

Regional Snapshot 2014–2015

STATE OF THE ENVIRONMENT REPORT



 Local Land Services
Central Tablelands

 Local Land Services
Central West

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

Acknowledgements

The preparation of the Regional State of the Environment Report 2014-15 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 2011-12, 2012-13 and 2013-14.

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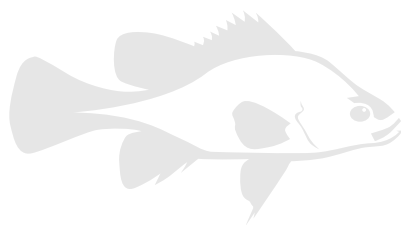
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Warrumbungles
National Park.





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 ²	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
SLM	Sustainable Land Management
SoE	State of the Environment
WTP	Water Treatment Plant
WSUD	Water Sensitive Urban Design
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?

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.

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

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

The Region

The total area of the region as shown in Figure 1 is approximately 145,169km². It is estimated that the population of the region covered by this report is 238,000.

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 2012-2016

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 were guided by those in the then 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 2014-15 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.

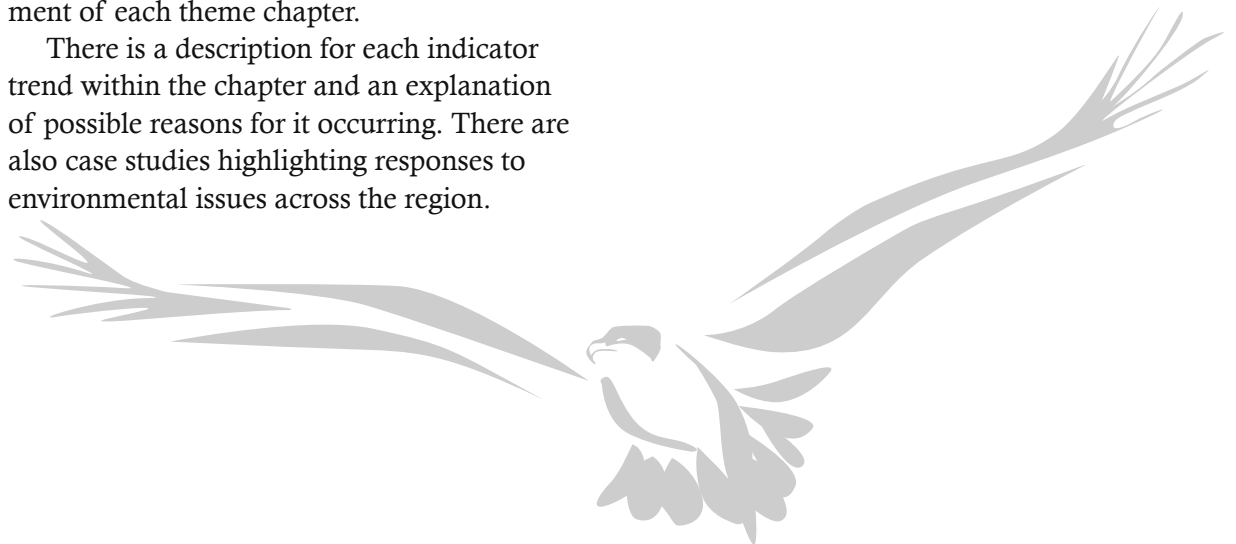
The trend arrows in the summary tables are based on comparing the average of data from the past three years with the data for 2014-15, where direct comparison can be made.

The trend arrows used in the summary table are:

-  improvement
-  no or little change
-  worsening trend

Council Snapshot Reports

In 2012, the participating Councils decided to produce additional brief snapshot reports for each of their Local Government Areas (LGAs). These Council Snapshot Reports will be produced annually from 2013 to 2015. They will report on the indicator trends for each LGA.



Salt scald in foreground,
Mid-Western LGA.



Land

This chapter focuses on aspects of sustainable land management (SLM) in the region. There are a number of challenges to the sustainable use and management of

Canola crop,
Cabonne LGA

our soil and land resources, such as wind and water erosion, soil contamination, soil acidity, soil salinity, soil structure decline, soil nutritional fertility and water repellence.

These challenges can be caused by a range of issues including overgrazing and pollution from disused operations such as petrol stations. 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.

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.



Table 1: Summary Table of Indicator Trends – Land

Issue	Indicator	2011-12	2012-13	2013-14	2014-15	Trend
Contamination	Contaminated land sites - Contaminated Land Register	9	10	10	7	↑
	Contaminated land sites - potentially contaminated sites	915	883	1,103	1,122	↓
	Contaminated sites rehabilitated	13	14	10	7	↓
Erosion	Erosion affected land rehabilitated (ha)	2,066	1,871	3	3	↓
Land use planning and management	Number of development consents and building approvals	4,219	3,772	3,917	3,538	↑
	Landuse conflict complaints	95	126	94	98	↑
	Loss of primary agricultural land through rezoning		961	1,119	2,235	↓
Minerals & Petroleum	Number of mining and exploration titles		667	948	890	↓
	Area covered by mining and petroleum exploration titles (ha)		6.4M	6.1M	5.3M	↑

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

Note – the above trends are for data in 2011-12, 2012-13, 2013-14 and 2014-15 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2014-15. They should be read in terms of the limitations for indicators discussed throughout this chapter. Refer to the Appendix for a list of Councils included in the trend data.

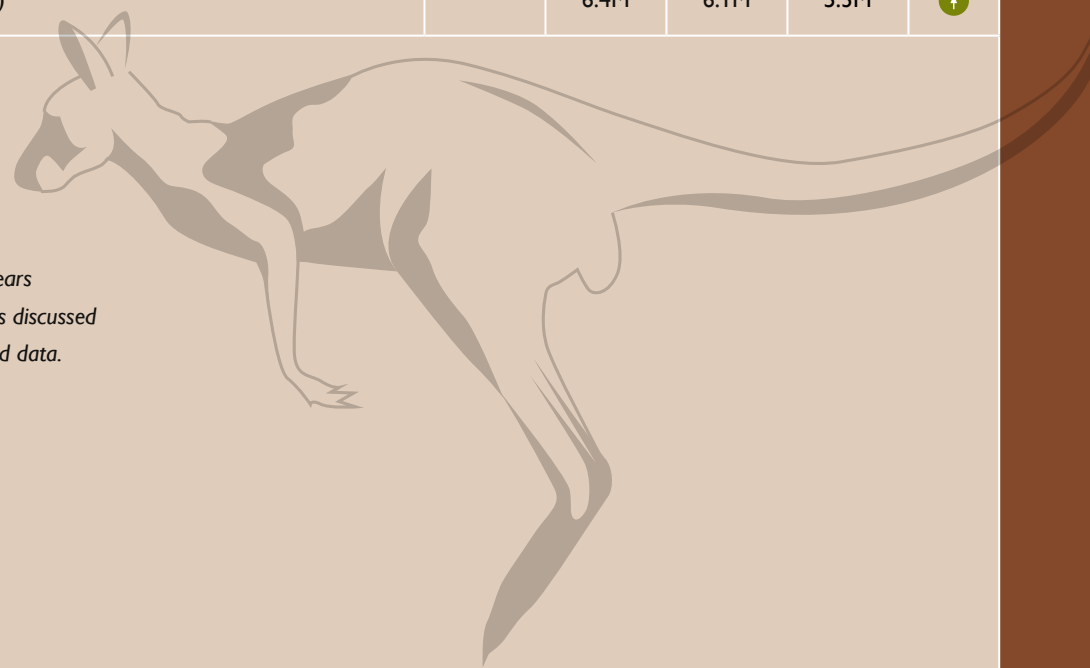


Figure 2: Number of potentially contaminated sites across the region

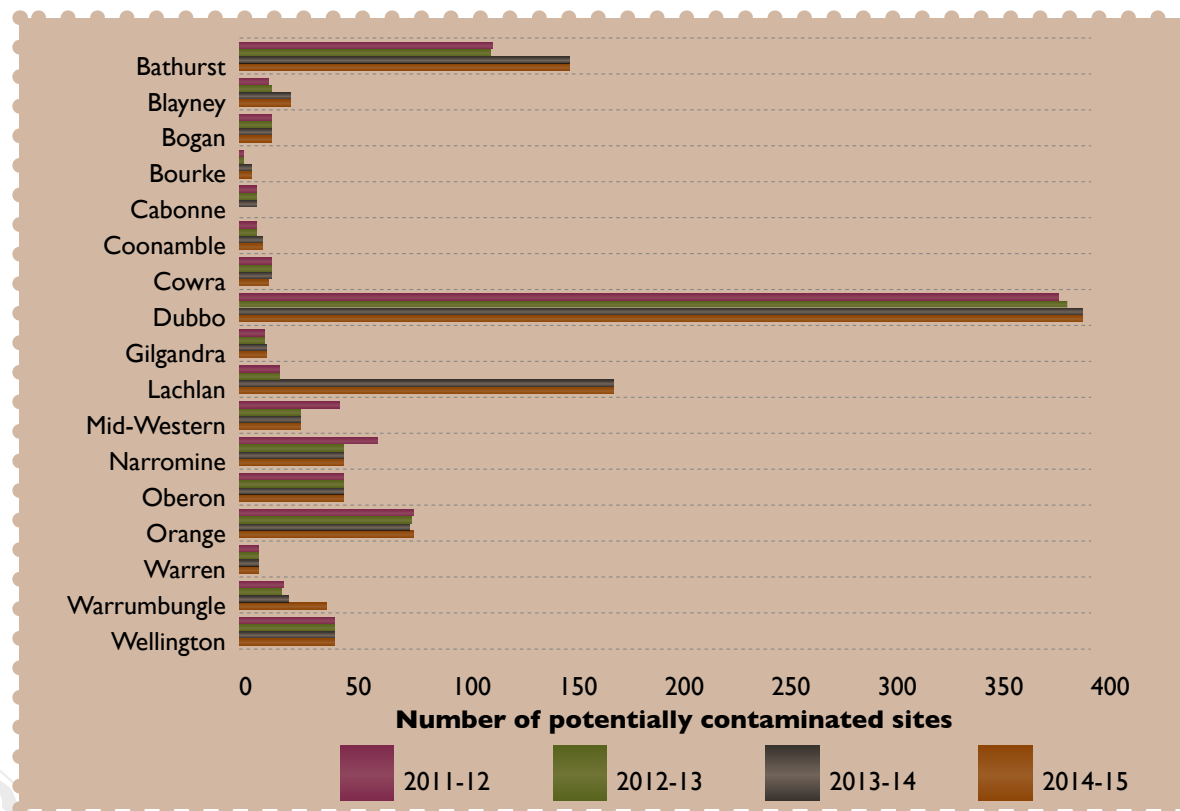
Indicator – Contaminated land sites (Contaminated Land Register)

Across the region there were a total of seven sites currently on the Contaminated Land Register at 30 June 2015, down from 10 in the previous year. Remediation was completed and approved this year for three sites: the gasworks in Bathurst, the Shell depot in Cowra and the Mobil depot in Orange.

Indicator – Contaminated land sites (potentially contaminated sites)

The number of potentially contaminated sites changed slightly in comparison to last year. Warrumbungle Shire Council was the only LGA to report a significant increase: from 23 to 41 sites.

Councils across the Central Tablelands and Central West have joined together to develop a regional approach to managing contaminated land through a project known as Contamination Central. This project, funded by the NSW Environmental Trust and implemented through the NSW Protection Authority's Contaminated Land Management Program, will run for the next two years and will see Councils develop a new regional Contaminated Land Management Policy template and improved reporting mechanisms. A number of training events will also be held creating an opportunity for staff to upgrade their skills.



Indicator – Contaminated sites rehabilitated

Six contaminated sites were reported as being rehabilitated across the region in 2014-15: one in each of the Cabonne, Cowra, Dubbo, Gilgandra, Warren (work not actually completed) and Wellington LGAs. As shown in Figure 2, this was the lowest number of sites rehabilitated since 2010-11 and when contrasted with the 1,114 potentially contaminated sites across the region, it highlights the scale of the task ahead for Councils and the community.

Indicator – Erosion affected land rehabilitated

Orange City Council reported that three hectares of erosion affected land was rehabilitated in 2014-15. Bathurst was the only other Council to report any erosion affected land was rehabilitated. This continues the sharply downward trend reported last year and reflects a lack of priority and funding for work in this area.

CASE STUDY: Remediation of former Molong gasworks site (Cabonne LGA)

The Molong gasworks was a small coal gasification plant established about 1893 by the Molong Municipal Council to service the township. The plant operated until the late 1950s when the site converted to a distribution centre for liquid petroleum gas. The facility closed in the late 1960s and most of the above ground infrastructure was removed.

The site is located close to Molong Creek, a tributary of the Bell and Macquarie river systems. The land is also within close proximity to Molong's main shopping centre, town swimming pool, a motel, caravan park, service station and private residences.

Between 1995 and 2010, a number of assessments of the former gasworks site were carried out which identified contaminants associated with liquid/solid tars, coke and ash. The NSW Environment Protection Authority declared the land contaminated and issued a clean up order on 7 December 2010.

NSW Environmental Trust funding was received by Cabonne Council for site remediation. As funding was limited, the commitment was made to focus the remediation on removal of material most likely to cause environmental harm. The primary focus was to prevent groundwater contamination and to mitigate risks associated with existing groundwater contamination, with a secondary focus on rendering the site suitable for passive recreation.

Site remediation was undertaken from February to April 2015. During the program, five tar wells were located and removed. Tar and tar impacted soil was removed off site for remediation. All visible tar was removed from the site. The gasometer remained in situ. The frame was removed and stored off site. The gas tank was removed and tarry fluid, sediment and soil also removed from the site. The underground brick walls of the tank were sound, and subsequent to soil testing to determine that there was no soil contamination beyond the tank, the brick work was retained.

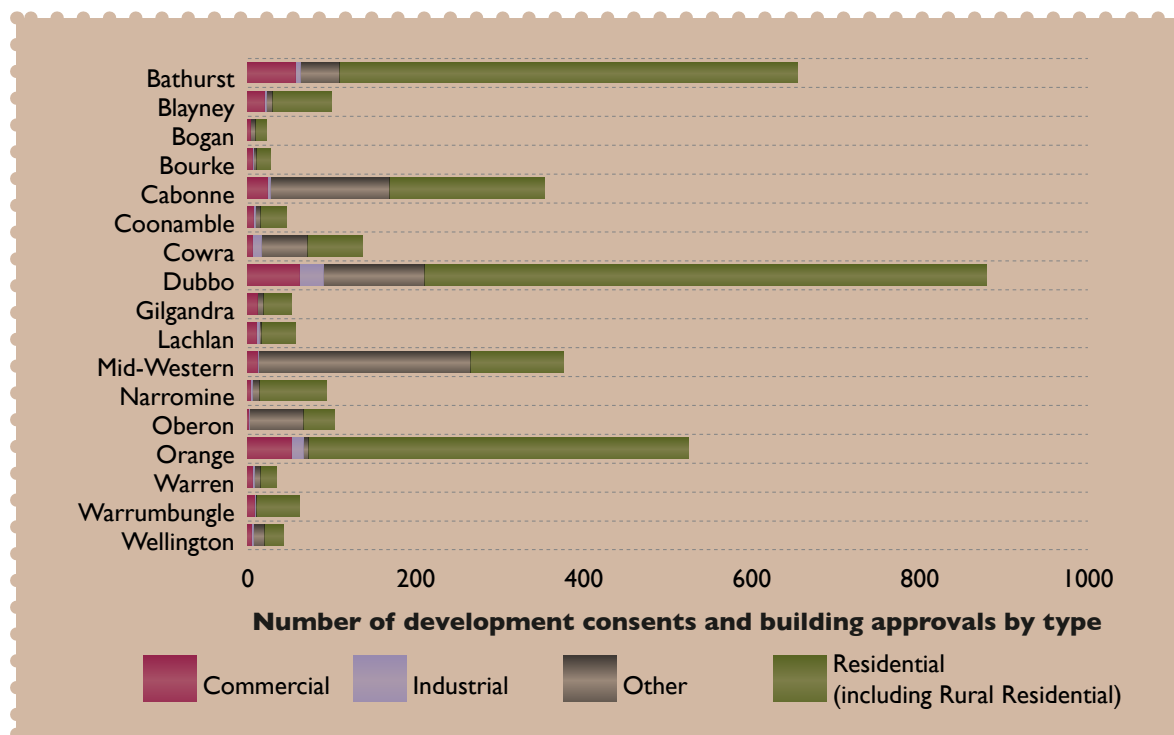
Top soil containing ash and coke was removed across the site and clean fill imported. The remediation was a success with the majority of free tar impacted soil removed from the site. The site is situated upon limestone karst and remediation of the gasworks site was always going to be challenging. However the geology of the area suggests the presence of underground fissures and crevices. Site investigation has indicated the presence of tar seepage through the fractured geology.

Ground water monitoring wells have been established around the site and within the locality. These monitoring wells will be used for ongoing environmental management of the area.



Molong gasworks

Figure 3: Number of development consents and building approvals by type 2014-15



Indicator – Number of development consents and building approvals

As shown in Figure 3, development activity in the region declined by almost 10% in 2014-15 with the number of development consents and building approvals across the region falling to the lowest level since 2010-11. The most notable declines were in the Mid-Western and Orange LGAs which both now show three successive years of declining approvals since their peak in 2011-12.

Significantly, development approvals across the region declined this year in every category, with Commercial and Industrial approvals each falling to their lowest level since 2008-09.

Whilst this lack of development can be problematic for rural and regional communities, it is reported here as an improving trend due to reduced pressure on the environment.

Indicator – Landuse conflict complaints

The number of landuse conflict complaints across the reporting region showed a further small decline this year. Almost all of the complaints (94%) were recorded in four LGAs (Cowra, Dubbo, Mid-Western and Orange) which each reported around 20-25 complaints in the year. The level of complaints in Cowra LGA continues to be comparatively high in proportion to its level of development activity, however, issues on the urban fringe have arisen between a dairy and a near neighbor which would account for some of the complaints.

Indicator – Loss of primary agricultural land through rezoning

A total of 2,235 hectares was rezoned from rural to other categories in the last year with almost all of this being in the Bathurst LGA, whose new LEP was gazetted during the reporting period.

Indicator – Farm entities demonstrably practicing sustainable agricultural practice

The Central West LLS and the Central Tablelands LLS reported that this year’s land area reported to be used for sustainable agricultural practice is a total of 35 hectares,

which is much less than the 274 hectares reported last year. Both LLS reported a substantially lower area than in 2013-14.

Indicator – Number and type of mining and exploration titles

As shown in Figure 4, the number of exploration titles across the region declined again in 2014-15, continuing the strong downward trend of the last four years. This is consistent with the nationwide slow-down in new projects for the mining industry since the peaks at the height of the boom in commodity prices.

However, the number of operating mines and quarries is unchanged since last year which indicates the continuing significance of the extractive industries to the region’s economy.

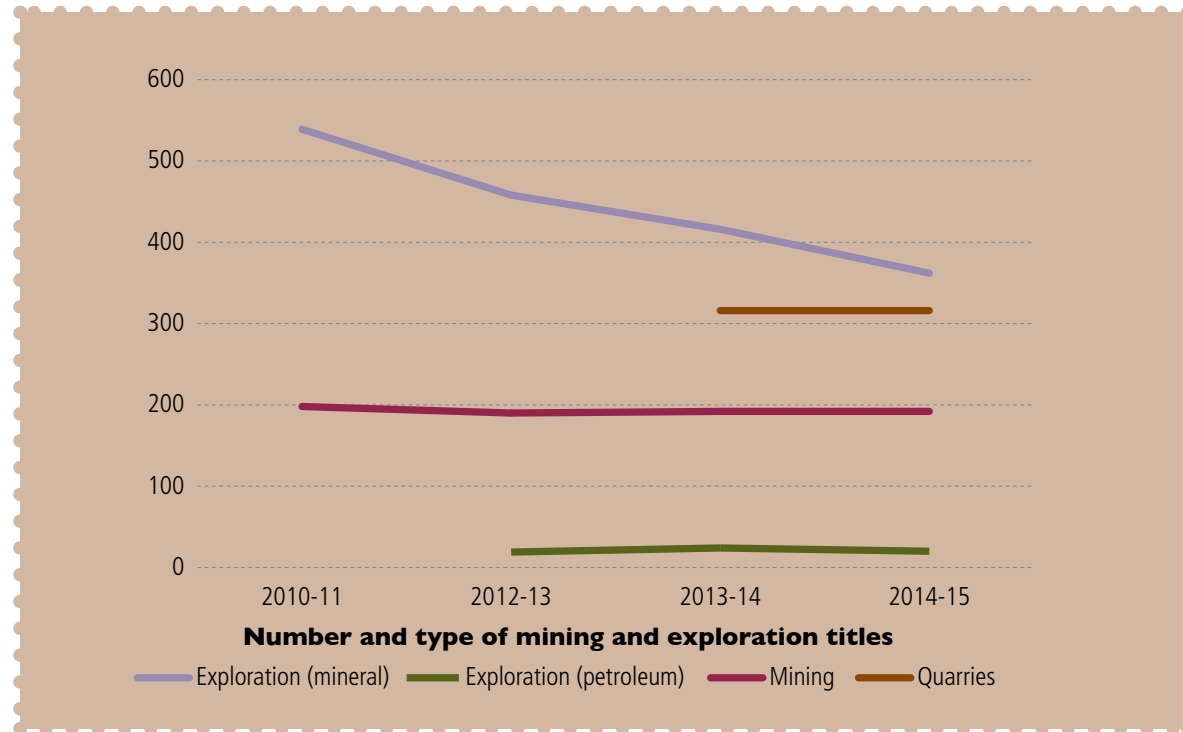


Figure 4: Number and type of mining and exploration titles



Agricultural land in Cabonne LGA.

Agricultural land,
Obley Road

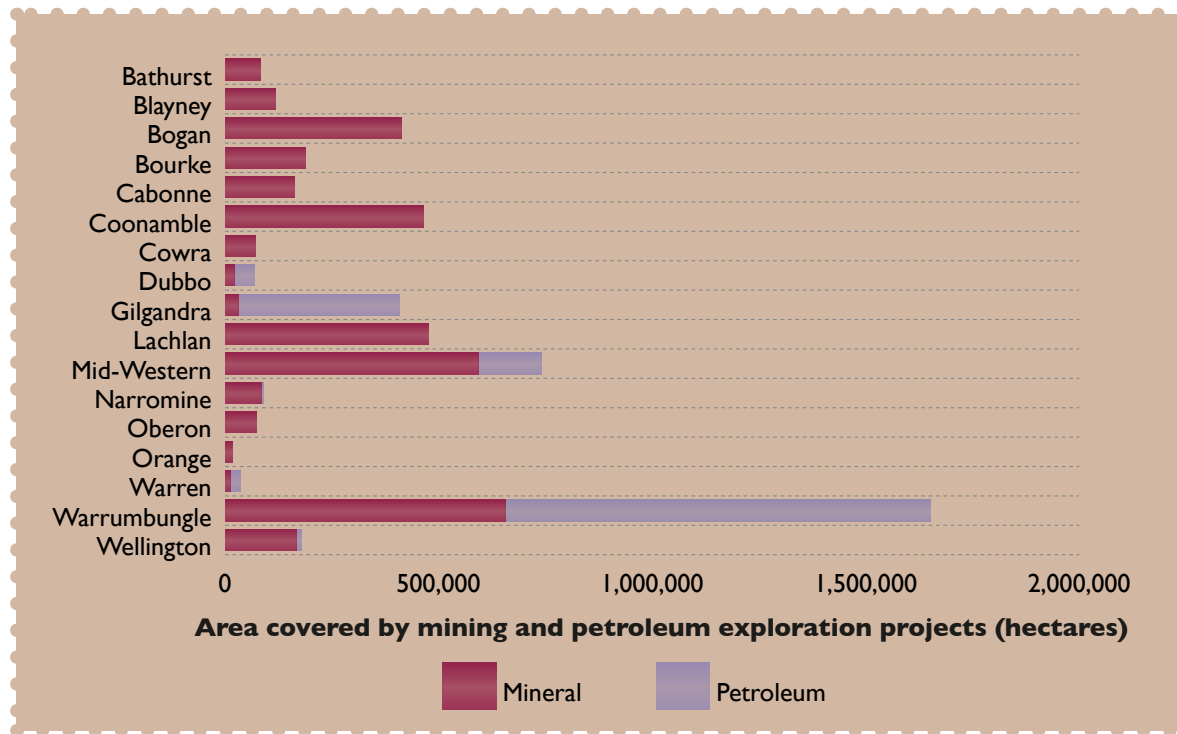


Figure 5: Area covered by mining and petroleum exploration projects 2014-15



Indicator – Area covered by mining and petroleum exploration projects

As for the number of mining and exploration titles, the area covered by mining operations and exploration has declined dramatically since last year.

Figure 5 shows the area of mining and petroleum exploration across the region in 2014-15. Figure 6 shows the area of mining operations across the region in 2014-15.



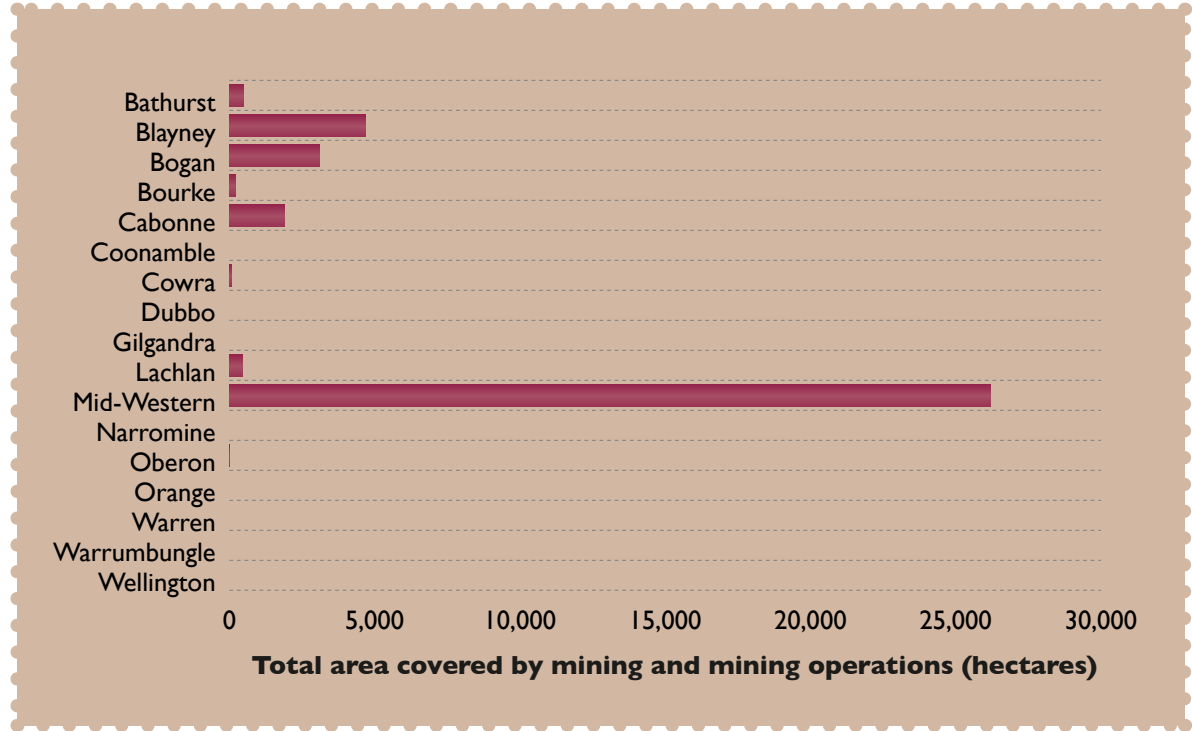


Figure 6: Total area covered by mining operations 2014-15



Mining activity in Mid-Western LGA.

CASE STUDY: Erosion and Sediment Control Workshop (several LGAs)

When we think about the health of our waterways, we think about keeping out gross pollutants but rarely think of the impact of sediment.

Sediment impacts on waterways, and consequently the habitat of aquatic plants and animals, by:

- adding to the nutrient load
- carrying contaminants like paint and chemicals
- decreasing light penetration
- smothering in-stream plants and macroinvertebrates
- scratching the gills of fish
- impacting on environmental flows.

In May 2015, a series of five workshops were held across the Central West for Council staff, to help ensure that they undertake best management practice erosion and sediment control at work sites.

Nine councils, with some 120 participants, undertook the training which was held in Bathurst, Orange, Dubbo, Cowra and Lachlan LGAs. Additionally, some 50 builders in Bathurst and Cowra LGAs undertook a shortened version of the training. The training was well received by all, providing a refresher course for some and new information for others.

It is not only Councils but all of us – builders, home owners, landholders – that need to make sure we prevent sediment leaving our properties or sites, as it is an offence to pollute waterways. The easiest way to do this is to maintain vegetation cover or at least maintain a buffer of vegetation around a site or adjacent to a waterway. This minimises the area that is exposed and the length of time it is exposed for, diverting water around the site while the soil is exposed and revegetating it as quickly as possible or covering it with geotextile, mulches or gravels.

To assist new home owners, a brochure has been produced by the Councils with advice on how to stop sediment leaving your home and yard - after the builder has left and before the garden establishes. Some local Councils have put the brochure on their websites including Bathurst, where it can be accessed at: www.bathurst.nsw.gov.au/images/Environment/ECbro-final-lores.pdf

Erosion and Sediment Control Workshop.





Why It Just Makes Sense to Minimise Erosion and Manage Sedimentation

- v. Council's role as a leader and a regulator.
Council is the Environmental Police Presence for nearly all of the activities completed in our area.
We need to be better than good.



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.

Wedge-tailed eagle
(Mark Leary).



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




Indicator – Total area in the National Parks Estate

Indicator – Addition to the National Park estate

The total area of the National Park estate in the reporting region is 799,973 hectares. However, due to an improved GIS mapping method in calculating area, it is not possible to calculate any additions to the National Park estate from last year.

Table 2: Summary Table of Indicator Trends – Biodiversity

Issue	Indicator	2011-12	2012-13	2013-14	2014-15	Trend
Habitat Loss	Change in Area of State Forests (ha)	-57	0	1	-218	↓
	Total Area Protected in Wildlife Refuges (ha)	259,000	217,000	217,000	202,000	↓
	Total Area protected under voluntary conservation agreements and property agreements (ha)	7,669	10,292	10,434	12,023	↑
	Proportion of Council reserves that is bushland/remnant vegetation	49%	49%	47%	56%	↑
	Habitat areas revegetated (ha)	310	72	84	48	↓
	Vegetation protected and rehabilitated through LLS incentive funding (ha)	12,962	7,496	7,214	5,302	↓
	New Voluntary Conservation Agreements, Property Vegetation Plans & biobanking agreements	17	5	2	75	↑
	Roadside vegetation management plans	10	10	12	12	↑
Threatened Species	State Threatened Species listed in Central West & Lachlan Catchments	281	287	283	279	↑
	Threatened species actions implemented (e.g. PAS, recovery plans)	17	28	15	16	↓
	Fish restocking activities: native species	300,000	391,000	560,000	505,000	↑
Noxious weeds and feral animals	Fish restocking activities: non-native species	271,000	285,000	306,000	293,000	→
	Number of declared noxious weeds	122	122	124	139	↓
	Invasive species (listed noxious or WONS) under active management	237	189	191	193	↓

-  improvement
-  no or little change
-  worsening trend

Note – the above trends are for data in 2011-12, 2012-13, 2013-14 and 2014-15 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2014-15. They should be read in terms of the limitations for indicators discussed throughout this chapter. Refer to the Appendix for a list of Councils included in the trend data.

Indicator – Total Area of State Forests

Indicator – Change in Area of State Forests

The total area of State Forests in the reporting region is 239,641 hectares, which is a decrease of 217.8 hectares from 2013-14. This continues a trend of relatively small reductions reported in most years since 2009-10.

Indicator – Total Area Protected in Wildlife Refuges

The area protected in Wildlife Refuges on private property decreased by 6.7% across the region in 2014-15 with a loss of 12,608 hectares in the Blayney LGA and 1,963 hectares in the Mid-Western LGA.

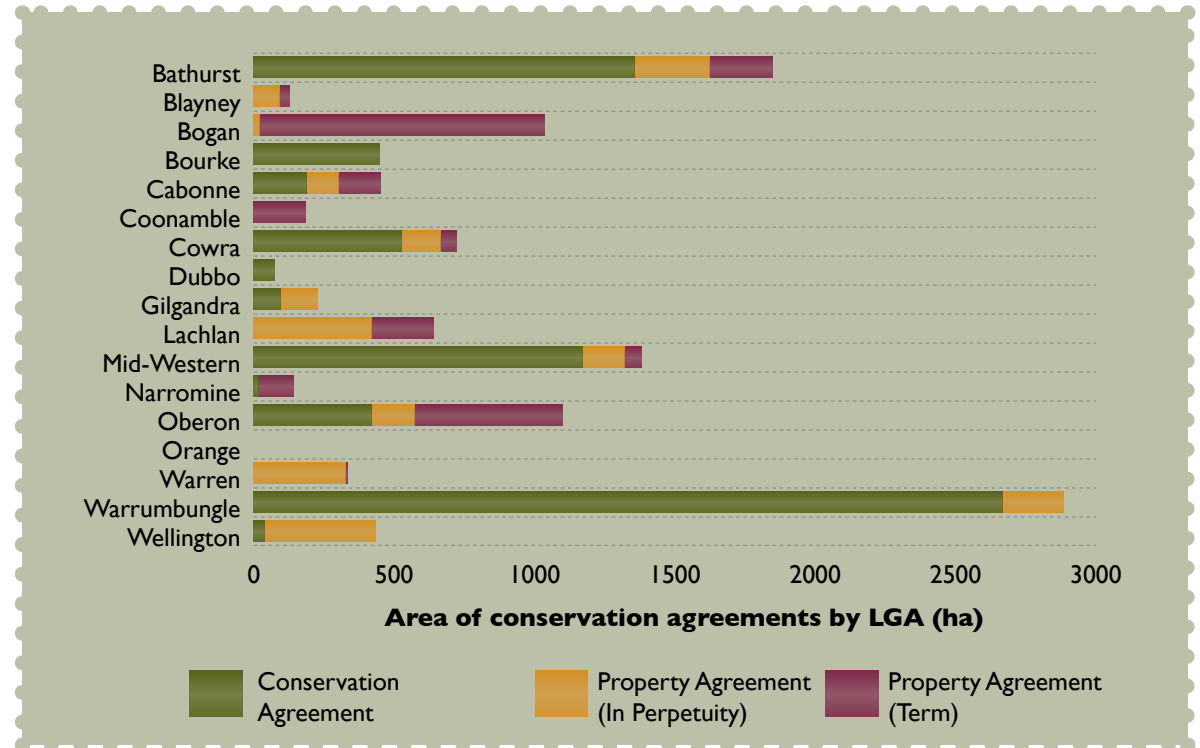
Figure 7: Total Area under Voluntary Conservation Agreements and Property Agreements (ha) by LGA 2014-15

Indicator – Total Area protected under voluntary conservation agreements and property agreements

An additional 1,486 hectares of land was protected under Voluntary Conservation Agreements in 2014-15, with 1,057 hectares added in the Bathurst LGA and 429 hectares in Bourke LGA.

The area covered under Property Agreements rose across the region by 103 hectares with increases in the Cowra and Oberon LGAs offset by a reduction of 82 hectares in Warrumbungle LGA.

Figure 7 shows the area protected under Voluntary Conservation Agreements and Property Agreements.



Indicator – Proportion of Council reserves that is bushland/remnant vegetation

The change reported in this indicator, as shown in the summary table, is largely due to Mid-Western Regional Council which:

- reduced its area classified as Council Reserves by 12 hectares
- increased its estimate of the area of bushland/remnant vegetation on Council reserves by 25 hectares.

The only other LGAs to report any changes were Orange and Cowra who made small adjustments to their total reserves area.

Indicator – Habitat areas revegetated

Only 72.8 hectares of habitat area was rehabilitated across the entire region in 2014-15. This was the lowest total since this indicator was first reported in 2008-09. This is due to decreased funding provided to the LLS.

Indicator – Vegetation protected and rehabilitated through LLS incentive funding

During 2014-15, the Central Tablelands LLS and Central West LLS provided incentive funding to protect and rehabilitate 5,302

CASE STUDY: Carp Reduction and Native Fish Restocking Program - Bogan River, Nyngan (Bogan LGA)

Bogan Shire Council, in collaboration with the Nyngan RSL Fishing Club and the Carp Muster Committee, continue to raise awareness about the devastating effects European Carp (*Cyprinus Carpio*) has on inland waterways, including the Bogan River at Nyngan. This is evident in the waterway with significant impacts identified on native aquatic plants, animals and the overall health of the river.

To aid in this project, an annual Carp Muster event is held on the Bogan to rid the river of this invasive noxious species, thereby reducing breeding numbers and to improve the quality of the natural aquatic environment. Over the past four years, the Carp Muster alone has been responsible for removal of 3,113 carp from the river, equating to 2,008 kg.

Whilst the annual carp muster has grown each year in participant numbers, the recent 2015 event has shown the positive effects of manually removing the carp from the waterway. Smaller carp and the reduced numbers caught compared to previous years has demonstrated that whilst carp are highly prolific, breeding numbers are significantly lower and competition with native fish species for food and habitat is slowly declining.

Council assists on the day of the Carp Muster with the weighing of each 'catch' and takes the fish for reuse as fertiliser on Council parks and gardens. However, the primary objective of the project is to also restock the Bogan River with native fingerlings, once carp numbers are reduced.

With assistance from Central West Local Land Services, the Nyngan RSL Fishing Club, the Carp Muster Committee along with a number of local businesses, Council secured 5,000 Murray Cod fingerlings from Murray Darling Fisheries, Wagga Wagga in June 2015 for release into the Bogan River at Nyngan.

Council's intention is to continue to restock the Bogan River, as well as improve catchment management practices, as part of its commitment to the local aquatic environment.



Fingerlings of native species.

hectares of vegetation. This was a decline of 26.5% compared with 2013-14. This is due to decreased funding provided to the LLS to support landholder activities.

Work in the Central Tablelands LLS region was spread across riparian, terrestrial and wetland areas, whilst in the Central West LLS region all rehabilitation (3,948 hectares) was on terrestrial vegetation.

Figure 8: Number of threatened species, EECs and endangered populations in the Central West and Lachlan Catchments 2014-15

Indicator – New Voluntary Conservation Agreements, Property Vegetation Plans & biobanking

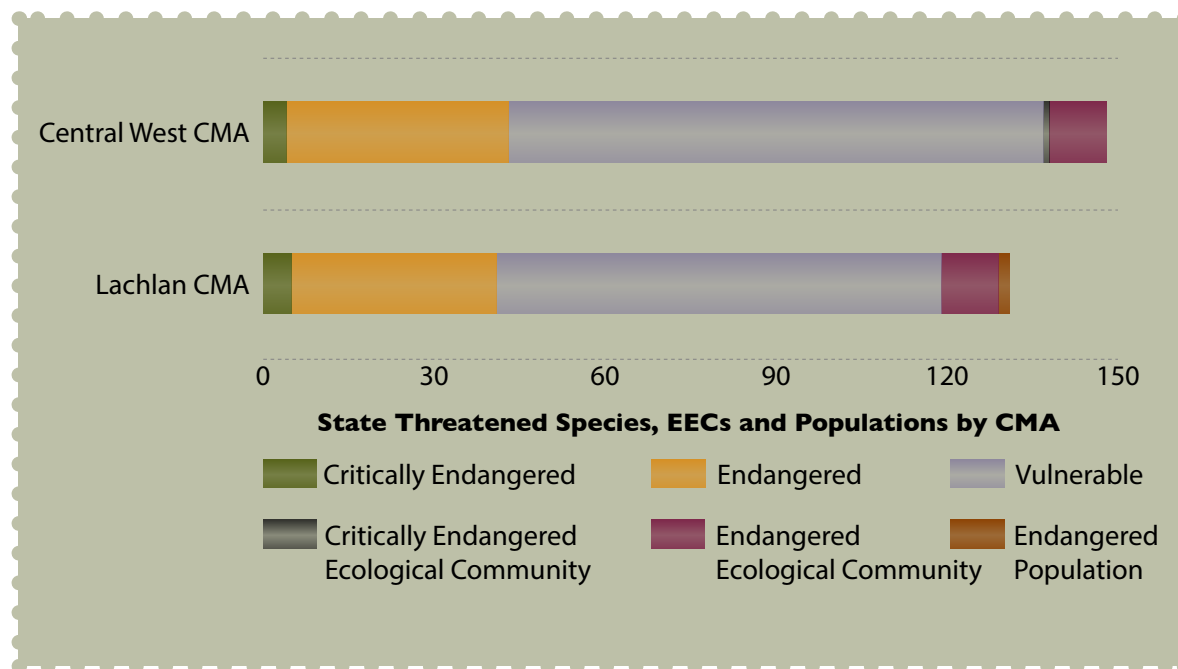
The Central Tablelands LLS reported 75 new management agreements for 2014-15 which is a very high number compared to the previous range reported for this indicator.

Indicator – Roadside vegetation management plan

This year twelve Councils reported that they have a roadside vegetation management plan in place. This was the same number as last year and two more than in 2011-12 and 2012-13.

Indicator – Area of roadside rehabilitated

Six Councils reported that they had rehabilitated a total of 76.2 hectares of roadside vegetation. This is a new indicator for the 2014-15 report and thus no trend data is available.



Indicator – State Threatened species listed for Central West and Lachlan catchments

Figure 8 shows the breakdown of listed threatened species, EECs and Endangered Populations across the former Central West and Lachlan CMA areas. The number of threatened species in the Lachlan CMA was 131, four less than that reported in 2013-14. The overall number in the Central West CMA area was unchanged, but the “Artesian Springs Ecological Community in the Great Artesian Basin” went from endangered status to critically endangered status.

Indicator – Threatened species actions implemented

The number of threatened species actions implemented across the region in 2014-15 was 16, one more than reported last year. In an encouraging sign, six Councils reported actions, up from only four in the previous reporting year. Examples of actions taken were:

- Bathurst Regional Council undertook targeted revegetation of the Blayney Road Common Box Gum Woodland EEC and undertook landholder liaison and community education for the Purple Copper Butterfly.

CASE STUDY: Bimbimbie Wetland and Community Education Program (Gilgandra LGA)

Gilgandra Shire Council received a grant from the NSW Environmental Trust to assist Council in the development and construction of an artificial wetland with the aim to reduce peak discharge and to reduce downstream impacts through improved water quality.

Artificial wetlands play an important role in Water Sensitive Urban Design (WSUD) for communities and perform a range of valuable tasks in the catchment area. The main functions of wetlands are to trap sediments, act as stormwater retention basins to store and slowly release flood waters, and to provide sustainable habitats for ecological communities. Furthermore, most wetlands are productive feeding and breeding sites for fish, invertebrates and birds.

After consultation with the Gilgandra community the artificial wetlands site was named Bimbimbie, an Aboriginal term for ‘place of birds’. As the name suggests, the Bimbimbie wetlands will provide important travelling refuge habitat for local and migratory bird species.

Bimbimbie is located on the southern edge of the Gilgandra township. The construction of the artificial wetland was completed using WSUD principles, and NSW Stormwater Best Practice Management Guidelines.

The project is expected to result in an 80% reduction in suspended solids, a 45% reduction in total phosphorus and a 45% reduction in total nitrogen being released into the Castlereagh river system.

The construction of Bimbimbie was also an opportunity for the Gilgandra Shire Council to participate in resource sharing with the Dubbo City Council, where some Parks and Garden staff from Dubbo Council assisted in the planting stage of the construction. Students from the Gilgandra High School received information on the construction of the wetland and the ecological benefits it will provide.

Bimbimbie is situated at the southern entrance to the town and adjacent to the highway and will be a highly visible feature of the town’s commitment to the environment, biodiversity and sustainability. The project is part of the Council’s longer term stormwater plan to rectify flooding and drainage issues.

Upon completion of the wetlands project, continual monitoring and data collection will take place and will aid in measuring the success of the project.



Bluetongue lizard.
(Mark Leary).

- Mid-Western Regional Council undertook three actions: a Roadside threatened species survey, referral to the Commonwealth of the Hoary Sunray and seed collection along Ulan Road for revegetation.

Indicator – Fish restocking activities: native species

Approximately 500,000 native fish were restocked across the region in the current reporting year which is almost 10% less than in 2013-14, but still well above the level in 2011-2013. In previous years up to seven different species have been restocked, but this year there were only three species, with 86% of the total being Golden Perch.

Indicator – Fish restocking activities: non-native species

Approximately 293,000 non-native fish (brown and rainbow trout) were restocked across the region in the current reporting year which is a small reduction compared with 2013-14. Overall, trout restocking levels have changed little over the last few years.

Indicator – Number of declared noxious weeds

The reporting area has 139 declared noxious weeds (NSW Department of Primary Industries, 2015), and a significant number of environmental weeds present. This is fifteen



more than the number in 2013-14 and is the highest level in the seven 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.

It should be noted that the Castlereagh Macquarie (Coonamble, Gilgandra, Warren, Warrumbungle LGAs) and the Upper Macquarie (Bathurst, Blayney, Oberon) County Council areas now have a full list of weeds, whereas last year only the “All of NSW” declarations were listed. This correction in reporting is a major factor in the overall increase.

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

There was a small increase (1%) 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 decline since 2011-12 in the number of species actively managed across the 16 Councils which have reported on this indicator in each of the last four years.

CASE STUDY: Girralang East Bio-bank Project (Orange LGA)

In order to offset the negative impacts of the Macquarie Pipeline's development on biodiversity, Orange City Council has committed to the purchase and maintenance of a property called Girralang East. As part of an agreement with the NSW Office of Environment and Heritage, Orange City Council will spend approximately \$790,000, funded in the Macquarie Pipeline Budget, over the next twenty years on fencing, rubbish removal, the control of weeds and feral animals, as well as the collection and propagation of native seeds and the subsequent planting of close to 20,000 native trees and shrubs on the property.

To help achieve the goals for the bio-bank and ensure field works are kept on track, Orange City Council has sought a Land Management Partner, a position now filled by Orange Local Aboriginal Lands Council.

To date, the internal and external boundaries have been surveyed in preparation for the erection of 2.2 kilometres of new fencing and repairing one kilometre of old fencing in the northern section of the site. Twenty hectares of low to moderate infestation of Serrated Tussock has been foliar sprayed in the northern section as well. Tussock infestations on the fringes and into the bushland areas will be treated with granular herbicide, (shakers) to prevent non target spray drift onto desirable plant species. The Lands Council has commenced the clean-up with rubbish removed from the site.

The Lands Council and Central Tablelands Local Land Services have also carried out trials on controlling Serrated Tussock through burning regimes at the site. The trials have been undertaken adjacent to the bio-bank areas and may be used as an integrated control approach to Serrated Tussock if the trial proves successful.

Orange City Council has been liaising with the NSW National Parks and Wildlife Service (Girralang Reserve) recently with the aim of developing a partnership around future feral animal control on the bio-bank site. Planning for this process is underway.



Girralang East Bio-bank Project



Water and Waterways

Increasing water consumption and declining water quality are two main issues in the region. The quantity of available water is often variable 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 water within the river and groundwater systems is also under threat from industrial, urban and agricultural pollution sources, as well as from treated wastewater and stormwater.

Regional impacts of climate change and variability will include less reliable water supplies in the catchments as a result of higher temperatures, variable rainfall and higher evaporation rates. There are increased risks of more intense storms and flooding between protracted droughts.

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 including the regionally significant Ramsar-listed Macquarie Marshes..

Indicator – Average salinity levels in selected streams

There was a 29% reduction in the average salinity level for the three locations which had data available for each of the last four years. Markedly lower salinity levels were reported for the Bogan River at Gongolgon and the Castlereagh River at Gungahlin, whilst the Cudgegong downstream of Windamere Dam reported a higher salinity level continuing its worsening trend in each of the last five years.

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

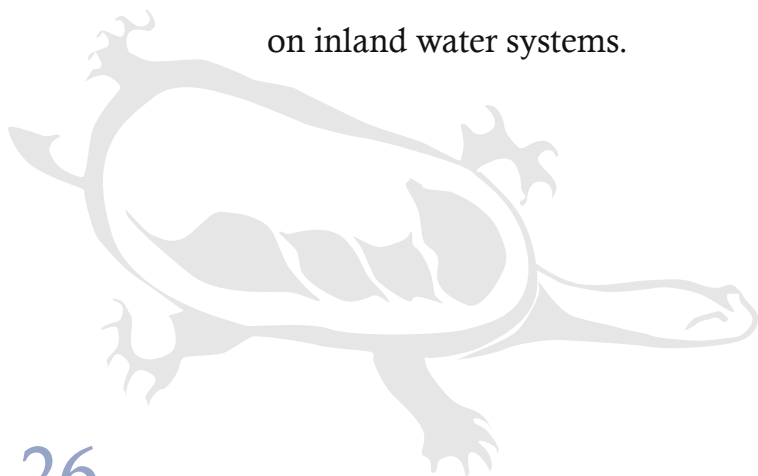


Table 3: Summary Table of Indicator Trends – Water and Waterways

Issue	Indicator	2011-12	2012-13	2013-14	2014-15	Trend
Surface & Ground Water Quality	Average salinity levels in selected streams (EC)	623	555	544	386	↑
	<i>E.coli</i> remote from wastewater treatment plants		1,020	951	656	↑
Riparian	Riparian vegetation recovery actions	34	27	25	27	↓
	Riparian vegetation recovery area (ha)	235	150	121	152	↓
Industrial/ Agricultural Pollution	Load Based Licencing Volume (kg)	210,828	252,088	237,932	237,959	↓
	Exceedances of license discharge consent recorded	49	44	20	13	↑
	Erosion & Sediment Control complaints received by Council	38	97	100	49	↑
Stormwater Pollution	Number of gross pollutant traps installed	66	73	72	78	↑
	Total catchment area of GPTs (ha)	5,349	5,399	5,349	5,509	↑
	Water pollution complaints	52	36	44	50	↓
Dam Levels	Average dam levels	88.9%	76.1%	54.6%	41.8%	↓
Water extraction	Number of Water Supply Work Approvals from surface water sources			2,958	2,950	↔
	Volume of surface water permissible for extraction under licences (GL)			1,007	1,063	↓
	Number of Water Supply Work Approvals from groundwater resources		22,872	20,454	20,698	↑
	Volume of groundwater permissible for extraction under licences (GL)		298	268	285	↓
Council water consumption	Area of irrigated Council managed parks, sportsgrounds, public open space (ha)	940	1,058	1,048	1,087	↓
	Water used by council for irrigation (including treated and untreated) (ML)	1,120	1,959	1,850	1,929	↓
Town water consumption	Annual metered supply (ML)	20,244	26,548	26,839	25,333	↓
	Annual consumption (Total from WTP) (ML)	24,309	29,858	29,413	29,478	↓
	Average annual household mains potable water usage (kL/household)	198.3	265.7	260.3	235.9	↑
	Average level of water restrictions implemented	0.2	0.2	0.8	0.7	↓
	Water conservation programs	9	4	7	10	↑
Town Water Quality	Number of instances drinking water guidelines not met	122	269	214	358	↓
	Number of drinking water complaints	774	797	766	821	↓

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

Note – the above trends are for data in 2011-12, 2012-13, 2013-14 and 2014-15 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2014-15. They should be read in terms of the limitations for indicators discussed throughout this chapter. Refer to the Appendix for a list of Councils included in the trend data.

OPPOSITE: Castlereagh
River in flow,
Coonamble.

Indicator – E.coli remote from wastewater treatment plants

In 2014-15 this indicator was measured at six locations which is up from only three locations in the two previous years. The trend for the three locations, as shown in the summary table, is an improving one. But one of the new sites, Cabonne, recorded a very high reading of 700 *E.coli* organisms per 100 ml in comparison with readings from previous years.

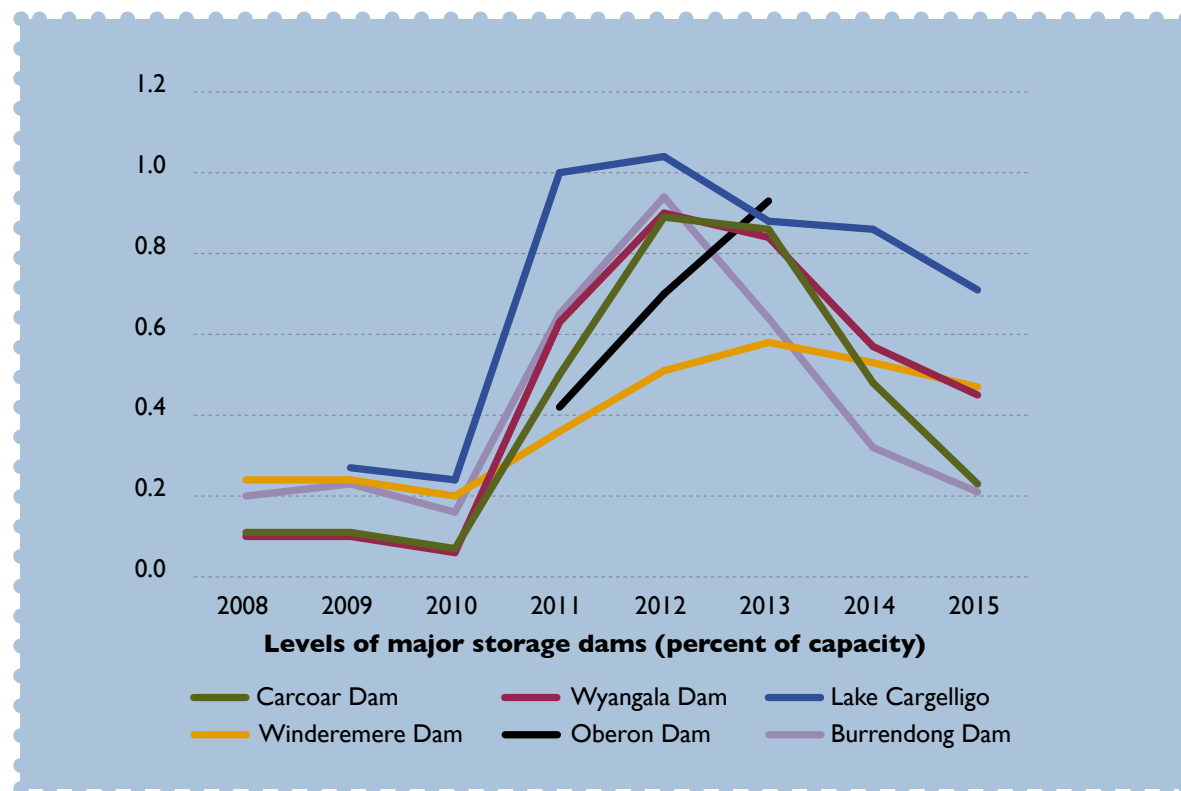
**Indicator – Riparian vegetation recovery actions
Indicator – Riparian vegetation recovery area**

A healthy increase was reported for 2014-15 in both the number of riparian vegetation recovery actions and in the total recovery area across the region. Bathurst, Blayney, Cabonne and Mid-Western Regional Councils all reported an increase in the area of their riparian vegetation recovery projects. Notable were the three projects in the Mid-Western Regional LGA being the Cudgegong River at Mudgee, Cudgegong River at Rylstone and the Putta Bucca Wetlands.

Indicator – Load Based Licencing (LBL) volume

The total load based licencing volume was almost unchanged compared to 2013-14 for the thirteen Councils reporting in each of the last four years. However, this masked some significant changes in individual LGAs, notably Mid-Western LGA where volumes of all pollutants fell dramatically due to the commissioning of a new sewage treatment plant. This was offset by a 45,000 kg increase for Orange City Council and also by Warren Shire which reported 24,750 kg of pollutants in 2014-15.

Figure 9: Levels of major storage dams in the region



Indicator – Exceedances of licence discharge consent recorded

The number of incidents of licence discharges exceeding the allowed amount fell again in 2014-15 to the lowest level since reporting started.

Indicator – Erosion and Sediment Control complaints received by Council

The total number of erosion and sediment control complaints across the region halved in 2014-15 compared with the previous year. Big reductions were reported in the Cabonne and Orange LGAs with reductions also reported in Bogan, Coonamble, Dubbo, Mid-Western and Warrumbungle LGAs.

Indicator – Number of Gross Pollutant Traps (GPTs) installed

Indicator – Total catchment area of GPTs

Bathurst, Dubbo and Lachlan Councils each installed new GPTs in 2014-15, increasing the combined catchment area for GPTs in these three LGAs by 160 hectares.

Indicator – Water pollution complaints

Whilst 78% of water pollution complaints in the region are still made to the Bathurst and Dubbo Councils, the overall increase reported this year was actually largely due to Oberon and Warren Councils each reporting a small number of complaints for the first time in several years, and may represent the increasing importance or priority Councils are now placing on this issue.

Indicator – Dam levels

Over the past year there has been a further significant decline in the average storage volume for all the major dams in the region. As shown in Figure 9, Burrendong and Carcoar dams declined back to the levels seen during the drought years, whilst the rate of decline slowed for the other dams, keeping them above their 2010 levels.

Indicator – Number of Water Supply Work Approvals from surface water sources

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”. The number of Water Supply Work Approvals across the region was almost unchanged in 2014-15.

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 denominated as 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. It is expected that this may lead to an overall decrease in this Indicator over time, but a 5.5% increase has been reported for 2014-15. Trading of access licences would be a contributing factor in this difference.

Indicator – Number of Water Supply Work Approvals from groundwater resources

As with surface water, every bore used to extract water has to have a “Water Supply Work Approval”. The number of these approvals has increased by 1.2% in 2014-15 compared with the previous year. However,



CASE STUDY: Headcut to Stability – The rehabilitation of Hawthornden Creek (Stage III) (Bathurst LGA)

In 2010, Bathurst Regional Council adopted the Urban Waterways Management Plan which looked at the condition of the six major urban streams in Bathurst and prioritised actions to improve their condition. Hawthornden Creek had the greatest number of high priority actions and it has therefore been the main focus of Council rehabilitation activities since the adoption of the plan. Following works in the upstream reaches of the creek from 2011 to 2013, Council received a grant from the NSW Environmental Trust in 2013 to continue the rehabilitation works in Charles Sturt University, Jaques Park and Ray Morcombe Reserve.

The aims of the three year project were to:

1. Stabilise bed and bank erosion within Hawthornden Creek and improve instream habitat by reducing sediment mobilisation within the creek system.
2. Improve riparian habitat of the middle reaches of Hawthornden Creek by revegetating these reaches with native vegetation to improve water quality and enhance habitat for native fauna, increasing their ability to transit through the urban environment.
3. Trial an innovative technique for grassy box woodland revegetation using the application of sugar to the soil.
4. Increase the engagement of local residents in catchment management.

In-stream erosion control works were completed during 2014. Pre-works site meetings for neighbours and local residents were held at both Jaques Park and Ray Morcombe Reserve to explain the need for the project and allay potential concerns which may have arisen over the construction work taking place in the creek. Following the completion of the in-stream works, over 1,700 Box Gum Woodland plants were planted in the riparian zone at Jaques Park and Charles Sturt University. More native grasses will be planted in Spring 2015.

A recent platypus sighting at Jaques Park may be an indicator of the gradual improvement of the habitat value of the creek.



this is likely due to the inclusion of a third category of bores this year (“other”). There was a small decline reported in active approvals both for irrigation bores and for stock & domestic bores.

Indicator – Volume of groundwater permissible for extraction under licences

A 6% increase has been reported for 2014-15 in this Indicator. This is very similar to the increase reported for surface water and may also be due to trading of access licences into the region.

Indicator – Actual volume extracted through surface water licences

No data was obtained for the actual volume extracted through surface water licences.

Indicator – Actual volume extracted through groundwater licences

The actual volume of water recorded as extracted through groundwater licences across the reporting region in 2014-15 was 91.8 gigalitres. This is only 32% of the volume permissible for extraction under existing licences. Whilst this sounds like an improvement, it is likely in large part due to many bores still being unmetered.

Indicator – Irrigated council managed parks, sportsgrounds, public open space

There was a small increase in the total irrigated area with Cowra and Orange Councils each reporting increases.

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

Approximately 6% more water was used for irrigation in 2014-15 compared to the previous year by the thirteen Councils which have reported on this Indicator in each of the last four years. Cabonne Council reported a large increase to 110 megalitres from negligible amounts in previous years.

Indicator – Annual metered supply

Metered supply fell by 5.6% in 2014-15 compared to the previous year for the eleven Councils that have reported this data in each of the last four years. The trend is still reported as declining in the summary table because the improvement this year is still small compared to the large increase reported between 2012 and 2014 by these Councils. The overall reduction is also somewhat questionable because it is largely due to lower numbers reported by Bourke and Narromine Councils which have often had difficulty providing reliable water usage numbers.

Indicator – Annual consumption (Total from WTP)

Total water consumption was almost unchanged compared to the previous year for the eleven Councils which have reported this data in each of the last four years. Water consumption has been relatively unchanged for three years now and remains high compared to the preceding drought years (see Figure 10).

Indicator – Average annual household water use

Household water consumption was down 9.4% in the reporting year compared with 2013-14, with nine of the eleven Councils that have reported this data in each of the last four years reporting a reduction. The biggest decreases were reported by Oberon and Warrumbungle Councils. This indicates that the slight increase in overall water consumption is not related to residential use.



Wetlands, Cabonne LGA.

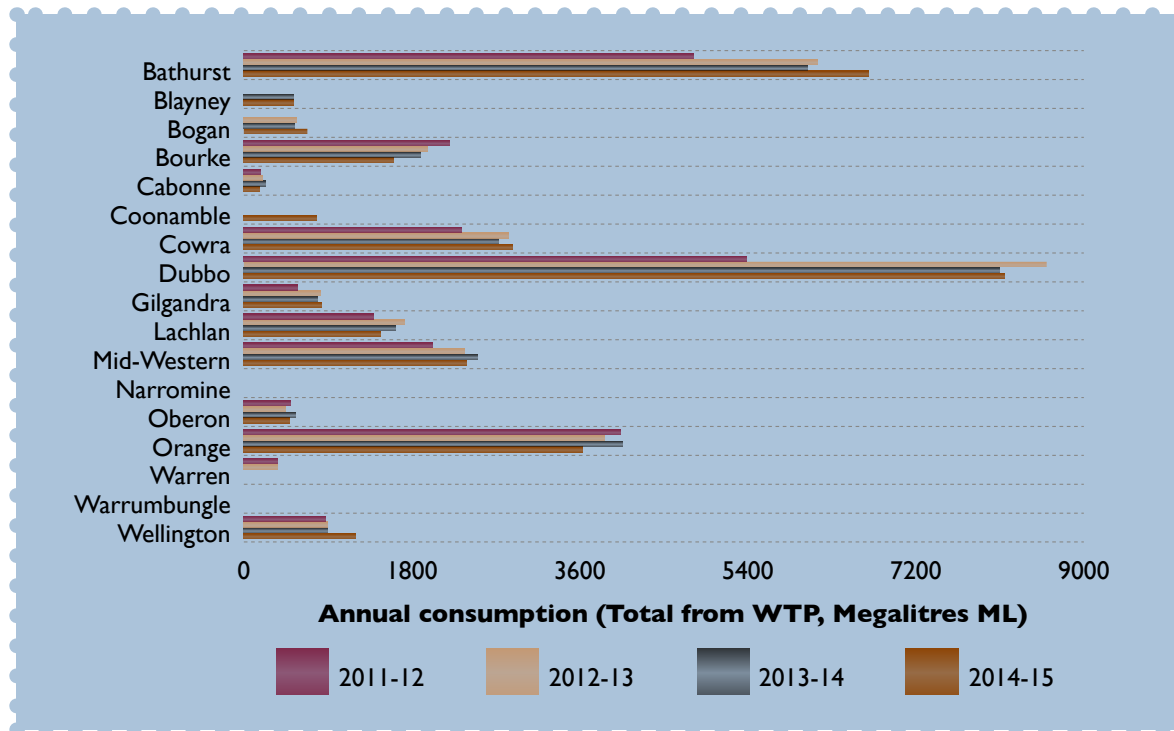


Figure 10: Annual town water consumption

Indicator – Water restrictions implemented

There was little change in the average water restrictions level across the region this year. Coonamble and Warrumbungle Councils lowered their restriction level while Lachlan Council increased it and is now on Level 4.

Indicator – Water conservation programs

Fourteen different current water conservation programs were reported between the Bathurst, Bourke, Cabonne, Dubbo and Orange Councils. Programs include rainwater tank rebates in Bourke LGA and free shower timers for residents in Dubbo LGA.

Indicator – Drinking water guidelines not met

Incidences of drinking water guidelines not being met were the highest level yet reported in the eight years that this Indicator has been tracked. There were big spikes in compliance issues for the Bogan and Mid-Western LGAs and only a relatively small improvement in Cowra which is the other LGA with historically a significant number of complaints (see Figure 11). NSW Health has committed to provide funding to upgrade water treatment infrastructure in Bogan Shire.





Gross Pollutant Trap,
Coonabarabran
(Chris McCulloch)

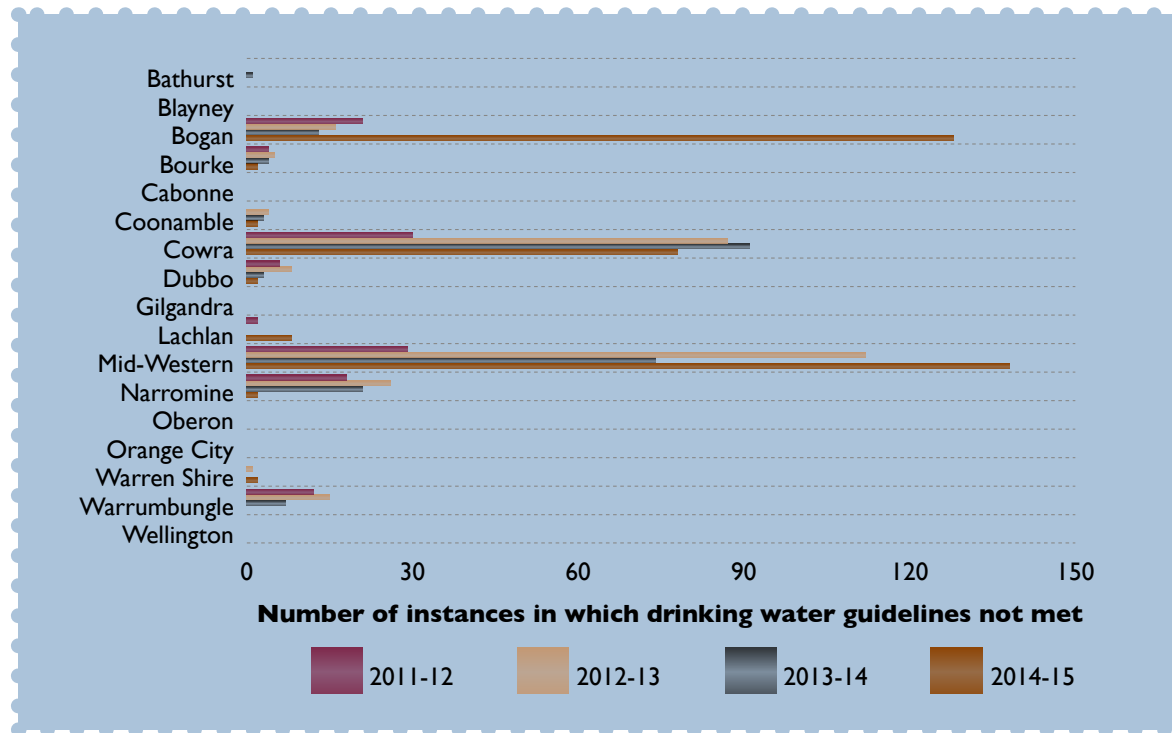


Figure 11: Number of instances in which drinking water guidelines have not been met.

Indicator – Drinking water complaints

There were 821 drinking water complaints received by Councils across the region in 2014-15, an increase of 7.2% compared to last year and the highest level since 2010-11. This year's increase was almost entirely in the Mid-Western and Bogan LGAs. Complaints to Mid-Western Regional Council were mainly in Gulgong after ice pigging was undertaken (a process in which an ice slurry is pumped into a pipe and forced along inside in order to remove sediment and other unwanted deposits to leave the pipe clean.)



Royal spoonbill
(Mark Leary).



CASE STUDY: Ogilvy Street Project (Blayney LGA)

The Belubula River is an important and popular watercourse for recreation in the Blayney Shire. The river starts in the high country between Bathurst and Orange and runs past the eastern side of Blayney through Carcoar Dam - a prevalent water sport and recreation spot in the region – and then into the Lachlan River.

In May 2014, Blayney Shire Council, through collaboration with the Central Tablelands Local Land Services, completed the Ogilvy Street Wetlands project to filter urban run-off water prior to entering the Belubula River. Aged and damaged section of kerb was removed to create a natural filter in the form of a riparian garden.

The project mainly used repurposed materials to minimise the environmental impact and costs. Plants were transplanted from another wetland within Blayney, logs were reclaimed as part of the replacement of the bridge at the end of Ogilvy Street, and the rocks provided from overburden at Council's quarry.

“Urbanisation has resulted in large impervious areas which dramatically increase the run off quantity, and frequency, following rain events. These increases are detrimental to stream health, and in recent years it has become desirable to undertake works such as the installation of these wetlands to capture runoff and allow it to absorb into the ground, rather than run off to the streams,” said Council's Operations Manager, Mr Nathan Skelly

“In addition to the reduction in stormwater velocity, the plantings in wetlands also assist with the removal of contaminants that tend to be carried by stormwater that would traditionally end up in streams.”

The project continues to provide additional benefits both for the environment and community being closely linked with other rehabilitation projects on the Belubula River including the Heritage Park Wetlands and the proposed Pound Flat rehabilitation in Carcoar. The streetscape and entrance to Dakers Oval recreational ground has been improved and the project provides continuing environmental education opportunities for local schools. Future walkways are also planned to make the area more inviting and encourage community use of the space.



Stormwater treatment signage.



People and Communities

This chapter reports on environmental issues relating to people and communities including Indigenous and non-Indigenous 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.

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 includes both Indigenous

and non-Indigenous heritage and both may be threatened by increased development and a lack of management and awareness.

There is no one law for the protection of cultural heritage in NSW. While planning laws in NSW manage building and development, they also coexist with laws to protect heritage. In some cases planning laws can override heritage provisions.




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.



Dubbo City main street

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

Issue	Indicator	2011-12	2012-13	2013-14	2014-15	Trend
Active community involvement	Environmental volunteers working on public open space (hrs)	12,286	16,072	15,492	12,173	↓
	Number of environmental community engagement programs		70	82	104	↑
	Number of growers markets/local food retailers specialising in local food		72	97	131	↑
Community Impacts	Number of days that air pollution maximum goals for particulate matter were exceeded	1	2	2	1	↑
Indigenous Heritage	Number of Indigenous sites on AHIMS register			9,767	10,579	↑
	Inclusion in DCPs & rural strategies	14	14	14	14	→
	Extent of liaison with Indigenous communities (self-assessed from 0 = none to 3 = High)	1.9	1.8	1.6	1.6	↓
	Development approvals on listed Indigenous sites	12	13	5	15	↓
	Number of Indigenous heritage management actions/responses	2	4	6	4	→
Non-Indigenous Heritage	NSW Heritage Items	109	112	110	109	→
	Locally listed heritage items	2,085	2,279	2,357	2,624	↑
	Actions to protect non-Indigenous heritage (including management plans)	36	32	32	39	↑
	Heritage buildings on statutory heritage lists demolished/degraded in past year	0	1	1	3	↓
	Heritage buildings on statutory heritage lists renovated/improved in past year	81	91	117	86	↓

-  improvement
-  no or little change
-  worsening trend

Note – the above trends are for data in 2011-12, 2012-13, 2013-14 and 2014-15 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2014-15. They should be read in terms of the limitations for indicators discussed throughout this chapter. Refer to the Appendix for a list of Councils included in the trend data.

Indicator – Environmental volunteers working on public open space

The 12,173 person hours logged by environmental volunteers working on public open space across the region was the lowest level reported in seven years of tracking this indicator. There was a sharp drop in the number of hours reported for Dubbo which experienced a reduction in available staff and resources to support these activities.

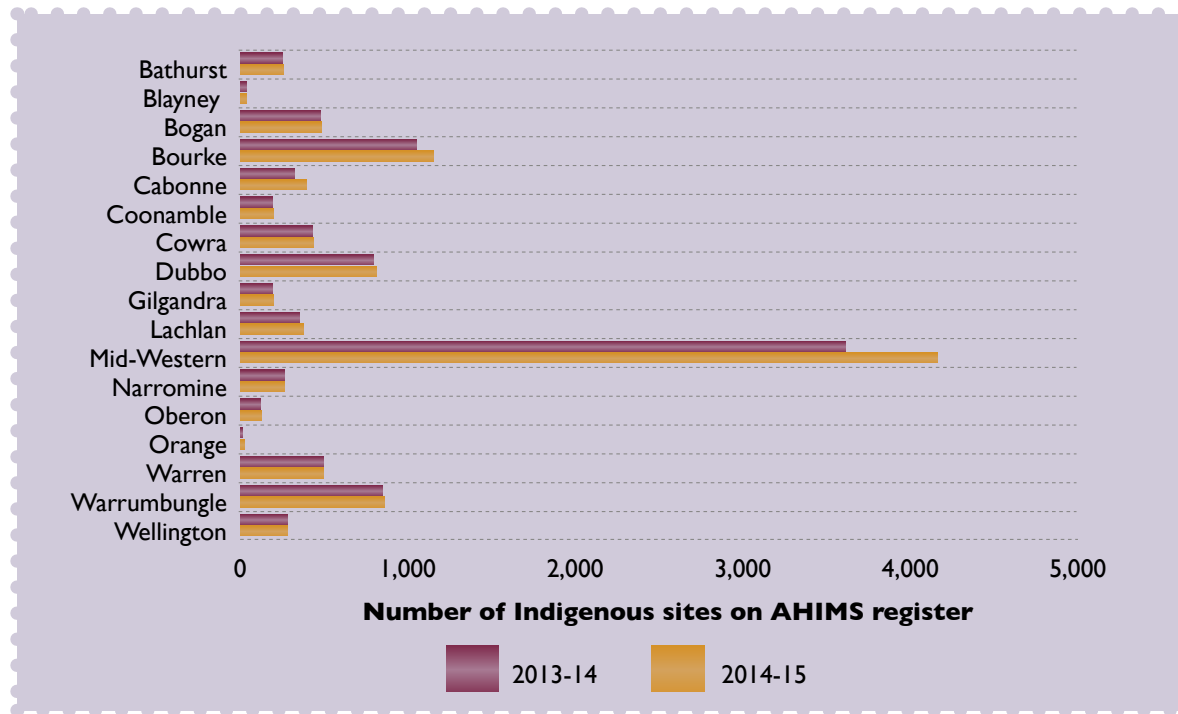
Indicator – Number of environmental community engagement programs

The number of environmental community engagement programs across the region rose by 27% in 2014-15, but the most encouraging change is that thirteen of the seventeen Councils in the region reported programs this year, compared to only eight last year.

A new program initiated by the Federal Government is the Green Army which helps to achieve on-ground natural resource management outcomes. Approximately 7,500 hours were contributed by the Green Army in environmental projects in Cabonne and Blayney LGAs, with possible activity in this program not reported by other Councils.

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

Thirteen 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 continue to be in the Cabonne and Orange LGAs. Big contributors to the growth in the region this year have been the establishment of the Blayney Farmers Markets and increased activities within Bourke Shire such as market days/farmers markets with local producers.

Indicator – Air pollution maximum goals for particulate matter exceeded

This year there was only one day (in May 2015) on which particulate matter (PM10) recorded at the Bathurst testing station exceeded the air pollution maximum goals.

Indicator – Indigenous heritage inclusion in DCPs & rural strategies

Indicator – Extent of liaison with Indigenous communities

Fourteen of the Councils in the region have some consideration of indigenous heritage in their planning and approval processes and twelve have also reported that they have a specific Indigenous heritage management plan/strategy in place. On average, the fourteen Councils rated their liaison with Indigenous communities the same as last year.

Figure 12: Number of Indigenous sites on the AHIMS register

Indicator – Development on listed Indigenous sites

Fifteen developments on listed Indigenous sites were reported in 2014-15 across the Cowra, Dubbo and Mid- Western LGAs. This was a significant increase from last year when only five developments on listed Indigenous sites were reported, all in Dubbo LGA.

Indicator – Number of Indigenous heritage management actions / responses

In 2014-15, there were only three Councils in the region that reported specific Indigenous heritage management actions/responses: Gilgandra, Oberon and Orange. In addition, an Aboriginal Heritage Study covering the Cabonne and Blayney LGAs was commissioned in June 2015.

Indicator – Number of Indigenous sites on AHIMS register

In 2014-15 there were 10,579 sites across the region listed on the Aboriginal Heritage Information Management System (AHIMS) register. Overall, this number was up over 8% since last year, with 550 sites added in the Mid-Western LGA and at least one site added in every other LGA (see Figure 12).

CASE STUDY: Environment Grants Program (Mid-Western Regional Council)

Mid-Western Regional Council has been running an Environment Grants Program throughout 2014 and 2015. The program seeks to support community initiated projects by groups, clubs and schools that improve the local environment and inspire environmentally sustainable behaviour within the Mid-Western LGA.

Two groups to benefit from these grants have, over the last year, put their money to good use and achieved excellent outcomes:

Mudgee's monthly Farmers Markets attracts large crowds keen to immerse themselves in the local food and culture. Mudgee Fine Foods, which organise these Markets, instigated the 'Kids Gardening Puts Food on the Table' project engaging children attending the Markets with hands-on activities while educating them about 'where your food comes from'.

Children were able to build and take home their own worm farms in Styrofoam boxes. The children found the class very engaging, learning first-hand about recycling food scraps and care for the soil in their gardens. On another weekend, a self-wicking garden bed was built on the grounds of the Farmers Markets. An old, corrugated iron water tank was sourced and volunteers helped with construction and guiding the children to fill it with soil and plant it out with herbs and vegetables. Children also planted a pot of mixed herbs each to take home.

The Eurunderee Provisional School Inc. manages the site of the Eurunderee School Complex, a five acre Crown Land reserve. Henry Lawson was one of the first students to attend the old bark school at the site. Henry's fame brings visitors to the site in increasing numbers and the surrounding remnant Grassy Box Woodland is vulnerable to degradation.

The group's intentions are to maintain and improve a species-rich woodland within the grounds, thus enhancing educational, environmental and heritage values. The funds they received were used to carry out:

- a plant survey and research sites of original gardens and bush plantings as well as recent plantings
- removal of non-endemic plants and replanting more appropriate species
- a rabbit and weed control program
- development of a concept management plan to act as a guide for further sustainable activity on the site.



Markets – Mid Western LGA

Aboriginal artwork on road pylons, Dubbo.

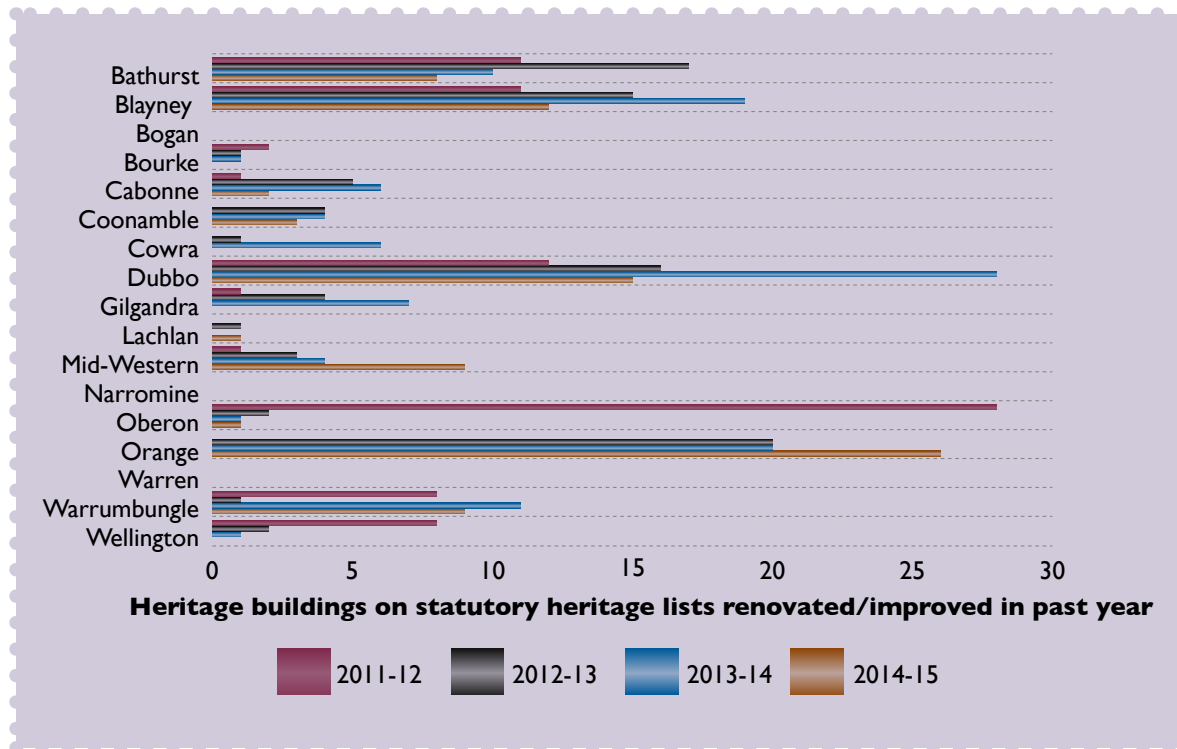


Figure 13: Heritage buildings on statutory heritage lists renovated/improved



Indicator – NSW Heritage Inventory items

There was a small reduction in the number of items listed under the *NSW Heritage Act 1977*, with one more site in Bathurst LGA and one less site in each of the Blayney and Cabonne LGAs.

Indicator – Locally listed heritage items

The process of updating and finalising new LEPs has led to Bathurst and Orange Councils increasing the number of heritage items listed in their LEPs. This process has led to substantially more heritage listings

across the region over the last five years although there should now be a period of stabilisation in this indicator as this major LEP update process draws to a close.

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

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

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

There were three heritage buildings demolished or degraded in the past year: one each in the Blayney, Cabonne, and

Mid-Western LGAs.

By contrast, in the past year there were 86 heritage buildings renovated or improved by ten of the seventeen Councils in the region. This number is the lowest since 2011-12 and hence a declining trend is shown in the summary table.

Figure 13 provides a breakdown across the LGAs of the heritage buildings that were renovated or improved over the past five years.



CASE STUDY: Protecting the Aboriginal Middens at Lake Cargelligo (Lachlan LGA)

Lake Cargelligo is a world-renowned area for Indigenous heritage containing some of Australia's greatest heritage. To preserve these heritage sites three community groups were formed in the area: Lakes Alive, Murrin Bridge Local Aboriginal Land Council and Lachlan Shire Council Aboriginal Consultative Committee. These groups are responsible for most heritage projects in the area including the monitoring and protection of the local middens located around the shores of Lake Cargelligo.

Some of these middens are small and shallow, and some were larger and deeper signifying years of use. They consist primarily of crushed mussel shell (*Vesuni ambiguus*). The Lake was used by the local indigenous community for thousands of years for hunting and gathering of food for meals around the water's edge.



Mr Robert King, Chair of the Lachlan Shire Council Aboriginal Consultative Committee, and Mr Peter Harris of the Murrin Bridge Local Aboriginal Land Council have been monitoring the middens over the years. Specialist groups needed to be engaged to conduct investigations and preserve these precious sites for future generations.

The main contributor to the deterioration of the middens is environmental damage through wind and water as they are situated on the shores of the Lake. Water exposure through high and low water levels has caused erosion and has slowly deteriorated the middens over time. A team of experts from NSW Office of Environment and Heritage has been engaged to repair and maintain the sites of the middens by implementing erosion and sediment control to prevent further deterioration.

There is however no guarantee that the work will protect the middens indefinitely; hence, they will need to be monitored on a regular basis. Erosion and sediment controls have been put in place to prevent further dilapidation to the middens.

With the correct fencing and ongoing monitoring, works will ensure the further protection and longevity of the middens around the Lake Cargelligo area preserving these historical artefacts for future generations.

Middens, Lake Cargelligo.



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 managing the natural environment and 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 outlines how 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

The total waste entombed at primary landfills was higher this year compared with 2013-14, with substantial increases reported in the Bathurst, Dubbo and Warren LGAs. On the positive side, Mid-Western Regional Council's waste per person returned to previous levels after a large one-off increase last year and Bourke and Blayney LGAs reported their lowest numbers for at least five years.

Indicator – Average cost of waste service per residential household

The cost of waste services rose again this year in most LGAs in the reporting region. However, Mid-Western Regional Council reported a 17% reduction in its cost which was enough to result in a very small overall reduction in the average cost for the region.

Indicator – Farm chemical drums collected through DrumMuster collections

There was a 23% increase in the number of farm chemical drums collected through DrumMuster collections across the region in 2014-15 compared with last year. The biggest increase was in Lachlan LGA which did not report any collections last year, so was clearing a backlog. The overall trend is still down compared to the much higher collections reported in the 2011-2013 period.

Indicator – Household Hazardous Wastes collected

Continued strong growth was reported for 2014-15 in the amount of household hazardous waste recycled through the NetWaste contract with amounts up 26% on 2013-14. Sizeable increases were reported for

Table 5: Summary Table of Indicator Trends – Towards Sustainability

Issue	Indicator	2011-12	2012-13	2013-14	2014-15	Trend
Waste Generation	Total waste entombed at primary landfill (tonnes)	216,000	215,000	169,000	177,000	↑
	Total waste entombed at other landfills (exc recyclables) (tonnes)	7,144	5,892	21,349	27,531	↓
	Average total waste generated per person (tonnes)	1	1.02	0.86	0.92	↓
	Average cost of waste service per residential household	\$251	\$263	\$269	\$268	↓
Hazardous/Liquid Waste	DrumMuster collections (number of drums)	123,000	52,612	30,289	37,313	↓
	Household Hazardous Wastes collected (kg)	13,886	15,893	31,865	40,139	↑
Reduce	Garden organics collected (diverted from landfill) (tonnes)	26,982	25,915	28,602	21,046	↓
	E-Waste collected (diverted from landfill) (tonnes)	142	62	99	41	↓
Recycle	Quantity of material recycled (tonnes)	24,949	25,186	25,345	24,723	↓
	Quantity of material recycled per person (kg)	111	111	103	107	↓
Littering and illegal dumping	Number of illegal waste disposal complaints to Council	504	401	402	441	↓
Engineering, Infrastructure and Civil Works	New road construction (km)	16	36	32	39	↓
	Road upgrades (km)	288	580	1,387	1,485	↓
Risk Management	Flood management plans/ flood mapping - increase in area covered (ha)		10,459	1,074	1,296	↑
	Hazard reduction burns	52	74	61	15	↑
Climate Change Mitigation	Office paper used by Council (reams)	27,054	25,793	24,598	23,914	↑
	Council sustainability initiatives	43	58	43	63	↑
	Council mitigation initiatives	38	18	12	15	↓
Council Greenhouse Gas Emissions	Annual electricity consumption for Council controlled facilities (MWh)	58,459	60,662	64,172	66,355	↓
	Annual natural gas consumption for Council controlled facilities (Gj)	43,548	30,372	35,561	35,048	↑
	Annual bottled gas consumption for Council controlled facilities (L)	38,633	41,832	44,429	48,287	↓
	Total fuel consumption (KL)	8,223	7,957	6,788	7,459	↑
	Council total operational greenhouse gas emissions (tCO ₂ -e/year)		229,000	222,000	190,649	↑
Community Greenhouse Gas Emissions	Small scale renewable energy uptake (kw installed)	5,478	8,858	10,561	11,399	↑
	Number of solar water heaters and heat pumps installed	590	411	346	313	↓

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

Note – the above trends are for data in 2011-12, 2012-13, 2013-14 and 2014-15 from the same sources. The trend is based on comparing the average of the previous years of reporting with 2014-15. They should be read in terms of the limitations for indicators discussed throughout this chapter. Refer to the Appendix for a list of Councils included in the trend data.

Farm gate on Warren-Gilgandra Road.

the Bathurst, Gilgandra, Narromine, Orange and Wellington LGAs with Bourke and Warrumbungle reporting these collections for the first time.

Indicator – Garden organics collected (diverted from landfill)

There was a 26% reduction in garden organics collected this year reversing the previously improving trend in this indicator. Significant reductions were reported by Blayney, Cabonne, Coonamble, Gilgandra and Orange

Councils. The drier conditions across the region were potentially a contributing factor in this decline.

Indicator – E-Waste diverted from landfill

E-Waste collections fell by almost 60% this year compared to 2014-15 and were the lowest since 2009-10. The total amount collected by Councils barely changed with the overall decline entirely due to there being no Netwaste collections reported in the region this year.

Indicator – Amount of material recycled
Indicator – Quantity of material recycled per person

The total amount of material recycled across the region was slightly lower in 2014-15 with an average 107 kg recycled per person across the 16 Councils that have reported this data in each of the last four years.

There was a significant reduction in the amount of scrap metal recycled across the region because Netwaste only reported collections for eight Councils this year, compared to 13 Councils in 2013-14. The scrap metal market has dipped significantly, therefore some Councils are stockpiling for longer periods in the hope of higher rebates.

The breakdown of the type of materials recycled in each LGA is shown in Figure 14.

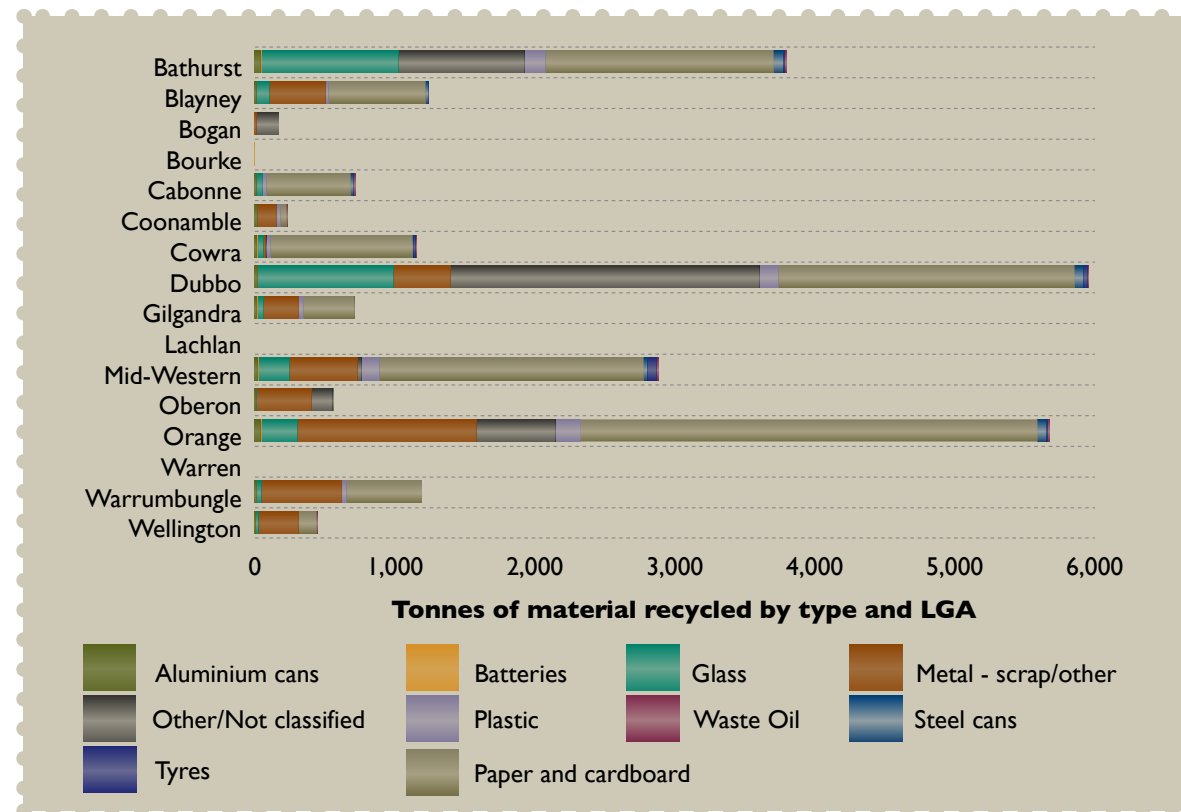
Indicator – Illegal waste disposal complaints to Council

Fifteen of the 17 Councils in the region received illegal waste disposal complaints during 2014-15 which shows that this is a common issue. However, 55% of the total complaints for the region were received by Bathurst and Dubbo Councils.

Indicator – New road construction
Indicator – Road upgrades

New road construction and road upgrades across the region increased compared to 2013-14 with significant new road projects in

Figure 14: Type of materials recycled 2014-15





CASE STUDY: New solar panels at Cowra Council's Materials Recycling Facility (Cowra LGA)

New solar panels at Cowra Council's Materials Recycling Facility are a way of re-using sunshine at a facility that has a 90% recycling rate.

Council has just completed installing a new solar system at the site which is an 80 panel, 20 kilowatt system that will reduce energy costs by thousands of dollars each year and pay for itself in about three years. The Council's power bills at the facility will be cut by two thirds from approximately \$15,000/year to about \$5,000/year.

It is anticipated that on a day with good sunshine the system will produce between 120-140 kilowatt hours and the use at the facility is about 90 kilowatt hours a day. The excess electricity generated will go back into the grid.

The facility is already making savings in recycling waste and reducing landfill. Council has reduced waste to landfill by 30% over the past five years to approximately 5,000 tonnes /year of material into landfill instead of the licensed amount of 10,000 tonnes/year.

Council is committed to reducing energy consumption at its community facilities to save money and electricity.



Figure 15: Amount of office paper used across the region.

the Dubbo, Narromine, Orange, Warren and Wellington LGAs. Whilst it is recognised new roads and upgrades are necessary, they can cause considerable damage to the surrounding natural resources, consequently an increase in these works is seen as detrimental to the environment.

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

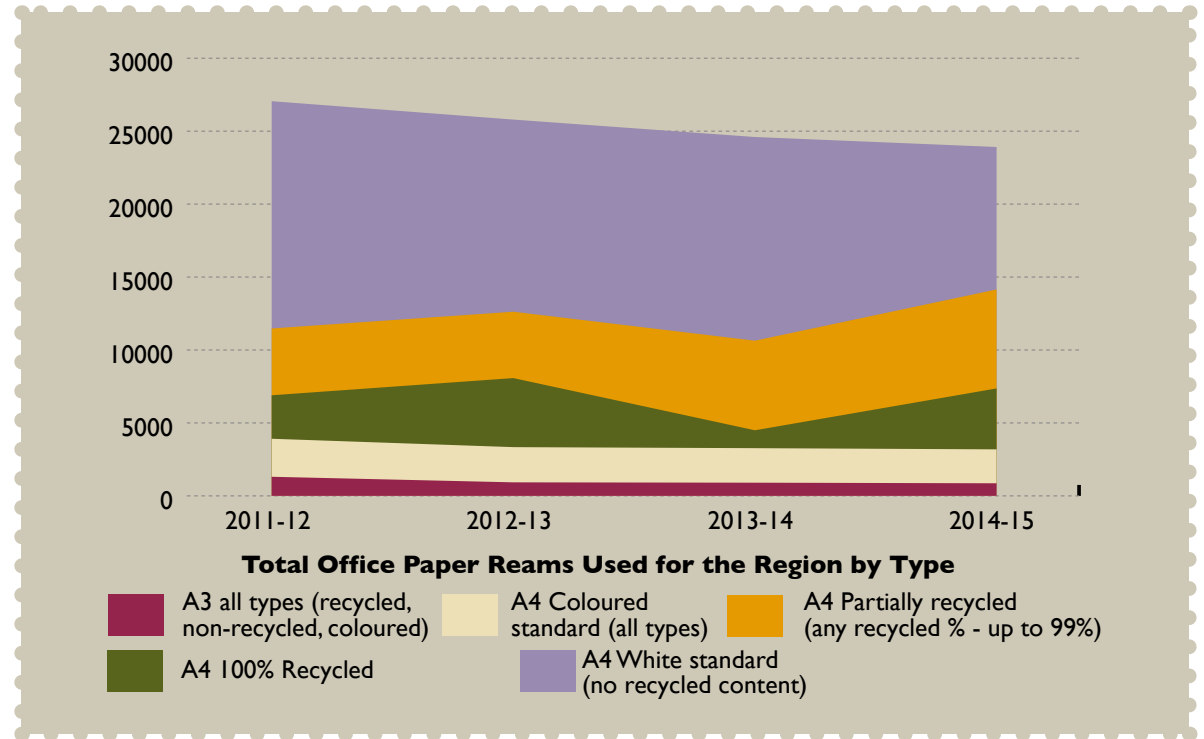
Ten of the 17 Councils in the region reported that they include BPEM in new road projects.

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

Eleven Councils indicated that they include environmental sustainability criteria within their purchasing policies. A good example was Wellington Council which noted that it was purchasing materials to recycle existing road pavement in favour of totally new pavement materials, as well as purchasing and maintaining heavy fleet vehicles with Euro 5 emissions accreditation.

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

Six Councils (Blayney, Bourke, Cabonne, Coonamble, Orange and Wellington)



indicated that they already apply design measures in response to climate change in new infrastructure.

Indicator – Council sustainability initiatives

The increase in this indicator in 2014-15 (see summary table) is entirely due to Dubbo City Council which reported 31 initiatives compared to eight last year. Dubbo’s many initiatives included significant events like the Dubbo Sustainable City Expo, Earth Hour event, Wood Smoke Reduction Program, Energy Cut Talks (Jon Dee) alongside smaller initiatives such as its Staff Veggie Garden,

Clean Up Australia Day - Staff Participation, Dubbo Sustainable City Facebook page and Office Recycling Programs.

Indicator – Council adaptation initiatives

Six Councils (Bathurst, Blayney, Coonamble, Dubbo, Gilgandra and Orange) indicated that they had Council adaptation initiatives in place.

Indicator – Council mitigation initiatives

Whilst there was a healthy increase in the number of mitigation initiatives reported by Councils this year, this only returned to the

same level as first reported in 2010-11. For the first time, Bogan Shire Council reported two initiatives (waste recycling and tree planting) showing that even small Councils have the capacity to undertake climate change mitigation measures.

Indicator – Flood management plans/ flood mapping in place

Flood studies provide emergency agencies and communities with an understanding of flood risk. Floodplain risk management studies and plans provide an outline of ways to manage the flood risk within floodplains to help keep communities safe and protect property. During the 2014-15 year, 1,296 hectares in the Bogan and Wellington LGAs were covered by new flood studies and/or floodplain risk management studies and plans. Bourke Shire Council reported that it had also completed a flood study and mapping but were unable to ascertain hectares covered. A flood study is still ongoing in the Coonamble LGA.

Indicator – Natural disaster declarations

There were no natural disaster declarations in the region during 2014-15.

Indicator – Hazard Reduction burns

Only 15 hazard reduction burns were reported across the region this year, the lowest number since 2009-10. Bourke and

Mid-Western Councils reported six burns each with total areas of 795 and 2,666 hectares burnt respectively.

Indicator – Office paper used by Council

There is a continuing slow but steady decline in the total quantity of office paper used by Councils across the region as shown in the summary table. This year there has also been a move by several Councils to use more recycled and partially recycled paper as shown in Figure 15.

Indicator – Annual electricity consumption for Council controlled facilities

There was a 3.4% increase in electricity consumption this year for the eleven Councils

that have reported this data in each of the last four years. Notably, Narromine Shire Council also reported electricity usage for the first time this year.

Indicator – Annual natural gas consumption for Council controlled facilities

Only five Councils report any use of gas for Council controlled facilities and their total consumption has declined by 4% in relation to the average of the previous three years.

Indicator – Annual bottled gas consumption for Council controlled facilities

Bottled gas consumption rose by 8.7% for the seven Councils that have reported this data in each of the last four years.



Landfill site,
Dubbo LGA.

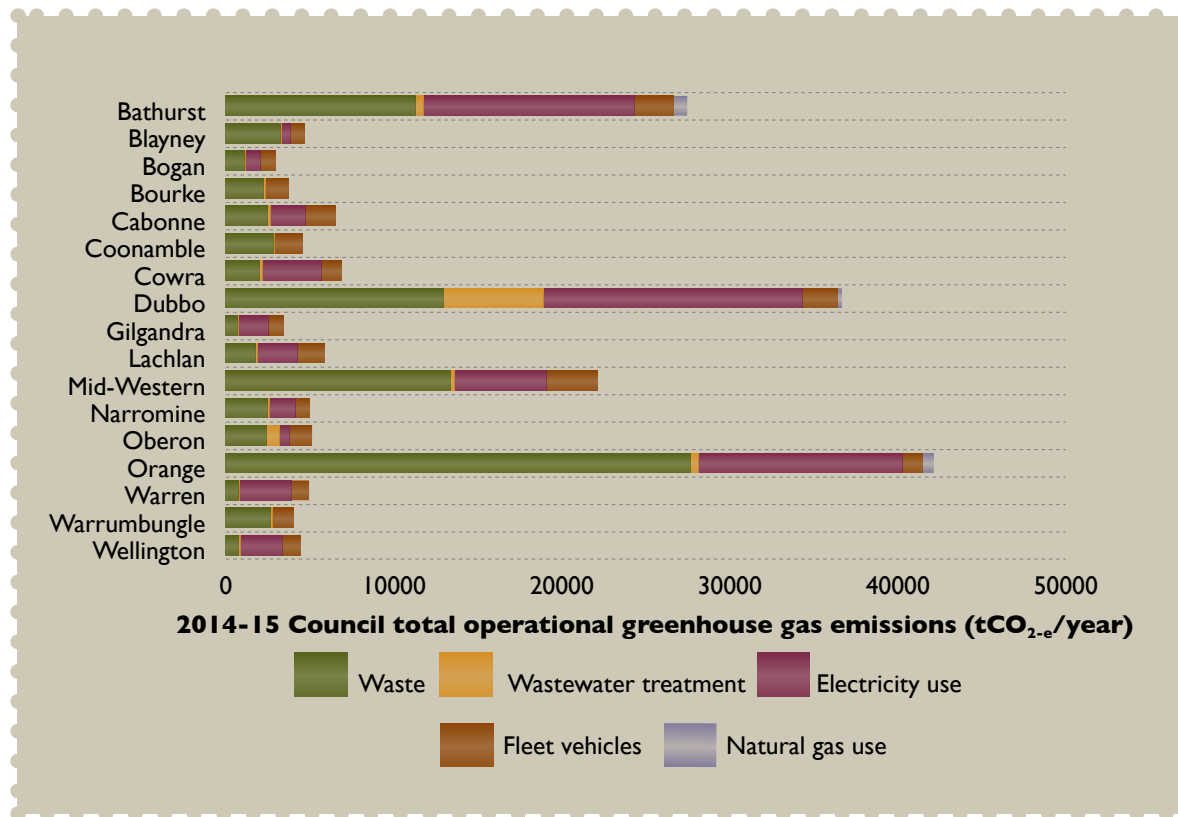
Figure 16: Council total operational greenhouse gas emissions 2014-15



Cigarette disposal bin.

Indicator – Total fuel consumption

Fuel consumption from Council owned vehicle fleet and plant went up by 9.9% in the current reporting year, with nine Councils reporting an increase in their consumption. Coonamble and Warren Councils reported two of the largest increases. However, the four year trend is for decreasing fuel consumption.



Indicator – Council total operational greenhouse gas emissions

Indicator – Landfill emissions offset from methane flaring

Total greenhouse gas emissions calculated for the region are reported as 9% lower than last year but this is due to the inclusion of significant emissions offsets for methane by Dubbo Council this year.

As shown in Figure 16, methane flaring by Dubbo and Bathurst Councils reduced the

total net emissions for the region in 2014-15 by over 17% and reduced their own net emissions by 34% for Dubbo and 42% for Bathurst.

Before offsets, the total emissions for the region were actually slightly higher (approximately 1%) than each of the last two years. A significant factor in this increase was electricity consumption which went up across the region due to a combination of some Councils increasing consumption and two Councils reporting for the first time.

CASE STUDY: Neutral Drive – Small Vehicle Fleet Carbon Capture Program (Dubbo LGA)

Motor vehicles are one of the biggest contributors to air pollution in Australia, with transport accounting for about 14 per cent of Australia's greenhouse gas emissions. Since 2003, Dubbo City Council has taken steps to be part of the solution to mitigate climate change by offsetting its small vehicle fleet emissions.

Initially, Council participated in the Green Fleet carbon capture program (www.greenfleet.com.au) led by an environmental not-for-profit organisation and one of Australia's first carbon offset providers. However, in 2011 Council re-examined its commitment to this program and decided that the program's environmental, social and economic benefits could be better focused locally, with tree plantings within its own LGA rather than other localities. The 'Neutral Drive' Small Vehicle Fleet Carbon Capture Program was consequently established in June 2012 and has been running for three years.

Sixteen hundred trees were identified under the Neutral Drive Program as required to offset Council's small vehicle fleets emissions. The program, although not formally registered under the Carbon Farming Initiative (CFI) or what is now known as the Emissions Reduction Fund, strives to meet their methodologies by requiring plantings to be additional to normal Council business and permanent to ensure long term carbon capture.

Initial plantings occurred at Redbank Reserve on Burraway Road in 2012-2013, however they proved unsuccessful. A total of 1,300 plantings have since been completed at Regand Park, a Council reserve which adjoins the Macquarie River and contains River Red Gum woodlands. This included 600 plantings in 2013-2014 and 700 plantings in 2014-2015. Long stem tube stock was utilised to provide a much higher survival rate and lower maintenance. The plantings also complimented the future Master Plan for Regand Park.

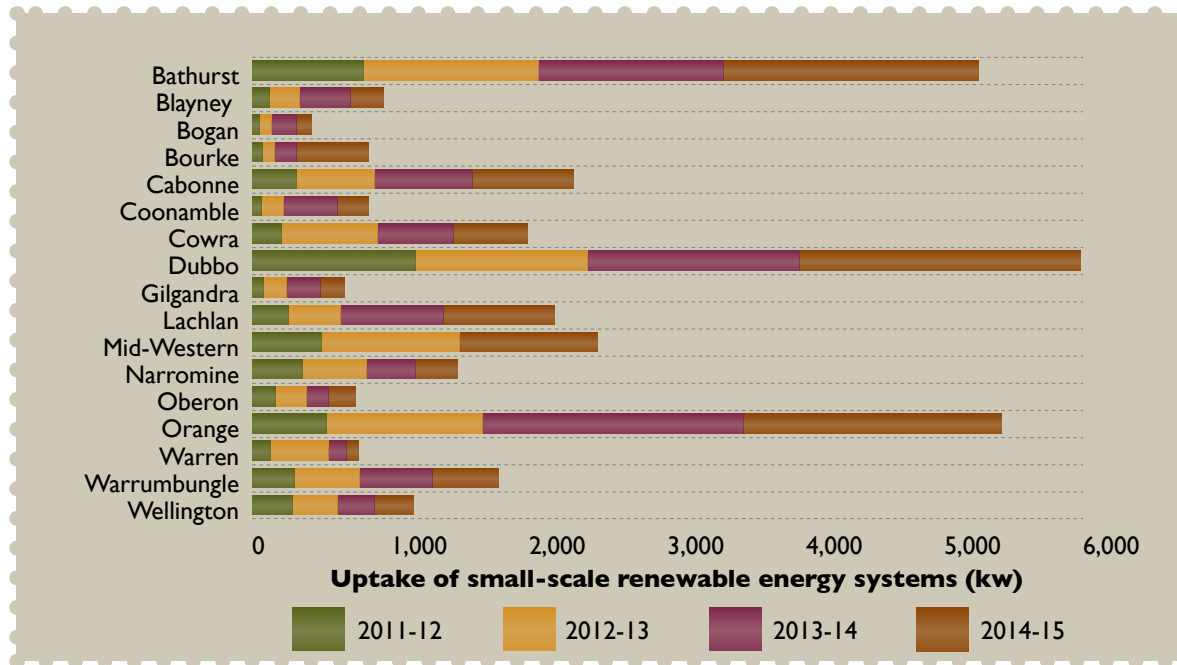
On completion of all 1,600 tree plantings, Council will investigate the possibility of offsetting the emissions of its large vehicle fleet (e.g. trucks). In the meantime, all large vehicles utilise 'biodiesel' - a renewable, clean-burning diesel replacement.

The Neutral Drive Program has proved to be an immediate and cost-effective way for Council to take responsibility for its impact on the environment.



Neutral Drive car sticker.

Figure 17: Uptake of small-scale renewable energy systems across the region (kW)



Indicator – Proportion of Council’s electrical energy demand met from Council-owned renewable energy infrastructure

This year Gilgandra and Blayney were the first Councils outside the larger rate-based Councils (Bathurst, Orange, Dubbo) to report that they owned any renewable energy infrastructure.

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

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.

As shown in Figure 17, there has been strong growth in installations of small-scale renewable energy systems across the region, with this year’s 7.9% growth just below the four year average rate of 12.1%. The 11,399 kilowatts installed in 2014-15 was the largest annual total yet and is double the level in 2011-12.

Dubbo City Council waste truck.



Indicator – Number of solar water heaters and heat pumps installed

A total of 313 solar water heaters and air sourced heat pumps were installed across the region in 2014-15. This was 9.5% less than last year and is the lowest total in the four years this indicator has been tracked.



CASE STUDY: Waste Aid Community Based Environmental Projects: Bourke and Enngonia (Bourke LGA)

Waste Aid works with communities to provide long-term solutions for waste management and environmental health issues. Working only with an invitation from our Aboriginal partner communities, Bourke Shire Council works as equal partners with the Aboriginal community and brings the expertise of its waste management industry supporters to the Aboriginal communities.

Waste Aid uses the Aboriginal Community Environmental Stewardship (ACBES) model to assist communities to clean-up the legacy of built-up waste, put community appropriate waste infrastructure in place and work with communities to build capacity and change the behaviours that create waste disposal and environmental problems.

The approach empowers, engages and motivates the local Aboriginal community to take responsibility for its own waste management. Council provides skills, materials and technical advice to communities and bridges the communication gap between the Aboriginal community and service providers by employing Aboriginal Environmental Advisors to act as liaison for Council and government agencies and to lead community discussions on waste management.

Waste Aid is currently working with the Bourke and Enngonia Aboriginal communities to manage long term environmental issues in both communities.



Site for Waste Aid project.

Ethanol pump,
Dubbo LGA.

Sunrise over
Mount Oxley
near Bourke in
the Gundabooka
National Park.







Appendix – Data contributed by and sourced for Councils

Issue	Sub-Issue	Indicator	Unit of Measure	Bathurst	Blayney	Bogan	Bourke	Cabonne	Coonamble	Cowra	Dubbo	Gilgandra	Lachlan	Mid-Western	Narramine	Oberon	Orange	Warren	Warrumbungle	Wellington	LLS	
Land																						
Agricultural Land	Sustainable agriculture	Contaminated land sites - Contaminated Land Register	Number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Contaminated land sites - potentially contaminated sites	Number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Land use: planning and management	Contamination	Contaminated sites rehabilitated	Number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Erosion affected land rehabilitated	Hectares	●	◆	●	◆	◆	◆	◆	◆	●	◆	◆	◆	●	●	◆	◆	◆	◆	●
		Number of development consents and building approvals	Number	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	Erosion	Landuse conflict complaints	Number	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
	Development	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 Extractive Industries and mining exploration projects	Hectares	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
Biodiversity																						
Biodiversity	Habitat Loss	Total area in the National Parks Estate	Hectares	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
		Change in area of State Forests	Hectares	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		Area protected in Wildlife Refuges	Hectares	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		Area protected under voluntary conservation agreements and property agreements	Hectares	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		Habitat areas revegetated	Hectares	◆	●	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	●
		Council Reserves - total area	Hectares	◆	●	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	●
	Habitat Loss	Council Reserves - bushland/remnant vegetation	Hectares	◆	●	◆	◆	●	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	●	●	

Issue	Sub-Issue	Indicator	Unit of Measure	Bathurst	Blayney	Bogan	Bourke	Cabonne	Coonamble	Cowra	Dubbo	Gilgandra	Lachlan	Mid-Western	Narramine	Oberon	Orange	Warren	Warrumbungle	Wellington	LLS	
Biodiversity	Habitat Loss	Roadside vegetation management plans	Yes/No	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Roadside vegetation rehabilitated	Hectares	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		
	Decreasing occurrence of endangered species	State Threatened species listed in Central West & Lachlan Catchments	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	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	
Water and Waterways																						
River systems and waterways	Surface & Ground Water Quality	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	LLS		
River systems and waterways	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 Water Supply Work Approvals from surface water sources	Raw number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Volume of surface water permissible for extraction under licences	Gigalitres (GL)	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		Number of Water Supply Work Approvals from groundwater resources	Number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		Volume of groundwater permissible for extraction under licences	Gigalitres (GL)	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		Actual volume extracted through groundwater licences	Gigalitres (GL)	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
	Council Water Consumption	Council managed parks, sportsgrounds, public open space	Hectares	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		Area of 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	◆	●	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		Level of water restrictions implemented	Level (1-5)	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆
		Number of water conservation programs	Number of Programs	◆	●	●	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	●	◆	●	◆	◆
		Number of residential meters	Number	◆	●	●	●	◆	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	◆	◆
	Dam Levels	Dam levels	Volume %		◆					◆			◆	◆		●					◆		
	Town water quality	Number of instances drinking water guidelines not met	Number of instances	◆	●	◆	◆	◆	●	◆	◆	◆	●	◆	◆	◆	◆	◆	◆	●	◆	◆	◆
		Number of drinking water complaints	Number & Type	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆

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	LLS	
People and Community																						
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		Number of days that air pollution maximum goals for particulate matter were exceeded	days	◆																		
Valuing natural, built and cultural heritage	Management of Aboriginal Heritage	Number of Indigenous sites on AHIMS register	Number & Type	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		
		Inclusion in DCPs & rural strategies	Yes/No	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Extent of liaison with Indigenous communities (self-assessed from 0 = none to 3 = High)	Rank (0 = none, 3 = High)	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Development on listed indigenous sites	Number approvals	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	
		Management plan/ strategy in place	Yes/No	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Actions to protect indigenous heritage (including management plans)	Number	◆	●	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	●	●
	Management of Non-Aboriginal Heritage	NSW Heritage Inventory items	Number and type	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Locally listed heritage items	Number and type	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Actions to protect non-indigenous heritage (including management plans)	Number	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	
		Heritage buildings on statutory heritage lists demolished/degraded in past year	Number	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	●	◆	●	◆	●	◆	
	Heritage buildings on statutory heritage lists renovated/improved in past year	Number	◆	◆	●		◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		

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Toward Sustainability																						
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	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	◆	◆		◆	◆	●	◆	◆	
		Landfill emissions offset from methane flaring	kt CO2e-	◆	●		●		●	●	●	●	●	●	●	●	●	●	●	●	●	
		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 collected (diverted from landfill)	Tonnes	◆	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	
		% Effluent reuse & location of reuse	%	◆	◆	●	◆	◆	◆	●	◆	◆	◆	◆	◆		◆	◆	●	●	◆	
		Amount of material recycled	Tonnes	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		◆	◆	◆	◆	◆	
	Littering	Number of illegal waste disposal complaints to Council	Number of complaints	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
	Engineering, Infrastructure and Civil Works	New road construction	km	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
Road upgrades		km	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆		●	
Inclusion and demonstrable implementation of environmental sustainability criteria within purchasing		Yes/No	◆	●	●	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	◆			◆	
Application of design measures in response to climate change in new infrastructure		Yes/No	●	●	●	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	◆			●	
Application of best practice environmental management (BPEM) in new roads		Yes/No	◆	●	●	◆	◆	◆	◆	◆	◆	●	◆	◆	◆	◆	◆	◆			●	
Risk Management	Council adaptation initiatives	Yes/No	◆	●	●	◆		◆	◆	◆	◆	◆	◆	◆	◆	◆	●	●	●	◆		
	Increase in area covered by flood management plans/ flood mapping	hectares	◆	◆	◆	◆		◆	◆	◆	●	◆	◆	◆	◆	◆	◆	◆	◆	◆		
	Natural disaster declarations (events - flood bushfire and drought)	Hectares	◆	●	◆	◆	◆	◆	●	◆	●	◆	◆		◆	◆	◆	◆	◆	◆		
	Hazard reduction burns	Number & area	◆	●	●	◆	◆	◆	◆	◆	◆	●	◆	◆	●	◆	◆	◆	◆	◆		

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Energy & Resource efficiency	Mitigation	Office paper used by Council (reams)	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	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	
		Number of solar water heaters and heat pumps installed	Number	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	◆	

- ◆ Denotes those Councils that were compared in the trend analysis for these indicators
- Data contributed in 2014–15 but not compared in summary tables





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