

Regional State of the Environment Report

2009–2010
Supplementary Report



For the Councils
of the Greater Central West Region of NSW:

Bathurst, Blayney, Bogan, Bourke, Cabonne, Coonamble, Cowra, Dubbo, Gilgandra,
Lachlan, Mid-Western, Narromine, Oberon, Orange, Warren, Warrumbungle, Wellington



Acknowledgements



The preparation of the Regional State of the Environment (SoE) Report 2009-10 was funded by the Central West Catchment Management Authority with contributions from the 17 participating local Councils. It should be noted that this is a Supplementary SoE Report and shows trends, where possible, in relation to the data from the Supplementary Report first produced in 2007-08 for the region and the Comprehensive Report produced in 2008-09.

Prepared for:

The 17 participating Councils and the Central West Catchment Management Authority
30 Warne Street, Wellington, NSW
PO Box 227, Wellington, NSW, 2820
Tel: 02 6840 7800 Fax; 02 6840 7801
www.cw.cma.nsw.gov.au

Prepared by:

Molino Stewart Pty Ltd
Phone: (02) 9354 0300
www.molinstewart.com.au

Design:

Wild Red Frog Design
Phone: (02) 9975 3305

© Central West Catchment Management Authority and the Councils of Bathurst, Blayney, Bogan, Bourke, Cabonne, Coonamble, Cowra, Dubbo, Gilgandra, Lachlan, Mid-Western, Narromine, Oberon, Orange, Warren, Warrumbungle and Wellington.

All intellectual property and copyright reserved.

Apart from any fair dealing for the purpose of private study, research, criticism or review, as permitted under the *Copyright Act 1968*, no part of this report may be reproduced, transmitted, stored in a retrieval system or adapted in any form or by any means (electronic, mechanical, photocopying, recording or otherwise) without written permission. Enquiries should be addressed to one of the Councils listed above or the Central West Catchment Management Authority.



Contents

ABBREVIATIONS

MESSAGE FROM THE CHAIRMAN

INTRODUCTION

- What is a Supplementary Report?
- Why a Regional SoE Report?
- Who is involved in the Regional SoE Report?
- What are Catchment Management Authorities?
- Understanding this Report

LAND

- Issue - Land Degradation

AIR

- Issue – Air Pollution

WATER

- Issue – Water Quantity
- Issue – Water Quality

BIODIVERSITY

- Issue – Loss of Biodiversity

HUMAN SETTLEMENT

- Issue – Changing and Increasing Human Settlements

WASTE

- Issue – Waste Generation and Disposal

TOWARDS SUSTAINABILITY

- Issue – A Sustainable Future

REFERENCES

APPENDIX – DATA CONTRIBUTED BY AND SOURCED FOR COUNCILS

Abbreviations

| | | |
|-----------|---------|--|
| 3 | ANZECC | Australian and New Zealand Conservation Council |
| 4 | AQTF | Australian Qualifications Training Framework |
| | CANFA | Conservation Agriculture and No-till Farming Association |
| | CAP | Catchment Action Plan |
| 6 | Centroc | Central West Regional Organisation of Councils |
| 7 | CMA | Catchment Management Authority |
| 7 | DECCW | Department of Environment, Climate Change and Water |
| 8 | DII | Department of Industry and Investment |
| 9 | DUSLIP | Dubbo Urban Salinity Landscape Interpretation Project |
| 9 | EC | Electrical Conductivity |
| 10 | EEC | Endangered Ecological Community |
| 10 | ESD | Ecologically Sustainable Development |
| | GHG | Greenhouse Gas |
| | GL | Gigalitre |
| 14 | GPT | Gross Pollutant Trap |
| 14 | ha | Hectare |
| 18 | HGL | Hydrogeological Landscapes |
| 19 | INFFER | Investment Framework for Environmental Resources |
| 19 | KL | Kilolitre |
| 25 | LBL | Load-based Licensing |
| | LEP | Local Environmental Plan |
| | LGA | Local Government Area |
| 32 | ML | Megalitre |
| 32 | NPI | National Pollutant Inventory |
| 40 | NRM | Natural Resource Management |
| 40 | NSW | New South Wales |
| | PAS | Priorities Action Statement |
| 46 | PoEO | Protection of the Environment Operations |
| 46 | PVP | Property Vegetation Plan |
| | RTO | Registered Training Organisation |
| 52 | REC | Roadside Environment Committee |
| 52 | RVMP | Roadside Vegetation Management Plan |
| | SES | State Emergency Service |
| 58 | SoE | State of the Environment |
| | TAFE | Technical and Further Education |
| | WONS | Weeds of National Significance |
| 60 | WTP | Water Treatment Plant |

Message from the Chairman

The Central West Catchment Management Authority (CMA) is again pleased to support the 17 regional Councils in the preparation of a Regional State of the Environment Report.



ABOVE Tom Gavel, Chairman, Central West Catchment Management Authority

Over the last two years, the Councils participating in the Report have recognised the value of the regional model, and have now agreed to participate for the next three years, 2010-2012, to undertake two Supplementary, and one Comprehensive Report.

Each year, improvements to the data collection method, together with increased understanding by the Councils of the information required, allows for more accurate data to be recorded and trends to be mapped. This is important information for the Central West community to be aware of.

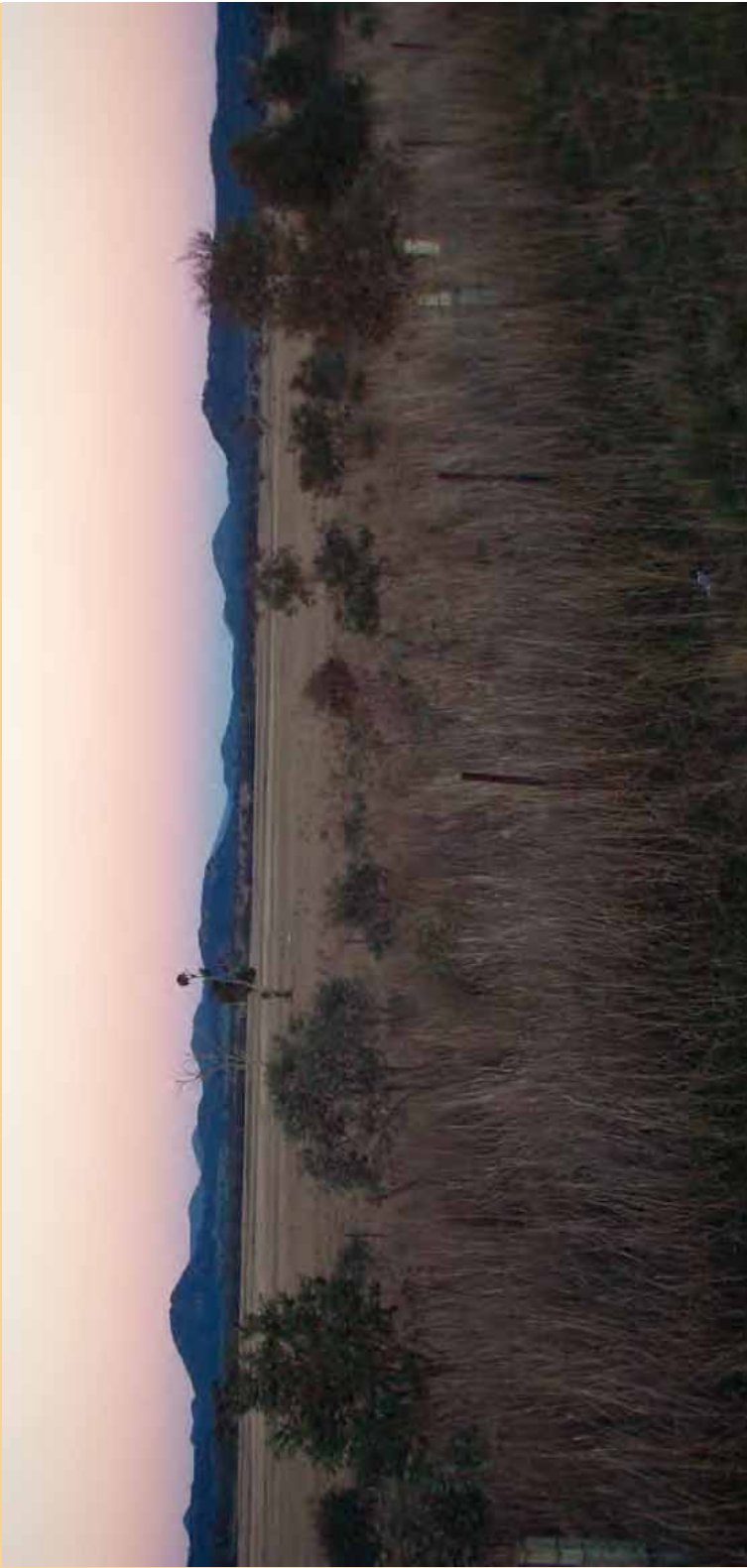
The Report also describes some of the initiatives made by the Councils to support the targets which aim to improve the natural resources of the catchment, identified in the Catchment Action Plans (CAP) for the Central West, Lachlan and Western catchments.

Over the year, the Central West CMA has been reviewing the Central West CAP, which is the key planning tool to guide investment in natural resource management across the catchment.

The community and Local Government were asked to assist, by identifying natural assets that are of high value to them. This was done at 12 public workshops across the catchment. A best practice support tool, INFFER (The Investment Framework for Environmental Resources), was used to assist in this process. Over 500 assets throughout the catchment were identified, mapped and documented before they were reviewed by several panels of scientific experts,



BELOW Drooping Chocolate Lily (*Dichopogon fimbriatus*)



ABOVE Panorama from Narrango Road Dabee

government staff and community members to assess their significance, threats and resilience. The concept of resilience thinking was used to assess priority assets.

Resilience thinking allows us to understand how our important assets are functioning and which ones are most at risk to irreversible degradation.

It is through the efforts of Local Government, landholders and the wider community that we will collectively create a more resilient and functional landscape for the future.

The information in this Supplementary Report outlines the current state of our environment and gives us all an opportunity to consider what we can do to help improve it.

Tom Gavel

Tom Gavel
Chairman
Central West Catchment Management Authority

Robert Gledhill

Robert Gledhill
Chairman
Lachlan Catchment Management Authority

Rory Treweeke

Rory Treweeke
Chairman
Western Catchment Management Authority

Introduction

A State of the Environment (SoE) Report is an important management tool which aims to provide the community and the local Council with information on the condition of the environment in the local area. It also provides a platform for community action by raising awareness and understanding of key environmental issues which in turn helps people and organisations make informed decisions regarding future management actions to reduce the negative impacts on the environment.

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.

Under the Act, Councils were required to specifically report on:

1. Land
2. Air
3. Water
4. Biodiversity
5. Waste
6. Noise
7. Aboriginal heritage
8. Non-Aboriginal heritage.

In each of these environmental themes particular reference was required to be made to:

- management plans relating to the environment
- special Council projects relating to the environment
- the environmental impact of Council activities.

BELOW Snow can occasionally fall in the higher parts of the region (source: Orange Highland Vines and Gardens)

The *Local Government Act 1993* was amended in 2009. The amendments promote use of an Integrated Planning and Reporting Framework to guide a Council's future strategic planning and reporting. As part of the 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 over-arching Community Strategic Plan. The information in the new type of annual SoE Reports which are required under the amended legislation will be used to inform Council's preparation of the Community Strategic Plan and continue to inform the required reviews of the Community Strategic Plan.

The implementation of this new Framework is being staggered across the 152 NSW Councils. All of the participating Councils in this Report are 'Group 3 Councils' in the Framework implementation process, meaning that they do not need to

change their reporting methods until 2012. This Report therefore follows the original SoE reporting structure with its eight environmental themes as listed above.

What is a Supplementary Report?

Under the *Local Government Act 1993*, a Council must produce a Comprehensive SoE Report for the year ending after each election of Councillors. A Supplementary Report is required in intervening years. The Report updates trends and reports on new environmental impacts and initiatives that have occurred or been introduced since the last Comprehensive Report.

This is the third Regional SoE Report supported by the Central West CMA. It builds upon the first (Supplementary) Regional SoE Report produced for 2007-08 and the second (Comprehensive) Regional SoE Report produced for 2008-09.

As this is a Supplementary Report, it primarily covers trends in environmental indicators and responses in 2009-10 and compares this to the previous two Reports. The 2008-09 Comprehensive Report should be referenced as the base document for detailed information particularly relating to environmental threats and background information (e.g. demographic and climatic data).

Why a Regional SoE Report?

Environmental issues are not restricted to Council boundaries. Regional SoE 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 initiatives presented in this Report for each participating Council do not reflect all of the initiatives undertaken by Councils during the reporting period. Furthermore, the format of the Regional SoE Report does not allow for each Council to identify progress on their environmental management and sustainability plans, which some Councils have previously included in their SoE Reports. Councils can append additional information specific to their Council to this Report, should they wish.

Councils are strongly encouraged to develop their SoE Report in partnership with other councils in their region and Catchment Management Authorities, as environmental monitoring and reporting is usually more useful when done at a regional and/or catchment scale.



ABOVE Looking over the Cudgegong Valley, Rylstone/Kandos



BELOW Snow can occasionally fall in the higher parts of the region (source: Orange Highland Vines and Gardens)

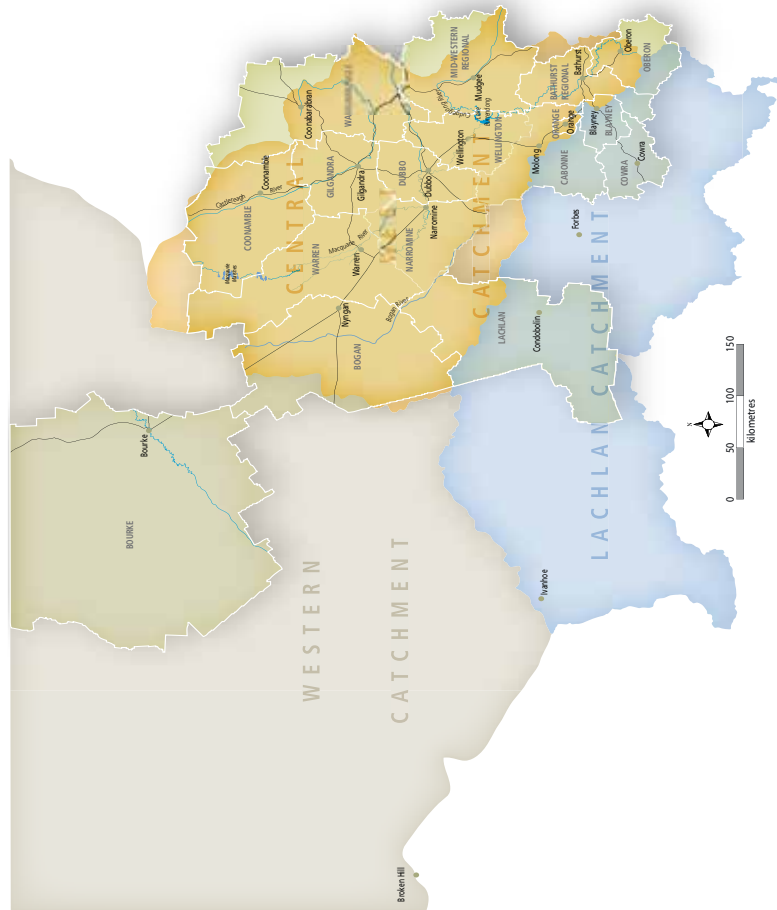


Figure 1 Map showing participating Council areas and catchment boundaries

Who is involved in the Regional SoE Report?

As shown in Figure 1, most of the participating Councils are situated, totally or partly, in the area of the Central West Catchment. Bourke Shire Council is located wholly in the Western Catchment while Coonamble and Orange lie in the Lachlan Catchment. Parts of Mid-Western Shire Council, Cabonne, Bathurst and Oberon lie within the Hunter-Central Rivers Catchment and parts of Warrumbungle lie within the Namoi Catchment.

- The participating Councils 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
- Narramine 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 the Report, with additional regional information sourced by the Central West CMA (see Appendix for details of data sources).

What are Catchment Management Authorities?

Thirteen Catchment Management Authorities (CMAs) have been established across the State by the NSW Government to ensure that regional communities have a significant say in how natural resources are managed in their catchments. The three CMAs covered or partly covered in this Report are:

- Central West CMA: www.cw.cma.nsw.gov.au
- Lachlan CMA: www.lachlan.cma.nsw.gov.au
- Western CMA: www.western.cma.nsw.gov.au

For more detailed information about the CMAs refer to the 2008-09 Comprehensive SoE Report or to their respective websites. The 2008-09 Comprehensive SoE Report can be found at <http://cw.cma.nsw.gov.au/Publications/resources.html>

Understanding this Report

Themes

As discussed above, this Report covers the 'traditional' themes used in NSW SoE reporting as required by legislation. These reporting themes have been integrated under the following themes for the Report:

- Land
- Air
- Water
- Biodiversity
- Human Settlements
- Waste
- Towards Sustainability.

The last theme ('Towards Sustainability') is a diversion from the traditional SoE reporting themes and reflects the desire for the participating Councils and CMAs to help move their local communities towards environmental sustainability.

Environmental issues

In 2009, each participating Council identified key environmental issues. These environmental issues were categorised and have been addressed under the themes as issues or sub-issues.

It should be stressed that the number of issues and sub-issues related to each theme does not reflect the importance of that theme

in comparison to other themes. However, it reflects more the range of disparate issues under each theme.

It should also be noted that although they are discussed primarily under one theme, several issues such as climate change, relate to other themes in the Report.

Environmental indicators

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 decision-making can be better informed.

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

The indicators for this Report are equivalent to those used in the 2008-09 Comprehensive Regional SoE Report. A list of Councils that provided data for each indicator is found in the appendix of this Report.

Where comparison with the 2008-09 data is possible, trends for the indicators are provided in a summary table at the commencement of each theme chapter. Some data in the 2008-09 summary tables in this Report is not identical to that shown for 2008-09 in the summary tables in last year's Report. This is due to either recalculation of the 2008-2009 data or a change in the Councils included in the comparison. The trends are highlighted as shown below:

- improvement
- no or little change
- worsening trend

There is an explanation for each trend within the chapter and, if relevant, possible reasons for it occurring.

Pressure-State-Response

The conventional way of reporting on each theme is using the 'Pressure-State-Response' model. This order has been modified to State-Pressure-Response in this Report to initially highlight the current situation. Wording has also been changed as follows: Pressure to 'Threat', State to 'Condition'.

Land

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

Land supports natural systems and is available to support a variety of human uses. Changes in vegetation and patterns of settlement and land use continue to be significant sources of pressure on Australia's natural and cultural environment. The landscape of the reporting area is diverse in character, including residential, agricultural, industrial and natural landscapes. However, a major issue in the region is land degradation caused primarily by soil erosion, salinity and contamination.

Issue - Land Degradation

Condition

Erosion
Erosion is a significant factor that influences water quality in our streams and habitat quality. Erosion generally occurs where land has been disturbed or where water concentrates, such as unsealed roads, roadsides and driveways, agricultural areas through cropping, land clearing and over grazing, industrial areas, stormwater outlets, where vegetation is otherwise removed and in waterways. Impacts from erosion include loss of arable land and habitat, weed invasion, soil loss, dust storms and sedimentation of waterways.

Indicator – Erosion affected area

The Central West CMA reports that there are 100,000 ha of bare erosion scald affected land occurring in the Marra Creek area near Nyngan. There is also active erosion throughout the catchment along streams and gullies but the area of this is unknown.

Salinity

While there are several causes of salinity (including irrigation and removal of vegetation), the effects on land resources can be significant regardless of the cause. Salinity changes the soil structure, increasing the erosion hazard. Limited vegetation will grow on saline areas, reducing feed for stock, habitat for native species and changing the local ecosystem. Salt also affects infrastructure such as roads and buildings which may result in high economic impacts for the local Council and community. Salinity levels in rivers are discussed in the chapter on Water.

A recent study (DECCW, 2009) of dryland salinity in the NSW part of the Murray-Darling Basin found that there were 18,559 ha of salt outbreaks in the Macquarie River catchment and 22,153 ha in the Lachlan River catchment. Of the 67 sub-catchments with salt outbreaks in NSW, the 27 highest ranked areas are all within the Macquarie, Lachlan and Murrumbidgee valleys.

Contamination

Contaminated land has the potential for immediate or long-term adverse effects on human health and the environment. Land contamination is usually the impact of past land uses such as service stations, fuel depots, horticultural facilities, orchards, sheep dips, agri-chemical dumps, pistol ranges, mines, landfills and gasworks. A site is classified as contaminated when hazardous substances occur at concentrations that are above normal background levels, posing a potential risk to human health or the environment. The NSW Department of Environment, Climate Change

Table 1 Summary table of indicator trends – Land Degradation

| Sub-issue | Indicator | 2008-09 | 2009-10 | Trend |
|---------------|--|---------|---------|-------|
| Contamination | Contaminated land sites – Contaminated Land Register | 6 | 7 | + |
| | Contaminated land sites – potentially contaminated sites | 858 | 848 | - |
| | Contaminated sites rehabilitated | 16 | 11 | - |

- + improvement
- = no or little change
- worsening trend

Note – the above trends are for data in 2008-09 and 2009-10 from the same sources. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2009-10 for which no comparison could be made with 2008-09. Refer to the Appendix for a list of Councils included in the trend data.

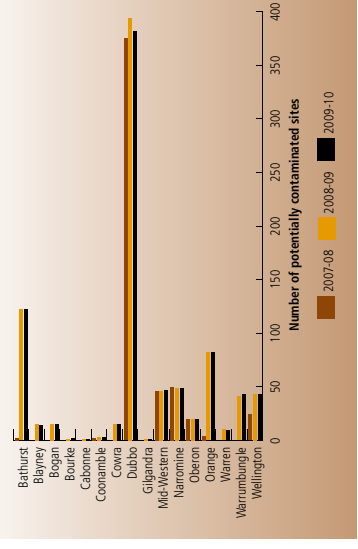


and Water (DECCW) maintains a register of contaminated sites (www.environment.nsw.gov.au/whoware/register.htm), and local Councils also register further contaminated sites such as old landfills. All participating Councils also maintain a list of potentially contaminated sites based on past land use.

Indicator – Number of contaminated land sites (Contaminated Land Register)
As shown in the summary table (Table 1), the number of sites on the contaminated land register in the region increased from 6 to 7 in 2009-10. There was one site in Bathurst Local Government Area (LGA) removed from the register, but two new sites were added to the register in Dubbo and Oberon LGAs. Currently there are three sites in Bathurst LGA, two in Dubbo and one each in Cowra and Oberon.

in the previous year and appears to indicate that Councils have become more aware of previously contaminated sites and are now including them on their registers so that these issues can be addressed should a change in land use warrant it.

Figure 2 shows the number of potentially contaminated sites in each of the 17 LGAs and makes comparisons for the last three years where reported by Councils.



Indicator – Number of potentially contaminated sites
In 2009-10, local Councils across the reporting region identified 848 potentially contaminated sites which is a slight decrease from 2008-09. This stabilisation follows large increases from Bathurst and Orange LGAs

Threat

Four main threats to the Land resources of the region are:

1. Land clearing
2. Poor agricultural practices
3. Inappropriate development and land use change
4. Climate change

Details about each of these threats are provided in the 2008-09 Comprehensive Report.

Response

Agricultural lands

A significant focus of CMA funding programs has been improving soil management in agriculture, not only for soil health but also to limit soil losses from impacts of stock, stormwater and flooding, and wind erosion. Targeted incentive funding for farmers has included increased groundcover percentages and improving soil tillage and improving the organic content of soils.

CASE STUDY: Central West CMA Farm Planning Program

In 2009-10, a successful teaching partnership was established between the Central West CMA and the Western Institute of TAFE which has developed and delivered a holistic 'Farm Plan' course throughout the catchment. The ten-day course creates a learning environment that encourages knowledge sharing, critical analysis, innovation and ownership of problems and solutions. The course is Farm Ready accredited so that land managers are able to claim an Australian Government training subsidy of up to \$1,500 to undertake the course. Farm Plan workshops were conducted at Nyngan, Dubbo, Warren and Bathurst involving 54 landholders delivered by eight TAFE teachers and 12 CMA staff. TAFE trained CMA staff in the Certificate IV 'Training and Assessment' course with on-going mentoring to improve their teaching skills. TAFE provided Registered Training Organisation (RTO) support as per Australian Qualifications Training Framework (AQTF) and obtained Farm Ready approval for the Farm Plan course.

- This project is being continued into 2010-11 and will incorporate:
- E-learning modules, so part or all of the course can be completed via a website link.
 - Farm Planning, which is now a mandatory requirement for most incentive funding and is fully integrated with other Central West CMA 'on-ground' incentive projects.
 - Multi-mode delivery to include accredited contractors to complete Farm Plans and 'Short Course' upgrades where existing Farm Plans do not meet current standards.



The broad Natural Resource Management (NRM) educational outcomes of the Farm Plan project include:

- Increased level of understanding of NRM within the Catchment
- Increased capacity and participation of land managers involved in NRM education programs and the practical application of NRM
- Increased perceived value of natural resources, thus increasing actions to protect, preserve and enhance our natural environment
- Improved management of natural resources throughout the Central West CMA catchment.

Bathurst farmer Michael Inwood demonstrates zero emissions farming with his solar powered ute and agrowplough combination

The Central West Catchment Action Plan (CAP) outlines management targets, which include: 'By 2016, 50,000 ha of the catchment will be managed to have a desirable perennial plant component for landscape protection (MTSS)'. The Central West CMA 2009-10 Annual Report notes that approximately 37,971 ha is now managed for perennial plants under landscape protection projects which is about 75% of the target.

The Central West CAP target of 'Best Management Practice implemented for soil health on 609,000 ha shows that 342,918 ha is covered to date. There is also over half of the area targeted for Integrated Property Management Plans covered to date.

Erosion

Indicator – Extent of erosion affected land rehabilitated

The Central West CMA reported that 574 ha of water ponding or water spreading projects were undertaken during the year to rehabilitate erosion affected land. In the Western CMA, 177 ha of rehabilitation projects are also in progress (due for completion in June 2011), although it is noted that this is a contraction from the previous year.

Contamination

Indicator – Number of contaminated sites rehabilitated

All 17 participating Councils reported on this indicator for 2009-10. They reported that 11 sites across the region have been rehabilitated. This is slightly less than the 16 sites reported as rehabilitated in 2008-09.

Salinity

Indicator – Extent of salinity affected land rehabilitated

The Central West CMA reported that salinity recovery actions were unfunded during 2009-10 except the Dubbo project in the case study and the Central West Salinity and Water Quality Alliance. The Western CMA reported that it had not funded any works directly

CASE STUDY: Dubbo Urban Salinity Landscape Interpretation Project

Dubbo City Council recently partnered with the Central West CMA and DECCW to develop salinity management tools for the Dubbo urban area through a project titled the 'Dubbo Urban Salinity Landscape Interpretation Project (DUSLIP)'. The project involved utilising Council's comprehensive data sources from its Urban Salinity Monitoring Bore Network to identify 20 different Hydrogeological Landscapes (HGL) within the urban area. Each of these landscapes have varied soil profiles and water movement processes which determine the likely salinity impacts. The process has also highlighted that excessive irrigation in the urban area is likely to be a major contributing factor to the salinity issues in Dubbo.

The innovative use of the Hydrogeological Landscapes (HGL) framework in the Dubbo urban environment has been a significant breakthrough in being able to provide detailed urban management actions to specific parts of the landscape. The HGLs enable:

- an understanding of how each particular landscape works
- explanation of the variability in landscapes within an area
- management actions to be prescribed
- risk and priority determination.

Council now has a range of mapping and information tools that can be applied in each of these landscapes to ensure that the correct management priority is used when and where appropriate. These management priorities include urban investigation, urban planning, urban construction, urban vegetation and riparian management. When applied to the correct landscape, these management priorities will assist Council to reduce the occurrence of salinity, reduce the impacts of salinity on infrastructure and influence behavioural practices within the community.

The project also involved modelling the five years of groundwater monitoring data and producing maps which highlight areas of shallow water tables.

related to salinity management. This appears to be a worsening trend when compared to the 89,011 ha of salinity affected land in the region which the Central West CMA reported as rehabilitated from 2005-2009.

Wiradjuri saying – 'Ngangaana-gu Kairai-billa's dya Kairai-billa's durrai ngangana ngindui 'Look after the land and the rivers and the land and the rivers will look after you'

(Cec Grant – 2001)



This chapter focuses on the condition of the air (atmosphere) in the participating Council areas. Globally, the condition of the air has been heavily scrutinised in recent times due to its potential impact on climate change.

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

Issue – Air Pollution

Condition

Regional Air Quality

Much of the regional air quality monitoring is confined to the Greater Metropolitan area

which includes Sydney, Wollongong and Newcastle. DECCW monitors at one site in the reporting region, Bathurst; however, ozone and particulates are the only air pollutants measured at this site (other sites also measure ozone, nitrogen dioxide, visibility, carbon monoxide and sulphur dioxide). Particulates can include particles, dust, smoke, plant spores, bacteria and salt. Particulate matter may be a primary pollutant, such as smoke particles, or a secondary pollutant formed from the chemical reaction of gaseous pollutants.

Human activities resulting in particulate matter in the air include mining, burning of fossil fuels, transportation, agricultural and hazard reduction burning, the use of incinerators, and the use of solid fuel for cooking and heating.

Particulate matter can be usefully classified by size. Large particles usually settle out of the air quickly while smaller particles may remain suspended for days or months. Rainfall is an important mechanism for removing particles from the air.

The size of a particle also determines its potential impact on human health. Larger particles are usually trapped in the nose and throat and swallowed. Smaller particles may reach the lungs and cause irritation there. Fine particles can be carried deep into the lungs and irritate the airways. When exposed to particulate pollution, people suffering from heart disease may experience symptoms such as chest pain, and shortness of breath. Particulate pollution can also aggravate

existing respiratory diseases such as asthma and chronic bronchitis.

Indicator - Number of days that air pollution maximum goals were exceeded

The graph for Bathurst (Figure 3) shows the number of days per year that particulate matter exceeded the National Environment Protection Measure (NEMPM) standard for PM10 particles which is an average daily reading of 50 micrograms per cubic metre. PM10 is used to define air particles that are up to 10 micrometers in diameter and are among the coarser particles that can be measured in air quality analysis.

The total of eight exceedances during the year increased from five in 2008-09 and continued a worsening trend since 2007-08. The main contributors to high PM10 particle levels in the region (including in Bathurst) are dust storms, bushfires and burn-offs.

Air Quality Complaints

Indicator - Number of air quality complaints to local Councils

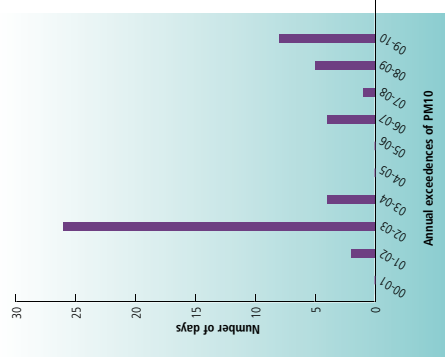
Indicator - Number of air quality complaints to the DECCW Pollution Line

As shown in the summary table (Table 2) at the start of this chapter, the number of complaints to the local Councils about air quality matters (not including odour issues) increased slightly in comparison to 2008-09, although complaints reported to the DECCW Pollution Line showed a significant reduction from 103 to 45 in the 2009-10 year. While some of these complaints could be the same as those sent to the local Councils, the data suggests an overall improvement despite the slight increase in complaints reported to local Councils.

There were a total of 112 air quality complaints received in 2009-10 from all 17 participating Councils. The types of air quality complaints across the Council areas are shown in Figure 4.

Dust and burn-offs were the main specified air quality complaints with complaints about woodsmoke also significant. Approximately half of all the air quality complaints were from

Figure 3 Number of days that air pollution standards were exceeded at Bathurst



Source: DECCW website

Dubbo which reported 25 dust complaints, 11 for woodsmoke and 17 from other sources which included horse manure, demolition, asbestos concerns and spray painting.

Odour

Indicator - Number of odour complaints received by Council

Indicator - Number of odour complaints received by EPA

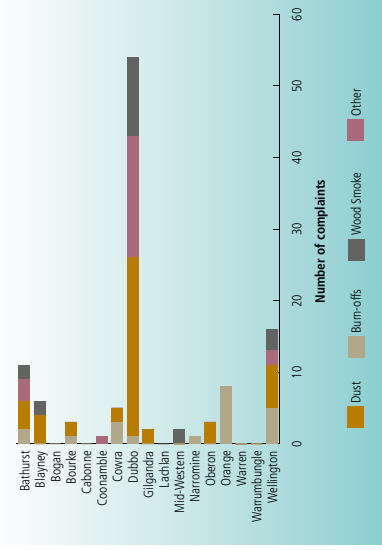


Figure 4 Types of air quality complaints to local Councils in 2009-10

Table 2 Summary table of indicator trends – Air Pollution

| Sub-issue | Indicator | 2008-09 | 2009-10 | Trend |
|--------------------------|---|---------|---------|-------|
| Regional air quality | Number of days that air pollution maximum goals for particulate matter were exceeded* | 5 | 8 | + |
| Air pollution complaints | Number of air quality complaints to the DECCW Pollution Line | 103 | 45 | - |
| | Number of air quality complaints to Council | 101 | 112 | + |
| Odour | Number of odour complaints received by Council | 120 | 89 | - |
| | Number of odour complaints received by DECCW | 25 | 89 | + |
| Industrial pollution | Number of premises on the National Pollution Inventory | 51 | 50 | - |
| | Number of Environment Protection Licences issued | 202 | 194 | - |

* Data collected at Bathurst – only monitoring station.

- ➕ improvement
- ➔ no or little change
- ➖ worsening trend

Note – the above trends are for data in 2008-09 and 2009-10 from the same sources. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2009-10 for which no comparison could be made with 2008-09. Refer to the Appendix for a list of Councils included in the trend data.

air and water pollution reported in last year's Report may have been reversed.

Indicator – Number of premises on the National Pollutant Inventory

As shown in the summary table (Table 2), the number of NPI (National Pollutant Inventory) industry pollution emitters in the region was effectively unchanged, with 51 in 2008-09 compared with 50 in the last NPI reporting period (2009-10).

Response

Fires

Hazard reduction burns and limiting the impact of smoke from these is managed by Bushfire Risk Management Plans, developed by the local Bushfire Management Committee (BFMC). The BFMCs are comprised of local land managers including local Councils, DECCW, the Land and Property Management Authority and the Rural Fire Service (RFS).

These plans now include assessment and management of environmental assets (threatened and vulnerable species, significant flora and fauna), as well as human settlement (buildings, properties, houses), economic assets (such as primary production land, commercial forests or tourist destinations) and cultural assets (Aboriginal or non-Aboriginal heritage areas and sites). Education is also a very important tool to reduce the impact of fire, and the media is used in peak seasons to raise awareness of fire risks (advertising, radio announcements, television advertising, risk indicators).

Emission of Air Pollutants

The majority of emissions are regulated by the PoEO Act, and while local Councils have some control over licensed premises in the LGA, many other sources are managed by State regulation. However, Councils may respond to air quality complaints and issue notices or warnings under the PoEO Act where they are the appropriate regulatory authority.

Several Councils are taking proactive steps to reduce woodsmoke impacts on air quality including direct funding for air quality improvement programs and also educating residents about ways to minimise woodsmoke.

CASE STUDY: Bathurst Woodsmoke Reduction Program

In 2004, Bathurst City Council received funding from the Department of Environment and Conservation to participate in a state-wide Woodsmoke Reduction Program. The aim of the project was to reduce the impact of woodsmoke on the community and the environment. Woodheaters produce large quantities of particulate matter which can create visible smog and impact upon human health.

The program provided funds for education regarding efficient woodheater use and incentive payments to encourage residents to replace older style woodheaters with less polluting heating alternatives. This initial program saw 86 woodheaters replaced in the Bathurst City area. From 2006 to the present, Bathurst Regional Council has allocated funds each year to continue the incentive program for the replacement of older style woodheaters. Under this self-funded program a further 85 woodheaters have been replaced, bringing the total to 171 in total. This has resulted in the abatement of up to 500 tonnes of particulate matter being emitted to the atmosphere.

Although Council is fortunate to have the only inland Air Quality Index measuring device located at the Waste Water Treatment Plant, this data is more greatly influenced by dry windy days (dust storms) and bush fires so correlations cannot be made between the reduction in woodheater use and a reduction in fine particulate matter. Notwithstanding this, the program is popular and is a useful tool for Council to educate the public about correct woodheater use, and the impact on human health and the environment associated with their use.



A typical older style woodheater which is often responsible for woodsmoke complaints.

Pollution Line in 2009-10 suggest an overall worsening trend for odour, particularly when the exceptional 2008-09 numbers from Dubbo and Warrumbungle are removed.

Figure 5 shows the number of odour complaints reported by each Council during the reporting period compared with 2008-09.

Threat

There are several threats to the air quality of the region including from dust storms, vehicles, solid fuel heaters, backyard burning, bushfires, agricultural activities (e.g. stubble burning, agricultural spray drifts) and commercial and industrial sources. More information about these threats can be found in the 2008-09 Comprehensive Report.

Industrial Pollution

Indicator – Number of Environment Protection Licences issued

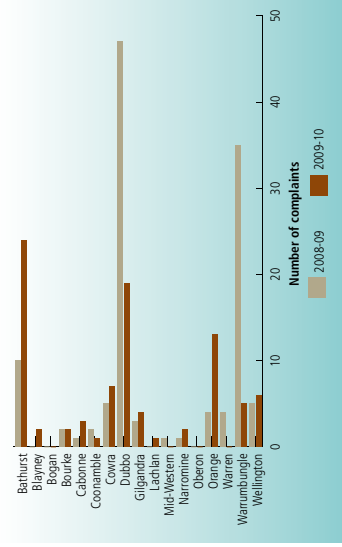
There are currently 194 active Environment Protection Licences (including air, water pollution discharges) for premises across the reporting area, as issued by DECCW under the Protection of the Environment Operations Act 1997 (PoEO Act). As shown in the summary table (Table 2), this is a reduction from the 202 active licences in 2008-09 which suggests that the worsening trend in the potential for

The 17 participating local Councils reported that there were 89 odour complaints received in 2009-10, down significantly from the 120 in 2008-09 across the reporting region. This overall reduction was due to significant drops in complaints in the Dubbo and Warrumbungle LGAs: both of these Councils reported unusual incidents in 2008-09 which were clearly not repeated in this year. Outside these two LGAs most Councils reported small increases in complaints, particularly in Orange and Bathurst LGAs (in Bathurst most of these relate to domestic animals, especially dogs, cats and chickens).

The large increase to 89 odour complaints from the region received by the DECCW

ABOVE Dust storm moves through the Upper Cudgegong Valley in the Central Tablelands

Figure 5 Number of odour complaints received by each local Council



Water

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

There are two main issues in relation to water demand is placing pressure on inland water in the reporting area. Firstly, the quantity of water is often variable within many rivers due to the periodic effects of drought and flood. Many rivers in Australia's south have been dammed to provide a reliable water supply for agriculture and urban use and increasing wastewater and stormwater.

Secondly, the quality of the water existing within the river and groundwater systems is also important, with threats arising from industrial, urban and agricultural pollution sources, as well as from treated wastewater and stormwater.

Table 3 Summary table of indicator trends – Water Quantity

| Sub-issue | Indicator | 2008-09 | 2009-10 | Trend |
|---------------------------|---|-----------|-----------|-------|
| Dam levels | Average dam levels | 17.4% | 12.4% | + |
| | Number of irrigation licences from surface water sources | 6,279 | 5,002 | + |
| Water extraction | Volume of surface water permissible for extraction under licences | 1,519 GL | 1,397 GL | + |
| | Actual volume extracted through surface water licences | 130 GL | 135 GL | + |
| | Number of bore licences from groundwater resources | 21,667 | 26,321 | + |
| | Volume of groundwater permissible for extraction under licences | 404 GL | 417 GL | + |
| | Number of water sharing plans implemented | 22 | 25 | + |
| | Total number of serviced properties | 75,469 | 76,048 | + |
| Town water consumption | Total number of unserviced properties | 11,938 | 18,520 | + |
| | Annual metered supply | 25,981 ML | 25,225 ML | + |
| | Annual consumption (Total from WTPP) | 29,911 ML | 29,059 ML | + |
| | Average annual household use (kL/household) | 329 kL | 304 kL | + |
| Council water consumption | Average level of water restrictions implemented | 1.5 | 1.4 | + |
| | Area of irrigated Council managed parks, sportsgrounds, public open space | 793 ha | 791 ha | + |
| | Water used by council for irrigation (including treated and untreated) | 1,161 ML | 719 ML | + |

- + improvement
- + no or little change
- + worsening trend

Note – the above trends are for data in 2008-09 and 2009-10 from the same sources. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2009-10 for which no comparison could be made with 2008-09. Refer to the Appendix for a list of Councils included in the trend data.

Issue – Water Quantity

Condition

Continued demand for surface water and the lack of rainfall (drought) for most of the reporting period has placed significant pressure on not only town water supplies but also water licences and allocation for agriculture and industry.

Indicator – Average dam levels

Dam storage levels indicate both the current rainfall and the pressures that water consumption place on water storages. Four dams in the region – Carcoar, Windamere, Wyangala and Burrendong – were used to indicate dam levels. As shown in the summary table (Table 3), the average level for the total of these dams fell from 17.4% capacity in 2008-09 to 12.4% in 2009-10. The low figures for both years indicate the extended drought across the region.

Wyangala and Carcoar dams continued to be particularly hard hit with average levels for 2009-10 at 6.4% and 7% respectively. There was however some optimism with more rain in 2010 starting to lift levels from their summer lows in the region's two largest dams: Burrendong and Wyangala. Good rains during the winter bode well for increased dam capacities for 2010-11.

Although there were low dam levels throughout 2009-10, Bourke LGA and Coonamble LGA were threatened by floods during the reporting period. Flood warnings were put in place for numerous rivers in NSW, including a Major Flood Warning for the Castlereagh River downstream of Coonamble, from heavy storms that dumped rain across the region from Christmas to mid-January. An evacuation order was issued by the SES on 2 January 2010, via the new Emergency Alert System to residents in north and east Coonamble and those inside the levee.

In mid-March floods from Queensland made their way into northern western NSW cutting off roads and isolating farms and communities for up to six weeks. Residents were warned to prepare for evacuation in Brewarrina, Bourke and Walgett Shires and

towns that were cut off included Goodooga, Paroo, Wanaaring, Angledool, Lightning Ridge, Bourke and Weilmoringle. Residents from Goodooga and Weilmoringle were evacuated by SES crews.

Swollen rivers including the Paroo, Warego, Darling, Bokhara, Culgoa, Birrie and Narren Rivers inundated tens of thousands of hectares, from Walgett to the Queensland border and west towards Bourke. Bourke and Walgett were later declared natural disaster zones. Many of the towns were protected from inundation by levee banks, but there was particular concern for a number of rural properties which could potentially be flooded or isolated for an extended period of time.

Although the floods caused short-term disruptions, these were far outweighed by benefits to the environment (e.g. replenishing wetlands), the economy and communities (e.g. through increased water availability).

Threat

Surface and Ground Water Extraction

Irrigation places significant pressure on water resources. While many irrigators have had low levels of water allocation over the past year, historically over allocation of water licences has seen additional stress placed on aquatic habitats such as the Macquarie Marshes despite the requirement for environmental flows. The demand for groundwater extraction, particularly for irrigation, is increasing and placing additional pressure on aquifers and ecosystems.

Indicator - Number of irrigation licenses from surface water sources

Indicator - Volume of surface water permissible for extraction under licenses

A significant reduction in the number of surface water irrigation licences from 6,279 to 5,002 was reported in 2009-10 compared to 2008-09. The fall in the number of licences was accompanied by a smaller decrease in the amount of surface water permissible for extraction under licences from 1,519 GL to 1,397 GL, which indicates that the licences taken out of the system were mostly for smaller allocations. However, the overall



being included in the numbers reported or if it reflects a rush by landholders to replace dwindling surface water resources with bore water.

Town Water Consumption

Reticulated water consumption is relatively small in comparison to that used for irrigation. In the region it accounts for about four percent of water consumption compared with 88% used for irrigation and eight percent for stock and domestic use (Murray Darling Basin Committee, 2007). Nevertheless, with many towns and regional centres growing, there are increasing pressures on water used for town water supplies.

Indicator – Annual town water consumption (total from WTP)

Indicator – Annual metered water supply

Household water use is an indicator of the pressure on water resources, particularly in times of declared drought. As shown in the summary table (Table 3), the annual town water consumption as measured from water treatment plants decreased slightly from 2008-09 to 2009-10 for the local Councils that reported in both years, continuing the trend reported last year. This may have been in response to increased rainfall in the second half of the reporting year, water restrictions and community water saving programs related to the drought in most areas or to other initiatives such as Mid-Western Regional Council's tiered water charges.

Figure 6 provides a breakdown of water consumption across the region in 2009-10 compared with water use in 2007-08 and 2008-09. For most centres water consumption has decreased whilst in a few LGAs such as Blayney, Cowra and Wellington, it has increased.

As shown in Table 3, the annual metered water supply has also decreased marginally across the region but slightly less (2.9%) compared with the reduction in total town water consumption (3.9%).

Indicator – Average annual household use

As shown in Table 3, the data for average annual water use per household across the

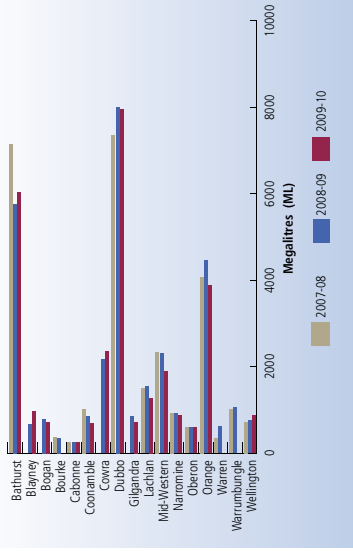


Figure 6 Annual town water consumption across the LGAs

reporting region shows a decrease in 2009-10 compared with 2008-09, continuing the trend reported last year. It will be interesting to see if this trend can be maintained as drought conditions across the region ease. Long-term predictions are still for tightening of water availability and reductions in household water consumption will be necessary to counteract the overall trend of slowly rising population for the region.

Indicator – Total number of serviced properties

Indicator – Total number of unserviced properties

As shown in the summary table (Table 3), the number of properties serviced by town water has continued the increased trend reported in previous years. This expansion of the reticulated systems will increase pressure on water supplies and thus is seen as a worsening trend for this indicator, unless more water sensitive urban design practices are adopted in new developments.

The Councils in the region have also reported a large increase in the number of unserviced properties: up from 11,938 in 2008-09 to 18,520 in 2009-10. This large increase probably reflects changes in reporting practices but even if the actual increase is significantly smaller, as more of these dwellings are connected to the reticulated system they will further increase the pressure on water supplies.

Indicator - Volume of groundwater permissible for extraction under licences

Groundwater is an important natural resource across the reporting region, and the volume of water stored in the watertable vastly exceeds the volume of fresh surface water resources (Western CMA, 2007).

In contrast to surface water, the number of licences for extraction of bore water showed a 21.5% increase to 26,321 across the region in 2009-10 compared to the previous year. This was accompanied by a much smaller increase in the volume permissible for extraction under these licences from 404 GL to 417 GL. Note that it is difficult to ascertain levels of groundwater extraction as a relatively low proportion of bores in the region are metered. It is not clear if these changes are due to improvements in the licencing regime for bores resulting in many more small bores

reduction in the licenced volume should have a long-term beneficial impact on water availability in the region as the systematic over-allocation of water in NSW begins to be addressed.

Indicator - Annual volume extracted through surface water licences

The amount of surface water extracted rose slightly from 130 GL to 135 GL in 2009-10 which probably reflects the slight easing in drought conditions in some areas towards the end of the reporting year, resulting in small increases in allocations to some irrigators. However, this number is still less than 10% of the volume permissible for extraction under current licences and should be set in context against the 232 GL extracted in 2005-06.

Indicator - Number of bore licences from groundwater resources

Council water consumption

Due to the large number of services they provide, local Councils are large users of water in comparison to most businesses and households. Their efficient use of water is therefore critical to overall water consumption as well as their important role in educating and leading the community in water use minimisation.

Indicator – Area of Council managed parks, sportsgrounds and public open spaces

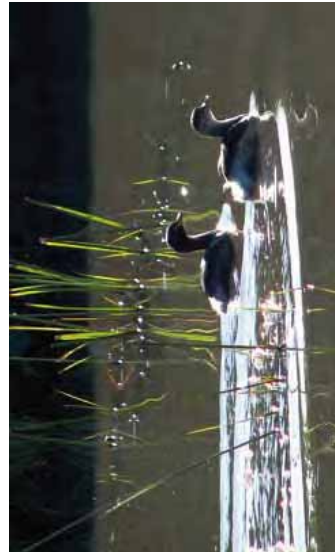
Indicator – The area of irrigated Council managed parks, sportsground and public open space

As a potentially significant use of water, the area of irrigated Council facilities provides an indication of high water demand. As shown in the summary table (Table 3), there was little change in the total area of recreation facilities that were irrigated by the local Councils reporting in both years across the region.

Indicator – Treated and untreated water used by Council for irrigation

As shown in the summary table (Table 3), the amount of water used (treated and untreated) for irrigation by the nine local Councils that reported in both years, showed a significant decrease in 2009-10 compared with 2008-09. This reduction is a reflection of the extent of the drought across the region but also may show a potential improvement in the water management practices of some local Councils.

BELOW Some of Gilgandra's species of water birds.



Response

Environmental Flows

The continuing drought has meant that there had been little water for environmental flows over the last few years which has led to significant stress being placed on some natural environments in the region. One of the hardest hit areas has been the Macquarie Marshes which is an internationally significant wetland listed under the Ramsar Convention as a site of global ecological significance. The restoration of this important waterbird breeding site will be a long-term project but there was some relief in the current reporting year with DECCW reporting that 19.2 GL were released down the Macquarie River for the Macquarie Marshes.

Purchasing water to protect and restore river systems and wetlands in the Murray Darling Basin (including the reporting region) has been underway since 2007. To the end of the reporting period in the Macquarie-Bogan catchments, 57,631 ML of general security water entitlements was purchased from irrigators by the Federal Government. The Federal Government has purchased 81,671 ML of general security water in the Lachlan catchment.

Surface and Ground Water Extraction

Indicator – number of water sharing plans implemented

Changes to State legislation commenced in 2004 and have culminated in new river regulations such as Water Sharing Plans. These plans include environmental flows to help maintain riparian and aquatic health even when flows are low due to extraction and drought.

As shown in the summary table (Table 3), the number of water sharing plans implemented in the region has increased from 22 in 2008-09 to 25 in 2009-10 with plans now implemented in 11 of the 17 LGAs in the region.

Narramine LGA has the greatest predominance of water sharing plans in the region with a total of eight plans in place, comprising one for regulated water and seven for groundwater.



of new tanks. The Federal Government also offers rebates for rainwater tanks which are plumbed back to the laundry/toilet.

Indicator – Level of water restrictions implemented

As shown in the summary table (Table 3), the average level of water restrictions implemented across the region in 2009-10 was essentially unchanged, although restriction levels were increased in the Lachlan, Narramine and Cabonne LGAs compared to 2008-09. Additionally, some of the Councils reporting no formal restrictions have implemented voluntary programs such as the 'odds and evens' watering program in the Bathurst LGA and the water conservation plan in place in Bogan Shire. Note that there are generally standard restrictions along the Macquarie River through the Lower Macquarie Water Utilities Alliance and the Bathurst-Orange-Dubbo Alliance.

Town Water Consumption

Councils in the region are responding to pressure on water resources by implementing a number of programs. For example, Lachlan Council has followed up Water Wise television campaigns on WIN and Southern Cross television with Water Wise pamphlets delivered to all residents. It also ran grant funded projects such as the Fifield Rainwater Tanks supply and installation.

Bathurst Regional Council commenced a new toilet rebate program in May 2010. Bathurst-Orange-Dubbo Alliance ran a Water Audits Program with local businesses.

These local programs are in addition to the NSW State Government administered rebate programs to encourage residents to install rainwater tanks and to switch to more water efficient toilets and washing machines. Take-up of rainwater tanks has been encouraged by BASIX requirements and by several Councils offering no fees on Development Applications for installation

ABOVE Irrigation places significant pressure on water resources

CASE STUDY: Regional Stormwater Harvesting Schemes at Orange and Oberon

There are several current and upcoming stormwater harvesting schemes in the Central West Region which aim to reduce the pressure on water supplies.

Orange City Council:

Council has recently commenced construction of the Ploughmans Creek Stormwater Harvesting Scheme. This scheme will transfer a portion of the stormwater flows from the Ploughmans Creek Catchment into Suma Park Dam where it will supplement the City's raw water supplies and will complement the recently completed Blackmans Swamp Stormwater Harvesting Scheme.

Urban development in the Ploughmans Creek Catchment has increased the average volume of runoff by 880 ML per year. This proposal seeks to add up to approximately 700 ML (17% of current usage) to Suma Park Dam annually.

The scheme consists of four wetlands to provide stormwater quality and quantity controls, a stormwater retarding basin, two small v-notch weirs and associated pumps to pool and harvest stormwater flows and associated pipeline infrastructure to connect to the existing stormwater harvesting facility.

The four wetlands are located at Cargo Road, Escort Way, Sommerset Park and Burrendong Way. The wetlands are multi-functional stormwater management systems that will improve stormwater quality, provide habitat diversity and create recreational areas. Improving the habitat value of the area and attracting a diverse

range of wildlife is a primary objective of the wetlands. A variety of plant types will help encourage diverse wildlife and consequently the wetlands will be planted with several species of aquatic plants. Adjacent areas will complement the wetland habitat and be planted with shrubs and trees to fulfill this function. The wetlands will provide a variety of niches to support feeding, nesting and breeding, with features such as irregular shorelines, variety of water depths, wide vegetated buffers, plant diversity and maintenance of stable water levels.

The project is envisaged to be completed by September 2010.

Oberon Council:

Oberon Council is establishing a stormwater harvesting scheme, which is currently at the concept stage, following the allocation of \$2.25 million in funding grants.

The works will include a 25 ML storage dam, a pump station, a rising main between Queen Street, Oberon and Carter Holt Harvey land, a package water treatment plant and pump station and delivery lines to the Oberon Timber Complex. The aim of the project is to enable the collection of 200 ML of stormwater and reuse it at the Oberon Timber Complex thereby reducing its reliance on town water for process works.

A constructed wetland as part of Orange City Council's Ploughmans Creek Stormwater Harvesting Scheme



Issue – Water Quality

Condition

Surface water and groundwater quality

Indicator – E.coli - Percentage of samples exceeding ANZECC guidelines

E.coli is found in the intestines of animals and does not originate from other environmental sources. For this reason, E.coli is a highly specific indicator of faecal contamination in drinking water. As shown in the summary table (Table 4), there was a decrease in the percentage of samples that exceeded ANZECC water quality guidelines (and thus an improving trend in this

indicator). Note that the ANZECC guideline used here is for raw human food crops (e.g. lettuces) in direct contact with water or for watering of pasture/fodder for dairy animals with no withholding period.

Figure 7 shows the percentage exceedances of this ANZECC guideline from the reporting Councils. It shows that many of the streams in the region have high E.coli readings which have implications for drinking and recreation. The reasons for these exceedances could include stock watering close to and in streams, poorly treated sewage and discharge from unregulated septic systems. Note that the indicator does not reflect on the quality of drinking water supplied for town water from treatment plants.

Table 4 Summary table of indicator trends – Water Quality

| Sub-issue | Indicator | 2008-09 | 2009-10 | Trend |
|------------------------------------|---|----------|----------|-------|
| Industrial/ agricultural pollution | Percent effluent reuse by Councils | 51% | 61% | + |
| | Exceedances of licences discharge consent recorded | 24 | 23 | + |
| | No. of trade waste approvals | 392 | 400 | + |
| | Total volume of trade waste discharged to sewer | 1,391 ML | 1,368 ML | + |
| | Erosion & sediment control complaints received by Council | 68 | 134 | - |
| Stormwater pollution | Trade waste licences in force currently | 687 | 691 | + |
| | Number of gross pollutant traps installed | 59 | 61 | + |
| | Volume of litter collected in GPTs | 387 t | 1,167 t | - |
| Town water quality | Total catchment area of GPTs | 4,885 ha | 4,812 ha | + |
| | Number of instances drinking water guidelines not met | 120 | 144 | - |
| | Number of drinking water complaints | 1,021 | 459 | + |
| Surface & ground water quality | Total Nitrogen – Percentage samples exceeding ANZECC guidelines for algal growth | 2% | 2% | + |
| | Total Phosphorus – Percentage samples exceeding ANZECC guidelines for algal growth | 66% | 56% | + |
| | E.coli – Percentage samples exceeding ANZECC guidelines for irrigated crops and dairy | 43% | 35% | + |
| Waste water treatment | Number of septic tanks in LGA | 19,910 | 20,486 | - |
| | Number of septic related complaints | 37 | 28 | + |

- ➕ improvement
- ➖ no or little change
- ➔ worsening trend

Note – the above trends are for data in 2008-09 and 2009-10 from the same sources. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2009-10 for which no comparison could be made with 2008-09. Refer to the Appendix for a list of Councils included in the trend data.

Indicator – Total Nitrogen - % of samples exceeding ANZECC guidelines

Indicator – Total Phosphorus - % of samples exceeding ANZECC guidelines

The nutrients nitrogen and phosphorus are essential for plant growth. High concentrations indicate potential for excessive weed and algal growth (including noxious blue-green algae).

As shown in the summary table (Table 4), there was an improvement in the percentage of samples that exceeded the total phosphorus ANZECC water quality guidelines for algal growth, although the 56% this year was still high compared to 41% in 2007-08.

The percentage of samples that exceeded the total nitrogen ANZECC water quality guidelines for algal growth was unchanged and is much lower than for phosphorus.

Town Water Quality

Indicator – Number of drinking water complaints

Indicator – Number of instances drinking guidelines not met

As shown in the summary table (Table 4), the number of drinking water complaints (for the 16 Councils reporting in both years) decreased significantly from 1,021 in 2008-09 to 459 in 2009-10. For the eight Councils that reported in all of the last three years, the number of irrigated crops and dairy

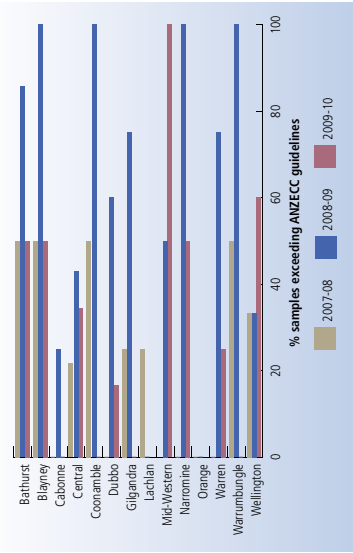


Figure 7 Percentage of *E. coli* samples exceeding ANZECC guidelines for irrigated crops and dairy

complaints fell to 332 compared to the 620 reported last year and the 429 complaints recorded in 2007-08.

The quality of drinking water is very important to the community and this reduction in the number of complaints made regarding water quality is somewhat tempered by the fact that the number of instances where drinking water guidelines were not met increased from 120 to 144 in 2009-10. Bourke, Dubbo, Mid-Western and Narramine Councils all reported significant increases.

The one positive change was in Warrumbungle LGA where the number of instances drinking water guidelines were not met in 2008-09. The Mendooran water supply has had longstanding issues with quality which have now been resolved with the new water filtration plant coming online earlier in the year.

Threat

Industrial/Agricultural Pollution

Indicator – Erosion and sediment control complaints received by Council

One measure of the threat to waterways from sediment pollution is the number of erosion and sediment control complaints received by the local Councils. The complaints can range from sediment spilling out of construction sites to obvious plumes of sediment flowing into streams.

As shown in the summary table (Table 4), the number of complaints almost doubled to 134 for those Councils that reported in 2008-09 and 2009-10. This increase was due to complaints regarding erosion/sediment control for roads reported by Gilgandra Council (64) and Mid-Western Regional Council (14) as a result of better reporting methodologies.

Indicator – Load based licensing volume and fees paid

The load-based licensing (LBL) scheme sets limits on the pollutant loads emitted by holders of environment protection licences, and links licence fees to pollutant emissions. LBL is a powerful tool for controlling, reducing and preventing air and water pollution in NSW.



For the 12 Councils reporting in 2009-10 and in 2008-09, both the LBL volume and the LBL fees paid increased by approximately 30% with total volume in 2009-10 of 134,075 kg of pollutants and fees of \$189,862. These numbers suggest a worsening trend with the increased pollutant loads posing a threat to the environment.

Indicator – Number of trade waste approvals

Indicator – Total volume of trade waste discharged to sewer

Indicator – Trade waste licenses in force currently

Councils have a number of statutory responsibilities for the approval of liquid trade waste discharged to the sewerage system under the *Local Government Act 1993*. Liquid trade waste means all liquid waste, other than sewage of a domestic nature. As shown in the

summary table (Table 4), the total number of trade waste approvals in 2009-10 reported from all of the participating Councils was almost unchanged at 400 compared with 392 in 2008-09, whilst the number of trade waste licences in force also was similar in both years.

The total volume of trade waste discharged to the sewer was almost unchanged with 1,368 ML discharged to the sewer in 2009-10 across the eight LGAs reporting in both years.

Septic tanks

Indicator – Number of septic tanks in LGA

There are an estimated 20,500 septic systems in use across the region (see Figure 8) and as shown in the summary table (Table 4) this number has increased since 2008-09.

If poorly maintained, septic systems can be a source of nutrients to local streams and potentially cause problems such as blue-green algae blooms and issues for public health.

ABOVE Water quality monitoring in Dubbo

(Table 4), the number of septic related complaints decreased for those Councils that reported in both years. Some Councils, such as Dubbo City Council, have strategies to monitor and educate users in the management of septic systems.

Salinity

Land use has a significant impact on the level of salinity in streams through removal of vegetation, irrigation and discharges of saline water. While geology, topography and prevailing weather conditions also affect salinity, land use is a primary factor that affects mobilisation of salts into waterways and through soils. Salt generally degrades aquatic habitats as well as adversely impacting on soils and the crops and vegetation utilising those soils.

Due to the nature of the Macquarie River, most salt generated in the uplands and slopes is deposited back into the landscape through irrigation, floodplain entrapment or deposition

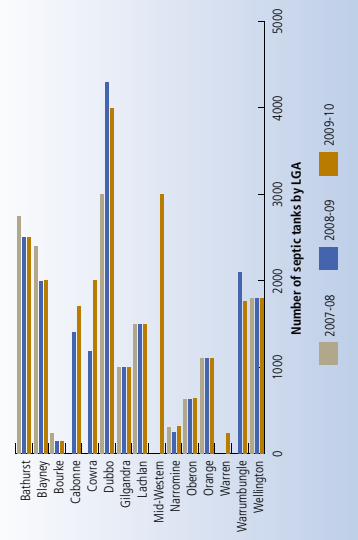


Figure 8 Number of septic tanks by LGA

Indicator – *Septic related complaints*

One way to gauge problems related to the management of septic systems is through the number of septic related complaints to Councils. As shown in the summary table



within the wetlands and effluent systems of the lower catchment areas.

A proportion of the salt is also discharged into the Barwon-Darling River system. Salinity in the Barwon-Darling is highly variable and can range from 200 EC to more than 3,000 EC, although the median is generally around 500 EC (Western CMA, 2007).

The levels of salt load in the Macquarie River are expected to rise by 2.33% by 2020 and by 2.88% by 2050. The Lachlan River salt loads are predicted to rise by lower levels: 1.11% by 2020 and 1.81% by 2050 (DECCW, 2009).

The Macquarie River at Warren averaged 307 EC units toward the end of the reporting period (compared with 392 EC units during the same period in 2008-09). The Castlereagh River at Gungahlin averaged 170 EC units towards the end of the 2009-10 reporting period.

Response

A Priority Action Plan has been developed as part of the NSW Diffuse Source Water Pollution Strategy. It identifies agreed projects that will be progressed across NSW (including the reporting region) to help improve management of priority diffuse source water pollution problems.

The Central West CMA has supported a water quality monitoring program across the Councils. Data is collected by Council officers on a six-monthly basis and is provided to the CMA, which collates the data (note that this data is used in this Report). This data is also used by the Salinity and Water Quality Alliance, a working group of Councils across the catchment sharing knowledge, ideas and engaging in cooperative projects to improve water quality outcomes across the catchment.

Effluent reuse

Indicator – Percentage effluent reuse by local Councils

Effluent discharge contributes nutrients and can deoxygenate receiving waters. Reuse of effluent not only reduces the impact of effluent on receiving waters, but also reduces the demand for potable water (if the water is not used for irrigation) and therefore the need for additional dam storages. As shown in the summary table (Table 4), those Councils that

reported effluent reuse schemes in 2008-09 had increased reuse of effluent in 2009-10. Of the reporting Councils, eight reused effluent during the reporting period which is also an increase from the seven who reported reuse in 2008-09.

CASE STUDY: 'Frog Hollow' Wetland Project, Gilgandra

The 'Frog Hollow' wetland project has been undertaken by a partnership between Gilgandra Shire Council, the Area Health Service and the Central West CMA. This project utilised Water Sensitive Urban Design (WSUD) techniques to improve stormwater quality (through wetland treatment), reduce run-off from the site and provide the community with a passive recreational area. A large proportion of Gilgandra's stormwater flows into the Frog Hollow wetlands, through a series of open channels vegetated with exotic and native grasses. The wetlands produce an improved quality of water downstream as they act as a natural water filter.

The 12 month, \$43,000 project was initiated after the construction of a Multi Purpose Service (MPS) building (replacing a former hospital) upslope of the Gilgandra Coose Lodge Retirement Complex. This MPS building has a much larger impervious footprint than the previous hospital, resulting in frequent flooding of the Retirement Complex. By collecting, storing and treating stormwater flows, the wetland has minimised flooding to the retirement village. The wetland has also been incorporated into the school curriculum at Gilgandra High School as a learning tool for students. With the recent additions of walking trails and interpretative signage, the site is now also used as a recreational area for locals and tourists.

The project demonstrates that with support from partnerships and the integration of WSUD techniques, a wetland based project can resolve a local problem and provide a number of opportunities for the community at large.



The Frog Hollow Wetland site, Gilgandra.

Stormwater Pollution

Indicator – Number of gross pollutant traps installed

a Council response to litter impacts. These devices trap larger pollutants such as litter and coarser sediments in stormwater drains and outlets, but they do not trap smaller particles and heavy metals. While there are ongoing costs associated with maintenance and cleaning of these traps, there are significant benefits to aquatic ecosystems and the visual improvement of waterways plays a significant role in community awareness of Council environmental programs.

Indicator – Total catchment area of gross pollutant traps

Indicator – Volume of litter collected in gross pollutant traps

Litter collected in gross pollutant traps (GPTs) provides an indication of potential water quality impacts. Installation of GPTs is

reported in both years. Sixty-one GPTs were reported to have been installed by 15 Councils to date.

The total catchment area that drained to the GPTs was almost unchanged with the small reduction compared with 2008-09. This probably was due to a change in calculation of the area by Councils rather than a real reduction in the area draining to the GPTs.

The volume of litter collected in the GPTs in the reporting LGAs showed a very large increase from 387 tonnes in 2008-09 to 1,167 in 2009-10. This change was almost entirely explained by an increase in the

volume of litter collected in Orange City Council's GPTs and to a lesser extent by a smaller increase reported by Mid-Western Regional Council.

Indicator – Number of Erosion and Sediment Policies Implemented

This is a new indicator for 2009-10 which simply tracks which Councils have implemented an erosion and sediment control policy. Only six of the 17 Councils in the region currently have a policy in place with a seventh (Bourke) working on a draft policy.

CASE STUDY: Millthorpe Riparian Biodiversity and Stormwater Improvement Concept Plan, Blayney

Blayney Shire Council has been attempting to address the issue of flooding in the subway under the Main Western Railway at Millthorpe that has been of considerable inconvenience to Millthorpe residents for some years. Millthorpe residents have identified the need for kerb and gutter to be constructed to address the issue of stormwater on roads, however this is in direct conflict with the heritage values of the Village as a Heritage Conservation Area.

After revisiting the subway site, it was identified that the main issue with the subway drainage was the blocked main discharge pipe alongside the railway embankment. Council staff were concerned that removing the blockage would only exacerbate scouring of the railway embankment and redirection of the discharge was a more suitable alternative.

The redirection required the removal of an existing farm dam and a significant willow infestation. Once this was identified Council staff determined it appropriate to raise the matter with the Central West Catchment Management Authority to seek a suitable way forward.

At a meeting held between both the Lachlan and Central West Catchment Management Authorities and Council staff, it was decided that Council should scope out a project with a more holistic approach to stormwater and riparian biodiversity in the Village of Millthorpe.

The project also included identification of native plant species local to the area, both through a review of documentation and an inspection of remnant vegetation sites, that would be suitable for riparian restoration works to be carried out as part of the overall project.

The project identified the need to:

- upgrade drainage channel works alongside the 'dog run' in Glenorie Road to provide for improved stormwater treatment and opportunities for users of the 'dog run'.
- undertake augmentation to pipe work to address the subway drainage problem and provide for improved riparian and biodiversity outcomes with the construction and planting out of a 'swampy meadow' wetlands in place of the existing farm dam.
- consider stormwater reuse for irrigation on the Redmond Oval playing field with the capture and treatment of stormwater runoff upstream of the playing field.
- consider options for retro fitting of water sensitive design components in the existing urban area, with the aim of achieving best practice stormwater pollutant reduction targets and reducing the demand for "hard" engineered solutions, in keeping with the historic nature of the Village.

This project will commence in 2010-11.

The subway under the Main Western Railway at Millthorpe following rain



Biodiversity

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

There are a wide variety of ecosystems across the reporting region, formed by interactions across a range of factors including soils, local climate, vegetation types, and disturbance by activities such as farming and water availability. Habitat loss and degradation is an issue in the region, particularly through activities such as poor land use planning and management practices, inappropriate fire regimes, development and pest and weed invasion. This can result in a loss of species or changes in species composition, such as threatened ecological communities. This issue of decline is increasingly being recognised by farmers and others in the community and is being incorporated into the evolving natural resource management response.

Issue – Loss of Biodiversity

Condition

A recent study by Goldney, Kerle and Fleming (2007) examined the condition of flora and fauna in the Central West Catchment. By combining information about remnant vegetation and its condition and the status of the fauna with a range of landscape indicators about the health of the land, the study developed an indication of landscape condition across the catchment. The study found that the eastern half to two-thirds of the Central West Catchment is in poor condition and most of the remainder is in moderate condition.

Some areas have a high level of remnant vegetation but the condition of that vegetation, much of which is heavily grazed, reduces the condition value.

Indicator – Addition to National Park

Indicator – Area of State Forest in the LGAs

The area of land that is placed under protection, or reserved, may be considered an indicator of the amount of protected habitat available in the Council area. However many types of habitat are not well represented in the reserve system, as reserves tend to be on land that has low economic value rather than land that has representative (ecological) value.

In 2009-10, 22,605 ha were added to the National Park estate within the reporting region. Additions were made in Pilliga West Community Conservation Area, Kanangra-Boyd National Park, Gundabooka State Reserve and Ledgeknapper Nature Reserve and Goulburn River National Park. Abercrombie River State Conservation Area was gazetted during 2009-10.

The reserved land under State Forests includes both native forests and plantations. Although managed in a variety of different

Table 9 Summary table of indicator trends - Biodiversity

| Sub-issue | Indicator | 2008-09 | 2009-10 | Trend |
|--------------------|---|--------------|--------------|-------|
| Habitat loss | Vegetation protected and rehabilitated through Central West CMA incentive funding | 72,143 ha | 7,583 ha | + |
| | Addition to National Park estate | 711 ha | 22,605 ha | + |
| Threatened species | Proportion of Council reserves that are bushland/remnant vegetation | 53% | 53.5% | + |
| | Habitat areas revegetated | 244 ha | 294 ha | + |
| Invasive species | Environmental volunteers working on public open space | 14,257 hours | 14,520 hours | + |
| | State Threatened species listed for CW catchment | 117 | 119 | + |
| Riparian | Number of declared noxious weeds | 112 | 116 | + |
| | Riparian vegetation recovery actions | 38 | 12 | + |
| Roadside | Riparian vegetation recovery area | 1,626 ha | 1,793 ha | + |
| | Roadside vegetation management plans | 5 | 6 | + |

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

Note – the above trends are for data in 2008-09 and 2009-10 from the same sources. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2009-10 for which no comparison could be made with 2008-09. Refer to the Appendix for a list of Councils included in the trend data.

ways across the region, they do provide larger areas of habitat in what is otherwise a highly cleared landscape.

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

In 2009-10, 53.5% of the 6,022 ha of Council reserves were bushland or remnant vegetation, across the 11 Councils which provided data for this indicator. This indicator measures the amount of habitat available in those reserves managed by local Councils and is essentially unchanged from last year.

Threatened species

There are numerous Threatened Species and Endangered Ecological Communities (EECs) across the region. Box-Gum Woodland, (also known as Box Gum Grassy Woodland) is one of the most threatened communities in the State with 1% of original extent remaining (DECCW Threatened Species fact sheet) and is listed on both State and National registers. It was widely found across the Central West and Lachlan regions, however the high level of clearing linked to agricultural land use in the reporting region has caused significant decline.

Indicator – Locally sensitive ecological communities and species list

Indicator – Number of State threatened species recorded in LGA

Threatened Species, Populations and EECs are listed under the NSW Threatened Species Conservation Act 1995, the Fisheries Management Act 1994 and the Environmental Protection and Biodiversity Conservation Act 1999. As shown in the summary table (Table 5), the number of threatened species listed in the Central West CMA area has increased from 117 to 119 in 2009-10 thus continuing the



worsening trend for this indicator reported last year. The number of populations and EECs stayed constant.

A list of threatened species, populations and EECs for the CMAs in the region can be found at <http://www.threatenedspecies.environment.nsw.gov.au/index.aspx>.

In addition to the species listed under State and Federal legislation, a number of the local Councils in the region are keeping track of locally sensitive species. For example, in the Gilgandra LGA the turquoise parrot, koala, malleefowl, glossy black-cockatoo and yellow-bellied sheath-tail-bat are locally sensitive species, which are restricted to relatively small habitat areas within the Warrumbungles National Park, the Goonoo State Forest and the Curban State Forest.

ABOVE *Eucalyptus melliodora*, commonly known as Yellow Box, is not a threatened species. However, it is one of the species that makes up White Box Yellow Box Blakely's Red Gum Woodland, which has been listed as an Endangered Ecological Community

Biological diversity, or biodiversity, is defined as:

‘The variety of life forms, the different plants, animals and micro-organisms, the genes they contain, and the ecosystems they form. Biodiversity includes genetic diversity, species diversity and ecosystem diversity’

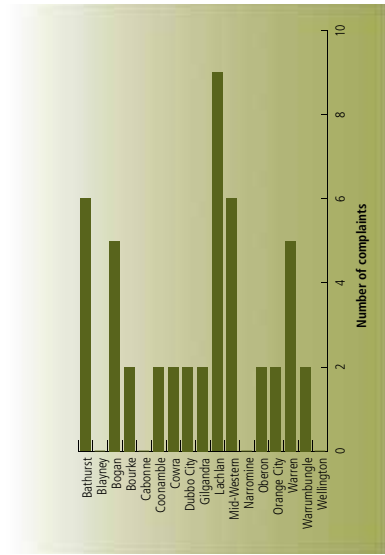


Figure 9 Land clearing complaints received by DECCW in 2009-10

Threat

Land Clearing

Indicator – Number of complaints regarding clearing rates of native vegetation

The removal of vegetation, whether individual trees or large scale (broad acre) land clearing contributes to the changing character and viability of remnant vegetation and can dramatically affect the health of the landscape and local amenity. Information on the number or area of trees removed is not recorded by local Councils, however the CMAAs have approved a number of clearing Property Vegetation Plans (PVPs). During 2009-10, the Central West CMA approved 21 clearing PVPs covering 3,451 paddock trees plus 34.51 hectares of vegetation.

Some land clearing is approved by Councils or the State Government under development applications, such as residential or industrial development (including mining). For example, Mid-Western Regional Council has several large mines which will continue clearing significant areas through approvals and expansions in the next few years.

The number of land clearing complaints has been added as a new indicator this year in an attempt to provide some comparative data on the stress being placed on the environment by land clearing. In 2009-10 there were 47 land clearing complaints recorded by DECCW. Figure 9 shows the land clearing complaints

sity and to ensure some level of connectivity within the increasing urban landscape.

Indicator – Habitat areas revegetated

As shown in the summary table (Table 5), local Councils reported that 294 hectares of Council land were revegetated in 2009-10 which is an increase from the 248 ha reported in 2008-09.

Indicator – Environmental volunteers working on public open space

Several Councils reported high levels of volunteer participation in environmental initiatives which improve habitat for native species with contributions from a range of Council co-ordinated and local community groups. As shown in the summary table (Table 5), the total number of volunteer hours recorded increased marginally in 2009-10 to 14,520 from 14,257 in 2008-09. The largest contributions to this were in the Bathurst, Dubbo and Orange LGAs, all of which have an appropriately qualified officer employed specifically to recruit and engage volunteers. Dubbo recorded approximately two-thirds of the total hours for the region, with its community participation facilitator helping to coordinate volunteer participation in programs such as friends of Japanese Gardens and adopt-a-park programs, as well as volunteers for tree days and clean up days.

Indicator - Project agreements with landholders

The Central West, Lachlan and Western CMAAs reported a total of 170 new project agreements with landholders during 2009-10, although it should be noted that Lachlan CMAA's number (68) could be unreliable as it is in the process of upgrading its data and reporting system.

Indicator - Vegetation protected and rehabilitated through CMA incentive funding

The Central West CMA reported that the area of vegetation protected and rehabilitated throughout its area rose by 7,583 hectares in 2009-10 as a result of its funding incentives for landholders, bringing the total area

CASE STUDY: Urban Biodiversity Sustainability in Bathurst

Bathurst Regional Council is focused on protecting and enhancing biodiversity within its urban and rural environments. With funding from the NSW Government through its Environmental Trusts Urban Sustainability Program, two significant biodiversity projects commenced in 2010 which build on Council's previous initiatives, the Vegetation Management Plan and the Urban Waterways Management Plan.

The first project is to formulate an overarching biodiversity management plan for the LGA which will assist Council to better monitor, protect and manage biodiversity assets under its field of influence. The first step in formulating the plan has been to engage a consultant to prepare an 'Issues Paper' which considers what biodiversity assets should be covered by the plan, where Council's direct and indirect responsibilities in relation to biodiversity management lie and to analyse where Council's current plans, strategies and procedures can be improved to better protect and enhance biodiversity. Once the Issues Paper is complete, a biodiversity management plan will be prepared which outlines strategies and lists specific prioritised actions for improved biodiversity management.

A large on-ground project is also underway to create an Urban Drainage Reserve Vegetation Link. The project will improve native vegetation diversity and habitat values for local aquatic and terrestrial fauna species by replanting up to 11 drainage reserves in the urban area with a range of local native trees, shrubs, grasses, sedges and rushes. The project will also improve the quality of water entering local waterways



which will further enhance downstream habitat for aquatic fauna. Designs are almost complete and will go on public exhibition prior to commencing on-ground works later in the year. The local community will be encouraged to be involved in the projects through targeted engagement programs.

Diamond Frittal (source: David McKellar)

improved since 2005 in the Central West catchment to over 100,000 hectares. This was a much smaller increase than reported in the previous year due to funding constraints and hence it appears as a worsening trend in the summary table (Table 5).

The Lachlan and Western CMAAs also reported areas protected and rehabilitated



CASE STUDY: Warren Shire Catchment Action Plan

Warren Shire Council, through a Steering Committee, has been investigating projects that meet the objectives of the Catchment Action Plan to involve and educate the community and improve riverine ecosystem health. The Steering Committee made up of representatives from the Council, the cotton grower industry and the Aboriginal community are currently drafting a comprehensive concept package of three key projects to be used as a basis for future grant applications. The projects are not intended to be one-off occurrences, but rather staged and continued over many years. The projects are:

The expansion of Tiger Bay wetland

This project will look at expanding the existing wetland which will entail, but is not limited to examining the extension of the wetland onto private land (owners consented), fencing, the planting of native vegetation, the use of treated effluent and the role of the wetland as a filter. It will also include interactive signage and a walkway guide to assist in educating the community about the wetland and its characteristics.

The rehabilitation of Brian Egan Weir

This project will involve the rehabilitation of the surrounding area including the removal of non-native vegetation and weeds and the planting of native grasses to improve the health of the environment. The project also aims to educate the community and provide an open area for community use in the future.

The rehabilitation of Macquarie River corridor through Warren

The first two projects will provide a conduit or stepping stone to complete the rehabilitation of the Macquarie River corridor. Improving the environmental health and restoring biodiversity to the river and its surrounding habitats are the main aims of the project. Key tasks to be undertaken include the removal of non-native vegetation and weeds, the planting of native species to stabilise river banks and to protect the River Red Gums.



Tiger Bay Wetland

of 30,896 and 95,097 hectares respectively. Note that the Western CMA number includes the areas reported under the indicators for 'erosion affected land rehabilitated' and 'area of riparian vegetation recovery'.

Riparian Restoration

Indicator – Riparian vegetation recovery actions

Indicator – Riparian vegetation recovery area

Local Councils and the three CMAs reported a total of 28 riparian recovery actions in 2009-10 with a total riparian vegetation recovery area of 29,115 hectares. 24,804 hectares of this area was reported in the Western CMA based on the area contracted throughout 2009-2010. The Western CMA runs a two year incentive program so these projects are not due for completion until June 2011. The majority of the area reported (23,003 ha) is from riparian fencing which allows strategic grazing, whilst the remaining area is managed for full stock exclusion for conservation.

The improving trends for these two indicators shown in the summary table (Table 5), are based on the Central West CMA and local Councils who provided data for 2009-10 and 2008-09.

Roadside vegetation management

Indicator – Number of roadside vegetation management plans

In large sections of the region, especially those where broadacre farming is prevalent, roadside reserves and Travelling Stock Reserves provide the only habitat corridors. The management of these roadside verges and other linear reserves is critical for the conservation of remnant vegetation corridors and the fauna dependent on them.

The NSW Roadside Environment Committee (REC), an umbrella NSW Government committee, has encouraged and supported Councils across NSW to develop Roadside Vegetation Management Plans (RVMPs) to better manage roadside environments under their jurisdiction.

Case study: Roadside Corridor Management, Mid-Western

Mid-Western Regional Council has recently commissioned a study into Roadside Corridor Management. The results of the project, which was undertaken by a consultant and funded by Council and the Hunter-Central Rivers CMA, had five main outcomes:

- a review of existing information and data sets
 - a "windscreen" survey of the entire road network
 - a prioritised set of management actions
 - roadside management guidelines
 - a digital herbarium.
- The survey of the roadsides has provided Council with GIS mapping information on what vegetation and habitats are present and their condition, rare and native species, noxious and environmental weeds and any activities currently taking place such as regeneration or road works. The information also provides a conservation value ranking.

From these new data sets, a set of roadside guidelines were developed with practical information on managing high, medium and low value roadside corridors, as well as weed management, revegetation and other planning considerations such as firewood, rock and seed collection and bushfire control.

All roads that fall within the Hunter Central Rivers CMA were separately assessed to determine a prioritised set of

Roadside Corridor: Vegetation Mapping





ABOVE Competition and habitat degradation by feral goats has been listed as a Key Threatening Process under the EPBC Act 1999

prior to 2009-10 are Bathurst, Orange, Dubbo, Oberon and Narromine. Cabonne Council prepared a draft RVMP during 2009-10.

Threatened species

DECCW has prepared a Priorities Action Statement (PAS) to promote the recovery of threatened species and the abatement of key threatening processes in New South Wales. The PAS identifies a number of broad strategies to help threatened plants and animals recover in New South Wales.

A total of 750 priority actions have been identified to help threatened species recover and tackle threatening processes in the Central West catchment. These priority actions can be grouped into 25 recovery strategies and seven threat abatement strategies.

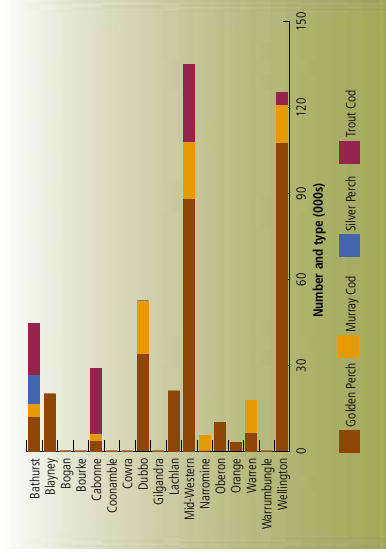
Of the 750 priority actions in this region, 737 are focused mainly on the recovery of threatened species, populations and ecological communities.

Fish numbers

Indicator – Number of fish restocking activities

The NSW Department of Industry and Investment-Fisheries, in conjunction with local Councils and recreational fishers, has restocked several streams in the region with

Figure 10 Native fish restocking in 2009-10 by LGA



native fish. It should be noted that restocking with non-native fish is a threatening process for some species. Figure 10 shows the breakdown of the 2009-10 year total into native fish species.

Invasive Species

Indicator – Actions taken to manage the impact and spread of invasive weed species

Seven local Councils reported on the actions they were taking to manage the impact and spread of invasive species. The two main activities occurring are mapping/monitoring and spraying/poisoning. Bourke, Lachlan, Mid-Western and Wellington Councils have either completed or are in the process of undertaking large scale mapping exercises for their LGAs. Active large scale spraying programs were reported in the Cabonne, Lachlan, Mid-Western and Wellington LGAs. Some of the targeted weeds are listed in Table 6.

Mid-Western Regional Council is hosting the NSWACT Serrated Tussock Co-ordinator, a newly created position.

Indicator – Invasive weed species under active management

Eight local Councils reported that they had programs in place to actively manage invasive

Table 6 Council actions to address invasive species

| Local Council | Invasive weed species under active management |
|---------------|--|
| Bathurst | Serrated Tussock, Blackberry, Chilean Needle Grass, Gorse, St Johns Wort, Scotch Thistle, Sweet (Rose) Bliar, English Broom, Box Thorn, Nodding Thistle, Willows |
| Bourke | Golden Dodder, Johnson Grass, Green Cestrum, African Boxthorn, and the pear species <i>opuntia</i> and <i>cylindropuntia</i> |
| Cabonne | 6 species under active management |
| Lachlan | Bathurst Burr, Devil's Claw, Galvanised Burr, Noogoora Burr, Parthenium Weed, Prickly Pear, Star Thistle, African Boxthorn, Dodder, Johnson Grass, Silver Leaf Nighthshade, Spiny Burr Grass, St Johns Wort, Wild Radish, Scotch Thistle, Blackberry, Coodaii Grass, Blue Heliotrope |
| Mid-Western | 22 species under active management |
| Orange | Chilean Needle Grass, Willows, St. Johns Wort, Blackberry, Serrated Tussock, Privet |
| Wellington | 30 species under active management |

species with seven of these demonstrating that they had specific lists of species being actively managed (see Table 6).

As shown in Table 6, several Councils had active management plans in place during 2009-10 that were targeting Serrated Tussock, Blackberry, Chilean Needle Grass and Gorse (all WONS).

The issues concerned with managing these WONS are of such magnitude that they need coordination among all levels of government, organisations and individuals with weed management responsibilities.



LEFT Willow trees infesting the banks of a creek, Orange area

Human Settlement

This chapter reports on human settlement issues including development, cultural heritage and noise. Human settlements form part of the landscape, but as populations increase, they also become a source of pressure on the environment.

Councils are responsible for urban planning, infrastructure, some aspects of environmental and heritage restoration, protection and conservation of resources, provision of community facilities, and community services. As settlements increase, environmental issues

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

Issue – Changing and Increasing Human Settlements

Condition

Land use

As a population grows, the demand for infrastructure such as housing, energy, water, transport and waste disposal also increases. Supplying this infrastructure results in land use changes that can have negative impacts on the environment. A significant potential impact is from the urban fringe, where housing and associated infrastructure cannot only affect the land but also other land uses such as agriculture. This area usually consists of rural residential development, and is often typified by conflict over land use where the zones interface.

Indicator – Land use conflict complaints

One way to measure the impact of changing land use patterns and Council zonings is through complaints about land use matters to Council. Fifteen of the participating Councils reported that there were 50 land use conflict complaints received in 2009-10 which, as shown in the summary table (Table 7), is an improvement on the 67 complaints reported in 2008-09.

Noise Pollution

Noise is a type of pollution that has direct physiological and psychological effects on people. Noise can have a range of impacts from minor annoyance to more serious damage to hearing. It can cause impacts on sensitive land uses including natural areas, residential areas, schools, hospitals and parks.

Table 7 Summary table of indicator trends – Human Settlement

| Sub-issue | Indicator | 2008-09 | 2009-10 | Trend |
|-----------------------------|---|----------|----------|-------|
| Urban/ industrial expansion | Number of development consents and building approvals | 3,909 | 4,303 | + |
| | Land use conflict complaints | 67 | 50 | - |
| | New road construction | 43 km | 20 km | - |
| | Road upgrades | 1,454 km | 1,549 km | - |
| Indigenous heritage | Extent of liaison with Indigenous communities (self-assessed from 0 = none to 3 = High) | 1.5 | 1.9 | + |
| | Listed Aboriginal sites | 263 | 263 | + |
| Non-Indigenous heritage | Development approvals on listed Aboriginal sites | 6 | 4 | - |
| | NSW and National Heritage Items | 1,618 | 1,746 | + |
| | Locally listed heritage items | 1,309 | 1,250 | - |
| Non-Indigenous heritage | Actions to protect non-Indigenous heritage (including management plans) | 21 | 22 | + |
| | Heritage buildings on statutory heritage lists renovated/improved in past year | 67 | 46 | - |
| Noise pollution | Urban noise complaints received by Council | 833 | 777 | - |
| | Industrial noise complaints received by Council | 65 | 97 | + |
| | Noise complaints received by DECCW | 334 | 162 | - |

- ➕ improvement
- ➖ no or little change
- ➔ worsening trend

Note – the above trends are for data in 2008-09 and 2009-10 from the same sources. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2009-10 for which no comparison could be made with 2008-09. Refer to the Appendix for a list of Councils included in the trend data.



indicator. As reported last year, the majority of the complaints relate to barking dogs.

Indicator – Industrial noise complaints received by Council

As shown in Table 7, there was a marked increase in the number of industrial noise complaints received by the fourteen Councils that provided data for this indicator. This follows a similarly large increase last year by the local Councils that reported in both 2007-08 and 2008-09. This worsening trend suggests that growth in the main urban centres in the region is leading to a greater number of conflicts between residential and commercial land uses. A breakdown of the type of noise complaints is provided in Figure 11.

Indicator – Noise complaints received by DECCW

Noise issues may also be reported to DECCW and as shown in the summary table (Table 7), the number of noise complaints across the region received by DECCW fell sharply

Noise also affects the habitat of some native fauna species. This may include impacts on breeding cycles and a reduction in the number of species in a locality (moving to avoid noise). Some types of fauna are more susceptible to noise and vibration than others. For example, reptiles that rely on vibration as a primary sense will avoid areas of particular noise wave patterns or vibrations as they disrupt the ability to hunt and avoid predation.

Indicator – Urban noise complaints received by Council

As shown in the summary table (Table 7), from those Councils reporting in both years there was a decline in the number of urban noise complaints from 833 in 2008-09 to 777 in 2009-10. This follows a very large increase in the number of complaints recorded between 2007-08 and 2008-09 which may have been due to better reporting and data collection mechanisms for this indicator. Therefore, whilst the drop in the number of complaints this year is a positive, it is too early to draw any real conclusions about the trend in this

ABOVE Farm structures in Blayney



the NSW and National Heritage lists increased by 128 in 2009-10 compared to 2008-09.

In the same period, the number of locally listed items for the 15 Councils reporting in both years fell slightly to 1,250. This decline was entirely explained by Mid-Western Regional Council which reported a drop from 553 to 478 locally listed heritage items. Mid-Western Regional Council's 2009-10 total is still almost 40% of the listings for the entire region which may highlight the inherent inconsistency between different LGAs in their approach to local heritage listings.

Threat

Development

Indicator – Extent of new road construction

Indicator – Extent of road upgrades

These indicators can be used to gauge the extent of development experienced across the region. As shown in the summary table (Table 7), new road construction (local Council roads) declined in 2009-10 and road upgrades increased. A significant proportion of the road upgrades reported are essential maintenance, particularly grading and reshaping of gravel roads and resealing of bitumen roads. Upgrades of gravel to bitumen were a relatively small proportion of the total. Taken as a whole therefore, these indicators suggest a relatively slow pace of development across the region particularly in rural areas or a lack of rate revenue to undertake works.

Indicator – Number of development consents and building approvals

The number, type and location of development applications can provide some information on the potential level of development impacts on both the built and natural environment. While the number of development applications lodged with Councils do fluctuate with economic cycles and other factors such as the size of population and presence of industries, as a general trend they reflect the likely levels of development impacts on the LGA. As shown in the summary table (Table 7), there

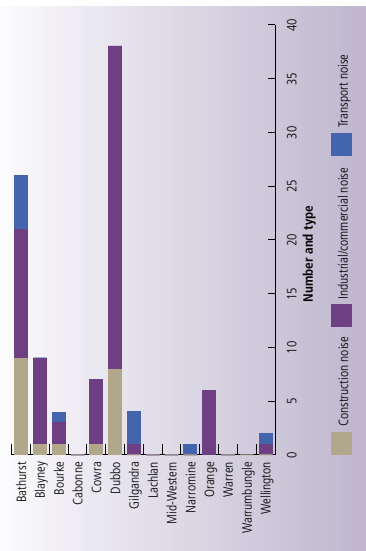


Figure 11 Types of industrial noise complaints received by Councils in 2009-10

in 2009-10 to 162 complaints which was just over half the level reported in 2008-09. However, well over 90% of the complaints in both years were reported from the Mid-Western LGA which mainly relate to new mining operations in rural areas.

Indigenous heritage

Indicator – Number of Aboriginal sites on AHIMS register

The Aboriginal Heritage Information Management System (AHIMS) register of Aboriginal sites is managed by DECCW. The 263 sites registered on AHIMS from across the reporting region were unchanged from the 2008-09 and 2007-08 figures.

Non-Indigenous heritage

Indicator – Locally listed heritage items

Indicator – National heritage items

Indicator – NSW heritage inventory items

The State Heritage Inventory comprises all items and places listed on NSW statutory registers, including the State Heritage Register and heritage schedules related to Local Environmental Plans (LEPs). Note that some heritage places are listed on both national and State heritage registers. As shown in the summary table (Table 7), the combined total of listings for the region on

was an increase in the number of development consents and building approvals from 2008-09 to 2009-10 for the 15 local Councils that reported in each year which most likely reflects the overall upturn in the economic cycle experienced across Australia.

Seventy one percent of the 4,303 development consents and building approvals given in 2009-10 were for residential development, compared to 53% for residential in 2008-09. Figure 12 shows the breakdown by LGA and highlights the continuation of the long-standing trend in the region for growth to be concentrated in the major rural centres. The proportion of the total development consents and building approvals that were issued for the reporting area in the Bathurst, Dubbo and Orange LGAs increased from 61% in 2008-09 to over 65% in 2009-10.

Indicator – Development on listed Aboriginal sites

As shown in the summary table (Table 7), there were four developments on listed Aboriginal sites across the region in 2009-10 which was a reduction from the six reported in 2008-09. Whilst this is an improvement it should be remembered that these heritage sites are finite and any development which degrades them is potentially permanently deteriorating the Indigenous heritage in the region.

Indicator – Heritage buildings on statutory heritage lists demolished/degraded

According to the 14 Councils that reported on this indicator, two listed heritage buildings were demolished or degraded in the 2009-10 year. One building in the Mid-Western LGA was demolished due to vandalism, and the condition of the Court House in Bourke was degraded.

Response

Planning

There are a suite of planning tools that Councils in the reporting region are using to ensure that development is sensitive to the environment. LEPs guide planning decisions for local government areas. Through zoning,

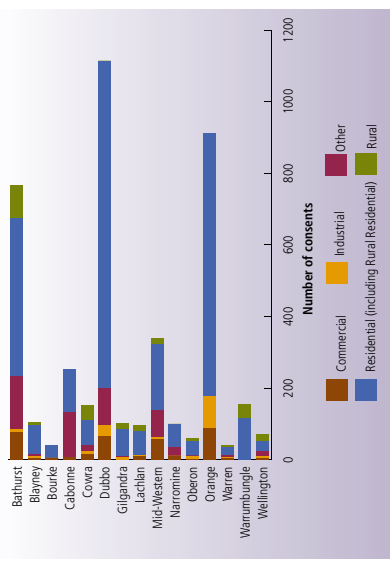


Figure 12 Types of development consents and building approvals across the region in 2009-10

development controls, policies and guidelines, they allow Councils and other consent authorities to manage the ways in which land is used. LEPs are the primary planning tool to shape the future of communities and also oversee the estimated \$20 billion worth of local development that is determined each year.

Under the current NSW Planning Reform Process, Councils are reviewing their LEPs using a template with the same planning language, making it easier for communities to understand what is proposed for their local area. Councils are able to include localised planning objectives and provisions specific to their area, as well as determine zoning, additional land uses, heritage items, and development standards such as height and minimum lot sizes.

To facilitate this process, all Councils in the reporting region have been supplied with Environmentally Sensitive Area Maps which cover Land, Water and Biodiversity. This allows the Councils to make informed decisions where future development should take place, whilst protecting the natural resources of the LGA.

Indigenous heritage

Indicator – Extent of liaison with Aboriginal communities

Councils were asked to self-rate the extent of their liaison with Aboriginal communities. As shown in the summary table (Table 7), the 13 Councils which reported this indicator in both the last two years gave themselves an average



rating of 1.9 on a scale of 0 (none) to 3 (high) in 2009-10 compared to 1.5 in 2008-09. Highlights reported in the most recent year were Lachlan Shire Council's 'Widening the Circle' project (see case study) and Cowra Shire Council's development of an Aboriginal Consultation Policy.

Indicator – Inclusion in DCPs and rural strategies

Seven of the 17 Councils in the region reported that they had included Indigenous community consultation in development of

DCPs (Development Control Plans) and rural strategies. Looking forward, Bathurst and Cabonne Councils both flagged their intent to increase Indigenous community inclusion in the next DCPs and LEPs they develop.

Indicator – Management actions/responses

In each of the last two reporting years there have only been two Councils who have reported any Indigenous heritage management actions/responses. In 2009-10, Narramine Shire Council reported for a development application with scarred trees on site, that a condition was put on the consent that those trees are not be harmed in any way.

Indicator – Management plan/strategy in place

Only Bourke and Wellington Councils reported that they currently have an Indigenous heritage management plan/strategy in place. Orange and Dubbo Councils also indicated that they are in the process of preparing one.

The Widening the Circle Program is a quality, cost effective program that has been instrumental in creating a sense of belonging for members of the community who have previously felt isolated.

Non-Indigenous heritage

Indicator – Actions to protect non-Aboriginal heritage items

Indicator – Heritage buildings on statutory heritage lists that are renovated or improved

These indicators, introduced in 2008-09, provide a gauge of the level of protection through management of non-Indigenous heritage items. As shown in the summary table (Table 7), there was a slight increase in 2009-10 in the number of reported actions to protect non-Indigenous heritage (including management plans).

However, the 46 heritage buildings on statutory lists which were renovated or improved during the year represented a significant reduction from the activity reported for this indicator in 2008-09.

CASE STUDY: Cowra Shire Land Use Strategy

The Cowra Shire Land Use Strategy, 2009 is Cowra Council's most ambitious strategic plan to date and establishes planning guidelines to implement Ecologically Sustainable Development (ESD) and achieve sustainable urban, village and rural communities.

Council is charged with the task of preparing a new LEP and has documented in Section 1.3 of the Land Use Strategy that it will fulfil this responsibility by the key leadership and sustainability principles of ESD, Governance and Innovation.

The Land Use Strategy recognises that Cowra Council is well placed in the local community to provide leadership on NRM projects. Section 8 deals specifically with the advancement of NRM and proposes a framework that places the correct focus on ESD and the protection of the Shire's irreplaceable natural resources.

The Land Use Strategy is the first plan that advocates the strengthening of CMA partnerships by developing mutually agreed NRM Delivery Plans, based on the Lachlan CMA NRM Delivery Plan, 2009. The Lachlan River Precinct, Cowra Peace Precinct and Council's continued support to the Futures 30 NRM Group are key actions in the Delivery Plan.



Cowra Town View

Case Study: Widening the Circle, Lachlan

Lachlan Shire Council was awarded winner of the Strengthening Indigenous Communities category (small Councils under 15,000 ratepayers) for the Widening the Circle program at the 2010 National Awards for Local Government.

The Widening the Circle program commenced in 2007 and was written as the Lachlan Crime Prevention Committee felt that the youth in the community were not accessing services available to provide assistance. The program was developed to address this issue and grant funding was awarded from the Attorney-General's Department to make delivery of the program possible. It was identified that the need was in both the main towns of the Lachlan Shire, Condobolin and Lake Cargelligo, and that Murrin Bridge was to be serviced in conjunction with Lake Cargelligo.

The Widening the Circle program acted as a bridge that closed the gap between young people, young parents and services and agencies within the Lachlan Shire by conducting a wide variety of workshops and events in partnership with local professionals. These workshops and events taught life skills such as healthy eating, cultural awareness, managing behaviour and women's health and provided pathways and encouragement for young parents to access facilities and discover avenues for personal growth and development.

The concept of the program is sustainable as the program is about addressing identified needs and gaps in the community for young parents / young people aged 12 -25. This is achieved on one hand through developing relationships with services and agencies by:

- Establishing and maintaining a strong network between services and agencies
- Establishing and maintaining strong communication channels

- Ensuring agencies are not working in isolation but are forming partnerships
- Ensuring that services are not duplicated but are complementary

- And on the other hand, developing relationships and identifying needs and gaps with the target audience by:
- Holding workshops and activities in an environment in which the target audience feels comfortable and safe
 - Keeping it simple – have a casual chat to find out what they need and what's going on in their lives
 - Listening - they might have been up all night with a sick child or might have been in a domestic violence situation
 - Keeping it local – thus keeping it cost effective
 - Being friendly, open and honest – find out their interests
 - Being genuinely interested in the young person or young parent and their children
 - Always supplying lunch and a drink
 - Getting a babysitter to assist the young parents, especially if they have many children.

The program demonstrates best practice through the inclusive environment in which the program is delivered to the community. It encourages the community to widen their circle of friends, knowledge and their mind, to new experiences and ideas, through participation in workshops, activities and events in a safe, non-intimidating and friendly environment.

Specific examples include when the economic stimulus package or 'bonus' was being rolled out by the Federal Government. The Widening the Circle program held workshops on 'Ways to Manage Money' with

a local financial counsellor encouraging participants to pay any debts they had and to forward-plan and allocate money for electricity and phone bills. Another example was engaging the target audience through activities such as the belly cast. The cast takes 20 to 25 minutes to apply, and this time is used by local service workers to talk to the young parent about the baby's arrival, who is available to help, and how to contact them.

Lachlan Shire Council was awarded winner of the Strengthening Indigenous Communities category





Waste

This chapter focuses on the generation, treatment and disposal of waste within the reporting area. Waste is caused by the disposal of products at the perceived end of their life, or simply when the user has no further need for them.

OPPOSITE TOP Figure 13

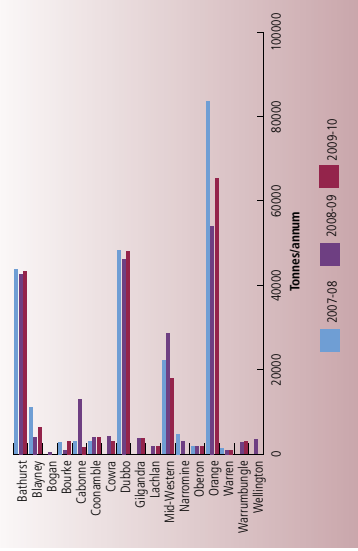
Total waste received at primary landfill by LGA

OPPOSITE BOTTOM Gross pollutant trap at Dubbo

With the expansion of human settlements, environmental pressure is being increased through the consumption of products that are dependant on natural resources and the inappropriate disposal of by-products. A sustainable human environment requires greater attention to urban design and a reduction in net consumption. Within the reporting region, efforts are being made to increase the sustainability of waste management systems through reducing, reusing and recycling waste products.

The volume of total waste (excluding recyclables) taken to other landfills (including rural tips and transfer stations) was 12,841 tonnes for the 14 Councils reporting in 2009-10. This volume cannot reliably be compared to last year's numbers because the basis of reporting this indicator was changed for the current Report.

Comparing the figures for 2008-09 with 2009-10, there was an increase in the average cost of waste services to people across the region to \$207 (based on 13 Councils that have reported this data over the last three years, and the increasing trend is consistent over this period.



Issue – Waste Generation and Disposal

Condition

Solid waste

Indicator – Average cost of waste service per person per annum

Indicator – Average total waste generated per person per annum

Indicator – Total waste received at primary landfill

Indicator – Total waste collected at other landfills (excluding recyclables)

Total waste indicates consumption patterns and the pressures placed on rural tips and primary landfills. As shown in the summary table (Table 8), for the eleven Councils that reported in both years, the average total waste generated per person for 2009-10 was 0.81 tonnes, which was effectively unchanged from 2008-09.

There was slight decrease in 2009-10 in the volume of total waste received at primary landfills of the Councils that reported in both years, to 204,268 tonnes. A breakdown of this total by LGA is provided in Figure 13.

It should be noted that the total waste for Orange LGA includes some of neighbouring Cabonne Council's C Riding (Ward) waste and contamination from the recycling collections processed through the Materials Recovery Facility from Orange, Cabonne, Parkes, Forbes, Blayney and Bathurst LGAs. This has been included in total waste calculations for Orange LGA for each of the three reporting years.

Table 8 Summary table of indicator trends – Waste

| Sub-issue | Indicator | 2008-09 | 2009-10 | Trend |
|-------------------------------|--|-----------|-----------|-------|
| Waste generation | Total waste received at primary landfill | 208,868 t | 204,268 t | + |
| | Average total waste generated per person | 0.82 t | 0.81 t | - |
| | Average cost of waste service per household | \$204 | \$207 | - |
| Hazardous/liquid waste | Drum/Muster collections (number of drums) | 96,280 | 65,325 | + |
| | Office paper used by Council (A4 reams) | 24,551 | 21,076 | + |
| Recycle | Number of recycling services available across reporting area including private collections | 82 | 93 | + |
| | Volume of material recycled | 22,356 t | 18,452 t | - |
| | Volume of material recycled per person | 118 kg | 116 kg | - |
| Littering and illegal dumping | Annual volume of litter collected by streetweeper | 4,672 t | 6,239 t | - |
| | Number of illegal waste disposal complaints to Council | 364 | 313 | + |

- improvement
- no or little change
- worsening trend

Note – the above trends are for data in 2008-09 and 2009-10 from the same sources. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2009-10 for which no comparison could be made with 2008-09. Refer to the Appendix for a list of Councils included in the trend data.



Case Study – Derriwong Transfer Station, Lachlan

Derriwong is a village 22km to the east of Condobolin on the Parkes Road in Lachlan Shire Council. Derriwong used to have its own landfill with typical problems synonymous with village tips such as:

- Ongoing problems with windblown litter on to the Parkes Road and surrounding areas
- The land cell at Derriwong reaching the end of its useful life and no readily available Council land to expand
- High operating costs associated with the operation of a landfill site
- High expected costs associated with land acquisition and construction of a new landfill to meet current legislative environmental requirements.

On 30 November 2009, the Derriwong Waste Management facility was trialled as Lachlan Shire Council's first transfer station.

Residents were advised by a mail drop of the proposed trial and the transfer station has now been operating for approximately six months, and to date has proved very successful. The Derriwong Waste Management facility presentation and appearance has seen a dramatic turnaround and the users of the facility are to be complimented on their acceptance of the transfer station.

The Derriwong transfer station uses a 10 cubic metre skip bin which has been designed to enable easy

access and easy removal by the contractor. The skip bin is emptied once the bin is full and transferred to Condobolin Waste Management facility for disposal. The use of the skip bin has greatly reduced the previous windblown litter problem by containing the rubbish.

The trial period has concluded and Council is likely to continue the current operations into the future due to its success. The Derriwong Transfer Station is being regularly monitored and may be used in other areas if feasible.

The issue of waste management in the Shire is an ongoing concern and tighter controls are required to ensure the sustainability of Council's waste management facilities.

One of the management tools proposed in the future at the Lake Cargelligo site will be reduced opening hours which at present are 24 hours a day, seven days a week. This creates many environmental concerns such as fires and windblown litter, and lack of separation of steel and other materials not suitable for landfill.

Councils can pay up to \$100,000 for the construction of a transfer station. Costs like this would have been excessive for a small village waste facility such as Derriwong. Council officials came up with some ingenious designs and the transfer station was constructed for \$13,000. Further improvements including signage and road surfaces are planned when the budget permits.



Derriwong transfer station collection point

Threat

Illegal dumping

Indicator – Number of illegal waste disposal complaints to Councils

The number of complaints about rubbish dumping does not necessarily reflect the frequency of incidents, nor the impact of illegal dumping. However, it does indicate community awareness of illegal dumping and the potential impact that it may have on the environment.

As shown in the summary table (Table 8), the number of illegal dumping complaints decreased quite significantly from the 15 Councils reporting in both years.

For the eleven Councils that have reported on this indicator over the last three years, the total number of complaints in 2009-10 was markedly less than that reported in both 2008-09 and in 2007-08.

This suggests that initiatives by Councils, such as in the Bourke case study, are having a positive impact on this issue.

Littering

One of the most obvious forms of pollution is litter.

Apart from being unsightly and taking a long time to breakdown, litter can be washed into waterways through stormwater systems where it poses a risk to aquatic life.

One of the worst types of littering is illegal dumping of rubbish which occurs across all LGAs in the region.

Indicator – Amount of litter collected by Council streetsweepers

From the 14 Councils that reported in both years there was a large increase in the volume of litter collected by Council streetsweepers (see summary table 8). This increase is entirely explained by the large increase reported by Bathurst Regional Council whose streetsweepers collected a total of 2,297 tonnes of material in 2009-10 compared with the 564 tonnes reported in 2008-09. The amount of littered collected should be considered in relation to that collected in GPTs (see Water chapter).

CASE STUDY: Bourke Shire Council Illegal Dumping

The area of Adams Street is a noted hotspot for illegal dumping and over the years there has been a considerable build up of waste from illegal dumping. The area was becoming a real environmental hazard.

Bourke Shire Council received funding for the clean up and regeneration of the Adams Street area. The funding was used to have the area cleaned up, signposted and the area regenerated with the planting of native trees and grass.

The area was cleaned and all the waste transported to the waste facility at Bourke. The area has now been signposted and seeded with native vegetation for rehabilitation.

The clean up and regeneration of the site in Adams Street was a valuable and worthwhile project that not only benefited the community, but also helped build on the educational focus that Bourke Shire Council has facilitated through its involvement in Sims Metal Waste to Art and Netwaste school education program that commenced in 2009 and will continue in 2010.

Bourke High School has also expressed an interest in becoming involved in the clean up by involving students in the creation of several sculptures for the area that are made from recycled and reused materials. Student involvement would help create community ownership of the Adams Street project and hopefully facilitate a more sustainable outcome. The combined approach provides a strong message and shows Bourke Shire Council's commitment to cleaning up the environment.



Adams Street illegal dump site, Bourke

CASE STUDY: Plastic Bag Replacement Program, Cowra

Based on the national average, 24.5 million plastic bags are used by residents of Cowra Shire annually. Over the past five years, Council has participated in a number of initiatives to reduce plastic bag use in the community – originally through Netwaste and then on its own. The plastic bag replacement program is designed to not only remove plastic bags from the environment, but also to encourage residents to maintain usage of their reusable bags, ultimately reducing this total figure. The previous plastic bag replacement programs have been extremely successful, with approximately 278,000 bags already removed from landfill and a number of residents maintaining usage of the reusable bags. The success of the program can be attributed to the growing public awareness of the environmental cost of using plastic bags as well as the fact that the exchange is free.

The current stage of the program aims to exchange 5,000 reusable bags for 125,000 plastic bags. The plastic bags collected will be on-sold for recycling, allowing Council to recoup approximately \$400. Council requires twenty five bags to be exchanged for one reusable bag, instead of twenty as in the past.

The bag design is similar to that used previously and includes Council's corporate logo, and the slogans, "say NO to plastic bags" and "working together for a plastic bag free future."

Plastic bags ready for recycling at the Material Recycling Facility, Cowra



CASE STUDY: 'Recycling + Education = the Difference' (RED): An innovative recycling program for primary schools by Green Bag

The RED Program is an innovative Australian-developed primary school program that provides value for schools, whilst educating students to think and act sustainably.

The Program involves a complete closed-loop system where products at the end of their useful life are not sent to landfill, but rather become the resource used to manufacture playground furniture and other products for Australian schools, providing a unique opportunity to help students and the school community understand and appreciate the importance of recycling.

The Central West CMA has assisted primary schools with the RED Program by purchasing a library bag for all primary students in the Central West.

Participating schools arrange a 'Green Bag Drive' for their community and collected materials are recycled into something entirely new by Replas (e.g. furniture and signage) which is made from the recycled plastic and is then delivered back to the participating school.



The RED program library bag which has been distributed to all primary students in the Central West region

Chemical disposal

Indicator – Number of farm chemical drums collected through DrumMuster collections

Councils in the reporting area are active participants in the DrumMuster program, which provides a collection service for agricultural chemical containers on an ongoing basis. As shown in the summary table (Table 8), the number of drums collected through the DrumMuster program has dropped in the LGAs that reported in both years. It is difficult to draw conclusions for the reasons for the decline, however, a possible factor may be seasonal influences meaning less chemical is used. It could also be due to the fact that farmers had previously disposed of any stored surplus of drums and are now disposing drums as they currently use the contents. Changes in agricultural practices that are less dependent on chemical use may be another factor in the trend.

Response

Reduce

Indicator – E-Waste diverted from landfill

Indicator – Office paper used by Councils

As relatively large employers and community leaders, local Councils can be used as one indicator of changing office practices and increased awareness to minimise the use of office paper. As shown in the summary table (Table 8), the Councils that reported in both years significantly reduced their use of office paper – a reduction of over 14%.

This follows on from the large reduction reported for this indicator last year and is consistent with the significant year-on-year reductions in paper use of the ten Councils which have reported in each of the last three years. This trend may be a response to Centroc's That's a Good Idea (TAGI) project of which one component focussed on double-sided printing.

Recycle

Indicator – Number of recycling services available in each LGA

As shown in the summary table (Table 8), for those Councils reporting in both years, the number of recycling services available increased from 82 to 93 which follows a similar increase reported last year and suggests an improving trend for the availability of recycling services in the region.

Indicator – Volume of material recycled

Indicator – Volume of material recycled per person

As shown in the summary table (Table 8), the volume of material recycled decreased across the Councils that reported in both years.

This decrease may be due to improved data and analysis by reporting Councils. It may also be due to factors such as consumers using

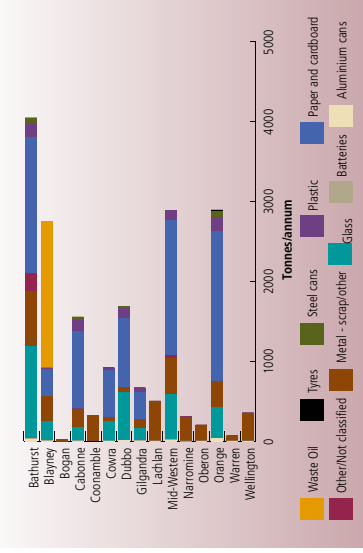


Figure 14 Type of materials recycled by Councils in 2009-10

less packaging, the reuse of more items and possible increases in non-recyclable packaging. A breakdown of the type of materials recycled in 2009-10 is provided in Figure 14. This shows a large proportion of the material recycled is paper and cardboard (46.7%).

Towards Sustainability

This chapter outlines some of the pathways that the Councils in the reporting region are taking to achieve environmental sustainability. It should be read in conjunction with sustainability measures outlined in the Response section of other chapters.

Sustainability can be seen as meeting the needs of the present without compromising the ability of future generations to meet their demands. Environmental sustainability involves conserving natural resources so that the ecological processes are maintained in the future. A key sustainability issue facing the region is how to mitigate and adapt to the impacts of climate change.

Issue – A Sustainable Future

Condition

Sustainable agriculture

Indicator – Number of certified organic producers

Organic farming can be more sustainable than traditional agriculture and thus provide

an indicator of the move towards sustainable agriculture in the region. As shown in the summary table (Table 9) there has been a significant reduction in the number of certified organic producers in the region with only 23 in 2009-10 compared to 42 in 2008-09.

Organic producers are typically small scale farmers and this decline is possibly a reflection of the severe financial strain being experienced by many small producers due to the prolonged drought and market factors such as the collapse in grape prices.

Indicator – Extent of sustainable farming initiatives undertaken with CMA funding

The Central West CMA reports that as a result of its incentive funding, sustainable farming initiatives have been undertaken across 7,996 hectares of the region in 2009-10, with 80% being sustainable grazing projects.

This is a much lower level of activity than reported in the 2005-09 period, when the Central West CMA incentive funding supported projects (predominantly machinery conversions and grazing management) across 342,818 hectares of the region; equivalent to an annual rate of 85,705 hectares which is more than 10 times the level of activity reported in 2009-10. This equates to a significant reduction in funding available to the Central West CMA to support such projects.

The Lachlan CMA reported supporting sustainable farming initiatives in 2009-10 over an area of 343 hectares. The Western CMA also supported sustainable farming initiatives but was unable to separate these out from the 95,097 hectares reported as the area of vegetation protected and rehabilitated through that CMA's incentive funding.

Table 9 Summary table of indicator trends - Sustainability

| Sub-issue | Indicator | 2008-09 | 2009-10 | Trend |
|---------------------------|--|------------|------------|-------|
| Sustainable agriculture | Number of certified organic producers | 42 | 23 | + |
| | Number of Council owned facilities consuming electricity | 1,011 | 1,023 | - |
| | Annual electricity consumption for Council facilities | 52,933 MWh | 59,146 MWh | + |
| Climate change mitigation | Number of Council owned facilities consuming gas | 102 | 105 | + |
| | Annual gas consumption for Council facilities | 26,790 GJ | 24,383 GJ | + |
| | Total fuel consumption of Council's heavy vehicle fleet | 4,491 KL | 5,225 KL | + |
| | Council facilities consuming Greenpower/renewable energy | 145 | 140 | + |

+ improvement
- no or little change
+ worsening trend

Note – the above trends are for data in 2008-09 and 2009-10 from the same sources. They should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2009-10 for which no comparison could be made with 2008-09. Refer to the Appendix for a list of Councils included in the trend data.



Threats

Greenhouse Gas Emissions

Indicator – Annual electricity consumption for Council facilities

Indicator – Number of Council owned facilities using electricity

The region is a large producer of black coal and there is a heavy reliance on coal for electricity.

As one of the highest sources of greenhouse gases that Councils have a direct impact on, electricity consumption is an area for priority action. As shown in the summary table (Table 9), the amount of electricity consumed by those Councils that reported in both years increased from 2008-09 to 2009-10 accompanied by a small increase in the number of Council owned facilities

using electricity. For the seven Councils that reported on this indicator in each of the last three years, the total electricity consumed for Council facilities reverted to the level reported in 2007-08 (within 0.5%) after a significant fall from 2007-08 to 2008-09.

A comparison of the electricity used by each Council in their facilities during 2009-10 is provided in Figure 15.

Indicator – Annual gas consumption for Council facilities

Indicator – Number of Council owned facilities consuming gas

As with electricity, the use of gas provides an indication of contributions made by Councils to greenhouse gas emissions.

As shown in the summary table (Table 9), three more Council facilities in the region used gas in 2009-10. This is shown as a worsening

ABOVE Windfarms at Blayney

Case Study – Garden Classrooms, Mid-Western

Mid-Western Regional Council and Watershed Landcare have spearheaded an initiative which has seen disused corners of school yards transformed into sponsored garden classrooms. Successfully piloted last year at Mudgee Public School, the garden classroom program is now being run at Goolima Public School (which is tailored for that school and differs from the Mudgee Primary School program). The program with Mudgee Public School started with a garden design competition where all students submitted a plan of how the garden should look. After voting on what they thought was the best design, it was an all-in effort to shape the existing piles of soil into the winning design.

The project aims to teach the students about the environment and sustainability, through the use of the 'veggie garden', setting up worm farms to support it and studying subjects such as soil organisms, plant nutrition and pest and disease management.

The students also investigated how different plants grow (annual/perennial life cycles) and the various fruit/vegetables they could produce in different seasons. Students have also met local farmers to learn about why and how bales and compost are made.

Council and the Watershed provide one class per week, delivered by a Watershed horticulturist. All materials and tools to establish the garden and make it grow, including compost are donated by Mudgee Composting Services.

The program was such a success that there are plans for it to be extended to a different school each year.

Students from Mudgee Public School at work in their garden classroom



Response

Sustainable agriculture

There are several ways that landholders in the reporting region can make agriculture more sustainable. A well managed perennial pasture has deeper roots and can survive on poorer seasons by utilising soil moisture at greater depth than one based on annual species. Provided adequate ground cover is maintained, the potential for various forms of soil degradation (rising water tables, salinity and soil acidification) are also reduced. Perennial pastures can also limit nutrient run-off into streams, be more competitive against weed invasion, increase soil carbon and improve soil structure, pasture composition and fertility. Perennial pastures have the potential to sustainably support high levels of livestock production, provided they are well managed and well matched to soils, aspect, topography, climate and livestock enterprise (Central West CMA, 2008). It is also important that there be a future emphasis on 'no till' practices and more cap and pipe projects in artesian areas.

Council sustainability plans

Indicator – Council sustainability initiatives

Five of the local Councils reported that they had sustainability plans. Seven Councils said they integrated sustainability into their project objectives and six Councils reported that they incorporated sustainability into Council plans and instruments.

Climate Change Adaptation/Mitigation Initiatives

Indicator – Climate change adaptation/mitigation in Council plans/infrastructure

Indicator – Council plan focused on climate change adaptation/mitigation

Indicator – Council projects with climate change adaptation/mitigation objectives

Some Councils completed climate change risk assessment workshops during the reporting

CASE STUDY: Soil Carbon Project

In 2009-10, the Central West CMA commenced a project titled 'Land Management Activities for Increasing Soil Carbon' to provide financial incentives for landholders who are practising improved land management activities that increase soil carbon on their properties. This project drew on the expertise of DECCW, DII and CANFA to deliver targeted investment to increase landholder knowledge in carbon farming.

An excel spreadsheet 'Farming Soil Carbon Calculator' (FSCC) was developed which estimates the amount of soil carbon sequestered under different farming systems, soil types and climate zones. The FSCC spreadsheet proved to be a useful tool for selecting leading farmers who are increasing soil carbon through improved land management practices that deliver multiple environmental benefits including:

- Improvements in soil health, i.e. less erosion, structure decline, nutrient imbalances, compaction and sedimentation
- Improvements in water quality due to improved soil condition and ground cover
- Reduction in Global Greenhouse Gases, mitigating climate change
- Improved landscape functionality and biodiversity.

The project has increased the level of understanding of carbon farming principles throughout the Central West Region of NSW and has pioneered a simple and rapid method for determining soil carbon sequestered in agricultural landscape that can be adapted to other regions and farming systems.



300 farmers attended the Soil Carbon conference in Orange last year

period. Bathurst and Dubbo Councils completed risk assessment workshops run by Statewide Mutual during 2009-10. The Wellington-Blayney-Cabonne (WBC) Alliance completed introductory modules of the Local Government and Shires Association's Climate

The consumption of gas for Council facilities in 2009-10 showed an improvement in comparison to 2008-09. The 2009-10 figure of 24,383 Gigajoules was approximately 10% lower than 2008-09.

This decrease would be more significant in reducing greenhouse gases if there was a similar decrease in electricity consumption by the reporting Councils.

Indicator – Total fuel consumption of Council's heavy vehicle fleet

As with electricity and gas consumption, heavy vehicle fleet fuel use is a significant source of greenhouse gas emissions.

As shown in the summary table (Table 9) there was a significant increase in the amount of fuel consumed for heavy vehicles by Councils that reported in both years, with the total consumption rising by over 16% to 5,225 kilolitres of fuel.

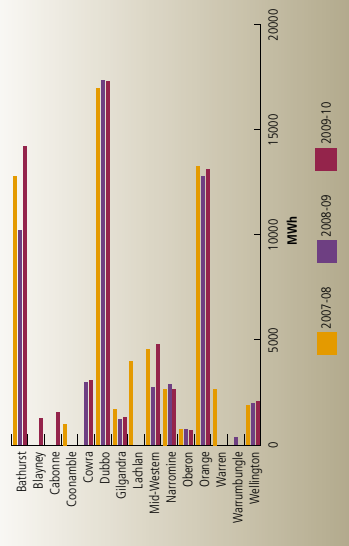


Figure 15 Electricity consumption for Council facilities trend but as natural gas generally has a lower carbon footprint, changes to the number of premises using gas instead of electricity could give potential greenhouse emission reductions.

Table 10 Examples of climate change projects undertaken by Councils in 2009-10

| LGA | Council projects with climate change adaptation/mitigation objectives |
|-------------|--|
| Bathurst | Detailed energy audit of the Civic Centre, and pilot energy retrofit. |
| Dubbo | Ongoing energy management, ongoing use of E10 and Biodiesel, first hybrid car in fleet, community events such as Energy & Water Expo, tree days, Earth Hour. |
| Gilgandra | Participated in the Planet Footprint project which details Council's Greenhouse Gas emissions and electricity consumption. |
| Lachlan | Participating in the Centroc 'That's a Good Idea' project and the mentoring project. The mentee is currently in the process of establishing an in-house sustainability forum to improve Council's sustainability actions such as double side printing, energy use reduction initiatives etc. |
| Mid-Western | E21 EnergyPlus energy management system now used for electricity consumption data. |
| Oberon | Water harvesting scheme consisting of two storage ponds, two pump stations, two rising mains and a packaged water treatment plant. |

Change Action Planning for Local Government Workshop Package

Three of the local Councils reported that they had a Council plan focused on climate change adaptation/mitigation. Seven Councils said they had projects with climate change adaptation/mitigation objectives and four Councils reported that they incorporated climate change adaptation/mitigation in Council plans/instruments.

Below Solar power is becoming an increasingly popular alternative energy source



Table 10 gives examples of some of the climate change projects undertaken by Councils in the region.

Indicator – Council facilities using Greenpower/renewable energy

The conversion to Greenpower is one way that Councils can reduce greenhouse gas emissions at their facilities. As shown in the summary table (Table 9), there was a small decrease in 2009-10 with other Councils withdrawing their support for Greenpower, leaving Orange City Council's 140 facilities (over 90% of their total Council facilities) as the only ones in the region running on Greenpower.

Bathurst Regional Council was one of the Councils to withdraw its support, no longer purchasing Greenpower for any of its facilities. However, a 2 KW solar system has been installed on its visitor information centre and three other renewable energy installations are in the planning phase for Council facilities.

Dubbo City Council has incorporated a 2% renewable energy target (by 2013) in the recent review of its environmental management plan, Dubbo ALIVE, which is proposed to be met through installation of renewable energy systems.

Case Study: Centroc's Shiny Halo Blog

In these busy and difficult times, people are being bombarded with information and are increasingly being made to feel that they should do more to protect the environment and look after their communities. In order to recognise the great work being done around the Centroc (Central NSW Councils) region and beyond, Centroc has set up the Shiny Halo Blog at www.shinyhalo.com to encourage people to share their stories of positive social and environmental action and to help us build resilience in our communities. The Shiny Halo is a source of positive good news stories that are focused on action and delivering change. The Shiny Halo also attempts to provide a one-stop-shop of links and networks across the region.

Shiny Halo has different categories which recognise and promote the efforts of individuals, organisations, schools, councils, businesses and community groups in building the resilience of the region. Centroc, in setting up this blog, is not only recognising the efforts of these groups but is also matching these efforts by offering to plant a tree in the blogger's choice of LGA for those bloggers who post actions (and not just comments). The Shiny Halo has got off to a great start and in two months of blogging has had 3,000 visitors and over 100 comments. Around half of these will result in trees being planted in the region. There is an archive of 35 inspirational stories. Here are some of the great actions people have undertaken:

Hi my name is Monty and I am 11. I read Patrick's post and I just wanted to say that since the beginning of this term I have been riding my bike to school. I really like it. I like saying hello to people on the way. But I'm a bit worried about having to ride on the road with the cars next year.

Last weekend I planted 67 trees I have raised from seed on our block at Cookamitjerra. The recycle shop at the tip has been a great source of old wood, metal, plastic for stakes for the tree guards. Liz Today I took 3 printer ink cartridges down to Cartridge World to get them refilled instead of throwing them away and getting new ones. Apart from creating less waste – it costs about half the price. Marita

Today we did some technology recycling. All our old PCs went to a local chap who's going to rebuild them for folks who can't afford a new one. Beats sending them to landfill!!! So please plant a tree for me. Scott

In putting this blog together, Centroc is providing an opportunity for large numbers of people from around the country to develop a connection to Central NSW and to give back to the region that provides them with resources. This blog is demonstrating that consumption is not the only option available to us, that we can give back and be rewarded for it – a great lesson for school children and adults alike.

This site provides the opportunity to learn from each other, build awareness of the need for trees in our landscape and their benefits. It also demonstrates that Councils are only one delivery agent for change and environmental action and that many people can be involved in many different ways.

This blog is a critical part of improving Centroc's understanding of what is happening in the region, the comments, actions and stories all work together to create an inspiring picture of all the great actions people are undertaking around the region. There is also potential for partnerships and collaborations to result from the blog as people find other people of a like mind and purpose to work and play with. This blog will be an important tool for Centroc in the development of future programming, securing funds for tree planting and recording the priorities and interests of our communities.

If you feel inspired to blog some great activity that you have undertaken or feel inspired to do something so that you can blog about it, head to www.shinyhalo.com and get blogging.

Shiny halo logo



Documents specifically referenced in this Report are:

- Central West Catchment Management Authority (2008) Catchment Information. Available www.cwma.nsw.gov.au
- Central West Catchment Management Authority (2009) Annual Report for 2008-09. Available from www.cwma.nsw.gov.au
- Department of Environment, Climate Change and Water (2009) Salinity Audit Upland Catchments of the New South Wales Murray-Darling Basin
- Goldney, D, Kerle, A and Fleming, M (2007) Threatening Processes – Status of vertebrate fauna and their habitats
- Murray Darling Basin Committee (2007) Sustainable Rivers Audit: Implementation Period 2 (2005-06) Summary Report
- NSW Department of Industry and Investment (2010) List of noxious weeds at www.dpi.nsw.gov.au/agriculture/pests-weeds/weeds/noxweed
- Western Catchment Management Authority (2007) Western Catchment Action Plan 2006-2016

A more detailed list of relevant references can be obtained from the 2008-09 Comprehensive Central West Regional State of the Environment Report.

Appendix – Data contributed by and sourced for Councils

| Issue | Sub-issue | Indicator | Unit of Measure | Bathurst | Blayney | Bogan | Bourke | Cabonne | Coonamble | Cowra | Dubbo | GiLGAAndra | Lachlan | Mid-Western | Narromine | Oberon | Orange | Warren | Warrumbungle | Wellington | Netwaste | Central West CMA | Lachlan CMA | Western CMA | | |
|---|-----------------------------------|---|---|-----------------------------|---------|-------|--------|---------|-----------|-------|-------|------------|---------|-------------|-----------|--------|--------|--------|--------------|------------|----------|------------------|-------------|-------------|--|--|
| Land degradation | Contamination | Contaminated land sites – contaminated land register | Number | | | | | | | | | | | | | | | | | | | | | | | |
| | | Contaminated land sites – potentially contaminated sites | Number | | | | | | | | | | | | | | | | | | | | | | | |
| | | Contaminated sites rehabilitated | Number | | | | | | | | | | | | | | | | | | | | | | | |
| Erosion | Erosion | Erosion affected area | sq km | | | | | | | | | | | | | | | | | | | | | | | |
| | | Erosion affected land rehabilitated | Hectares | | | | | | | | | | | | | | | | | | | | | | | |
| | | Salinity affected land rehabilitated | Location & sq km | | | | | | | | | | | | | | | | | | | | | | | |
| Air | Air pollution complaints | Air quality complaints to DECCW pollution line | Number of complaints | | | | | | | | | | | | | | | | | | | | | | | |
| | | Air quality complaints to Council | Number of complaints | | | | | | | | | | | | | | | | | | | | | | | |
| | | Premises reporting to national pollutant inventory (npi) | No. of facilities reporting | | | | | | | | | | | | | | | | | | | | | | | |
| | Increasing air pollution | Industrial pollution | Number of environment protection licences issued | No of licences | | | | | | | | | | | | | | | | | | | | | | |
| | | | Odour complaints received by Council | Number | | | | | | | | | | | | | | | | | | | | | | |
| | Urban air pollution | Odour | Odour complaints received by DECCW | Number | | | | | | | | | | | | | | | | | | | | | | |
| | | | Air quality testing results | Annual exceedances of PM 10 | | | | | | | | | | | | | | | | | | | | | | |
| Water | Dam levels | Dam levels (highest, lowest and average) | Volume % | | | | | | | | | | | | | | | | | | | | | | | |
| | | Annual volume released to rivers for environmental flows | GL | | | | | | | | | | | | | | | | | | | | | | | |
| | | Number of irrigation licences from surface water sources | Raw number | | | | | | | | | | | | | | | | | | | | | | | |
| | Surface & ground water extraction | Volume of surface water permissible for extraction under licences | Volume of surface water permissible for extraction under licences | Gigalitres (GL) | | | | | | | | | | | | | | | | | | | | | | |
| | | | Actual volume extracted through surface water licences | Gigalitres (GL) | | | | | | | | | | | | | | | | | | | | | | |
| | | Number of bore licences from groundwater resources | Kilolitres (KL) | | | | | | | | | | | | | | | | | | | | | | | |
| | | Volume of groundwater permissible for extraction under licences | Gigalitres (GL) | | | | | | | | | | | | | | | | | | | | | | | |
| | | Water sharing plans implemented | Number | | | | | | | | | | | | | | | | | | | | | | | |
| | Declining water quantity | Total number of serviced properties | Total number of serviced properties | Raw number | | | | | | | | | | | | | | | | | | | | | | |
| | | | Total number of unserviced properties | Raw number | | | | | | | | | | | | | | | | | | | | | | |
| | | | Annual metered supply | Megalitres | | | | | | | | | | | | | | | | | | | | | | |
| | | Town water consumption | Annual consumption (total from wtp) | Megalitres | | | | | | | | | | | | | | | | | | | | | | |
| | | | Average annual household use | Kilolitres per household | | | | | | | | | | | | | | | | | | | | | | |
| | | | Average water usage per connection type | Kilolitres per annum | | | | | | | | | | | | | | | | | | | | | | |
| | | | Water restrictions implemented | Level (1-5) | | | | | | | | | | | | | | | | | | | | | | |
| | | Council water consumption | Water conservation programs | Number participants | | | | | | | | | | | | | | | | | | | | | | |
| | | | Council managed parks, sportsgrounds, public open | Hectares | | | | | | | | | | | | | | | | | | | | | | |
| | | | Irrigated Council managed parks, sportsgrounds etc | Hectares | | | | | | | | | | | | | | | | | | | | | | |
| | Declining water quality | Industrial/agricultural pollution | Water used by Council for irrigation | Megalitres (ML) | | | | | | | | | | | | | | | | | | | | | | |
| | | | % Effluent reuse & location of reuse | % | | | | | | | | | | | | | | | | | | | | | | |
| | | | Load based licensing fees | Total paid in fees | | | | | | | | | | | | | | | | | | | | | | |
| | | Stormwater pollution | Exceedances of license discharge consent recorded | Raw number | | | | | | | | | | | | | | | | | | | | | | |
| | | | No. of trade waste approvals | Number in last year | | | | | | | | | | | | | | | | | | | | | | |
| Total volume of trade waste discharged to sewer | | | ML | | | | | | | | | | | | | | | | | | | | | | | |
| Erosion & sediment control complaints received by Council | | | Number | | | | | | | | | | | | | | | | | | | | | | | |

| Issue | Sub-issue | Indicator | Unit of Measure | Western CMA | Lachlan CMA | Central West CMA | Netwaste | Wellington | Warrumbungle | Warren | Orange | Oberon | Narromine | Mid-Western | Lachlan | GiLGAndra | Dubbo | Cowra | Coonamble | Cabonne | Bourke | Bogan | Blayney | Bathurst | |
|--|---|--|--------------------------------------|-------------|-------------|------------------|----------|------------|--------------|--------|--------|--------|-----------|-------------|---------|-----------|-------|-------|-----------|---------|--------|-------|---------|----------|--|
| Declining water quality Continued | Town water quality | Drinking water guidelines not met | Number of instances | | | | | | | | | | | | | | | | | | | | | | |
| | | Drinking water complaints | Number & Type | | | | | | | | | | | | | | | | | | | | | | |
| | Surface & ground water quality | Total nitrogen | % samples exceeding ANZECC guideline | | | | | | | | | | | | | | | | | | | | | | |
| | | <i>E. Coli</i> | | | | | | | | | | | | | | | | | | | | | | | |
| Waste water treatment | Septic tanks in LGA | | Number | | | | | | | | | | | | | | | | | | | | | | |
| | Septic related complaints | | Number | | | | | | | | | | | | | | | | | | | | | | |
| | | Proportion of annual failed wastewater treatment plant inspections | % | | | | | | | | | | | | | | | | | | | | | | |
| Biodiversity | Vegetation protected and rehabilitated through CMA incentive funding | | Hectares | | | | | | | | | | | | | | | | | | | | | | |
| | Council reserves – total area | | Hectares | | | | | | | | | | | | | | | | | | | | | | |
| | Council reserves – bushland/riparian vegetation | | Hectares | | | | | | | | | | | | | | | | | | | | | | |
| | Habitat areas revegetated | | Hectares | | | | | | | | | | | | | | | | | | | | | | |
| | Extent (area) of native vegetation | | Hectares | | | | | | | | | | | | | | | | | | | | | | |
| | Project agreements with landholders | | Number | | | | | | | | | | | | | | | | | | | | | | |
| | Environmental volunteers working on public open space | | Person Hours | | | | | | | | | | | | | | | | | | | | | | |
| | Cleaning complaints | | Number | | | | | | | | | | | | | | | | | | | | | | |
| | Riparian vegetation recovery actions | | Number | | | | | | | | | | | | | | | | | | | | | | |
| | Riparian vegetation recovery area | | Hectares | | | | | | | | | | | | | | | | | | | | | | |
| | Roadside vegetation management plans | | Number | | | | | | | | | | | | | | | | | | | | | | |
| | State threatened species recorded in LGA | | Number & list of species | | | | | | | | | | | | | | | | | | | | | | |
| | Threatened species actions implemented (e.g. PAs, recovery plans) | | Number | | | | | | | | | | | | | | | | | | | | | | |
| | Threatened and invasive species | Fish restocking activities | Number & list of species | | | | | | | | | | | | | | | | | | | | | | |
| | | Noxious weeds extent | Hectares | | | | | | | | | | | | | | | | | | | | | | |
| | Actions taken to manage the impact and spread of invasive species | | Hectares (approximate) | | | | | | | | | | | | | | | | | | | | | | |
| Invasive species under active management | | Number of species | | | | | | | | | | | | | | | | | | | | | | | |
| Number of declared noxious weeds | | Number of species | | | | | | | | | | | | | | | | | | | | | | | |
| Human settlement | Land use zones – area | | sq km | | | | | | | | | | | | | | | | | | | | | | |
| | Number of development consents and building approvals | | Number | | | | | | | | | | | | | | | | | | | | | | |
| | Landuse conflict complaints | | Number | | | | | | | | | | | | | | | | | | | | | | |
| | New road construction | | km | | | | | | | | | | | | | | | | | | | | | | |
| | Road upgrades | | km | | | | | | | | | | | | | | | | | | | | | | |
| | Inclusion in dtps & rural strategies | | Yes/No | | | | | | | | | | | | | | | | | | | | | | |
| | Extent of liaison with aboriginal communities | | Rank (0 = none, 3 = High) | | | | | | | | | | | | | | | | | | | | | | |
| | Development on listed aboriginal sites | | Number approvals | | | | | | | | | | | | | | | | | | | | | | |
| | Management plan/ strategy in place | | Yes/No, Date | | | | | | | | | | | | | | | | | | | | | | |
| | Management actions/ responses | | Number | | | | | | | | | | | | | | | | | | | | | | |
| | National heritage items | | Number and type | | | | | | | | | | | | | | | | | | | | | | |
| | Nsw heritage inventory items | | Number and type | | | | | | | | | | | | | | | | | | | | | | |
| | Locally listed heritage items | | Number and type | | | | | | | | | | | | | | | | | | | | | | |
| | Actions to protect non-aboriginal heritage (including management plans) | | Number | | | | | | | | | | | | | | | | | | | | | | |
| | Heritage buildings on statutory heritage lists renovated/improved in past year | | Number | | | | | | | | | | | | | | | | | | | | | | |
| | Heritage buildings on statutory heritage lists demolished/degraded in past year | | Number | | | | | | | | | | | | | | | | | | | | | | |
| Noise complaints received by Council | | Type & Number | | | | | | | | | | | | | | | | | | | | | | | |
| Noise complaints received by Council | | Number | | | | | | | | | | | | | | | | | | | | | | | |
| Noise pollution | | Number | | | | | | | | | | | | | | | | | | | | | | | |
| Noise complaints received by DECCW | | Number | | | | | | | | | | | | | | | | | | | | | | | |

| Issue | Sub-issue | Indicator | Unit of Measure | Western CMA | Lachlan CMA | Central West CMA | Netwaste | Wellington | Warrumbungle | Warren | Orange | Oberon | Narromine | Mid-Western | Lachlan | GiLGAndra | Dubbo | Cowra | Coonamble | Cabonne | Bourke | Bogan | Blayney | Bathurst | |
|------------------------------|---|--|--|----------------------------|-------------|------------------|----------|------------|--------------|--------|--------|--------|-----------|-------------|---------|-----------|-------|-------|-----------|---------|--------|-------|---------|----------|--|
| Waste | Waste generation | Total waste received at primary landfill | Tonnes/annum | | | | | ● | ● | | | | | | | | | | | | | | | | |
| | | Total waste collected at other landfills (exc recyclables) | Tonnes/annum | | | | | ● | ● | | | | | | | | | | | | | | | | |
| | | Average total waste generated per person | Tonnes/annum (Compare to national average) | | | | | ● | ● | | | | | | | | | | | | | | | | |
| | | Average cost of waste service per person | \$ per household | | | | | ● | ● | | | | | | | | | | | | | | | | |
| | Waste generation & disposal | Hazardous/liquid waste | Drumster collections | No. drums &/or tonnes | | | | | ● | ● | | | | | | | | | | | | | | | |
| | | | Office paper used by Council | No. A4 reams ordered p.a. | | | | | ● | ● | | | | | | | | | | | | | | | |
| | Waste generation & disposal | Reduce | Garden organics collected (diverted from landfill) | Tonnes | | | | | ● | ● | | | | | | | | | | | | | | | |
| | | | E-waste diverted from landfill | Tonnes | | | | | ● | ● | | | | | | | | | | | | | | | |
| | Waste generation & disposal | Recycle | Recycling services available in each LGA inc private collections | Tonnes | | | | | ● | ● | | | | | | | | | | | | | | | |
| | | | Volume of material recycled | Number Categories & tonnes | | | | | ● | ● | | | | | | | | | | | | | | | |
| Waste generation & disposal | Littering and illegal dumping | Volume of material recycled | kg / person | | | | | ● | ● | | | | | | | | | | | | | | | | |
| | | Annual volume of litter collected by streetsweeper | Tonnes | | | | | ● | ● | | | | | | | | | | | | | | | | |
| Waste generation & disposal | Littering and illegal dumping | Illegal waste disposal complaints to Council | Number & tonnes | | | | | ● | ● | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |
| Toward sustainability | | | | | | | | | | | | | | | | | | | | | | | | | |
| Sustainable practices | Sustainable agriculture | Sustainable farming initiatives undertaken with CMA funding | Hectares | | | | | | | | | | | | | | | | | | | | | ● | |
| | | Certified organic producers | Number | | | | | | | | | | | | | | | | | | | | | ● | |
| | Council & community sustainability | Council sustainability initiatives | survey score | | | | | | | | | | | | | | | | | | | | | | |
| | | Council sustainability plan? | Yes/No | | | | | | | | | | | | | | | | | | | | | | |
| | | Sustainability incorporated into Council plans/instruments? | Yes/No | | | | | | | | | | | | | | | | | | | | | | |
| Climate change | Adaptation to future impact of climate change | Sustainability outcomes integrated into project objectives? | Yes/No | | | | | | | | | | | | | | | | | | | | | | |
| | | Community sustainability initiatives | Number of participants | | | | | | | | | | | | | | | | | | | | | | |
| | Mitigation | Council adaptation initiatives | Yes/No | | | | | | | | | | | | | | | | | | | | | | |
| | | Council mitigation initiatives | survey score | | | | | | | | | | | | | | | | | | | | | | |
| | | Council plan focused on climate change adaptation/mitigation? | Yes/No | | | | | | | | | | | | | | | | | | | | | | |
| Climate change | Adaptation to future impact of climate change | Climate change adaptation/mitigation in Council plans/instruments? | Yes/No | | | | | | | | | | | | | | | | | | | | | | |
| | | Council projects with climate change adaptation/mitigation objectives? | Yes/No | | | | | | | | | | | | | | | | | | | | | | |
| | Mitigation | No. of Council owned facilities consuming electricity | Number | | | | | | | | | | | | | | | | | | | | | | |
| | | Annual electricity consumption for Council facilities | MWh | | | | | | | | | | | | | | | | | | | | | | |
| | | Council facilities consuming greenpower (relate to state govt goal of greenpower uptake) | Number and % | | | | | | | | | | | | | | | | | | | | | | |
| Climate change | Adaptation to future impact of climate change | No. of Council owned facilities consuming gas | Number | | | | | | | | | | | | | | | | | | | | | | |
| | | Annual gas consumption for Council facilities | Gigajoules | | | | | | | | | | | | | | | | | | | | | | |
| Climate change | Adaptation to future impact of climate change | Total fuel consumption of Council's heavy vehicle fleet | Total kilolitres per annum | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | |

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

● Data contributed but not compared in summary tables

Looking across Kandos
towards Cox's Crown/
Wollemi







Printed on recycled paper