

# State of the Environment Snapshot

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

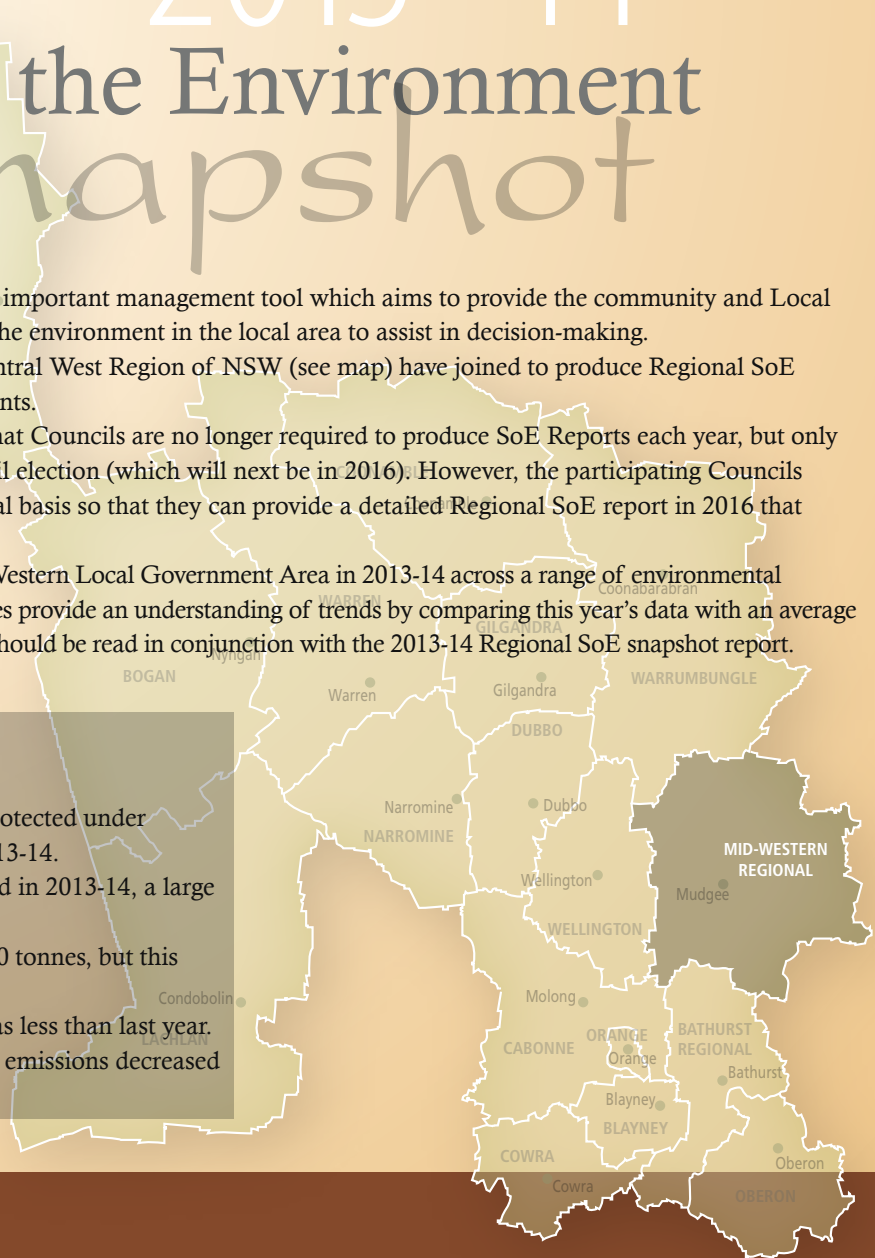
Since 2007, the Councils of the Greater Central West Region of NSW (see map) have joined to produce Regional SoE Reports as part of Council reporting requirements.

Recent changes to NSW legislation mean that Councils are no longer required to produce SoE Reports each year, but only once every four years, in the year of the Council election (which will next be in 2016). However, the participating Councils have decided to continue reporting on an annual basis so that they can provide a detailed Regional SoE report in 2016 that covers trends in the intervening years.

This is a brief snapshot of data for the Mid-Western Local Government Area in 2013-14 across a range of environmental indicators as shown in the tables below. The tables provide an understanding of trends by comparing this year's data with an average of previous years. The Council snapshot report should be read in conjunction with the 2013-14 Regional SoE snapshot report.

## 2013-14 Highlights

- ↑ An additional 31.5 hectares of land was protected under voluntary Conservation Agreements in 2013-14.
- ↓ 61 drinking water complaints were reported in 2013-14, a large increase from last year.
- ↓ Waste to landfill hit a new record of 44,100 tonnes, but this included 21,289 tonnes of fill/soil.
- ↑ Volume of material recycled per person was less than last year.
- ↑ Council's total operational greenhouse gas emissions decreased significantly from last year.



## Land

Issue	Indicator	2010-11	2011-12	2012-13	2013-14	Trend
Contamination	Contaminated land sites - Contaminated Land Register	1	1	1	1	→
	Contaminated land sites - potentially contaminated sites	47	47	29	29	↑
	Contaminated sites rehabilitated	1	1	2	0	↓
Erosion	Erosion affected land rehabilitated (ha)	2	1	0	1	→
Land use planning and management	Number of development consents and building approvals	458	649	456	431	↑
	Landuse conflict complaints	5	7	10	12	↓
	Loss of primary agricultural land through rezoning			612	19	↑
Minerals & Petroleum	Number of mining and exploration titles			158	166	↓
	Area covered by mining and exploration titles (ha)			974,000	1,010,000	↓

↑ improvement      → no or little change      ↓ worsening trend

Note - the trend is based on comparing the average of the previous three years of reporting with 2013-14

# Biodiversity

Issue	Indicator	2010-11	2011-12	2012-13	2013-14	Trend
Habitat Loss	Total area protected in Wildlife Refuges (ha)	7,652	7,652	7,652	7,652	→
	Total area protected in conservation reserves & under voluntary conservation agreements (ha)	1,139	1,277	1,349	1,381	↑
	Proportion of Council reserves that is bushland/remnant vegetation	17%	41%	41%	75%	↑
	Habitat areas revegetated (ha)	30	10	10	1	↓
	Roadside vegetation management plan	1	1	1	1	→
Threatened Species	Fish restocking activities: native species	80,613	25,911	92,213	87,155	↑
Noxious weeds and feral animals	Fish restocking activities: non-native species	46,000	20,000	41,000	39,000	↓
	Number of declared noxious weeds	105	112	112	118	↓
	Invasive species (listed noxious or WONS) under active management	8	21	24	27	↑

# Water and Waterways

Issue	Indicator	2010-11	2011-12	2012-13	2013-14	Trend
Surface & Ground Water Quality	Average salinity levels in selected streams (EC)	445	468	515	536	↓
Riparian	Riparian vegetation recovery actions	7	4	3	2	↓
	Riparian vegetation recovery area (ha)	10	8	6	2	↓
Industrial/ Agricultural Pollution	Load Based Licencing volume (kg)	68,938	69,352	78,467	79,379	↓
	Exceedances of license discharge consent recorded	3	3	11	3	↑
	Erosion & Sediment Control complaints received by Council	2	1	3	3	↓
Stormwater Pollution	Number of gross pollutant traps installed	4	4	4	4	→
	Total catchment area of GPTs (ha)	118	118	118	118	→
	Water pollution complaints			2	0	↑
Dam Levels	Average dam levels	33.7%	51.6%	58.0%	52.9%	↑
Water extraction	Number of irrigation licences from surface water sources			404	325	↑
	Volume of surface water permissible for extraction under licences (GL)			43	36	↑
	Number of bore licences from groundwater resources			3,247	2,239	↑
	Volume of groundwater permissible for extraction under licences (GL)			33	31	↑
Council water consumption	Area of irrigated Council managed parks, sportsgrounds, public open space (ha)	63	69	69	70	↓
	Water used by council for irrigation (including treated and untreated) (ML)	0.2	51	215	109	↓
Town water consumption	Annual metered supply (ML)	1,492	1,493	1,828	2,023	↓
	Annual consumption (Total from WTP) (ML)	2,017	2,023	2,362	2,505	↓
	Average annual household use (kL/household)	178.9	169.6	202.7	221.0	↓
	Average level of water restrictions implemented	0.0	0.0	0.0	0.0	→
Town Water Quality	Number of instances drinking water guidelines not met	38	29	112	74	↓
	Number of drinking water complaints	0	18	32	61	↓

# Towards Sustainability

Issue	Indicator	2010-11	2011-12	2012-13	2013-14	Trend
Waste Generation	Total waste entombed at primary landfill (tonnes)	20,283	17,054	26,394	44,100	↓
	Total waste entombed at other landfills (exc recyclables) (tonnes)	0	0	0	0	→
	Average total waste generated per person (tonnes)	0.89	0.74	1.12	1.85	↓
	Average cost of waste service per residential household	\$321	\$332	\$343	\$349	↓
Hazardous/Liquid Waste	DrumMuster collections (number of drums)	2,751	3,057	1,599	1,164	↓
	Household Hazardous Wastes collected (kg)	161	2,079	2,471	4,216	↑
Reduce	Garden organics collected (diverted from landfill) (tonnes)	567	2,068	2,480	3,388	↑
	E-Waste collected (diverted from landfill) (tonnes)	6	6	6	0	↓
Recycle	Volume of material recycled (tonnes)	2,955	3,661	4,288	4,014	↑
	Volume of material recycled per person (kg)	129	159	183	168	↑
Littering and illegal dumping	Number of illegal waste disposal complaints to Council	7	3	6	14	↓
Engineering, Infrastructure and Civil Works	New road construction (km)	0.5	0.5	0	1	↓
	Road upgrades (km)	15	30	32	51	↓
Risk Management	Hazard reduction burns	0	0	14	9	↓
Climate Change Mitigation	Office paper used by Council (A4 reams)	1,057	2,136	2,282	1,984	↓
	Council sustainability initiatives	6	0	1	0	↓
Council Greenhouse Gas Emissions	Annual electricity consumption for Council controlled facilities (MWh)	4,342	3,814	4,083	5,250	↓
	Annual natural gas consumption for Council controlled facilities (Gj)		148		0	↑
	Annual bottled gas consumption for Council controlled facilities (L)	11027	5,665	15,563	10,752	↓
	Total fuel consumption (KL)	920	990	1,516	1,020	↑
	Council total operational greenhouse gas emissions (tCO <sub>2</sub> -e/year)			24,099	21,594	↑
Community Greenhouse Gas Emissions	Small scale renewable energy uptake (kw installed)		502	993	1,022	↑

## People and Communities

Issue	Indicator	2010-11	2011-12	2012-13	2013-14	Trend
Active community involvement	Environmental volunteers working on public open space (hrs)	180	110	400	150	↓
Aboriginal Heritage	Inclusion in DCPs & rural strategies	0	1	1	1	↑
	Extent of liaison with Aboriginal communities (self-assessed from 0 = none to 3 = High)	2.0	2.0	3.0	2.0	↓
	Development approvals on listed aboriginal sites	2	3	3	0	↑
	Number of indigenous heritage management actions/responses			2	4	↑
Non-Aboriginal Heritage	NSW Heritage Items	13	13	13	13	→
	Locally listed heritage items	526	526	526	526	→
	Actions to protect non-aboriginal heritage (including management plans)	0	3	1	0	↓
	Heritage buildings on statutory heritage lists demolished/degraded in past year	0	0	0	0	→
	Heritage buildings on statutory heritage lists renovated/improved in past year		1	3	4	↑

## CASE STUDY: Aboriginal Sensitivity Mapping and Engagement (Mid-Western LGA)

In 2012, Mid-Western Regional Council won a \$80,000 grant from the Hunter Central Rivers CMA for the creation of GIS aboriginal sensitivity mapping, and to protect a number of culturally sensitive sites located in the CMA area. It also provided an opportunity for Council to enhance its engagement with the local Indigenous community. The works were completed in June 2014.

The grant application recognised that Council required additional information to improve its procedures surrounding the protection of Indigenous heritage, particularly in relation to development assessments and Council's infrastructure programs.

Essentially the mapping clarifies when on-ground cultural surveys must be undertaken in relation to development applications and Council works. It operates in the same way that Council's flooding and bushfire mapping clearly identifies where an area is highly sensitive, and additional investigations and information must be provided in order



for those hazards to be appropriately addressed. The mapping involved a number of direct consultations with the Indigenous community and on-ground surveys.

The physical works component of the project was undertaken by the Indigenous community with assistance from Council. The works were undertaken at two highly significant reserves located towards the north-east of the LGA. It included the construction of a footbridge and seating at The Drip, and the erection of interpretive signage, weed spraying and tree planting at both The Drip and Hands on Rock.

The project also included cultural awareness training for Council office and works staff. The training was facilitated by the Mudgee Local Aboriginal Land Council where the mapping was presented, the legal framework around protection of Indigenous heritage addressed, and Indigenous heritage and its importance discussed. Council's due diligence practises to create clear guidelines to address these issues were also discussed.

Footbridge at The Drip

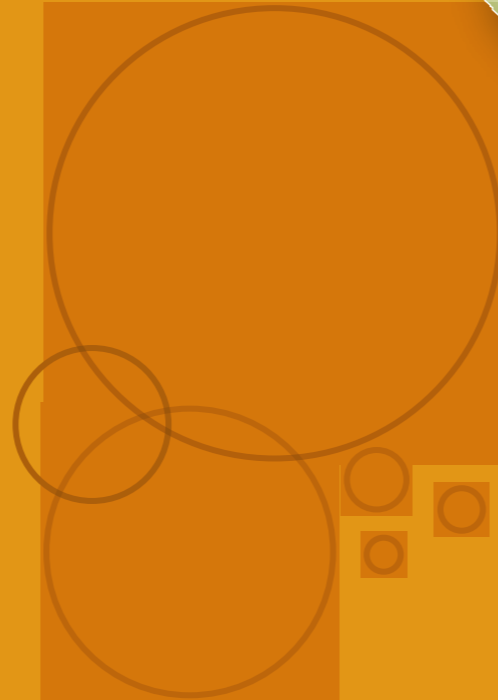


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# Regional Snapshot 2013–2014

## 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, Narramine, Oberon,  
Orange, Warren, Warrumbungle, Wellington

# Acknowledgements

The preparation of the Regional State of the Environment Report 2013-14 was funded by the 17 participating local Councils with support from Central Tablelands Local Land Services and Central West Local Land Services. It shows trends, where possible, in relation to reports produced for the region in 2010-11, 2011-12 and 2012-13.

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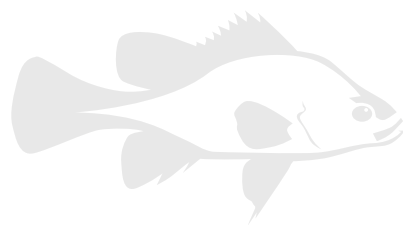
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Mt Canobolas from  
Cabonne - western side  
(Diana Kureen)





# Abbreviations

AHIMS	Aboriginal Heritage Information Management System
BPEM	Best Practice Environmental Management
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 Environmental 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
WTP	Water Treatment Plant
UWMP	Urban Waterways Management Plan





# 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 regard 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

The total area of the region as shown in Figure 1 is approximately 145,169 km<sup>2</sup>. It is estimated that the population of the region covered by this report is 225,000.

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 Central Tablelands Local Land Services and Central West Local Land Services (LLS) 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 Plan 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.



**Figure 1** Map showing participating Council areas and Local Land Services regional boundaries

## Reporting for the next four years

The IP&R Framework requires that the 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 Catchment Management Authority (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.

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, were integrated into LLS. LLS deliver:

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

As shown in Figure 1, the participating Councils are located across 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). 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 2013-14 in a summary table at the commencement of each theme chapter.

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

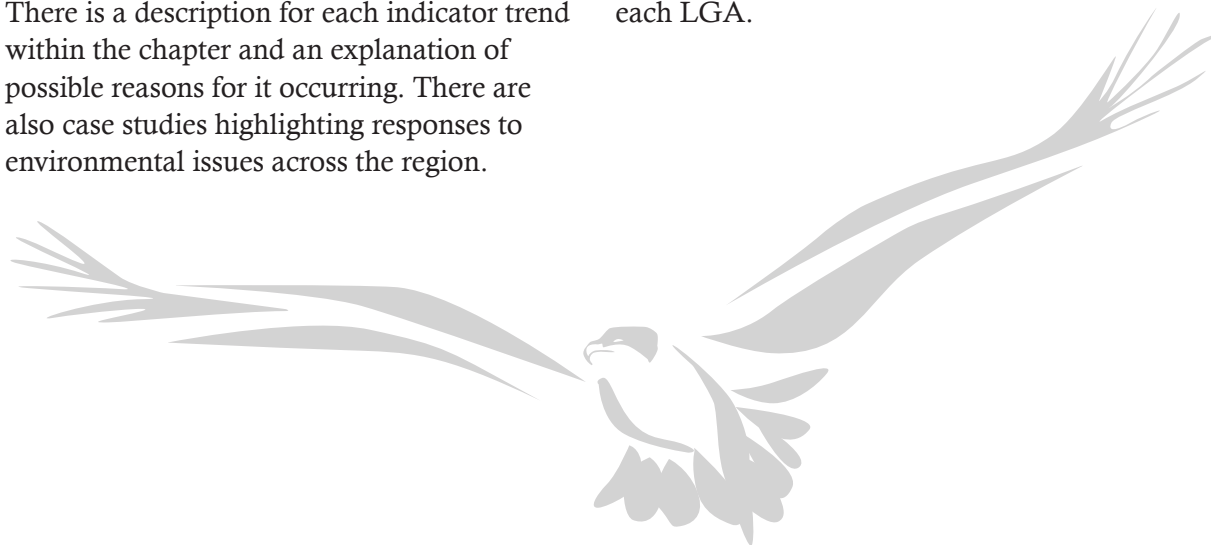
In 2012, the participating Councils decided to produce additional brief snapshot reports for

The trend arrows in the summary tables are based on comparing the average of data from 2010-11 onwards with the data for 2013-14, where direct comparison can be made.

The trend arrows used in the summary table are:

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

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.





# Land

This chapter focuses on aspects of sustainable land management in the region. There are a number of challenges to the sustainable use and management of our soil and land resources, such as wind and water

Sustainable land management can be defined as “the use of land resources, including soils, water, animals and plants, for the production of goods to meet changing human needs, while simultaneously ensuring the long-term productive potential of these resources and the maintenance of their environmental functions” (Dept. of the Environment, 2014). Sustainable land management is crucial to minimising land degradation, rehabilitating degraded areas and ensuring the optimal use

of land resources for the benefit of present and future generations.

***Indicator - Contaminated land sites  
(Contaminated Land Register)***

Across the region there were a total of 11 sites currently on the Contaminated Land Register at 30 June 2014, the majority of which were former service stations. This number is unchanged from the previous reporting year.

Canola crop,  
Cabonne LGA

erosion, soil acidity, soil salinity, soil structure decline, soil fertility and soil impermeability. The sustainable use of soil and land in agricultural areas of the region is of increasing significance, particularly in the face of a changing climate.



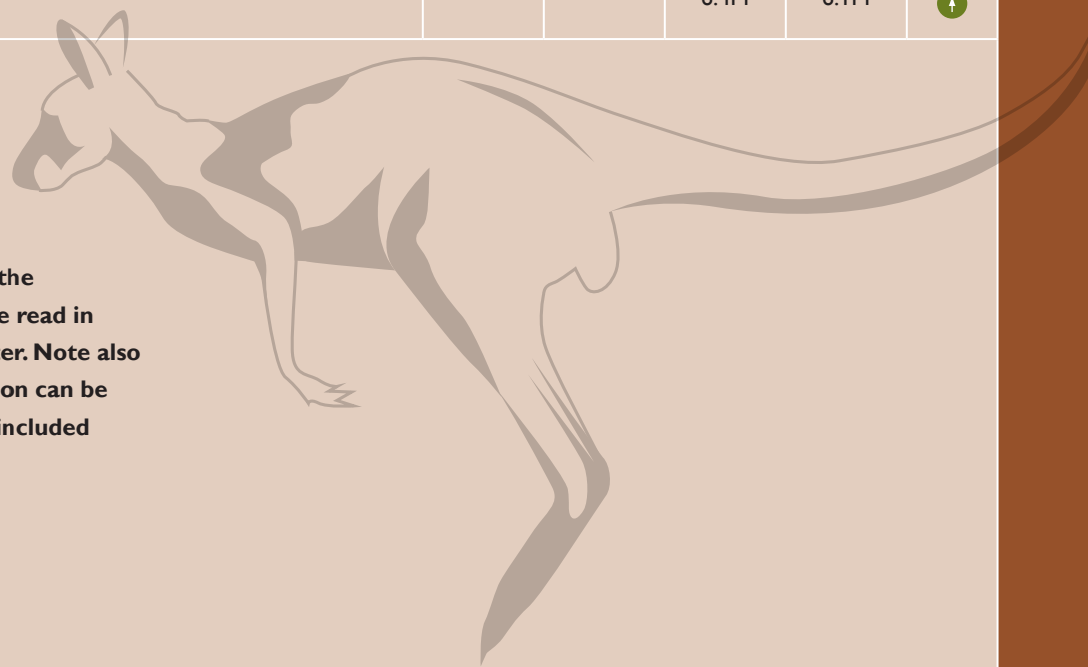
**Figure 3:** Number of potentially contaminated sites in each LGA

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

Issue	Indicator	2010-11	2011-12	2012-13	2013-14	Trend
Contamination	Contaminated land sites - Contaminated Land Register	9	9	11	11	↓
	Contaminated land sites - potentially contaminated sites	895	915	883	1,103	↓
	Contaminated sites rehabilitated	7	13	15	10	↓
Erosion	Erosion affected land rehabilitated (ha)	93	2,066	1,872	4	↓
Land use planning and management	Number of development consents and building approvals	3,435	4,219	3,772	3,917	↓
	Landuse conflict complaints	66	101	132	98	↑
	Loss of primary agricultural land through rezoning			961	1,119	↓
Minerals & Petroleum	Number of mining and exploration titles			667	948	↓
	Area covered by mining and exploration titles (ha)			6.4M	6.1M	↑

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

**Note – the above trends are for data in 2010-11, 2011-12, 2012-13 and 2013-14 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2013-14. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2013-14 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 2:** Number of potentially contaminated sites across the region

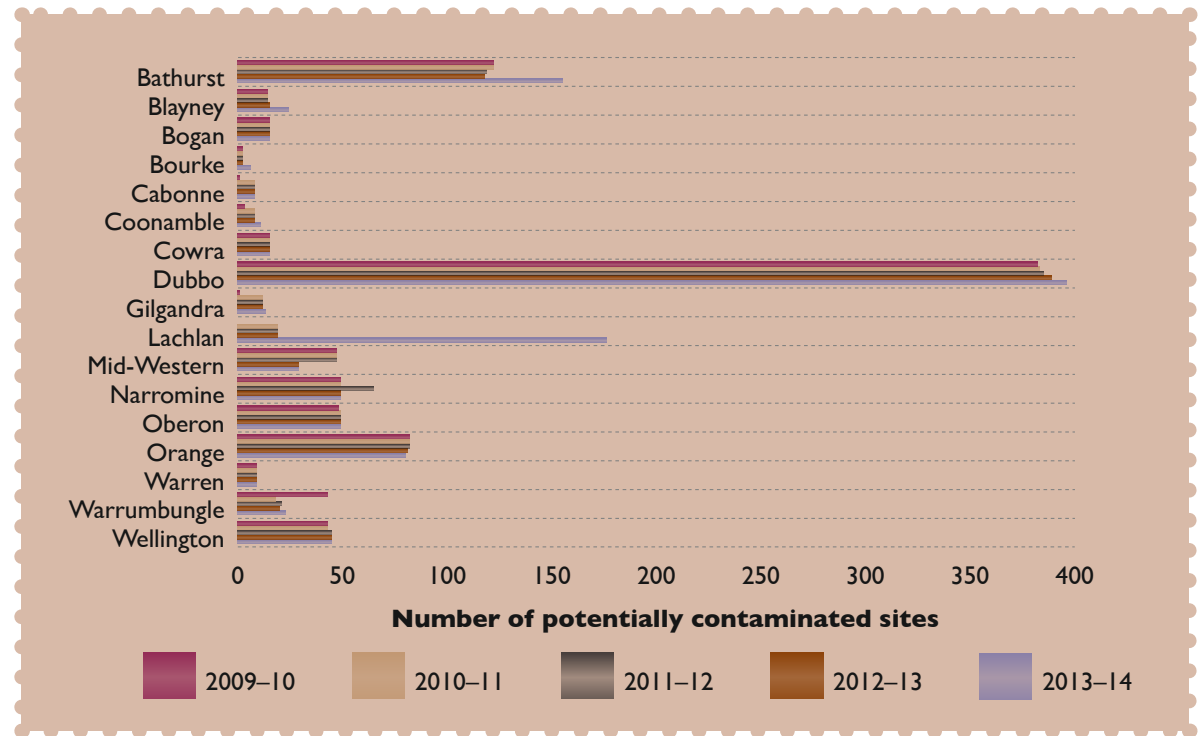
**Indicator - Contaminated land sites (potentially contaminated sites)**

As shown in Figure 2, there has been a significant increase in the number of potentially contaminated sites reported this year compared with previous years, due predominantly to new sites added in the Bathurst and Lachlan LGAs. Changes included:

- Bathurst Regional Council added 38 properties at Sunny Corner related to the Sunny Corner Contaminated Land Policy.
- Lachlan Shire Council compiled a new contaminated lands register in 2013-14 which added 157 new sites.
- Blayney Shire Council added nine potentially contaminated sites (a 60% increase).
- Warrumbungle Shire Council added three sites and is likely to add more as their contaminated land register is currently being updated through a community consultation program.
- Bourke, Coonamble, Dubbo and Gilgandra Councils all reported small increases. Orange City Council with one less site was the only LGA which reported a reduction.

**Indicator - Contaminated sites rehabilitated**

Ten contaminated sites were rehabilitated across the reporting region in 2013-14: three in Orange LGA, two in Dubbo LGA and one each in Bathurst, Bogan, Gilgandra, Warren



(work not actually completed) and Wellington LGAs. This was the lowest number of sites rehabilitated since 2010-11 and when contrasted with the 1,103 potentially contaminated sites across the region, it highlights the scale of the task ahead for Councils.

**Indicator - Erosion affected land rehabilitated**

Only 4.4 hectares of erosion affected land was rehabilitated in 2013-14, with small projects undertaken in the Bathurst, Cabonne, Mid-Western, Orange and Warren LGAs. This is by far the lowest area rehabilitated in the six years since this indicator was first reported.

There was no rehabilitation reported by either the Central West or the Central Tablelands LLS due to a lack of funding for this area, which contrasts to the significant rehabilitation work undertaken by the Central West CMA in previous years.

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

Development activity in the region grew in 2013-14 with a 3.8% increase in the number of development consents and building approvals across the reporting region. The biggest increases were in the

## CASE STUDY: South Orange Urban Release Area (Orange LGA)

Orange City Council in collaboration with various consultants, both local and national, has produced a Masterplan for the South Orange Urban Release Area over the first half of 2014. The release area is over 200 ha and will ultimately incorporate some 1600 housing lots.

Shiralee is a new urban village that will provide housing, amenity, recreational and educational opportunities to a diverse range of residents and visitors. The Shiralee Master Plan is informed and underpinned by a thorough understanding of the site's natural attributes and special qualities, its contextual relationships to surrounding land uses within Orange and by the desire to create an inclusive village that enriches people's quality of life and provides housing, community services and jobs.

Community and stakeholder consultation, throughout the planning process, identified a strong desire to create a distinct and identifiable urban area that exemplifies best practice design while maintaining the semi-rural and natural qualities of the site.

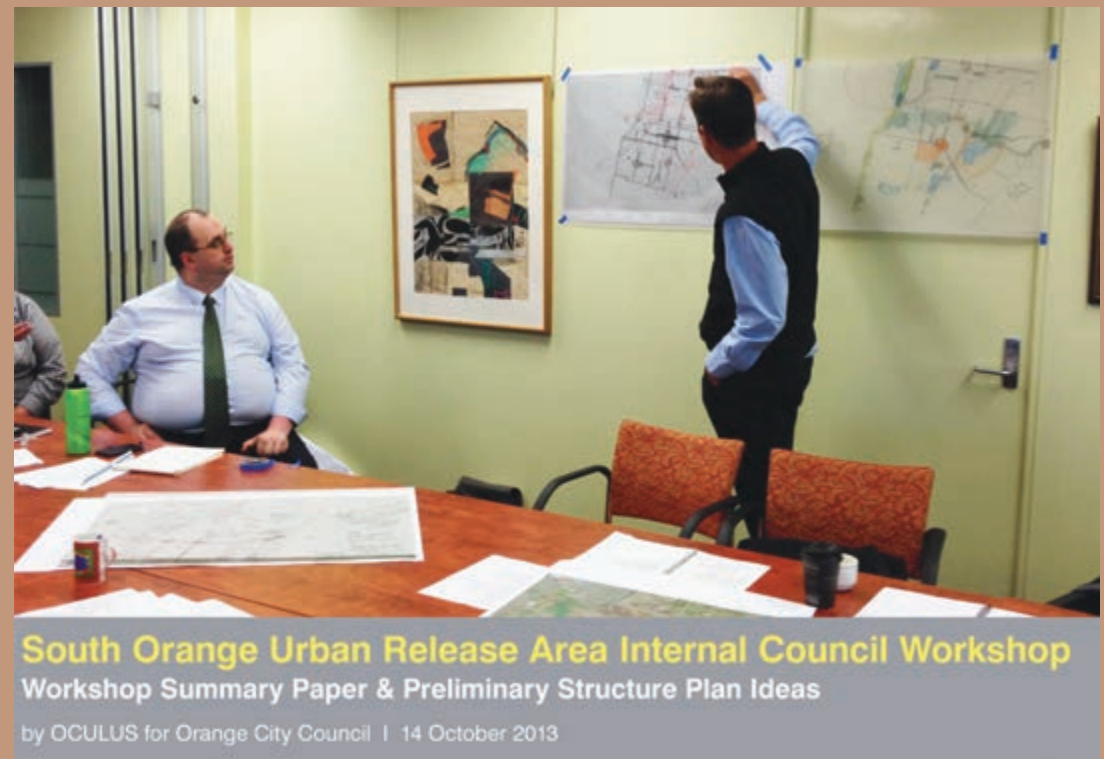
Properties that frame, and roads that arrive into Shiralee will be green and open, with larger lots adjacent. Higher densities will be located within the centre of the village and in places where views and access to parkland is best. Intimate pockets of development are created to enhance a strong sense of community.

The Shiralee Master Plan:

- Has distinct, separate identity to Orange whilst maintaining the best themes of Orange
- Is anchored by a hill-top mixed use village
- Provides housing choice that promotes a diverse community
- Provides community infrastructure to create a viable community
- Responds to existing site conditions, including natural features and man-made elements including the street grid.

The environment has been a key driver in the development of Shiralee with the design driven by principles including:

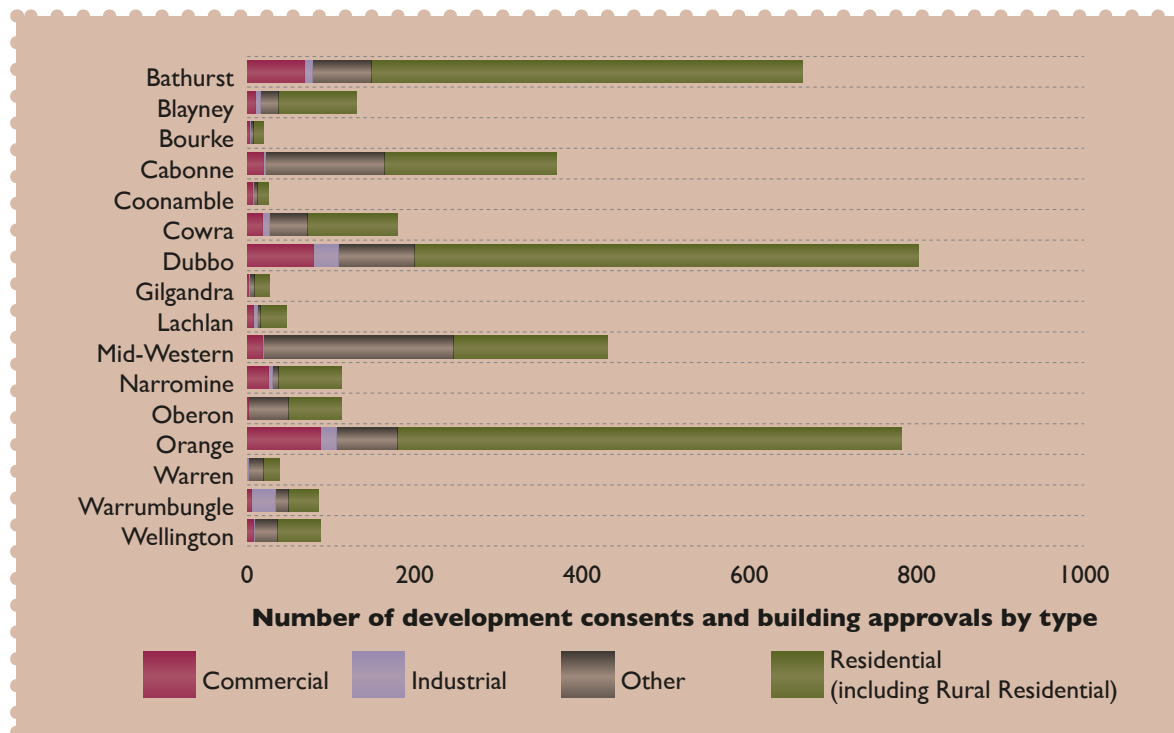
- preservation of remnant biodiversity areas and connections
- restoration of natural watercourses
- incorporation of water sensitive urban design in design controls
- incorporation of significant views and vistas into the Structure plan
- use of the natural terrain to drive design.



Planning for the sustainable development  
of the new South Orange subdivision



**Figure 3:** Number of development consents and building approvals by type 2013-14



Cabonne, Cowra, Narromine and Oberon LGAs which each reported development at or very close to their highest level in the six years that this indicator has been reported.

Notably, the major contributor to growth in these LGAs was residential development, which was little changed over the entire reporting region as residential development slowed significantly in the Bathurst, Blayney and Mid-Western LGAs. There was also a big spike in the “Other” category in Cabonne which is in part due to increases in subdivisions and approvals for NBN Radio Telecommunication Facilities.

Figure 3 shows the number and type of development consents and building approvals across the region in 2013-14.

**Indicator - Landuse conflict complaints**

The number of landuse conflict complaints across the reporting region reverted to the level reported in 2011-12. The two Councils reporting the most complaints were Cowra and Orange which both reported a decrease after the spike in complaints they reported last year. The 30 complaints in the Orange LGA represented 30% of all complaints reported across the region and were due

to two major developments: the Gorman Road subdivisions and the South Orange Urban Release project.

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

A total of 1,119 hectares was rezoned from rural (RU1) to other categories in 2013-14 with almost all of this being in the Oberon LGA, whose 2013 Local Environmental Plan (LEP) created substantial opportunities for development that was previously removed by the State Environmental Planning Policy (Rural Lands) 2008.

**Indicator - Farm entities demonstrably practicing sustainable agricultural practice**

This indicator was introduced last year with the Central West CMA providing the data based on the area mapped for sustainable grazing. This year the data has been provided by the new Central West LLS and Central Tablelands LLS which have reported that the land area used for sustainable agricultural practice is a total of 274 hectares.

The LLS’s have used a completely different basis for deriving this area and hence no comparison or assessment of trend is yet possible.

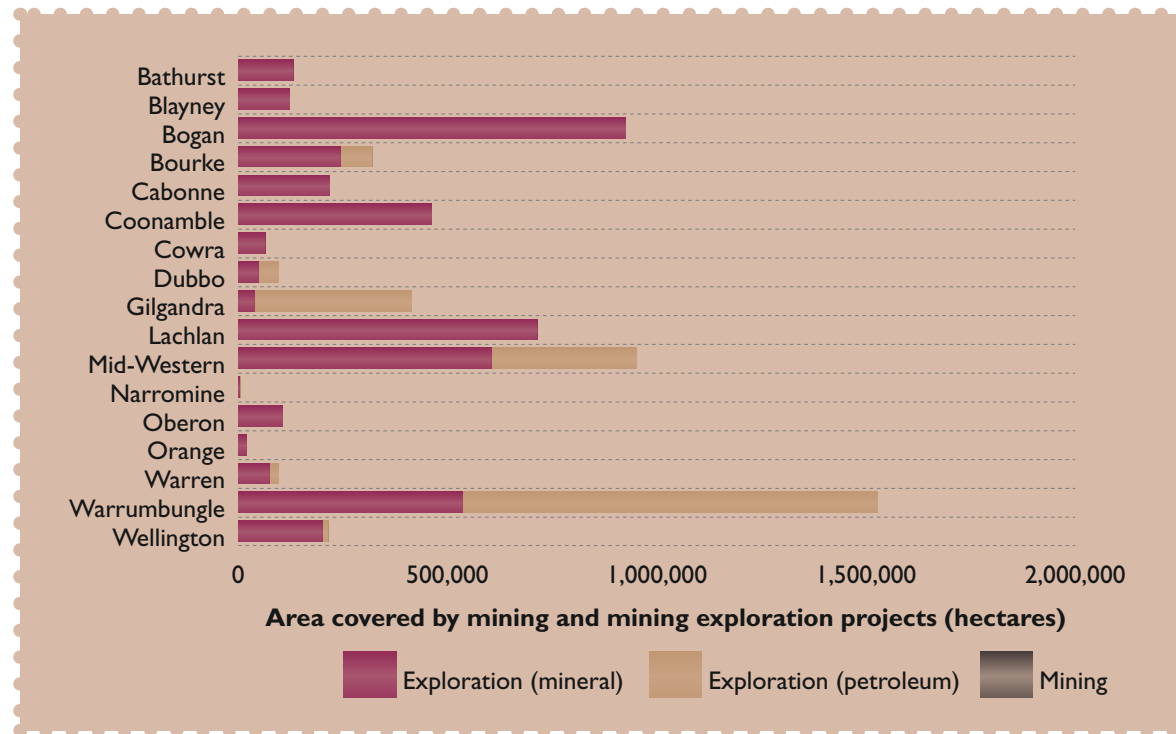
**Indicator - Number and type of mining and exploration titles**

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

The underlying trend when comparing data since 2010-11 for both number of titles and area covered is a continuing decline in operating mines and exploration projects. This is consistent with the nationwide slow-down in the mining industry since the peaks at the height of the boom in commodity prices.

The large increase shown in the summary table for number of titles is entirely due to the addition in 2013-14 of data for the number of quarries which were omitted from the numbers reported in previous years.

Figure 4 shows the total area covered by mining and mining exploration projects across the region in 2013-14. Note that the area of mining is relatively small and therefore not graphed.



**Figure 4:** Total area covered by mining and mining exploration projects 2013-14



Agricultural land, Cabonne LGA



# Biodiversity

Biodiversity is the variety of all life forms on earth - the different plants, animals and micro-organisms and the ecosystems of which they are a part.

Echidna,  
Mid-Western LGA



Ecosystems that are rich in biodiversity are more resilient and healthy and are better able to recover from outside stresses such as drought, pests, bushfire and climate change.

Understanding biodiversity gives us the ability to more effectively address environmental challenges including:

- controlling pests and supporting species that pollinate crops
- maintaining groundwater tables
- absorbing carbon
- protecting water quality.

Local Councils impact on biodiversity through a variety of activities including landuse planning and the management of Council reserves.

### *Indicator – Addition to the National Park estate*

The total area of the National Park estate in the reporting region is 1,363,308 hectares. This is an increase of 456 hectares since the 2012-13 reporting year, continuing the trend of small annual increases since the large growth in the estate between 2009 and 2011.

### *Indicator – Change in Area of State Forests*

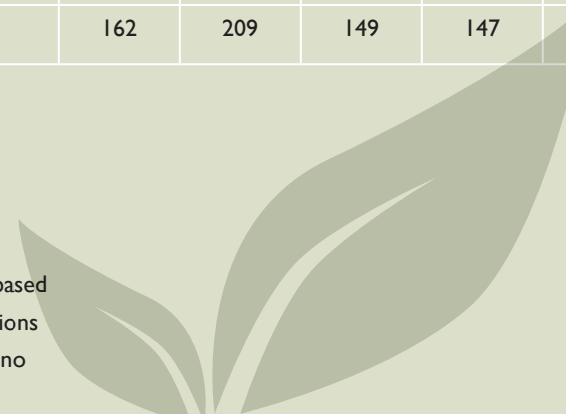
The total area of State Forests in the reporting region is 284,186 hectares. This area has been effectively unchanged for the last two years, following a series of relatively small reductions in area between 2009 and 2012.

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

Issue	Indicator	2010-11	2011-12	2012-13	2013-14	Trend
Habitat Loss	Addition to National Park estate (ha)	101,000	174	185	456	↑
	Change in Area of State Forests (ha)	-3,841	-57	-1	1	↑
	Total area protected in Wildlife Refuges (ha)	259,000	259,000	217,000	217,000	↓
	Total area protected in conservation reserves & under voluntary conservation agreements (ha)	7,582	7,669	10,292	10,434	↑
	Proportion of Council reserves that is bushland/remnant vegetation	54%	51%	51%	45%	↓
	Habitat areas revegetated (ha)	313	310	72	79	↓
	Vegetation protected and rehabilitated through CMA incentive funding (ha)	4,173	12,962	7,496	7,214	↓
	New Voluntary Conservation Agreements, Property Vegetation Plans & biobanking	25	17	5	2	↓
	Roadside vegetation management plan	9	14	15	17	↑
Threatened Species	State Threatened species listed in the Central West and Lachlan Catchments	255	281	287	283	↓
	Fish restocking activities: native species	377,000	300,000	391,000	560,000	↑
Noxious weeds and feral animals	Fish restocking activities: non-native species	297,000	271,000	285,000	306,000	↓
	Number of declared noxious weeds	114	122	122	124	↓
	Invasive species (listed noxious or WONS) under active management	162	209	149	147	↓

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

Note – the above trends are for data in 2010-11, 2011-12, 2012-13 and 2013-14 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2013-14. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2013-14 for which no comparison can be made with previous years. Refer to the Appendix for a list of Councils included in the trend data.



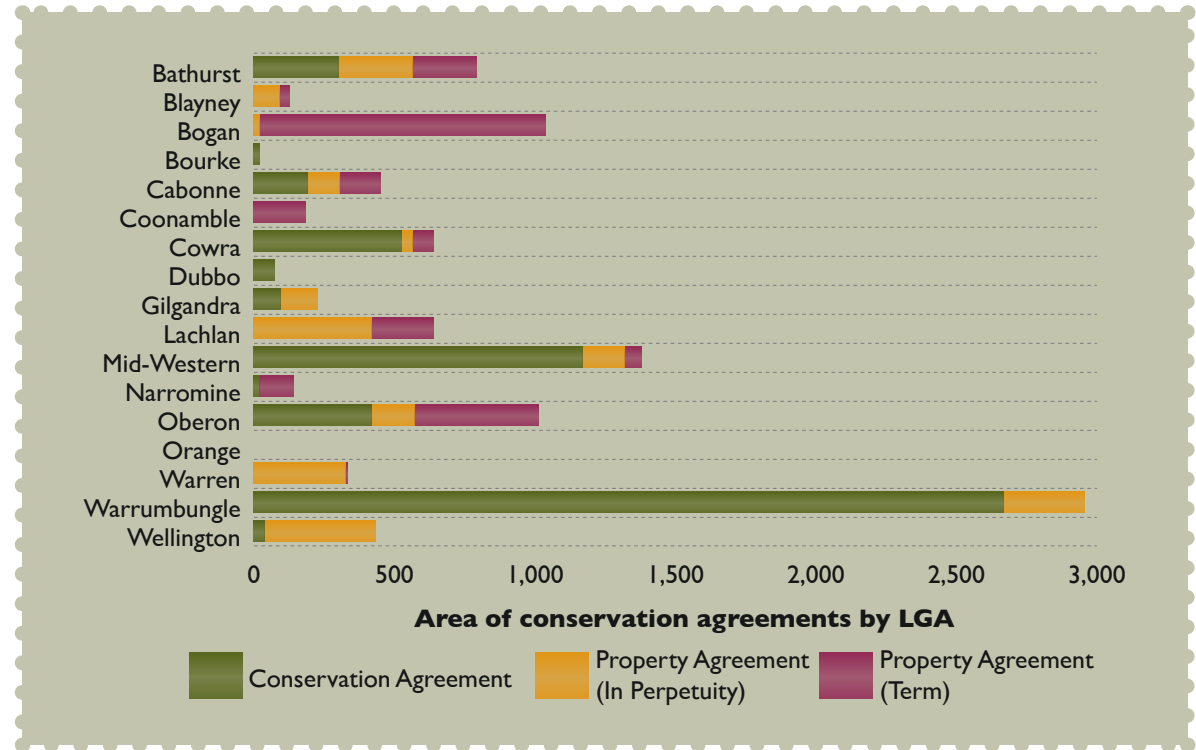
**Indicator - Total area protected in Wildlife Refuges**

There was no change in the area of Wildlife Refuges across the region in 2013-14 compared with 2012-13.

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

An additional 141.5 hectares of land was protected under voluntary Conservation Agreements in 2013-14, comprising 110 hectares in Cabonne LGA and 31.5 hectares in the Mid-Western LGA. Figure 5 shows the area protected in conservation reserves and under voluntary conservation agreements across the region.

**Figure 5:** Area of Conservation Agreements by LGA 2013-14



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

The worsening trend reported for this Indicator, as shown in the summary table (Table 2), is due to Mid-Western Regional Council which:

- a) changed the zones used to calculate Council Reserves, resulting in a 45% reduction in its reserves area, and
- b) increased its estimate of the area of bushland/remnant vegetation on Council reserves.

The only other LGA to report a small change was Orange City Council.

**Indicator - Habitat areas revegetated**

An increase of 10.5% in habitat areas revegetated was reported across the region in comparison with 2012-13. The majority of the revegetation activity was in the Cabonne and Wellington LGAs.

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

A total of 7,214 hectares of vegetation was protected and rehabilitated through funding from the new LLS. Unlike some other

programs, funding for this important work has obviously continued, with only a small decline of less than 4% compared to the area rehabilitated through the Central West CMA in 2012-13.

Eighty seven percent of this area rehabilitated was terrestrial vegetation in the Central West LLS region. Work in the Central Tablelands LLS region covered a much smaller area but there was more focus on riparian land with 401 hectares protected and rehabilitated, compared to only 140 hectares in the Central West LLS region.

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

There were only two additional Voluntary Conservation Agreements, Property Vegetation Plans and biobanking activities in the region during 2013-14. This continues a decline over the past four years.

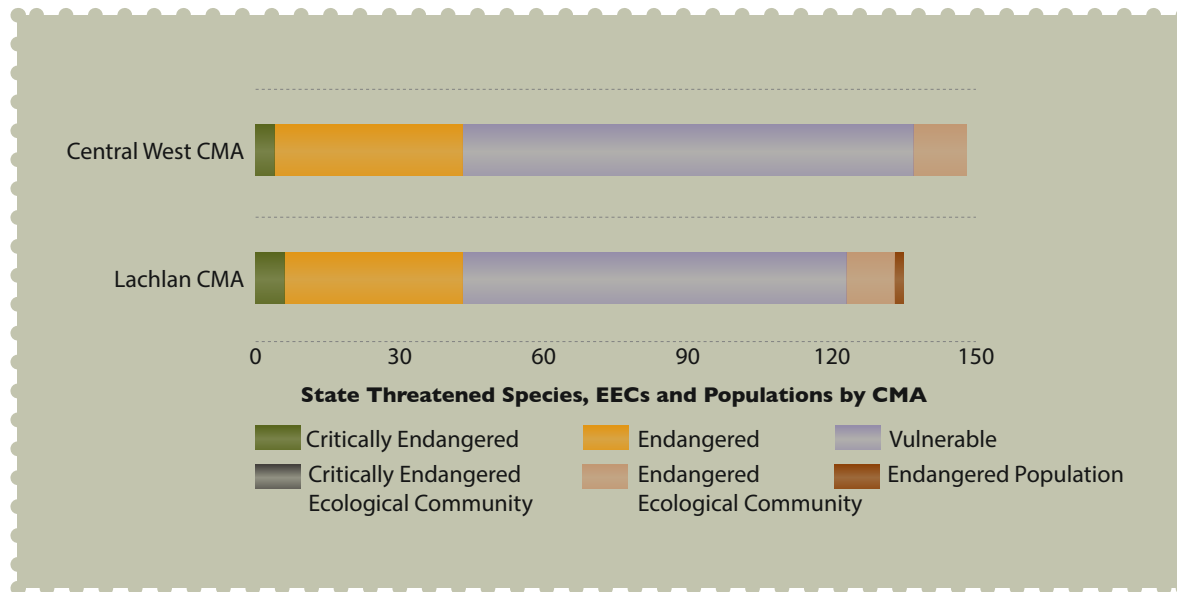
**Indicator - Roadside vegetation management plan**

This year, every Council reported that they now have a roadside vegetation management plan in place. The only Councils that did not have plans in 2012-13 were Dubbo and Lachlan.

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

Figure 6 shows the breakdown of threatened species, EECs and Endangered Populations across the former Central West and Lachlan CMA areas. The number of threatened species in the former Central West CMA area was 148: one less than reported in 2012-13, whilst in the former Lachlan CMA area it declined by three which was back to the 135 reported in 2012-13. However, there were two new species listed as Critically Endangered:

- *Caladenia attenuata* (an orchid species) in the former Central West CMA area
- *Grevillea ilicifolia* in the former Lachlan CMA area



Grass tree in Gilgandra (Diana Kureen)

**Figure 6:** Number of threatened species, EECs and endangered populations in the Central West and Lachlan Catchments 2013-14

**Indicator - Threatened species  
actions implemented**

Only four Councils reported any actions in the current reporting year and therefore this Indicator is not trended with previous years in the summary table (Table 2). The number of threatened species actions implemented across the region in 2013-14 was 15.

Examples of actions taken were:

- Bathurst Regional Council funded targeted searches for the Booroolong Frog in suitable habitat in the Campbells and Macquarie Rivers, downstream of Chifley Dam.
- Dubbo City Council undertook re-snagging in local rivers and streams to provide improved aquatic habitat for native species.



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

A total of 559,674 native fish were restocked across the region in the current reporting year which is the highest number in the seven years that this Indicator has been tracked. In previous years, up to seven different species have been restocked, but this year there were only three species, with 98% of the total being Golden Perch and Murray Cod which were restocked in similar numbers.

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

A total of 305,500 non-native fish were restocked across the region in the current reporting year which is the highest number since 2009-10. The increase was almost entirely attributable to the Oberon LGA where 31,000 more brown trout and rainbow trout were restocked than in the previous year, with the Oberon LGA also representing just over a third of the total restocking across the region.

**Indicator - Number of declared noxious weeds**

The reporting area has 124 declared noxious weeds, and a significant number of environmental weeds present. This number of noxious weeds is two more than in the two previous reporting years and is the highest level in the six 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)

Opposite page:

Purple copper butterfly

(Chris McCulloch)

It should be noted that the Castlereagh Macquarie County Council area (Coonamble, Gilgandra, Warren, Warrumbungle LGAs) and the Upper Macquarie County Council area (Bathurst, Blayney, Oberon LGAs) currently only have the “All of NSW” declarations listed. This suggests that there is a possible temporary, under-reporting of noxious weeds for these areas.

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

There was a small increase (1.6%) reported this year in the number of invasive species being actively managed by the 17 local Councils across the region. However, this Indicator is shown as a worsening trend in the summary table because there has been a continuing decline in the number of species actively managed across the 11 Councils that have reported each year.



## CASE STUDY: Roadside Rescue across 10 Councils

In 2013, the Central West Councils’ Salinity and Water Quality Alliance was successful in receiving a \$250,000 Roadside Vegetation Committee grant through the NSW Environmental Trust to protect and rehabilitate high conservation roadside vegetation in Bathurst, Blayney, Cabonne, Dubbo, Gilgandra, Mid-Western, Orange, Parkes, Warrumbungle and Wellington Council areas. A further \$5,000 for capacity building activities was also received from the former Central West Catchment Management Authority.

The projects mostly involved a combination of targeted weed spraying and revegetation to protect and/or extend areas of high conservation value roadside vegetation. Bathurst, Blayney, Cabonne, Gilgandra, Orange and Wellington Councils all focused on weed control and revegetation in differing combinations.

Dubbo City Council focused its efforts on woody weed control, and improving identification of high conservation value roadside vegetation. Mid-Western and Warrumbungle Councils have both closed stockpile work sites in sensitive roadside areas.

All Councils involved in the project are now using green roadside pickets – except Mid-Western which had previously installed red roadside pickets – to protect and identify high conservation value areas and have signs identifying their project locations.

Parkes and Warrumbungle Councils used part of their funds to invest in a weed blower attachment for slashers that mow roadsides. These have been put to good use limiting the spread of weed seeds on their slashers.

All Councils in the project also received two banners to help them promote the roadside vegetation program and raise awareness of high conservation roadside vegetation. The banners are supported by a small flyer highlighting the benefits of roadside vegetation and identifying activities that are not permitted.

Roadside vegetation was further promoted through a television advertisement that ran across the region and a short video that the Councils can upload onto their websites.



Roadside vegetation,  
Bathurst LGA (Neil Dufty)





# Water and Waterways

Water quantity and water quality are two main issues in the region. 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.

Bogan River, Nyngan  
Bogan LGA.



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.

Regional impacts of climate change and variability will include higher temperatures, increased risks of storms and flooding, as well as less reliable water supplies.

The impacts on water quantity will become more significant in the western part of the region where changes in rainfall and higher evaporation rates are likely to lead to less water for streams and rivers in the region.

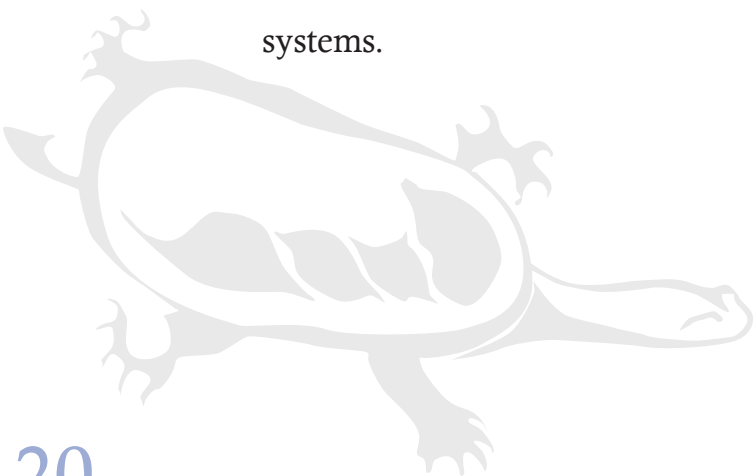
Lower flows and higher temperatures may also reduce water quality within the region. For example, low flows, higher temperatures, and elevated nutrients create a more favourable environment for potentially harmful algal

blooms. In addition, decreases in runoff due to climate change may reduce the extent and function of freshwater wetlands that provide habitat for birds and other wildlife.

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




There was a small improvement in the average salinity level for the three locations which had data available for each of the last four years. Lower salinity levels were reported for the Bogan River at Gongolgon and the Castlereagh River at Gungalmn, whilst the Cudgegong River downstream of Windamere Dam had a slightly higher salinity level, continuing its worsening trend in each of the last four years.

There were no readings available this year from the two probes on the Macquarie River at Dubbo and at Warren Weir.



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

Issue	Indicator	2010-11	2011-12	2012-13	2013-14	Trend
Surface & Ground Water Quality	Average salinity levels in selected streams (EC)	433	468	422	–	→
	<i>E.coli</i> remote from wastewater treatment plants			1,020	951	↑
Riparian	Riparian vegetation recovery actions	28	35	27	27	↓
	Riparian vegetation recovery area (ha)	236	238	150	122	↓
Industrial/ Agricultural Pollution	Load Based Licencing Volume (kg)	286,960	210,828	252,088	227,311	↑
	Exceedances of licence discharge consent recorded	38	47	47	25	↑
	Erosion & Sediment Control complaints received by Council	38	34	95	92	↓
Stormwater Pollution	Number of gross pollutant traps installed	63	64	71	70	↑
	Total catchment area of GPTs (ha)	4,812	5,275	5,325	5,275	↑
	Water pollution complaints	22	46	35	42	→
Dam Levels	Average dam levels	55.1%	88.9%	76.1%	54.6%	↓
Water extraction	Number of irrigation licences from surface water sources			3,941	2,958	↑
	Volume of surface water permissible for extraction under licences (GL)			1,165	1,007	↑
	Number of bore licences from groundwater resources			22,872	20,454	↑
	Volume of groundwater permissible for extraction under licences (GL)			298	268	↑
Council water consumption	Area of irrigated Council managed parks, sportsgrounds, public open space (ha)	906	900	900	890	↑
	Water used by council for irrigation (including treated and untreated) (ML)	959	1,120	1,959	1,850	↓
Town water consumption	Annual metered supply (ML)	20,650	20,678	27,379	27,809	↓
	Annual consumption (Total from WTP) (ML)	26,614	24,309	29,858	29,413	↓
	Average annual household use (kL/household)	219.9	200.5	266.8	256.4	↓
	Average level of water restrictions implemented	0.9	0.2	0.2	0.8	↓
Town Water Quality	Number of instances drinking water guidelines not met	167	122	269	214	↓
	Number of drinking water complaints	1,030	774	797	766	↑

-  improvement
-  no or little change
-  worsening trend

Note – the above trends are for data in 2010-11, 2011-12, 2012-13 and 2013-14 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2013-14. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2013-14 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 - E.coli remote from wastewater treatment plants**

This indicator has only been tracked for the last two years and is only measured at three locations, so extrapolating a trend from this limited dataset is not reliable. The improvement reported this year is due to the site with the highest E.coli levels (Jubilee Park in Bathurst) having significantly improved levels in 2013-14, which masks the higher E.coli levels reported for the Dubbo and Oberon LGAs.

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

**Figure 7:** Levels of major storage dams in the region

Whilst there was no overall change in the number of riparian vegetation recovery actions across the region, there was a decline in the total recovery area as Cabonne and Bathurst both scaled back their programs. However, three Councils that had reported negligible activity in previous years, each recorded new projects in 2013-14:

- Wellington Council reported a riparian recovery area of 20 hectares
- Warrumbungle Shire Council reported weed eradication at West Creek in Coonabarabran and erosion control and a rain garden on the Castlereagh River.
- Blayney Shire Council undertook white box woodland tree planting at Carcoar and Blayney.

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

Load based licencing volume across the region decreased by approximately 10% compared to 2012-13. Dubbo, Gilgandra and Orange Councils all reported significant reductions this year.

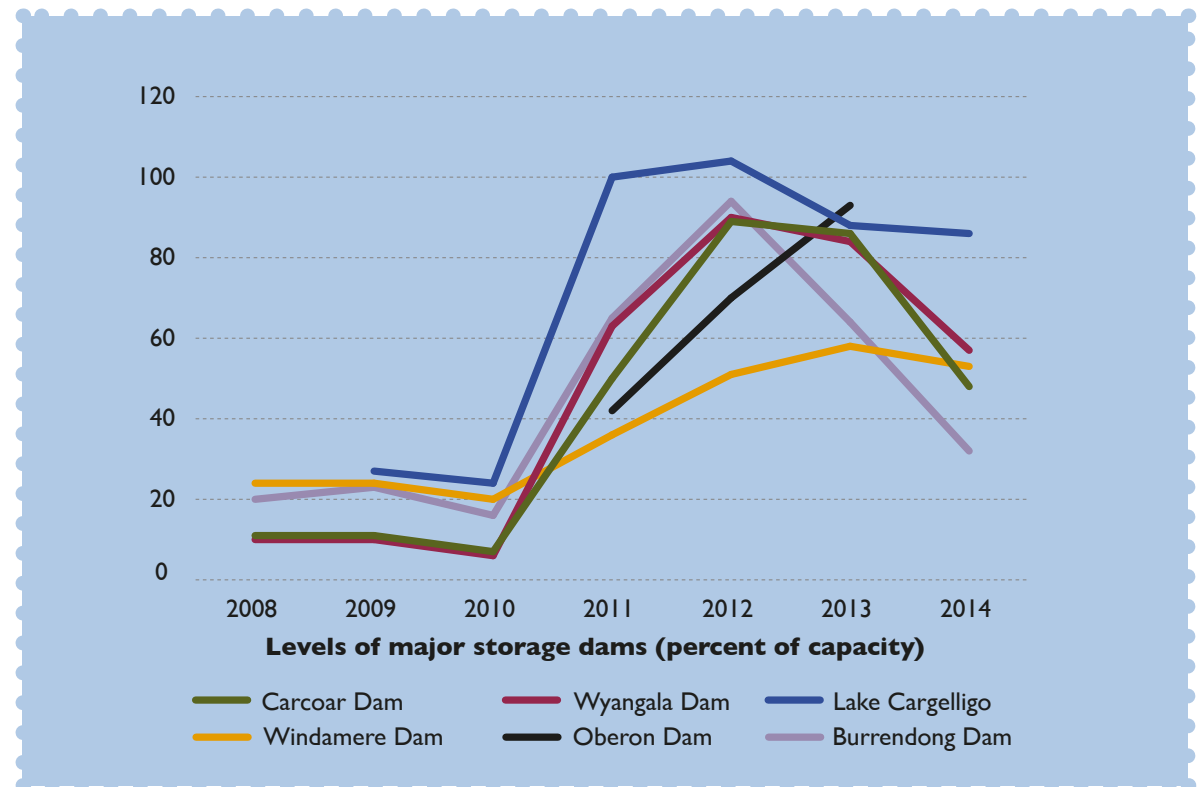
**Indicator - Exceedances of licence discharge consent recorded**

The number of incidents of licence discharges exceeding the allowed amount fell to the lowest level across the region

since 2008-09, with significant reductions reported by Lachlan and Mid-Western Councils.

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

The total number of erosion and sediment control complaints across the region was little changed in 2013-14 compared with 2012-13. However, there was a big increase reported in Orange LGA, whilst the level in Bathurst reverted back to the previous levels after a large spike last year.



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

**Indicator - Total catchment area of GPTs**

There was no significant change reported across the region in the number or catchment area of gross pollutant traps.

**Indicator - Water pollution complaints**

As in previous years, 85% of water pollution complaints investigated in the region are made to the Bathurst and Dubbo Councils. However, this year the number in Dubbo LGA almost doubled to overtake Bathurst as the LGA with the most complaints investigated.

**Indicator - Dam levels**

As shown in Figure 7, during 2013-14 there has been a significant decline in the average storage volume for all the major dams in the region. Burrendong, Carcoar and Wyangala dams declined to their lowest levels since 2009-10. This is significant, not least because Burrendong and Wyangala dams account for over 83% of the total water storage across the six major dams in the region.

To preserve water resources in river and groundwater systems for the long term it is critical to balance the competing needs of the environment and water users. Water sharing plans establish rules for sharing water between the environmental needs of the river or aquifer and water users, and also



between different types of water use such as town supply, rural domestic supply, stock watering, industry and irrigation.

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

Water sharing plans are being progressively developed for rivers and groundwater systems across New South Wales following the introduction of the *Water Management Act 2000*. The 2013-14 year is the first in which the information for surface and groundwater

extraction in this report has been provided entirely based on the *Water Management Act 2000*. In previous years, some of the data was still derived from licences issued under the previous *Water Act 1912*.

In this report, the surface and groundwater extraction data for 2013-14 has been shown alongside the 2012-13 data in the summary table (Table 3), for information only. In future years' reports, all data prior to 2013-14 will be excluded so that these indicators can be tracked on a consistent basis.

Wetlands, Warren LGA

## CASE STUDY: Bathurst Urban Waterways Condition Assessment (Bathurst LGA)

In 2009, Council, with funding from the Central West CMA, commissioned the preparation of an Urban Waterways Management Plan (UWMP) (Cenwest Environmental Services 2010). As part of the project, in autumn 2009 a condition assessment of all creek reaches within the Bathurst urban environment was undertaken to provide a baseline for measurement of changes in the condition of the creeks over time. The plan developed strategies and recommended actions for the protection and rehabilitation of the creek systems and the actions were rated by priority for implementation. Council adopted the plan in 2010 and since then has committed \$50,000 per annum towards implementing the recommendations of the plan.

Since the plan was adopted, Council has implemented a number of the recommended actions particularly in Hawthornden Creek. As five years have passed since the initial condition assessment Council's Environmental Staff thought it was timely to revisit the condition assessment to assess what impacts various management actions (or lack of management) have had on the condition trend of the creek reaches. In autumn 2014 Council therefore engaged Mactaggart Natural Resource Management (one of the lead authors on the UWMP) to redo the condition assessment on selected reaches of the creek systems and compare these assessments to the original assessments.

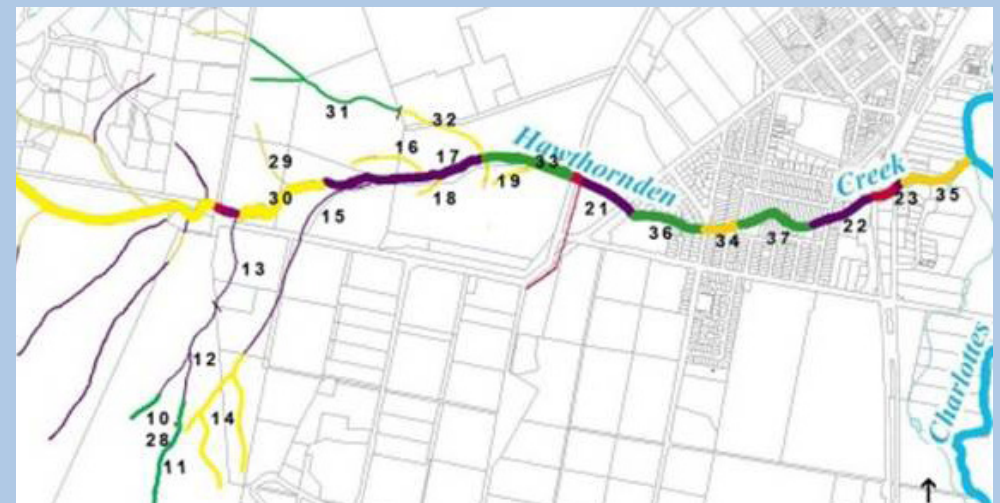
### Overall Conclusions of the 2014 Condition Assessment

Mactaggart (2014) concluded that as a general observation targeted restoration activities and management practices have had a positive contribution to stream condition. The rates of improvement vary and in some cases have been significant enough to trigger a shift from a degrading state to a recovering state. In other cases, the rate of change has been slower. The two accompanying maps compare the condition rating of selected reaches of Hawthornden Creek in 2009 and 2014.

Maps comparing the condition rating of selected reaches of Hawthornden Creek in 2009 (top map) and 2014 (bottom map). Legend: ■ = good, ■ = poor, ■ = degraded, ■ = highly degraded



Map showing condition rating of selected reaches of Hawthornden Creek in 2009



Map showing condition rating of selected reaches of Hawthornden Creek in 2014

The right to extract irrigation water from surface water sources is regulated under the *Water Management Act 2000*. Under this Act, every pump used to extract water has to have a “Water Supply Work Approval”. Therefore, tracking the number of Water Supply Work Approvals across the region will provide an indication of the demand for water for irrigation.

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

Under the *Water Management Act 2000* irrigators require an “Access Licence” to extract water from surface water sources governed by a water sharing plan, via one or more pumps (Water Supply Work Approvals).

The Access Licences are volumetric entitlements and can be bought and sold with or separately to the land with which they were originally associated.

NSW policy has been to cap the volume of water available for extraction from surface water sources by not increasing the total volume issued under Access Licences. Therefore, we would not expect future increases in this indicator unless there is a change in government policy. However, it is possible that there may be a decline over time due to a combination of government water buy-backs and some licence holders surrendering their licences if they decide that the cost of water is no longer viable for them.

***Indicator - Number of bore licences from groundwater resources***

The right to extract water from groundwater sources via bores is regulated under the *Water Management Act 2000*. As with surface water, every bore used to extract water has to have a “Water Supply Work Approval”. Bores though, fall into two categories:

- Stock & domestic bores which can be used by owners or occupiers of land, overlaying an aquifer, for domestic purposes or to water stock. In 2013-14 there were 19,110 stock & domestic bores across the region.
- Bores which are used to extract water via a groundwater access licence for irrigation or other non-domestic uses. In 2013-14 there were 1,344 of these across the region.



Winter morning,  
Castlereagh River,  
Gilgandra (Diana  
Kureen)

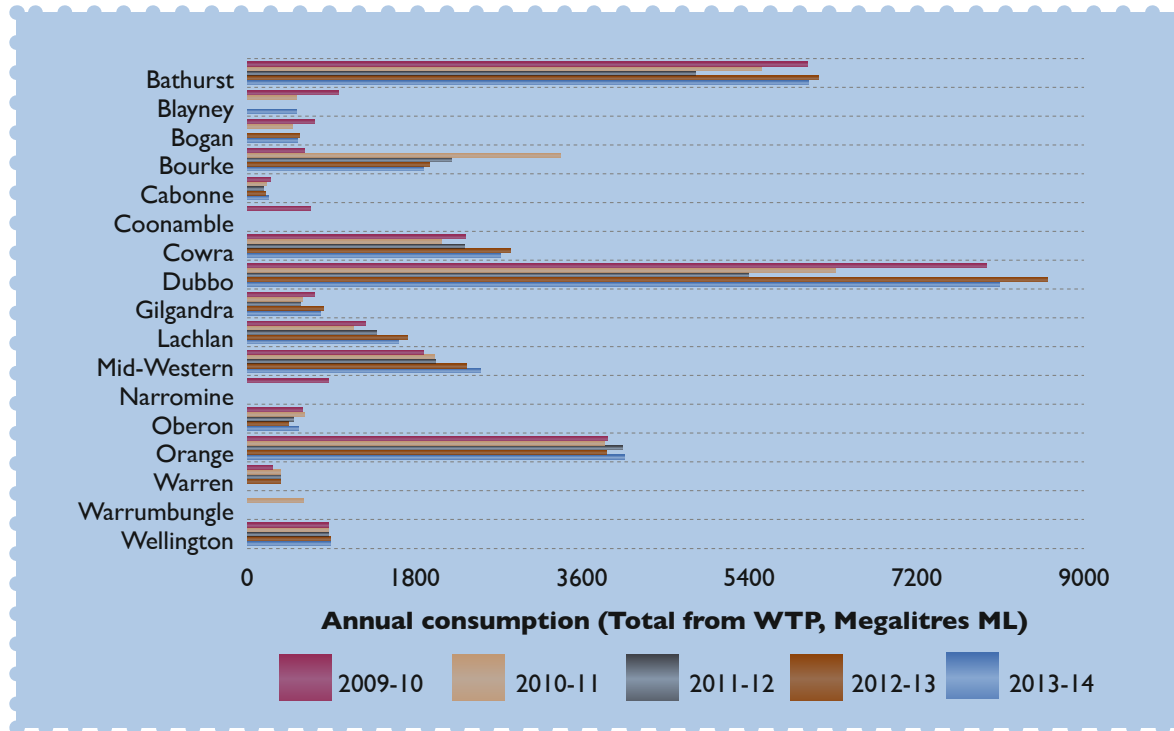


Figure 8: Annual town water consumption

Tracking the number of Water Supply Work Approvals across the region will provide an indication of the demand for water from the aquifers underlying the region.

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

Similarly to surface water, extraction of groundwater for uses other than stock & domestic, is regulated under the *Water Management Act 2000* via access licences. The implementation of water sharing plans and other controls to limit the total volume permitted for extraction from the region’s aquifers is progressing but is probably not as advanced as for surface water. Therefore there is likely to be more variability in the volumes reported for this indicator over the next few years.

- Indicator - Actual volume extracted through surface water licences*
- Indicator - Actual volume extracted through groundwater licences*

Reliable data on actual volumes is not currently available.

- Indicator - Irrigated council managed parks, sportsgrounds, public open space*
- Indicator - Water used by council for irrigation (treated and untreated)*

Putta Bucca Wetland, Mid-Western LGA



Approximately six percent less water was used for irrigation in 2013-14 compared to the previous year by the thirteen Councils that have reported on this indicator in each of the last four years. There was also a small reduction in the irrigated area. However, water consumption is still high compared to the preceding drought years of 2000 to 2010.

**Indicator - Annual metered supply**

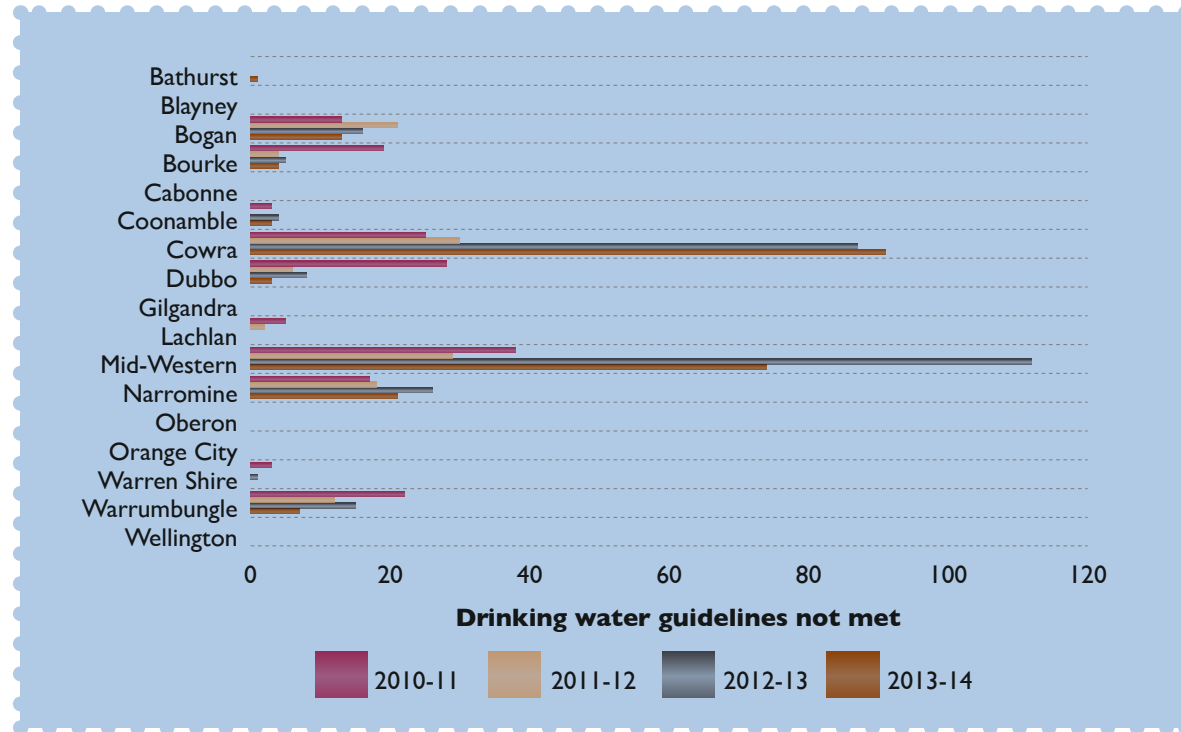
A further 1.6% increase in metered supply was reported in 2013-14 compared to the previous year for the twelve Councils that have reported this data in each of the last four years. This follows on from the large increase reported in 2012-13 by these Councils.

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

Total water consumption decreased slightly in 2013-14 compared to the previous year for the 11 Councils that have reported this data in each of the last four years. However, water consumption is still high compared to the drought years of 2000 to 2010 (see Figure 8).

**Indicator - Average annual household water use**

Household mains water consumption reduced by 3.9% this year, to 256.4 kilolitres per metered household. Bogan and Cabonne Councils reported the biggest reductions, whilst Lachlan and Warrumbungle Councils both reported sizeable increases in consumption per household.



**Figure 9:** LGAs in which drinking guidelines have not been met

**Indicator - Water restrictions implemented**

A reversion to drier conditions across the region in 2013-14 resulted in more water restrictions with six LGAs implementing restrictions for at least part of the year, compared to only two LGAs in each of the previous two years.

**Indicator - Drinking water guidelines not met**

Whilst incidences of drinking water guidelines not being met were still high compared to the numbers reported before

2012-13, there was a significant improvement in this indicator in the current year reflecting reduced incidences in several LGAs, particularly Mid-Western (see Figure 9).

**Indicator - Drinking water complaints**

Slightly less drinking water complaints were received by Councils across the region in 2013-14 compared to the three previous years. Only Blayney, Gilgandra and Mid-Western Councils had significantly more complaints.





### **CASE STUDY: Stormwater education (Dubbo LGA)**

Dubbo City Council is implementing a dynamic multi-layered stormwater education program targeting schools and the local community.

There are three parts to the message being communicated:

1. The Macquarie River is an important community asset
2. The daily activities of the community impact upon the health of the Macquarie River
3. There are simple things the community can do to help protect the health of the Macquarie River.

The program which is informed by Council's Stormwater Education Strategy in collaboration with local community Stakeholders includes:

1. The provision of free stormwater education programs to local schools. Two programs have been developed: "Raindrop Rangers" for primary schools and "Stormy Waters" for high schools. Both programs can be tailored to the needs of the school and include hands-on activities such as water quality testing and riparian surveys. The programs are supported by free give-aways including wristbands, stickers and fridge magnets reinforcing the central slogan of the campaign "Dubbo drains are just for rain".
2. Stormwater inlet stencilling.
3. Increased signage on Dubbo City Council wheelie bins. The signs which bear the slogan "Do the right thing for our river" were designed with input from community stakeholders and will be installed by members of the community.
4. A re-designed and expanded web presence: [www.dubbo.nsw.gov.au/stormwater](http://www.dubbo.nsw.gov.au/stormwater) which describes Council's stormwater system, explains its purpose and lists the simple things people can do to protect the health of the Macquarie River. The URL of the website is communicated on all promotional material.
5. A weekly article in one of the local newspapers raising public awareness of the economic and recreational importance of the Macquarie River and issues which impact upon its health.
6. The design and distribution of educational material to local households.
7. Regular displays in shopping malls, the library and at appropriate public events including the Dubbo Show and the Dubbo Sustainable City Expo.

Feedback from schools and the community groups has been complimentary. A more formal assessment of the success of the campaign will be implemented later this year.

Council and its local community stakeholders launch the  
'Do the right thing for our River' wheelie bin signs





# People and Communities

This chapter reports on environmental issues relating to people and communities including development, cultural heritage and air quality.

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.

Development may have economic and social benefits to communities but may also have negative impacts on the environment such as increased water pollution and loss of habitat through vegetation clearing.

Community volunteering is important to the implementation of environmental actions in many Council areas. Volunteers can be

bought together for specific projects or can be drawn from existing community groups including Landcare, Greening Australia and other local environment groups.

Cultural heritage incorporates both Indigenous and non-Indigenous heritage and both are threatened by increased development and a lack of management and awareness.

Air pollution can be harmful to our health. Air pollution can contain a mixture of solid particles, liquid droplets and gases from a variety of sources such as industry, motor vehicles, heating appliances, and tobacco smoke.



Railway station building,  
Mid-Western LGA

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

Issue	Indicator	2010-11	2011-12	2012-13	2013-14	Trend
Active community involvement	Environmental volunteers working on public open space (hrs)	15,725	12,286	16,072	15,492	↑
Community Impacts	Number of days that air pollution maximum goals for particulate matter were exceeded*	0	1	2	3	↓
Indigenous Heritage	Inclusion in DCPs & rural strategies	11	16	16	16	↑
	Extent of liaison with Indigenous communities (self-assessed from 0 = none to 3 = High)	2.1	2.0	1.9	1.7	↓
	Development approvals on listed Indigenous sites	5	12	13	5	↑
	Number of Indigenous heritage management actions/responses	4	2	4	6	↑
Non-Aboriginal Heritage	NSW Heritage Items	108	109	112	110	→
	Locally listed heritage items	1,552	2,026	2,220	2,298	↑
	Actions to protect non-Indigenous heritage (including management plans)	19	36	32	32	↑
	Heritage buildings on statutory heritage lists demolished/degraded in past year	4	0	0	1	↑
	Heritage buildings on statutory heritage lists renovated/improved in past year	56	82	85	110	↑

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

Note – the above trends are for data in 2010-11, 2011-12, 2012-13 and 2013-14 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2013-14. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2013-14 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 - Environmental volunteers working on public open space**

There was a decrease in the hours worked by environmental volunteers on public open space compared with last year. However, the 15,492 hours worked across the region is an increase compared with the average of the past three years.



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

Twelve of the seventeen councils in the region reported that they had growers' markets and/or local food retailers specialising in local food. Notably, two-thirds of the total reported across the region are in the Cabonne and Orange LGAs. The quality of this information is a little patchy but the response does indicate that there is discernible demand within the region for locally-sourced food products.

**Figure 10:** Number of Indigenous sites on the AHIMS register 2013-14

**Indicator - Number of environmental community engagement programs**

Just over half (8) of the councils in the region reported that they ran environmental community engagement programs during 2013-14. Some examples of these programs were:

- Carp muster in Bogan Shire
- Cabonne Council engaged with local schools and landowners on riparian

management to show the benefits of a functional riparian system

- Wellington Council ran a Waste to Art Competition
- Bathurst Regional Council ran a variety of programs, including the 'Making A Difference' Newsletter and 'Racing to Save Mount Panorama Woodlands'.

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

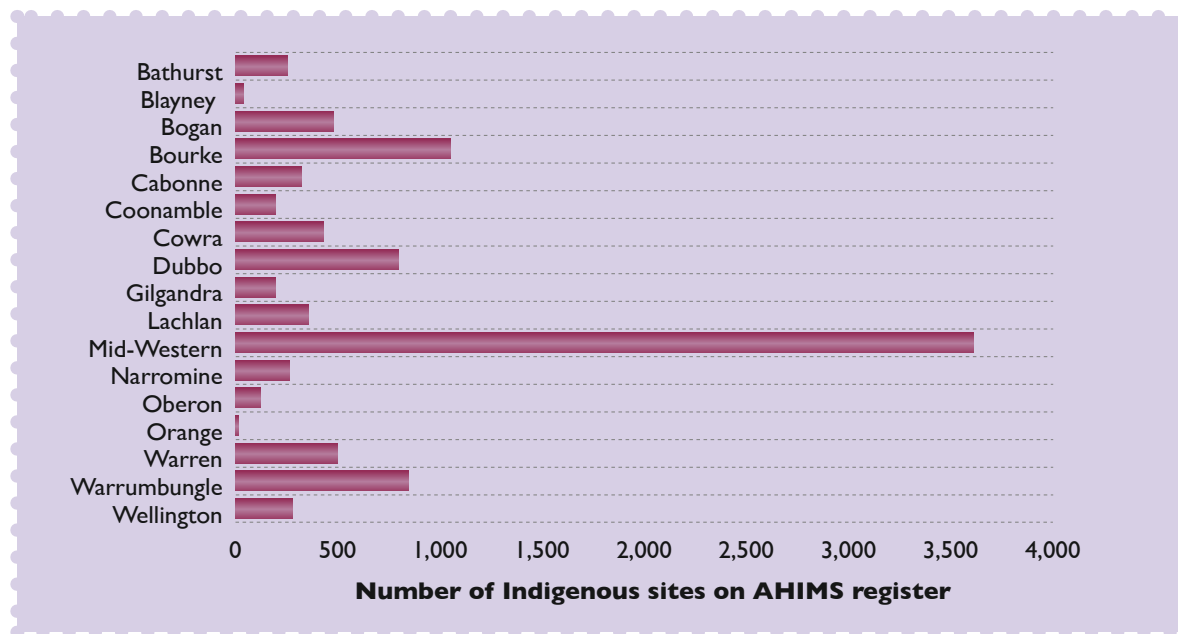
There were three days in 2013-14 on which particulate matter (PM10) recorded at the Bathurst testing station (the only one in the region) exceeded the air pollution maximum goals. This is the highest since 2010 and is likely indicative of increased bushfire activity.

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

All the Councils in the region have some consideration of indigenous heritage in their planning and approval processes. All but one of the Councils (Warren Shire) also reported that they have a specific indigenous heritage management plan/strategy in place.

**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 1.7 on a scale of 0 (no liaison) to 3 (high level of liaison).



This was a slight decline from the 2012-13 average of 1.9.

*Indicator - Development on listed Indigenous sites*

Dubbo City Council reported five developments on listed Indigenous sites in 2013-14. All developments were carried out in accordance with relevant national, state and local legislative requirements and planning policies to avoid, minimise and/or mitigate site impacts. They were the only Council in the region to report any development this year which is a significant improvement on the previous couple of years.

*Indicator - Number of Indigenous heritage management actions/responses*

In 2013-14, there were six Councils in the region that reported specific Indigenous heritage management actions/responses. This is an indicator of active liaison with aboriginal groups and is the highest number reported in the six years that this indicator has been tracked.

*Indicator - Number of Indigenous sites on AHIMS register*

In 2013-14, there were 9,767 sites across the region listed on the Aboriginal Heritage Information Management System (AHIMS) register. This is the first year in which the count of sites was provided by the NSW Department of Environment and Heritage

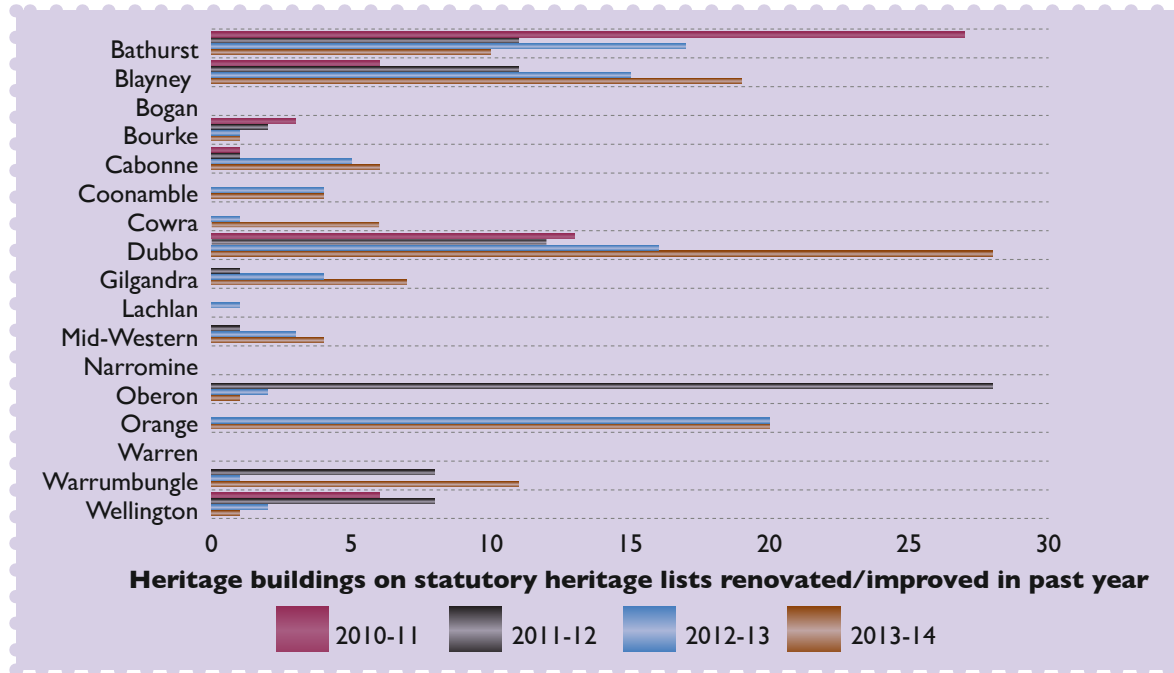
## CASE STUDY: Carcoar Catholic Church (Blayney LGA)

Historically, Carcoar has an important place in the development of the Central West region. It was the third official town to be established west of the Blue Mountains and served as an important administrative centre for much of the nineteenth century. The lack of twentieth century intrusions into the town is unusual and has ensured that Carcoar has retained its strong historic character, its aesthetic qualities being reinforced by its setting in the Belubula River valley.

The Carcoar Catholic Church and its wall were built in 1869 by convict labour and is a locally listed heritage building. The wall had stood for 144 years before collapsing as a consequence of heavy rainfall and the cumulative effects of a lack of an appropriate foundation, poor construction, a minimal lime content of the original mortar and a lack of maintenance.

Blayney Shire Council through its local heritage assistance was able to assist with the restoration of the multi-coloured sandstone wall at the Immaculate Conception Church. Work on the restoration of the wall was completed in May of 2014.





**Figure 11:** Heritage buildings on statutory heritage lists renovated/improved



and the number is not comparable to data previously provided by Councils.

Figure 10 provides a breakdown of sites across the LGAs in the region.

**Indicator - NSW Heritage Inventory items**

There was a small reduction in the number of items listed under the *NSW Heritage Act 1977*, with one less site in each of the Dubbo and Orange LGAs.

**Indicator - Locally listed heritage items**

The process of updating and finalising new LEPs has led to five Councils across the region increasing the number of heritage items listed

in their LEP. This process has led to large increases in heritage listings across the region over the last four years and it is now likely there will be a period of stabilisation as this major LEP update process draws to a close.

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

The number of actions was the same as that recorded in 2012-13.

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

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

There were three heritage buildings demolished or degraded in the past year: two in Orange and the Showground Grandstand in Cowra which was demolished with approval by the Minister. By contrast, in the past year there were 118 heritage buildings renovated or improved by 13 of the 17 Councils in the region. This continues the strong improving trend in this indicator reported over the last few years. Figure 11 provides a breakdown across the LGAs of the heritage buildings that were renovated or approved over the past four years.



## **CASE STUDY: Aboriginal Sensitivity Mapping and Engagement (Mid-Western LGA)**

In 2012, Mid-Western Regional Council won a \$80,000 grant from the Hunter Central Rivers CMA for the creation of GIS aboriginal sensitivity mapping, and to protect a number of culturally sensitive sites located in the CMA area. It also provided an opportunity for Council to enhance its engagement with the local Indigenous community. The works were completed in June 2014.

The grant application recognised that Council required additional information to improve its procedures surrounding the protection of Indigenous heritage, particularly in relation to development assessments and Council's infrastructure programs.

Essentially the mapping clarifies when on-ground cultural surveys must be undertaken in relation to development applications and Council works. It operates in the same way that Council's flooding and bushfire mapping clearly identifies where an area is highly sensitive, and additional investigations and information must be provided in order for those hazards to be appropriately addressed. The mapping involved a number of direct consultations with the Indigenous community and on-ground surveys.

The physical works component of the project was undertaken by the Indigenous community with assistance from Council. The works were undertaken at two highly significant reserves located towards the north-east of the LGA. It included the construction of a footbridge and seating at The Drip, and the erection of interpretive signage, weed spraying and tree planting at both The Drip and Hands on Rock.

The project also included cultural awareness training for Council office and works staff. The training was facilitated by the Mudgee Local Aboriginal Land Council where the mapping was presented, the legal framework around protection of Indigenous heritage addressed, and Indigenous heritage and its importance discussed. Council's due diligence practises to create clear guidelines to address these issues were also discussed.

Footbridge at The Drip





# Towards Sustainability

The term sustainability can have different meaning to different people. It's about taking what we need to live now, without jeopardising the potential for people in the future to meet their needs.

Environmental sustainability involves making decisions and taking action that are in the interests of protecting the natural world, with particular emphasis on preserving the capability of the environment to support human life.

Local Councils, 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.

This chapter is about what the Councils in the reporting region are doing to move towards environmental sustainability in the areas of:

- Waste management
- Resource purchasing and use
- Climate change
- Policies and procedures.

*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 2013-14, the total waste entombed at the region's primary landfills declined by 24,000 tonnes for the Councils reporting on this indicator in the past four years.

However, the waste entombed at secondary landfills increased significantly from previous years.

After two years of increased waste to landfill, the total was 4% lower this year (primary plus other landfills) with substantial

reductions reported in several LGAs, notably Bourke, Dubbo and Orange which each reported their lowest totals in the last seven years. This was due to improved recycling options and increased tipping fees. The big exception to the trend was Mid-Western Regional Council which recorded 44,100 tonnes, including 21,289 tonnes of fill/soil.

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

The cost of waste services across the region continued to rise with Warren Shire Council the only one to report a lower cost in 2013-14.

*Indicator - Farm chemical drums collected through DrumMuster collections*

The number of farm chemical drums collected through DrumMuster collections this year was significantly lower than 2012-13. The 2013-14 collection is the lowest for the past seven years.

*Indicator - Household Hazardous Wastes collected*

The amount of household hazardous waste recycled through the NetWaste contract continued to increase with a total of 31,865 tonnes collected in 2013-14. The increase

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

Issue	Indicator	2010-11	2011-12	2012-13	2013-14	Trend
Waste Generation	Total waste entombed at primary landfill (tonnes)	196,000	216,000	215,000	191,000	↑
	Total waste entombed at other landfills (exc recyclables) (tonnes)	6,585	7,144	5,892	21,349	↓
	Average total waste generated per person (tonnes)	0.93	1.03	1.01	0.96	↑
	Average cost of waste service per residential household	\$239	\$254	\$266	\$272	↓
Hazardous/Liquid Waste	DrumMuster collections (number of drums)	68,427	87,184	42,692	30,289	↓
	Household Hazardous Wastes collected (kg)	7,748	12,800	14,406	25,481	↑
Reduce	Garden organics collected (diverted from landfill) (tonnes)	21,951	27,809	27,381	29,677	↑
	E-Waste collected (diverted from landfill) (tonnes)	49	140	62	99	↑
Recycle	Volume of material recycled (tonnes)	23,060	25,321	25,568	24,516	↓
	Volume of material recycled per person (kg)	98	109	110	104	↓
Littering and illegal dumping	Number of illegal waste disposal complaints to Council	398	501	386	397	↑
Engineering, Infrastructure and Civil Works	New road construction (km)	46	16	37	30	↑
	Road upgrades (km)	370	319	561	684	↓
Risk Management	Hazard reduction burns	32	12	38	61	↑
Climate Change Mitigation	Office paper used by Council (A4 reams)	24,874	27,054	25,793	24,598	↑
	Council sustainability initiatives	29	44	61	43	↓
Council Greenhouse Gas Emissions	Annual electricity consumption for Council controlled facilities (MWh)	58,187	56,684	58,828	62,166	↓
	Annual natural gas consumption for Council controlled facilities (Gj)	19,502	43,548	30,372	35,561	↓
	Annual bottled gas consumption for Council controlled facilities (L)	40,916	38,633	41,832	44,229	↓
	Total fuel consumption (KL)	6,482	8,223	7,957	6,788	↑
	Council total operational greenhouse gas emissions (tCO <sup>2</sup> -e/year)			229,000	222,000	↑
Community Greenhouse Gas Emissions	Small scale renewable energy uptake (kw installed)		5,478	8,858	10,561	↑

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

Note – the above trends are for data in 2010-11, 2011-12, 2012-13 and 2013-14 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2013-14. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2013-14 for which no comparison can be made with previous years. Refer to the Appendix for a list of Councils included in the trend data.

Rural landscape,  
Mid-Western LGA

was due to a combination of Lachlan Shire being added to the Netwaste contract, plus a 35% increase in collections for the 8 LGAs reporting in each of the last four years, notably Dubbo, Mid-Western and Orange.

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

The 8.4% increase in garden organics collected this year continues the improving trend in this indicator. The biggest single contributor was Orange City Council whose successful green waste collection program was already the biggest in the region and rose by a further 68% in 2013-14 to 12,226 tonnes.

*Indicator - E-Waste diverted from landfill*

There was a large increase in E-waste collections this year compared to 2012-13, although the total collected is still lower than in 2011-12 (when many televisions were collected due to the digital change-over). Whilst collections rose in several LGAs, the biggest contributors to the change were Blayney and Wellington which between them collected almost half the E-waste for the whole region.





## CASE STUDY - Green Distillation Technologies

Green Distillation Technologies (GDT) Corporation Limited is commercialising an Australian technology that recovers energy from end-of-life tyres (ELTs). With a head office in Melbourne, GDT operates a commercial module in Warren NSW on land sold to the company by Warren Shire Council.

The GDT technology is known as “Destructive Distillation” and uses controlled heat to reduce whole tyres to their constituent elements which then reform into oils which are distilled and collected. Carbon is the most abundant element in tyre rubber and is delivered up in powder form of high purity. Steel that is used in tyre manufacture is collected clean and unchanged. The process is entirely emission free.

The process plants are designed in modular form with a single module comprising two processing tubes and all the ancillary equipment. A commercial scale plant consists of six of these modules and is capable of processing 19,000 tonnes of tyres per year. This represents approximately 3% of the ELTs produced in Australia annually.

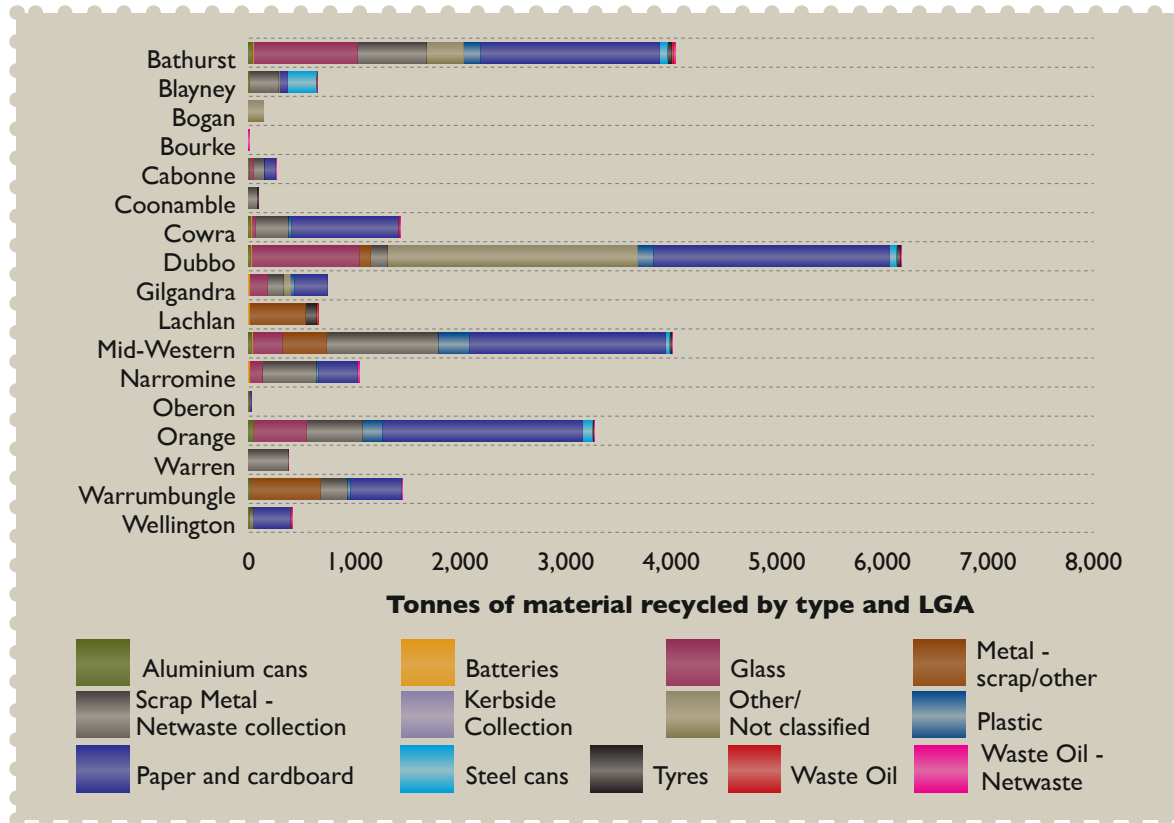
The GDT process is currently the only process available in Australia that remanufactures the rubber content of the ELT into a different energy form. Other processes merely change the shape and/or appearance of the rubber. The oil produced from the GDT process can be used as a heating fuel, direct into some stationary diesel engines or is capable of further refinement into better engine fuels. The carbon is a high grade product replacing other carbons sourced from fossil fuels.

In the near future, the company plans to be able to accept agricultural waste and other green waste products to process into carbon so to take some stress off Council’s Waste Management Depot.



Green Distillation Technologies module, Warren

**Figure 12:** Type of materials recycled 2013-14



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

The total amount of material recycled across the region fell by 3% compared to 2012-13, with lower totals reported in ten of the 17 LGAs. The breakdown of the type of materials recycled in each LGA is provided in Figure 12.

*Indicator - Illegal waste disposal complaints to Council*

Thirteen of the 17 Councils in the region received and investigated illegal waste disposal complaints during 2013-14 which shows that this is a common issue. However, 66% of the total complaints for the region were received by Bathurst and Dubbo Councils.

*Indicator - New road construction*  
*Indicator - Road upgrades*

New road construction across the region declined compared to 2012-13 with the only significant project being 17.6 km of new road in the Lachlan LGA. However, for the second successive year, there was a large increase reported in the kilometres of road upgrades across the region.

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

Fifteen of the seventeen Councils in the region reported that they did already include BPEM in new road projects.

*Indicator - Hazard Reduction burns*

Of the 62 hazard reduction burns reported across the region, 50 were in the Bourke Shire where 8,430 hectares was burnt by the Rural Fire Service (RFS) and other agencies. This is in addition to the 4,995 hectares burnt in bushfires during 2013-14 in the Bourke Shire.

*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 indicators were introduced to better gauge the proactiveness of Councils in response to sustainability and climate change challenges.

Thirteen of the 15 Councils that responded indicated that they did include environmental sustainability criteria within their purchasing policies. A good example was Cabonne Council which noted that: "We use the green guide to purchase cars and light commercials and for large plant we make sure they are compliant with current Australian design rules for emissions, detailed in our plant specifications. We also have a weighting factor for environmental, within our appraisal process." Fifteen of the 16 Councils that responded, indicated that they already apply design measures in response to climate change in new infrastructure

#### *Indicator - Council sustainability initiatives*

The decline for this indicator in 2013-14 (see Table 6) was largely due to Bathurst Regional Council almost halving the number of initiatives reported this year, although its 22 initiatives for 2013-14 are still half the total for the entire region. Five other Councils reported sustainability initiatives this year with examples including lighting changes in Oberon and an in-house campaign by Cabonne Council to encourage staff to turn-off computers, lights, etc. when they leave the office.

#### *Indicator - Council adaptation initiatives*

Eleven of the thirteen Councils that responded indicated that they had Council climate change adaptation initiatives in place.

#### *Indicator - Council mitigation initiatives*

The number of climate change mitigation initiatives reported by Councils continued to decline, falling to only 13 across the region, which is the lowest total recorded since this indicator was first reported in 2010-11.

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

During the 2013-14 year, 1,074 hectares in the Warrumbungle LGA was covered by a new

flood study. Flood studies were also in progress in the Bogan, Coonamble and Mid-Western LGAs.

#### *Indicator - Natural disaster declarations*

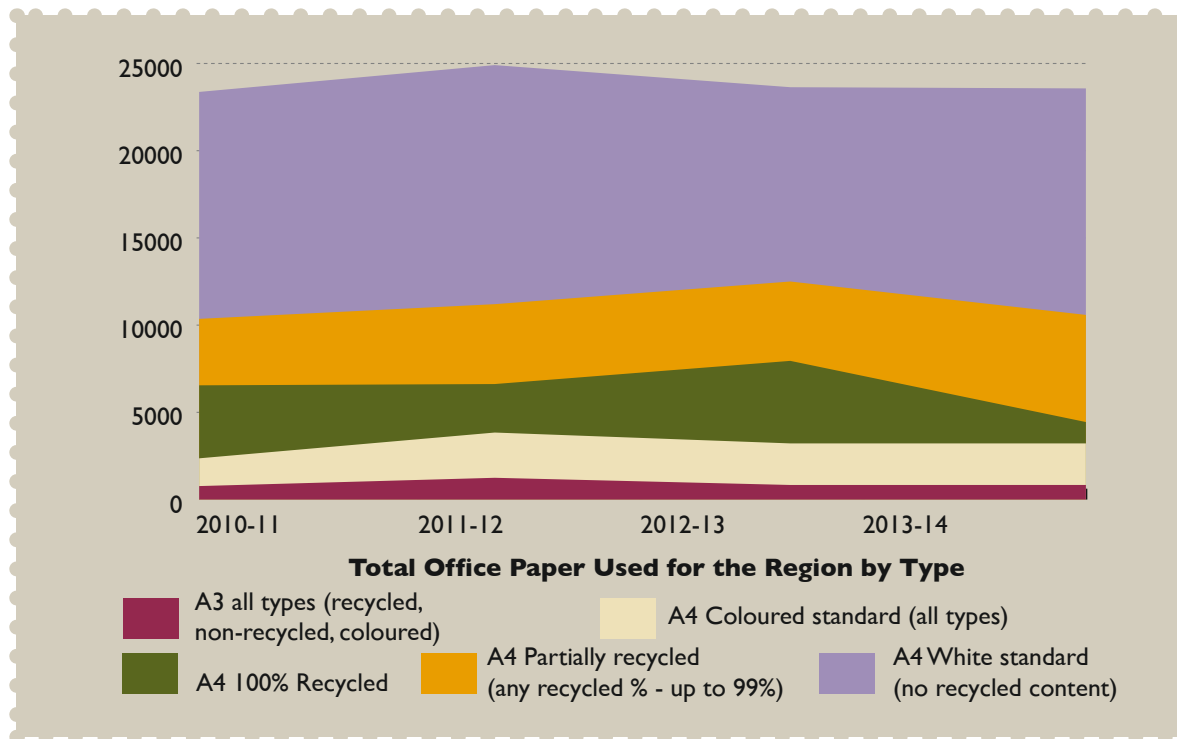
Bourke was the only LGA in the region to declare natural disasters. The return to drier conditions resulted in the entire Bourke Shire being drought declared, plus 4,995 hectares in the Shire were burnt in bushfires.

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

The mix of paper type used by Councils across the region has changed over the last couple of years, with much less 100% recycled paper being used and a corresponding increase in the use of partially recycled



Cycling event,  
Mid-Western LGA



**Figure 13:** Type of office paper used across the region

and standard (no recycled content) paper (see Figure 13). This is probably due to the price differential combined with the repositioning of many brands of standard (non-recycled) office paper as “sustainable plantation” paper.

*Indicator - Annual electricity consumption for Council controlled facilities*

Electricity consumption increased significantly in comparison to 2012-13, and this constitutes a worsening trend when related to the relatively constant levels of the past three years.

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

There was a significant increase in natural gas consumption in 2013-14 compared with 2012-13 due mainly to Bathurst not being able to report previously on its Aquatic Centre.

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

There was a significant increase in bottled gas consumption in 2013-14 compared with 2012-13.





## CASE STUDY: Waste to Art Sculpture (Bourke LGA)

The 2013 Regional Waste to Art Exhibition was hosted by Bourke Shire Council in conjunction with NetWaste. As part of the Exhibition, a Sculpture Project was conducted with Bourke Council and community.

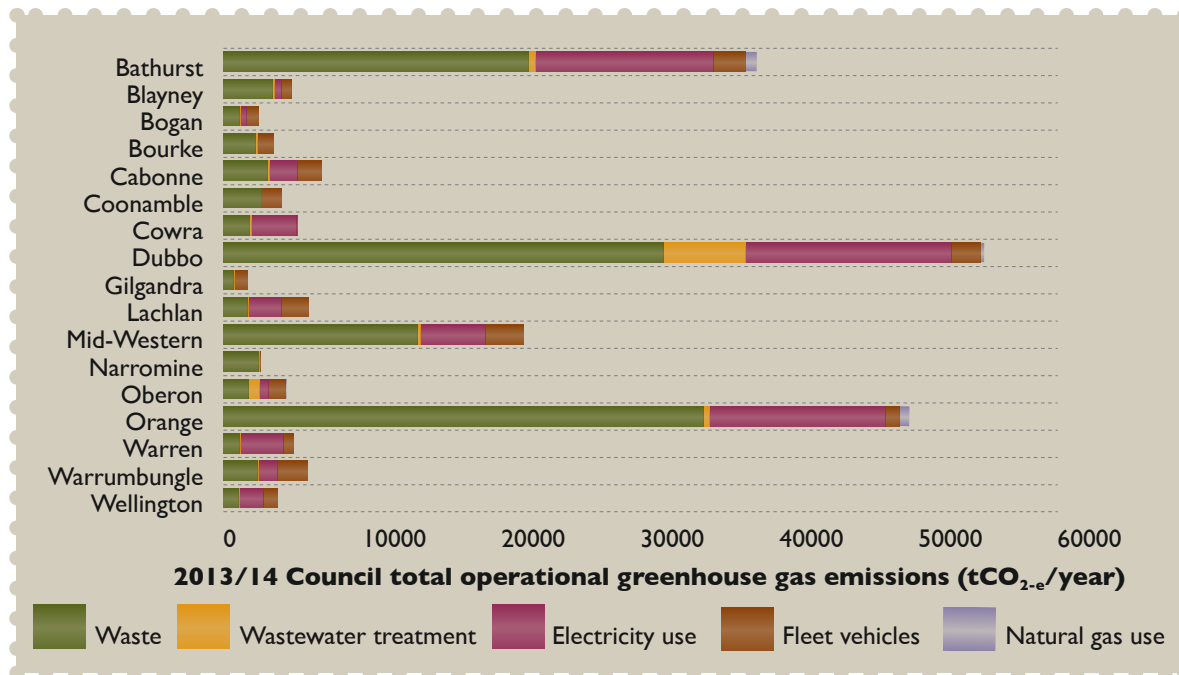
NetWaste tries to involve the local community in supporting events that help reinforce the waste message underlying community art programs. The Regional Waste to Art Exhibition held in Bourke involved building a sculpture representing a Yellow Belly fish made from locally-sourced scrap metal. The Yellow Belly was chosen as the model for the sculpture as it shares a long history in the rivers around Bourke and has ties to the culture of the local Indigenous people.

The sculpture was completed as part of the Waste to Art exhibition. Visitors and local community members who came to the exhibition were invited to contribute to the construction of the sculpture by cutting their own scales out of old aluminium cans and adding their names to the scales, then placing them on the sculpture.





**Figure 14:** Council total operational greenhouse gas emissions 2013-14



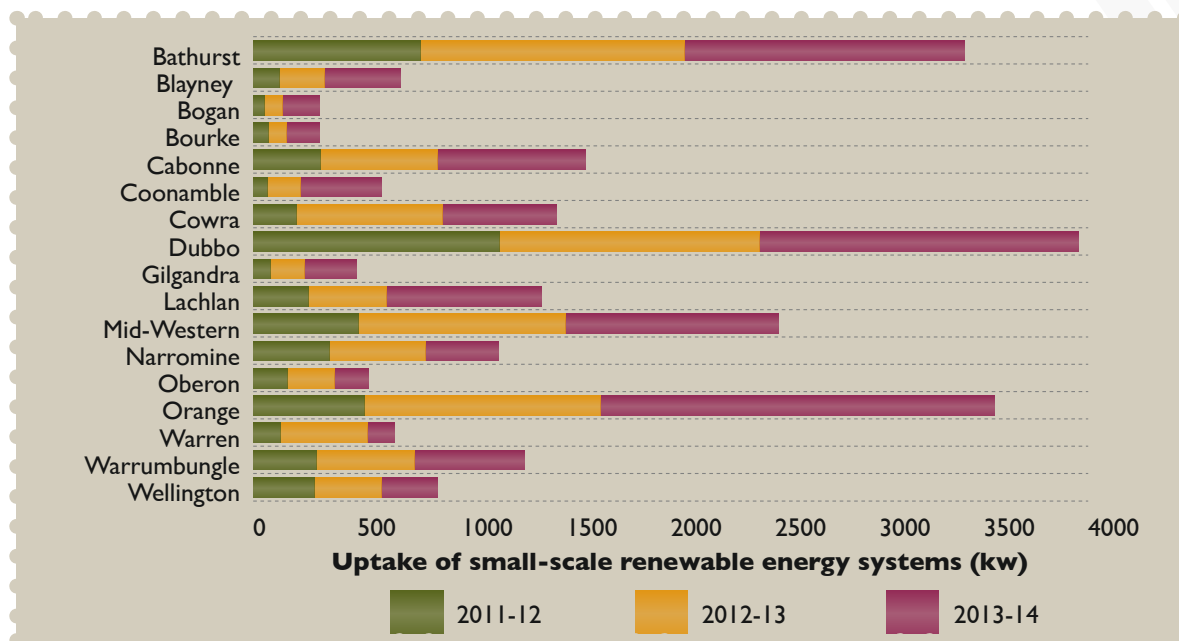
*Indicator - Total fuel consumption*

Fuel consumption from Council owned vehicle fleet and plant decreased in the current reporting year, with just under half of the Councils reporting a reduction in their consumption, most notably Mid-Western.

*Indicator - Council total operational greenhouse gas emissions*

Total greenhouse gas emissions calculated for the region were slightly lower in 2013-14. This is primarily due to the lower landfill total reported this year. Methane emissions from landfills contribute almost 60% of the total greenhouse gas emissions for the region, expressed as tonnes of CO<sup>2</sup> equivalent per year. A breakdown by LGA for this indicator is provided as Figure 14.

**Figure 15:** Uptake of small-scale renewable energy systems across the region



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

Bathurst, Dubbo and Orange Councils have the most renewable energy infrastructure and in 2013-14 that infrastructure supplied only about 1% of the energy demands.

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

There has been strong growth in installations of small-scale renewable energy systems across the region, with growth over the last two years in 12 of the 17 LGAs. A total of 10,561 kilowatts was installed in 2013-14 which is an increase of 19.2% compared to the previous year.

The Small-scale Renewable Energy Scheme creates a financial incentive for owners to install eligible small-scale installations such as solar water heaters, heat pumps, solar panel systems, small-scale wind systems, or small-scale hydro systems. This indicator tracks the total kilowatts installed for solar panels and small-scale wind and hydro systems. Solar water heaters and heat pumps are excluded because the only data available for their uptake is a simple installed count, not kilowatts installed.

A breakdown of the uptake of renewable energy systems for each LGA is provided in Figure 15.

## CASE STUDY: Futures Forum (Cowra LGA)

Cowra Shire Council and the Natural Resource Advisory Management Committee held the 'Sustaining Regional Communities', Futures Forum on the 2 May 2014 at the Cowra Showground Pavilion. The event focused on sustainability and natural resource management and its significance in regional and rural communities. The event was designed to show case the Cowra region in terms of its leadership in alternative technologies, sustainable practices and organic produce.

The event was attended by 157 representatives, from a range of areas including the local community, government agencies, manufacturing and agricultural sectors, which included 73 delegates from the Environmental Development Allied Professionals, Western and Southern Regions, who had their annual conference in Cowra on the 1 May 2014.

The major sponsors of the event were Cowra Shire Council, NRM Committee, Centroc – Central NSW Regional Organisation of Councils, Lachlan Landcare and Office of Environmental & Heritage.

The one day event comprised:

- Breakfast, lunch and morning/afternoon tea catered by Cowra Public School, P&C Association, which showcased regional produce.
- Coffee cart, supplied by Art Espresso Coffee, Young, NSW.
- A diverse range of speakers including Professor John Williams of Charles Sturt University and Dick Whitaker, Chief Meteorologist for SKY NEWS
- Panel discussion – with several speakers from the morning session.
- Trade stalls provided from many organisations which allowed the delegates to talk to business leaders in the region.

The event received very favourable feedback from both participants and speakers.



Futures Forum at the  
Cowra Showground Pavilion



# 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	Narromine	Oberon	Orange	Warren	Warrumbungle	Wellington	Local Land Services	
<b>Land</b>																						
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	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>																						
		Roadside vegetation management plan	Hectares	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Habitat areas revegetated	Hectares	◆	●	◆	◆	◆	●		◆	◆	◆	◆		◆	◆	◆	◆	●	●	
		Council Reserves - total area	Hectares	◆	●	◆	◆	●	◆	◆	◆	◆	◆	◆		◆	●	◆	●	●		
		Council Reserves - bushland/remnant vegetation	Hectares	◆		◆	◆	●	●	◆	◆	◆	◆	◆		◆	◆	◆	◆	●	●	
		Area Protected in Wildlife Refuges	Hectares	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		Area protected in conservation reserves & under voluntary conservation agreements	Number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆

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	Local Land Services		
	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	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
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>																							
		Average salinity levels in selected streams	EC			◆			◆					◆									
		E.coli remote from wastewater treatment plants	Organisms per 100mL	◆	●						◆	◆		◆		◆		◆					
		Wastewater treatment type	Yes/No	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
	Riparian	Riparian vegetation recovery actions	Number	◆	◆		◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●		
		Riparian vegetation recovery area	Hectares	◆	◆		◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	
	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	◆	◆	●	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆		

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	Local Land Services	
	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)	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Number of bore licences from groundwater resources	Number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Volume of groundwater permissible for extraction under licences	Gigalitres (GL)	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
	Council Water Consumption	Council managed parks, sportsgrounds, public open	Hectares	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	
		Irrigated council managed parks, sportsgrounds, public o	Hectares	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	
		Water used by council for irrigation (including treated and	Megalitres (ML)	◆	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆	◆			◆	
	Town Water Consumption	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	◆	●	●	◆	◆	●	◆	◆	◆	◆	●	◆	◆	◆	◆	●	◆		◆	
Number of residential meters		Number	◆	●	●		◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆		
Dam Levels	Dam levels	Volume %		◆					◆			◆	◆							◆		
Town Water Quality	Drinking water guidelines not met	Number of instances	◆	◆	●	●	●	◆	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆		
	Drinking water complaints	Number & Type	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	

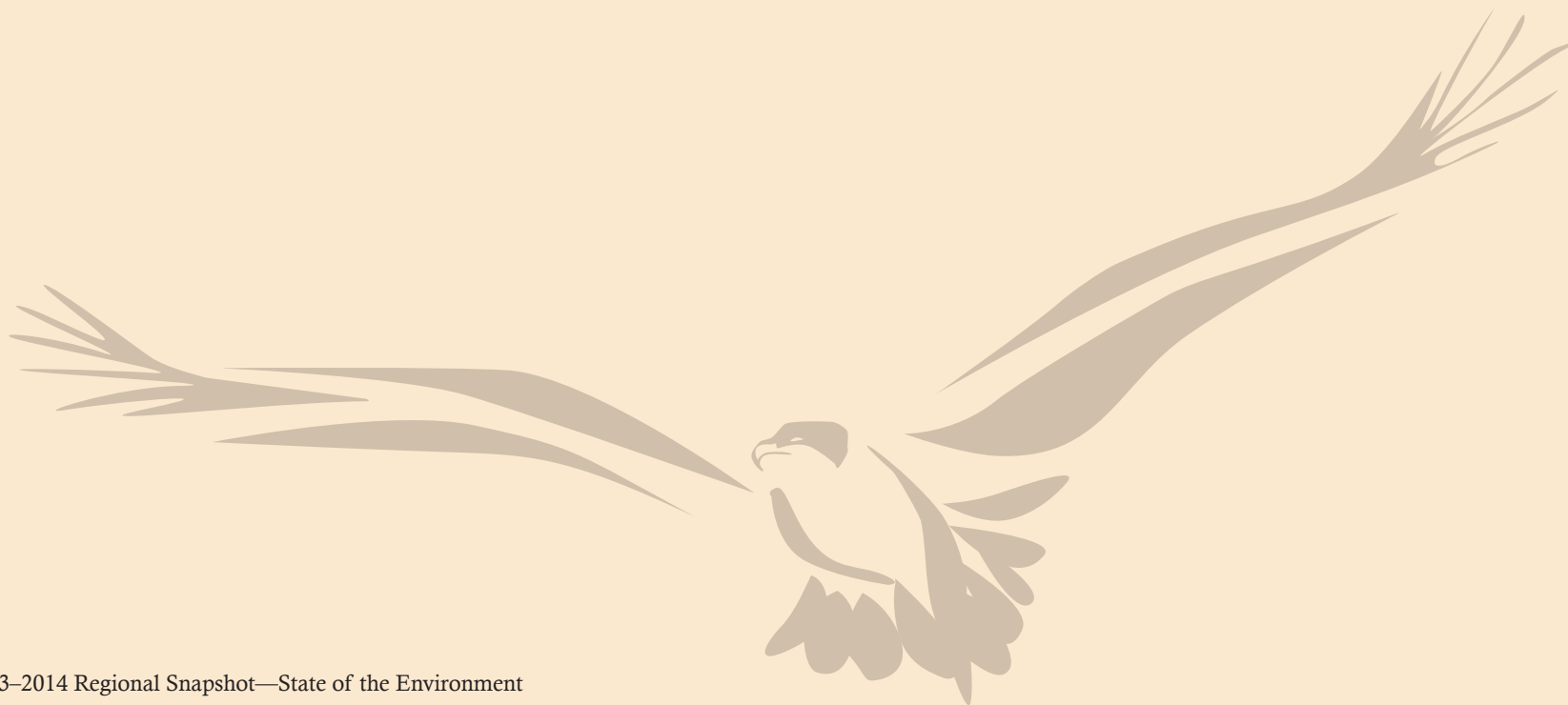
Issue	Sub-Issue	Indicator	Unit of Measure	Bathurst	Blayney	Bogan	Bourke	Cabonne	Coonamble	Cowra	Dubbo	Gilgandra	Lachlan	Mid-Western	Narramine	Oberon	Orange	Warren	Warrumbungle	Wellington	Local Land Services		
<b>People and Community</b>																							
Active community involvement		Environmental 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 Aboriginal Heritage	Number of Aboriginal sites on 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	◆	●		◆	◆	●	◆	◆	◆	◆	◆	●	◆	◆	◆	◆				
		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	◆	◆	●	◆	◆	●	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	◆	

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	Local Land Services	
<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	Fire Regimes	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	Narramine	Oberon	Orange	Warren	Warrumbungle	Wellington	Local Land Services	
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 2013–14 but not compared in summary tables





# Acknowledgements

The preparation of the Regional State of the Environment Report 2013-14 was funded by the 17 participating local Councils with support from Central Tablelands Local Land Services and Central West Local Land Services. It shows trends, where possible, in relation to reports produced for the region in 2010-11, 2011-12 and 2012-13.

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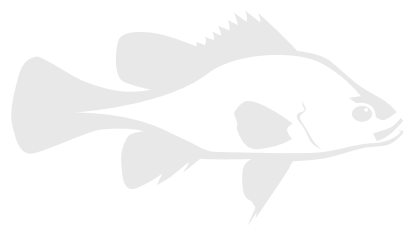
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Mt Canobolas from  
Cabonne - western side  
(Diana Kureen)





# Abbreviations

AHIMS	Aboriginal Heritage Information Management System
BPEM	Best Practice Environmental Management
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 Environmental 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
WTP	Water Treatment Plant
UWMP	Urban Waterways Management Plan



# 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 regard 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

The total area of the region as shown in Figure 1 is approximately 145,169 km<sup>2</sup>. It is estimated that the population of the region covered by this report is 225,000.

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 Central Tablelands Local Land Services and Central West Local Land Services (LLS) 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 Plan 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.



**Figure 1** Map showing participating Council areas and Local Land Services regional boundaries

## Reporting for the next four years

The IP&R Framework requires that the 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 Catchment Management Authority (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.

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, were integrated into LLS. LLS deliver:

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

As shown in Figure 1, the participating Councils are located across 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). 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 2013-14 in a summary table at the commencement of each theme chapter.

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

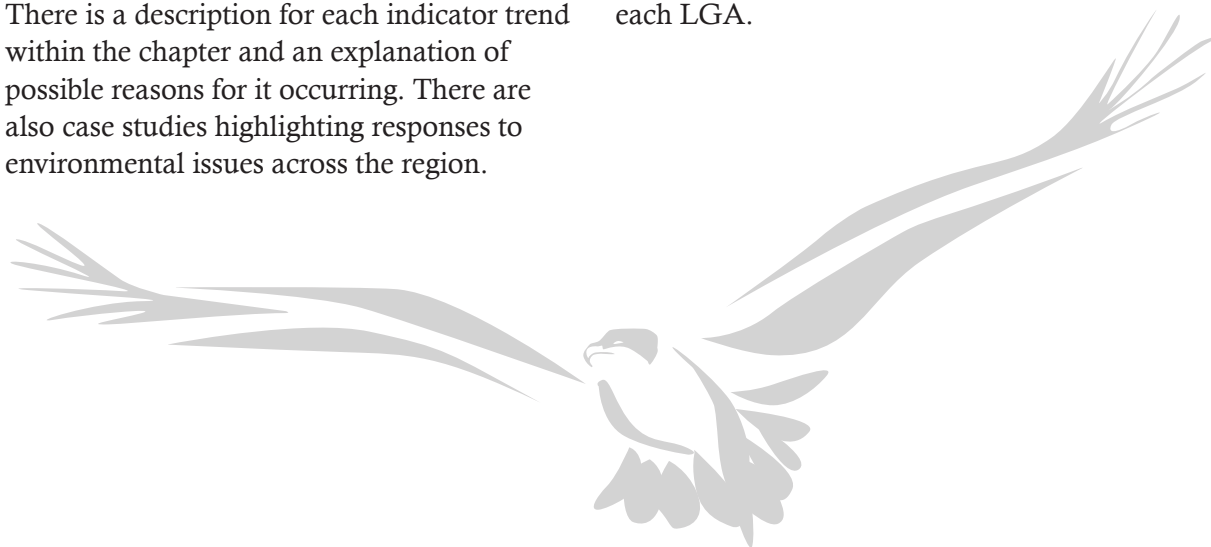
In 2012, the participating Councils decided to produce additional brief snapshot reports for

The trend arrows in the summary tables are based on comparing the average of data from 2010-11 onwards with the data for 2013-14, where direct comparison can be made.

The trend arrows used in the summary table are:

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

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.







# Land

This chapter focuses on aspects of sustainable land management in the region. There are a number of challenges to the sustainable use and management of our soil and land resources, such as wind and water

Sustainable land management can be defined as “the use of land resources, including soils, water, animals and plants, for the production of goods to meet changing human needs, while simultaneously ensuring the long-term productive potential of these resources and the maintenance of their environmental functions” (Dept. of the Environment, 2014). Sustainable land management is crucial to minimising land degradation, rehabilitating degraded areas and ensuring the optimal use

of land resources for the benefit of present and future generations.

***Indicator - Contaminated land sites  
(Contaminated Land Register)***

Across the region there were a total of 11 sites currently on the Contaminated Land Register at 30 June 2014, the majority of which were former service stations. This number is unchanged from the previous reporting year.

Canola crop,  
Cabonne LGA

erosion, soil acidity, soil salinity, soil structure decline, soil fertility and soil impermeability. The sustainable use of soil and land in agricultural areas of the region is of increasing significance, particularly in the face of a changing climate.



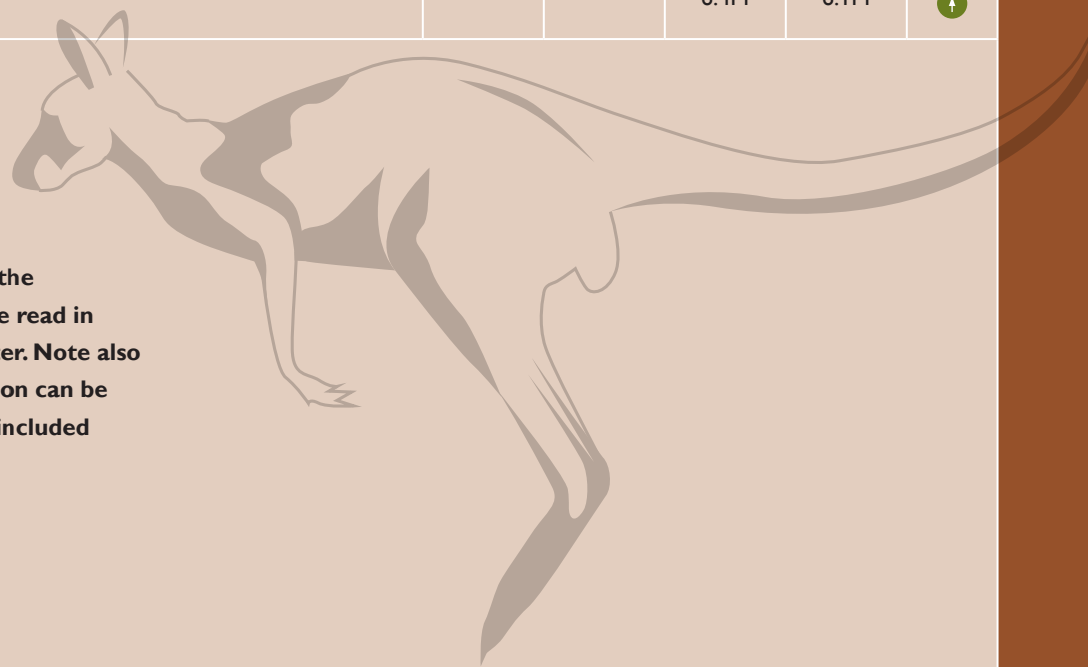
**Figure 3:** Number of potentially contaminated sites in each LGA

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

Issue	Indicator	2010-11	2011-12	2012-13	2013-14	Trend
Contamination	Contaminated land sites - Contaminated Land Register	9	9	11	11	↓
	Contaminated land sites - potentially contaminated sites	895	915	883	1,103	↓
	Contaminated sites rehabilitated	7	13	15	10	↓
Erosion	Erosion affected land rehabilitated (ha)	93	2,066	1,872	4	↓
Land use planning and management	Number of development consents and building approvals	3,435	4,219	3,772	3,917	↓
	Landuse conflict complaints	66	101	132	98	↑
	Loss of primary agricultural land through rezoning			961	1,119	↓
Minerals & Petroleum	Number of mining and exploration titles			667	948	↓
	Area covered by mining and exploration titles (ha)			6.4M	6.1M	↑

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

**Note – the above trends are for data in 2010-11, 2011-12, 2012-13 and 2013-14 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2013-14. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2013-14 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 2:** Number of potentially contaminated sites across the region

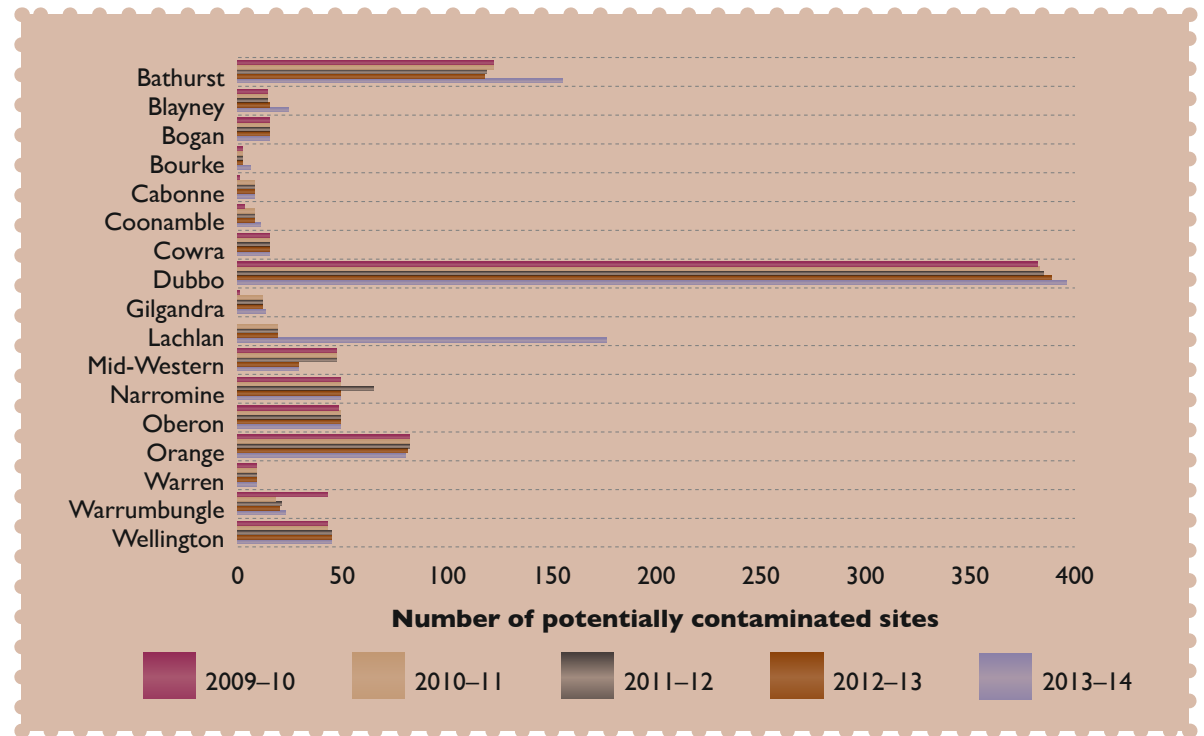
**Indicator - Contaminated land sites (potentially contaminated sites)**

As shown in Figure 2, there has been a significant increase in the number of potentially contaminated sites reported this year compared with previous years, due predominantly to new sites added in the Bathurst and Lachlan LGAs. Changes included:

- Bathurst Regional Council added 38 properties at Sunny Corner related to the Sunny Corner Contaminated Land Policy.
- Lachlan Shire Council compiled a new contaminated lands register in 2013-14 which added 157 new sites.
- Blayney Shire Council added nine potentially contaminated sites (a 60% increase).
- Warrumbungle Shire Council added three sites and is likely to add more as their contaminated land register is currently being updated through a community consultation program.
- Bourke, Coonamble, Dubbo and Gilgandra Councils all reported small increases. Orange City Council with one less site was the only LGA which reported a reduction.

**Indicator - Contaminated sites rehabilitated**

Ten contaminated sites were rehabilitated across the reporting region in 2013-14: three in Orange LGA, two in Dubbo LGA and one each in Bathurst, Bogan, Gilgandra, Warren



(work not actually completed) and Wellington LGAs. This was the lowest number of sites rehabilitated since 2010-11 and when contrasted with the 1,103 potentially contaminated sites across the region, it highlights the scale of the task ahead for Councils.

**Indicator - Erosion affected land rehabilitated**

Only 4.4 hectares of erosion affected land was rehabilitated in 2013-14, with small projects undertaken in the Bathurst, Cabonne, Mid-Western, Orange and Warren LGAs. This is by far the lowest area rehabilitated in the six years since this indicator was first reported.

There was no rehabilitation reported by either the Central West or the Central Tablelands LLS due to a lack of funding for this area, which contrasts to the significant rehabilitation work undertaken by the Central West CMA in previous years.

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

Development activity in the region grew in 2013-14 with a 3.8% increase in the number of development consents and building approvals across the reporting region. The biggest increases were in the

## CASE STUDY: South Orange Urban Release Area (Orange LGA)

Orange City Council in collaboration with various consultants, both local and national, has produced a Masterplan for the South Orange Urban Release Area over the first half of 2014. The release area is over 200 ha and will ultimately incorporate some 1600 housing lots.

Shiralee is a new urban village that will provide housing, amenity, recreational and educational opportunities to a diverse range of residents and visitors. The Shiralee Master Plan is informed and underpinned by a thorough understanding of the site's natural attributes and special qualities, its contextual relationships to surrounding land uses within Orange and by the desire to create an inclusive village that enriches people's quality of life and provides housing, community services and jobs.

Community and stakeholder consultation, throughout the planning process, identified a strong desire to create a distinct and identifiable urban area that exemplifies best practice design while maintaining the semi-rural and natural qualities of the site.

Properties that frame, and roads that arrive into Shiralee will be green and open, with larger lots adjacent. Higher densities will be located within the centre of the village and in places where views and access to parkland is best. Intimate pockets of development are created to enhance a strong sense of community.

The Shiralee Master Plan:

- Has distinct, separate identity to Orange whilst maintaining the best themes of Orange
- Is anchored by a hill-top mixed use village
- Provides housing choice that promotes a diverse community
- Provides community infrastructure to create a viable community
- Responds to existing site conditions, including natural features and man-made elements including the street grid.

The environment has been a key driver in the development of Shiralee with the design driven by principles including:

- preservation of remnant biodiversity areas and connections
- restoration of natural watercourses
- incorporation of water sensitive urban design in design controls
- incorporation of significant views and vistas into the Structure plan
- use of the natural terrain to drive design.



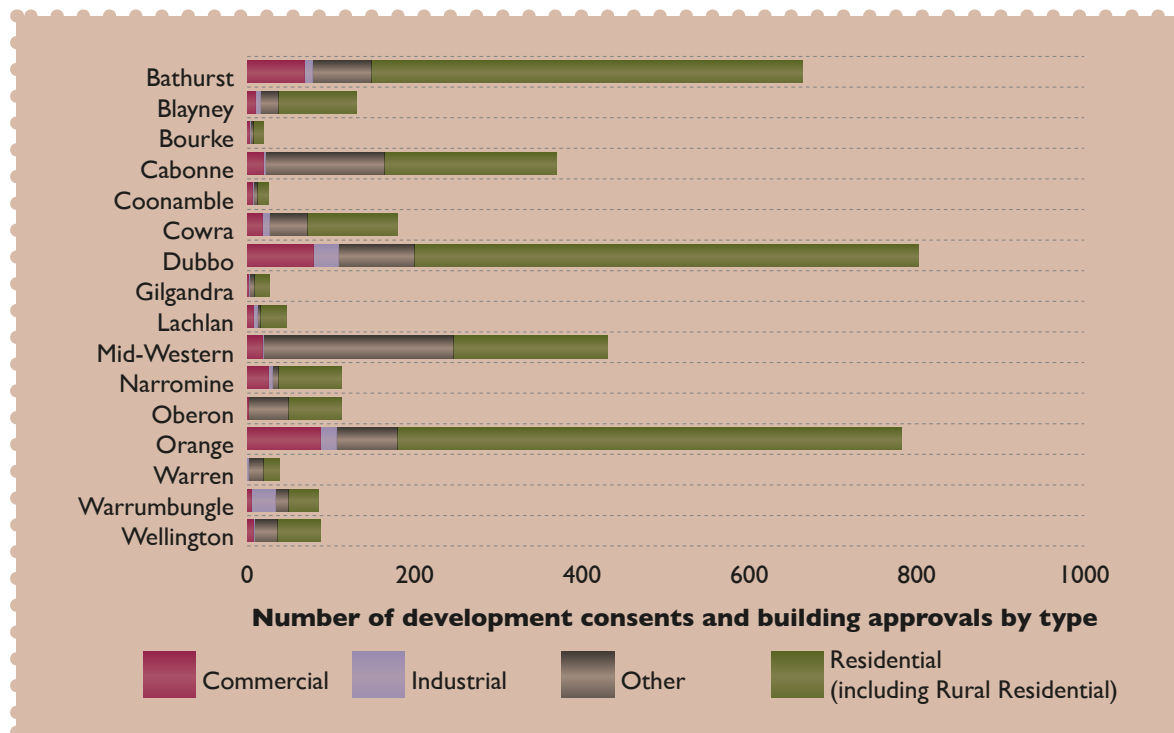
**South Orange Urban Release Area Internal Council Workshop**

Workshop Summary Paper & Preliminary Structure Plan Ideas

by OCULUS for Orange City Council | 14 October 2013

Planning for the sustainable development  
of the new South Orange subdivision

**Figure 3:** Number of development consents and building approvals by type 2013-14



Cabonne, Cowra, Narromine and Oberon LGAs which each reported development at or very close to their highest level in the six years that this indicator has been reported.

Notably, the major contributor to growth in these LGAs was residential development, which was little changed over the entire reporting region as residential development slowed significantly in the Bathurst, Blayney and Mid-Western LGAs. There was also a big spike in the “Other” category in Cabonne which is in part due to increases in subdivisions and approvals for NBN Radio Telecommunication Facilities.

Figure 3 shows the number and type of development consents and building approvals across the region in 2013-14.

**Indicator - Landuse conflict complaints**

The number of landuse conflict complaints across the reporting region reverted to the level reported in 2011-12. The two Councils reporting the most complaints were Cowra and Orange which both reported a decrease after the spike in complaints they reported last year. The 30 complaints in the Orange LGA represented 30% of all complaints reported across the region and were due

to two major developments: the Gorman Road subdivisions and the South Orange Urban Release project.

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

A total of 1,119 hectares was rezoned from rural (RU1) to other categories in 2013-14 with almost all of this being in the Oberon LGA, whose 2013 Local Environmental Plan (LEP) created substantial opportunities for development that was previously removed by the State Environmental Planning Policy (Rural Lands) 2008.

**Indicator - Farm entities demonstrably practicing sustainable agricultural practice**

This indicator was introduced last year with the Central West CMA providing the data based on the area mapped for sustainable grazing. This year the data has been provided by the new Central West LLS and Central Tablelands LLS which have reported that the land area used for sustainable agricultural practice is a total of 274 hectares.

The LLS’s have used a completely different basis for deriving this area and hence no comparison or assessment of trend is yet possible.

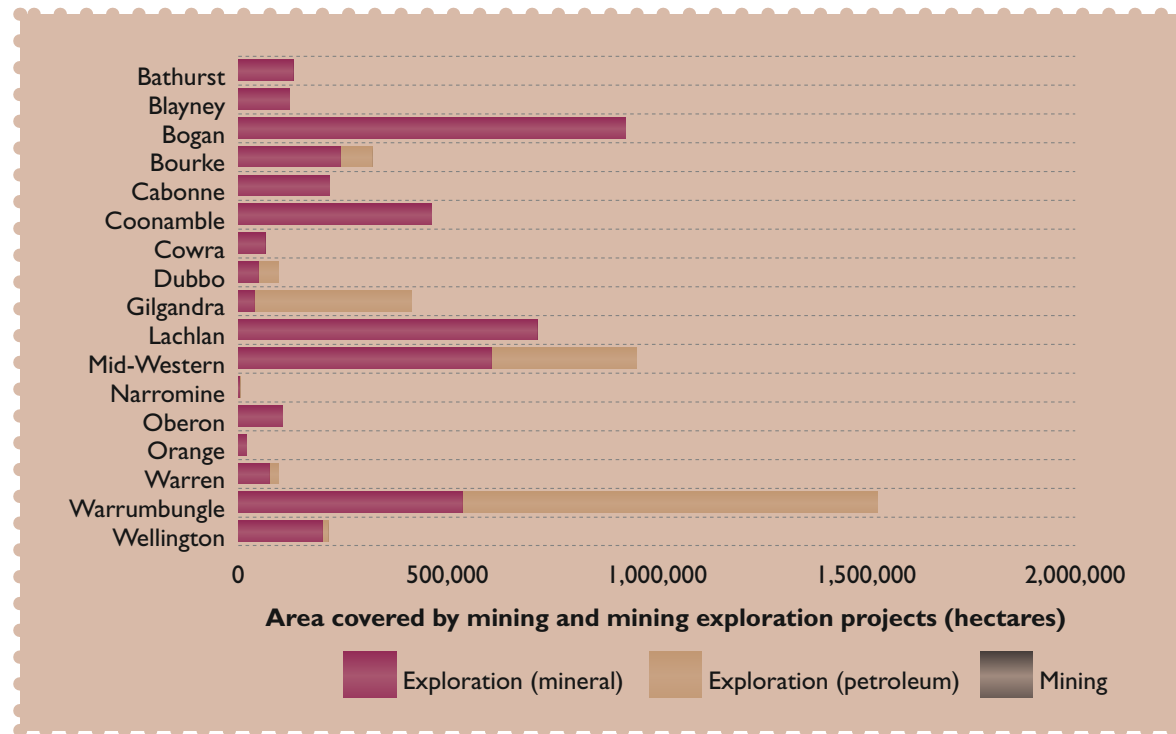
**Indicator - Number and type of mining and exploration titles**

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

The underlying trend when comparing data since 2010-11 for both number of titles and area covered is a continuing decline in operating mines and exploration projects. This is consistent with the nationwide slow-down in the mining industry since the peaks at the height of the boom in commodity prices.

The large increase shown in the summary table for number of titles is entirely due to the addition in 2013-14 of data for the number of quarries which were omitted from the numbers reported in previous years.

Figure 4 shows the total area covered by mining and mining exploration projects across the region in 2013-14. Note that the area of mining is relatively small and therefore not graphed.



**Figure 4:** Total area covered by mining and mining exploration projects 2013-14



Agricultural land, Cabonne LGA



# Biodiversity

Biodiversity is the variety of all life forms on earth - the different plants, animals and micro-organisms and the ecosystems of which they are a part.

Echidna,  
Mid-Western LGA



Ecosystems that are rich in biodiversity are more resilient and healthy and are better able to recover from outside stresses such as drought, pests, bushfire and climate change.

Understanding biodiversity gives us the ability to more effectively address environmental challenges including:

- controlling pests and supporting species that pollinate crops
- maintaining groundwater tables
- absorbing carbon
- protecting water quality.

Local Councils impact on biodiversity through a variety of activities including landuse planning and the management of Council reserves.

### *Indicator – Addition to the National Park estate*

The total area of the National Park estate in the reporting region is 1,363,308 hectares. This is an increase of 456 hectares since the 2012-13 reporting year, continuing the trend of small annual increases since the large growth in the estate between 2009 and 2011.

### *Indicator – Change in Area of State Forests*

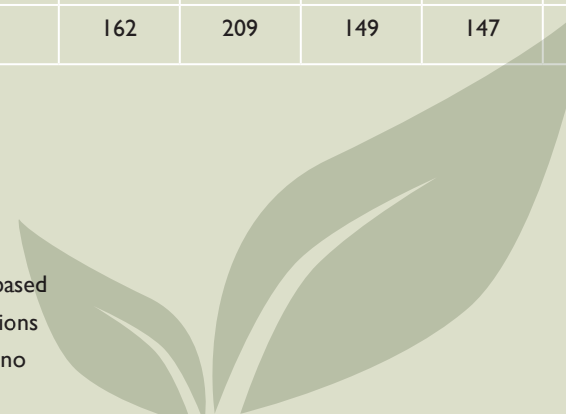
The total area of State Forests in the reporting region is 284,186 hectares. This area has been effectively unchanged for the last two years, following a series of relatively small reductions in area between 2009 and 2012.

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

Issue	Indicator	2010-11	2011-12	2012-13	2013-14	Trend
Habitat Loss	Addition to National Park estate (ha)	101,000	174	185	456	↑
	Change in Area of State Forests (ha)	-3,841	-57	-1	1	↑
	Total area protected in Wildlife Refuges (ha)	259,000	259,000	217,000	217,000	↓
	Total area protected in conservation reserves & under voluntary conservation agreements (ha)	7,582	7,669	10,292	10,434	↑
	Proportion of Council reserves that is bushland/remnant vegetation	54%	51%	51%	45%	↓
	Habitat areas revegetated (ha)	313	310	72	79	↓
	Vegetation protected and rehabilitated through CMA incentive funding (ha)	4,173	12,962	7,496	7,214	↓
	New Voluntary Conservation Agreements, Property Vegetation Plans & biobanking	25	17	5	2	↓
	Roadside vegetation management plan	9	14	15	17	↑
Threatened Species	State Threatened species listed in the Central West and Lachlan Catchments	255	281	287	283	↓
	Fish restocking activities: native species	377,000	300,000	391,000	560,000	↑
Noxious weeds and feral animals	Fish restocking activities: non-native species	297,000	271,000	285,000	306,000	↓
	Number of declared noxious weeds	114	122	122	124	↓
	Invasive species (listed noxious or WONS) under active management	162	209	149	147	↓

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

Note – the above trends are for data in 2010-11, 2011-12, 2012-13 and 2013-14 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2013-14. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2013-14 for which no comparison can be made with previous years. Refer to the Appendix for a list of Councils included in the trend data.





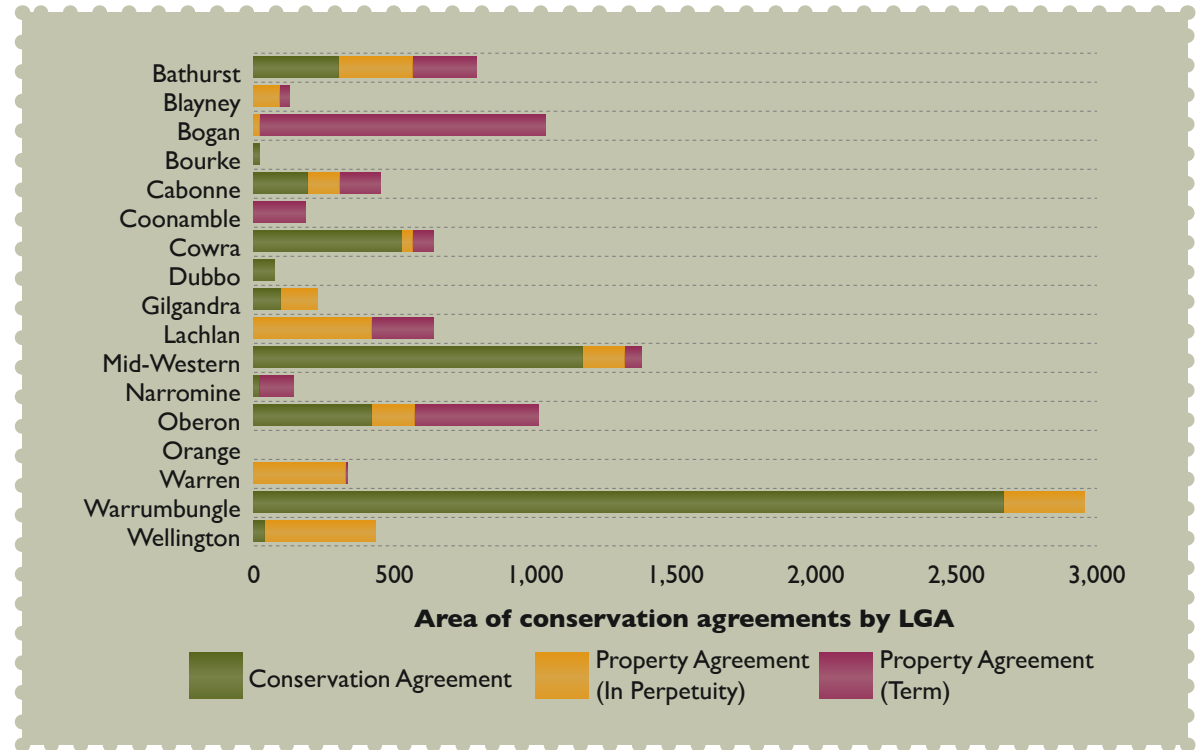
**Indicator - Total area protected in Wildlife Refuges**

There was no change in the area of Wildlife Refuges across the region in 2013-14 compared with 2012-13.

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

An additional 141.5 hectares of land was protected under voluntary Conservation Agreements in 2013-14, comprising 110 hectares in Cabonne LGA and 31.5 hectares in the Mid-Western LGA. Figure 5 shows the area protected in conservation reserves and under voluntary conservation agreements across the region.

**Figure 5:** Area of Conservation Agreements by LGA 2013-14



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

The worsening trend reported for this Indicator, as shown in the summary table (Table 2), is due to Mid-Western Regional Council which:

- a) changed the zones used to calculate Council Reserves, resulting in a 45% reduction in its reserves area, and
- b) increased its estimate of the area of bushland/remnant vegetation on Council reserves.

The only other LGA to report a small change was Orange City Council.

**Indicator - Habitat areas revegetated**

An increase of 10.5% in habitat areas revegetated was reported across the region in comparison with 2012-13. The majority of the revegetation activity was in the Cabonne and Wellington LGAs.

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

A total of 7,214 hectares of vegetation was protected and rehabilitated through funding from the new LLS. Unlike some other

programs, funding for this important work has obviously continued, with only a small decline of less than 4% compared to the area rehabilitated through the Central West CMA in 2012-13.

Eighty seven percent of this area rehabilitated was terrestrial vegetation in the Central West LLS region. Work in the Central Tablelands LLS region covered a much smaller area but there was more focus on riparian land with 401 hectares protected and rehabilitated, compared to only 140 hectares in the Central West LLS region.

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

There were only two additional Voluntary Conservation Agreements, Property Vegetation Plans and biobanking activities in the region during 2013-14. This continues a decline over the past four years.

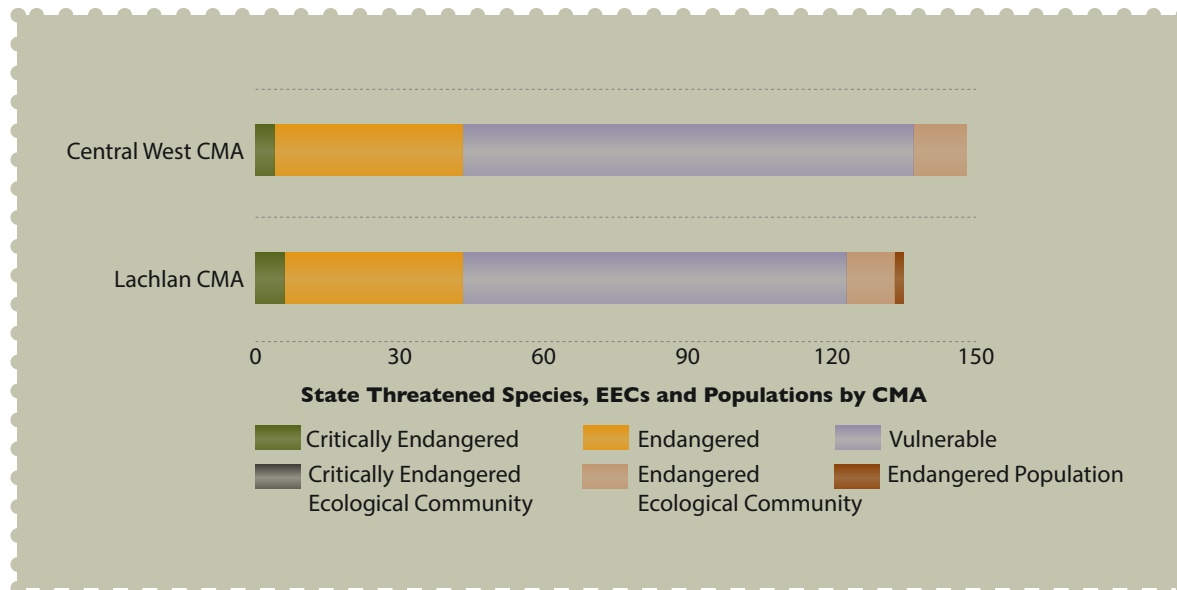
**Indicator - Roadside vegetation management plan**

This year, every Council reported that they now have a roadside vegetation management plan in place. The only Councils that did not have plans in 2012-13 were Dubbo and Lachlan.

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

Figure 6 shows the breakdown of threatened species, EECs and Endangered Populations across the former Central West and Lachlan CMA areas. The number of threatened species in the former Central West CMA area was 148: one less than reported in 2012-13, whilst in the former Lachlan CMA area it declined by three which was back to the 135 reported in 2012-13. However, there were two new species listed as Critically Endangered:

- *Caladenia attenuata* (an orchid species) in the former Central West CMA area
- *Grevillea ilicifolia* in the former Lachlan CMA area



Grass tree in Gilgandra (Diana Kureen)

**Figure 6:** Number of threatened species, EECs and endangered populations in the Central West and Lachlan Catchments 2013-14

**Indicator - Threatened species  
actions implemented**

Only four Councils reported any actions in the current reporting year and therefore this Indicator is not trended with previous years in the summary table (Table 2). The number of threatened species actions implemented across the region in 2013-14 was 15.

Examples of actions taken were:

- Bathurst Regional Council funded targeted searches for the Booroolong Frog in suitable habitat in the Campbells and Macquarie Rivers, downstream of Chifley Dam.
- Dubbo City Council undertook re-snagging in local rivers and streams to provide improved aquatic habitat for native species.



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

A total of 559,674 native fish were restocked across the region in the current reporting year which is the highest number in the seven years that this Indicator has been tracked. In previous years, up to seven different species have been restocked, but this year there were only three species, with 98% of the total being Golden Perch and Murray Cod which were restocked in similar numbers.

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

A total of 305,500 non-native fish were restocked across the region in the current reporting year which is the highest number since 2009-10. The increase was almost entirely attributable to the Oberon LGA where 31,000 more brown trout and rainbow trout were restocked than in the previous year, with the Oberon LGA also representing just over a third of the total restocking across the region.

**Indicator - Number of declared noxious weeds**

The reporting area has 124 declared noxious weeds, and a significant number of environmental weeds present. This number of noxious weeds is two more than in the two previous reporting years and is the highest level in the six 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)

Opposite page:

Purple copper butterfly

(Chris McCulloch)

It should be noted that the Castlereagh Macquarie County Council area (Coonamble, Gilgandra, Warren, Warrumbungle LGAs) and the Upper Macquarie County Council area (Bathurst, Blayney, Oberon LGAs) currently only have the “All of NSW” declarations listed. This suggests that there is a possible temporary, under-reporting of noxious weeds for these areas.

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

There was a small increase (1.6%) reported this year in the number of invasive species being actively managed by the 17 local Councils across the region. However, this Indicator is shown as a worsening trend in the summary table because there has been a continuing decline in the number of species actively managed across the 11 Councils that have reported each year.



## CASE STUDY: Roadside Rescue across 10 Councils

In 2013, the Central West Councils’ Salinity and Water Quality Alliance was successful in receiving a \$250,000 Roadside Vegetation Committee grant through the NSW Environmental Trust to protect and rehabilitate high conservation roadside vegetation in Bathurst, Blayney, Cabonne, Dubbo, Gilgandra, Mid-Western, Orange, Parkes, Warrumbungle and Wellington Council areas. A further \$5,000 for capacity building activities was also received from the former Central West Catchment Management Authority.

The projects mostly involved a combination of targeted weed spraying and revegetation to protect and/or extend areas of high conservation value roadside vegetation. Bathurst, Blayney, Cabonne, Gilgandra, Orange and Wellington Councils all focused on weed control and revegetation in differing combinations.

Dubbo City Council focused its efforts on woody weed control, and improving identification of high conservation value roadside vegetation. Mid-Western and Warrumbungle Councils have both closed stockpile work sites in sensitive roadside areas.

All Councils involved in the project are now using green roadside pickets – except Mid-Western which had previously installed red roadside pickets – to protect and identify high conservation value areas and have signs identifying their project locations.

Parkes and Warrumbungle Councils used part of their funds to invest in a weed blower attachment for slashers that mow roadsides. These have been put to good use limiting the spread of weed seeds on their slashers.

All Councils in the project also received two banners to help them promote the roadside vegetation program and raise awareness of high conservation roadside vegetation. The banners are supported by a small flyer highlighting the benefits of roadside vegetation and identifying activities that are not permitted.

Roadside vegetation was further promoted through a television advertisement that ran across the region and a short video that the Councils can upload onto their websites.



Roadside vegetation,  
Bathurst LGA (Neil Dufty)



# Water and Waterways

Water quantity and water quality are two main issues in the region. 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.

Bogan River, Nyngan  
Bogan LGA.



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.

Regional impacts of climate change and variability will include higher temperatures, increased risks of storms and flooding, as well as less reliable water supplies.

The impacts on water quantity will become more significant in the western part of the region where changes in rainfall and higher evaporation rates are likely to lead to less water for streams and rivers in the region.

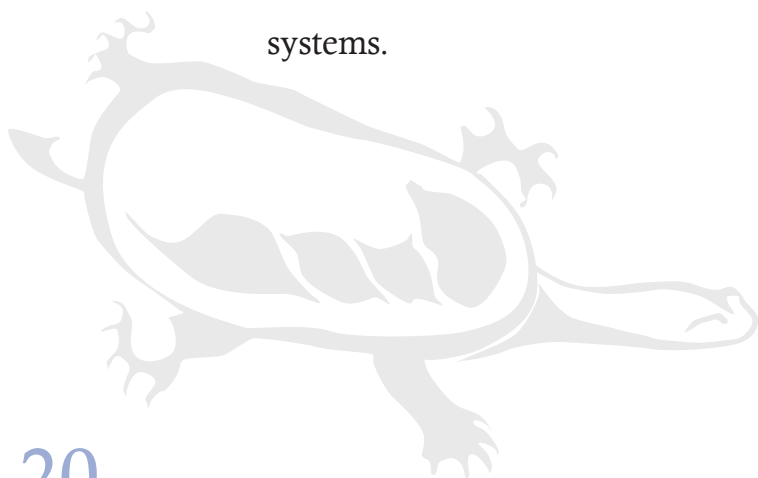
Lower flows and higher temperatures may also reduce water quality within the region. For example, low flows, higher temperatures, and elevated nutrients create a more favourable environment for potentially harmful algal

blooms. In addition, decreases in runoff due to climate change may reduce the extent and function of freshwater wetlands that provide habitat for birds and other wildlife.

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




There was a small improvement in the average salinity level for the three locations which had data available for each of the last four years. Lower salinity levels were reported for the Bogan River at Gongolgon and the Castlereagh River at Gungahlin, whilst the Cudgegong River downstream of Windamere Dam had a slightly higher salinity level, continuing its worsening trend in each of the last four years.

There were no readings available this year from the two probes on the Macquarie River at Dubbo and at Warren Weir.



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

Issue	Indicator	2010-11	2011-12	2012-13	2013-14	Trend
Surface & Ground Water Quality	Average salinity levels in selected streams (EC)	433	468	422	–	→
	<i>E.coli</i> remote from wastewater treatment plants			1,020	951	↑
Riparian	Riparian vegetation recovery actions	28	35	27	27	↓
	Riparian vegetation recovery area (ha)	236	238	150	122	↓
Industrial/ Agricultural Pollution	Load Based Licencing Volume (kg)	286,960	210,828	252,088	227,311	↑
	Exceedances of licence discharge consent recorded	38	47	47	25	↑
	Erosion & Sediment Control complaints received by Council	38	34	95	92	↓
Stormwater Pollution	Number of gross pollutant traps installed	63	64	71	70	↑
	Total catchment area of GPTs (ha)	4,812	5,275	5,325	5,275	↑
	Water pollution complaints	22	46	35	42	→
Dam Levels	Average dam levels	55.1%	88.9%	76.1%	54.6%	↓
Water extraction	Number of irrigation licences from surface water sources			3,941	2,958	↑
	Volume of surface water permissible for extraction under licences (GL)			1,165	1,007	↑
	Number of bore licences from groundwater resources			22,872	20,454	↑
	Volume of groundwater permissible for extraction under licences (GL)			298	268	↑
Council water consumption	Area of irrigated Council managed parks, sportsgrounds, public open space (ha)	906	900	900	890	↑
	Water used by council for irrigation (including treated and untreated) (ML)	959	1,120	1,959	1,850	↓
Town water consumption	Annual metered supply (ML)	20,650	20,678	27,379	27,809	↓
	Annual consumption (Total from WTP) (ML)	26,614	24,309	29,858	29,413	↓
	Average annual household use (kL/household)	219.9	200.5	266.8	256.4	↓
	Average level of water restrictions implemented	0.9	0.2	0.2	0.8	↓
Town Water Quality	Number of instances drinking water guidelines not met	167	122	269	214	↓
	Number of drinking water complaints	1,030	774	797	766	↑

-  improvement
-  no or little change
-  worsening trend

Note – the above trends are for data in 2010-11, 2011-12, 2012-13 and 2013-14 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2013-14. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2013-14 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 - E.coli remote from wastewater treatment plants**

This indicator has only been tracked for the last two years and is only measured at three locations, so extrapolating a trend from this limited dataset is not reliable. The improvement reported this year is due to the site with the highest *E.coli* levels (Jubilee Park in Bathurst) having significantly improved levels in 2013-14, which masks the higher *E.coli* levels reported for the Dubbo and Oberon LGAs.

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

**Figure 7:** Levels of major storage dams in the region

Whilst there was no overall change in the number of riparian vegetation recovery actions across the region, there was a decline in the total recovery area as Cabonne and Bathurst both scaled back their programs. However, three Councils that had reported negligible activity in previous years, each recorded new projects in 2013-14:

- Wellington Council reported a riparian recovery area of 20 hectares
- Warrumbungle Shire Council reported weed eradication at West Creek in Coonabarabran and erosion control and a rain garden on the Castlereagh River.
- Blayney Shire Council undertook white box woodland tree planting at Carcoar and Blayney.

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

Load based licencing volume across the region decreased by approximately 10% compared to 2012-13. Dubbo, Gilgandra and Orange Councils all reported significant reductions this year.

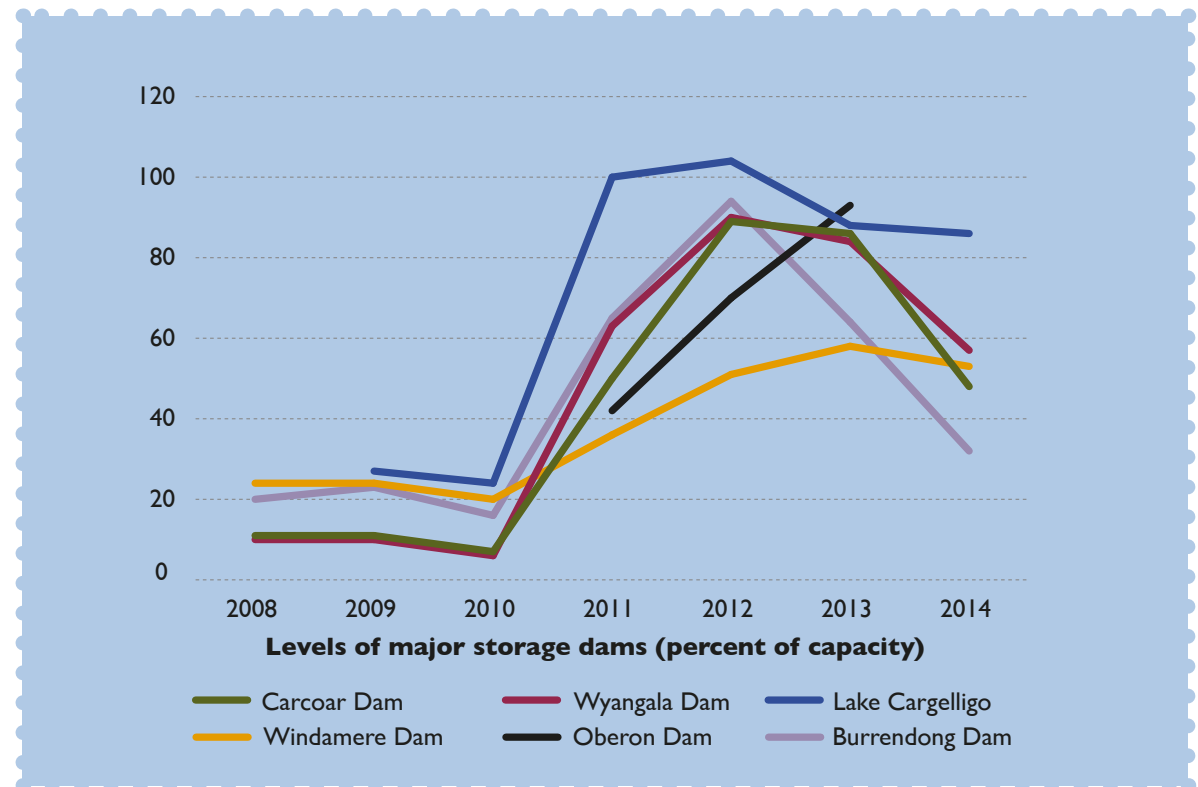
**Indicator - Exceedances of licence discharge consent recorded**

The number of incidents of licence discharges exceeding the allowed amount fell to the lowest level across the region

since 2008-09, with significant reductions reported by Lachlan and Mid-Western Councils.

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

The total number of erosion and sediment control complaints across the region was little changed in 2013-14 compared with 2012-13. However, there was a big increase reported in Orange LGA, whilst the level in Bathurst reverted back to the previous levels after a large spike last year.



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

**Indicator - Total catchment area of GPTs**

There was no significant change reported across the region in the number or catchment area of gross pollutant traps.

**Indicator - Water pollution complaints**

As in previous years, 85% of water pollution complaints investigated in the region are made to the Bathurst and Dubbo Councils. However, this year the number in Dubbo LGA almost doubled to overtake Bathurst as the LGA with the most complaints investigated.

**Indicator - Dam levels**

As shown in Figure 7, during 2013-14 there has been a significant decline in the average storage volume for all the major dams in the region. Burrendong, Carcoar and Wyangala dams declined to their lowest levels since 2009-10. This is significant, not least because Burrendong and Wyangala dams account for over 83% of the total water storage across the six major dams in the region.

To preserve water resources in river and groundwater systems for the long term it is critical to balance the competing needs of the environment and water users. Water sharing plans establish rules for sharing water between the environmental needs of the river or aquifer and water users, and also



between different types of water use such as town supply, rural domestic supply, stock watering, industry and irrigation.

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

Water sharing plans are being progressively developed for rivers and groundwater systems across New South Wales following the introduction of the *Water Management Act 2000*. The 2013-14 year is the first in which the information for surface and groundwater

extraction in this report has been provided entirely based on the *Water Management Act 2000*. In previous years, some of the data was still derived from licences issued under the previous *Water Act 1912*.

In this report, the surface and groundwater extraction data for 2013-14 has been shown alongside the 2012-13 data in the summary table (Table 3), for information only. In future years' reports, all data prior to 2013-14 will be excluded so that these indicators can be tracked on a consistent basis.

Wetlands, Warren LGA



## CASE STUDY: Bathurst Urban Waterways Condition Assessment (Bathurst LGA)

In 2009, Council, with funding from the Central West CMA, commissioned the preparation of an Urban Waterways Management Plan (UWMP) (Cenwest Environmental Services 2010). As part of the project, in autumn 2009 a condition assessment of all creek reaches within the Bathurst urban environment was undertaken to provide a baseline for measurement of changes in the condition of the creeks over time. The plan developed strategies and recommended actions for the protection and rehabilitation of the creek systems and the actions were rated by priority for implementation. Council adopted the plan in 2010 and since then has committed \$50,000 per annum towards implementing the recommendations of the plan.

Since the plan was adopted, Council has implemented a number of the recommended actions particularly in Hawthornden Creek. As five years have passed since the initial condition assessment Council's Environmental Staff thought it was timely to revisit the condition assessment to assess what impacts various management actions (or lack of management) have had on the condition trend of the creek reaches. In autumn 2014 Council therefore engaged Mactaggart Natural Resource Management (one of the lead authors on the UWMP) to redo the condition assessment on selected reaches of the creek systems and compare these assessments to the original assessments.

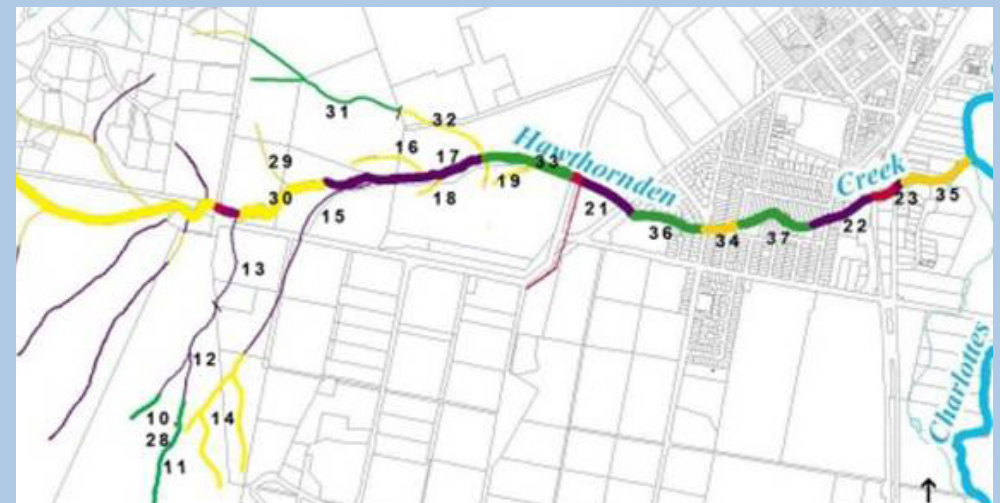
### Overall Conclusions of the 2014 Condition Assessment

Mactaggart (2014) concluded that as a general observation targeted restoration activities and management practices have had a positive contribution to stream condition. The rates of improvement vary and in some cases have been significant enough to trigger a shift from a degrading state to a recovering state. In other cases, the rate of change has been slower. The two accompanying maps compare the condition rating of selected reaches of Hawthornden Creek in 2009 and 2014.

Maps comparing the condition rating of selected reaches of Hawthornden Creek in 2009 (top map) and 2014 (bottom map). Legend: ■ = good, ■ = poor, ■ = degraded, ■ = highly degraded



Map showing condition rating of selected reaches of Hawthornden Creek in 2009



Map showing condition rating of selected reaches of Hawthornden Creek in 2014

The right to extract irrigation water from surface water sources is regulated under the *Water Management Act 2000*. Under this Act, every pump used to extract water has to have a “Water Supply Work Approval”. Therefore, tracking the number of Water Supply Work Approvals across the region will provide an indication of the demand for water for irrigation.

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

Under the *Water Management Act 2000* irrigators require an “Access Licence” to extract water from surface water sources governed by a water sharing plan, via one or more pumps (Water Supply Work Approvals).

The Access Licences are volumetric entitlements and can be bought and sold with or separately to the land with which they were originally associated.

NSW policy has been to cap the volume of water available for extraction from surface water sources by not increasing the total volume issued under Access Licences. Therefore, we would not expect future increases in this indicator unless there is a change in government policy. However, it is possible that there may be a decline over time due to a combination of government water buy-backs and some licence holders surrendering their licences if they decide that the cost of water is no longer viable for them.

***Indicator - Number of bore licences from groundwater resources***

The right to extract water from groundwater sources via bores is regulated under the *Water Management Act 2000*. As with surface water, every bore used to extract water has to have a “Water Supply Work Approval”. Bores though, fall into two categories:

- Stock & domestic bores which can be used by owners or occupiers of land, overlaying an aquifer, for domestic purposes or to water stock. In 2013-14 there were 19,110 stock & domestic bores across the region.
- Bores which are used to extract water via a groundwater access licence for irrigation or other non-domestic uses. In 2013-14 there were 1,344 of these across the region.



Winter morning,  
Castlereagh River,  
Gilgandra (Diana  
Kureen)

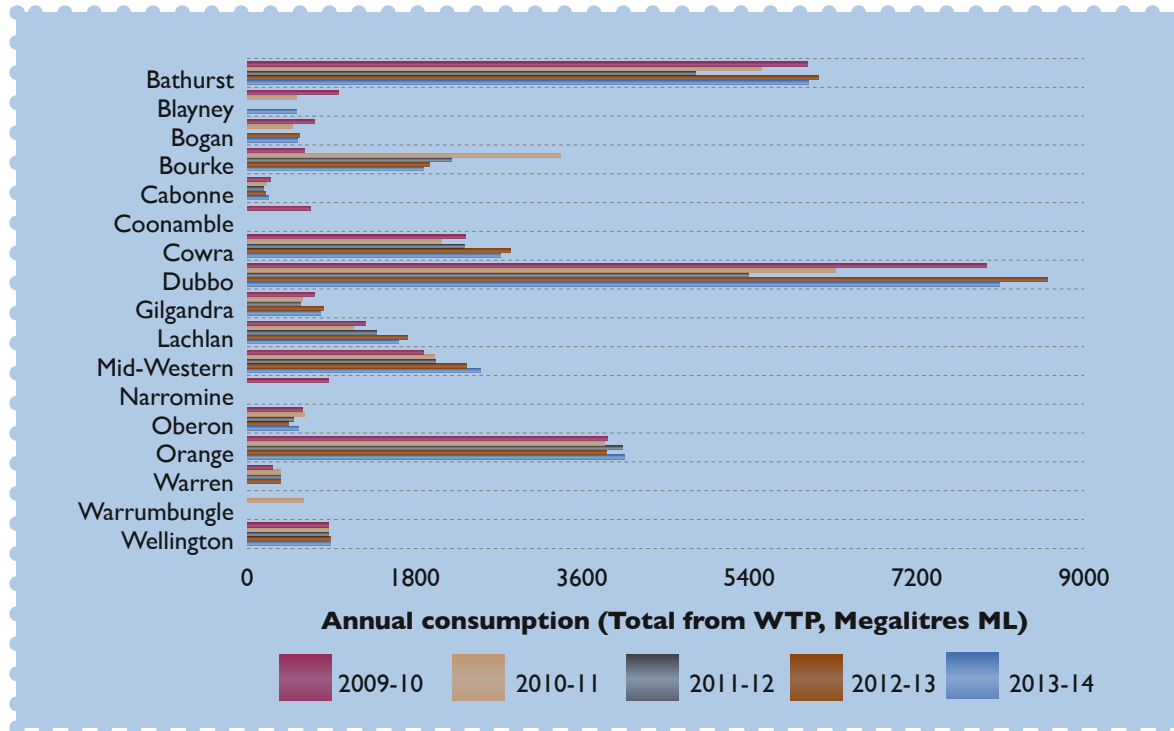


Figure 8: Annual town water consumption

Tracking the number of Water Supply Work Approvals across the region will provide an indication of the demand for water from the aquifers underlying the region.

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

Similarly to surface water, extraction of groundwater for uses other than stock & domestic, is regulated under the *Water Management Act 2000* via access licences. The implementation of water sharing plans and other controls to limit the total volume permitted for extraction from the region’s aquifers is progressing but is probably not as advanced as for surface water. Therefore there is likely to be more variability in the volumes reported for this indicator over the next few years.

*Indicator - Actual volume extracted through surface water licences*  
*Indicator - Actual volume extracted through groundwater licences*

Reliable data on actual volumes is not currently available.

*Indicator - Irrigated council managed parks, sportsgrounds, public open space*  
*Indicator - Water used by council for irrigation (treated and untreated)*

Putta Bucca Wetland, Mid-Western LGA



Approximately six percent less water was used for irrigation in 2013-14 compared to the previous year by the thirteen Councils that have reported on this indicator in each of the last four years. There was also a small reduction in the irrigated area. However, water consumption is still high compared to the preceding drought years of 2000 to 2010.

**Indicator - Annual metered supply**

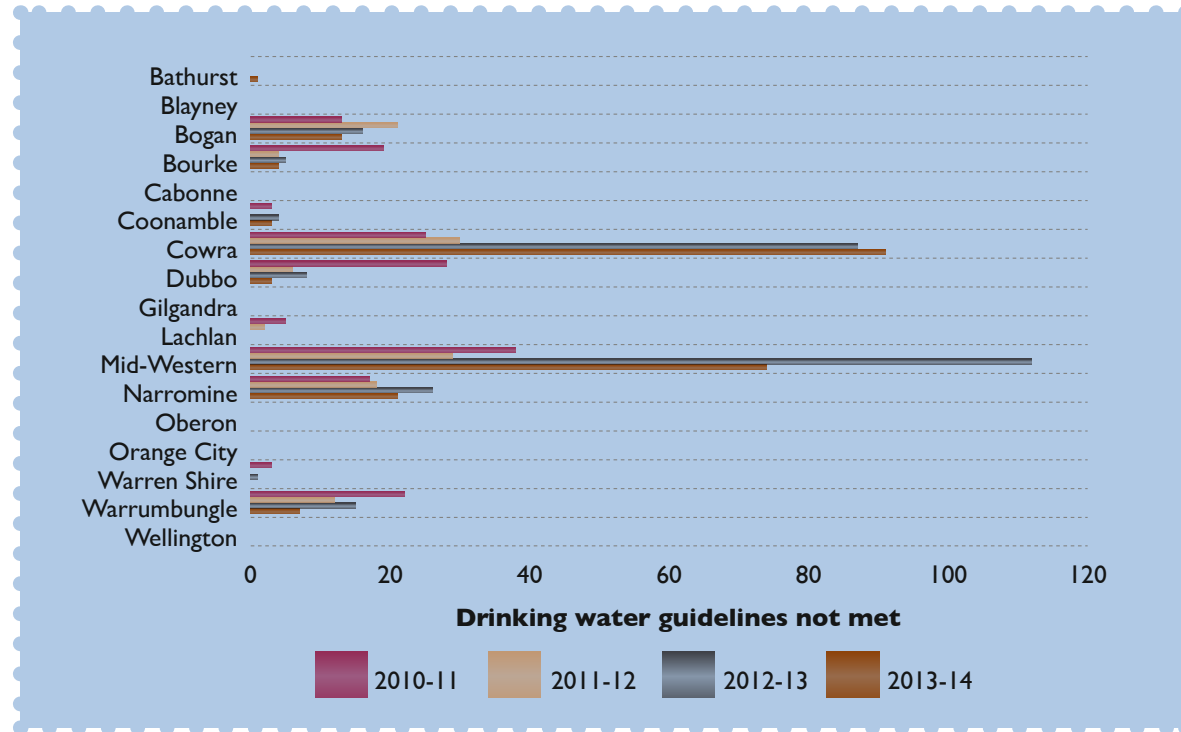
A further 1.6% increase in metered supply was reported in 2013-14 compared to the previous year for the twelve Councils that have reported this data in each of the last four years. This follows on from the large increase reported in 2012-13 by these Councils.

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

Total water consumption decreased slightly in 2013-14 compared to the previous year for the 11 Councils that have reported this data in each of the last four years. However, water consumption is still high compared to the drought years of 2000 to 2010 (see Figure 8).

**Indicator - Average annual household water use**

Household mains water consumption reduced by 3.9% this year, to 256.4 kilolitres per metered household. Bogan and Cabonne Councils reported the biggest reductions, whilst Lachlan and Warrumbungle Councils both reported sizeable increases in consumption per household.



**Figure 9:** LGAs in which drinking guidelines have not been met

**Indicator - Water restrictions implemented**

A reversion to drier conditions across the region in 2013-14 resulted in more water restrictions with six LGAs implementing restrictions for at least part of the year, compared to only two LGAs in each of the previous two years.

**Indicator - Drinking water guidelines not met**

Whilst incidences of drinking water guidelines not being met were still high compared to the numbers reported before

2012-13, there was a significant improvement in this indicator in the current year reflecting reduced incidences in several LGAs, particularly Mid-Western (see Figure 9).

**Indicator - Drinking water complaints**

Slightly less drinking water complaints were received by Councils across the region in 2013-14 compared to the three previous years. Only Blayney, Gilgandra and Mid-Western Councils had significantly more complaints.



### **CASE STUDY: Stormwater education (Dubbo LGA)**

Dubbo City Council is implementing a dynamic multi-layered stormwater education program targeting schools and the local community.

There are three parts to the message being communicated:

1. The Macquarie River is an important community asset
2. The daily activities of the community impact upon the health of the Macquarie River
3. There are simple things the community can do to help protect the health of the Macquarie River.

The program which is informed by Council's Stormwater Education Strategy in collaboration with local community Stakeholders includes:

1. The provision of free stormwater education programs to local schools. Two programs have been developed: "Raindrop Rangers" for primary schools and "Stormy Waters" for high schools. Both programs can be tailored to the needs of the school and include hands-on activities such as water quality testing and riparian surveys. The programs are supported by free give-aways including wristbands, stickers and fridge magnets reinforcing the central slogan of the campaign "Dubbo drains are just for rain".
2. Stormwater inlet stencilling.
3. Increased signage on Dubbo City Council wheelie bins. The signs which bear the slogan "Do the right thing for our river" were designed with input from community stakeholders and will be installed by members of the community.
4. A re-designed and expanded web presence: [www.dubbo.nsw.gov.au/stormwater](http://www.dubbo.nsw.gov.au/stormwater) which describes Council's stormwater system, explains its purpose and lists the simple things people can do to protect the health of the Macquarie River. The URL of the website is communicated on all promotional material.
5. A weekly article in one of the local newspapers raising public awareness of the economic and recreational importance of the Macquarie River and issues which impact upon its health.
6. The design and distribution of educational material to local households.
7. Regular displays in shopping malls, the library and at appropriate public events including the Dubbo Show and the Dubbo Sustainable City Expo.

Feedback from schools and the community groups has been complimentary. A more formal assessment of the success of the campaign will be implemented later this year.

Council and its local community stakeholders launch the  
'Do the right thing for our River' wheelie bin signs





# People and Communities

This chapter reports on environmental issues relating to people and communities including development, cultural heritage and air quality.

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.

Development may have economic and social benefits to communities but may also have negative impacts on the environment such as increased water pollution and loss of habitat through vegetation clearing.

Community volunteering is important to the implementation of environmental actions in many Council areas. Volunteers can be

bought together for specific projects or can be drawn from existing community groups including Landcare, Greening Australia and other local environment groups.

Cultural heritage incorporates both Indigenous and non-Indigenous heritage and both are threatened by increased development and a lack of management and awareness.

Air pollution can be harmful to our health. Air pollution can contain a mixture of solid particles, liquid droplets and gases from a variety of sources such as industry, motor vehicles, heating appliances, and tobacco smoke.



Railway station building,  
Mid-Western LGA

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

Issue	Indicator	2010-11	2011-12	2012-13	2013-14	Trend
Active community involvement	Environmental volunteers working on public open space (hrs)	15,725	12,286	16,072	15,492	↑
Community Impacts	Number of days that air pollution maximum goals for particulate matter were exceeded*	0	1	2	3	↓
Indigenous Heritage	Inclusion in DCPs & rural strategies	11	16	16	16	↑
	Extent of liaison with Indigenous communities (self-assessed from 0 = none to 3 = High)	2.1	2.0	1.9	1.7	↓
	Development approvals on listed Indigenous sites	5	12	13	5	↑
	Number of Indigenous heritage management actions/responses	4	2	4	6	↑
Non-Aboriginal Heritage	NSW Heritage Items	108	109	112	110	→
	Locally listed heritage items	1,552	2,026	2,220	2,298	↑
	Actions to protect non-Indigenous heritage (including management plans)	19	36	32	32	↑
	Heritage buildings on statutory heritage lists demolished/degraded in past year	4	0	0	1	↑
	Heritage buildings on statutory heritage lists renovated/improved in past year	56	82	85	110	↑

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

Note – the above trends are for data in 2010-11, 2011-12, 2012-13 and 2013-14 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2013-14. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2013-14 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 - Environmental volunteers working on public open space**

There was a decrease in the hours worked by environmental volunteers on public open space compared with last year. However, the 15,492 hours worked across the region is an increase compared with the average of the past three years.



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

Twelve of the seventeen councils in the region reported that they had growers' markets and/or local food retailers specialising in local food. Notably, two-thirds of the total reported across the region are in the Cabonne and Orange LGAs. The quality of this information is a little patchy but the response does indicate that there is discernible demand within the region for locally-sourced food products.

**Figure 10:** Number of Indigenous sites on the AHIMS register 2013-14

**Indicator - Number of environmental community engagement programs**

Just over half (8) of the councils in the region reported that they ran environmental community engagement programs during 2013-14. Some examples of these programs were:

- Carp muster in Bogan Shire
- Cabonne Council engaged with local schools and landowners on riparian

management to show the benefits of a functional riparian system

- Wellington Council ran a Waste to Art Competition
- Bathurst Regional Council ran a variety of programs, including the 'Making A Difference' Newsletter and 'Racing to Save Mount Panorama Woodlands'.

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

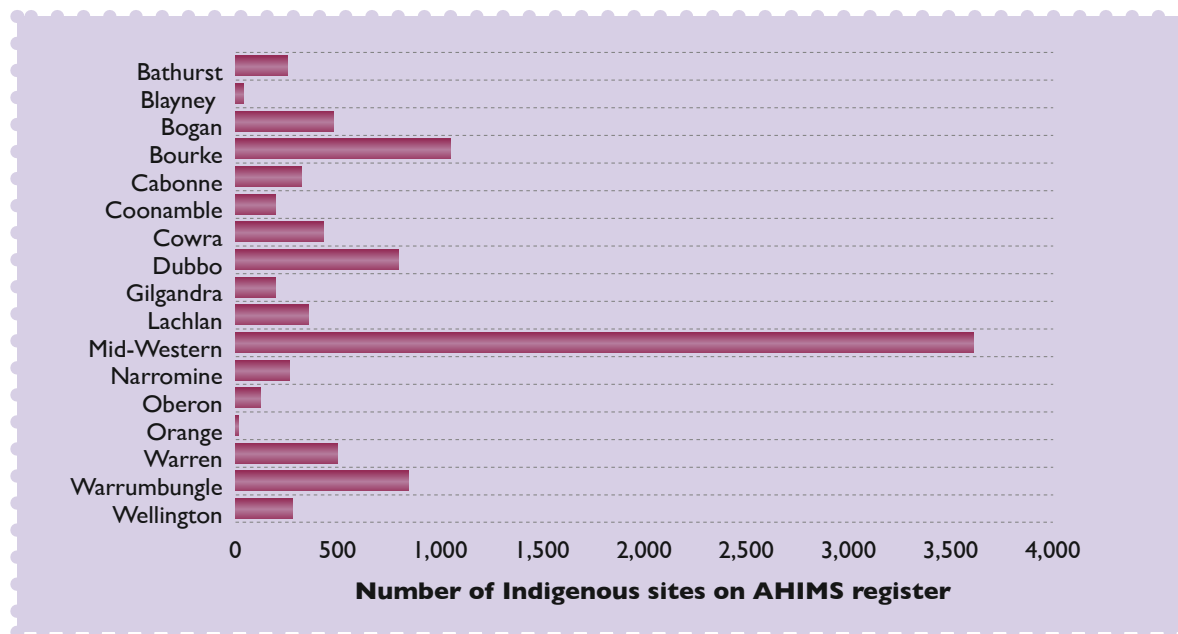
There were three days in 2013-14 on which particulate matter (PM10) recorded at the Bathurst testing station (the only one in the region) exceeded the air pollution maximum goals. This is the highest since 2010 and is likely indicative of increased bushfire activity.

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

All the Councils in the region have some consideration of indigenous heritage in their planning and approval processes. All but one of the Councils (Warren Shire) also reported that they have a specific indigenous heritage management plan/strategy in place.

**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 1.7 on a scale of 0 (no liaison) to 3 (high level of liaison).



This was a slight decline from the 2012-13 average of 1.9.

*Indicator - Development on listed Indigenous sites*

Dubbo City Council reported five developments on listed Indigenous sites in 2013-14. All developments were carried out in accordance with relevant national, state and local legislative requirements and planning policies to avoid, minimise and/or mitigate site impacts. They were the only Council in the region to report any development this year which is a significant improvement on the previous couple of years.

*Indicator - Number of Indigenous heritage management actions/responses*

In 2013-14, there were six Councils in the region that reported specific Indigenous heritage management actions/responses. This is an indicator of active liaison with aboriginal groups and is the highest number reported in the six years that this indicator has been tracked.

*Indicator - Number of Indigenous sites on AHIMS register*

In 2013-14, there were 9,767 sites across the region listed on the Aboriginal Heritage Information Management System (AHIMS) register. This is the first year in which the count of sites was provided by the NSW Department of Environment and Heritage

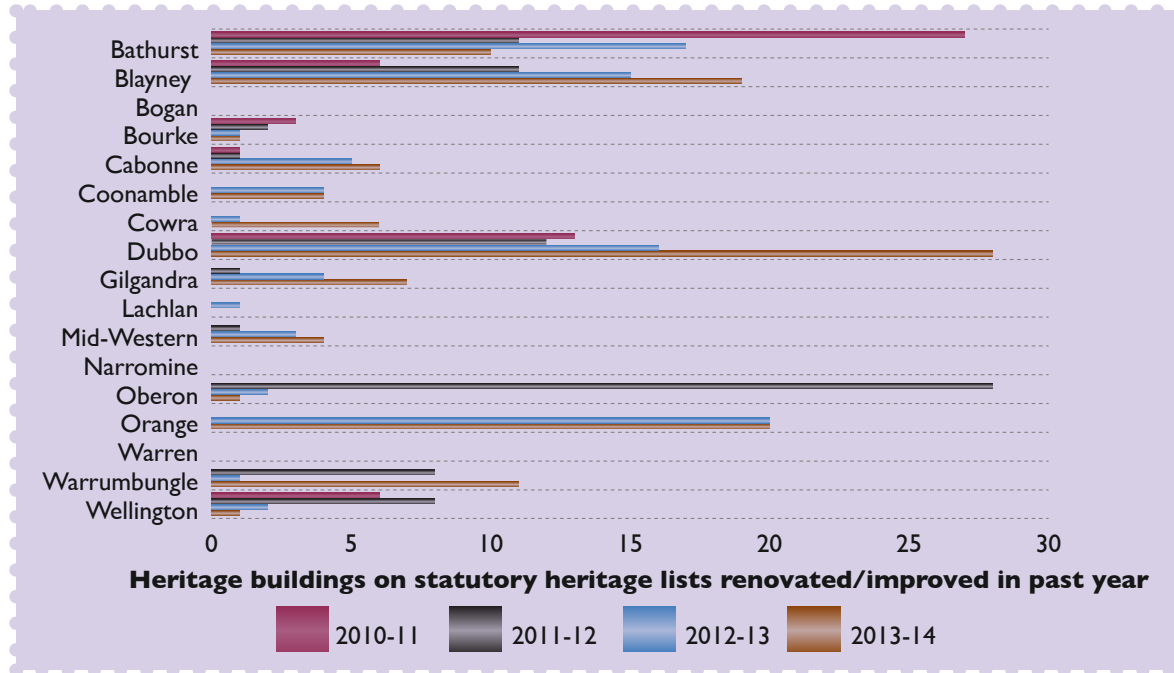
## **CASE STUDY: Carcoar Catholic Church (Blayney LGA)**

Historically, Carcoar has an important place in the development of the Central West region. It was the third official town to be established west of the Blue Mountains and served as an important administrative centre for much of the nineteenth century. The lack of twentieth century intrusions into the town is unusual and has ensured that Carcoar has retained its strong historic character, its aesthetic qualities being reinforced by its setting in the Belubula River valley.

The Carcoar Catholic Church and its wall were built in 1869 by convict labour and is a locally listed heritage building. The wall had stood for 144 years before collapsing as a consequence of heavy rainfall and the cumulative effects of a lack of an appropriate foundation, poor construction, a minimal lime content of the original mortar and a lack of maintenance.

Blayney Shire Council through its local heritage assistance was able to assist with the restoration of the multi-coloured sandstone wall at the Immaculate Conception Church. Work on the restoration of the wall was completed in May of 2014.





**Figure 11:** Heritage buildings on statutory heritage lists renovated/improved



and the number is not comparable to data previously provided by Councils.

Figure 10 provides a breakdown of sites across the LGAs in the region.

**Indicator - NSW Heritage Inventory items**

There was a small reduction in the number of items listed under the *NSW Heritage Act 1977*, with one less site in each of the Dubbo and Orange LGAs.

**Indicator - Locally listed heritage items**

The process of updating and finalising new LEPs has led to five Councils across the region increasing the number of heritage items listed

in their LEP. This process has led to large increases in heritage listings across the region over the last four years and it is now likely there will be a period of stabilisation as this major LEP update process draws to a close.

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

The number of actions was the same as that recorded in 2012-13.

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

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

There were three heritage buildings demolished or degraded in the past year: two in Orange and the Showground Grandstand in Cowra which was demolished with approval by the Minister. By contrast, in the past year there were 118 heritage buildings renovated or improved by 13 of the 17 Councils in the region. This continues the strong improving trend in this indicator reported over the last few years. Figure 11 provides a breakdown across the LGAs of the heritage buildings that were renovated or approved over the past four years.



## **CASE STUDY: Aboriginal Sensitivity Mapping and Engagement (Mid-Western LGA)**

In 2012, Mid-Western Regional Council won a \$80,000 grant from the Hunter Central Rivers CMA for the creation of GIS aboriginal sensitivity mapping, and to protect a number of culturally sensitive sites located in the CMA area. It also provided an opportunity for Council to enhance its engagement with the local Indigenous community. The works were completed in June 2014.

The grant application recognised that Council required additional information to improve its procedures surrounding the protection of Indigenous heritage, particularly in relation to development assessments and Council's infrastructure programs.

Essentially the mapping clarifies when on-ground cultural surveys must be undertaken in relation to development applications and Council works. It operates in the same way that Council's flooding and bushfire mapping clearly identifies where an area is highly sensitive, and additional investigations and information must be provided in order for those hazards to be appropriately addressed. The mapping involved a number of direct consultations with the Indigenous community and on-ground surveys.

The physical works component of the project was undertaken by the Indigenous community with assistance from Council. The works were undertaken at two highly significant reserves located towards the north-east of the LGA. It included the construction of a footbridge and seating at The Drip, and the erection of interpretive signage, weed spraying and tree planting at both The Drip and Hands on Rock.

The project also included cultural awareness training for Council office and works staff. The training was facilitated by the Mudgee Local Aboriginal Land Council where the mapping was presented, the legal framework around protection of Indigenous heritage addressed, and Indigenous heritage and its importance discussed. Council's due diligence practises to create clear guidelines to address these issues were also discussed.

Footbridge at The Drip



# Towards Sustainability

The term sustainability can have different meaning to different people. It's about taking what we need to live now, without jeopardising the potential for people in the future to meet their needs.

Environmental sustainability involves making decisions and taking action that are in the interests of protecting the natural world, with particular emphasis on preserving the capability of the environment to support human life.

Local Councils, 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.

This chapter is about what the Councils in the reporting region are doing to move towards environmental sustainability in the areas of:

- Waste management
- Resource purchasing and use
- Climate change
- Policies and procedures.

*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 2013-14, the total waste entombed at the region's primary landfills declined by 24,000 tonnes for the Councils reporting on this indicator in the past four years.

However, the waste entombed at secondary landfills increased significantly from previous years.

After two years of increased waste to landfill, the total was 4% lower this year (primary plus other landfills) with substantial

reductions reported in several LGAs, notably Bourke, Dubbo and Orange which each reported their lowest totals in the last seven years. This was due to improved recycling options and increased tipping fees. The big exception to the trend was Mid-Western Regional Council which recorded 44,100 tonnes, including 21,289 tonnes of fill/soil.

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

The cost of waste services across the region continued to rise with Warren Shire Council the only one to report a lower cost in 2013-14.

*Indicator - Farm chemical drums collected through DrumMuster collections*

The number of farm chemical drums collected through DrumMuster collections this year was significantly lower than 2012-13. The 2013-14 collection is the lowest for the past seven years.

*Indicator - Household Hazardous Wastes collected*

The amount of household hazardous waste recycled through the NetWaste contract continued to increase with a total of 31,865 tonnes collected in 2013-14. The increase

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

Issue	Indicator	2010-11	2011-12	2012-13	2013-14	Trend
Waste Generation	Total waste entombed at primary landfill (tonnes)	196,000	216,000	215,000	191,000	↑
	Total waste entombed at other landfills (exc recyclables) (tonnes)	6,585	7,144	5,892	21,349	↓
	Average total waste generated per person (tonnes)	0.93	1.03	1.01	0.96	↑
	Average cost of waste service per residential household	\$239	\$254	\$266	\$272	↓
Hazardous/Liquid Waste	DrumMuster collections (number of drums)	68,427	87,184	42,692	30,289	↓
	Household Hazardous Wastes collected (kg)	7,748	12,800	14,406	25,481	↑
Reduce	Garden organics collected (diverted from landfill) (tonnes)	21,951	27,809	27,381	29,677	↑
	E-Waste collected (diverted from landfill) (tonnes)	49	140	62	99	↑
Recycle	Volume of material recycled (tonnes)	23,060	25,321	25,568	24,516	↓
	Volume of material recycled per person (kg)	98	109	110	104	↓
Littering and illegal dumping	Number of illegal waste disposal complaints to Council	398	501	386	397	↑
Engineering, Infrastructure and Civil Works	New road construction (km)	46	16	37	30	↑
	Road upgrades (km)	370	319	561	684	↓
Risk Management	Hazard reduction burns	32	12	38	61	↑
Climate Change Mitigation	Office paper used by Council (A4 reams)	24,874	27,054	25,793	24,598	↑
	Council sustainability initiatives	29	44	61	43	↓
Council Greenhouse Gas Emissions	Annual electricity consumption for Council controlled facilities (MWh)	58,187	56,684	58,828	62,166	↓
	Annual natural gas consumption for Council controlled facilities (Gj)	19,502	43,548	30,372	35,561	↓
	Annual bottled gas consumption for Council controlled facilities (L)	40,916	38,633	41,832	44,229	↓
	Total fuel consumption (KL)	6,482	8,223	7,957	6,788	↑
	Council total operational greenhouse gas emissions (tCO <sup>2</sup> -e/year)			229,000	222,000	↑
Community Greenhouse Gas Emissions	Small scale renewable energy uptake (kw installed)		5,478	8,858	10,561	↑

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

Note – the above trends are for data in 2010-11, 2011-12, 2012-13 and 2013-14 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2013-14. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2013-14 for which no comparison can be made with previous years. Refer to the Appendix for a list of Councils included in the trend data.

Rural landscape,  
Mid-Western LGA

was due to a combination of Lachlan Shire being added to the Netwaste contract, plus a 35% increase in collections for the 8 LGAs reporting in each of the last four years, notably Dubbo, Mid-Western and Orange.

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

The 8.4% increase in garden organics collected this year continues the improving trend in this indicator. The biggest single contributor was Orange City Council whose successful green waste collection program was already the biggest in the region and rose by a further 68% in 2013-14 to 12,226 tonnes.

*Indicator - E-Waste diverted from landfill*

There was a large increase in E-waste collections this year compared to 2012-13, although the total collected is still lower than in 2011-12 (when many televisions were collected due to the digital change-over). Whilst collections rose in several LGAs, the biggest contributors to the change were Blayney and Wellington which between them collected almost half the E-waste for the whole region.





## CASE STUDY - Green Distillation Technologies

Green Distillation Technologies (GDT) Corporation Limited is commercialising an Australian technology that recovers energy from end-of-life tyres (ELTs). With a head office in Melbourne, GDT operates a commercial module in Warren NSW on land sold to the company by Warren Shire Council.

The GDT technology is known as “Destructive Distillation” and uses controlled heat to reduce whole tyres to their constituent elements which then reform into oils which are distilled and collected. Carbon is the most abundant element in tyre rubber and is delivered up in powder form of high purity. Steel that is used in tyre manufacture is collected clean and unchanged. The process is entirely emission free.

The process plants are designed in modular form with a single module comprising two processing tubes and all the ancillary equipment. A commercial scale plant consists of six of these modules and is capable of processing 19,000 tonnes of tyres per year. This represents approximately 3% of the ELTs produced in Australia annually.

The GDT process is currently the only process available in Australia that remanufactures the rubber content of the ELT into a different energy form. Other processes merely change the shape and/or appearance of the rubber. The oil produced from the GDT process can be used as a heating fuel, direct into some stationary diesel engines or is capable of further refinement into better engine fuels. The carbon is a high grade product replacing other carbons sourced from fossil fuels.

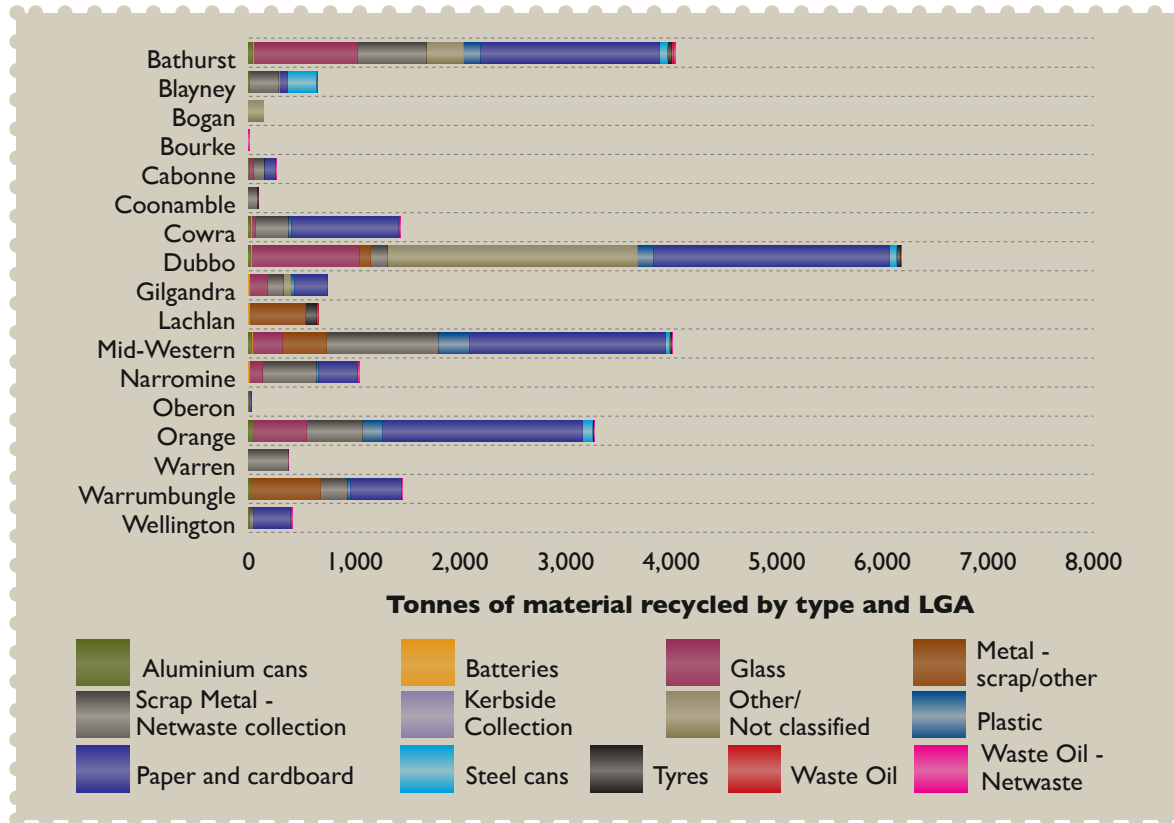
In the near future, the company plans to be able to accept agricultural waste and other green waste products to process into carbon so to take some stress off Council’s Waste Management Depot.



Green Distillation Technologies module, Warren



**Figure 12:** Type of materials recycled 2013-14



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

The total amount of material recycled across the region fell by 3% compared to 2012-13, with lower totals reported in ten of the 17 LGAs. The breakdown of the type of materials recycled in each LGA is provided in Figure 12.

*Indicator - Illegal waste disposal complaints to Council*

Thirteen of the 17 Councils in the region received and investigated illegal waste disposal complaints during 2013-14 which shows that this is a common issue. However, 66% of the total complaints for the region were received by Bathurst and Dubbo Councils.

*Indicator - New road construction*  
*Indicator - Road upgrades*

New road construction across the region declined compared to 2012-13 with the only significant project being 17.6 km of new road in the Lachlan LGA. However, for the second successive year, there was a large increase reported in the kilometres of road upgrades across the region.

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

Fifteen of the seventeen Councils in the region reported that they did already include BPEM in new road projects.

*Indicator - Hazard Reduction burns*

Of the 62 hazard reduction burns reported across the region, 50 were in the Bourke Shire where 8,430 hectares was burnt by the Rural Fire Service (RFS) and other agencies. This is in addition to the 4,995 hectares burnt in bushfires during 2013-14 in the Bourke Shire.

*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 indicators were introduced to better gauge the proactiveness of Councils in response to sustainability and climate change challenges.

Thirteen of the 15 Councils that responded indicated that they did include environmental sustainability criteria within their purchasing policies. A good example was Cabonne Council which noted that: "We use the green guide to purchase cars and light commercials and for large plant we make sure they are compliant with current Australian design rules for emissions, detailed in our plant specifications. We also have a weighting factor for environmental, within our appraisal process." Fifteen of the 16 Councils that responded, indicated that they already apply design measures in response to climate change in new infrastructure

#### *Indicator - Council sustainability initiatives*

The decline for this indicator in 2013-14 (see Table 6) was largely due to Bathurst Regional Council almost halving the number of initiatives reported this year, although its 22 initiatives for 2013-14 are still half the total for the entire region. Five other Councils reported sustainability initiatives this year with examples including lighting changes in Oberon and an in-house campaign by Cabonne Council to encourage staff to turn-off computers, lights, etc. when they leave the office.

#### *Indicator - Council adaptation initiatives*

Eleven of the thirteen Councils that responded indicated that they had Council climate change adaptation initiatives in place.

#### *Indicator - Council mitigation initiatives*

The number of climate change mitigation initiatives reported by Councils continued to decline, falling to only 13 across the region, which is the lowest total recorded since this indicator was first reported in 2010-11.

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

During the 2013-14 year, 1,074 hectares in the Warrumbungle LGA was covered by a new

flood study. Flood studies were also in progress in the Bogan, Coonamble and Mid-Western LGAs.

#### *Indicator - Natural disaster declarations*

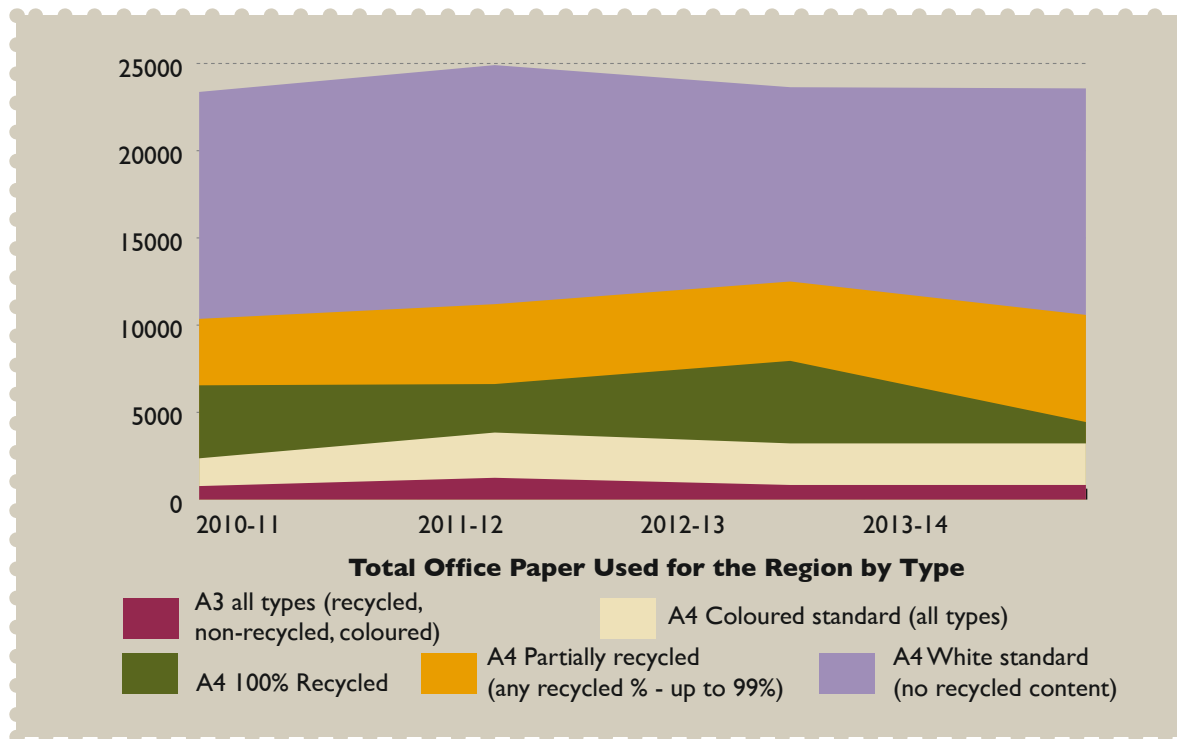
Bourke was the only LGA in the region to declare natural disasters. The return to drier conditions resulted in the entire Bourke Shire being drought declared, plus 4,995 hectares in the Shire were burnt in bushfires.

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

The mix of paper type used by Councils across the region has changed over the last couple of years, with much less 100% recycled paper being used and a corresponding increase in the use of partially recycled



Cycling event,  
Mid-Western LGA



**Figure 13:** Type of office paper used across the region

and standard (no recycled content) paper (see Figure 13). This is probably due to the price differential combined with the repositioning of many brands of standard (non-recycled) office paper as “sustainable plantation” paper.

*Indicator - Annual electricity consumption for Council controlled facilities*

Electricity consumption increased significantly in comparison to 2012-13, and this constitutes a worsening trend when related to the relatively constant levels of the past three years.

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

There was a significant increase in natural gas consumption in 2013-14 compared with 2012-13 due mainly to Bathurst not being able to report previously on its Aquatic Centre.

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

There was a significant increase in bottled gas consumption in 2013-14 compared with 2012-13.





## CASE STUDY: Waste to Art Sculpture (Bourke LGA)

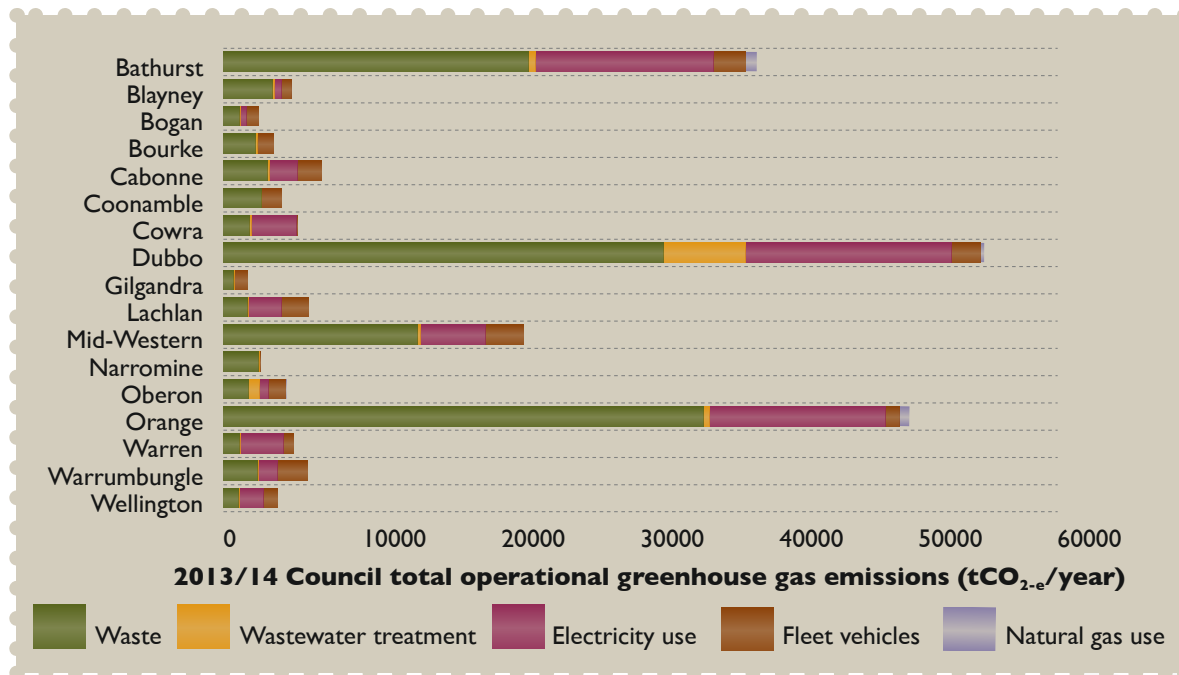
The 2013 Regional Waste to Art Exhibition was hosted by Bourke Shire Council in conjunction with NetWaste. As part of the Exhibition, a Sculpture Project was conducted with Bourke Council and community.

NetWaste tries to involve the local community in supporting events that help reinforce the waste message underlying community art programs. The Regional Waste to Art Exhibition held in Bourke involved building a sculpture representing a Yellow Belly fish made from locally-sourced scrap metal. The Yellow Belly was chosen as the model for the sculpture as it shares a long history in the rivers around Bourke and has ties to the culture of the local Indigenous people.

The sculpture was completed as part of the Waste to Art exhibition. Visitors and local community members who came to the exhibition were invited to contribute to the construction of the sculpture by cutting their own scales out of old aluminium cans and adding their names to the scales, then placing them on the sculpture.



**Figure 14:** Council total operational greenhouse gas emissions 2013-14



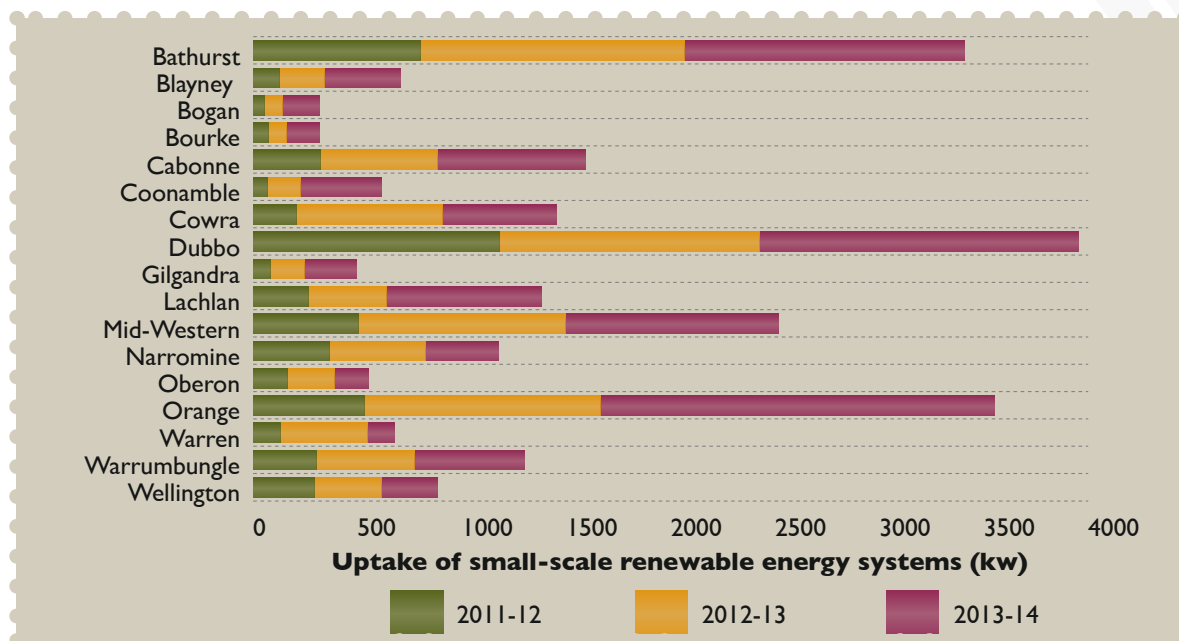
*Indicator - Total fuel consumption*

Fuel consumption from Council owned vehicle fleet and plant decreased in the current reporting year, with just under half of the Councils reporting a reduction in their consumption, most notably Mid-Western.

*Indicator - Council total operational greenhouse gas emissions*

Total greenhouse gas emissions calculated for the region were slightly lower in 2013-14. This is primarily due to the lower landfill total reported this year. Methane emissions from landfills contribute almost 60% of the total greenhouse gas emissions for the region, expressed as tonnes of CO<sup>2</sup> equivalent per year. A breakdown by LGA for this indicator is provided as Figure 14.

**Figure 15:** Uptake of small-scale renewable energy systems across the region



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

Bathurst, Dubbo and Orange Councils have the most renewable energy infrastructure and in 2013-14 that infrastructure supplied only about 1% of the energy demands.

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

There has been strong growth in installations of small-scale renewable energy systems across the region, with growth over the last two years in 12 of the 17 LGAs. A total of 10,561 kilowatts was installed in 2013-14 which is an increase of 19.2% compared to the previous year.

The Small-scale Renewable Energy Scheme creates a financial incentive for owners to install eligible small-scale installations such as solar water heaters, heat pumps, solar panel systems, small-scale wind systems, or small-scale hydro systems. This indicator tracks the total kilowatts installed for solar panels and small-scale wind and hydro systems. Solar water heaters and heat pumps are excluded because the only data available for their uptake is a simple installed count, not kilowatts installed.

A breakdown of the uptake of renewable energy systems for each LGA is provided in Figure 15.

## CASE STUDY: Futures Forum (Cowra LGA)

Cowra Shire Council and the Natural Resource Advisory Management Committee held the 'Sustaining Regional Communities', Futures Forum on the 2 May 2014 at the Cowra Showground Pavilion. The event focused on sustainability and natural resource management and its significance in regional and rural communities. The event was designed to show case the Cowra region in terms of its leadership in alternative technologies, sustainable practices and organic produce.

The event was attended by 157 representatives, from a range of areas including the local community, government agencies, manufacturing and agricultural sectors, which included 73 delegates from the Environmental Development Allied Professionals, Western and Southern Regions, who had their annual conference in Cowra on the 1 May 2014.

The major sponsors of the event were Cowra Shire Council, NRM Committee, Centroc – Central NSW Regional Organisation of Councils, Lachlan Landcare and Office of Environmental & Heritage.

The one day event comprised:

- Breakfast, lunch and morning/afternoon tea catered by Cowra Public School, P&C Association, which showcased regional produce.
- Coffee cart, supplied by Art Espresso Coffee, Young, NSW.
- A diverse range of speakers including Professor John Williams of Charles Sturt University and Dick Whitaker, Chief Meteorologist for SKY NEWS
- Panel discussion – with several speakers from the morning session.
- Trade stalls provided from many organisations which allowed the delegates to talk to business leaders in the region.

The event received very favourable feedback from both participants and speakers.



Futures Forum at the  
Cowra Showground Pavilion



# 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	Narromine	Oberon	Orange	Warren	Warrumbungle	Wellington	Local Land Services		
<b>Land</b>																							
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	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>																							
		Roadside vegetation management plan	Hectares	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Habitat areas revegetated	Hectares	◆	●	◆	◆	◆	●		◆	◆	◆	◆		◆	◆	◆	●	●			
		Council Reserves - total area	Hectares	◆	●	◆	◆	●	◆	◆	◆	◆	◆	◆		◆	●	◆	●	●			
		Council Reserves - bushland/remnant vegetation	Hectares	◆		◆	◆	●	●	◆	◆	◆	◆	◆		◆	◆	◆	●	●			
		Area Protected in Wildlife Refuges	Hectares	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		Area protected in conservation reserves & under voluntary conservation agreements	Number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆

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	Local Land Services		
	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	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
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>																							
		Average salinity levels in selected streams	EC			◆			◆					◆									
		E.coli remote from wastewater treatment plants	Organisms per 100mL	◆	●						◆	◆		◆		◆		◆		◆			
		Wastewater treatment type	Yes/No	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
	Riparian	Riparian vegetation recovery actions	Number	◆	◆		◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●		
		Riparian vegetation recovery area	Hectares	◆	◆		◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	
	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	◆	◆	●	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆		



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	Local Land Services	
	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)	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Number of bore licences from groundwater resources	Number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Volume of groundwater permissible for extraction under licences	Gigalitres (GL)	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
	Council Water Consumption	Council managed parks, sportsgrounds, public open	Hectares	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	
		Irrigated council managed parks, sportsgrounds, public o	Hectares	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	
		Water used by council for irrigation (including treated and	Megalitres (ML)	◆	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆	◆			◆	
	Town Water Consumption	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	◆	●	●	◆	◆	●	◆	◆	◆	◆	●	◆	◆	◆	◆	●	◆		◆	
Number of residential meters		Number	◆	●	●		◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆		
Dam Levels	Dam levels	Volume %		◆					◆			◆	◆							◆		
Town Water Quality	Drinking water guidelines not met	Number of instances	◆	◆	●	●	●	◆	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆		
	Drinking water complaints	Number & Type	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	

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	Local Land Services		
<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 Aboriginal Heritage	Number of Aboriginal sites on 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	◆	●		◆	◆	●	◆	◆	◆	◆	◆	●	◆	◆	◆	◆				
		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	◆	◆	●	◆	◆	●	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	◆	

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	Local Land Services	
<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	Fire Regimes	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	Narramine	Oberon	Orange	Warren	Warrumbungle	Wellington	Local Land Services	
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 2013–14 but not compared in summary tables

