Regional State of the Environment Report

2010–2011
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

Central West catchment management authority

Acknowledgements

The preparation of the Regional State of the Environment (SoE) Report 2010-11 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 Comprehensive Report produced in 2008-09 and the Supplementary Report produced in 2009-10.

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.molinostewart.com.au

Design:
Wild Red Frog Design
Phone: (02) 9975 3305

Contents

Abbreviations

ANZECC	Australian and New Zealand Environment Conservation Council
CANFA	Conservation Agriculture and No-till Farming Association
CAP	Catchment Action Plan
Centroc	Central West Regional Organisation of Councils
CMA	Catchment Management Authority
DPI	Department of Primary Industries
EC	Electrical Conductivity
EEC	Endangered Ecological Community
GL	Gigalitre
GPT	Gross Pollutant Trap
ha	Hectare
kL	Kilolitre
LBL	Load-based Licensing
LEP	Local Environmental Plan
LGA	Local Government Area
ML	Megalitre
NPI	National Pollutant Inventory
NSW	New South Wales
OEH	Office of Environment and Heritage
PAS	Priorities Action Statement
PoEO	Protection of the Environment Operations
PVP	Property Vegetation Plan
REC	Roadside Environment Committee
RFS	Rural Fire Service
RVMP	Roadside Vegetation Management Plan
SoE	State of the Environment
TAGI	That's a Good Idea
WONS	Weeds of National Significance
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

The breaking of the drought across the region over the past eighteen months was welcomed by all, but it certainly brought to mind the adage "it never rains but it pours".

The rainfall not only revived the natural resources of the catchment but also the communities that live off the land, with farmers - for the main part - reporting good results for both cropping and grazing.

For local Councils the rainfall increased dam and groundwater levels, once more assuring town water supplies. However, the downside to all of this was the quantity of water that came off the land. It flowed out of dams causing flooding, and into the catchment rivers and creeks causing not only damage to infrastructure but also to our riparian zones.

This flooding left many Councils with the huge task of repairing roads and fixing bridges and other infrastructure, whilst trying to carry on with business as usual. Fortunately, State and Federal funding is available to help repair damage to infrastructure, but what of the damage caused to our natural resources?

Across the catchment Councils were reporting severe erosion problems that not only threaten the health of our waterways but, if left, will threaten infrastructure in future events. With variations to climate these events can be anticipated to happen more frequently and with growing intensity. Regrettably, for this damage there is no recognised source of funding to assist with repair.

RIGHT Callistemon or Bottlebrush is a genus of 34 species of shrubs in the family Myrtaceae, all of which are endemic to Australia.

ABOVE Ben Chifley Dam, Bathurst (source: David McKellar).

The matter has been taken up with both the State and Federal Governments, with the Federal Government able to provide some small one-off funding during the year to the Central West CMA, which went towards restoration works on the Macquarie River at Wellington but still leaves many other areas awaiting rehabilitation (see the case study on page 13).

What we can do though is recognise that there is a wide range of constructive activities we can undertake ourselves to protect our waterways such as ensuring that: riparian zones remain well-vegetated or are revegetated and buffered from development; Floodplain Risk Management Plans are updated and in place; and new and future development is sited away from sensitive areas and is designed to reduce impermeable surfaces, as well as taking advantage of opportunities for water re-use at site.

The Central West CMA commends the Councils for their efforts to protect our local environments and is once again pleased to support the 17 regional Councils in the preparation of this Supplementary Regional State of the Environment Report.

Tom Gavel
Chairman
Central West Catchment Management Authority

Robert Gledhill
Chairman
Lachlan Catchment Management Authority

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 1993 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.

The *Local Government Act 1993* was amended in 2009. The amendments promote the 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 overarching 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

BELOW A morning stroll in the Central West.

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 Supplementary 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 fourth Regional SoE Report supported by the Central West CMA. It builds upon the first (Supplementary) Regional SoE Report produced for 2007–08, the second (Comprehensive) Regional SoE Report produced for 2008–09 and the third (Supplementary) Regional SoE Report produced for 2009–10.

As this is a Supplementary Report, it primarily covers trends in environmental indicators and responses in 2010–11 and compares this to the previous year.

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.

ABOVE Re-vegetation works, Macquarie River, Bathurst (source: David McKellar).

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.

NSW Department of Local Government

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 Cowra and parts of Blayney, Lachlan, Cabonne, Bathurst and Oberon lie in the Lachlan Catchment. Parts of Mid-Western 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
- Narromine Shire Council
- Oberon Council
- Orange City Council
- Warren Shire Council
- Warrumbungle Shire Council
- Wellington Council

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

What are Catchment Management Authorities?

Thirteen 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.

A list of Councils that provided data for each indicator is found in the appendix of this Report.

Where data for 2008–09 and 2009–10 is available, it is provided along with data for 2010–11 in a summary table at the commencement of each theme chapter. Some data for the previous years in the summary tables is not directly comparable to that shown for the reporting year (2010–11). This is due to either recalculation of the previous data or a change in the Councils included in the comparison. Due to this, the trend arrows in the summary tables only relate to a comparison of this year's data with the previous year's (2009–10) data, where direct comparison can be made. The trend arrows used in the summary tables are:

- 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

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 Office of Environment and Heritage (OEH) maintains a Register of Contaminated Sites (www.environment.nsw.gov.au/whoweare/registers.htm). All participating Councils also maintain a list of potentially contaminated sites based on past land use.

Table 1: Summary table of indicator trends – Land Degradation

Issue	Indicator	2008–09	2009–10	2010–11	Current Trend
Contamination	Contaminated land sites—Contaminated Land Register	5	6	8	↓
	Contaminated land sites—potentially contaminated sites	886	876	876	→
	Contaminated sites rehabilitated	16	11	7	↓
Erosion	Erosion affected land rehabilitated (ha)	14,214	588	92	↓

→ no or little change
↓ worsening trend

Note – the above table provides data for 2008–09, 2009–10 and 2010–11 from the same sources. The 'Current Trend' arrow relates to a comparison of last year's (2009–10) data with this year's (2010–11) data. Data should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2010–11 for which no comparison can be made with previous years. Refer to the Appendix for a list of Councils included in the trend data.

Indicator – Number of contaminated land sites (Contaminated Land Register)

As shown in the summary table (Table 1), the number of sites in the Register of Contaminated Sites across the region increased from six to eight in 2010–11. The two new sites added to the register were in Cabonne (gas works) and Lachlan (fuel depot) LGAs. Currently, there are two sites in Dubbo LGA, and one each in Bathurst, Cabonne, Cowra, Lachlan, Oberon and Orange LGAs.

Indicator – Number of contaminated land sites (potentially contaminated sites)

In 2010–11, local Councils across the reporting region identified 895 potentially contaminated sites. As shown in the summary table (Table 1), for those Councils that have reported in previous years there was the same number of sites identified in 2010–11 as in 2009–10.

Lachlan Shire Council reported potentially contaminated sites for the first time, with a total of 19 sites identified comprising all service stations, garbage depots and workshops. Cabonne, Coonamble and Gilgandra Councils also reported significant increases, totalling a further 23 new potentially contaminated sites. Warrumbungle Shire Council was the only Council reporting a decrease in the number of sites. This indicates 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 four years where reported by Councils.

Erosion

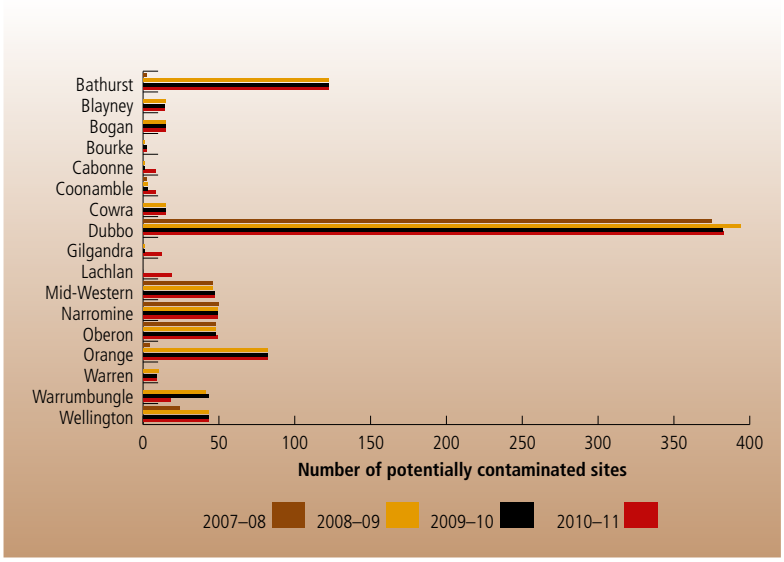
Erosion is a significant factor that influences water quality in our streams, habitat quality and land use potential. Erosion generally occurs where land has been disturbed or where water concentrates, such as unsealed roads, roadsides and driveways, agricultural areas through cropping, land clearing 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, loss of soil health and sedimentation of waterways.

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.

ABOVE Cotton fields in Bourke.

Figure 2: Number of potentially contaminated sites in each LGA.



Threat

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

1. Land clearing
2. Poor agricultural practices
3. Inappropriate development and land use change (including mining see below)
4. Climate change
5. Waste disposal (legal and illegal)

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

Mining

The boom in global demand for Australian resources continues to have a significant impact on the economy of the Central West of NSW. In many areas, mining is a major employer and exploration for new commercial deposits is widespread across the region. The resources industry provides job opportunities for many people who in other times would have been forced to leave the region to find work and it also brings new people into the region. Mining can have regional benefits but may also put social pressure on some regional towns. The number and scale of active mines and exploration projects can threaten the local environment through possible contamination of groundwater, vegetation clearance and subsidence affecting surface water.

Indicator - Area covered by mining and mining exploration projects

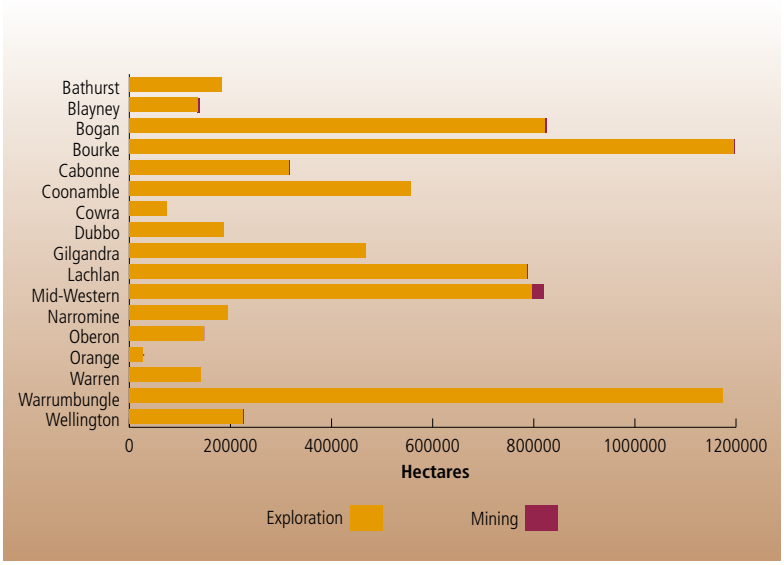


Figure 3: *Total area covered by mining and mining exploration projects.*

Indicator - Number and type of operating mines and quarries, licenced under the PoEO Act

These are new indicators for this reporting period so no comparison with previous years is possible.

There is a significant area currently covered by exploration titles across every one of the 17 LGAs with the largest areas being in the Bourke and Warrumbungle LGAs, both having more than one million hectares under exploration titles. The total across the whole region is 7,426,548 hectares (approximately 5% of the reporting area).

There are operating mines in 10 of the 17 LGAs with the largest area being the 87 active mining leases covering 22,382 hectares in the Mid-Western LGA. The Mid-Western LGA also has the largest number of exploration leases (75), covering approximately 90% of the LGA. The other active mining leases are in the Bathurst, Blayney, Bogan, Bourke, Cabonne, Cowra, Lachlan, Oberon and Wellington LGAs. Figure 3 shows the total area under both exploration and mining leases by LGA.

Response

Contamination

Indicator – Number of contaminated sites rehabilitated

Fourteen of the 17 participating Councils reported on this indicator for 2010–11. As shown in Table 1, they reported that seven sites across the region have been rehabilitated. This is a reduction from the 11 sites reported as rehabilitated in 2009–10 and continues the downward trend reported last year.

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 improved organic content of soils as well as farm planning.

CASE STUDY: Stabilisation of the Bell River at Wellington

For the last 40 years, the Bell River near the confluence with the Macquarie River at Wellington, has suffered acceleration in bank erosion.This accelerated erosion is directly attributable to the irrigation and environmental storage requirements and flood mitigation management of the Burrendong Dam under the control of State Water and the Office of Water.

While Wellington accepts the resulting controlled flows from Burrendong Dam benefit all communities downstream it is evident one of the unintended consequences is severe erosion in the Bell River environs at Wellington.

Major flood events in 1976, 1990, 1998, 2005 and 2010 have resulted in major bank erosion, particularly in the section immediately before the Bell River meets the Macquarie River.

The 2010 flood events have further eroded a considerable section of the Bell River bank on private property. There is now a significant risk the next major flood event will:

- cut a direct channel to the Macquarie River thus impinging on the existing low level road bridge across the Macquarie at Oxley Park
- create an unsatisfactory right angled entry to the Macquarie with the potential to create further disturbed flow patterns in both rivers
- remove more soil from private property and further degrade the riverine environment with loss of significant landscape including significant trees.

Protective riprap work has been undertaken adjacent to Cameron Park and the Polo fields and this has been successful in stabilising the river banks at these locations.

Wellington Council is seeking funding assistance to install bank protection to hold the river alignment created earlier this year and maintain the existing entry alignment of the Bell River to the Macquarie River. Together with planting of appropriate native species, it is believed the riverine environment of the Bell River can be rehabilitated and protected into the foreseeable future.

The initial funding sought is an estimated $710,000 for the junction of the Bell and Macquarie Rivers and further $832,520 in stages to protect other upstream urban and rural areas.

The accompanying photo from the 1998 flood showing the suspended fence across the river visibly demonstrates the amount of bank erosion resulting from one flood event. A similar amount of bank was lost during the 2010 flood events.

Riverbank erosion on the Bell River, Wellington.

CASE STUDY: 'Reveg the Sedge' Project (Lachlan)

The 'Reveg the Sedge' project was proposed by Western Plains Regional Development Inc and Lachlan Shire Council. The project involves the replanting of the southern bank of the Lachlan River at Condobolin with native sedge grass. The project also involves the creation of a walking path along the river bank with decorative terrazzo cement tiles and interpretative signage placed along the path.

Background

The 'Reveg the Sedge' project is also related to a project known as 'Weaving Wellbeing'. This project is supported by Western Plains Regional Development Inc, the Wiradjuri Arts Group, the Lachlan Arts Council, West Women Weaving, Arts OutWest, Orange Local Aboriginal Lands Council and Western NSW Local Health Network through the provision of workshop and gallery space, artistic expertise and mentoring programs. The project aims to build skills in the techniques of basket weaving and the manufacturing of terrazzo tiles amongst the Indigenous community so that Indigenous artworks may be placed in public spaces within the buildings and grounds of Orange Base Hospital. The goal is to mark the hospital as a regional place of importance to Aboriginal peoples, thereby creating a sense of ownership for Aboriginal people.

The project utilises sedge grass as a resource for weaving and local ochre and soil for the terrazzo. Woven baskets are to be hung above windows that overlook internal courtyards. The terrazzo tiles are to be designed and laid within the courtyards to represent the path of the Lachlan River, flowing from Forbes through Condobolin and on to Lake Cargelligo.

Spiny Sedge (*Cyperus gymnocaulos*) is an important fibre traditionally used by Indigenous peoples of the Wiradjuri nation in the Lachlan River catchment to weave baskets. Known locally as 'sedge grass', it was common along waterways in the area but its occurrence has dwindled over the past decade due to prolonged drought conditions. The plant is a wetland plant and requires a permanent water supply to propogate.

The natural resource for the Weaving Wellbeing project is however in short supply due to the drought. Plants are required to be of a particular height and quality, and suitable plants are generally unavailable within 200 kilometres of Condobolin.

In order to ensure supply of sedge grass for the Weaving Wellbeing project, sedge grass seedlings are collected from the shore of Lake Cargelligo. The seedlings are then propagated in an irrigated shade house within the grounds of the Lachlan CMA offices.

Once sufficiently hardy, specimens are then planted along that southern bank below the high water mark in the vicinity of the recreation facilities within the Reserve Area, between the Diggers Avenue bridge and the junction of the Lachlan River and Goobang Creek. The planting area is to be specified as being between contours along the river bank, beneath the top of bank. These contours were surveyed and pegged to mark the area to be replanted.

OPPOSITE Blasting at Wilpinjong Mine, Mid-Western LGA.

The Central West Catchment Action Plan (CAP) (2006) 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 (MTSS1)'.

In its update of the 2006–16 CAP (Central West CMA, 2010), the Central West CMA reported that the two targets for perennial plantings have both been exceeded and jointly cover 99,542 ha.

Erosion

Indicator – Extent of erosion affected land rehabilitated

The Central West CMA reported during the year that 90 ha of water ponding and water spreading projects were undertaken during the year to rehabilitate erosion affected land. There were a further three hectares reported as rehabilitated across the Coonamble and Mid-Western LGAs. This is a significant contraction from the 574 ha reported across the Central West CMA in 2009–10 and continues the downward trend from the previous year mainly due to a decrease in available funding and an emphasis on improved management through farm plannng courses. However, the Central West CMA notes that land that uses best management practices for soil health covers

Project objectives

The objectives of the Reveg the Sedge project are to:

a) facilitate the survival of sedge grass by revegetating a section of the banks of the Lachlan River with this endemic species,
b) demonstrate a means to sustainably manage the natural environment by restoration of a riparian zone and prevention of further erosion and degradation,
c) ensure the supply of sedge grass for the Weaving Wellbeing project,
d) provide an informative and interesting recreation facility that promotes an understanding of an aspect of Indigenous culture,
e) strengthen partnerships between organisations such as Lachlan Shire Council, the Lachlan CMA, Western Plains Regional Development Inc, Condobolin Local Aboriginal Lands Council and state agencies, and
f) provide the site and the work to allow for the successful implementation of the links to learning objectives, in building skills within Indigenous school students relevant to their culture, interests and potential job prospects.

Summary

The 'Reveg the Sedge' project will bring substantial social, economic and environmental benefits to the community of Condobolin and the surrounding region.

The walking path under construction

402,475 ha as a result of several of its CAP initiatives.

Salinity

Indicator – Extent of salinity affected land rehabilitated

The Central West CMA reported that no additional salinity recovery actions were funded during 2010–11. This continues the worsening trend reported last year, due to funding availability. Other programs such as revegetation programs and perennial planting have positive impacts.

Air

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.

OPPOSITE Methane flare at the Bathurst waste management centre (source: David McKellar).

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.

Table 2: Summary table of indicator trends – Air Pollution

Issue	Indicator	2008–09	2009–10	2010–11	Current Trend
Regional Air Quality	Number of days that air pollution maximum goals for particulate matter were exceeded*	5	8	0	↑
Air Quality Complaints	Number of air quality complaints to OEH Pollution Line	103	45	148	↓
	Number of air quality complaints to Council	101	112	131	↓
Odour	Number of odour complaints received by Council	120	89	117	↓
	Number of odour complaints received by OEH	25	89	50	↑
Industrial Pollution	Number of premises on the National Pollution Inventory	51	50	46	↑
	Number of Environment Protection Licences issued	202	194	192	↑

*data collected at Bathurst – only monitoring station

↑ improvement
↓ worsening trend

Note – the above table provides data for 2008–09, 2009–10 and 2010–11 from the same sources. The 'Current Trend' arrow relates to a comparison of last year's (2009–10) data with this year's (2010–11) data. Data should be read in terms of the limitations for indicators discussed throughout this chapter. Note also that there are some new indicators for 2010–11 for which no comparison can be made with previous years. Refer to the Appendix for a list of Councils included in the trend data

Issue – Air Pollution

Condition

Regional Air Quality

Much of the regional air quality monitoring in NSW is confined to the Greater Metropolitan area which includes Sydney, Wollongong and Newcastle. The OEH monitors at one site in the reporting region, Bathurst; however, ozone and particulates are the only air pollutants measured at this site (other sites in NSW also measure nitrogen dioxide, visibility, carbon monoxide and sulphur dioxide). Particulates can include 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

During the 2010-2011 reporting year there were no days where particulate matter exceeded the National Environment Protection Measure standard for PM10 particles (which is an average daily reading of 50 micrograms per cubic metre). PM10 is used to define air particles that are up to 10 micrometers in diameter and are among the coarser particles that can be measured in air quality analysis.

This was a marked improvement in 2010–11 from the total of eight and five exceedances during the previous two years. This change is probably due to the wetter conditions experienced in the region over the year as 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 the OEH Pollution Line

Indicator–Number of air quality complaints to local Councils

As shown in the summary table (Table 2), the number of complaints to the local Councils about air quality matters (not including odour issues) increased markedly in comparison to both the previous two years. Complaints reported to the OEH Pollution Line also showed a significant increase from 45 in 2009–10 to 148 in the 2010–11 year which could be due to complaints arising from increased mining activity.

ABOVE Morning fog at Borenore, Cabonne.

There were a total number of 131 air quality complaints to Councils in 2010–11 from all 17 participating Councils. The types of air quality complaints across the Council areas are shown in Figure 4 and overall they are spread reasonably evenly across the four categories of burn-offs, dusts, wood smoke and other. This is a change from previous years where dust and burn-offs were the main specified air quality complaints.

The geographic distribution of complaints has also changed this year. Dubbo LGA is still the largest single contributor but its complaints fell from 54 in 2009–10 to 34 this year. By contrast, increases in complaints were reported by ten of the 17 local Councils.

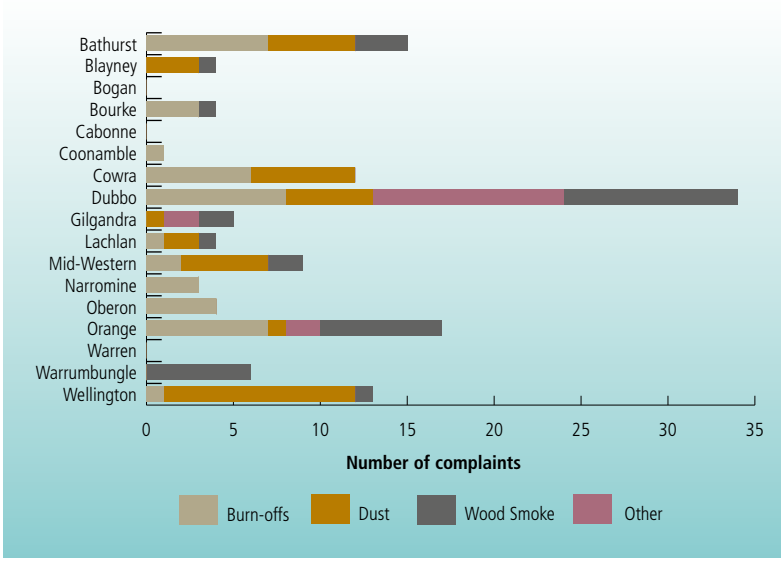


Figure 4: Types of air quality complaints to local Councils in 2010–11.

ABOVE Clear skies over Obley Road, Cabonne.

Odour

Indicator – Number of odour complaints received by Council

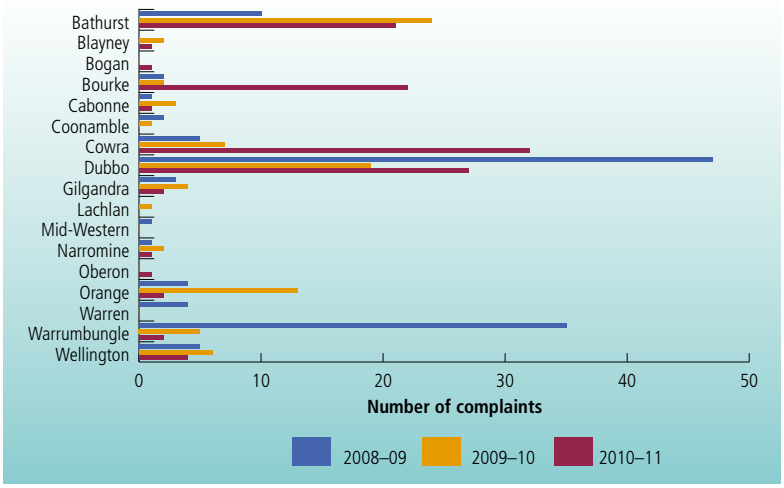
Indicator – Number of odour complaints received by OEH Pollution Line

The 17 participating local Councils reported that there were 117 odour complaints received in 2010–11, which is a significant increase from the 89 reported in the 2009–10 reporting year and is very similar to the 120 complaints in the 2008–09 year. Figure 5 shows the number of odour complaints received by each Council during the reporting period compared with the previous two years.

The two LGAs reporting the most significant increase in the number of complaints were Bourke (from two in 2009–10 to 22 in 2010–11) and Cowra (from seven to 32). Nineteen of the complaints received in the Bourke LGA were due to a large fish kill in the Darling River caused by blackwater from the major flooding event.

By contrast, there were 50 odour complaints received by the OEH Pollution Line in 2010–11, which is a significant reduction from the 89 reported in 2009–10. However, this is still an increase from the 25 complaints reported in 2008–09. It is possible that Councils are receiving more complaints from the one-off exceptional events like the Bourke fish kill and that the OEH Pollution Line tends to receive complaints for more persistent odour issues.

Figure 5: Number of odour complaints received by Councils.



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 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 has reduced slightly in the last year, with 46 in the most recent year (2010–11) compared with 51 in the previous NPI reporting period. The reductions occurred in the Bourke, Dubbo and Mid-Western LGAs.

Indicator – Number of Environment Protection Licences issued

There are currently 192 active Environment Protection Licences (including air, water pollution discharges) for premises across the reporting area, as issued by the OEH under the *Protection of the Environment Operations Act 1997* (PoEO Act). As shown in the summary table (Table 2), this is a small reduction from the 194 active licences in 2009–10 and builds on the reduction from 202 in the 2008–09 year which suggests that an improving trend in the potential for regulated air and water pollution is being established.

Response

Fires

Hazard reduction burns and limiting the impact of smoke from these is managed through Bushfire Risk Management Plans, developed by the local Bushfire Management Committee which is comprised of local land managers including local Councils, OEH, Crown Lands Division 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

Under the PoEO Act emissions from scheduled premises are regulated by the OEH. In general, emissions and air quality complaints from non-scheduled premises are regulated by local Councils.

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.

Bathurst Regional Council has a 2011 Woodheater Rebate Program to help reduce pollution in the region. Bathurst residents can receive financial assistance to replace older style woodheaters with cleaner and more efficient alternatives. The rebate is open for a wide variety of heating alternatives including fixed flue gas, reverse cycle, central heating, and electric heat pump heating. Dubbo City Council has an annual Clean Air/Woodsmoke awareness program for residents.

BELOW Urban sunset at Mudgee.