultural business and contains 3.2% of NSW's agricultural land. Approximately 7% of the region's population is employed in agriculture, fisheries and forestry. The region also encompasses eight local government areas (LGAs) and comprises 3% of the Murray-Darling Basin.

The region has a number of natural resource assets such as national parks and culturally significant areas and is home to a vast range of native fauna and flora with some of these being listed as threatened or endangered.

The Central Tablelands is home to a diverse range of industries including the major retail centres of Bathurst and Orange and the major university city of Bathurst. Other significant industries across the Central Tablelands include mining operations which are focused around Orange, Lithgow and Mudgee. While a number of tourism operations exist right across the region including significant wineries at Orange, Cowra and Mudgee.

Agriculturally, the region is highly diverse, adding to the complexity of NRM issues. Evenly spread summer and winter rainfall supports productive cropping systems with grazing the most significant land use followed by broad acre crops and horticultural enterprises including areas of fruit and vegetable growing and viticulture.

The variations in landform, agricultural industries, natural resources, biodiversity and communities across the Central Tablelands LLS region have been used to divide the region into three local landscapes. These are areas of common interest and connection within an integrated system of people, land, water and biodiversity (Figure 1)

While the three local landscapes in the Central Tablelands LLS region are depicted with a boundary, these are deliberately fuzzy in recognition of the flexibility and lack of precision of the systems and because there is a high degree of interaction between adjoining local landscapes. The local landscapes are also influenced by, and function within, larger systems and smaller systems both inside and outside the region.

Figure 1 Central Tablelands LLS Region and its three local landscapes

How the Transitional CAP was developed

For almost ten years, Catchment Action Plans (CAPs) have been the key strategic planning tool for regional NRM in NSW. The CAPs have been developed in accordance with the requirements of each CMA, aligned with state wide standards and priorities and incorporated a high degree of community and government input.

The four CAPs which have been used to develop the Central Tablelands Transitional CAP have been subject to continual improvement and adaptive management processes, based around a general "plan, do, review" process, with new data and information included as it comes to hand. Major reviews have been undertaken after set periods, or in response to significant changes in the CMAs' operating environment. In this instance, the establishment of LLS, as a major change to the operating environment, has triggered a major review of the CAPs.

The key changes to the Central Tablelands Transitional Catchment Action Plan are outlined in Figure 2.

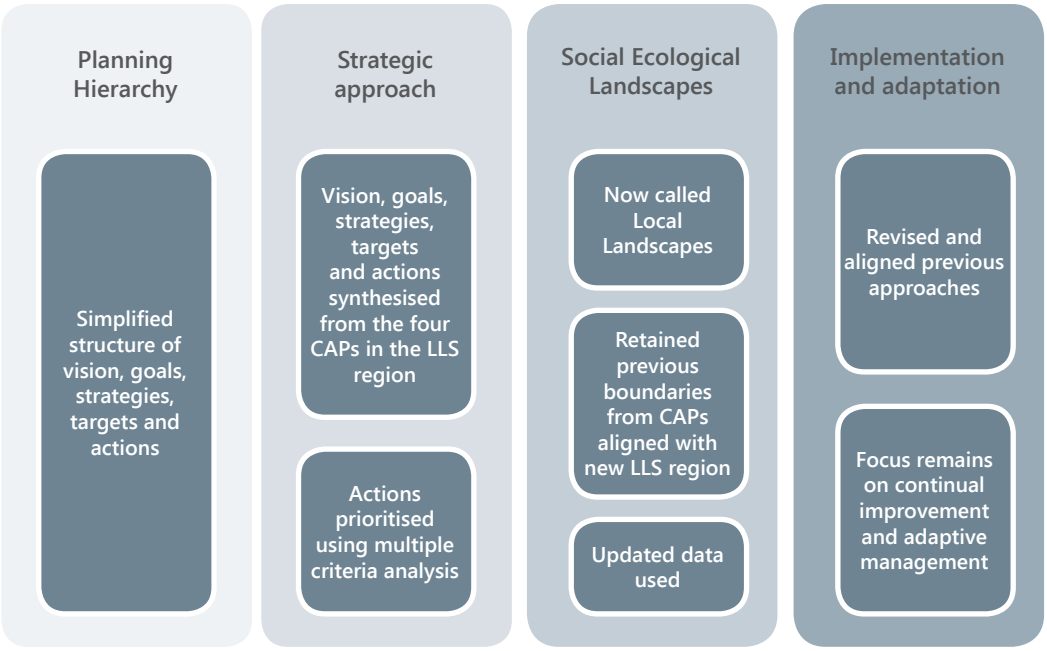


Figure 2 High level summary of key changes in the development of the Transitional CAP

In the development of the Transitional CAP, new data and information was only included where it was specifically required. This mostly relates to the changes in the boundary of the Central Tablelands LLS region, and the need to include a different set of descriptive data. The vision, goals, strategies, targets and actions were consolidated and refined from the four existing CAPs via a rapid review, workshops and expert panels involving the CMAs and selected consultants.

The actions were also synthesised using a simple multiple criteria analysis based on:

- community ownership
- project partners
- the strength of the evidence for the action
- regional significance of the action
- ability to measure progress

The planning hierarchy

The Transitional CAP uses a streamlined planning hierarchy that aligns the vision through to targets, with a strong emphasis on priority goals, strategies and actions (Figure 3).

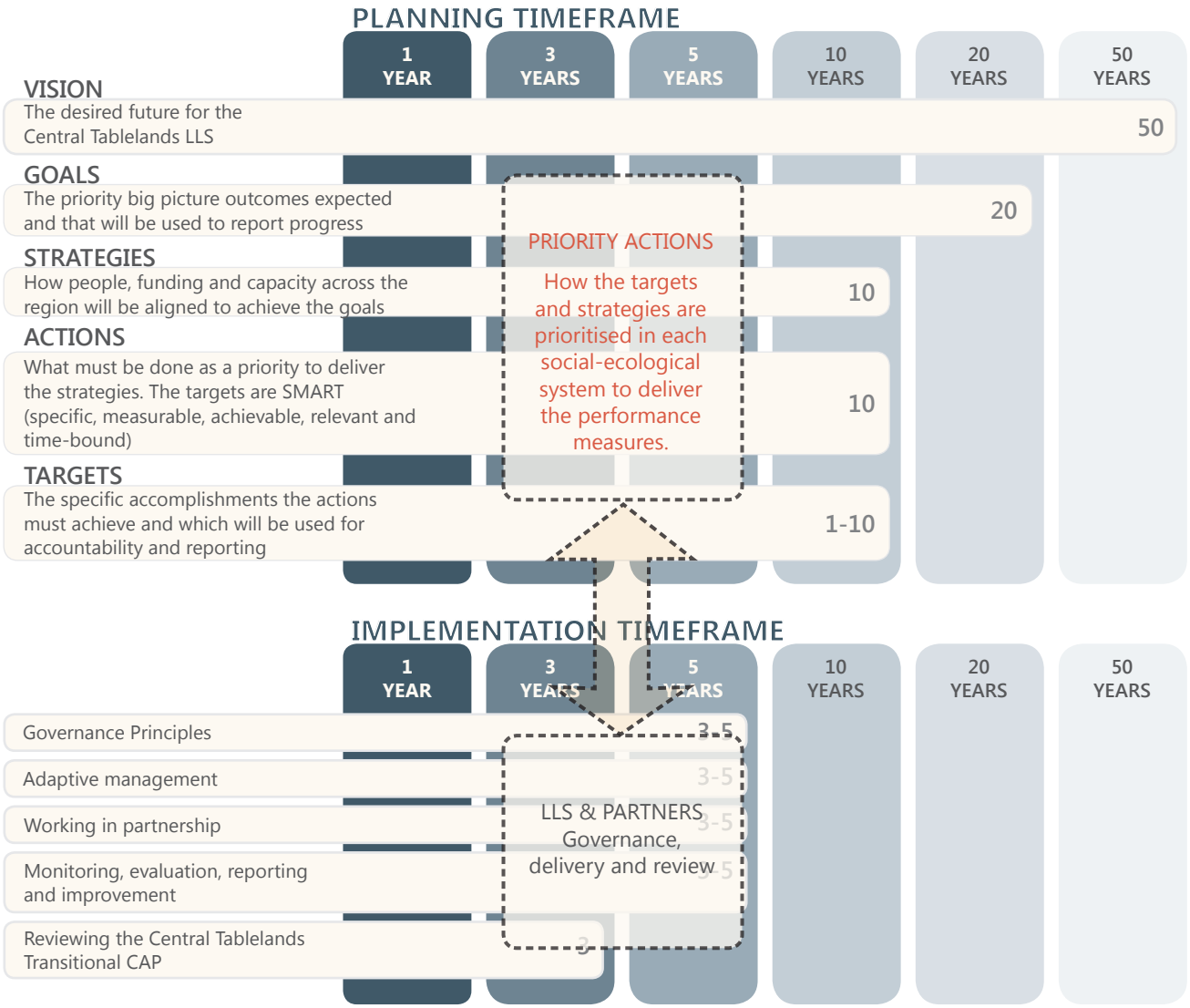


Figure 3 Planning hierarchy

Plan snapshot

Goal	Strategy	Actions
ENVIRONMENT G1. To improve and maintain the condition of the natural environment	S1. To improve the extent, condition and connectivity of native vegetation	A1.1 Recreate and enhance connectivity for native species A1.2 Maintain and increase extent and condition of native grasslands A1.3 Increase and maintain area of native woody vegetation to above 30% threshold with at least 15% within the National Reserve System A1.4 Improve and/or maintain extent and condition of remnant and larger vegetation patches A1.5 Reduce impacts of key threatening processes on threatened species A1.6 Reinstate natural fire regimes for dry sclerophyll forest and semi arid grassy/shrubby woodland
	S2. To improve the stability, condition and connectivity of water assets	A2.1 Encourage Best Management Practices to manage threatening processes (invasive species, pollution, cold water pollution, barriers etc) A2.2 Improve water use, reuse and recycling A2.3 Priority Groundwater Dependent Ecosystems and ground water sources identified and resilience analysis complete A2.4 Rehabilitate / enhance riparian and floodplain habitat for recovery of priority reaches and conservation reaches (bed, bank, vegetation etc) A2.5 All water sharing plans contributing to management of priority river reaches, GDEs and ecological outcomes
PROFITABLE FARMING SYSTEMS G2. To achieve more profitable, healthy and resilient farmland	S3. To increase uptake of best farming practices to enable resource use efficiency	A3.1 Increase adoption of improved cropping management A3.2 Increase adoption of improved grazing management A3.3 Deliver initiatives to manage total grazing pressure to maintain ground cover levels
	S4. To assist farmers manage threatening processes impacting on productivity (including disease, pests, weeds, grazing pressure)	A4.1 Reduce impacts of pest plant and animal species A4.2 Manage threatening processes e.g. acidity, erosion, salinity
	S5. To improve the ability of farm enterprises to manage economic, biological and climatic variability	A5.1 Support landholders in farm planning and access to decision making tools A5.2 Support and provide information and technology to enable adoption of practices with both productivity and environmental outcomes A5.3 Encourage and support improved water use efficiency by landholders A5.4 Explore barriers to the introduction of improved water delivery systems and irrigation management by industry and land managers

COMMUNITIES G3. To improve social and economic capacity and wellbeing through management of natural resources	S6. Increase the extent of landholder capacity to manage for triple bottom line outcomes	A6.1 Education and training opportunities (including identifying BMPs) A6.2 Leveraging funding for incentive programs
	S7. Increase protection and utilisation of cultural values and traditional ecological knowledge	A7.1 Encourage Aboriginal involvement in NRM, including employment opportunities A7.2 Build awareness and encourage use of traditional ecological knowledge A7.3 Awareness and management of culturally significant sites, flora and fauna
	S8. Improve opportunities for community participation and contribution to NRM decision making processes and the health of socio-ecological landscapes	A8.1 Provide leadership, mentoring and peer support programs that encourage knowledge sharing A8.2 Provide opportunities for community participation and contribution to NRM decision making processes A8.3 Develop and support sustainable partnerships and networks within the community A8.4 Facilitate community access to culturally important areas (awareness raising, facilitate partnerships and informal access arrangements)

Description of the planning process

Transitioning from CMA to LLS

2014 will see the establishment of Local Land Services (LLS) in NSW. LLS will bring together the Livestock Health and Pest Authorities and Catchment Management Authorities (CMAs) and part of the Department of Primary Industries into an organisation with broad roles across natural resource management (NRM), agricultural advice, biosecurity and plant and animal pest control.

Eleven LLS regions will be established and each will be governed by a local Board. The LLS Board will develop a Local Strategic Plan but in the initial stages of LLS operation, Catchment Action Plans (CAPs) provide the best framework for strategic delivery of NRM. The Central Tablelands LLS comprises areas previously within the Lachlan and Central West CMA regions with smaller areas from the Hawkesbury Nepean and Hunter Central Rivers CMA regions.

About the Transitional CAP

This Transitional Central Tablelands CAP is intended to be an internal planning document that will be used to direct NRM activity and investment across the Central Tablelands LLS region.

The Transitional CAP has been primarily developed from the Central West and Lachlan CAPs, supplemented by input from the Hawkesbury Nepean CAP. The Hunter Central Rivers CAP was reviewed, but the lack of targets at the local landscape level meant that only a small amount was able to be incorporated in the Transitional CAP. However, the key components of the four CAPs have still been retained, with a particular focus on:

- utilising the existing information and knowledge base
- keeping the strong community ownership
- using the existing vision, goals, strategies and actions
- maintaining the whole of government approach

The strategic foundation of the Central Tablelands Transitional CAP is very strongly grounded in the previous work of the CMAs and their local communities and government agencies. The strategies, goals, actions and targets have been reviewed, synthesised and prioritised to meet LLS requirements, but there is no fundamental change to the strategic approach. However, new information describing the local landscapes of the Central Tablelands LLS region has been included.

The organisational and planning arrangements for the LLS transition are summarised in Figure 4 below.

Figure 4 Organisational and planning arrangements for LLS transition

The Central Tablelands Transitional CAP deliberately shares a large number of common elements with the Central West Transitional CAP. This will allow the robustness of the previously developed and assessed CAPs to be used for initial NRM delivery in LLS and facilitate whole of catchment approaches where required (eg for surface water management issues across the length of the Macquarie and Lachlan Rivers).

Development of the Transitional CAP

In developing the Transitional CAP it was critical that the fundamental thinking of the Lachlan, Central West, Hawkesbury-Nepean and Hunter-Central Rivers CAPs be retained, to ensure ongoing strong community ownership. It was also essential that the interim plan be directly relevant to the new LLS region. These considerations are reflected in the process used to develop the interim plan:

- A review of the four CAP's and their supporting material
- Collation of information from the four CAPs that aligns with the Central Tablelands LLS region
- Review of NRC guidance materials, in particular *Upgrading Catchment Action Plans: Lessons for Local Land Services and Better practice guide – Transitional catchment action plans*
- Identification and mapping of sub-regions (referred to as local landscapes) based on physical landscape characteristics, land use and social characteristics
- Preparation of new local landscape summaries
- Workshops with staff from the Central West and Lachlan CMAs to develop a vision, goals, strategies and actions for the Central Tablelands LLS region which reflect the intent of original CAPs and demonstrate local priorities

Guiding principles of the CAP development

Building on the past

The Lachlan, Central West, Hawkesbury-Nepean and Hunter-Central Rivers catchments all have a strong record of achievement in NRM, stretching back as far as the early Soil Conservation Service programs of the 1930s.

In the 1990s, the catchments' communities enthusiastically embraced the Landcare movement and Total Catchment Management. Catchment scale planning became more formalised with the establishment of Catchment Management Boards in 1999. Catchment Management Authorities commenced operations in 2004 and have delivered a large range of outcomes in partnership with the community.

The CMAs published the first CAPs in 1996. These plans outlined the strategic directions for NRM in the catchments through to 2016. The CAPs combined community goals for the catchment with local, state and federal government guidelines for natural resources, with the targets set specifically to align with the state-wide targets for NRM.

Developing a community-driven plan

This Transitional CAP is underpinned by the substantial work undertaken when developing the upgraded CAPs for the Lachlan, Central West, Hawkesbury-Nepean and Hunter-Central Rivers catchments. This included a comprehensive review of the 2006 Plans and the experiences and incorporation of the knowledge gained by the CMAs and their partners since 2004.

For example, in developing the upgraded Lachlan CAP the CMA made over 1,000 points of contact to capture the opinions, experiences and knowledge of a wide range of community, stakeholders and technical knowledge holders. Specific engagement plans were also developed for key stakeholders including local government, Landcare and Aboriginal communities.

Supported by knowledge diversity

The Transitional CAP was developed to capture the diversity of knowledge within existing CAPs and the CMAs.

The existing CAPs were developed to be scientifically and technically accurate. This was achieved through an extensive process involving:

- the establishment of technical panels for specific NRM aspects including recognised leading landholders, technical based experts, and key knowledge holders in ecological or social elements of the system, including Traditional Ecological Knowledge
- the commissioning and reviewing of scientific studies and reports.

This knowledge was used to generate a resilience assessment for each socio-ecological system which identified system status, system drivers/controlling variables, feedbacks, thresholds and possible interventions for each system. A risk-based approach was used to understand the likelihood and consequences of each system driver and to identify priorities for each system.

Central Tablelands local landscapes

The Central Tablelands LLS region

The Central Tablelands region is located in central NSW and covers an area of approximately 31,365 km^2. It includes the major towns of Bathurst, Blayney, Cowra, Lithgow, Molong, Mudgee, Oberon and Orange and falls predominantly within Wiradjuri Aboriginal country.

The region is home to over 156,000 residents including an Indigenous population of 7,012 (4.5% of the population). The area includes properties that together make up 4.2% of NSW's annual value of agricultural production, includes almost 10% of NSW's agricultural business and contains 3.2% of NSW's agricultural land. Approximately 7% of the region's population is employed in agriculture, fisheries and forestry. The region also encompasses eight local government areas (LGAs) and comprises 3% of the Murray-Darling Basin.

The area has a number of natural resource assets such as national parks and culturally significant areas and is home to a vast range of native fauna and flora with some of these being listed as threatened or endangered.

The Central Tablelands is home to a diverse range of industries including the major retail centres of Bathurst and Orange and the major university city of Bathurst. Other significant industries across the Central Tablelands include mining operations which are focused around Orange, Lithgow and Mudgee. While a number of tourism operations exist right across the region including significant wineries at Orange, Cowra and Mudgee.

Agriculturally, the region is highly diverse, adding to the complexity of NRM issues. Evenly spread summer and winter rainfall supports productive cropping systems with grazing the most significant land use followed by broad acre crops and horticultural enterprises including areas of fruit and vegetable growing and viticulture.

The undulating terrain lends itself to extensive grazing enterprises throughout the region. Sheep and lambs are the largest livestock enterprises with approximately 4 million head, followed by 441,000 head of beef cattle and smaller numbers of goats, horses, pigs and chickens.

Cropping activities within the region have a combined gross value of $156.4 million with cereal crops, predominately wheat, accounting for 34% of the total gross value of cropping production. Canola is the most significant non-cereal crop with a gross value of production of $15.9 million (10% of total).

Horticultural crops are also significant within the Central Tablelands with apples accounting for approximately $29 million of gross value of agricultural production (35% of the gross value of NSW pomme fruit production) with all these areas concentrated around Orange. Vegetable production has a gross value of $30.5 million with sweet corn, cauliflower, melons and pumpkins being the main produce. Grapes for wine production represent about 6% of the total value of agricultural production with Orange, Mudgee, Canowindra and Cowra being the main growing regions. There are also large areas of softwood timber plantations around Oberon and Lithgow.

Total Area	3,136,500 hectares		
Agricltural land use	**Land use**	**ha**	**%**
	Grazing (improved)	910,906	49%
	Grazing (unimproved)	582,056	32%
	Cropping	208,057	11%
	Farm conservation	91,693	5%
	Farm forestry	3,305	0%
	Other agriculture	2,547	0%
	Other	43,765	2%
Local landscapes	Slopes, Tablelands and Mixed Farming Slopes		
Local government areas	Bathurst Regional, Blayney, Cabonne, Cowra, Lithgow, Mid-Western Regional, Oberon and Orange		
Major urban centres	Bathurst, Blayney, Canowindra, Cowra, Gulgong, Kandos, Lithgow, Manildra, Millthorpe, Molong, Mudgee, Oberon, Orange, Portland, Rylstone and Wallerawang		
Human assets			
Population	156,047		
Aboriginal population	7,012 (4.5%) (Range 2.9% Blayney – 6.5% Cowra)		
Nations	Wiradjuri		
Median age	40 years (Range: 36 years Bathurst and Orange – 45 years Cowra) Median age NSW – 38 years		
Economic assets			
Median weekly household income	$1,012 (Range: $785 Cowra - $1,161 Orange)		
Number employed in LLS	61,925		
Employed in agriculture, fisheries and forestry	4,349 (7% of total employment)		
Unemployed	5.35% (Range: 3.8% Cabonne – 6.8% Cowra) Average unemployment NSW 5.9%		
Industry of employment by sector (top five responses)	School education Sheep, beef cattle and grain farming Cafes, restaurants and takeaway food services Coal mining Hospitals		
Occupied private dwellings	57,552		
Number of agri-businesses	4,084		
Total area occupied by agriculture	1,841,901 ha		
Land area per holding	451 ha		
Value of agriculture	$488,500,000 per annum		
Value of agriculture per hectare of agricultural land	$265		
Value of crops (excluding hay)	$156,400,000 (wheat 28%, vegetables 20%, apples 18%, canola 10%, grapes 6%)		
Value of livestock slaughtered	$190,800,000 (cattle 64%, sheep and lambs 32%, poultry 2%, pigs < 2%))		
Value of livestock products	$102,400,000 (wool 82%, milk 9%, eggs 9%)		
Natural assets			
Average annual rainfall across LLS region	755mm (Range 622mm Cowra – 924mm Orange)		
Major rivers	Abercrombie, Lachlan, Macquarie and Castlereagh		

Table 1 Snapshot of the region

Local landscapes in the Central Tablelands region

The Central Tablelands region has considerable variations in landscapes, agricultural industries, natural resources and communities. The community consultation undertaken as part of the development of the earlier CAPs has resulted in the identification of three local landscapes (Figure 5). These local landscapes nest within the Central Tablelands LLS region and provide a way to consider common interests and connection at local scale within an integrated system of people, land and biodiversity. They are used in the Transitional CAP to guide decision making at a scale that is appropriate at property, business or local level.

Determining local landscapes

The Central Tablelands local landscapes were developed by relevant staff from the Lachlan and Central West CMAs based on:

- The consultation and landscapes from the earlier CAPs
- Land use
- Environmental characteristics (e.g. IBRA regions, rainfall isobars, climatic zones, soil types, topography, broad vegetation types)
- A shared sense of place (e.g. association to service centres, common culture, self-identity).

The Mixed Farming Slopes and Tablelands local landscapes were split based on a delineation in land use from cropping in the west to grazing in the east, while the split between the Slopes and Tablelands local landscapes was based around a stronger 'shared sense of place.' This split took into consideration natural landforms which separate the two local landscapes and the social and community links that operate within landscapes.

Figure 5 Local landscapes within the Central Tablelands region

Slopes

The Slopes local landscape includes the towns of Mudgee, Gulgong, Kandos and Rylstone and covers 807,915 ha, the large majority of which is contained in the Mid-Western Regional LGA. The landscape comprises hilly, grazing country which is timbered to the south and to the east across to Rylstone. The area around Mudgee consists of undulating plains and flats.

Mudgee is the largest town, with a population of approximately 22,318. It is the location of more than 40 wineries and as a result it is a popular town for permanent city-based weekenders. Mudgee has a diverse local economy which is underpinned by tourism, agricultural production (particularly viticulture) and mining. Lake Windamere also supports agriculture in the Cudgegong Valley region. Mudgee is renowned as a popular tourist destination for its wine and food. There are also several well recognised national parks in this diverse local landscape.

Total Area	815,490 hectares	
Agricltural land use	**Land use**	%
	Grazing (improved)	40%
	Grazing (unimproved)	45%
	Cropping	7%
	Farm conservation	5%
	Other	3%
% of LLS region	26%	
Local government areas	Mid-Western Regional	
Major urban centres	Mudgee, Gulgong, Kandos, Rylstone	
Human assets		
Population	22,318 (for the LGAs where the major urban centres fall within the local landscape)	
Aboriginal population	870	
Median age	41 years Median age NSW – 38 years	
Economic assets		
Median weekly household income	$929	
Unemployed	5.70%	
Industry of employment by sector (top five responses)	Coal mining Sheep, beef cattle and grain farming School education Cafes, restaurants and takeaway food services Supermarket and grocery stores	
Number of agri-businesses	807	
Total area occupied by agriculture	457,960 ha	
Land area per holding	567 ha	
Value of agriculture	63,100,000	
Value of agriculture per hectare of agricultural land	$138/ha	
Top five agricultural enterprises by value	Cattle Wool Sheep Grapes Pigs	
Natural assets		
Average annual rainfall across LLS region	622mm	
Environmentally or culturally significant sites	Scheyville National Park, Wollemi National Park	
Systems with thresholds of potential concern in the Slopes	• High fragility river reaches, for example Cox's Creek • Moderate fragility river reaches, for example Little River • Dry sclerophyll forest, for example Mount Frome and Mount Knowles • Semi arid shrubby woodlands, for example Bimble Box communities • Grassy woodlands and grasslands, for example Home Rule Common	

Table 2 Slopes local landscape at a glance

Tablelands

The Tablelands local landscape includes the towns of Orange, Bathurst, Blayney, Oberon and Lithgow and covers 1,557,756 ha. It is dominated by a temperate climate, with warm summers and no dry season. Areas around Orange and Oberon are higher than the rest of the local landscape with much milder summers and some snow falls in winter. Rainfall averages 900 mm annually.

This area is made up of Palaeozoic granites, metamorphosed sedimentary rocks and Tertiary basalts and is part of the Lachlan fold belt. The oldest rocks are around Lucknow while the youngest are the Bathurst granites which are about 325 million years old. Volcanic activity was widespread in this area, with Canobolas a central volcano 50km in diameter and now significantly eroded.

Other significant features include mine sites at Hill End, Cadia, Sunny Corner and Burraga and their associated heritage, as well as limestone gorges and fossil sites at Borenore and Molong. The area is renowned for its stone fruit, as well as fresh and processed vegetables, with Orange developing a growing reputation as a food and wine region.

This area is dominated by the large towns of Bathurst and Orange, which are each home to nearly 40,000 people and have experienced significant residential development in recent years. Charles Sturt University has campuses at Bathurst and Orange, while there are a number of government agencies in this region, including the head office of the Department of Primary Industries in Orange.

Eastern areas of this local landscape overlay the outer part of the Sydney drinking water catchment. Landholders in this area have been working with government for many years to reduce soil erosion, sediment and nutrient runoff. This area also borders the Greater Blue Mountain World Heritage Area (GBMWHA), these buffer areas are particularly important for integrated management of pest species (weeds and feral animals) by landholders and reserve managers for both local production and protection of the region's biodiversity.

Total Area	1,568,250 hectares	
Agricltural land use	Land use	%
	Grazing (improved)	58%
	Grazing (unimproved)	30%
	Cropping	5%
	Farm conservation	6%
	Other	1%
% of LLS region	50%	
Local government areas	Bathurst, Regional, Blayney, Cabonne, Lithgow Mid-Western Regional, Oberon and Orange	
Major urban centres	Bathurst, Blayney, Lithgow, Millthorpe, Oberon, Orange, Portland and Wallerawang	
Human assets		
Population	108,761 (for the LGAs where the major urban centres falls within the local landscape)	
Aboriginal population	4,950	

Median age	40 years (Range: 36 years Bathurst and Orange – 42 years Lithgow) Median age NSW – 38 years
Economic assets	
Median weekly household income	$1,092 (Range: $896 Lithgow - $1,161 Orange)
Unemployed	5.70% (Range: 4.4% Orange – 7.2% Lithgow)
Industry of employment by sector (top five responses)	School education Cafes, restaurants and takeaway food services Hospitals Coal mining State government
Number of agri-businesses	1,792
Total area occupied by agriculture	674,610 ha
Land area per holding	376 ha
Value of agriculture	159,400,000
Value of agriculture per hectare of agricultural land	$236/ha
Top five agricultural enterprises by value	Cattle Wool Sheep Vegetables Eggs
Natural assets	
Average annual rainfall across LLS region	808mm
Environmentally or culturally significant sites	Jenolan Caves, Kanangra Boyd National Park
Systems with thresholds of potential concern in the Slopes	• High fragility river reaches, for example Upper Georges Plains Creek • Moderate fragility river reaches, for example the Macquarie River downstream of Bathurst • Semi arid floodplain swamp, for example Oberon Wetlands • Bathurst / Raglan granite derived soils, for example Bathurst Plains • Dry sclerophyll forest, for example Ophir Reserve • Grassy woodlands and grasslands, for example Peel Reserve

Table 3 Tablelands local landscape at a glance

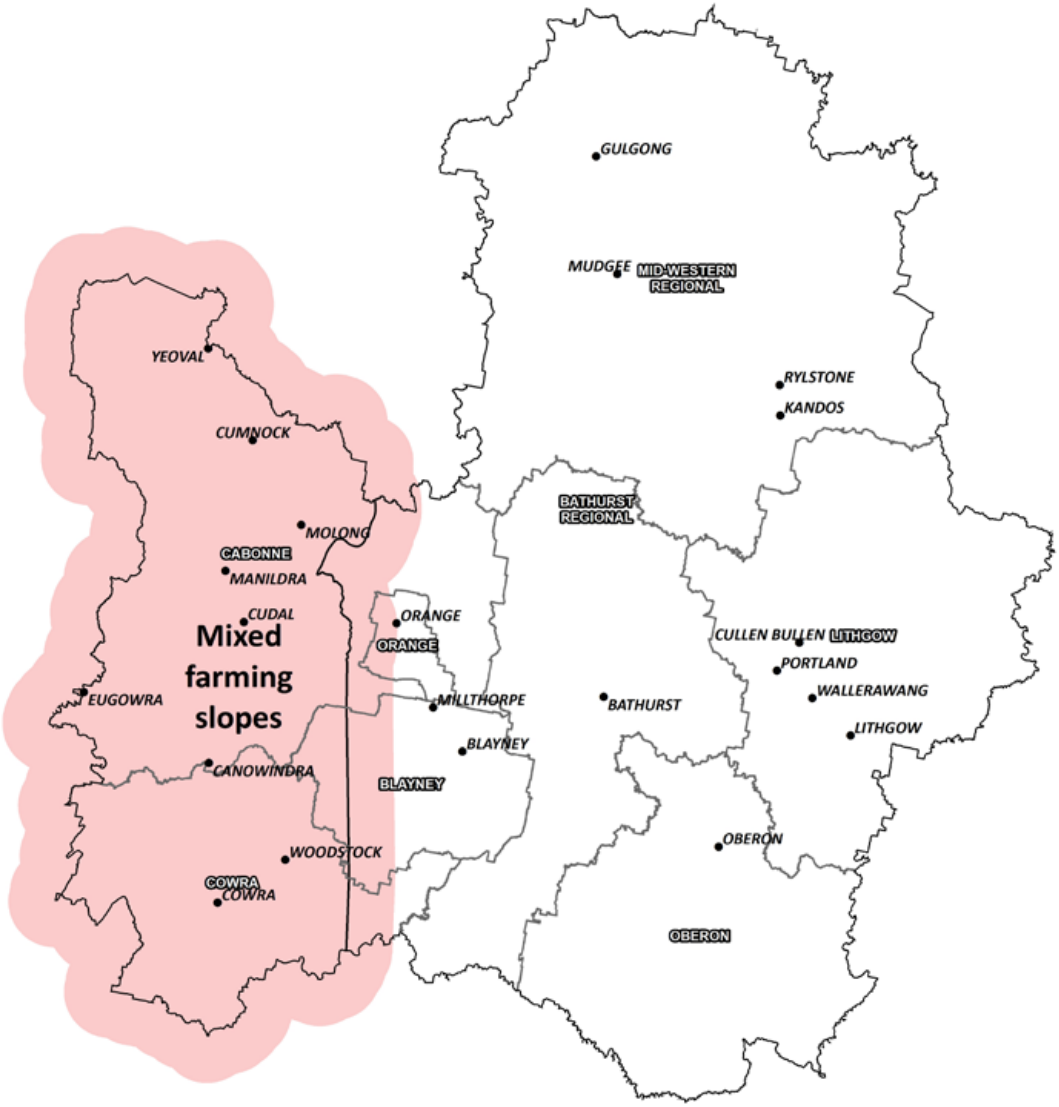
Mixed Farming Slopes

The Mixed Farming Slopes local landscape includes the towns of Cowra, Molong and Canowindra as well as many smaller towns and covers 763,018 ha. The Mixed Farming Slopes has a temperate environment of hot summers and cold winters and is thought to have a reliable rainfall at approximately 600-700 mm per annum.

The soils are predominately sedimentary and granite based soils of moderate fertility. The land and soil capability ranges from prime agricultural land that is capable of most rural land uses and land management practices to areas that have severe limitations and are considered only suitable for nature conservation or forestry areas. The latter are generally the steeper areas around Conimbla and Nangar National Parks.

The productive values of the landscape remain high, with properties typically supporting a range of mixed enterprises including cereals and grazing livestock, irrigated horticulture and viticulture. The landscape is centrally located with good access to markets and services.

The higher capability land has resulted in much of the landscape being developed for agriculture with extensive historical clearing. Large parts of the Mixed Farming Slopes have well below 10% of land area remaining as native woody vegetation. The remaining woody native vegetation includes critically endangered grassy box woodland communities.



Total Area	752,760 hectares	
Agricltural land use	**Land use**	%
	Grazing (improved)	48%
	Grazing (unimproved)	25%
	Cropping	20%
	Farm conservation	4%
	Other	3%
% of LLS region	24%	
Local government areas	Blayney, Cabonne and Cowra	
Major urban centres	Cowra, Canowindra, Manildra and Molong	
Human assets		
Population	24,968 (for the LGAs where the major urban centres falls within the local landscape)	
Aboriginal population	1,192	

Median age	43.5 years (Range: 42 years Cabonne – 45 years Cowra) Median age NSW – 38 years
Economic assets	
Median weekly household income	$911 (Range: $785 Cowra - $1,036 Cabonne)
Unemployed	5.30% (Range: 3.8% Cabonne – 6.8% Cowra)
Industry of employment by sector (top five responses)	Sheep, beef cattle and grain farming School education Local government Hospitals Cafes, restaurants and takeaway food services
Number of agri-businesses	1,485
Total area occupied by agriculture	709,601 ha
Land area per holding	478 ha
Value of agriculture	266,000,000
Value of agriculture per hectare of agricultural land	$374/ha
Top five agricultural enterprises by value	Wool Wheat Cattle Sheep Apples
Natural assets	
Average annual rainfall across LLS region	663 mm
Flora and fauna	Vegetation communities of Silver-leaf Candlebark, Mauve Burr-daisy. There are 50 threatened species including the Brown Treecreeper, Superb Parrot, Regent Honeyeater, Diamond Firetail, Bush Stone-curlew and Glossy Black-Cockatoo; endangered grassy box woodlands
Soils	Sedimentary and granite based soils with moderate fertility
Environmentally or culturally significant sites	High proportion of Aboriginal sites found in close proximity to water. Small number of cooking pits and mortars. Large camp sites at locations that have a range of nearby resources.
Systems with thresholds of potential concern in the Slopes	To be determined, noting the following identified threats • Cold water pollution from Wyangala Dam. • High levels of river phosphorus and turbidity • Soil erosion

Table 4 Mixed Farming Slopes local landscape at a glance

Actions and targets

ENVIRONMENT

Goal:
To improve and maintain the condition of the natural environment

Strategy	Actions	Targets	Partners
S1. To improve the extent, condition and connectivity of native vegetation	A1.1. Recreate and enhance connectivity for native species A1.2. Maintain and increase extent and condition of native grasslands A1.3. Increase and maintain area of native woody vegetation to above 30% threshold with at least 15% within the NRS A1.4. Improve and/or maintain extent and condition of remnant and larger vegetation patches A1.5. Reduce impacts of key threatening processes on threatened species A1.6. Reinstate natural fire regimes for dry sclerophyll forest and semi arid grassy/shrubby woodland	T1. By 2023, 8-16% of priority vegetation communities are being actively managed to achieve a good condition stable state, increase net extent and, where possible, increase connectivity	• Landcare groups • NSW Office of Environment and Heritage • Local Government • National Parks • Crown Lands • Aboriginal and non-Aboriginal landholders • Rural Fire Service
S2. To improve the stability, condition and connectivity of water assets	A2.1. Encourage Best Management Practices to manage threatening processes (invasive species, pollution, cold water pollution, barriers etc) A2.2. Improve water use, reuse and recycling A2.3. Priority GDEs and ground water sources identified and resilience analysis complete A2.4. Rehabilitate / enhance riparian and floodplain habitat for recovery of priority reaches and conservation reaches (bed, bank, vegetation etc) A2.5. All water sharing plans contributing to management of priority river reaches, GDEs and ecological outcomes	T2. By 2023, 1-5% of priority river reaches, 10-35% of priority wetlands are actively managed to maintain a good condition stable state	• NSW Office of Water • DPI Fisheries • State Water • Lachlan Valley Water • Lachlan Riverine Working Group • Local Government • Aboriginal and non-Aboriginal landholders

Alignment

- Draft NSW Biosecurity Strategy
- NSW Invasive Species Plan 2008–2015
- NSW Weeds Action Program
- Environmental Planning and Assessment Act 1979
- Noxious Weeds Act 1993
- NSW Protection of the Environment Administration Act 1991
- Commonwealth Environmental Protection and Biodiversity Conservation Act 1999
- Local Land Services Act 2013
- Native Vegetation Act 2003
- Lachlan Catchment Vertebrate Pest Animal Strategy
- Lachlan Catchment Regional Weeds Strategy
- Australia's Biodiversity Conservation Strategy 2010-2030
- NSW 2021 Plan Goals 22 and 23

PROFITABLE FARMING SYSTEMS

Goal:
To achieve more profitable, healthy and resilient farmland

Strategy	Actions	Targets	Partners
S3. To increase uptake of best farming practices to enable resource use efficiency	A3.1 Encourage increased adoption of improved cropping management A3.2 Increased adoption of improved grazing management A3.3 Deliver initiatives to manage total grazing pressure to maintain ground cover levels	T3. By 2023, achieve a 40% increase in agricultural enterprises being managed above critical thresholds for groundcover, soil organic carbon, litter, pasture biomass and native vegetation cover	• Office of Environment and Heritage • Australian Bureau of Statistics • National Parks • Local Government • Landcare
S4. To assist farmers manage threatening processes impacting on productivity including (disease, pests, weeds, grazing pressure)	A4.1 Reduce impacts of pest plant and animal species A4.2 Manage threatening processes e.g. acidity, erosion, salinity	T4. By 2023 achieve a 20% reduction in production losses due to threatening processes	
S5. To improve the ability of farm enterprises to manage economic, biological and climatic variability	A5.1 Support landholders in farm planning and access to decision making tools A5.2 Support and provide information and technology to enable adoption of practices with both productivity and environmental outcomes A5.3 Encourage and support improved water use efficiency by landholders A5.4 Explore barriers to the introduction of improved water delivery systems and irrigation management by industry and land managers	T5. By 2023, increase the adoption of enterprise diversification at the farm scale to increase resilience to economic, biological and climatic variability on a minimum of 20 farms	

Alignment

- Soil carbon maps developed in conjunction with OEH.
- NSW Diffuse Source Water Pollution Strategy
- Monitoring of groundcover and dust levels in conjunction with OEH (requires resourcing)
- NSW Protection of the Environment Administration Act 1991
- Commonwealth Environmental Protection and Biodiversity Conservation Act 1999
- Water sharing plans
- NSW Water Quality Objectives
- Murray Darling Basin Plan
- NSW 2021 Plan Goal 3, 22, 23
- Draft NSW Biosecurity Strategy
- NSW Invasive Species Plan 2008–2015
- NSW Weeds Action Program
- Environmental Planning and Assessment Act 1979
- Noxious Weeds Act 1993
- Lachlan Catchment Vertebrate Pest Animal Strategy
- Lachlan Catchment Regional Weeds Strategy

COMMUNITIES

Goal:
To improve social and economic capacity and wellbeing through management of natural resources

Strategy	Actions	Targets	Partners
S6. Increase the extent of landholder capacity to manage for triple bottom line outcomes	A6.1. Education and training opportunities (including identifying BMPs) A6.2. Leveraging funding for incentive programs	T6. By 2023 achieve a 30% increase in landholder capacity to manage their land for triple bottom line outcomes	• Local Government • Landcare • Office of Environment and Heritage • Local training providers
S7. Increase protection and utilisation of cultural values and traditional ecological knowledge	A7.1. Encourage Aboriginal involvement in NRM, including employment opportunities A7.2. Build awareness and encourage use of traditional ecological knowledge A7.3. Awareness and management of culturally significant sites, flora and fauna	T7. By 2023 achieve a 30% increase in the appreciation and use of cultural values and traditional ecological knowledge	• NSW Aboriginal Affairs • Local Aboriginal Land Councils • Office of Environment and Heritage • Australian Bureau of Statistics • Landcare • Greening Australia • Local Government • Aboriginal and non-Aboriginal landholders
S8. Improve opportunities for community participation and contribution to NRM decision making processes and the health of socio-ecological landscapes	A8.1. Provide leadership, mentoring and peer support programs that encourage knowledge sharing A8.2. Provide opportunities for community participation and contribution to NRM decision making processes A8.3. Develop and support sustainable partnerships and networks within the community A8.4. Facilitate community access to culturally important areas (awareness raising, facilitate partnerships and informal access arrangements)	T8. By 2023, increase the number of community members participating in awareness raising and capacity building activities	• Local Government • Australian Bureau of Statistics • Greening Australia • Landcare • Office of Environment and Heritage

Alignment

- Local Council Land and Environment Plan
- Land and Soil Capability Assessment
- National Parks and Wildlife Act 1974
- NSW Aboriginal Affairs Plan: OCHRE
- NSW 2021 Plan Goals 23, 24, 26 and 32

The vision, goals, strategies and desired outcomes of this plan are included in the supporting documentation to this transitional CAP.

Implementation and adaptation

This chapter identifies the arrangements for the implementation and adaptation of the Central Tablelands Transitional CAP, including governance principles and partnerships. It presents these in an integrated manner in recognition of the adaptive management approach that will be used to implement the Plan.

Governance principles

The Central Tablelands Transitional CAP will be delivered in accordance with nine governance principles (Figure 6).

These provide overall guidance on the strategic intent, delivery and review of the Plan and can be considered the strategic drivers of the implementation process. The shared responsibility identified in the governance principles requires the Central Tablelands LLS and its partners (communities, agencies and industry) to enhance the way they work together, improve shared decision making and knowledge processes, and formalise a whole-of-region approach to NRM. It is recommended that the nine principles are used by any organisation making decisions about NRM activity in the Central Tablelands LLS region.

1. Decisions and actions should align with broader government directions for NRM and ecologically sustainable development.
2. Investments and actions should work towards the vision for the future catchment and the five visions for the future desired socio-ecological systems identified in the CAP.
3. The outcomes of actions should increase the diversity and resilience of the local landscapes and systems.
4. Investments should favour activities that maximise leverage, focusing on what can be influenced to make the most difference.
5. Decisions must be substantiated with credible evidence and take into account community consultation.
6. The social, economic and environmental contexts and implications of potential decisions should form a part of the decision making process.
7. Activities should favour social inclusion, motivate the community and others, encourage innovation and creative solutions.
8. The results of decisions should provide clear direction and have measureable results and outcomes.
9. Investments and activities should encourage shared responsibilities across whole of government and whole of community.

Figure 6 Governance principles for the delivery of the Central Tablelands Transitional CAP

Adaptive management in action – triple loop learning

At its most basic, adaptive management is straightforward: a plan is implemented, new information is identified through monitoring and then evaluated, and a decision is made about whether to adjust implementation or desired outcomes (Figure 7).

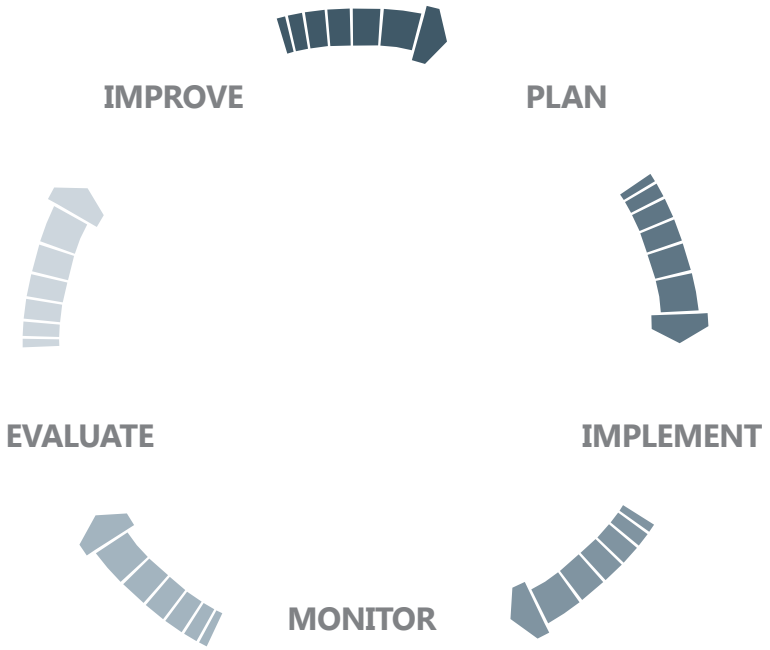


Figure 7 General adaptive management approach

The adaptive management approach used in the implementation of the Central Tablelands Transitional CAP will recognise the need for continually evolving understanding of cause-and-effect relationships in the local landscapes. This will require an awareness of thresholds, their characteristics, the movement of systems in relation to thresholds (which, depending on drivers, can be fast or slow) and an assessment of the effectiveness of investments aimed at keeping systems away from thresholds.

The adaptive management approach also needs to integrate with existing and planned arrangements for the delivery of the CAP and this will be achieved by triple loop learning. This involves three levels of evaluation: operational / project; tactical implementation; and strategic / CAP to promote continual improvement of the CAP and its delivery (Figure 8).

Figure 8 Triple loop learning adaptive management for Transitional CAP implementation

First loop – annual plans

In this process, annual activities, outputs and outcomes for short term projects are documented. Evaluation will be focussed on annual project reviews aimed at answering the question "are we doing things right?" Short formal and informal feedback loops from staff, the Central Tablelands LLS Board, reference groups, project partners and key stakeholders will comprise part of formal reviews that build on existing processes and allow continuous improvement.

Evaluation questions and measures of evidence have been developed for the project level and are focussed on alignment of projects with CAP targets and priority actions.

Second loop – business/implementation plan

A three to five year Business/Implementation Plan will be used to identify key projects and evaluate them at the program level. Evaluation will focus on the question "are we doing the right things?" and assess delivery against targets. Managers, team leaders, project managers and expert panels will build on reviews in the first loop to develop learning at this level. Evaluation is focussed on the effectiveness of CAP targets and priority actions and how the objectives have influenced local landscapes and sub-system proximity to thresholds.

Third loop – CAP/Local Strategic Plan

The Central Tablelands Transitional CAP strategies and goals will be used to assess progress against delivering the plan goals and on achieving resilient social-ecological systems in the Central Tablelands LLS region. Evaluation in this loop focuses on the question "how should we decide what's right?" This level builds on processes from the second loop, especially where they fail to achieve outcomes. This loop will also be used when major system shocks occur such as drought, floods, climate change or policy change. The Central Tablelands LLS Board have responsibility for this level of evaluation.

Legislative/statutory drivers at this level are requirements for a Local Strategic Plan and regular updating once LLS commences in 2014.

Working in partnership

Central Tablelands LLS presents new opportunities for partnerships to deliver on the vision of a healthy region with social, economic and ecological resilience. To achieve this, the Central Tablelands LLS will develop and maintain partnerships relevant to its business including those for project implementation, planning, strategy development, communication, education, monitoring, research, sponsorship and advocacy. The recognition, development and maintenance of meaningful partnerships across a range of stakeholder groups will extend the ability of Central Tablelands LLS to deliver on this vision.

The key activities to develop and maintain meaningful partnerships are shown as a modified program logic (Figure 9). This consists of initially looking for opportunities through networking, developing relationships and establishing working partnerships to deliver enhanced production and conservation outcomes. The program logic is underpinned by the assumption that widespread acceptance and consistency of NRM messages will build credibility and motivate people to be involved with NRM partnerships.

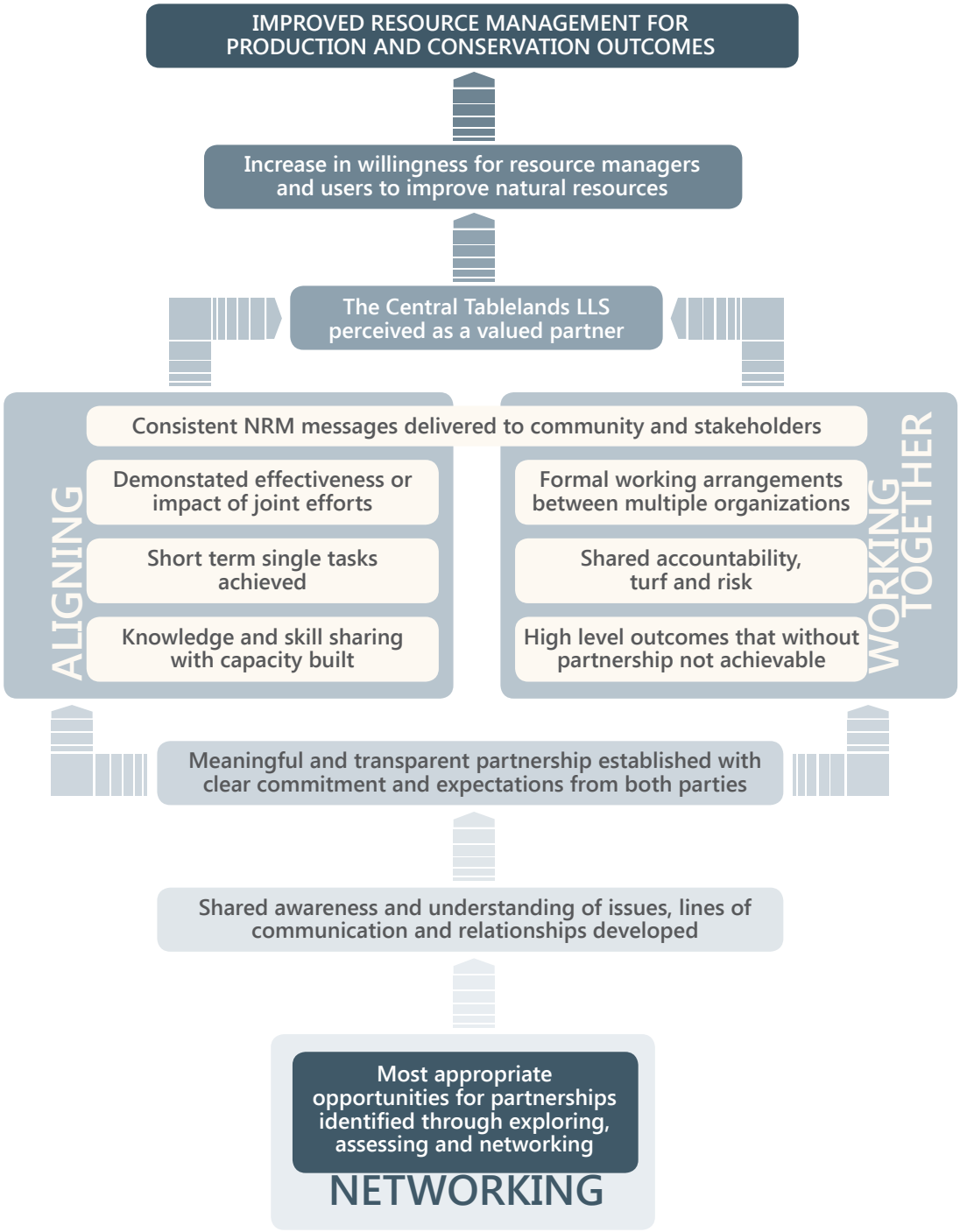


Figure 9 Program logic for partnership development

An annual plan will identify the full range of potential partnerships and resources required to deliver the outcomes outlined in the partnership development program logic and appropriate evaluation arrangements.

A range of partners that can assist or contribute to the effective implementation of each of the goals of the Central Tablelands Transitional CAP has already been identified (Figure 10).

Stakeholder	Environment	Profitable farming systems	Community
Landholders	■	■	■
NSW Department of Primary Industries		■	
NSW Office of Environment and Heritage	■	■	■
NSW Office of Water	■		
DPI Fisheries	■		
NSW Trade and Investment – Crown Lands	■		
State Water Corporation	■		
Landcare networks	■	■	■
Local Government	■	■	■
National Parks	■	■	
Aboriginal and non-Aboriginal landholders	■		■
Australian Bureau of Statistics		■	■
Local training providers			■
NSW Aboriginal Affairs			■
Local Aboriginal Land Councils			■
Greening Australia			■
Lachlan Valley Water	■		
Lachlan Riverine Working Group	■		
Rural Fire Service	■	■	■

Figure 10 Partners in the delivery of the Central Tablelands Transitional CAP

Annual implementation

A targeted, integrated and responsive annual implementation process will be put in place by the Central Tablelands LLS. This annual implementation will:

- Use the triple loop learning approach to drive the process
- Work collaboratively with partners and stakeholders to review progress, revise priorities and assign responsibilities
- Initiate project plans
- Identify community and stakeholder participation opportunities
- Establish monitoring processes
- Ensure delivery processes and targets are complementary and integrate local, regional, state and federal planning policies, objectives, strategies and targets, without duplicating existing programs.

Monitoring, evaluation, reporting and improvement

The Central Tablelands LLS will align its existing monitoring, evaluation, reporting and improvement (MERI) framework with the new Central Tablelands Transitional CAP (see Figure 11). In achieving this, the LLS will ensure that the adaptive management/triple loop learning approach is integrated into all projects and programs implemented under the Plan. A series of monitoring and reporting tables for assessing the CAP has been produced. This will be refined as immediate knowledge gaps are filled and the partnership approach is refined.

- Form of evaluation should be fit for purpose
- Program logic is required at project planning
- Articulating and testing causal links/assumptions is important
- Monitoring should provide baseline and benchmarking results, and then build on such existing data
- Staff ownership and input into the conduct of evaluations builds capacity and a richer set of findings
- External input provides additional balance and rigour. External assistance with evaluations also enables innovations and best practice to be brought into the CMA
- Definitive answers are not required. Confidence in findings and anticipated future outcomes is required
- Rather than trying to set and meet exact targets, confidence in the trajectory of the emergence of performance from implemented activities is sought
- The precautionary principle means that lack of full scientific certainty should not hinder decisions or actions that prevent degradation or improve the system. This applies to the use of evaluation findings
- Sophisticated, smart approaches to monitoring and evaluation that are meaningful to decision making and do not hinder or burden, are desired

Figure 11 Evaluation principles for the Central Tablelands Transitional CAP

Reviewing the Central Tablelands Transitional CAP

This Transitional CAP functions on an interim basis, with an expected life of 2-3 years. The previous adaptive management / triple loop learning and MERI programs will be applied to the Transitional CAP. These programs will, over time, indicate change in a system's condition (a system can be the LLS region, a local landscape or a smaller part of a local landscape). The magnitude of this change will be assessed to determine whether refinements can be made incrementally (without adjusting the Transitional CAP) or whether the change is more significant and requires adjustment to the Plan. Some examples of external influences, and the way these influences will be evaluated and changes incorporated into the plan, are shown in Figure 12. Those listed are those expected to impact over the next 2-3 years.

Review trigger	When	Internal or external driver
Important knowledge gaps: • Thresholds, drivers, status and indicators for some local landscapes • Links between local landscapes and their impacts	As required	Internal
Annual implementation	Projects and programs will be reviewed annually	Internal
Minor progress review	Three years	Internal
Request by the Minister	Minister requests a review of the CAP	External
System shocks (fast moving)	When major natural events occur such as fire, flood or drought	External
System shocks (slow moving)	Approximately every five years but driven by pace of shocks including terms of trade, climate change, population change	External
Funding realignment changing investment priorities	When there are changes in funding from either the NSW or Australian Government programs	External

Figure 12 CAP review triggers

NSW GOVERNMENT | Local Land Services Central Tablelands

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Over 1,000 points of contact with community, stakeholder and technical knowledge holders have been made during this Catchment Action Plan upgrade. Thank you to all that contributed their thoughts, opinions, experiences and knowledge. It has made this document and the directions for the future within it, rich and of higher quality.

Over 40 Lachlan CMA staff members took on significant roles in the development of the Catchment Action Plan. Facilitation, event organisation, community liaison, data gathering, media and provision of technical knowledge and experiences have all been valuable contributions and appreciated. The significant engagement in this strategic planning process is testament to the dedication, hard work and team ethic of the staff.

The Lachlan CMA Board is thanked for its strategic guidance throughout the planning process, for its support and words of encouragement. The Board has been highly involved throughout from design of the approach, to attending consultation events through to setting strategic directions and decision making guidelines.

The significant task of project management of the Lachlan (Kalare) Catchment Action Plan 2013-2023 and the development of early drafts is attributed to Lyndal Hasselman. Lyndal was very ably assisted by Alexandra Murray and Susan Hewitt. Spatial mapping and analysis was undertaken by Daniel Cain.

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Some photographs were provided by Lachlan CMA photo competition entrants.

Acknowledgement of Country

Kalare is the Wiradjuri word for the Lachlan River and its surrounds.

The Lachlan Catchment falls predominately in Wiradjuri Country but shares its land with eight other Aboriginal nations including Dharug, Ngunawal, Gundungurra, Wongaibon, Barindji, Yitha Yitha, Madi Madi and Nari Nari. The Lachlan CMA acknowledges the Aboriginal people residing within the catchment and takes this opportunity to pay respect to past, present, and future Elders of those nations.

Aboriginal people have a strong connection with the catchment through the rivers, creeks and abundant wetlands. Aboriginal people throughout the catchment have managed land for over 40,000 years and still today are actively working with land managers to protect and maintain our environment. We recognise the connection Aboriginal people have with the landscape including land, water, vegetation and biodiversity (habitat). We have encouraged the input of Aboriginal people in the development of the Lachlan (Kalare) Catchment Action Plan and have utilised traditional knowledge where possible.

NSW GOVERNMENT | Catchment Management Authority Lachlan

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