



Catchment Management  
Authority  
Central West

# Regional Snapshot 2012—2013

## State of the Environment Report



For the Councils of the  
Greater Central West Region of NSW:  
Bathurst, Blayney, Bogan, Bourke, Cabonne,  
Coonamble, Cowra, Dubbo, Gilgandra, Lachlan,  
Mid-Western, Narromine, Oberon, Orange, Warren,  
Warrumbungle, Wellington



# Acknowledgements

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Prepared for:

Central West Catchment Management Authority  
30 Warne Street, Wellington, NSW  
PO Box 227, Wellington, NSW, 2820  
Tel: 02 6840 7800 Fax: 02 6840 7801  
[www.cw.cma.nsw.gov.au](http://www.cw.cma.nsw.gov.au)

Prepared by:

Molino Stewart Pty Ltd  
Phone: (02) 9354 0300  
[www.molinostewart.com.au](http://www.molinostewart.com.au)

Design:

Wild Red Frog Design  
Phone: (02) 9975 3305

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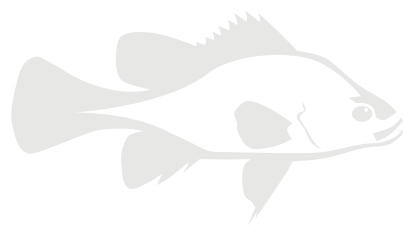
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View across the  
Warrumbungle Ranges



# Abbreviations

AHIMS	Aboriginal Heritage Information Management System
BPEM	Best Practice Environmental Management
CAP	Catchment Action Plan
CMA	Catchment Management Authority
DCP	Development Control Plan
EC	Electrical Conductivity
EECs	Endangered Ecological Communities
GJ	Gigajoule
GL	Gigalitre
GPT	Gross Pollutant Trap
ha	Hectare
HHW	Household Hazardous Wastes
IP&R	Integrated Planning and Reporting
kL	Kilolitre
km <sup>2</sup>	Square kilometres
LBL	Load Based Licensing
LEP	Local Environment Plan
LGA	Local Government Area
LLS	Local Land Services
ML	Megalitre
NSW	New South Wales
PM10	Particulate Matter (10 microns or less)
RSoE	Regional State of the Environment
RFS	Rural Fire Service
SoE	State of the Environment
UPSS	Underground Petroleum Storage Systems
WTP	Water Treatment Plant



# Message from the Chairman

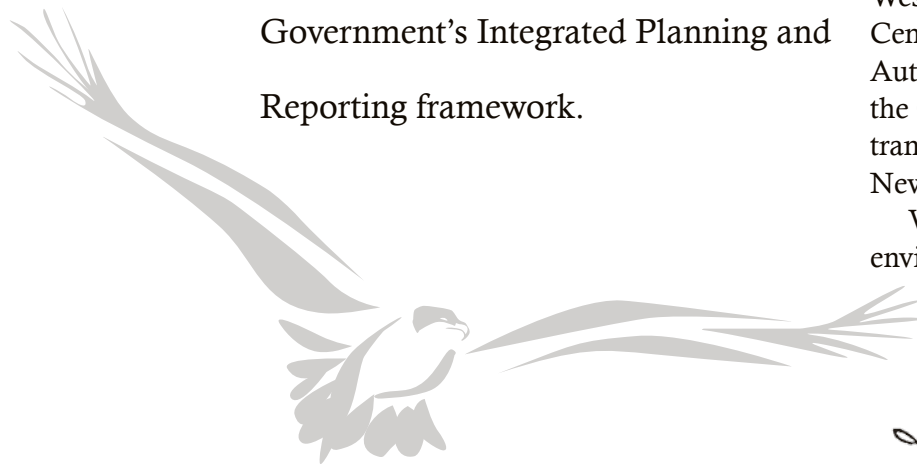
I am pleased to announce that following a recent review, enough common indicators were established for all of the 17 participating Councils to continue reporting regionally on the State of the Environment. This report forms part of the Department of Local Government's Integrated Planning and Reporting framework.

This "Snapshot" Report marks the first of three such reports to be followed in 2016 by a full Regional State of the Environment Report. The full report will form part of the Councils' end of term reporting. Each Council will also have its own Snapshot Report, so the community will be able to assess what is happening in their own Local Government Area as well as across the region.

The Councils all face many challenges so it is gratifying to see that their commitment to the environment and support of the Central West Catchment Action Plan persists. The Central West Catchment Management Authority (CMA) intends to continue to assist the Councils in their endeavours as we transition into Local Land Services in the New Year.

We hope you find this "Snapshot" of your environment informative.

Tom Gavel  
*Chairman*  
*Central West Catchment Management Authority*



Misty Morning on  
the Ilford-Sofala Road  
(Diana Kureen, Central  
West CMA)







# Introduction

A State of the Environment (SoE) Report is an important management tool which aims to provide the community and Council with information on the condition of the environment in the local area to assist in decision-making.

## Why a Regional SoE Report?

Environmental issues are not restricted to Council boundaries. Regional State of the Environment (RSoE) Reports are recommended by the NSW Government and used by some groups of Councils in NSW to enable a better understanding of the state of the environment in a regional context and to identify future collaborative pathways. More specifically, a regional approach to reporting:

- facilitates a better understanding of the state of the environment across the region
- encourages collaboration in regards to partnering on projects and sharing ideas and resources
- assists in the management of shared environmental resources
- forges stronger regional links across participating Councils.

## The Region

As shown in Figure 1, the region covers most of the Central West Catchment and parts of the Lachlan and Western Catchments of NSW.

The total area of the region is approximately 145,169km<sup>2</sup>. It is estimated that the population of the region covered by this report is 222,000.

Major industries in the region include agriculture, agribusiness, tourism, mining and viticulture.

## Who is involved?

The participating Councils in the region are:

- Bathurst Regional Council
- Blayney Shire Council
- Bogan Shire Council
- Bourke Shire Council
- Cabonne Council
- Coonamble Shire Council
- Cowra Shire Council
- Dubbo City Council
- Gilgandra Shire Council
- Lachlan Shire Council
- Mid-Western Regional Council
- Narromine Shire Council
- Oberon Council
- Orange City Council
- Warren Shire Council
- Warrumbungle Shire Council
- Wellington Council

All participating Councils have provided data to be included in this Report, with additional regional information sourced by the Central West Catchment Management Authority (CMA) and other government agencies (see the Appendix for details of data sources).

## Previous Regional SoE reporting

Prior to 2009, the *Local Government Act 1993* required that all local Councils in NSW produce an annual SoE report on major environmental impacts, related activities and management plans. In response, the Councils in the region along with the Central West CMA decided to produce RSoE Reports in 2007-08 and 2008-09. Prior to that, the Councils produced individual SoE Reports based on the requirements of the Act.

In 2009, the *Local Government Act 1993* was amended. The amendments require the use of an Integrated Planning and Reporting (IP&R) Framework to guide a Council's future strategic planning and reporting. As part of the IP&R Framework, Councils are required to develop environmental objectives with their communities in relation to local environmental issues. These environmental objectives form part of each Council's overarching Community Strategic Plan.

The implementation of the IP&R Framework was staggered across the 152 NSW Councils. All of the participating





Councils in this Report were ‘Group 3 Councils’ in the Framework implementation process, meaning that Community Strategic Plans and Delivery Programs had to be adopted by 30 June 2012. During that time, RSoE Reports were produced under the requirements of the 1993 Act for 2009-10, 2010-11 and 2011-12.

## Reporting for the next four years

The IP&R Framework requires that Councils prepare annual reports which will include reporting on environmental objectives in their Community Strategic Plans. However, it is only in the year in which a Council election is held (next planned for 2016) that the annual report must include a SoE Report.

In 2012, the participating Councils and the Central West CMA decided to continue collecting data and reporting on an annual basis so that they can produce a comprehensive RSoE Report in 2016 that covers the intervening years.

It should be noted that in January 2014 the CMAs, along with Livestock Health and Pest Authorities and the advisory service of the Department of Primary Industries, which previously operated separately, will be integrated into Local Land Services (LLS).

The new LLS will deliver:

- agricultural advice
- plant and animal pest control and biosecurity
- natural resource management
- emergency management.

The LLS regional boundaries do not correspond with the catchment boundaries of the CMAs. As shown in Figure 2, the participating Councils will be in three LLS regions – Western, Central West, Central Tablelands.

## This report

The themes covered in this report are guided by those in the Central West Catchment Action Plan (CAP) and the Council’s Community Strategic Plans. The themes are:

- Land
- Biodiversity
- Water and Waterways
- People and Communities
- Towards Sustainability




Indicators are important management tools used in environmental reporting. They summarise and communicate information about the condition of key aspects of complex environments so that our decision making can be better informed.

In this report, a suite of indicators has been identified that help report on the environmental themes listed above.

Where indicator data for previous years is available, it is provided along with data for 2012-13 in a summary table at the commencement of each theme chapter.

The trend arrows in the summary tables are based on comparing the average of data from 2009–10 onwards with the data for 2012-13, where direct comparison can be made.

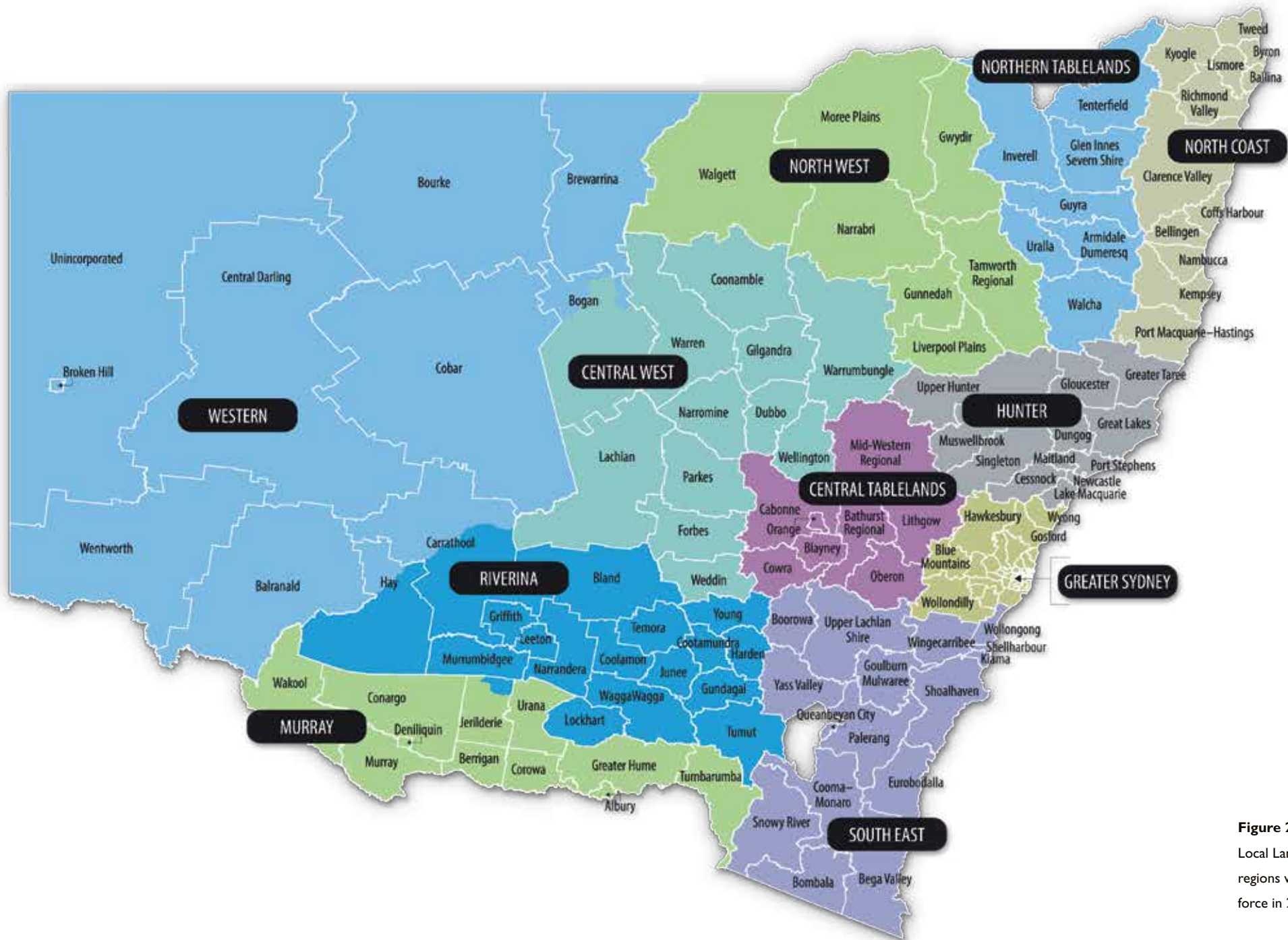
The trend arrows used in the summary table are:

-  improvement
-  no or little change
-  worsening trend

There is a description for each indicator trend within the chapter and an explanation of possible reasons for it occurring. There are also case studies highlighting responses to environmental issues across the region.

## Council Snapshot Reports

In 2012, the participating Councils decided to produce additional brief snapshot reports for each of their Local Government Areas (LGAs). These Council Snapshot Reports will be produced annually from 2013 to 2016. They will report on the indicator trends for each LGA.



**Figure 2:** Map showing Local Land Services regions which come into force in 2014

# Land

This chapter focuses on the condition of the land in the participating Council areas. 'Land' is a natural asset that consists of a diversity of geological forms, topsoil availability, and soil health.

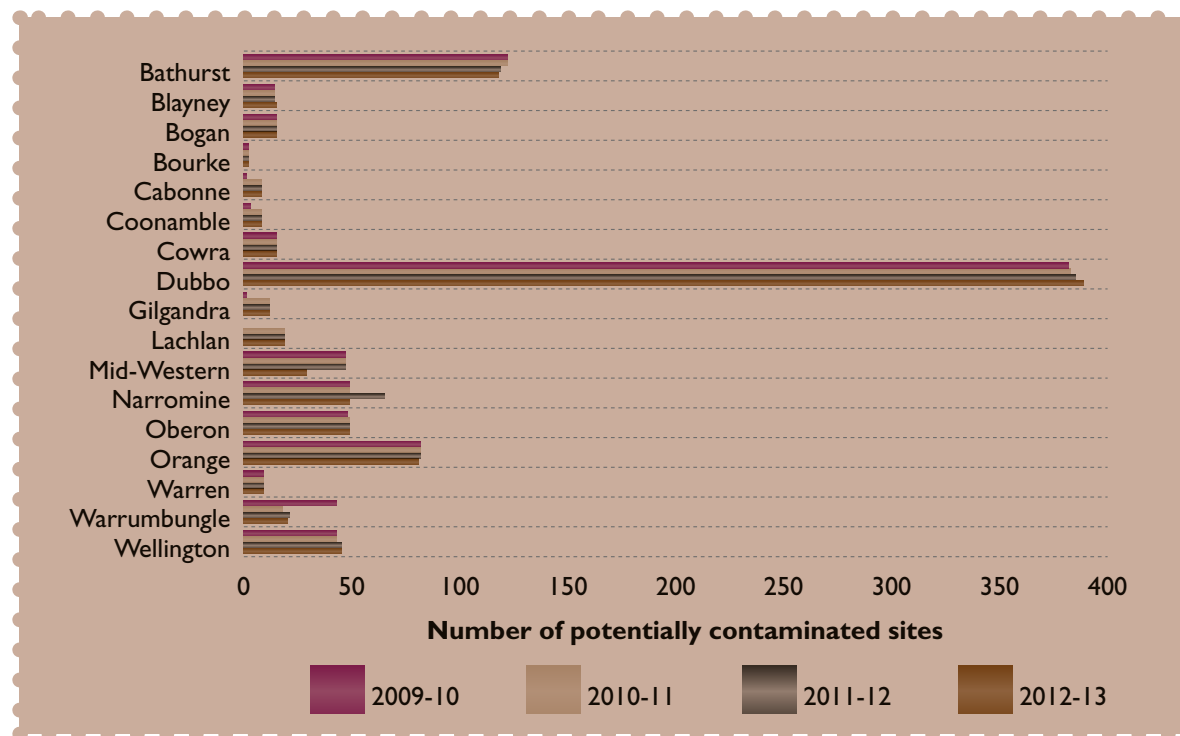
Land supports natural systems and is available to support a variety of human uses. Changes in vegetation and patterns of settlement and land use continue to be significant sources of pressure on Australia's natural and cultural environment.

The landscape of the reporting area is diverse in character, including tablelands, slopes and plains. However, a major issue in the region is land degradation caused

primarily by soil erosion, salinity and contamination.

### *Indicator – Contaminated land sites (Contaminated Land Register)*

As shown in Table 1, two sites were added to the Contaminated Land Register across the region in 2012-13. The two new sites were former petrol stations in Cabonne and Warren.



**Figure 3:** Number of potentially contaminated sites in each LGA

**Table 1: Summary Table of Indicator Trends – Land**

Issue	Indicator	2009-10	2010-11	2011-12	2012-13	Trend
Contamination	Contaminated land sites - Contaminated Land Register	6	8	8	10	↓
	Contaminated land sites - potentially contaminated sites	876	895	915	883	↑
	Contaminated sites rehabilitated	11	7	13	14	↑
Erosion	Erosion affected land rehabilitated (ha)	588	92	2,066	1,872	↑
Salinity	Salinity affected land rehabilitated (ha)	0	0	3,370	0	↓
Land use planning and management	Number of development consents and building approvals	4,303	3,391	4,168	3,736	↑
	Landuse conflict complaints	50	61	101	92	↓
Minerals & Petroleum	Number of mining and exploration titles		737		667	↑
	Area covered by mining and exploration titles (million ha)		7		6	↑

- ↑ improvement
- no or little change
- ↓ worsening trend

**Note – the above trends are for data in 2009-10, 2010-11, 2011-12 and 2012-13 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2012-13. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2012-13 for which no comparison can be made with previous years. Refer to the Appendix for a list of Councils included in the trend data.**



**Figure 4:** Number of development consents and building approvals by type 2012-13

**Indicator – Contaminated land sites (potentially contaminated sites)**

The number of potentially contaminated sites decreased in 2012-13, with significant drops in the numbers in the Mid-Western and Narromine LGAs, as shown in Figure 3.

**Indicator – Contaminated sites rehabilitated**

Fourteen contaminated sites were reported as being rehabilitated in 2012-13, with six of these being in the Dubbo LGA.

**Indicator – Erosion affected land rehabilitated**

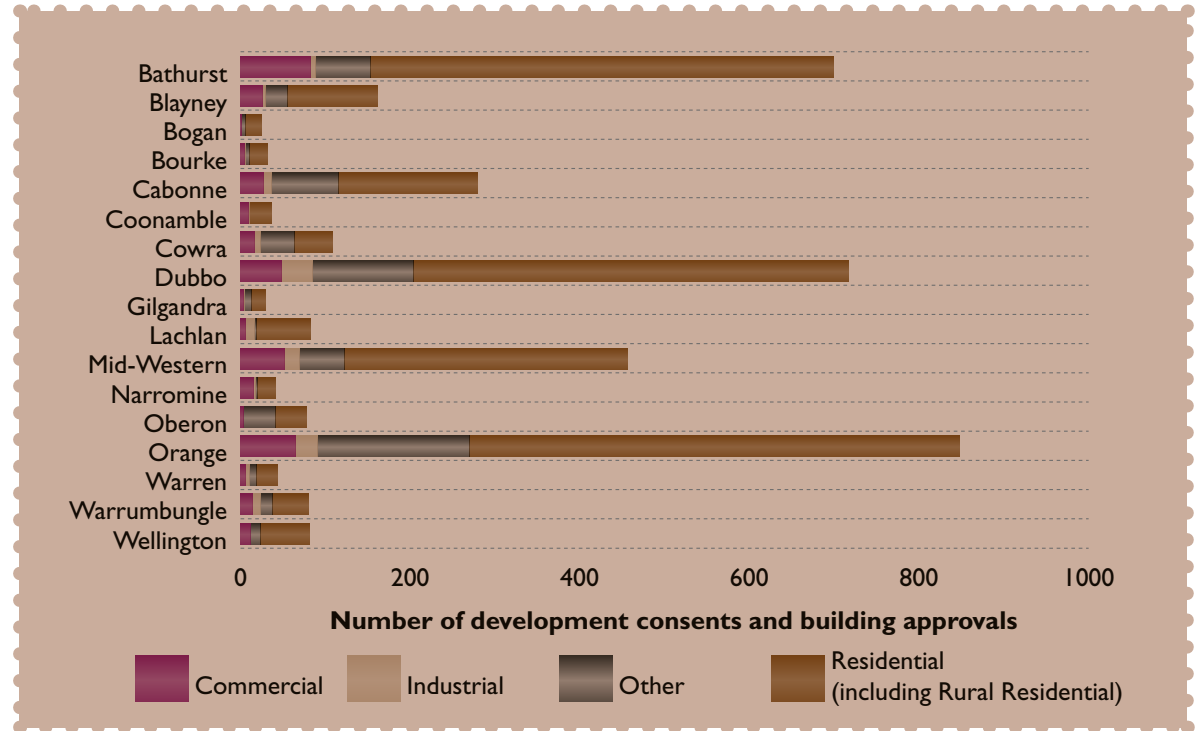
The Central West CMA reported that 1,869 hectares of water ponding was undertaken in 2012-13 to rehabilitate erosion affected land. Orange and Cabonne LGAs also reported small rehabilitation projects.

**Indicator – Salinity affected land rehabilitated**

There was no activity reported against this indicator in 2012-13 as the Central West CMA did not run its salinity rehabilitation program in that year. With the change to LLS it is unsure if and when this program will run again.

**Indicator – Number of development consents and building approvals**

A 10% fall in the number of development consents and building approvals was reported



across the region in 2012-13, suggesting a slow-down in economic activity. This has been shown as an improving trend as it reduces environmental impacts. Figure 4 shows the number and type of development consents and building approvals across the region in 2012-13.

**Indicator – Landuse conflict complaints**

The drop in development activity was accompanied by a similar reduction in the number of landuse conflict complaints, however there may not be a direct correlation.

**Indicator – Farm entities demonstrably practising sustainable agricultural practice**

This is a new indicator for 2012-13. The Central West CMA reported that 10,852 hectares of sustainably grazed farm land was mapped.

**Indicator – Number and type of mining and exploration titles**

There was a small overall decrease in the number of mining and exploration titles across the region in comparison with 2010-11, suggesting a slight slow-down in the resource sector.

## CASE STUDY: Re-opening of the Junction Reefs Reserve (Blayney LGA)

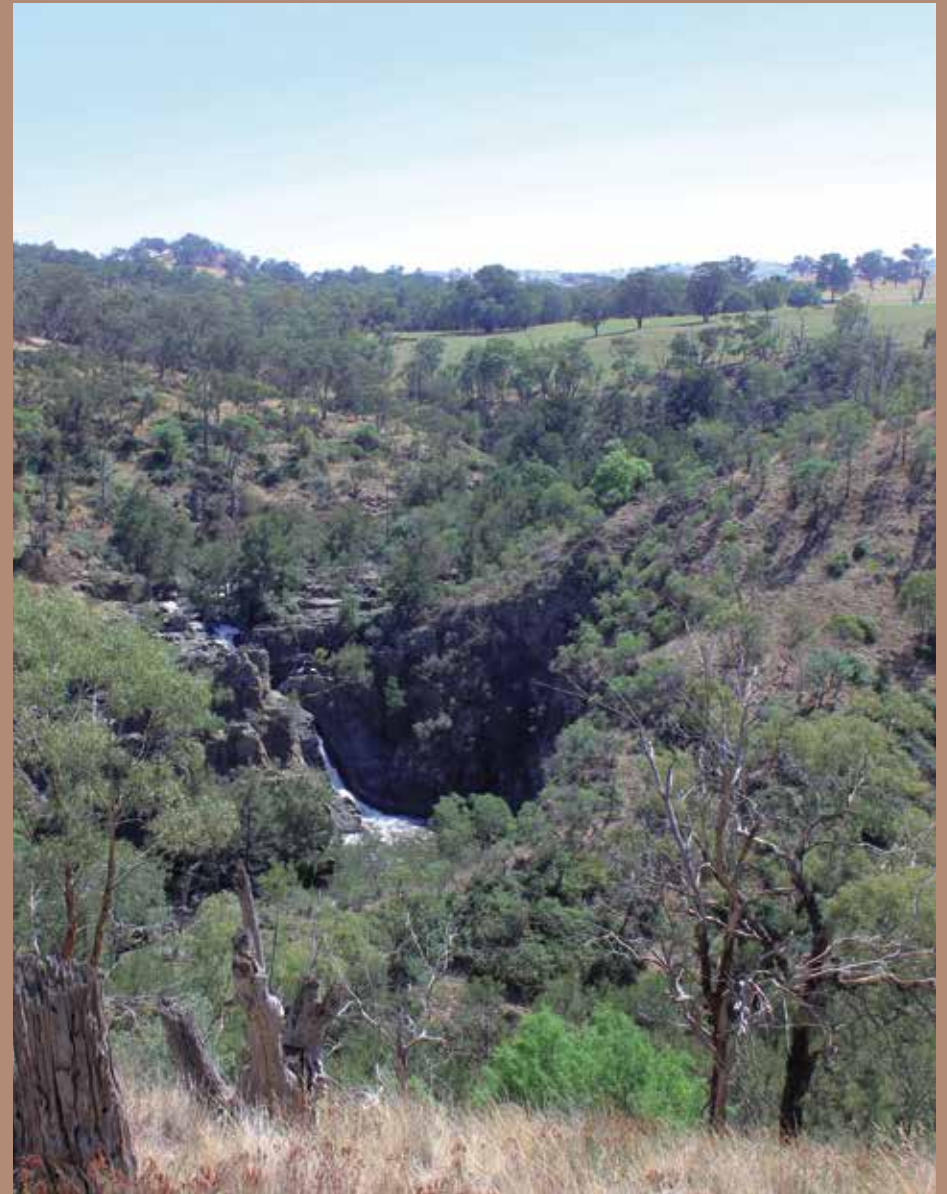
Junction Reefs Reserve, located near the small rural village of Mandurama, is a Crown Reserve which was once a very popular passive recreational area within the Blayney Shire. The Reserve offers a range of recreational, environmental and historical items of interest including the nationally significant Belubula Dam, Australia's first hydroelectric scheme, and the spectacular Junction Reefs waterfalls.

The Junction Reefs Reserve also includes the Sheahan-Grants Gold Mine with sporadic mining occurring within the reserve since 1870. The most recent mining activity was undertaken by Climax Mining Limited in 1987-1995 which prevented the area from being accessed by the public. Whilst the gold mine was formally decommissioned in 1995, the lease presently remains under the management of Oceana Gold.

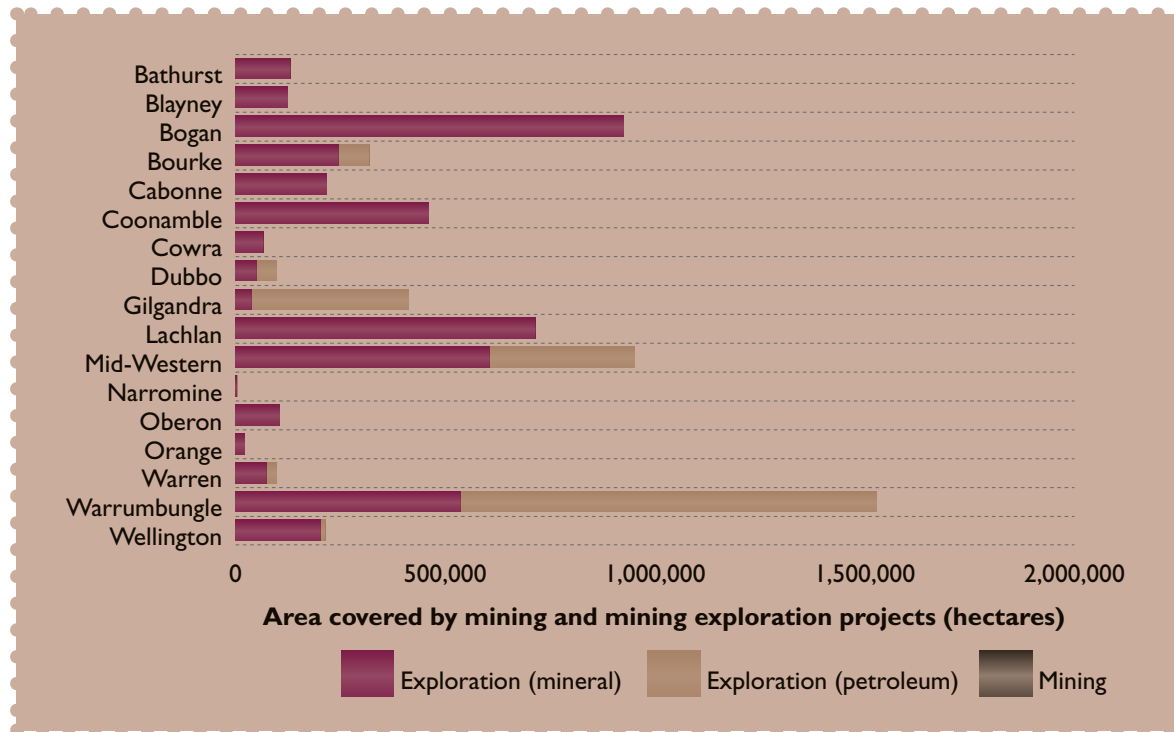
The Junction Reefs Reserve Trust (JRRT) was established in August 2011 to provide management of the Junction Reefs Reserve after formal relinquishment of the mining lease was granted by the relevant government authorities. Currently, formal negotiations are being undertaken and the handover is expected to occur within the coming months.

The mine-disturbed areas of the Junction Reefs Reserve were subject to a range of large-scale vegetation rehabilitation trials. A significant riparian restoration project was also undertaken during the 1990s which removed dense Willow infestations from along the banks of the Belubula River, improving the riparian habitat and ecological function of the river, as well as protecting the historic Belubula Dam wall. These restoration projects were formally recognised by winning Rivercare awards in 1998, 1999 and 2000. The area now supports 350ha of Grassy Box Gum woodland, which is listed as an Endangered Ecological Community under State and Federal legislation.

The JRRT will explore opportunities for the economic viability and environmental sustainability of the Reserve in consultation with the local community and key stakeholders. The JRRT also aims to engage the support of other groups and organisations and develop long-term partnerships in the interest of the wider community.



A view of the Junction Reefs Reserve including the spectacular Junction Reefs waterfall (photo Donna Johnston)



**Figure 5:** Total area covered by mining and mining exploration projects 2012-13

**Indicator – Area covered by mining and mining exploration projects**

This indicator showed a similar reduction, with 6.42 million hectares covered by mining and exploration leases across the region, almost 5% less than the area reported in 2010-11. As shown in Figure 5, the total area comprised 4.51 million hectares under mining exploration leases, 1.87 million hectares under petroleum exploration leases and 33,943 hectares of actual mining leases. However, the extent of actual mining leases is unable to be shown in Figure 5 due to its comparatively small scale.

**Indicator – Loss of primary agricultural land through rezoning**

It was reported that 961 hectares of primary agricultural land were lost across the region through rezoning to other purposes. Two-thirds of this change in land use was in the Mid-Western LGA due to rezonings in the 2012 Local Environment Plan (LEP) in addition to recent rezoning consents. This is the first year that this indicator has been included and Orange and Cowra were the only other Councils that reported loss of agricultural land.



Urban sedimentary erosion (Chris McCulloch, Central West CMA)



## CASE STUDY: Derelict Underground Petroleum Storage Systems Pilot Program (Oberon LGA)

Contaminated sites are traditionally considered as a historical legacy of past poor waste management and industry practices. The NSW Environmental Trust has established a contaminated land management program to enable grants to be provided for funding (in part or full) for the costs of addressing serious land contamination.

The operation of underground petroleum storage systems (UPSS) throughout NSW has left a legacy of contaminated soil and groundwater resulting in these sites constituting one third of all significant contaminated land regulated under the *Contaminated Land Management Act 1997* in NSW.

Twenty five UPSS sites will be selected for remediation within New South Wales under NSW Environmental Trust funding.

Four sites have been identified in the Oberon LGA as candidate sites eligible for potential remediation, with sampling currently being undertaken to identify the extent of contamination for each site. The sites identified consist of former service stations, truck depots and a bus depot. All the eligible sites identified are located on private property within residential areas of the village of Oberon.

The UPSS pilot program has also been effective as an education tool for Oberon Council officers in the identification of potential contaminated sites, as well as the formulation of a comprehensive register of potential contaminated land. The support for the program by Oberon residents has also been positive.



Example of an Underground Petroleum Storage System





# Biodiversity

Biodiversity is essential to functioning ecosystems which maintain important processes on which all life depends. Many species of plants and animals rely on specific habitats in order to survive. The value of biodiversity extends beyond the catchment boundaries, providing national and international benefits.

Insects on  
Eucalypt Flowers  
(Chris McCulloch,  
Central West CMA)



There are a wide variety of ecosystems across the reporting region, formed by interactions across a range of factors including soils, local climate, vegetation types, and disturbance by activities such as farming and water availability. Habitat loss and degradation are issues in the region, particularly through activities such as poor land use planning and management practices, inappropriate fire regimes,

inappropriate development and pest and weed invasion. This can result in a loss of species or changes in species composition.

The decline in biodiversity values is increasingly being recognised by farmers and others in the community, and is being incorporated into the evolving natural resource management response such as CAPs.

**Table 2: Summary Table of Indicator Trends – Biodiversity**

Issue	Indicator	2009-10	2010-11	2011-12	2012-13	Trend
Habitat Loss	Addition to National Park estate (ha)	22,605	115,289	540	1,195	↑
	Total area protected in Wildlife Refuges (ha)	118,000	259,000	259,000	217,000	↑
	Total area protected in conservation reserves & under voluntary conservation agreements (ha)	14,659	7,510	7,597	10,220	↑
	Proportion of Council reserves that is bushland/remnant vegetation	50%	50%	44%	44%	↓
	Habitat areas revegetated (ha)	495	314	311	72	↓
	Vegetation protected and rehabilitated through CMA incentive funding (ha)	7,583	4,173	12,962	7,496	↓
	New Voluntary Conservation Agreements, Property Vegetation Plans & biobanking	21	25	17	1	↓
	Roadside vegetation management plans	6	9	15	15	↑
Threatened Species	State Threatened species listed for Central West and Lachlan catchments	128	129	146	149	↓
	Fish restocking activities: native species	464,000	377,000	300,000	391,000	↑
Noxious weeds and feral animals	Fish restocking activities: non-native species	311,000	297,000	271,000	285,000	↑
	Number of declared noxious weeds	116	114	122	122	↓
	Invasive species (listed noxious or WONS) under active management	185	147	194	134	↓

- ↑ improvement
- no or little change
- ↓ worsening trend

**Note – the above trends are for data in 2009-10, 2010-11, 2011-12 and 2012-13 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2012-13. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2012-13 for which no comparison can be made with previous years. Refer to the Appendix for a list of Councils included in the trend data.**



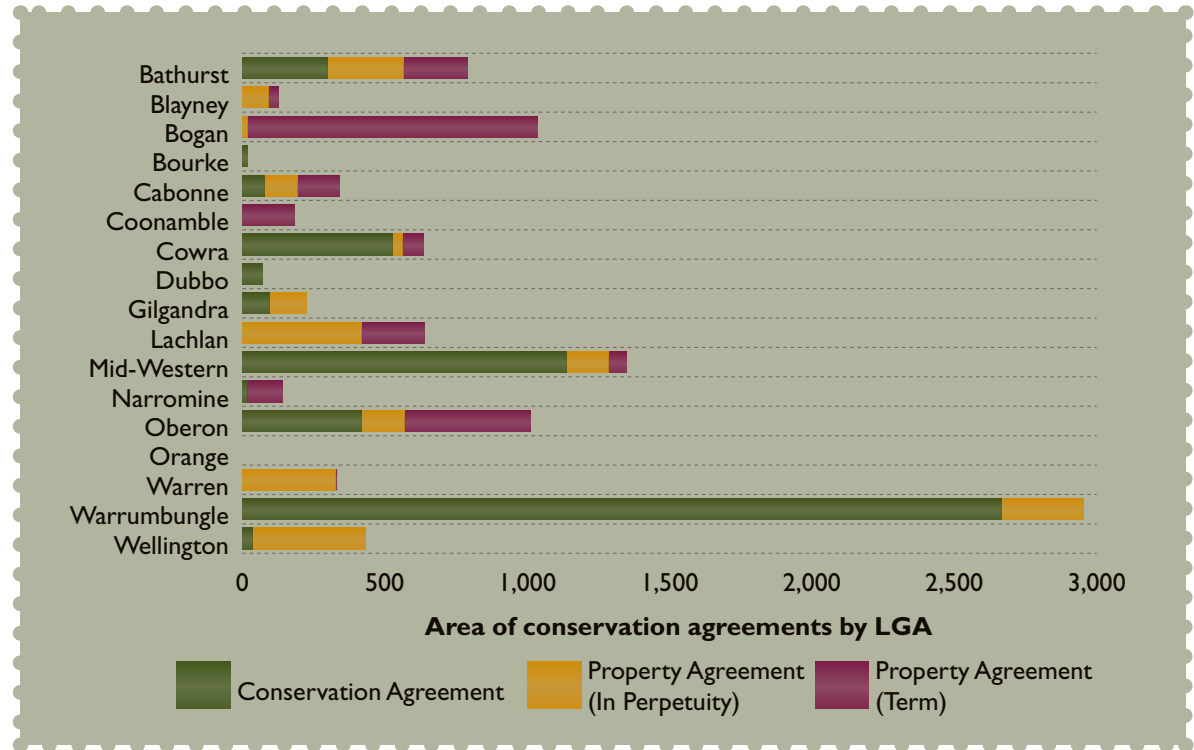
*Indicator - Addition to National Park estate*

In 2012-13, 1,195 hectares were added to the National Parks estate. This is a slight increase from 2011-12, although there were much larger additions in previous years. This is an addition and therefore should be seen as an improving trend.

*Indicator - Total area Protected in Wildlife Refuges*

There was a 16.3% decline in the area protected in wildlife refuges across the region in 2012-13. This decline was entirely in the Bourke LGA where the area fell to 100,158 hectares from 142,294 hectares reported in 2011-12 due to changes in land tenure.

**Figure 6:** Area of Conservation Agreements by LGA 2012-13



*Indicator - Total area protected in conservation reserves & under voluntary conservation agreements*

In contrast to Wildlife Refuges, there was a 34.5% increase in this indicator with most of the increase being in the area under voluntary conservation agreements, particularly in the Warrumbungle LGA. Smaller increases were reported for the Bogan, Mid-Western and Narromine LGAs, offset by declines in the areas covered in the Cowra and Lachlan LGAs. Figure 6 shows the area protected in conservation reserves and under voluntary conservation agreements across the region.

Kangaroo with joey (Kevin Diletti)

*Indicator - Proportion of Council reserves that is bushland/remnant vegetation*

The proportion of Council reserves that is bushland/remnant vegetation was unchanged this year at 44.2% for the nine Councils that have been able to provide this breakdown over the last four years.

*Indicator - Habitat areas revegetated*

Only 72 hectares of habitat areas were revegetated by the 11 Councils reporting on this indicator each year - a large decline

compared to the numbers these Councils reported over the three previous years due to decreased funding and a focus on maintaining previous projects.

*Indicator - Vegetation protected and rehabilitated through CMA incentive funding*

The Central West CMA reported that 7,496 hectares were protected and rehabilitated in 2012-13 with almost all of this being terrestrial vegetation plus a small area of riparian vegetation. The total area rehabilitated was 42% less than reported by the CMA in 2011-12.



## Case Study: Biological control used for cactus (Bourke LGA)

Rope Pear (*Cylindropuntia imbricate*) is a very thorny cactus which can cause injury to humans and to animals. Segments are mainly spread by floodwaters, and in some cases by being rolled along bare ground by strong winds. A native of Mexico and the United States, Rope Pear has been widely distributed in New South Wales as a garden plant.

In January 2009, an infestation of Rope Pear was discovered on a property on the outskirts of Louth. Chemical treatment of rope pear is effective, because the plants are relatively easy to find. Biological control is another practical and cost-effective means of control, especially in the warmer and drier areas of western New South Wales.

The Louth infestation was located on the banks of a gully that flowed downhill towards Louth, which posed a major problem for chemical treatment as it is a waterway. Therefore, herbicides that were registered for this species were not allowed to be applied.

Bourke Shire Council's Senior Weeds Officer, Don Mackenzie sourced a Cochineal moth strain that was suited for Rope Pear to use as a biological control option.

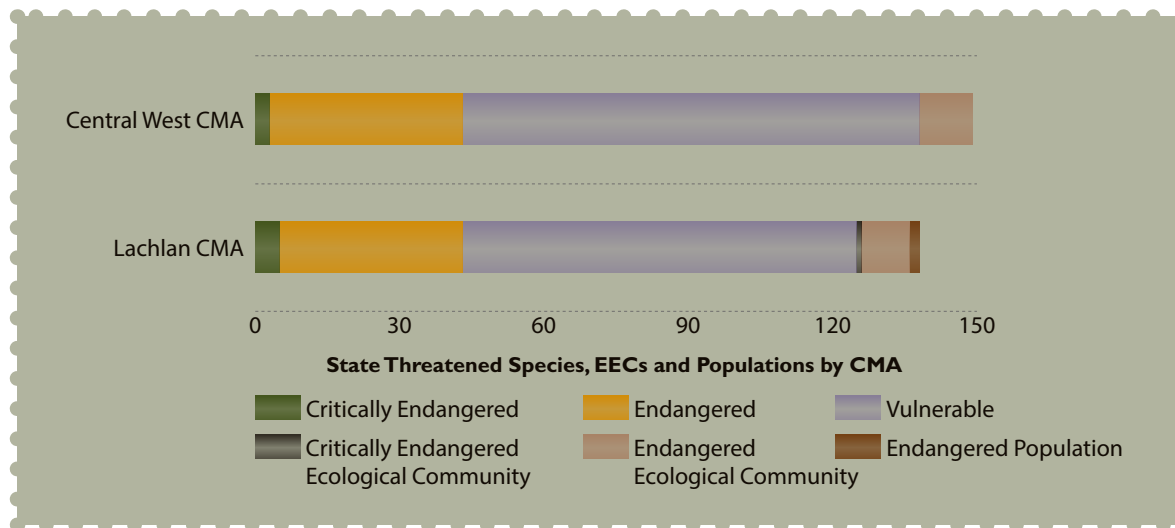
Neighboring Council, Cobar Shire, had harvested the Cochineal from an infestation in the south of their Shire. This Cochineal was introduced to the infestation on 21 January 2009.

Although it took far longer than using herbicides, the biological control has in 2013 eradicated the Louth infestation.

Remains of Rope Pear infestation at Louth (Don Mackenzie)



**Figure 7:** Number of threatened species, EECs and endangered populations in the Central West and Lachlan Catchments



Purple copper butterfly  
(Chris McCulloch,  
Central West CMA)

**Indicator - Voluntary Conservation Agreements, Property Vegetation Plans & biobanking**

The Central West CMA reported only one new Property Vegetation Plan (PVP) in 2012-13. This is a large decrease from the numbers reported in the three previous years.

**Indicator - Roadside vegetation management plan**

Fifteen of the seventeen Councils across the region reported that they had a roadside vegetation plan in place this year. The Dubbo and Lachlan Councils are the only ones that did not have a plan in place. Dubbo City Council is currently investigating vegetation mapping of the entire LGA.

**Indicator - State Threatened species listed for Central West and Lachlan catchments**

Figure 7 shows the breakdown of threatened species, Endangered Ecological Communities (EECs) and Endangered Populations across the Central West and Lachlan CMA areas. The number of threatened species increased again in 2012-13 to a new high of 149.

**Indicator - Threatened species actions implemented**

A total of 28 threatened species actions were implemented in 2012-13 across the region - the highest number recorded for this indicator. Just over two-thirds of these actions were in the Bathurst LGA, most notably weeding and revegetation across 26 km of

road reserve at 11 locations to improve the habitat of the threatened Purple Copper Butterfly.

**Indicator - Fish restocking activities: native species**

An increasing trend in this indicator was reported for 2012-13 with a 30% increase in native fish restocking numbers across the region compared with the previous year.

**Indicator - Fish restocking activities: non-native species**

A much smaller increase of 5% compared with 2011-12 was reported for non-native species restocking. However, the numbers are declining over the last four years which is reported as an improving trend due to the

potentially negative impact of increasing numbers of introduced species on native fish.

**Indicator - Number of declared noxious weeds**

The region has 122 declared noxious weeds, and a significant number of environmental weeds present. This number is unchanged from the previous reporting year of 2011–12 and is the highest level in the five years of reporting since 2008–09.

Noxious weeds declared for the reporting Councils can be found at [www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/noxweed](http://www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/noxweed)

**Indicator - Invasive species (listed noxious or Weeds of National Significance) under active management**

Twelve local Councils reported that they had programs in place to actively manage invasive species and had specific lists of species being actively managed. Bathurst, Bourke, Mid-Western and Warrumbungle Councils all reported significant increases in active management of weeds this year. These increases were offset by a large decline reported by Dubbo City Council, although this change was probably more reflective of a move to more accurate reporting of activity rather than an actual decline.

## CASE STUDY: Rehabilitation of Walker Lane Road Reserve (Orange LGA)

In 2011, Orange City Council received \$25,000 through the Local Government and Shires Association Roadside Vegetation Implementation Project funded by the NSW Environmental Trust. The project site nominated was the road reserve between the Pinnacle Road and Walker Lane (opposite the Pinnacle Reserve), an area of 29,053 m<sup>2</sup>.

The site is acknowledged as a very valuable tall forest, consisting of *Eucalyptus dives*, *Eucalyptus pauciflora*, *Eucalyptus viminalis*, *Eucalyptus dalrympleana*, *Eucalyptus canobolensis* and *Eucalyptus rubida*, a mid-story of *Acacia dealbata* and *Acacia melanoxylon* and understory of *Themeda*, *Poa* and *Microleana* species.

The site is surrounded by pristine pockets of native bushland and is utilised by bushwalkers and nature lovers. The project site had become a dumping ground for garden refuse over the years. Most of the refuse had propagated and became established garden weed escapees including English Ivy, Cotoneaster, Honeysuckle and Laurel. The implementation of the project will prevent further infestation by the garden escapees into the adjacent bushland areas and also enhance the immediate area for user groups and reduce potential infestation of adjacent properties.

The project focused on rehabilitating the roadside reserve where infestations of woody weeds were destroying the native vegetation and habitat values of this forest type and impacting on biodiversity in the area. The assessment carried out on the site recommended using the “cut and paint” method to control exotic species.

The project was carried out over 12 months and utilised the services of a Sydney-based bush regeneration team, Bush-it. In May 2012, the team spent two weeks at the site cutting and painting the majority of the woody weed infestation, (8.5 tonnes of weed matter removed) with a two week follow up in April 2013 (a further 3 tonnes removed).

Community engagement was encouraged throughout the project with 19 volunteers contributing a total of 92 hours toward the project. Interpretative signage describing the project was also installed adjacent to the site.

The Rural Fire Service (RFS) was a partner in the project and planned a cool burn of the site but due to weather patterns and workload last season the burn never occurred. It is scheduled for next autumn.

Signage highlights the environmental importance of the Walker Lane roadside reserve





# Water and Waterways

This chapter reports on the quantity and quality of water in the catchments of the reporting area and the consumption of potable water in the reporting region. In this chapter, ‘water’ refers to the rivers, aquatic habitats, creeks, wetlands, groundwater, dams, stormwater, potable water and the catchment activities which may impact upon them.

Bogan River, Nyngan  
(Chris McCulloch,  
Central West CMA)






There are two main issues in relation to water in the reporting area. Firstly, the quantity of water is often variable within many rivers due to the periodic effects of drought and flood. Many rivers in the Murray-Darling Basin have been dammed to provide a reliable water supply for agriculture and urban use and increasing demand is placing pressure on inland water systems. Secondly, the quality of the water existing within the river and groundwater systems is also important, with threats arising from industrial, urban and agricultural pollution sources, as well as from treated wastewater and stormwater.

Waterways across the catchment are important for many reasons:

- They act as a ‘barometer’ for the whole environment. Most activities that occur on the land are ultimately reflected in the health of waterways.
- They support a diverse range of ecosystems.
- The vast majority of our streams and creeks ultimately enter, and impact upon, the integrity of the internationally important Macquarie Marshes.
- Many waterways are in, or discharge into, drinking water catchments.

**Table 3: Summary Table of Indicator Trends – Water and Waterways**

Issue	Indicator	2009-10	2010-11	2011-12	2012-13	Trend
Surface & Ground Water Quality	Average salinity levels in selected streams (EC)	389	433	468	422	→
	Riparian					
	Riparian vegetation recovery actions	15	28	35	27	→
	Riparian vegetation recovery area (ha)	411	236	238	150	↑
Industrial/ Agricultural Pollution	Load Based Licencing Volume (\$)	134,389	193,395	124,654	145,699	↑
	Exceedances of license discharge consent recorded	36	38	47	38	↑
	Erosion & Sediment Control complaints received by Council	129	37	34	58	↑
Stormwater Pollution	Number of gross pollutant traps installed	61	62	63	70	↑
	Total catchment area of GPTs (ha)	4,812	4,812	5,275	5,325	↑
	Water pollution complaints		22	46	35	→
Dam Levels	Average dam levels	15.2%	55.1%	88.9%	76.1%	↑
Water extraction	Number of irrigation licences from surface water sources	5,002	5,087	5,836	3,941	↑
	Volume of surface water permissible for extraction under licences (GL)	1,397	1,595	1,635	1,165	↑
	Number of bore licences from groundwater resources	26,321	22,987	50,151	22,872	↑
	Volume of groundwater permissible for extraction under licences (GL)	417	2,859	1,293	298	↑
Council water consumption	Area of irrigated Council managed parks, sportsgrounds, public open space (ha)	739	859	880	880	↓
	Water used by council for irrigation (including treated and untreated) (ML)	719	716	771	1,384	↓
Town water consumption	Annual metered supply (ML)	24,185	21,372	21,496	28,000	↓
	Annual consumption (Total from WTP) (ML)	25,806	23,248	22,109	27,892	↓
	Average annual household use (kL/household)	276.6	217.2	198.4	262.9	↓
	Average level of water restrictions implemented	1.5	0.9	0.2	0.2	↑
Town Water Quality	Number of instances drinking water guidelines not met	182	154	101	253	↓
	Number of drinking water complaints	459	1,029	774	795	↓

-  improvement
-  no or little change
-  worsening trend

**Note – the above trends are for data in 2009-10, 2010-11, 2011-12 and 2012-13 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2012-13. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2012-13 for which no comparison can be made with previous years. Refer to the Appendix for a list of Councils included in the trend data.**

**Note – The NSW Office of Water has used a new method to calculate the Water Extraction indicator data for 2012-13. Thus the trends identified for these indicators may be more reflective of the changed methodology than changes in practices.**



**Indicator - Average salinity levels in selected streams**

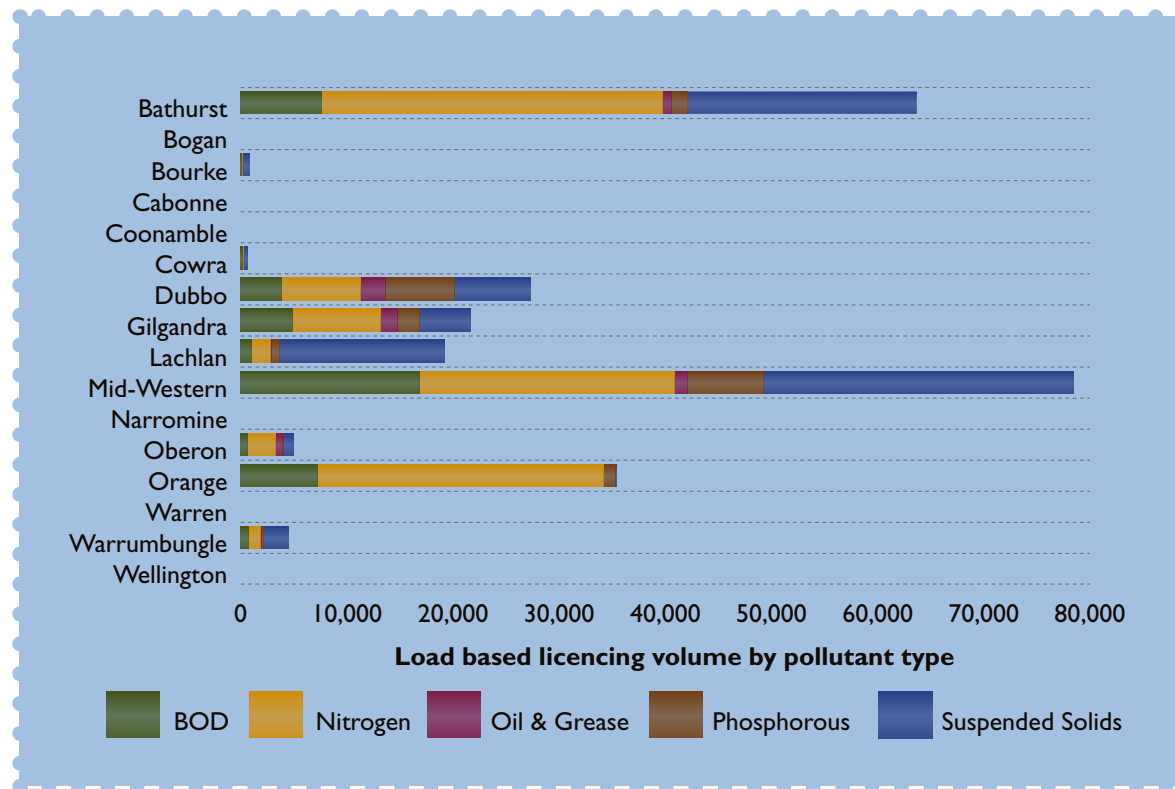
There was a slight decline in salinity levels compared with 2011-12. Salinity levels have been relatively constant over the past four years.

**Indicator – E.coli remote from wastewater treatment plants**

This indicator was introduced in 2012-13 to partly replace the water quality indicators for E. coli, nitrogen and phosphorous levels reported previously which came from a discontinued five-year water quality testing program run jointly by the Central West CMA and the local Councils in the region.

As this new indicator is not directly comparable with the previous one, a reliable trend cannot be deduced at this stage.

**Figure 8:** Load based licencing volume by pollutant type 2012-13



**Indicator - Riparian vegetation recovery actions**  
**Indicator - Riparian vegetation recovery area**

Local Councils and the Central West CMA reported a total of 29 riparian recovery actions in 2012-13 with a total riparian vegetation recovery area of 150 hectares. These numbers are both significantly down on the 2011-12 levels and point towards a declining trend in riparian restoration across the region. This is consistent with the lower number for riparian protection reported separately under the biodiversity indicator (“Vegetation protected and

rehabilitated through CMA incentive funding”).

**Indicator - Load Based Licencing (LBL) volume**

The total for pollutant loads allowed to be emitted by holders of environment protection licences increased by approximately 22% compared with the total reported in 2011-12 and by 16.9% for the seven Councils that have reported this data in each of the last four years. The major increases this year were in the Dubbo and Mid-Western LGAs, whilst Lachlan reported for the first time

(see Figure 8). Despite being regulated to control environmental impacts, these increases in LBL loads potentially increase pollution pressures on the environment and hence a declining trend is reported.

**Indicator - Exceedances of license discharge consent recorded**

On the other hand, the number of exceedances of the limits set by these Load Based Licences declined in 2012-13, returning to the levels reported in 2009-10 and 2010-11.

Gross pollutant trap,  
Coonabarabran  
(Chris McCulloch,  
Central West CMA)



### **CASE STUDY: Coonamble Water Treatment Plant (Coonamble LGA)**

Coonamble Shire Council currently provides water supply services within the townships of Coonamble, Gulargambone and Quambone. All Council water supplies are drawn from the Great Artesian Basin by means of three deep bores.

Council has identified a need to upgrade the water supply in the three towns/villages, to bring them into compliance with the Australian Drinking Water Guidelines, starting with Coonamble.

In 2007, Coonamble Shire Council completed a water treatment plant concept report and expressed a wish to engage the NSW Water Solutions Section of the NSW Department of Commerce to review the concept and advise on further consultancy services related to the Coonamble Water Supply.

A proposal was submitted by the NSW Water Solutions section to outline its methodology and fee to undertake a review of the concept design, prepare tender specifications and a tender for a water treatment plant to treat bore water, and offer of other related services.

The concept for a new 5.5 ML/d water treatment plant at Coonamble has now been adopted by Council and put out to tender. The new water treatment plant will be based on the lagoon sedimentation process designed to pre-treat the raw water in settling sedimentation lagoons followed by rapid sand filtration, pH correction and disinfection to be carried out after filtration.

The water treatment plant will treat bore water to a standard similar to, or better than, the current Australian Drinking Water Guidelines 2004. The project is currently underway and expected to be finalised by the end of 2013.



The construction of Coonamble Water Treatment Plant

**Indicator - Erosion and Sediment Control complaints received by Council**

Ten Councils reported erosion and sediment control complaints in 2012-13, with the largest numbers from Bathurst Council, which runs a compliance program, and Cabonne Council.

**Indicator - Number of Gross Pollutant Traps (GPTs) installed**

**Indicator - Total catchment area of GPTs**

As shown in the summary table (Table 3), the number of GPTs installed increased to 70 across the 14 Councils that reported in all four years, accompanied by a 50 hectare increase in the catchment area of these GPTs. The increase in 2012-13 was entirely explained by a further seven GPTs in the Dubbo LGA.

**Indicator - Water pollution complaints**

A total of 38 water pollution complaints were recorded by the fifteen Councils that reported on this indicator in 2012-13. Most of these were reported in the Bathurst and Dubbo LGAs.

**Indicator - Dam levels**

Although average dam levels declined compared to 2011-12, Figure 9 illustrates that storage levels have remained high since the drought broke in 2010-11. Average storage levels in all the dams were still around 90% for four of the six dams. However,

Burrendong Dam, which is one of the two major dams in the region, showed a large variation across the year from a high of over 100% to a low of 41.6%.

**Indicator - Number of irrigation licences from surface water sources**

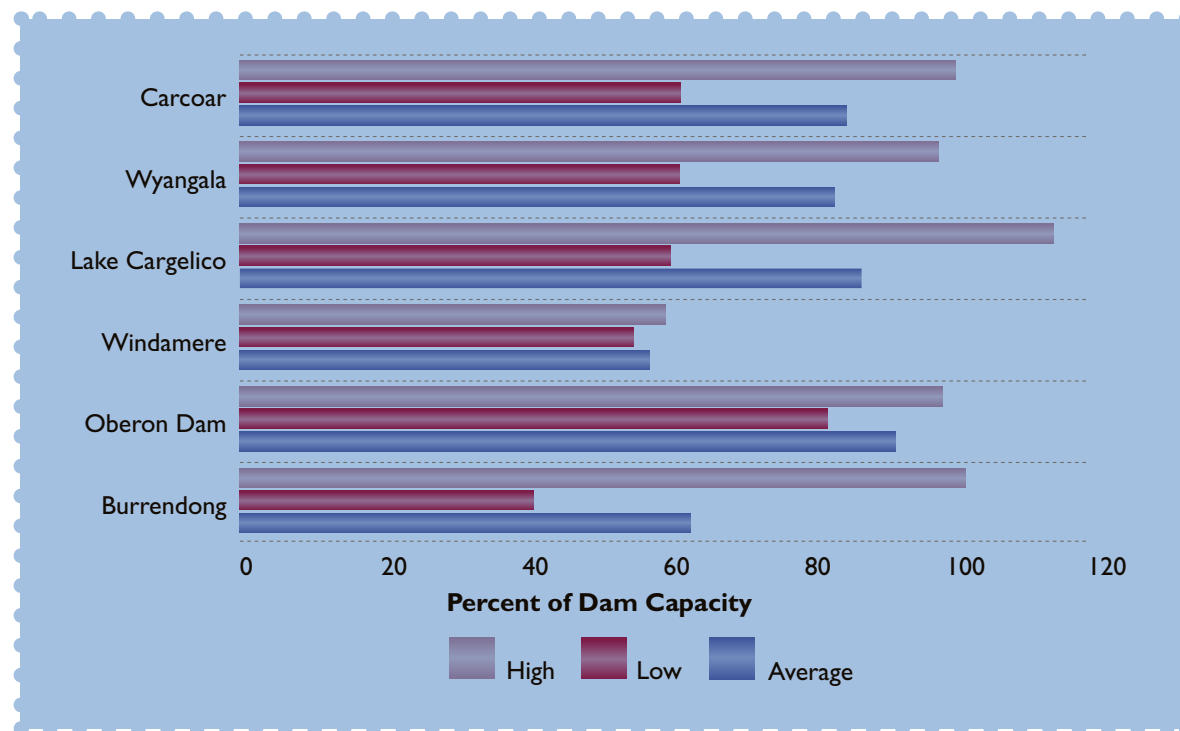
**Indicator - Volume of surface water permissible for extraction under licences**

The number of surface water irrigation licences was reported this year to be 3,941 which is a significant decrease on the numbers of between 5,000 and 6,279 reported over the previous four years. Similarly, the volume of

surface water permissible for extraction under these licences fell to 1,165 GL from the range of 1,397 GL to 1,635 GL reported over the previous four years.

It is unlikely that the dramatic decline in these numbers is due to major reductions in the water actually licenced for extraction in the region, rather it is mostly or entirely a function of changes to the licensing regime and to the NSW Office of Water's interpretation of data at the LGA level. The NSW Office of Water has indicated that the 2011-12 data included cancelled licences and licences that had been converted under the *Water Management Act 2000*.

Figure 9: Dam levels for 2012-13



*Indicator - Number of bore licences from groundwater resources*

*Indicator - Volume of groundwater permissible for extraction under licences*

The number of bore licences across the region was reported as 22,872 in 2012-13. This number is broadly in line with the data reported from 2008 to 2011 and would suggest a small decline in the number of licences, on the assumption that the data for these years is reliable. Given the comments above under surface water, it is probable that the 50,151 reported last year was erroneous and should be ignored.

However, the data on the volume permissible for extraction under groundwater licences varies greatly across the last five years and makes it impossible to draw any conclusions on trends for the data of this resource which has historically been poorly managed.

*Indicator - Actual volume extracted through surface water licences*

*Indicator - Actual volume extracted through groundwater licences*

The NSW Office of Water did not provide any data this year on actual water extractions. Given the issues with providing reliable data

on licences as reported above, this is not entirely surprising and it is also unlikely that any such data would be reliable until the problems with allocating the licences to LGAs have been resolved.

*Indicator - Annual releases (gigalitres) to rivers*

*Indicator - Annual volume released to rivers for environmental flows*

A total of 265.8 GL was released as environmental flows to the Macquarie Marshes in 2012-13. This is by far the largest level reported over the last four years and reflects the increased water availability across the

Narromine Wetlands  
Panorama  
(Chris McCulloch,  
Central West CMA)



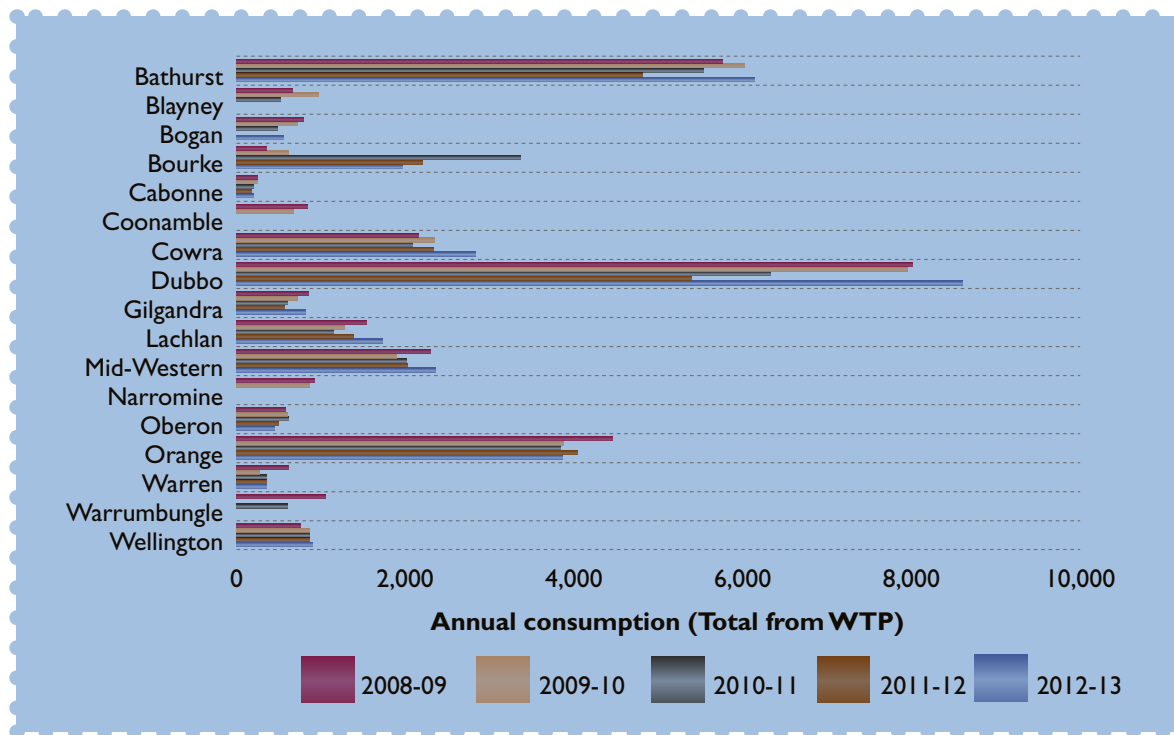


Figure 10: Annual town water consumption

region since the end of a period of extended drought which created significant stress on the Macquarie Marshes.

**Indicator - Irrigated council managed parks, sportsgrounds, public open space**

The total reported for this indicator is unchanged in 2012-13 compared with the 2011-12 total for the 13 Councils that have reported data in each of the last four years. However, this was the first year in which all 17 Councils provided data, giving a new total of 1,058 hectares across the entire region.

**Indicator - Water used by council for irrigation (treated and untreated)**

This year, a 79.5% increase was reported in the volume of water used for irrigation by the nine Councils reporting in each of the last four years. Six of these nine Councils reported an increase this year with by far the largest being in the Dubbo LGA. Dubbo was already the largest irrigator amongst the 17 Councils in the region but this year it more than doubled its use to 1,008 ML. This increase was largely caused by the commissioning of a new high performance playing

field and water re-use scheme that initially required the use of potable water.

**Indicator - Annual metered supply  
Indicator - Annual consumption (Total from WTP)**

The metered water use across the region increased by approximately 30% compared with 2011-12. The total of 30,235 ML was the largest amount reported in any of the last six years of reporting, with an increase in consumption recorded by 11 of the 14 Councils that reported in the last two years. The total consumption from the region's Water Treatment Plants (WTPs) showed a similar increase.

Figure 10 provides a breakdown of water consumption across the region in 2012-13 compared with the water use in the four previous reporting years.

These increases in water supply are likely due to the combination of increased water demand in a relatively dry 2012-13 and increased water availability from the very wet previous year.

**Indicator - Household mains potable water usage  
Indicator - Water restrictions implemented**

There was an increase of 32.5% in the household mains potable water usage across the region to an average 262.9 kilolitres per residential household for the 14 Councils that reported in each of the last four years.

Increased water demand in a relatively dry year was easily supplied from full dams, with only Lachlan and Orange having any water restrictions in place in 2012-13.

Whilst the increased domestic water use is reported as a worsening trend, some encouragement for the future can be drawn from the fact that the usage per household was lower than the levels reported in each of the three years from 2007-08 to 2009-10. It is possible that the increased focus on water efficiency instigated during the recent drought will bear some fruit in the next prolonged dry period.

**Indicator - Drinking water guidelines not met**

The number of instances where drinking water guidelines were not met almost doubled across the region in 2012-13, with the majority of the increase originating from the Cowra and Mid-Western LGAs. The latter Council reported that 93 of its 112 exceptions were due to a recent change in the range for free Chlorine from 0.05 - 5 mg/l to 0.2 - 5 mg/l.

Figure 11 shows the LGAs in which drinking water guidelines have not been met over the past four years.

**Indicator - Drinking water complaints**

The small increase (2.7%) in the number of drinking water complaints across the region in 2012-13 masks some significant changes in individual LGAs. Large increases in complaints were reported by Bathurst, Cowra,

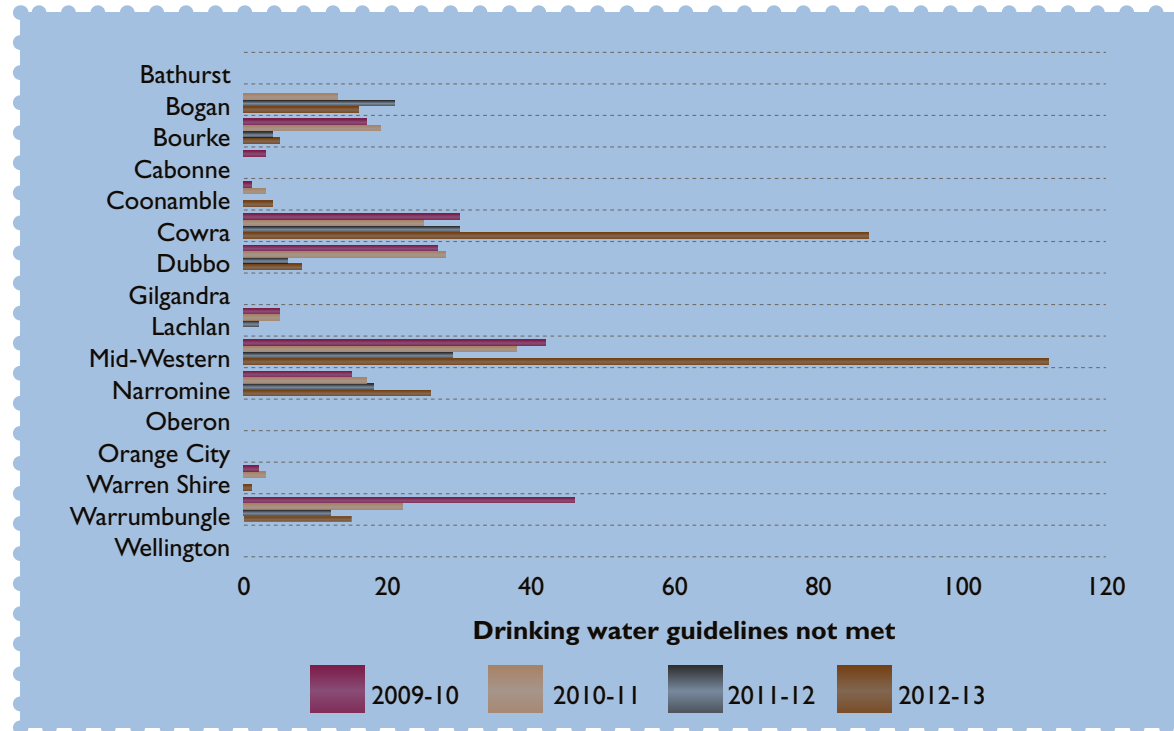


Figure 11: LGAs in which drinking guidelines have not been met



Somerset Park wetland, Orange

Castlereagh River  
in flow, Coonamble  
(Diana Kureen, Central  
West CMA)

Mid-Western and Narromine Councils.  
Offsetting these were large decreases in the  
number of complaints reported by Cabonne,  
Oberon, Warrumbungle and Wellington  
Councils which each had the lowest level  
of complaints in the last four years.

A leaky tap wastes a  
great deal of water  
(Chris McCulloch,  
Central West CMA)



## CASE STUDY: Improving aquatic habitat and water flow near Baldry (Cabonne LGA)

Fish passage is important to the survival of aquatic species as they need to migrate to spawn, seek food or shelter. The ability to migrate is also important for genetic diversity which will improve survival rates for aquatic species.

The Central West CMA was allocated funds from Catchment Action NSW to improve aquatic and terrestrial habitat for biodiversity. Under this program, Cabonne Council was engaged to improve aquatic habitat and water flow on the Balrudgery Creek, a major tributary to the Little River by removing a fish barrier and opening up approximately 49km of stream to fish passage and allow for further migration of aquatic species.

The works involved:

1. Removal of an existing obsolete concrete causeway aligning with Council environmental standards and the *Fisheries Management Act 1994*
2. Rehabilitation and management of the disturbance caused through removing the concrete slab of the causeway.

The obsolete causeway was located across a straight section of the Balrudgery Creek on Peak Hill Road near the village of Baldry, a public road owned and maintained by Council. The causeway had been replaced and made obsolete by a bridge directly downstream of the causeway.

The works were successfully carried out by June 2013.

Balrudgery Crossing prior to works being carried out









# People and Communities

This chapter reports on environmental issues with people and communities including development, cultural heritage and air quality. Human settlements form part of the landscape, but as populations increase, they also become a source of pressure on the environment. Councils are responsible for urban planning, infrastructure, some aspects of environmental and heritage restoration, protection and conservation of resources, provision of community facilities, and community services.

As settlements grow, environmental issues may also increase concurrently with increases in conflicting land uses and increased levels of various types of pollution. Cultural heritage incorporates both Indigenous and non-Indigenous heritage and both are threatened by increased development and a lack of management and awareness.

Globally, the condition of the air has been heavily scrutinised in recent times due to its potential impact on climate change.




The atmosphere regulates the type and amount of radiation that hits the earth's surface from the sun (via the ozone layer), regulates temperature (through the 'greenhouse effect') and provides the gases that plants need to grow and animals, including people, need to breathe. However, some substances in the atmosphere may reduce the air's quality, and pollution resulting from smoke, industrial and agricultural emissions can at times be a problem within the reporting area.



Bathurst Court House,  
(Chris McCulloch,  
Central West CMA)

**Table 4: Summary Table of Indicator Trends – People and Communities**

Issue	Indicator	2009-10	2010-11	2011-12	2012-13	Trend
Active community involvement	Environmental volunteers working on public open space (hrs)	14,550	15,621	12,226	15,992	↑
Community Impacts	Number of days that air pollution maximum goals for particulate matter were exceeded*	8	0	1	2	↑
Indigenous Heritage	Inclusion in DCPs & rural strategies	7	9	14	14	↑
	Extent of liaison with Indigenous communities (self-assessed from 0 = none to 3 = High)	1.8	2.1	2.0	2.0	→
	Development approvals on listed Indigenous sites	3	5	12	13	↓
Non-Indigenous Heritage	NSW Heritage Items	101	108	109	112	↑
	Locally listed heritage items	1,357	1,622	2,096	2,290	↑
	Actions to protect non-Indigenous heritage (including management plans)	23	20	37	32	↑
	Heritage buildings on statutory heritage lists demolished/degraded in past year	2	4	0	0	↑
	Heritage buildings on statutory heritage lists renovated/improved in past year	34	56	74	64	↑

-  improvement
-  no or little change
-  worsening trend

**Note – the above trends are for data in 2009-10, 2010-11, 2011-12 and 2012-13 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2012-13. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2012-13 for which no comparison can be made with previous years. Refer to the Appendix for a list of Councils included in the trend data.**

**\*Bathurst is the only monitoring station in the reporting area.**



*Indicator - Environmental volunteers working on public open space*

In 2012-13 there was an increase of more than 30% in the measured level of community participation in local environmental projects. Significant increases in volunteer hours were reported in the Bathurst, Bourke, Cowra, Dubbo and Mid-Western LGAs. Lachlan, Warren and Wellington Councils also reported activity for the first time.

*Indicator - Number of growers' markets/local food retailers specialising in local food operating within LGA or region*

This is a new indicator for the 2012-13 report. Twelve of the seventeen Councils identified an approximate total of 83 growers markets or local food retailers specialising in local food which are currently operating within the region.

*Indicator - Number of environmental community engagement programs*

This is a new indicator for the 2012-13 report. Nine of the seventeen Councils identified a total of 74 environmental community engagement programs which were run within the region in 2012-13. Examples include:

- 'Making A Difference Newsletter' published by Bathurst Regional Council
- The local schools program run by Cabonne Council
- 'Natural Resource Management Futures

Forum' run in Cowra LGA

- 'Tree planting day, Sept. 2012' in Mudgee and Gulgong (Mid-Western LGA)
- Liaison with the Wellington Landcare Group in regards to the Roadside Vegetation Program (Wellington LGA).

*Indicator - Air pollution maximum goals for particulate matter exceeded*

During 2012-2013 there were two days where particulate matter exceeded the National Environment Protection Measure standard for PM10 particles (which is an average daily reading of 50 micrograms per cubic metre). PM10 is used to define air particles that are up to 10 micrometres in diameter and are among the coarser particles that can be measured in air quality analysis.

This continued the improvement recorded in the last two years compared to 2008-09 and 2009-10. This change is probably due to the wetter conditions experienced in the region over the last three years, as the main contributors to high PM10 particle levels in the region (including at Bathurst monitoring station) are dust storms, bushfires and burn-offs.

*Indicator - Indigenous heritage inclusion in DCPs & rural strategies*

This is the second successive year that all seventeen Councils reported that they had included Indigenous heritage issues in their local planning strategies.

*Indicator - Extent of liaison with Indigenous communities*

The 14 Councils reporting on this indicator in each of the last four years rated the extent of their liaison with Indigenous communities at an average of 2 on a scale of 0 (none) to 3 (high). Activities cited by Councils in support of their self-assessed rating included meetings of the Indigenous Reference Group in the Mid-Western LGA, and consultation during the Cabonne and Wellington Council draft LEP processes.

*Indicator - Development on listed Indigenous sites*

There were 13 developments reported on listed Indigenous sites across the region in 2012-13, which is a small increase on the 12 reported last year and continues the worsening trend in this indicator.

*Indicator - Number of Indigenous sites on AHIMS register*

The Aboriginal Heritage Information Management System (AHIMS) is the register for Indigenous heritage places across NSW which have been declared by the Minister for the Environment to have special significance with respect to Indigenous culture.

For this new indicator, twelve of the 17 local Councils in the region reported that there were a total of 241 sites on the AHIMS register in 2012-13 (see Figure 12).

## CASE STUDY: Bathurst Wholefood Co-operative (Bathurst LGA)

The idea for a food Co-op started in 2010 when a group of dedicated locals got together to talk about opportunities for organic food from the region to be sold locally. Later that year, they formed the Bathurst Wholefoods Co-operative and worked to open a shop where this produce could be sold.

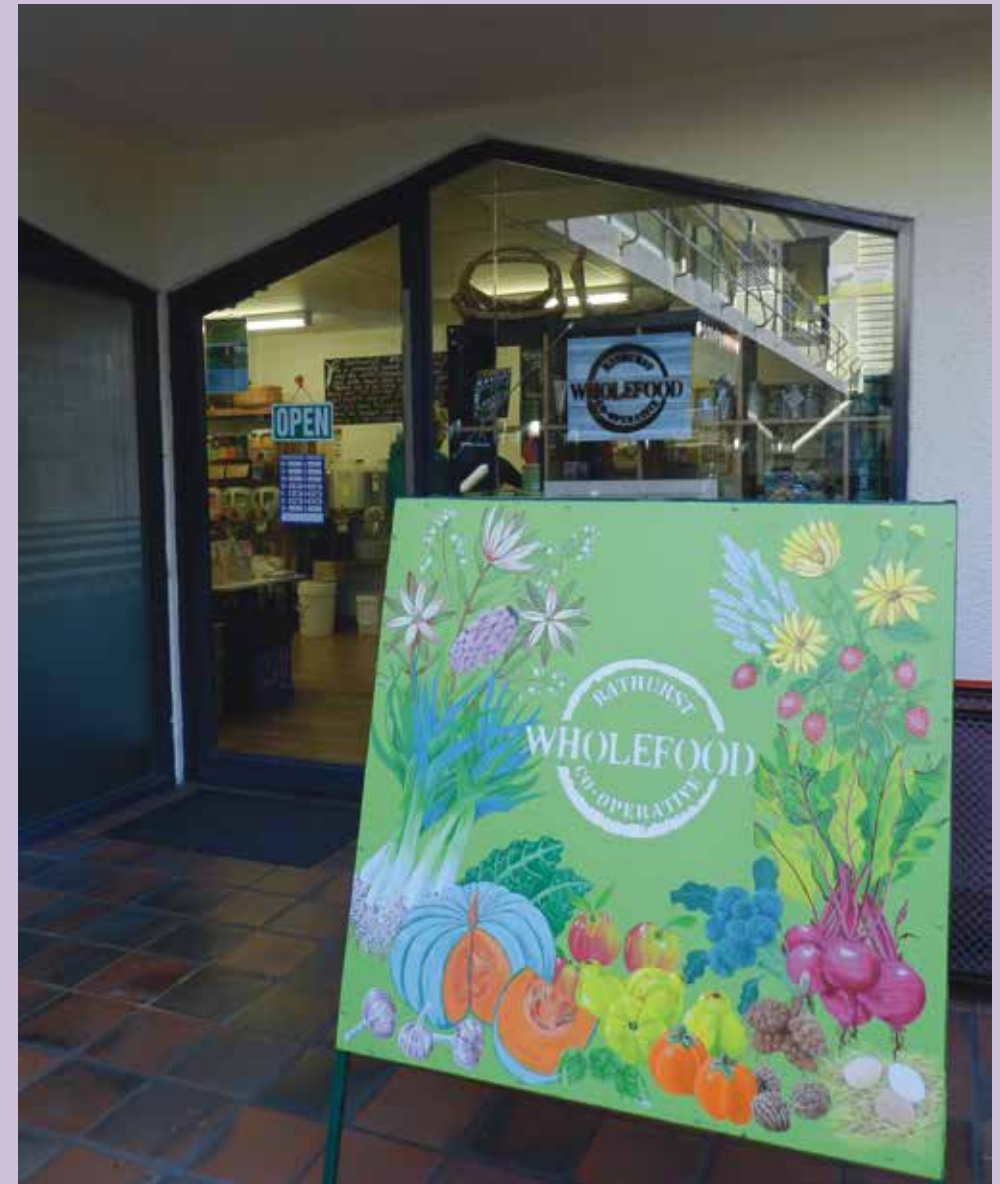
The Bathurst Wholefood Co-operative shop was opened in January 2012 and stocks foods that meet the Co-op's four objectives:

1. To purchase locally grown and/or organic foods and related products, for sale to co-operative members and the wider community
2. To work in conjunction with existing organisations to raise awareness in the community about the benefits of buying/consuming locally sourced produce
3. To work in conjunction with existing organisations to raise awareness in the community about the benefits of buying/consuming organic produce
4. To promote and/or create a route to market for organic produce generated by the local farming community.

The Co-op sources as much of its produce as possible from local farmers and producers. For items that cannot be found in Bathurst, the Co-op then looks further afield to find organic produce that meets consumer needs e.g. organic milk is sourced from Camden and organic rice from Leeton. The Co-op also sells bulk whole foods, meat and weekly seasonal fruit and vegetable boxes.

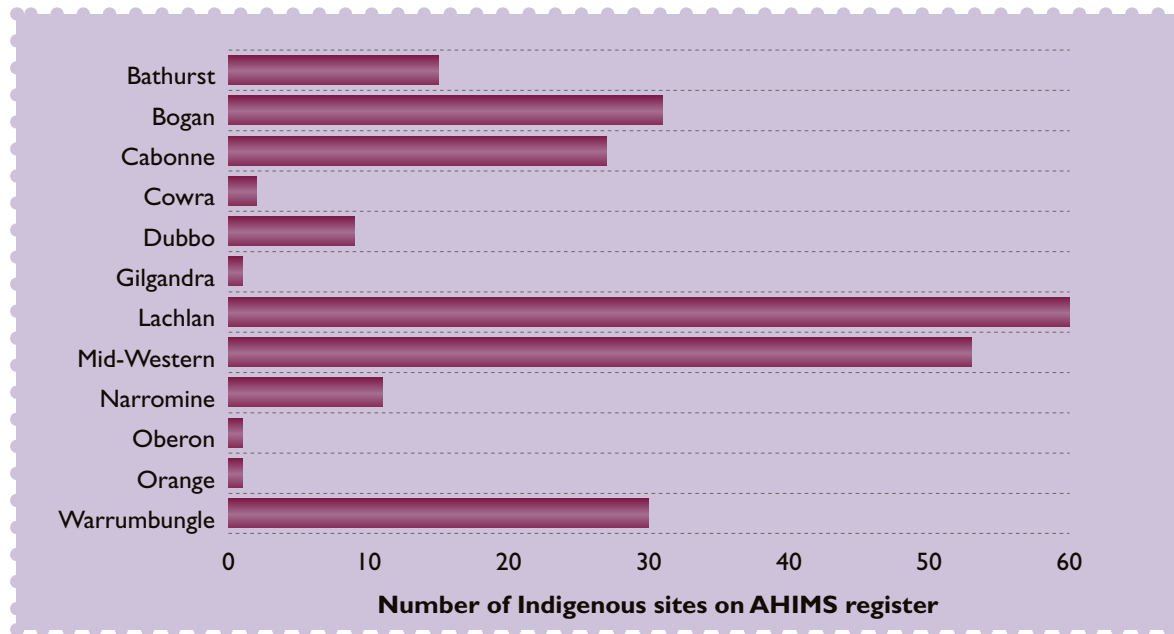
The Co-op also stocks bulk environmentally friendly cleaning products, non-toxic body products and kitchen items such as recycled aluminium foil, baking paper and baking cups.

The Co-op encourages members and shoppers to bring their own bags and containers as many dry and liquid products such as nuts, grains, flours, local olive oils, honey, balsamic vinegar and cleaning products are bought in bulk. Bulk purchasing allows the Co-op to reduce packaging waste, provide products more cost effectively and allows shoppers to buy exactly how much they need. Check them out at [www.bathurstwholefood.org](http://www.bathurstwholefood.org)

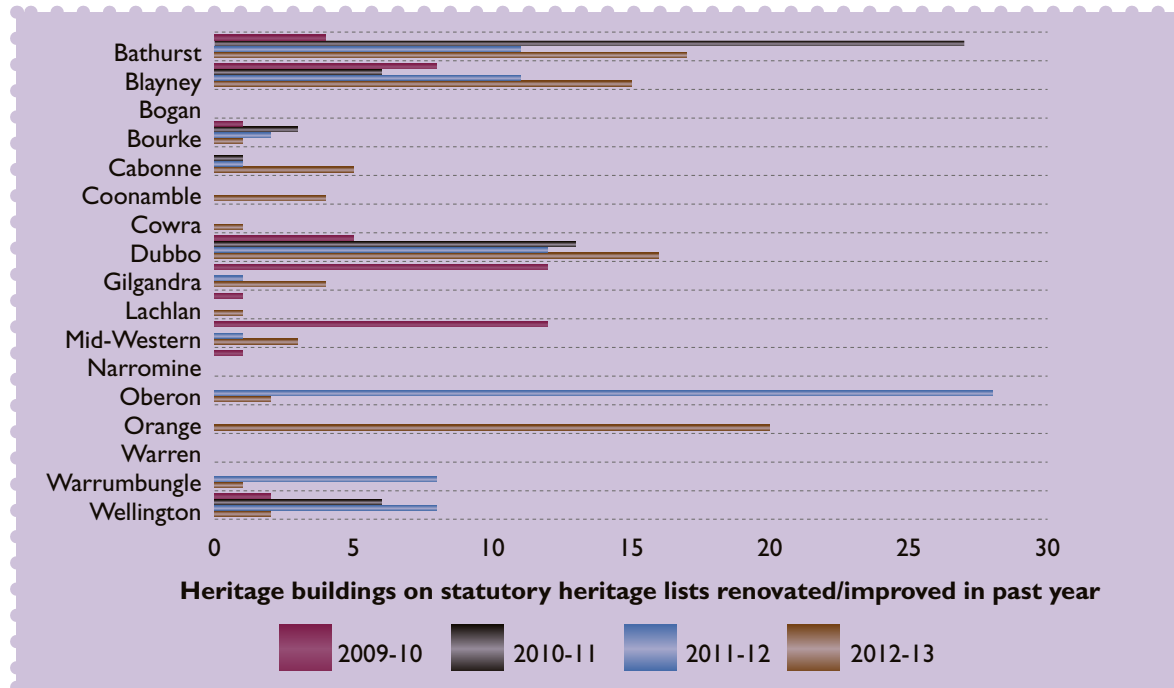


Bathurst Wholefood Co-operative shop

**Figure 12:** Number of Indigenous sites on the AHIMS register in 2012-13



**Figure 13:** Heritage buildings on statutory heritage lists renovated/improved



*Indicator - NSW Heritage Inventory items*

Three items were added to the NSW Heritage Inventory in 2012-13 - one in each of the Bathurst, Blayney and Cabonne LGAs.

*Indicator - Locally listed heritage items*

The number of locally listed heritage items increased by over 9% to a total of 2,290 in the 2012-13 reporting period. In 2012-13, many of the Councils in the region finalised their 2012 LEPs and a significant number of previously unlisted heritage items were formally added to these LEPs.

*Indicator - Non-Indigenous heritage actions/responses (including management plans)*

A total of 32 actions to protect non-Indigenous heritage (including management plans) were reported across the region in 2012-13. This was a decline from the 37 reported last year, but still shows an improving trend from the levels reported in the two prior years.

*Indicator - Heritage buildings on statutory heritage lists renovated/improved in past year*

*Indicator - Heritage buildings on statutory heritage lists demolished/degraded in past year*

Two listed heritage buildings were demolished or degraded in the last year – one each in the Coonamble and Orange LGAs.





By contrast, as shown in Figure 13 there were a total of 92 listed heritage buildings across the region which were renovated or improved in the last year. This is slightly down on the total reported in 2011-12, but is still reported as an improving trend as the level of restoration activity is significantly above the levels reported in the three previous years, showing the importance placed on non-Indigenous heritage by the communities across the region.

## CASE STUDY: Business Resource Efficiency Toolkit

The Resource Efficiency Toolkit for small to medium businesses has been developed by the Central West CMA with assistance from Bathurst Regional Council. It helps in assessing how business might implement some simple cost savings while making a move to becoming more sustainable.

The Toolkit is divided into two sections. The first is the Case Studies that give examples of businesses that were audited in Bathurst, Orange and Dubbo LGAs. The case studies include a description of the changes and savings made by these businesses as a result of the audits.

The audits undertaken examined business activities around the areas of energy, water and waste.

The second section is the Toolkit. It provides background information and some simple checklists that can assist businesses to get started and implement some simple cost-effective changes to their business operations.

The original audits were made possible by funding through the Central West Catchment Management Authority (CMA) which supported the Bathurst–Orange–Dubbo Sustainability Alliance to facilitate audits of businesses in their towns.

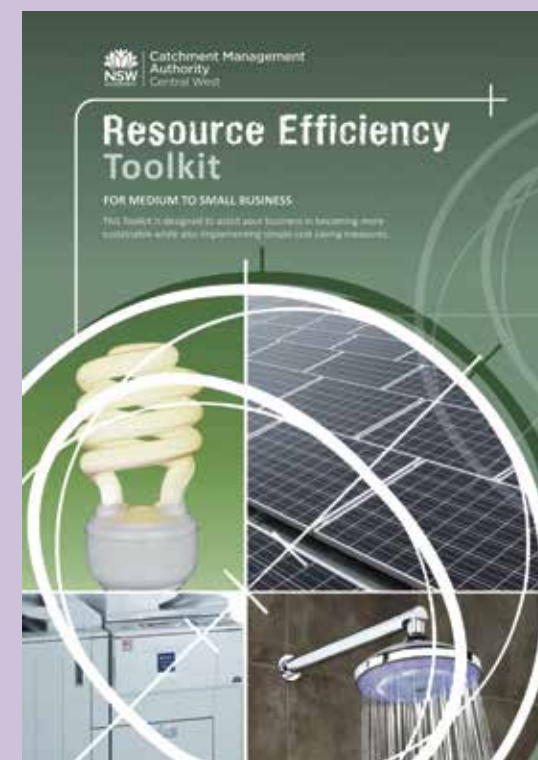
The main focus of the audits in Orange and Dubbo was the hospitality industry, targeting larger businesses such as clubs and hotels. These businesses found they were able to make significant savings and operate more effectively using the knowledge gained through the audit process.

The audits were no less successful in Bathurst, but the range of businesses was far more diverse as businesses were identified through the local Business Chamber and through direct invitation.

The experience of Bathurst-based consultants, CDE-Energy, was also sought in the development of this Toolkit. Consequently, although the case studies have a focus on Bathurst businesses, their experiences are similar to a great number of enterprises in the Central West.

Again, all the businesses audited found they were able to make significant savings and operate more effectively. It was therefore, important to share this knowledge and experience with as many businesses as possible across the catchment, and the Resource Efficiency Toolkit provides the means to do this.

Cover of the Resource Efficiency Toolkit





# Towards Sustainability

Sustainability is internationally recognised goal that is particularly relevant to local Councils in the face of climate change. In the best definition for local Councils, sustainability can be seen as meeting the needs of the present without compromising the ability of future generations to meet their needs.

It is essential that sustainability operates across the three spheres of the community: environmental, social and economic, as well as combined with governance, in a quadruple bottom line approach. This Regional SoE report provides a platform for measuring sustainability initiatives across the region, while also providing a snapshot of current trends.

Local authorities, who play a key role in leading by example, need a sound understanding of sustainability so they are able to reduce environmental impacts and associated costs and improve the quality of life for their local communities.

Key sustainability issues for all Councils include:

- Adapting to, and mitigating the effects of, climate change
- Sustainable management of water, both quantity and quality
- Biodiversity management including habitat maintenance and enhancement
- Ensuring land use planning and development controls deliver sustainable development locally
- Sustainable energy generation.
- Sustainable procurement
- Sustainable waste and resource management

*Indicator - Total waste entombed at primary landfill*

*Indicator - Total waste entombed at other landfills (excluding recyclables)*

*Indicator - Average total waste generated per person per annum*




In 2012-13, the total waste entombed at the region's primary landfills declined by just over 5% for the 13 Councils reporting on this indicator in each of the last four years. This is reported as a worsening trend because the level is still well above that reported in the two previous periods. A full breakdown across LGAs for 2012-13 is provided in Figure 14.

However, a further decline in waste entombed at secondary landfills was reported this year, continuing the trend reported in previous years as Councils across the region implement their programs of closing other landfills and consolidating waste processing at primary landfills.

In 2012-13, the combination of these factors led to a small decrease in the average total waste generated per person across the region to 1.04 tonnes. This small decline was not enough to reverse the worsening trend reported in this indicator over the last few years, but hopefully it is the first sign that the region is at a turning point and that education

**Table 5: Summary Table of Indicator Trends – Towards Sustainability**

Issue	Indicator	2009-10	2010-11	2011-12	2012-13	Trend
Waste Generation	Total waste entombed at primary landfill (tonnes)	136,000	147,000	174,000	165,000	↓
	Total waste entombed at other landfills (exc recyclables) (tonnes)	12,083	6,585	7,144	5,892	↑
	Average total waste generated per person (tonnes)	0.95	0.97	1.08	1.04	↓
	Average cost of waste service per residential household	\$182	\$242	\$242	\$265	↓
	Emissions from landfill (kt CO2e-)			124	128	↓
Hazardous/Liquid Waste	DrumMuster collections (number of drums)	64,160	81,114	121,000	52,612	↓
	Household Hazardous Wastes collected (kg)		7,748	12,800	14,406	↑
Reduce	Garden organics collected (diverted from landfill) (tonnes)	21,274	18,910	23,351	23,263	↑
	E-Waste collected (diverted from landfill) (tonnes)	13	25	61	38	↑
Recycle	Volume of material recycled (tonnes)	17,616	21,931	24,183	27,346	↑
	Volume of material recycled per person (kg)	80	98	109	123	↑
Littering and illegal dumping	Number of illegal waste disposal complaints to Council	322	410	503	388	↑
Engineering, Infrastructure and Civil Works	New road construction (km)	19	46	16	36	↓
	Road upgrades (km)	1,205	338	252	410	↑
Risk Management	Hazard reduction burns	9	28	11	38	↑
Climate Change Mitigation	Office paper used by Council (A4 reams)	19,325	19,869	21,938	22,785	↓
Council Greenhouse Gas Emissions	Annual electricity consumption for Council controlled facilities (MWh)	58,008	55,237	53,784	56,008	→
	Annual natural gas consumption for Council controlled facilities (GJ)	19,622	19,502	43,548	30,372	↓
	Annual bottled gas consumption for Council controlled facilities (L)		41,645	39,633	43,272	↓
	Total fuel consumption (kl)		6,482	7,914	7,667	↓
Community Greenhouse Gas Emissions	Small scale renewable energy uptake (KW installed)		3,687	6,890	10,444	↑

-  improvement
-  no or little change
-  worsening trend

**Note – the above trends are for data in 2009-10, 2010-11, 2011-12 and 2012-13 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2012-13. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2012-13 for which no comparison can be made with previous years. Refer to the Appendix for a list of Councils included in the trend data.**



Hazard reduction burn programs to avoid, reduce, reuse and recycle might be starting to have a real impact on reducing the amount of waste sent to landfill and value waste as a resource.

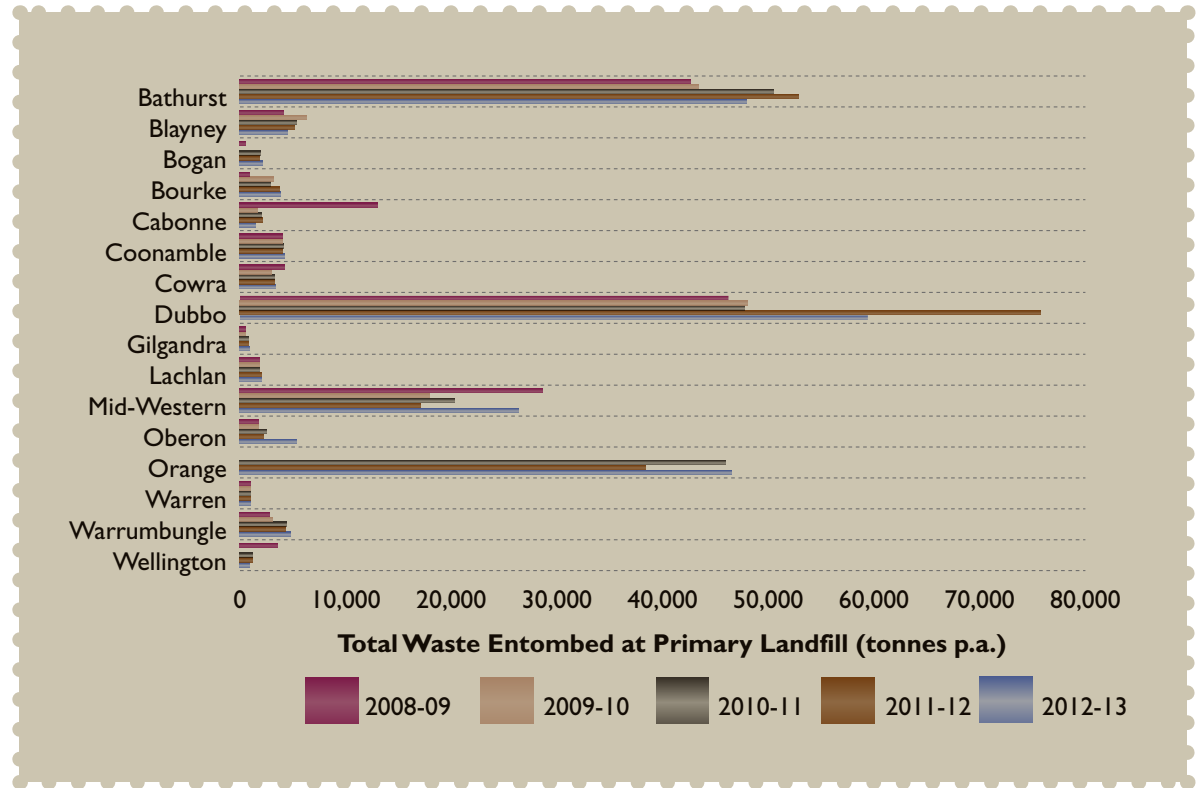
*Indicator - Average cost of waste service per residential household*

The average cost per person of the waste services provided across the region continued to grow in 2012-13 with a further increase of 9.5% over the 2011-12 cost.

*Indicator - Emissions from landfill*

The emissions from landfill have been calculated for each Council using the Hyder emissions calculator. There was a small increase in 2012-13 compared with the total for 2011-12. Because the calculation is based on the last five year's waste added to landfill, any changes in this indicator will lag changes in the annual landfill and waste per person indicators.

**Figure 14:** Total waste entombed at primary landfill by LGA



*Farm chemical drums collected through DrumMuster collections*

The number of farm chemical drums collected through DrumMuster collections this year was less than half the number collected in 2011-12. Whilst last year's number may have included an element of stockpiling, the 52,612 drums collected in 2012-13 is the lowest number collected over the last six years.

*Indicator - Household Hazardous Wastes collected*

There was a 12.5% growth in household hazardous wastes (HHW) collected by Netwaste across the region in 2012-13 for the eight LGAs in which Netwaste collections occurred in each of the last three years. Netwaste HHW collections actually occurred in 11 of the 17 LGAs as three were added to the program in 2011-12. The growth in these figures is reported as an improving trend because HHW collections provide a safe

disposal route for toxic materials which would otherwise be illegally dumped or just left on-site to eventually seep into the environment as containers perish.

*Indicator - Garden organics collected (diverted from landfill)*

The total tonnage of garden organics collected across the region was virtually unchanged from 2011-12 for the nine LGAs which have reported this data in each of the last four years.



*Indicator - E-Waste diverted from landfill*

E-waste collections were significantly lower across the region compared to the numbers reported in 2011-12. For example, in Bathurst LGA there has been a very significant decrease in the amount of E-waste being brought to the Council tip (0.12 tonne in 2011-12 compared with 26.1 tonnes in 2011-12) due to the reduced number of old televisions being deposited. Last year was the switch to digital television and there were a huge number of television sets and set top boxes recycled. An even larger reduction in

E-waste was reported in Orange, whilst Dubbo and Wellington reported big increases.

*Indicator - Amount of material recycled  
Indicator - Amount of material recycled  
per person*

The total volume of material recycled across the region increased in 2012-13, with the majority of this increase from kerbside collections by Bathurst, Cabonne, Cowra, Dubbo, Mid-Western, Orange and Wellington Councils

**CASE STUDY: Illegal Dumping Action Program (Warrumbungle LGA)**

In 2013, Warrumbungle Shire Council implemented a strategy to tackle illegal dumping within the local area. A number of hotspots have been known to Council but preventing incidences has proven difficult in the past. Since targeting illegal dumping, Council has also identified a number of dumping hotspots previously unknown to Council staff.

To combat the problem Council has engaged the use of wildlife monitoring cameras to catch illegal dumpers in the act. These cameras are activated by motion, and via a sim card and the GSM network, are able to send photos to the email of designated Council staff. This technology insures the cameras against theft, and reduces the need to physically visit spots and retrieve data from the cameras manually.

One spot of serious concern has been the Ulamambri tip site. When it is closed, people have either broken into the site, damaged fences, or dumped rubbish around its perimeter.

Already Council's illegal dumping program has helped to capture some dumpers at the tip, and word-of-mouth has hopefully deterred some would-be dumpers.

Pictures taken from the cameras have also identified some interesting activity from local wildlife.



Photograph taken at one of the illegal dumping sites

**Figure 15:** Type of materials recycled 2012-13

A breakdown of the type of materials recycled in 2012-13 is provided in Figure 15. The increased recycling totals meant that the tonnes recycled per person rose to 123 tonnes from the 109 tonnes reported in 2011-12. This means that there is an improving trend for this indicator.

*Indicator - Illegal waste disposal complaints to Council*

In 2012-13, there were 23% less illegal waste complaints recorded by the 14 Councils that have reported on this indicator in each of the last four years.

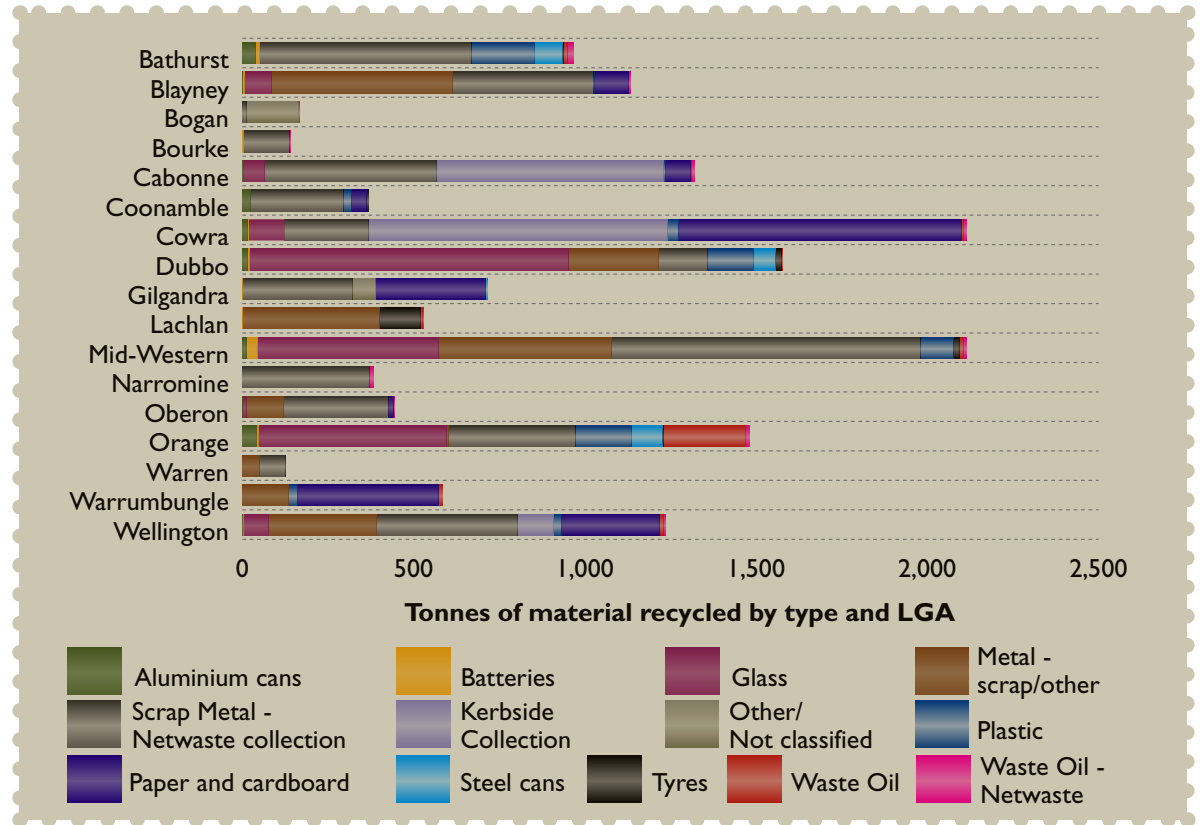
*Indicator - New road construction*

*Indicator - Road upgrades*

Large increases were reported in the kilometres of both new road construction and road upgrades this year. It is hard to draw too many conclusions from these numbers as they reflect the sporadic nature of funding for major road projects in the region.

*Indicator - Application of best practice environmental management (BPEM) in the design and delivery of new roads*

Fourteen of the seventeen Councils in the region responded to this new indicator with all but one of these indicating that they did already include BPEM in new road projects.



*Indicator - Hazard Reduction burns*

A total of 74 hazard reduction burns were reported across the region in 2012-13 with the number increasing significantly compared with 2011-12 as the landscape dried out and the bush fire hazard level increased. This is viewed as an improving trend due to its value in risk management.

*Indicator - Inclusion and demonstrable implementation of environmental sustainability criteria within purchasing policies*

*Indicator - Application of design measures in response to climate change (mitigation and adaptation) in the design and delivery of new infrastructure*

These two indicators have been introduced to gauge the proactiveness of Councils in response to sustainability and climate change.

Twelve of the 14 Councils that responded indicated that they did include environmental sustainability criteria within their purchasing policies.

Thirteen of the 14 Councils that responded indicated that they already apply design measures in response to climate change in new infrastructure.

*Indicator - Council sustainability initiatives*

The twelve Councils that have provided this data in each of the last three years reported a total of 75 sustainability initiatives in 2012-13. This is a significant increase on last year and continues an improving trend in this indicator.

*Indicator - Council adaptation initiatives*

Thirteen of the 14 Councils that responded indicated that they had climate change adaptation initiatives in place.

*Indicator - Council mitigation initiatives*

The eleven Councils that have provided this data in each of the last three years reported a total of 34 climate change mitigation initiatives in 2012-13 which is a decline compared with the 44 reported in 2011-12.

*Indicator - Flood management plans/ flood mapping in place*

This is a new indicator. Only Cowra and Orange Councils reported an increase in 2012-13 in the number of hectares of flood mapping / management plans they had in place. Cowra reported an additional

10,050 hectares whilst Orange reported that 408.8 hectares were added.

*Indicator - Natural disaster declarations*

There were two significant bushfires reported in the 2012-13 year by Councils:

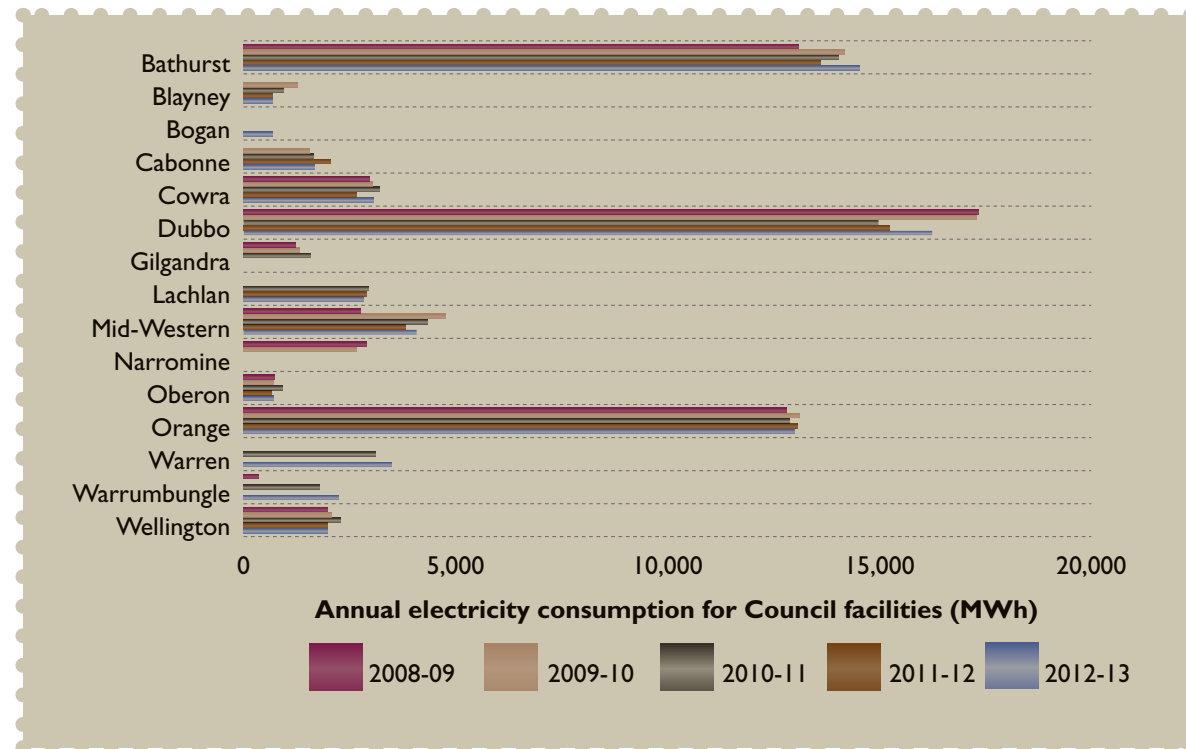
- An estimated 30,000 hectares burnt in the Bourke LGA
- An estimated 53,000 hectares burnt in the Wambelong Bushfire in the Warrumbungle LGA.

Both fires triggered natural disaster declarations.

*Indicator - Annual electricity consumption for Council controlled facilities*

Electricity consumption increased compared with 2011-12 by 4.1% for the nine Councils that have reported this data in each of the last four years. However, usage was still below the level reported for these Councils in 2009-10 and there is no clear long term trend with this indicator.

A comparison of the electricity used by each Council in their facilities over the past five years is provided in Figure 16.



**Figure 16:** Annual electricity consumption for Council facilities

## CASE STUDY: Youth Leading the World (Bathurst LGA)

In 2012, Bathurst Regional Council, in partnership with OzGREEN and Skillset at the Flannery Centre, ran its first Youth Leading the World Congress. 'Youth Leading the World' is an initiative of OzGREEN founded in 1992 after witnessing fish kills in Curl Curl Lagoon in Sydney and then seeing the pollution of the River Ganges in India. Its goal is learning and leadership for sustainability, social innovation and community-driven change.

Youth Leading the World is a three day intensive process which explores local and global issues of sustainability, helps young people measure and understand their own eco-footprint and work on action plans to make change in their lives, schools and communities. Congresses are held simultaneously, digitally-linked across multiple global locations.

Five local high schools participated in this first year of the program in Bathurst. Students were linked with other congresses around Australia and the world via social media. The students created action plans which included action on recycling, growing food at home, encouraging resource efficiency at school and making other changes at home.

The students' vision for the future is:

"In our world, we have come together as one; we have defied all odds and saved the world we live in. We have learnt to live sustainably and rehabilitated the land. We grow more trees than we cut down and there are no new endangered species. Population growth has halved in the past 20 years and every person has the right to clean water, medicine, food and sanitation. Every person and species is equal no matter their race, gender or personal income. There is no place for weapons, fighting or war. We use renewable energy and have decreased CO<sup>2</sup> in the atmosphere so that global warming is not a problem. The environment is more important than the economy or class standing. We are one world and one humanity and we have come together to stand as one and save the world."

Student discussion at the Youth Leading the World Congress



### *Indicator - Office paper used by Council*

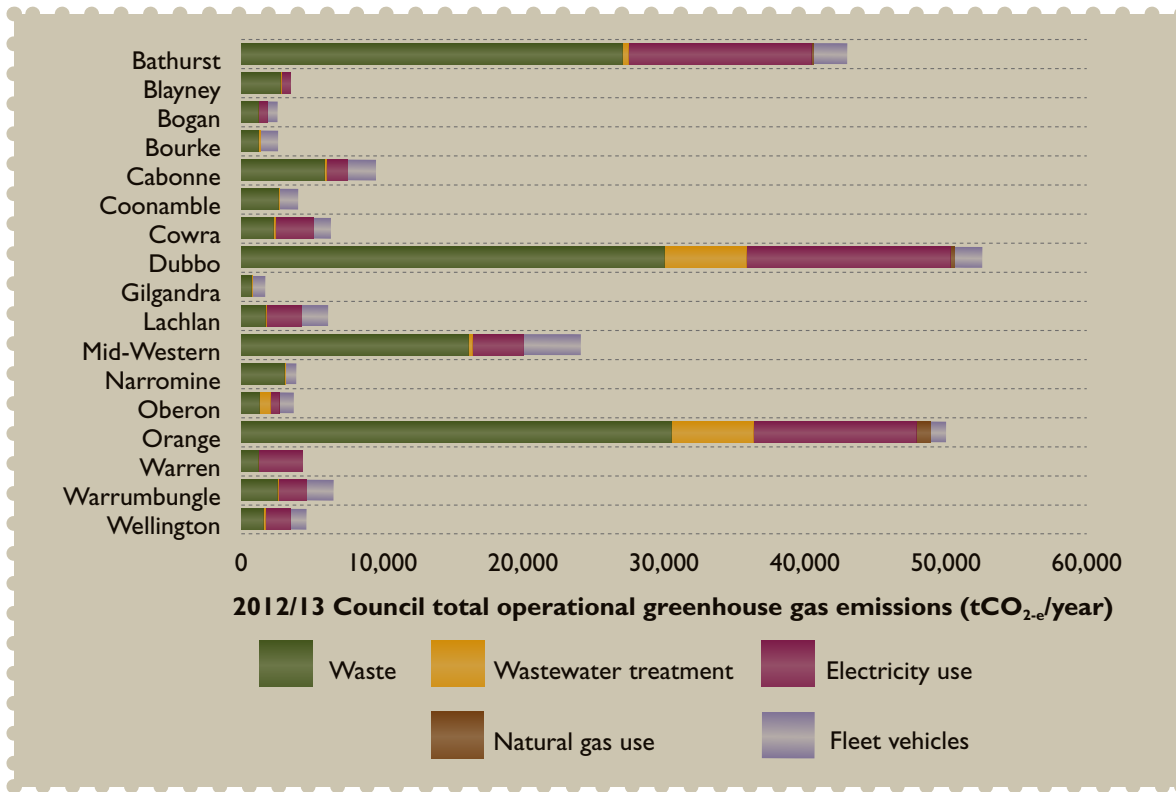
Councils reported a 3.9% increase in office paper usage across the region in 2012-13. This continues the worsening trend reported in previous years and from an environmental perspective, the trend is worse than shown as the total masks a move away from using recycled paper reported by several Councils.

### *Indicator - Council facilities consuming Greenpower*

The only Council that reported using Greenpower in 2012-13 was Orange which said it had five facilities using Greenpower. There appears to be very little interest in moving to Greenpower for Councils across the region: other Councils are pursuing renewable energy programs.

### *Indicator - Annual natural gas consumption for Council controlled facilities*

Natural gas consumption for the six Councils that have reported this indicator in each of the last four years fell by over 30% compared with 2011-12. Bathurst and Dubbo Councils reported relatively modest reductions but Orange reported that its consumption fell from 31,674 GJ in 2011-12 to 19,766 GJ this year. Oberon was the only other Council that reported using more natural gas in 2012-13.



calculated for thirteen of the seventeen councils in the region using the Hyder toolkit.

The Hyder model uses a simple emissions calculator to estimate greenhouse gas emissions from energy consumed across all Council operations and adds this to the landfill emissions.

The amounts are somewhat lower than they should be for some Councils that did not provide data for all their energy consumption (see Figure 17) and does not include the methane flaring at Bathurst LGA.

*Indicator - Proportion of Council's electrical energy demand met from Council-owned renewable energy infrastructure*

This is a new indicator for 2012-13. Only three Councils reported that some of their energy demand was being met from Council-owned renewable energy infrastructure:

- Bathurst - 0.4%
- Dubbo - 1%

*Indicator - Uptake of renewable energy systems by communities (small scale systems - up to 100kW peak generating capacity)*

A strong positive trend was reported in the uptake of small scale renewable energy systems with a total of 10,440 KW installed this year in the Bathurst, Cabonne and Dubbo communities.

**Figure 17:** Council total operational greenhouse gas emissions 2012-13

*Indicator - Annual bottled gas consumption for Council controlled facilities*

Five Councils across the region reported using a total of 43,272 litres of bottled gas in 2012-13. This was a 9.2% increase on the usage recorded last year and is shown as a worsening trend in the summary table (Table 5).

*Indicator - Total fuel consumption*

Consumption of fuel (petrol and diesel) by Councils' vehicle fleets and fixed plant fell by

3.1% compared with the total in 2011-12 for the twelve Councils who have reported this data in each of the last four years. Although this appears to be a worsening trend, it actually reflects more a change in reporting methods used after 2010-11.

*Indicator - Council total operational greenhouse gas emissions*

The total greenhouse gas emissions from Council operations are reported for the first time in 2012-13. The figures have been



# Appendix – Data contributed by and sourced for Councils

Issue	Sub-Issue	Indicator	Unit of Measure	Bathurst	Blayney	Bogan	Bourke	Cabonne	Coonamble	Cowra	Dubbo	Gilgandra	Lachlan	Mid-Western	Narramine	Oberon	Orange	Warren	Warrumbungle	Wellington	Central West CMA	
<b>Land</b>																						
Agricultural Land	Sustainable agriculture	Farm entities demonstrably practicing sustainable agricultural practice	Hectares																		●	
Land use: planning and management	Contamination	Contaminated land sites - Contaminated Land Register	Number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	◆		
		Contaminated land sites - potentially contaminated sites	Number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Contaminated sites rehabilitated	Number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆
	Erosion	Erosion affected land rehabilitated	Hectares		●	●	◆	◆	●	◆	◆		◆	◆	◆	●	◆	◆	◆	●		◆
	Development	Number of development consents and building approvals	Number	◆	◆	●	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Landuse conflict complaints	Number	◆	◆	●	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	
		Loss of primary agricultural land through rezoning	Hectares	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	
	Mining	Salinity	Salinity affected land rehabilitated	Location & sq km																		◆
		Mining	Number and type of operating mines and quarries, licenced under EPA PO& EO Act	Number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	Area covered by mining and mining exploration projects		Hectares	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
<b>Biodiversity</b>																						
Biodiversity	Habitat Loss	Area Protected in Wildlife Refuges	Hectares	◆	◆	●	◆	◆	●	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆		
		Council Reserves - total area	Hectares	◆		◆	◆	●	●	◆	◆	◆	◆	◆		◆	●	●	●			
		Council Reserves - bushland/remnant vegetation	Hectares	◆		◆	◆		●	◆	◆	◆	◆	◆		●	◆	◆				
		Area protected in conservation reserves & under voluntary conservation agreements	Hectares	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	
		Habitat areas revegetated	Hectares	◆		●	◆	◆	●	◆	◆	◆	◆	◆	◆		◆	◆	◆	●	●	

Issue	Sub-Issue	Indicator	Unit of Measure	Bathurst	Blayney	Bogan	Bourke	Cabonne	Coonamble	Cowra	Dubbo	Gilgandra	Lachlan	Mid-Western	Narramine	Oberon	Orange	Warren	Warrumbungle	Wellington	Central West CMA		
Biodiversity	Habitat Loss	Vegetation protected and rehabilitated through CMA incentive funding	Hectares																			◆	
		Voluntary Conservation Agreements, Property Vegetation Plans & biobanking	Number																				◆
		Roadside vegetation management plan	Yes/No	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
	Decreasing occurrence of endangered species	State Threatened species listed in LGA	Number & list of species																				◆
		Threatened species actions implemented (e.g. PAS, recovery plans)	Number	◆	◆		◆	◆	●	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Fish restocking activities: native species	Number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Fish passages/ramps added	Kilometres																				●
	Noxious weeds and feral animals	Fish restocking activities: non-native species	Number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Number of declared noxious weeds	Number of species	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Invasive species (listed noxious or WONS) under active management	Number of species	◆	●	●	◆	◆	●	●	◆	●	◆	◆	◆	●	◆	◆		●	◆		
<b>Water and Waterways</b>																							
River systems and waterways	Environmental Flows	Annual volume released to rivers for environmental flows	GL																			●	
		Average salinity levels in selected streams	EC			●			◆		●				●				●				
		E.coli remote from wastewater treatment plants	Organisms per 100mL	●				●	●	●	●	●	●	●	●		●	●	●				
	Riparian	Riparian vegetation recovery actions	Number	◆	◆		◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	
		Riparian vegetation recovery area	Hectares	◆	◆		◆	◆	●	◆	◆	●	◆	◆	◆	●	◆	◆	◆	◆	◆	●	



Issue	Sub-Issue	Indicator	Unit of Measure	Bathurst	Blayney	Bogan	Bourke	Cabonne	Coonamble	Cowra	Dubbo	Gilgandra	Lachlan	Mid-Western	Narromine	Oberon	Orange	Warren	Warrumbungle	Wellington	Central West CMA			
River systems and waterways	Industrial/Agricultural Pollution	Load Based Licencing volume	Total kg of pollutants	◆		●	◆	●	●	●	●	◆	◆	●		◆	◆	●	●	◆				
		Exceedances of license discharge consent recorded	Number	◆		●	◆	◆	●	◆	●	◆	◆	◆		◆	◆	◆	●	◆				
		Erosion & Sediment Control complaints received by Council	Number	◆	◆	●	◆	●	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆			
	Stormwater Pollution	Number of gross pollutant traps installed	Total number of GPTs currently installed	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	●	◆			
		Total catchment area of GPTs	Hectares	◆	◆	●	◆	●	◆	◆	◆	◆	◆	●	◆		◆	◆	◆		◆			
		Water pollution complaints	Number	◆		◆	◆	◆	●	◆	◆	◆	◆	◆	●	◆	◆	◆	◆		◆			
Water quantity and drinking water quality	Surface & Ground Water Extraction	Number of irrigation licences from surface water sources	Raw number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆				
		Volume of surface water permissible for extraction under licences	Gigalitres (GL)	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆			
	Council Water Consumption	Number of bore licences from groundwater resources	Number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆			
		Volume of groundwater permissible for extraction under licences	Gigalitres (GL)	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆			
		Council managed parks, sportsgrounds, public open	Hectares	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	●	◆			
	Town Water Consumption	Irrigated council managed parks, sportsgrounds, public o	Hectares	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	●				
		Water used by council for irrigation (including treated and	Megalitres (ML)	●	●		◆	◆	◆	◆	◆	◆	●	◆	●	●	◆	◆	●		◆			
		Annual metered supply	Megalitres	◆			◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	●	◆			
		Annual consumption (Total from WTP)	Megalitres	◆		●	●	◆		◆	◆	◆	◆	◆	◆		◆	◆	●		◆			
		Total water usage per connection type	Megalitres per annum	◆		●	◆	◆	●	◆	◆	●	◆	◆	◆		◆	◆	◆	◆	●			
		Water restrictions implemented	Level (1-5)	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆			
		Water conservation programs	Number of Programs	●			◆	◆	●	◆	●	◆	●	◆	◆	◆	◆	●	●		◆			
	Dam Levels	Dam levels	Number of residential meters	Number	◆		●	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆			
			Volume %	Volume %		◆						◆		◆	◆		●				◆			

Issue	Sub-Issue	Indicator	Unit of Measure	Bathurst	Blayney	Bogan	Bourke	Cabonne	Coonamble	Cowra	Dubbo	Gilgandra	Lachlan	Mid-Western	Narromine	Oberon	Orange	Warren	Warrumbungle	Wellington	Central West CMA	
Water quantity and drinking water quality	Town Water Quality"	Drinking water guidelines not met	Number of instances	◆		●	◆	●	●	◆	◆	●	◆	◆	◆	◆	◆	●	◆	◆		
		Drinking water complaints	Number & Type	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
<b>People and Community</b>																						
Active community involvement		Environmental volunteers working on public open space	Person Hours	◆	◆		●	◆	●	◆	◆	◆	◆	◆		◆	◆	◆	●	●		
		Number of environmental community engagement programs	Number of programs.	●	◆		◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	●	◆	●	◆	
		Number of growers markets/local food retailers specialising in local food operating within LGA	Number	●	●		●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		Municipal (domestic kerbside) waste	tonnes / person	●				●	●	●	●	●	●	●			●	●	●		●	
Community Impacts		Air pollution maximum goals for particulate matter exceeded	days	◆																		
Valuing natural, built and cultural heritage	Management of Indigenous Heritage	Number of Indiginous sites on the AHIMS register	Number	◆		◆		◆		◆	◆	◆	◆	◆	◆	◆	◆		◆			
		Inclusion in DCPs & rural strategies	Yes/No	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	◆	●	◆	◆	●	◆	◆	
		Extent of liaison with indigenous communities	Rank (0 = none, 3 = High)	◆	◆		◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆	
		Development on listed aboriginal sites	Number approvals	◆	◆	●	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆
		Management plan/ strategy in place	Yes/No	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆
		Management actions/ responses	Number	◆			◆	◆	●	◆	◆	◆	●	◆	●	◆	◆	◆	●	◆		
	Management of Non-Indigenous Heritage	NSW Heritage Inventory items	Number and type	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Locally listed heritage items	Number and type	◆	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Actions to protect non-aboriginal heritage (including management plans)	Number	◆	◆	●	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Heritage buildings on statutory heritage lists demolished/degraded in past year	Number	◆	◆	●	◆	◆	●	◆	◆	◆	◆	◆	◆	●	◆	●	◆	◆	◆	
Heritage buildings on statutory heritage lists renovated/improved in past year		Number	◆	◆	●	◆	◆	●	◆	◆	◆	◆	◆	●	◆	◆	●	◆	●	◆		

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<b>Toward Sustainability</b>																						
Management of Waste and Resource Recovery	Waste Generation & Disposal	Total waste entombed at primary landfill	Tonnes/annum	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆		◆	●	◆	◆	●		
		Total waste entombed at other landfills (exc recyclables)	Tonnes/annum	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆	●	
		Average cost of waste service per residential household	\$ per household	◆	◆	●	◆	◆	●	◆	◆	◆	◆	◆	◆		◆	◆	●	◆	◆	
		Farm chemical drums collected through DrumMuster collections	Number of drums	◆				◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	
		Household Hazardous Wastes collected	kg	◆	●			◆		●	◆	◆		◆	◆	●	◆			◆	◆	
	Waste Pollution	Garden organics collected (diverted from landfill)	Tonnes	◆	●	●	●	●	◆	◆	◆	◆	◆	●	◆	◆	●	◆	●		◆	
		E-Waste diverted from landfill	Tonnes	◆	◆	●	●		●	◆	◆	●	◆	●	●	●	●	●	●		●	
		% Effluent reuse & location of reuse	%	◆	◆	●	◆	◆	◆		◆	◆	◆	◆	◆		◆	◆	●		◆	
		Amount of material recycled	Tonnes	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆
	Littering	Illegal waste disposal complaints to Council	Number & tonnes	◆		●	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	
Engineering, Infrastructure and Civil Works	New road construction	km	◆	◆	●	◆	◆	●	◆	◆	◆	●	◆	●	◆	◆	◆	◆	◆	◆		
	Road upgrades	km	◆	◆	●	◆	◆	●	●	◆	◆	●	◆	●	◆	◆	◆	◆	◆			
	Inclusion and demonstrable implementation of environmental sustainability criteria within purchasing	Yes/No	●			●	●	●	●	●		●	●	●	●	●	●	●	●	●		
	Application of design measures in response to climate change in new infrastructure	Yes/No	●			●	●	●	●	●		●	●	●	●	●	●	●	●	●		
	Application of best practice environmental management (BPEM) in new roads	Yes/No	●			●	●	●	●	●		●	●	●	●	●	●	●	●	●		
Risk Management	Council adaptation initiatives	Council adaptation initiatives	Yes/No	◆			◆	●	●	◆	◆	●	◆	◆	◆	◆	◆	◆		●		
		Flood management plans/ flood mapping in place	hectares	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●			
		Natural disaster declarations (events - flood bushfire and drought)	Hectares	●		●	●	●	●	●	●		●	●		●	●	●	●	●	●	
	Fire Regimes	Hazard reduction burns	Number & area	◆		●	◆	◆	●	◆	◆		◆	◆		◆	●	◆	●	◆		

Issue	Sub-Issue	Indicator	Unit of Measure	Bathurst	Blayney	Bogan	Bourke	Cabonne	Coonamble	Cowra	Dubbo	Gilgandra	Lachlan	Mid-Western	Narromine	Oberon	Orange	Warren	Warrumbungle	Wellington	Central West CMA		
Energy & Resource efficiency	Mitigation	Office paper used by Council	Number of reams ordered per annum	◆		●	◆	◆	◆	◆	●	◆	●	◆	●	◆	◆	◆	◆	◆			
		Council sustainability initiatives	List	●			●	●	●	●	●		●	●	●	●	●	●	●	●			
		Council mitigation initiatives	List	◆			◆	◆	●	◆	◆		◆	◆		◆	◆	◆	◆	◆			
	Council GG Emissions	Annual electricity consumption for Council controlled facilities	MWh	◆	◆	●		◆		◆	◆		●	◆		◆	◆	●	●	◆			
		Annual natural gas consumption for Council controlled facilities	Gigajoules	◆			◆	●	●	●	◆				◆	◆	◆		●	●			
		Annual bottled gas consumption for Council controlled facilities	Litres	●			●	●	●	●	●			●		●			●				
		Total fuel consumption	Total Kilolitres per annum	◆		●	◆	◆	◆	◆	◆	◆	◆	●	◆	●	◆	◆		◆	◆		
		Council facilities consuming Greenpower (relate to State Govt goal of Greenpower uptake)	%	◆			●	◆	●	◆	◆			◆	●	◆	●	◆	●	●			
		Proportion of Council's electrical energy demand met from council-owned renewable energy infrastruc	%	●			●	●	●	●	●			●	●	●	●	●	●	●			
	Community GG Emissions	Small scale renewable energy uptake	kw installed by LGA	◆				◆			◆												

◆ Denotes those Councils that were compared in the trend analysis for these indicators

● Data contributed in 2012–13 but not compared in summary tables





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